KITCHELL

99 S. Almaden Road, Suite 600
San Jose, CA 95113

December 22, 2021

Subject: **Bid Package #2**
Abbott Middle School HVAC Replcmt-DSA 01-119556
George Hall Elementary School HVAC Replcmt-DSA 01 119523
Laurel Elementary School HVAC Replcmt DSA 01-119551
San Mateo - Foster City School District

ADDENDUM NO. 3

CHANGES AND/OR CLARIFICATIONS OF THE DRAWINGS AND SPECIFICATIONS ARE AS FOLLOWS FOR THE COMBINED THREE DSA PROJECTA ASSOCIATED WITH BID PACKAGE NO.2:

RFCHANGES AND/OR CLARIFICATIONS OF THE DRAWINGS AND SPECIFICATIONS ARE AS FOLLOWS FOR THE THREE DSA PROJECTA ASSOCIATED WITH BID PACKAGE NO.1. PLEASE NOTE THAT THIS ADDEDUM IS BEING ISSED IN A COMBINED PACKAGE IN Five PARTS.

Part 1. Cover section addressing all three projects with overlapping information impacting each campus project.

Part 2. Addendum documentation exclusively for Abbott Middle School Project.

Part 3. Addendum documentation exclusively for George Hall Elementary School Project.

Part 4. Addendum documentation exclusively for Laurel Elementary School Project.

Part 1. Cover section addressing all three projects with overlapping information impacting each campus project.

RFI QUESTION

ITEM NO 3.1 **Question,** "Can I get the sign in sheet(s) for these job walks?"
Response, Yes, the pre-bid walk sign sheets from December 1, December 8 and December 15, 2021, have been posted to the District's web site and *are included within this addendum.*

ITEM NO 3.2 **Question,** "Do the qualified Mechanical Electrical and Plumbing sub-contractors need to adhere to the Quality Bidder authorized financial limits if bidding to a Pre-Approved General Contractor?
Response, "As to the current financial limits placed upon the various MEP sub-contractors for SM-FCSD, if the MEP sub-contractor are bidding directly to a project General Contractor (also pre-qualified by Quality Bidders), then the MEP sub-contractor does not need to comply with the financial limits applied to them."

ITEM NO 3.3 **Question**, the notice inviting bids and as stated at the pre-bid walks, the District uses propriety products, please confirm?

Response, "Yes, as stated within Document 00 11 16-NOTICE TO BIDDERS/INVITAION TO BID The District's Board has found and determined that the following item(s) shall be used on

this Project based on the purpose(s) indicated. (Public Contract Code section 3400(c).) A particular material, product, thing, or service is designated by specific brand or trade name for the following purpose(s):

In order to match other products in use on a particular public improvement either completed or during completion.

- Door Hardware (Schlage)
- Energy Management System (Delta)
- Fire Alarm System (Notifier)"

SPECIFICATIONS

ITEM NO. 3.4: DOCUMENT 00 11 16 - NOTICE TO BIDDERS/INVITATION TO BID

Add: DOCUMENT 00 11 16 - NOTICE TO BIDDERS/INVIATION TO BID section number 3 has been modified to read as noted below. The Notice inviting Bidders has not been reissued. All prequalification questionnaires will be received until **4:00 P.M., December 30 ~~28,~~ 2021** through Quality Bidders using their web link at **www.qualitybidders.com**

ITEM NO. 3.5: DOCUMENT 00 41 13 BID FORM

Revise item 3: Unit Price(s) Unit Price #2- delete reference to SAMSUNG unit. Request is rewritten as follows.

_____**Dollars $_____**

Classroom Split System Heat Pump-~~SAMSUNG~~ Unit, with associated equipment as listed within section 01 23 00 Alternative and Unit Pricing. **Additive price**

ITEM NO. 3.6: DOCUMENT 00 45 10 AGREEMENT

Revise item 6, Liquidated Damages, section to rea d as follows:
"Liquidated Damages: Time is of the essence for all Work to be performed. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that District will sustain in the event of and by reason of Contractor's delay; therefore, pursuant to Government Code section 53069.85 and Public Contract Code section 7203, Contractor shall forfeit and pay to District the following sum(s) as liquidated damages ("Liquidated Damages"):

- **Submittal of any item on approved Submittal Schedule: Five Hundred Dollars & No Cents (<u>$500.00)</u>** per day as Liquidated Damages for each and every day's delay beyond the time herein prescribed for each item on approved Submittal Schedule.
- **Milestone No. 1: February 15,2022** – Mechanical Unit Shop Drawings Due.
- **Milestone No. 2: All other product submittals and shop drawings are due within thirty-five days of Notice to Proceed** except or pay Five Hundred Dollars & No Cents per outstanding submittal ($500.00) per day as Liquidated Damages for each and every day's delay beyond the time herein prescribed in finishing the Work of Milestone No. 2.
- **Milestone No. 3: August 5,2022** – School Staff on Site – Site must have power, Operational HVAC units and all areas cleaned per the District's cleaning specification. **One Thousand Dollars & No Cents (**$1,000.00) per day as Liquidated Damages for each and every day's delay beyond the

Contract Time to complete all the Work.

- **Milestone No. 4: October 28, 2022, Project Completion. One Thousand Dollars & No Cents (**$1,000.00) per day as Liquidated Damages for each and every day's delay beyond the Contract Time to complete all the Work.

ITEM NO. 3.7: DOCUMENT 01 11 00 – SUMMARY OF WORK with ATTACHMENTS

Add: The specification section in its entirety has been replaced posti8ngf scope of work for all Bid Package #2 project campuses, Abbott MS, George Hall ES and Laurel ES with the additional of attached documents as indicated below.

Attachments included within the summary of work:

1. SMFCSD CONTRACTOR COVID 19 ADDENDUM (1 PAGE)
2. SMFCSD DEEP CLEANING AND MATERIAL STANDARDS (1 PAGE)
3. SMFCSD SUMMER SPECIFICATION FOR DEEP CLEANING (1 PAGE)
4. ABBOTT MIDDLE SCHOOL – LOGISTICS PLAN (1 PAGE)
5. GEORGE HALL ELEMENTARY SCHOOL – LOGISTICS PLAN (1 PAGE)
6. LAUREL ELEMENTARY SCHOOL – LOGISTICS PLAN (1 PAGE)
7. ABBOTT MIDDLE SCHOOL – PHASING PLAN (1 PAGE)
8. GEORGE HALL ELEMENTARY SCHOOL – PHASING PLAN (1 PAGE)
9. LAUREL ELEMENTARY SCHOOL – PHASING PLAN (1 PAGE)

ITEM NO. 3.8: DOCUMENT 01 23 00 – ALTERNATES AND UNIT PRICING

Revise: Section 4, Execution, 4.2 Schedule of Unit Pricing, sub-section 4.2.2 Unit, to read as follows;

4.2.2 **Unit Price Request #2**-Classroom Split System Heat Pump unit. Split system shall be able to operate at 94% heating capacity down to 32 Degrees Fahrenheit outdoor ambient temperature. CFM based on 0.55 ESP. Provide with manufacturer min-A60un 24 VAC thermostat adapter and 24VAC transformer. Provide with DELTA Controls thermostat with CO2 sensor. Provide condensate pump. Provide with 4" MERV-13 Filter access panel. Fan coil shall be adjusted to operate at constant speed at indicated CFM. Indoor unit power by outdoor unit. Unit price is for all prime and associated equipment for this specified item to be delivered to the Owner as requested in writing in quantities as required. This request is for equipment purchase only.

Part 2. Addendum 3 Items for Abbott Middle School

- Review posted Addendum No. 3 documents as prepared by Aedis Architects, *attached.*

Part 3. Addendum 3 Items for George Hall Elementary School

- Review posted Addendum No. 3 documents as prepared by Aedis Architects, *attached.*

Part 4. Addendum 3 Items for Laurel Elementary School

- Review posted Addendum No. 3 documents as prepared by Aedis Architects, *attached.*

END OF ADDEDUM #3

DOCUMENT 01 11 00

SUMMARY OF WORK

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals; and

1.1.5. Temporary Facilities and Controls.

1.2. SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

The Work may consist of but not limited to the following:

1.2.1. Selective demolition and construction necessary for HVAC system replacement with selected primary and secondary electrical system upgrades for one middle school and two elementary schools as noted below. The proposed scope of work may include associated civil, architectural, structural, plumbing, irrigation, and electrical work as indicated in the Drawings and Specifications. Generally, these categories of work involve new finishes, adaptive re-use and modification of certain selected areas, handicap accessibility retrofits, and pertain to changing and expanding selected infrastructure utilities, and extensive modifications.

1.2.2. **BID PACKAGE #2**

1.2.2.1. **Abbott Middle School**: Addition and replacement of HVAC equipment and enclosures.

1.2.2.2. **George Hall Elementary School**: Campus wide electrical service upgrade and replacement of HVAC equipment and enclosures.

1.2.2.3. **Laurel Elementary School**: Campus wide electrical service upgrade and replacement of HVAC equipment and enclosures.

1.2.3. Protection of all District office, classroom, and school furniture from construction damage, dust, debris, spills, and stains is required. Reference Document 01 77 00 for Contract Closeout and Final Cleaning.

1.2.4. The work also includes working multiple shifts, overtime, and/or six (6) days per week as necessary to complete the work within the specified time frames and contract completion date.

1.2.5. One Superintendent or Lead Foreman must be present throughout each work shift and at each site during the course of construction.

1.2.6. Specific Electrical Switchgear Equipment are Owner Furnished Contractor Installed, (OFCI) items as noted on the plans. The current program calls for the following OFCI items per bid package.

1.2.6.1. **Bid Package #2,** George Hall Elementary School and Laurel Elementary School.
1.2.6.2. Reference is made to the "Main Switchboard" as shown in the single line diagram on sheets E4.2 and the "Main Switchboard" specification section 26 24 13 Switchboards, 600V and Below is the related spec section. All other electrical equipment is provided by the contractor.
1.2.6.3. The Contractor will be responsible for coordinating delivery, logistics, inspection, unloading, handling, and storage as necessary. Reference Documents 01 66 10, Delivery, Storage, and Handling for further instructions. Contractor is also responsible for coordinating the work with District and PG&E to complete the electrical service upgrade scope of work on each campus.

1.2.7. Specific Carrier HVAC Equipment is Owner Furnished Contractor Installed, (OFCI) items as noted on the plans for Abbott Middle School. The current program calls for the following OFCI items per bid package.

1.2.7.1 **Bid Package #2,** Abbott Middle School.
1.2.7.2 Reference is made on sheet MPO.02 – AD3. All other HVAC equipment is provided by the Contractor.
1.2.7.3 The Contractor will be responsible for coordinating delivery, logistics, inspection, unloading, handling, and storage as necessary. Reference Documents 01 66 10, Delivery, Storage, and Handling for further instructions. Contractor is also responsible for coordinating the work with District and PG&E to complete the HVAC upgrade scope of work on each campus

BID PACKAGE 2: ABBOTT MIDDLE SCHOOL

1. **Included:** Scope of work for this site includes all work shown in the project plans and specifications but not limited to – electrical upgrades, replacement of HVAC equipment, construction of interior HVAC equipment closets / installation ductwork & relief vent. Construction of rooftop HVAC platforms and associated roof patching. Installation of underground utilities and associated patching.

DIVISION 01 – GENERAL REQUIREMENTS

DIVISION 02 - EXISTING CONDITIONS

024119 SELECTIVE DEMOLITION
028000 HAZARDOUS MATERIALS ABATEMENT

DIVISION 03 - CONCRETE

031000 FORMWORK
032000 CONCRETE REINFORCEMENT
033000 CAST-IN-PLACE CONCRETE

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

061000 ROUGH CARPENTRY
061600 SHEATHING

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

072100 THERMAL INSULATION
072500 WEATHER BARRIERS
072600 UNDER SLAB VAPOR BARRIER
073113 ASPHALT SHINGLES
079200 JOINT SEALANTS

DIVISION 08 - OPENINGS

081113 HOLLOW METAL DOORS AND FRAMES
081416 FLUSH WOOD DOORS
087100 DOOR HARDWARE
089119 FIXED LOUVERS

DIVISION 09 - FINISHES

09056113 MOISTURE VAPOR EMISSION CONTROL
092400 CEMENT PLASTERING
092900 GYPSUM BOARD
095113 ACOUSTICAL PANEL CEILINGS
095123 ACOUSTICAL TILE CEILINGS
096513 RESILIENT BASE AND ACCESSORIES
096519 RESILIENT TILES
097200 WALL COVERING
099114 EXTERIOR PAINTING
099124 INTERIOR PAINTING

DIVISION 10 - SPECIALTIES

102600 WALL AND DOOR PROTECTION

DIVISION 22 - PLUMBING

220000 PLUMBING GENERAL REQUIREMENTS
220500 PLUMBING

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

230000 MECHANICAL GENERAL REQUIREMENTS
230130 CLEANING OF EXISTING HVAC AND AIR DISTRIBUTION
230500 HEATING, VENTILATING AND AIR CONDITIONING
230593 TESTING, ADJUSTING, BALANCING
230800 COMMISSIONING OF HVAC SYSTEM
230923 DIRECT DIGITAL CONTROL SYSTEMS FOR HVAC

DIVISION 26 - ELECTRICAL

260510 GENERAL ELECTRICAL REQUIREMENTS
260511 ELECTRICAL DEMOLITION
260512 SHUTDOWNS, SWITCHING, PHASING & CUTOVERS
260519 LOW VOLTAGE WIRE AND CABLE
260526 GROUNDING
260533 CONDUITS, RACEWAYS AND FITTINGS
260534 JUNCTION AND PULL BOXES
260543 UNDERGROUND DUCTS
260544 IN GRADE PULL BOXES
260573 OVERCURRENT PROTECTIVE DEVICE COORDINATION
262416 PANELBOARDS AND DISTRIBUTION PANELS
262726 DEVICES WIRING
262816 CIRCUITS BREAKERS

DIVISION 32 - EXTERIOR IMPROVEMENTS

321723 PAVEMENT MARKINGS

Hazardous Material Abatement Specification

Also Included but not limited to:

Contractor and all the contractor's subcontractors, vendors and suppliers must comply with the District COVID 19 procedures and provide the District's COVID-19 Vaccination Certification. Please see the attached certification form included at the end of this section.

Important Dates –

January 11,2022 – Bid Package #1 – Bids Due
January 25,2022 – Notice to Proceed Issued to Contractor
February 15,2022 – Mechanical Unit Shop Drawings Due

March 28,2022 – April 8,2022 – On-site Construction Work – No School
April 11,2022 – June 15,2022 – On-site Construction Work – With Approval (see below)
June 15, 2022 – Last Day of School
June 16, 2022 – August 4, 2022 – District Summer Break – On-site Construction Work
August 5,2022 – School Staff on Site – Site must have power, Operational HVAC units and all areas cleaned per the District's cleaning specification.
August 8,2022 – **October 27,2022** - On-site Construction Work During off-school hours – With written Owner Approval
October 28,2022 – **Project Complete**
On-site work during when school is in session - The District and Construction Manager must approve any on-site work. Some on-site work when school is in session will be permitted but the Contractor must submit their work plan with the areas of work, tasks to be performed and work hours for review/approval of the District & Construction Manager prior to beginning any work. See section 1.5.1 and the site Phasing Plan included with this document for additional information.

Provide all labor and material for the lawful disposal of any excess soils / spoils from utility trenching. Any soils testing for disposal will be the responsibility of the contractor.

Provide all labor and material for the lawful removal and disposal of any hazardous materials removed during the performance of the work.

Contractor to provide all labor, material, and equipment to off-load the new OFCI Carrier HVAC units at the District's maintenance yard when delivered by the manufacturer. The Owner/ Construction Manager will provide the Contactor shipping and receiving information as issued by the manufacturer.

Contractor to provide all labor, material, and equipment to load the new OFCI Carrier HVAC units at the District's maintenance yard and deliver / unload the units at the site and install the new Carrier units.

Provide all labor and material for all Crane / hoisting operations during demolition and construction phase of the work. Including all crane, hoisting & rigging cost. The Contractor will be required

to provide a crane lift plan prior to performing any crane or hoisting work on-site. If the crane / hoisting operations require the Contractor to stage equipment off-site the Contractor at their sole expense will be required to obtain an encroachment permit prior to performing any work.

Contractor is required to provide an underground utility survey performed by a licensed underground utility locator at the contractor's expense. The locator's report must be submitted to the Owner and Construction Manager for review prior to beginning any trenching or excavation operations

Contractor to perform leak testing with the Construction Manager, Architect, Inspector of Record & Owner present for all roof patching / cutting, roof penetrations, mechanical equipment curbs / flashing / louvers and glazing infill work.

Coordinate work with all other District personal, District contractors, vendors, or suppliers.

Provide and install all underground utilities, under-slab conduits, pipes, and concrete reinforcement in accordance with the project documents.

Provide labor and material for final terminations at electrical panels for all HVAC equipment.

Included but not limited to provide and install all nailers, curbs, pipe hangers, pipe supports, equipment hangers, equipment support and miscellaneous blocking as required for all equipment. Provide and install all backing/blocking required for mechanical and electrical equipment, fixtures, duct hangers, piping/conduits.

Provide continuous clean up. Provide two laborers all day each Friday for a weekly jobsite clean-up (broom clean).

Provide weather protection and dewatering per contract documents during all phases of the work.

Provide and install roof jacks and vents for all new roof penetrations mechanical / electrical work.

Provide and install all access doors as required for access to mechanical/electrical systems.

Provide and install conduit, wire and line voltage for all low voltage HVAC equipment and mechanical controls.

Provide and install all sealants and fire stopping associated with this all work at fire barrier separations.

Provide all labor and material for all trenching, backfill, compaction and patching of surfaces impacted by this scope of work.

Provide all labor and material to repair, replace, or relocate any irrigation mainlines, lateral lines, valves or irrigation boxes impacted by trenching or excavation work.

Provide all labor and material to restore and/or replace any games lines, maps or designs damaged on playgrounds where trenching occurred.

Provide engineering of underground utilities associated with this scope of work.

Provide selective demolition and cutting of structural elements. This shall include saw cutting, demolition and/or coring of concrete walls, interior slabs.

Provide patching and restoration of existing finishes associated with all work.

Provide Debris bins, waste disposal and sanitary facilities for use by Contractor and all subcontractors.

Provide and install approximately 2,100 LF of temporary fencing for work areas and Contractor laydown area (see attached logistic plan included with this document). All ongoing work, open

excavations and/or trenches must be inaccessible to staff, students, parents and public by means of temporary fencing. Provide all labor and material to reconfigure fencing as directed by the Construction Manager or Owner.

Provide labor for the daily securing of the temporary construction fence.

Provide continual floor protection during construction including maintenance of the protection throughout the project for all work areas.

Provide weather protection during roofing operations as required.

Provide all labor and material to install all new roofing as shown on the contract drawings and specifications.

Provide cap flashing and sleeper blocks for all roof mounted piping and conduit.

Provide and install equipment flashing and sealing for all roof mounted equipment.

Provide all labor and material to paint the building interior / exterior surfaces impacted by the work shown on the contract drawings and specifications including but not limited to all surface preparation, caulking, priming, masking, etc.

Provide all labor and material for final cleaning of all interior and exterior areas of the school and the contractor laydown area. All cleaning work must comply with specification section 01 77 00 and the District's cleaning specification. The District's cleaning specification is included at the end of this section.

BID PACKAGE 2: GEORGE HALL ELEMENTARY SCHOOL

1. **Included:** Scope of work for this site includes all work shown in the project plans and specifications but not limited to – electrical

upgrades, off-site electrical work, installation of new electrical switchgear and associated civil work, replacement of HVAC equipment, construction of interior HVAC equipment closets / installation ductwork & relief vent. Construction of rooftop HVAC platforms and associated roof patching. Installation of underground utilities and associated patching.

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 01 – GENERAL REQUIREMENTS
015639 TEMPORARY TREE AND PLANT PROTECTION

DIVISION 02 - EXISTING CONDITIONS
024119 SELECTIVE DEMOLITION
028000 HAZARDOUS MATERIALS ABATEMENT

DIVISION 03 - CONCRETE
031000 FORMWORK
032000 CONCRETE REINFORCEMENT
033000 CAST-IN-PLACE CONCRETE

DIVISION 04 – MASONRY
042000 CONCRETE UNIT MASONRY

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
061000 ROUGH CARPENTRY
061600 SHEATHING
064116 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION
072100 THERMAL INSULATION
072500 WEATHER BARRIERS
072500 ASPHALT SHINGLES
075423 THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING
079200 JOINT SEALANTS

DIVISION 08 - OPENINGS
081113 HOLLOW METAL DOORS AND FRAMES
081416 FLUSH WOOD DOORS
087100 DOOR HARDWARE
089119 FIXED LOUVER

DIVISION 09 – FINISHES
090561.13 MOISTURE VAPOR EMISSION CONTROL

092400 CEMENT PLASTERING
092900 GYPSUM BOARD
095113 ACOUSTICAL PANEL CEILINGS
095123 ACOUSTICAL TILE CEILINGS
096513 RESILIENT BASE AND ACCESSORIES
097200 WALL COVERINGS AND SIGNAGE
099114 EXTERIOR PAINTING
099124 INTERIOR PAINTING

DIVISION 10 – SPECIALTIES
102600 WALL AND DOOR PROTECTION

DIVISION 22 – PLUMBING
220000 PLUMBING GENERAL REQUIREMENTS
220500 PLUMBING

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230000 MECHANICAL GENERAL REQUIREMENTS
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230593 TESTING, ADJUSTING, BALANCING
230800 COMMISSIONING OF HVAC SYSTEM
230923 DIRECT DIGITAL CONTROL SYSTEMS FOR HVAC

DIVISION 26 - ELECTRICAL
260511 ELECTRICAL DEMOLITION
260512 SHUTDOWNS, SWITCHING, PHASING & CUTOVERS
260519 LOW VOLTAGE WIRE AND CABLE
260526 GROUNDING
260533 CONDUITS, RACEWAYS AND FITTINGS
260534 JUNCTION AND PULL BOXES
260543 UNDERGROUND DUCTS
260544 IN GRADE PULL BOXES
260573 OVERCURRENT PROTECTIVE DEVICE COORDINATION
262213 TRANSFORMERS
262416 PANELBOARDS AND DISTRIBUTION PANELS
262726 DEVICES WIRING
262816 CIRCUITS BREAKERS

DIVISION 32 - EXTERIOR IMPROVEMENTS
321123 AGGREGATE BASE
321216 ASPHALT PAVING
321723 PAVEMENT MARKINGS
323113 CHAIN LINK FENCES AND GATES

Hazardous Material Abatement Specification

Also Included but not limited to:

Contractor and all the contractor's subcontractors, vendors and suppliers must comply with the District COVID 19 procedures and provide the District's COVID-19 Vaccination Certification. Please see the attached certification form included at the end of this section.

Important Dates –

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August 5,2022 – School Staff on Site – Site must have power, Operational HVAC units and all areas cleaned per the District's cleaning specification.
August 8,2022 – **October 27,2022** - On-site Construction Work During off school hours – With written Owner Approval
October 28,2022 – **Project Complete**
On-site work during when school is in session - The District and Construction Manager must approve any on-site work. Some on-site work when school is in session will be permitted but the Contractor must submit their work plan with the areas of work, tasks to be performed and work hours for review/approval of the District & Construction Manager prior to beginning any work. See section 1.5.1 and the site Phasing Plan included with this document for additional information.

Contractor to coordinate the installation of the new OFCI electrical main switchboard with the District and Pacific Gas & Electric.

Provide all labor and material for the installation of new site utilities both on-site and off-site to the point of connections as shown in the contract drawings. PG&E engineering fees will be paid by the District.

Provide all labor and materials for the installation of conduits

including trenching, backfilling and AC & PCC pavement for the new electrical service. existing fire access driveway as shown on the contract drawings. Drawings for submission to the City of San Mateo will be provided by the District. All permit procurement and fees and construction costs are the responsibility of the Contractor.

Contractor to provide all labor, material, and equipment to off-load the new OFCI Electrical Switchgear and Equipment at the District's maintenance yard when delivered by the manufacturer. The Owner/ Construction Manager will provide the Contactor shipping and receiving information as issued by the manufacturer.

Contractor to provide all labor, material, and equipment to load the new OFCI electrical main switchboard at the District's maintenance yard and deliver / unload and install the new main switchboard at the site.

Provide all labor and material for the lawful disposal of any excess soils / spoils from utility trenching. Any soils testing for disposal will be the responsibility of the contractor.

Provide all labor and material for the lawful removal and disposal of any hazardous materials removed during the performance of the work.

Provide all labor and material for all Crane / hoisting operations during demolition and construction phase of the work. Including all crane, hoisting & rigging cost. The Contractor will be required to provide a crane lift plan prior to performing any crane or hoisting work on-site. If the crane / hoisting operations require the Contractor to stage equipment off-site the Contractor at their sole expense will be required to obtain an encroachment permit prior to performing any work.

Contractor is required to provide an underground utility survey performed by a licensed underground utility locator at the contractor's expense. The locator's report must be submitted to the Owner and Construction Manager for review prior to beginning any trenching or excavation operations

Contractor to perform leak testing with the Construction

Manager, Architect, Inspector of Record & Owner present for all roof patching / cutting, roof penetrations, mechanical equipment curbs / flashing / louvers and glazing infill work.

Coordinate work with all other District personal, District contractors, vendors, or suppliers.

Provide and install all underground utilities, under-slab conduits, pipes, and concrete reinforcement in accordance with the project documents.

Provide labor and material for final terminations at electrical panels for all HVAC equipment.

Included but not limited to provide and install all nailers, curbs, pipe hangers, pipe supports, equipment hangers, equipment support and miscellaneous blocking as required for all equipment. Provide and install all backing/blocking required for mechanical and electrical equipment, fixtures, duct hangers, piping/conduits.

Provide continuous clean up. Provide two laborers all day each Friday for a weekly jobsite clean-up (broom clean).

Provide weather protection and dewatering per contract documents during all phases of the work.

Provide and install roof jacks and vents for all new roof penetrations mechanical / electrical work.

Provide and install all access doors as required for access to mechanical/electrical systems.

Provide and install conduit, wire and line voltage for all low voltage HVAC equipment and mechanical controls.

Provide and install all sealants and fire stopping associated with this all work at fire barrier separations.

Provide all labor and material for all trenching, backfill, compaction and patching of surfaces impacted by this scope of

work.

Provide all labor and material to repair, replace, or relocate any irrigation mainlines, lateral lines, valves or irrigation boxes impacted by trenching or excavation work.

Provide all labor and material to restore and/or replace any games lines, maps or designs damaged on playgrounds where trenching occurred.

Provide engineering of underground utilities associated with this scope of work.

Provide all labor and material for the installation of new site utilities on-site to the point of connections as shown in the contract drawings. PG&E engineering fees will be paid by the Owner.

Provide selective demolition and cutting of structural elements. This shall include saw cutting, demolition and/or coring of concrete walls, interior slabs.

Provide patching and restoration of existing finishes associated with all work.

Provide Debris bins, waste disposal and sanitary facilities for use by Contractor and all subcontractors.

Provide and install approximately 2,000 LF of temporary fencing for work areas and Contractor laydown area (see attached logistic plan included with this document). All ongoing work, open excavations and/or trenches must be inaccessible to staff, students, parents and public by means of temporary fencing. Provide all labor and material to reconfigure fencing as directed by the Construction Manager or Owner.

Provide labor for the daily securing of the temporary construction fence.

Provide continual floor protection during construction including maintenance of the protection throughout the project for all work areas.

Provide weather protection during roofing operations as required.

Provide all labor and material to install all new roofing as shown on the contract drawings and specifications.

Provide cap flashing and sleeper blocks for all roof mounted piping and conduit.

Provide and install equipment flashing and sealing for all roof mounted equipment.

Provide all labor and material to paint the building interior / exterior surfaces impacted by the work shown on the contract drawings and specifications including but not limited to all surface preparation, caulking, priming, masking, etc.

Provide all labor and material for final cleaning of all interior and exterior areas of the school and the contractor laydown area. All cleaning work must comply with specification section 01 77 00 and the District's cleaning specification. The District's cleaning specification is included at the end of this section.

BID PACKAGE 2: LAUREL ELEMENTARY SCHOOL

1. **Included:** Scope of work for this site includes all work shown in the project plans and specifications but not limited to – electrical upgrades, installation of new electrical switchgear and associated civil work, replacement of HVAC equipment, construction of interior HVAC equipment closets / installation ductwork & relief vent. Construction of rooftop HVAC platforms and associated roof patching. Installation of underground utilities and associated patching.

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 01 – GENERAL REQUIREMENTS
015639 TEMPORARY TREE AND PLANT PROTECTION

DIVISION 02 - EXISTING CONDITIONS
024119 SELECTIVE DEMOLITION
028000 HAZARDOUS MATERIALS ABATEMENT

DIVISION 03 - CONCRETE
031000 FORMWORK
032000 CONCRETE REINFORCEMENT

DIVISION 04 - MASONRY
031000 CONCRETE MASONRY UNIT

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
061000 ROUGH CARPENTRY
061600 SHEATHING

DIVISION 07 - THERMAL AND MOISTURE PROTECTION
072100 THERMAL INSULATION
072500 WEATHER BARRIERS
073113 ASPHALT SHINGLES
079200 JOINT SEALANTS

DIVISION 08 - OPENINGS
081113 HOLLOW METAL DOORS AND FRAMES
081416 FLUSH WOOD DOORS
087100 DOOR HARDWARE
089119 FIXED LOUVER

DIVISION 09 - FINISHES
09056113 MOISTURE VAPOR EMISSION CONTROL
092400 CEMENT PLASTERING
092900 GYPSUM BOARD
095113 ACOUSTICAL PANEL CEILINGS
095123 ACOUSTICAL TILE CEILINGS
096513 RESILIENT BASE AND ACCESSORIES
097260 TACKABLE WALL COVERING
099124 INTERIOR PAINTING

DIVISION 10 - SPECIALTIES

102600 WALL AND DOOR PROTECTION

DIVISION 22 - PLUMBING

220000 PLUMBING GENERAL REQUIREMENTS
220500 PLUMBING

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

230000 MECHANICAL GENERAL REQUIREMENTS
230500 HEATING, VENTILATING AND AIR CONDITIONING
230593 TESTING, ADJUSTING, BALANCING
230800 COMMISSIONING OF HVAC SYSTEM
230923 DIRECT DIGITAL CONTROL SYSTEMS FOR HVAC

DIVISION 26 - ELECTRICAL

260510 GENERAL ELECTRICAL REQUIREMENTS
260511 ELECTRICAL DEMOLITION
260512 SHUTDOWNS, SWITCHING, PHASING & CUTOVERS
260519 LOW VOLTAGE WIRE AND CABLE
260526 GROUNDING
260533 CONDUITS, RACEWAYS AND FITTINGS
260534 JUNCTION AND PULL BOXES
260543 UNDERGROUND DUCTS
260544 IN GRADE PULL BOXES
260573 OVERCURRENT PROTECTIVE DEVICE COORDINATION
262213 TRANSFORMER
262413 SWITCHBOARD
262416 PANELBOARDS AND DISTRIBUTION PANELS
262726 DEVICES WIRING
262816 CIRCUITS BREAKERS

DIVISION 32 - EXTERIOR IMPROVEMENTS

321123 AGGREGATE BASE
321216 ASPHALT PAVING
321723 PAVEMENT MARKINGS
323113 CHAIN LINKE FENCES AND GATES

Hazardous Material Abatement Specification

Also Included but not limited to:

Contractor and all the contractor's subcontractors, vendors and suppliers must comply with the District COVID 19 procedures and

provide the District's COVID-19 Vaccination Certification. Please see the attached certification form included at the end of this section.

Important Dates –
January 11,2022 – Bid Package #1 – Bids Due
January 25,2022 – Notice to Proceed Issued to Contractor
February 15,2022 – Mechanical Unit Shop Drawings Due
March 28,2022 – April 8, 2022 – On-site Construction Work – No School
April 11,2022 – June 15,2022 – On-site Construction Work – With Approval (see below)
June 15, 2022 – Last Day of School
June 16, 2022 – August 4, 2022 – District Summer Break – On-site Construction Work
August 5,2022 – School Staff on Site – Site must have power, Operational HVAC units and all areas cleaned per the District's cleaning specification.
August 8,2022 – **October 27,2022** - On-site Construction Work During off school hours – With written Owner Approval
October 28,2022 – **Project Complete**
On-site work during when school is in session - The District and Construction Manager must approve any on-site work. Some on-site work when school is in session will be permitted but the Contractor must submit their work plan with the areas of work, tasks to be performed and work hours for review/approval of the District & Construction Manager prior to beginning any work. See section 1.5.1 and the site Phasing Plan included with this document for additional information.

Contractor to coordinate the installation of the new OFCI electrical main switchboard with the District and Pacific Gas & Electric.

Contractor to provide all labor, material, and equipment to off-load the new OFCI Electrical Switchgear and Equipment at the District's maintenance yard when delivered by the manufacturer. The Owner/ Construction Manager will provide the Contactor shipping and receiving information as issued by the manufacturer.

Contractor to provide all labor, material, and equipment to load the new OFCI electrical main switchboard at the District's maintenance yard and deliver / unload and install the new main switchboard at the site.

Provide all labor and material for the installation of new site

utilities both on-site to the point of connections as shown in the contract drawings. PG&E engineering fees will be paid by the District.

Contractor to provide all labor, material, and equipment to off-load the new OFCI Electrical Switchgear and Equipment at the District's maintenance yard when delivered by the manufacturer. The Owner/ Construction Manager will provide the Contactor shipping and receiving information as issued by the manufacturer.

Contractor to provide all labor, material, and equipment to load the new switchgear at the District's maintenance yard and deliver / upload the new switchgear to the site.

Provide all labor and material for the lawful disposal of any excess soils / spoils from utility trenching. Any soils testing for disposal will be the responsibility of the contractor.

Provide all labor and material for the lawful removal and disposal of any hazardous materials removed during the performance of the work.

Provide all labor and material for all Crane / hoisting operations during demolition and construction phase of the work. Including all crane, hoisting & rigging cost. The Contractor will be required to provide a crane lift plan prior to performing any crane or hoisting work on-site. If the crane / hoisting operations require the Contractor to stage equipment off-site the Contractor at their sole expense will be required to obtain an encroachment permit prior to performing any work.

Contractor is required to provide an underground utility survey performed by a licensed underground utility locator at the contractor's expense. The locator's report must be submitted to the Owner and Construction Manager for review prior to beginning any trenching or excavation operations

Contractor to perform leak testing with the Construction Manager, Architect, Inspector of Record & Owner present for all roof patching / cutting, roof penetrations, mechanical equipment curbs / flashing / louvers and glazing infill work.

Coordinate work with all other District personal, District contractors, vendors, or suppliers.

Provide and install all underground utilities, under-slab conduits, pipes, and concrete reinforcement in accordance with the project documents.

Provide labor and material for final terminations at electrical panels for all HVAC equipment.

Included but not limited to provide and install all nailers, curbs, pipe hangers, pipe supports, equipment hangers, equipment support and miscellaneous blocking as required for all equipment. Provide and install all backing/blocking required for mechanical and electrical equipment, fixtures, duct hangers, piping/conduits.

Provide continuous clean up. Provide two laborers all day each Friday for a weekly jobsite clean-up (broom clean).

Provide weather protection and dewatering per contract documents during all phases of the work.

Provide and install roof jacks and vents for all new roof penetrations mechanical / electrical work.

Provide and install all access doors as required for access to mechanical/electrical systems.

Provide and install conduit, wire and line voltage for all low voltage HVAC equipment and mechanical controls.

Provide and install all sealants and fire stopping associated with this all work at fire barrier separations.

Provide all labor and material for all trenching, backfill, compaction and patching of surfaces impacted by this scope of work.

Provide all labor and material to repair, replace, or relocate any

irrigation mainlines, lateral lines, valves or irrigation boxes impacted by trenching or excavation work.

Provide all labor and material to restore and/or replace any games lines, maps or designs damaged on playgrounds where trenching occurred.

Provide engineering of underground utilities associated with this scope of work.

Provide all labor and material for the installation of new site utilities on-site to the point of connections as shown in the contract drawings. PG&E engineering fees will be paid by the Owner.

Provide selective demolition and cutting of structural elements. This shall include saw cutting, demolition and/or coring of concrete walls, interior slabs.

Provide patching and restoration of existing finishes associated with all work.

Provide Debris bins, waste disposal and sanitary facilities for use by Contractor and all subcontractors.

Provide and install approximately 3,700 LF of temporary fencing for work areas and Contractor laydown area (see attached logistic plan included with this document). All ongoing work, open excavations and/or trenches must be inaccessible to staff, students, parents and public by means of temporary fencing. Provide all labor and material to reconfigure fencing as directed by the Construction Manager or Owner.

Provide labor for the daily securing of the temporary construction fence.

Provide continual floor protection during construction including maintenance of the protection throughout the project for all work areas.

Provide weather protection during roofing operations as required.

Provide all labor and material to install all new roofing as shown on the contract drawings and specifications.

Provide cap flashing and sleeper blocks for all roof mounted piping and conduit.

Provide and install equipment flashing and sealing for all roof mounted equipment.

Provide all labor and material to paint the building interior / exterior surfaces impacted by the work shown on the contract drawings and specifications including but not limited to all surface preparation, caulking, priming, masking, etc.

Provide all labor and material for final cleaning of all interior and exterior areas of the school and the contractor laydown area. All cleaning work must comply with specification section 01 77 00 and the District's cleaning specification. The District's cleaning specification is included at the end of this section.

1.3. CONTRACTS

Perform the Work under a single, fixed-price Contract.

1.4. DEFERRED APPROVAL ITEMS

1.4.1. All items that are subject to subsequent review and approval by the Division of the State Architect shall are as indicated below. No deferred approval items shall be installed until the Contractor has complied with all the processes in the Contract Documents, including Division 01 Document "Submittals."

1.4.2. Deferred approval items for this Project are the following: **NONE**

1.5. SPECIAL PROJECT REQUIREMENTS

1.5.1. Project Schedule: No later than August 4, 2022 each campus must have power, operational HVAC units and all buildings, exterior spaces and Contractor's laydown area must be clean and ready for staff, parents & students. If permanent power is not operational by August 4, 2022 the Contractor at their sole expense must provide temporary power for the campus.

1.6. WORK BY OTHERS

1.6.1. Work to be performed and completed prior to the start of the Project: **Pacific Gas & Electric**

1.6.2. SMFCSD Team (Owner) will be responsible for tree trimming as requested for trees that may fall within zone of work associated for specific campus projects.

1.6.3. SMFCCSD Team (Owner) cleaning and maintenance of areas / building not included scope of work

1.7. CODES, REGULATIONS AND STANDARDS

1.7.1. The codes, regulations, and standards adopted by the State and federal agencies having jurisdiction shall govern minimum requirements for the Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.

1.7.2. Codes, regulations, and standards are as published effective as of date of bid opening, unless otherwise specified or indicated.

1.8. EXAMINATION OF EXISTING CONDITIONS

1.8.1. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets and roads approaching the Site.

1.8.2. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.

1.8.3. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.9. CONTRACTOR'S USE OF PREMISES

1.9.1. Contractor shall take all reasonable precautions for the safety of the students and the school employees throughout the duration of the Project.

1.9.2. If unoccupied and only with District’s prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

1.9.3. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor, at no expense to District.

1.9.4. Contractor shall not interfere with others use of or access to occupied portions of the building(s) or adjacent property.

1.9.5. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.

1.9.6. No one other than those directly involved in the demolition and construction or specifically designated by the District or the Architect shall be permitted in the areas of Work during demolition and construction activities.

1.10. PROTECTION OF EXISTING STRUCTURES AND UTILITIES

1.10.1. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.

1.10.2. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.11. UTILITY SHUTDOWNS AND INTERRUPTIONS

1.11.1. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. District will set exact time and duration for shutdown and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.

1.11.2. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.12. STRUCTURAL INTEGRITY

1.12.1. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.

1.12.2. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

ATTACHMENTS INCLUDED IN THIS DOCUMENT:

1. SMFCSD CONTRACTOR COVID 19 ADDENDUM (1 PAGE)
2. SMFCSD DEEP CLEANING AND MATERIAL STANDARDS (1 PAGE)
3. SMFCSD SUMMER SPECIFICATION FOR DEEP CLEANING (1 PAGE)
4. ABBOTT MIDDLE SCHOOL – LOGISTICS PLAN (1 PAGE)
5. GEORGE HALL ELEMENTARY SCHOOL – LOGISTICS PLAN (1 PAGE)
6. LAUREL ELEMENTARY SCHOOL – LOGISTICS PLAN (1 PAGE)
7. ABBOTT MIDDLE SCHOOL – PHASING PLAN (1 PAGE)
8. GEORGE HALL ELEMENTARY SCHOOL – PHASING PLAN (1 PAGE)
9. LAUREL ELEMENTARY SCHOOL – PHASING PLAN (1 PAGE)

END OF DOCUMENT

ADDENDUM
COVID-19 VACCINATION CERTIFICATION

Consistent with California Department of Public Health (CDPH) guidance, the District currently requires that all permittees, contract workers, and other non-District employees who will be physically present on District premises pursuant to an agreement with the District certify have been fully vaccinated against COVID-19 or submit to regular COVID-19 testing. Contractor is responsible for maintaining a log of all of its employees performing work under the Agreement that indicates each employee's vaccination status ("Vaccination Log"), collecting proof of vaccination for all such employees, and ensuring that any unvaccinated employees submit to weekly COVID-19 testing. Any unvaccinated employees who receive a positive test result will not be permitted on any District site until they have fully quarantined in compliance with all CDC and CDPH guidance. The District retains the right, upon request, to receive a copy of the Vaccination Log, proof of vaccination for any employee(s), and/or records of testing for any unvaccinated employee(s).

Contractor is responsible for maintaining proof of vaccination in any of the following forms:

(1) COVID-19 Vaccination Record Card (issued by the Department of Health and Human Services Centers for Disease Control & Prevention or WHO Yellow Card) which includes name of person vaccinated, type of vaccine provided, and date last dose administered;
(2) a photo of a Vaccination Record Card as a separate document;
(3) a photo of the Vaccination Record Card stored on a phone or electronic device;
(4) documentation of COVID-19 vaccination from a health care provider; OR
(5) documentation of vaccination from other contracted employers who follow these vaccination records guidelines and standards.

Please certify acknowledgment and compliance by checking the boxes below:

☐Permittee/Contractor hereby certifies that it retains a complete Vaccination Log for all of its employees who may perform any work under this Agreement.

☐Permittee/Contractor has collected proof of COVID-19 vaccination for all fully vaccinated employees and will provide such proof to the District upon request.

☐Permittee/Contractor certifies that all unvaccinated employees who may perform work under this Agreement undergo weekly COVID-19 testing and certifies that it will notify the District if any such employee receives a positive test result.

The District reserves the right to terminate this Agreement immediately upon discovery that any of Permittee/Contractor's personnel who enter District property under the terms of this Agreement are not vaccinated.

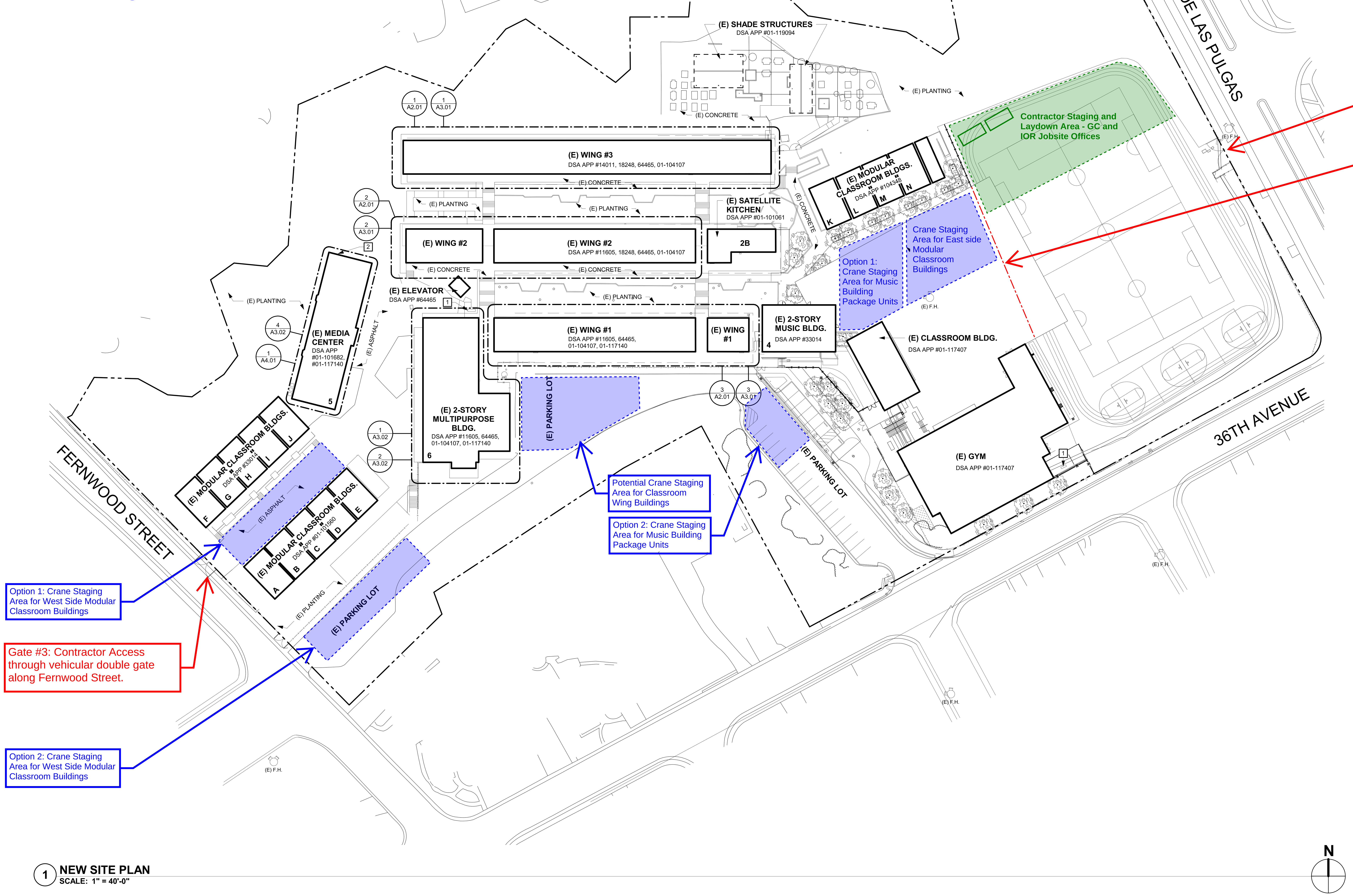
Contractor signature: _____ Date: _____

1. Dust and wipe all walls, air vents/registers, air ducts including corners with cobwebs
2. Dust, clean all window seals
3. Clean indoor windows and glass surfaces
4. Clean and dust all whiteboards
5. Remove all unbolted furniture from carpet and hard floor surfaces before cleaning the carpet and stripping hard floors
6. Clean and strip baseboards
7. Remove all gum and tape before completely stripping floor with RSG Demolition stripper
8. Apply four coats of Resource Solutions Group “Perfect 610” floor finish/wax
9. Remove all gum from carpet before you pre-spray carpet with carpet spotter
10. Extract carpet with truck mounted extractor, self- contained brush roller extractor or high-pressure box and wand extractor only. No spin bonnet cleaning
11. Move all furniture back into classrooms, offices, etc.
12. Clean and disinfect all sinks, doors, thresholds, door handles, door kick plates and desks with RSG #49 disinfectant cleaner

SMFCSD SUMMER FACILITY DEEP CLEANING SPECS

- Kindergarten Classrooms (with bathroom and sinks)
    - Sweep, mop and scrub all hard surface floors.
    - Apply four coats of floor finish to all vinyl floors.
    - Vacuum carpet, edges and corners.
    - Extract all carpets (No Spin Bonnet Cleaning)
    - Spot Clean where necessary
    - Dust all ledges, edges, blinds, vents, door and window frames.
    - Vacuum and wipe all case work.
    - Clean and disinfect all desks, sinks and drinking fountains.
    - Clean all sidelight glass and frames.
- Classrooms
    - Sweep, mop and scrub all hard surface floors.
    - Apply four coats of floor finish to all vinyl floors.
    - Vacuum carpet, edges and corners.
    - Extract all carpets (No Spin Bonnet Cleaning)
    - Spot Clean where necessary
    - Dust all ledges, edges, blinds, vents, door and window frames.
    - Vacuum and wipe all case work.
    - Clean and disinfect all desks, sinks and drinking fountains.
    - Clean all sidelight glass and frames.
- Restrooms
    - Clean and disinfect restroom floors, walls, partitions, fixtures, sinks, toilets, counters and mirrors.
    - Sweep, mop and scrub all hard surface floors.
    - Apply four coats of floor finish to all vinyl floors.
- Outdoor Lunch Court & Sidewalks
    - Pressure wash picnic tables and concrete surfaces.
    - Pressure wash identified sidewalks and areas identified.

Abbott MS Logistic Site Plan
Bid Package 2-Addendum 3



1 NEW SITE PLAN
SCALE: 1" = 40'-0"

GENERAL SHEET NOTES

A BUILDINGS ARE UNSPRINKLERED, TYPE V-B CONSTRUCTION UNLESS OTEHRWISE NOTED.

B NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

C CONTRACTOR SHALL MAINTAIN FIRE LANE ACCESS THROUGHOUT PROJECT.

D DO NOT INTERRUPT EXISTING UTILITY SERVICES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AND COORDINATED WITH THE OWNER.

E PROTECT EXISTING & NEW STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, TREES AND SHRUBS FROM DAMAGE DURING CONSTRUCTION.

F REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

SITE PLAN KEYNOTES

1 (E) SWITCHBOARD, S.E.D.
2 REMOVE (E) MECHANICAL UNITS AND HOUSEKEEPING PAD. PREP FOR NEW WORK, S.M.D. AND SEE A3.02.

TEMPORARY FACILITIES AND JOBSITE TRAILERS:
Contractor is responsible for providing a site office trailer for IOR including utility connections for power and data. Contractor to provide sanitary temporary facilities and hand washing stations in no fewer numbers than required by law for use of all workers. Contractor is responsible for providing and maintaining electrical power to the extent power is not available in the building(s), on Site, or during temporary utility shutdowns. Refer to Contract Document 01 50 00, Temporary Facilities and Control for additional requirements.

SITE PROTECTION AND RESTORATION:
Contractor is responsible for maintaining a clean work site and adequate protection of existing structures, paved walks, roads, trees, landscaping, and/or improvements in working areas. Any existing finishes damaged by construction activities including areas within temporary site access, laydown, staging yards, AC and concrete paving, play yard markings, painted surfaces, and adjacent offsite improvements shall be replaced by Contractor at its expense with same kind, quality, and size of work or item(s) damaged. Refer to Contract Document 00 70 00, General Conditions for additional requirements.

CONSTRUCTION WORK HOURS:
1) Construction activities are limited to between the hours of 7:00AM to 7:00PM Monday through Friday, between 10:00AM to 6:00PM on Saturday, and between 12:00PM to 4:00PM on Sunday.
2) Notice of proposed noisy operations outside of the allowable construction work hours, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to District a minimum of forty-eight (48) hours in advance of their performance.

TEMPORARY UTILITY SHUTDOWNS:
Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. District will set exact time and duration for shutdown and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor. Refer Contractor Document 00 71 00, Special Conditions, and Document 01 11 00, Summary of Work for additional requirements.

TEMPORARY ROAD / WALK CLOSURES / CITY PERMITS:
Contractor is responsible to secure any encroachment permits with the City of San Mateo as required in the event that a road and/or sidewalk Right Of Way is to be temporarily blocked for construction activity. Contractor to provide any required temporary traffic control plans for City review and approval. Contractor will be responsible for implementing temporary traffic controls plans.

(E) F.H. EXISTING FIRE HYDRANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119556 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/11/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119556

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/03/21
BACKCHECK	09/29/21

SHEET
SITE PLAN

DATE 09/29/2021
JOB # 2021005.06
SHEET #
A1.02

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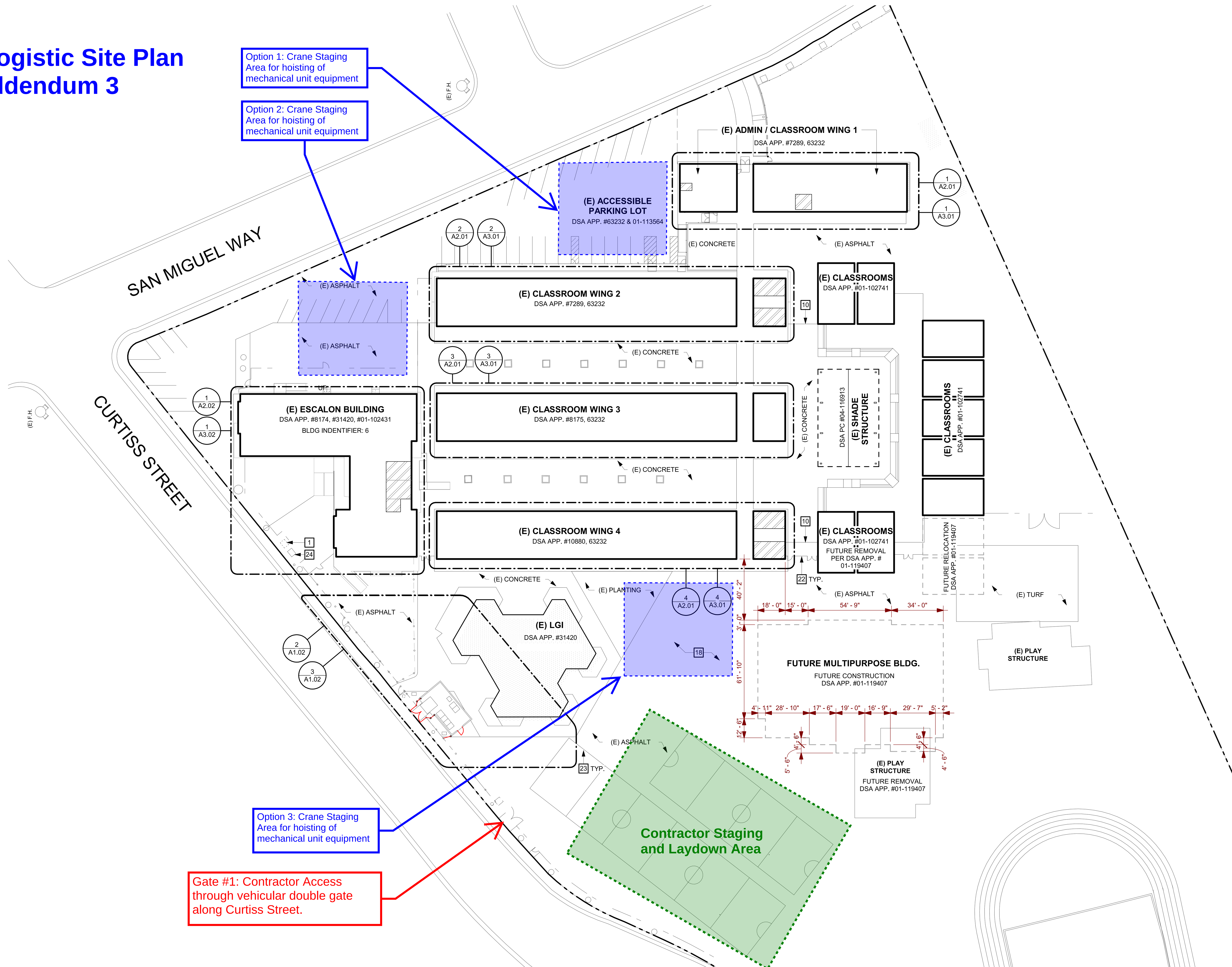
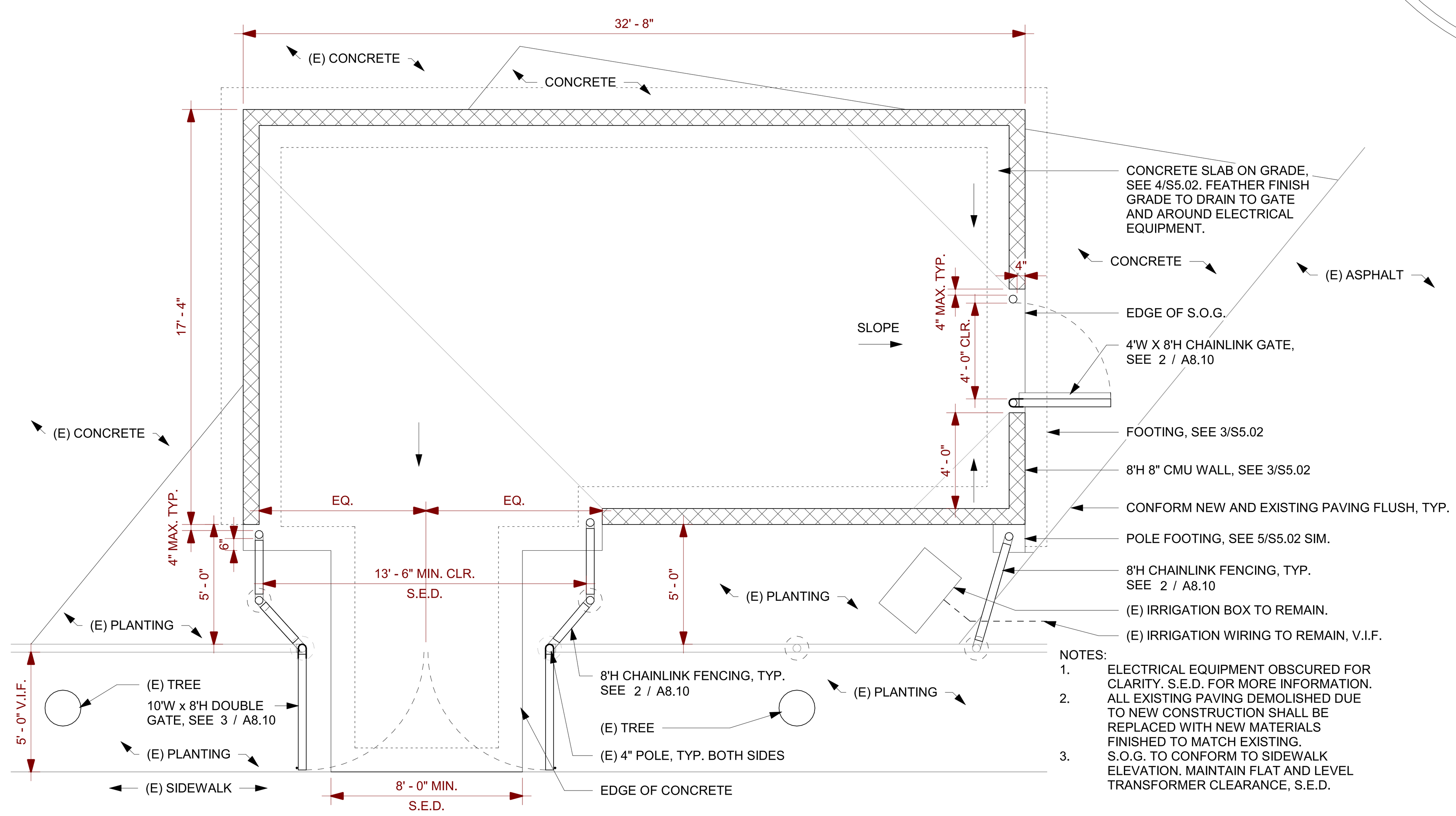
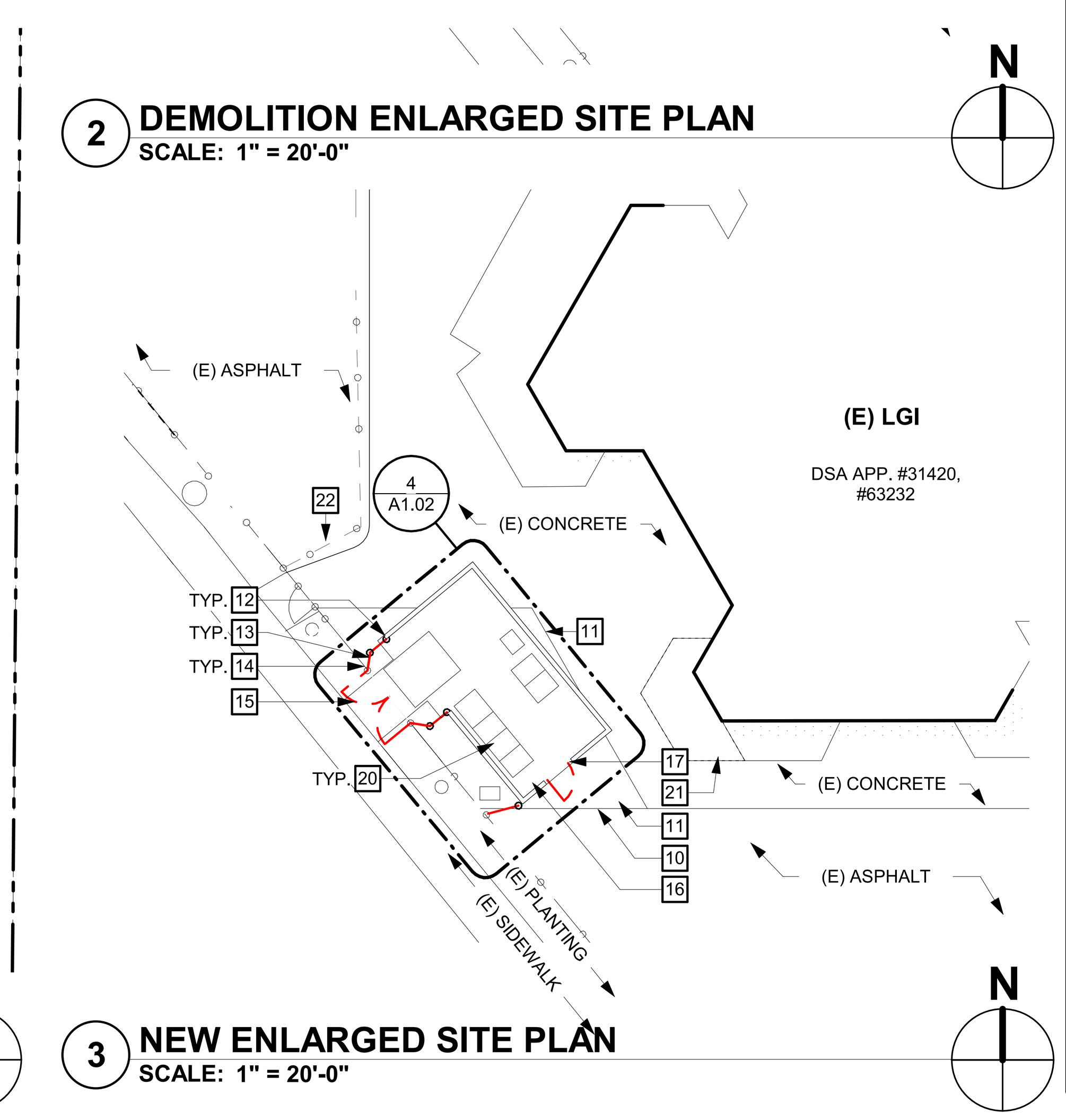
George Hall ES Logistic Site Plan
Bid Package 2-Addendum 3







TEMPORARY FACILITIES AND CONTROL:
Contractor to provide sanitary temporary facilities and hand washing stations in no fewer numbers than required by law for use of all workers. Contractor is responsible for providing and maintaining electrical power to the extent power is not available in the building(s), on Site, or during temporary utility shutdowns. Refer to Contract Document 01 50 00, Temporary Facilities and Control for additional requirements.

SITE PROTECTION AND RESTORATION:
Contractor is responsible for maintaining a clean work site and adequate protection of existing structures, paved walks, roads, trees, landscaping, and/or improvements in working areas. Any existing finishes damaged by construction activities including areas within the temporary site access, laydown, staging yards, and adjacent offsite improvements shall be replaced at by Contractor at its expense with same kind, quality, and size of work or item(s) damaged. Refer to Contract Document 00 70 00, General Conditions for additional requirements.

CONSTRUCTION WORK HOURS:
1) Construction activities are limited to between the hours of 7:00AM to 7:00PM Monday through Friday, between 10:00AM to 6:00PM on Saturday, and between 12:00PM to 4:00PM on Sunday.
2) Notice of proposed noisy operations outside of the allowable construction work hours, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to District a minimum of forty-eight (48) hours in advance of their performance.

TEMPORARY UTILITY SHUTDOWNS:
Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. District will set exact time and duration for shutdown and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor. Refer to Contract Document 00 71 00, Special Conditions, and Document 01 11 00, Summary of Work for additional requirements.

TEMPORARY ROAD / WALK CLOSURES / CITY PERMITS:
Contractor is responsible to secure any encroachment permits with the City of San Mateo as required in the event that a road and/or sidewalk Right Of Way is to be temporarily blocked for construction activity. Contractor to provide any required temporary traffic control plans for City review and approval. Contractor will be responsible for implementing temporary traffic controls plans.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119523 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/26/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119523

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

SHEET
DEMOLITION & NEW SITE PLAN

DATE 10/04/2021
JOB # 2021005.02
SHEET # A1.02

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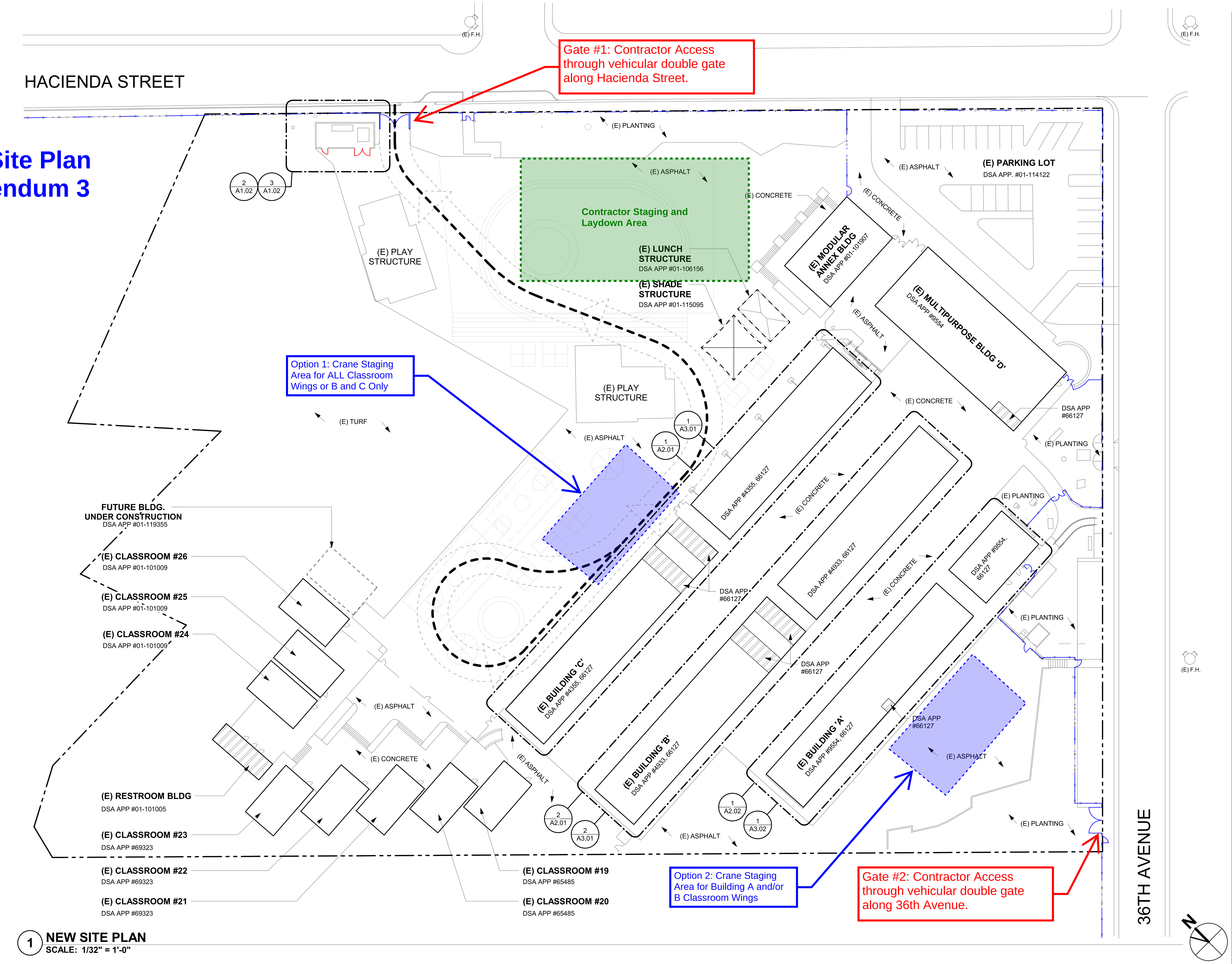
Laurel ES Logistic Site Plan
Bid Package 2-Addendum 3



1 NEW SITE PLAN
SCALE: 1/32" = 1'-0"

TEMPORARY FACILITIES AND CONTROL:
Contractor to provide sanitary temporary facilities and hand washing stations in no fewer numbers than required by law for use of all workers. Contractor is responsible for providing and maintaining electrical power to the extent power is not available in the building(s), on Site, or during temporary utility shutdowns. Refer to Contract Document 01 50 00, Temporary Facilities and Control for additional requirements.

SITE PROTECTION AND RESTORATION:
Contractor is responsible for maintaining a clean work site and adequate protection of existing structures, paved walks, roads, trees, landscaping, and/or improvements in working areas. Any existing finishes damaged by construction activities including areas within the temporary site access, laydown, staging yards, and adjacent offsite improvements shall be replaced at by Contractor at its expense with same kind, quality, and size of work or item(s) damaged. Refer to Contract Document 00 70 00, General Conditions for additional requirements.

CONSTRUCTION WORK HOURS:
1) Construction activities are limited to between the hours of 7:00AM to 7:00PM Monday through Friday, between 10:00AM to 6:00PM on Saturday, and between 12:00PM to 4:00PM on Sunday.
2) Notice of proposed noisy operations outside of the allowable construction work hours, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to District a minimum of forty-eight (48) hours in advance of their performance.

TEMPORARY UTILITY SHUTDOWNS:
Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. District will set exact time and duration for shutdown and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor. Refer Contractor Document 00 71 00, Special Conditions, and Document 01 11 00, Summary of Work for additional requirements.

TEMPORARY ROAD / WALK CLOSURES / CITY PERMITS:
Contractor is responsible to secure any encroachment permits with the City of San Mateo as required in the event that a road and/or sidewalk Right Of Way is to be temporarily blocked for construction activity. Contractor to provide any required temporary traffic control plans for City review and approval. Contractor will be responsible for implementing temporary traffic controls plans.

GRAPHIC KEY

- EXISTING TOILET ROOMS.
- EXISTING CONSTRUCTION TO REMAIN
- EXISTING COVERED STRUCTURE
- ASSUMED PROPERTY LINE
- (E) CHAINLINK FENCE
- (N) CHAINLINK FENCE
- (E) ORNAMENTAL FENCE
- (E) FIRE DEPARTMENT ACCESS. DSA APP #01-119355 FIRE DEPARTMENT ACCESS IS 20'-0" WIDE AND RATED FOR 96,000 LBS.
- EXISTING FIRE HYDRANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119551 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/05/2021

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San Jose, CA 95113
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fax: (408)-300-5121

PROJECT
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119551

REVISIONS

No.	Description	Date
△		

MILESTONES

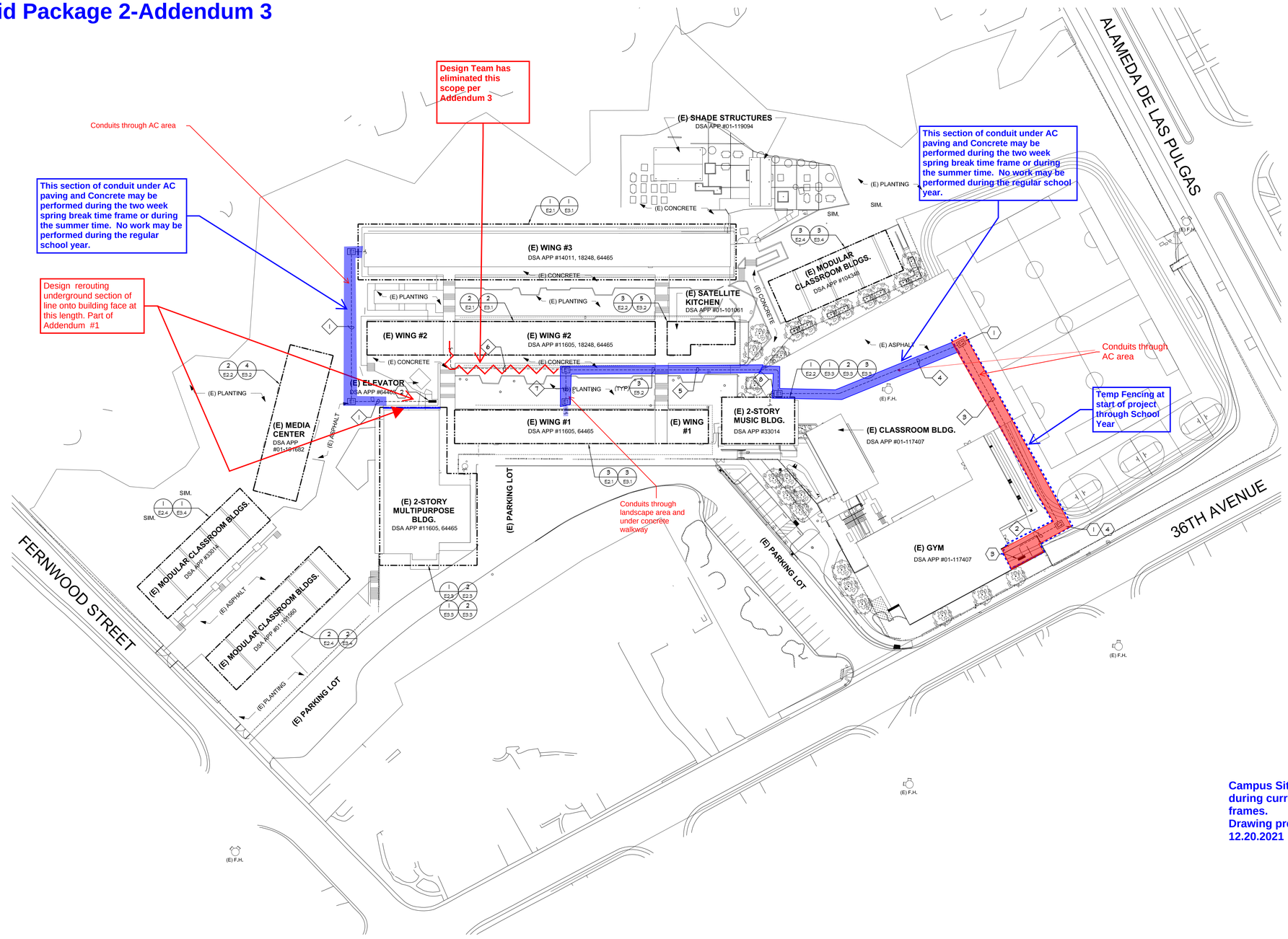
DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

SHEET
SITE PLAN

DATE 09/22/2021
JOB # 2021005.03
SHEET # A1.02

9/22/2021 9:13:19 PM
C:\Users\kbailey\Documents\2021005.03_Laurel ES - HVAC Replacement_Central(2019 version)_kbaileyKKPJP.rvt

Abbott MS Campus Phasing Plan
Bid Package 2-Addendum 3



ELECTRICAL SITE PLAN

1 / E1.1 SCALE: 1" = 40'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SAW CUTTING AND REMOVAL OF EXISTING SURFACES TO FACILITATE UNDERGROUND SYSTEMS. THE CONTRACTOR SHALL PATCH AND REPAIR ALL DAMAGED AND CUT SURFACES TO MATCH ADJACENT.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS, WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. ALL ON-SITE TRENCHING SHALL BE INSTALLED PER DETAIL 3/E5.2.
5. SEE DEMOLITION SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
6. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER, CABLE, AND CONDUIT REQUIREMENTS.

SHEET NOTES:

1. EXISTING IN-GRADE BOX.
2. EXISTING MAIN SWITCHBOARD #1.
3. EXISTING MAIN SWITCHBOARD #2.
4. SPLICE CABLES INSIDE THIS EXISTING IN-GRADE ELECTRICAL PULL BOX. PROVIDE POLARIS SUBMERSIBLE SPLICE CONNECTORS.

CONDUIT SCHEDULE:

1. (N) (3) 3"C - PANEL 'EM'
2. (E) (1) 4"C - PNL 'A' (MUSIC BUILDING)
   (E) (1) 4"C - PNL 'A' (WING 1)
   (N) (1) 4"C - PNL 'DM' (WING 2)
3. (E) (2) 4"C - PNL 'A' (MUSIC BUILDING)
   (N) (3) 4"C - PNL 'A' (WING 1)
   (N) (3) 4"C - PNL 'DM' (WING 2)
4. (E) (2) 4"C - PNL 'A' (MUSIC BUILDING)
   (N) (3) 4"C - PNL 'A' (WING 1)
   (N) (3) 4"C - PNL 'DM' (WING 2)
5. (N) (4) 4"C - PNL 'DM' (WING 2)
   (N) (3) 4"C - PNL 'A' (WING 1)
6. (N) (3) 4"C - PNL 'DM' (WING 2)
7. (N) (3) 4"C - PNL 'A' (WING 1)
8. (N) (2) 4"C - PNL 'A' (MUSIC BUILDING)

PULLBOX SCHEDULE:

- E1 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
- E2 - EXISTING B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.

K Brown-KCEM 11.22.2021
Additional comments 12.20.2021 KB

Campus Site Plan identifying areas of allowable work during current school year and non school year times frames.
Drawing prepared for Bid Package #2 Addendum 3
12.20.2021

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
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PROJECT
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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JOB # EK21030.00

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STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
△		

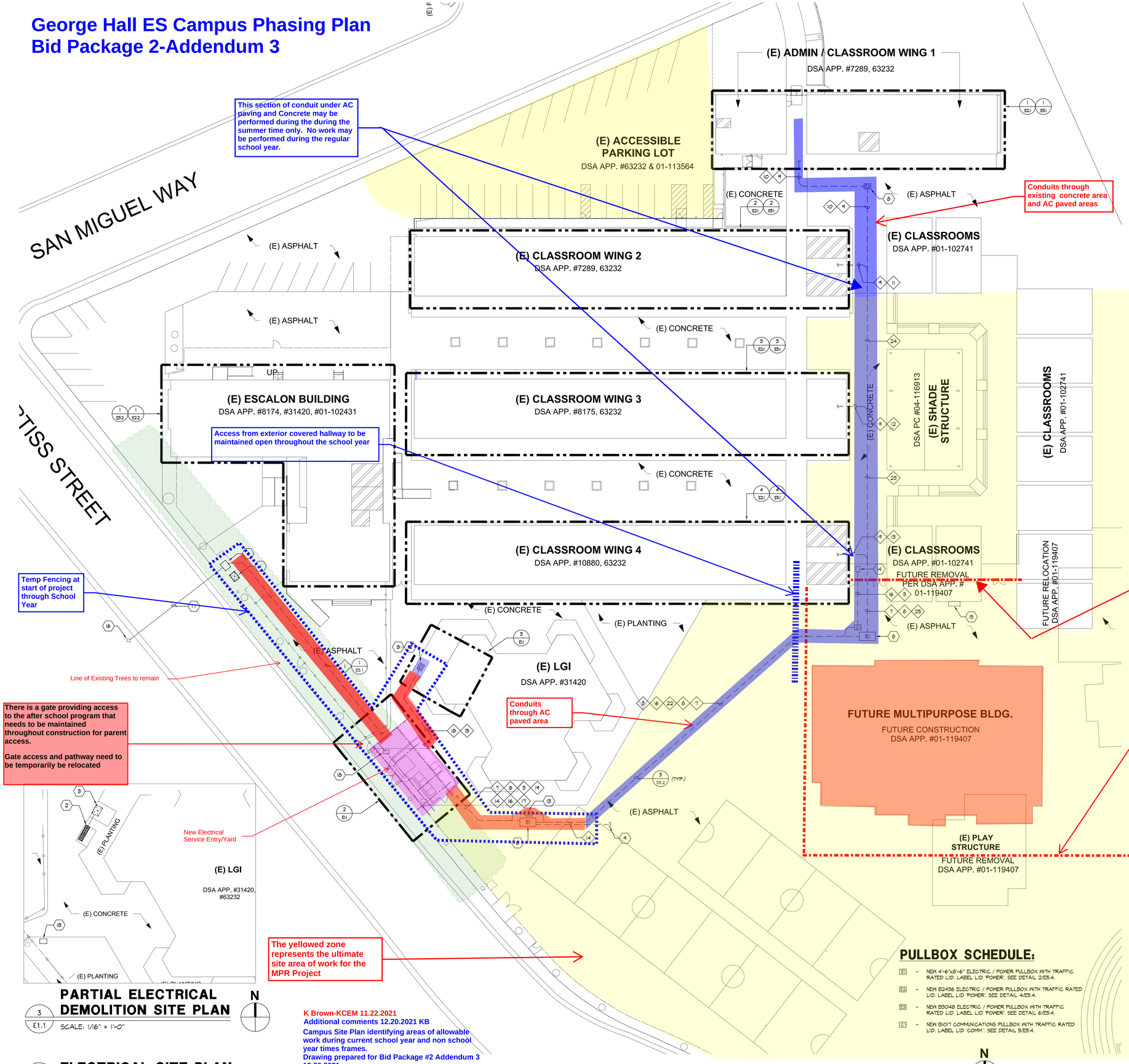
MILESTONES

DD	
90% CD	
DSA SUB	06/03/2021
BACKCHECK	

SHEET
ELECTRICAL SITE PLAN

DATE 06/03/2021
JOB # 2021005.06
SHEET # E1.1

George Hall ES Campus Phasing Plan
Bid Package 2-Addendum 3



GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SAW CUTTING AND REMOVAL OF EXISTING SURFACES TO FACILITATE UNDERGROUND SYSTEMS. THE CONTRACTOR SHALL PATCH AND REPAIR ALL DAMAGED AND CUT SURFACES TO MATCH ADJACENT.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS, WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. INSTALL PG&E PRIMARY TRENCH PER 1/ E5.1.
5. INSTALL PG&E SECONDARY TRENCH PER 3/ E5.1.
6. PG&E TRANSFORMER PAD SHALL BE PER 2/ E5.1.
7. ALL ON SITE TRENCH SHALL BE INSTALLED PER 3/ E5.4.
8. SEE THE DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
9. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER CABLE AND CONDUIT REQUIREMENTS.
10. THE CONTRACTOR SHALL MANDREL THROUGH THE ENTIRE PG&E CONDUIT SYSTEM. COORDINATE WITH PG&E FOR ADDITIONAL REQUIREMENTS AND PROCEDURES.

SHEET NOTES:

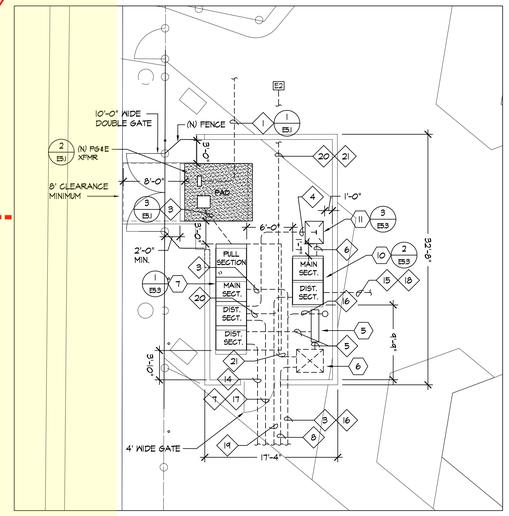
1. EXISTING PG&E TRANSFORMER TO REMAIN.
2. EXISTING 1200A MAIN SWITCHBOARD AND PAD TO BE DEMOLISHED AND REPLACED WITH AN IN-GRADE PULL BOX. INTERCEPT LG1 CONDUIT AT THIS LOCATION.
3. EXISTING PG&E TRANSFORMER TO BE REMOVED BY PG&E. DEMOLISH EXISTING TRANSFORMER PAD AND PATCH SURFACE TO MATCH EXISTING.
4. EXISTING PG&E ABOVE GRADE SWITCH LOCATION TO REMAIN.
5. FUTURE PV DISCONNECT SWITCH.
6. FUTURE PV DISTRIBUTION PANEL.
7. NEW 2500A MAIN SWITCHBOARD.
8. NEW IN-GRADE ELECTRICAL PULL BOX. LABEL LID "ELECTRICAL".
9. STUB CONDUIT FOR FUTURE MU TO THIS LOCATION AND CAP FOR FUTURE USE.
10. (N) 1000A DISTRIBUTION PANEL "DP1".
11. (N) 300KVA TRANSFORMER "T-DP".
12. PROVIDE NEW PULL BOX IN PLACE OF THE EXISTING MAIN SWITCHBOARD. INTERCEPT THE EXISTING FEEDER AND CONDUIT FOR EXISTING PANEL 'LG1', 'E' AND 'DP2' AT THIS LOCATION.
13. NEW SIGNAL PULL BOX LABEL LID "SIGNAL".
14. EXISTING SIGNAL PULL BOX STUB NEW CONDUIT INTO EXISTING BOX AS REQUIRED.
15. EXISTING PANEL 'DP2' TO REMAIN.
16. EXISTING PG&E POLE TO REMAIN.
17. EXISTING PG&E UNDERGROUND PRIMARY STREET CROSSING TO REMAIN.
18. EXISTING UNUSED UNDERGROUND IN-GRADE PULL BOX TO BE DEMOLISHED AND REMOVED. CAP EXISTING CONDUIT

CONDUIT SCHEDULE:

1. (N) (1) 4"C - PG&E PRIMARY.
2. (N) (7) 5"C - PG&E SECONDARY.
3. (N) (1) 1"C - PG&E COMMUNICATIONS.
4. (N) (2) 2.5"C - XFMR "TDP1".
5. (N) (2) 3"C - FUTURE PV DISTRIBUTION PANEL.
6. (N) (3) 3"C - PANEL "DP1".
7. (N) (1) 2.5"C - XFMR "AM".
   (N) (1) 2.5"C - XFMR "BM".
   (N) (1) 2.5"C - XFMR "CM".
   (N) (1) 2.5"C - XFMR "DM".
8. (N) (5) 2.5"C - FUTURE PV.
9. (N) (1) 2.5"C - FUTURE PV.
10. (N) (1) 2.5"C - XFMR "AM".
11. (N) (1) 2.5"C - XFMR "BM".
12. (N) (1) 2.5"C - XFMR "CM".
13. (N) (1) 2.5"C - XFMR "DM".
14. (N) (4) 4"C - (FUTURE MU BLDG).
15. (N) (1) 4"C - PANEL 'E'.
16. (N) (1) 2"C - FUTURE PV COMMUNICATIONS.
17. (N) (4) 4"C - SPARE POWER.
18. (N) (1) 4"C - PANEL 'LG1'
    (N) (2) 4"C - (E) PANEL 'DP2'
19. (N) (2) 2.5"C - SPARE
20. (1) (2) 2.5"C - FUTURE EV
21. (N) (2) 2.5"C - FUTURE PV
22. (N) (2) 4"C - SPARE
23. (N) (1) 2.5"C - XFMR 'AM'
    (N) (1) 2.5"C - XFMR 'BM'
    (N) (1) 2.5"C - XFMR 'CM'
    (N) (3) 2.5"C - FUTURE PV
24. (N) (1) 2.5"C - XFMR 'AM'
    (N) (1) 2.5"C - XFMR 'BM'
    (N) (2) 2.5"C - FUTURE PV
25. (N) (4) 2.5"C - FUTURE PV

PULLBOX SCHEDULE:

- E1 - NEW 4'-6"x8'-6" ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 2/E5.4.
- E2 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 4/E5.4.
- E3 - NEW B3048 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 6/E5.4.
- C1 - NEW B101T COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'. SEE DETAIL 5/E5.4.



3 E1.1 **PARTIAL ELECTRICAL DEMOLITION SITE PLAN**
SCALE: 1/16" = 1'-0"

1 E1.1 **ELECTRICAL SITE PLAN**
SCALE: 1" = 20'-0"

2 E1.1 **ELECTRICAL SWITCHGEAR DIMENSIONS**
SCALE: 1/8"=1'-0"

N

K Brown-KCEM 11.22.2021
Additional comments 12.20.2021 KB
Campus Site Plan identifying areas of allowable work during current school year and non school year times frames.
Drawing prepared for Bid Package #2 Addendum 3 12.20.2021

IDENTIFICATION STAMP
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PROJECT
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

American Consulting Engineers Electrical, Inc.
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San Jose, CA 95126 Fax: 408/236-2316
JOB # EX21030.00

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STATE
DSA FILE NUMBER 41-26
APPL # 01-119523

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

SHEET
ELECTRICAL SITE PLAN

DATE 10/04/2021
JOB # 2021005.02
SHEET # E1.1

Laurel ES Campus Phasing Plan
Bid Package 2-Addendum 3

DA STREET

New Electrical Service entry and yard

(E) PLANTING

(E) ASPHALT

Temporary Fencing- contractor access from parking lot

(E) CONCRETE

(E) ASPHALT

(E) PARKING LOT
DSA APP. #01-114122

(E) CONCRETE

(E) PANEL "P2"

This scope may start during the school year

(E) MODULAR ANNEX BLDG
DSA APP #01-101907

(E) PANEL "P1"

These panels to be relocated to building exterior eliminated trenching through concrete and covered structures per Design Team Addendum 3

(E) MULTIPURPOSE BLDG 'D'
DSA APP #9554

(E) ASPHALT

(E) PLAY STRUCTURE

(E) LUNCH STRUCTURE
DSA APP #01-106156

(E) SHADE STRUCTURE
DSA APP #01-115095

(E) PLAY STRUCTURE

(E) CONCRETE

(E) PANEL "DPD"

(N) PANEL "DM"

(N) XFMR "TD"

DSA APP #66127

(E) PLANTING

Temp Fencing at start of project through School Year

(E) TURF

(E) ASPHALT

DSA APP #4355, 66127

(E) CONCRETE

This section of conduit under AC paving and Concrete may be performed during the during the summer time only. No work may be performed during the regular school year.

DSA APP #4933, 66127

DSA APP #66127

DSA APP #9554, 66127

FUTURE BLDG.
DSA APP #01-119355

(E) CLASSROOM #26
DSA APP #01-101009

(E) CLASSROOM #25
DSA APP #01-101009

(E) CLASSROOM #24
DSA APP #01-101009

(E) ASPHALT

(E) CONCRETE

(E) BUILDING 'C'
DSA APP #4355, 66127

(E) BUILDING 'B'
DSA APP #4933, 66127

(E) BUILDING 'A'
DSA APP #9554, 66127

This section of conduit under AC paving and Concrete may be performed during the during the summer time only. No work may be performed during the regular school year.

DSA APP #66127

(E) ASPHALT

(E) RESTROOM BLDG
DSA APP #01-101005

(E) PANEL "DPP"

(N) XFMR "TP"

(E) CLASSROOM #23
DSA APP #69323

(E) CLASSROOM #22
DSA APP #69323

(E) CLASSROOM #21
DSA APP #69323

(E) CLASSROOM #19
DSA APP #65485

(E) CLASSROOM #20
DSA APP #65485

Existing Trees to remain

K Brown KCEM 11.19.2021
Additional comments 12.20.2021 KB

Campus Site Plan identifying areas of allowable work during current school year and non school year times frames.
Drawing prepared for Bid Package #2 Addendum 3
12.20.2021

N

PULLBOX SCHEDULE:

E1	-	NEW 4'-6"x8'-6" ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
E2	-	NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
E3	-	NEW 3'x5' ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
E4	-	NEW B3048 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
C1	-	NEW B2436 COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'.
C2	-	NEW B3048 COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'.

GENERAL NOTES:

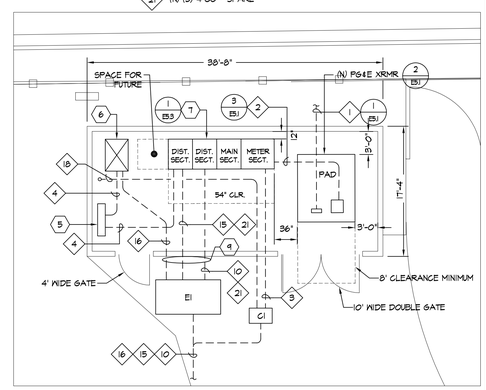
1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SAW CUTTING AND REMOVAL OF EXISTING SURFACES TO FACILITATE UNDERGROUND SYSTEMS. THE CONTRACTOR SHALL PATCH AND REPAIR ALL DAMAGED AND CUT SURFACES TO MATCH ADJACENT.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. INSTALL PG&E PRIMARY TRENCH PER 1/ E5.1.
5. INSTALL PG&E SECONDARY TRENCH PER 3/ E5.1.
6. PG&E TRANSFORMER PAD SHALL BE PER 2/ E5.1.
7. ALL ON SITE TRENCH SHALL BE INSTALLED PER 3/ E5.4.
8. SEE DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
9. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER CABLE AND CONDUIT REQUIREMENTS.
10. THE CONTRACTOR SHALL MANDREL THROUGH THE ENTIRE PG&E CONDUIT SYSTEM. COORDINATE WITH PG&E FOR ADDITIONAL REQUIREMENTS AND PROCEDURES.

SHEET NOTES:

1. EXISTING PG&E UTILITY POLE WITH NEW PG&E PRIMARY RISER.
2. EXISTING 1600A MAIN SWITCHBOARD TO BE DEMOLISHED. DEMOLISH EXISTING SWITCHBOARD PAD AND PATCH SURFACE TO MATCH EXISTING.
3. EXISTING PG&E TRANSFORMER TO BE REMOVED BY PG&E. DEMOLISH EXISTING TRANSFORMER PAD AND PATCH SURFACE TO MATCH EXISTING.
4. NEW STREET CROSSING FOR PRIMARY CONDUIT. CONTRACTOR TO OBTAIN ALL CITY PERMITS FOR PROVIDING THE STREET CROSSING.
5. FUTURE PV DISCONNECT SWITCH.
6. FUTURE PV DISTRIBUTION PANEL.
7. NEW 2000A MAIN SWITCHBOARD.
8. NEW IN-GRADE ELECTRICAL PULL BOX. LABEL LID "ELECTRICAL".
9. REFER TO DETAIL 5/E5.4, FOR CONDUIT TRENCH BELOW FOUNDATION.
10. NOT USED.
11. NOT USED.
12. NOT USED.
13. NEW SIGNAL PULL BOX LABEL LID "SIGNAL".
14. EXISTING SIGNAL PULL BOX STUB NEW CONDUIT INTO EXISTING BOX AS REQUIRED.
15. NEW 400A-3P, 480V UNFUSED DISCONNECT SWITCH.
16. NEW DISCONNECT SWITCH, XFMR "TD" AND PANEL "DM" TO BE INSTALLED IN EXISTING STORAGE ROOM IN BUILDING "D".
17. NEW PANEL "DPA". PANEL TO BE SURFACE MOUNTED ON THE EXTERIOR OF THE MODULAR ANNEX BUILDING.
18. CONDUIT ROUTED EXPOSED ON THE EXTERIOR OF THE MODULAR ANNEX BUILDING.
19. NEW 200A-3P, 480V UNFUSED DISCONNECT SWITCH.

CONDUIT SCHEDULE:

1. (N) (1) 4"C - PG&E PRIMARY.
2. (N) (1) 5"C - PG&E SECONDARY.
3. (N) (1) 1"C - PG&E COMMUNICATIONS.
4. (N) (2) 3"C - FUTURE PV DISTRIBUTION PANEL.
5. (N) 2.5"C - XFMR "TA". (N) (1) 2.5"C - FUTURE PV.
6. (N) (2) 2.5"C - XFMR "TB".
7. (N) (2) 2.5"C - XFMR "TB". (N) 2.5"C - XFMR "TA". (N) (2) 2.5"C - FUTURE PV.
8. (N) (2) 2.5"C - XFMR "TP".
9. (N) (2) 4"C - PANEL "DPP".
10. (N) 2.5"C - XFMR "TA". (N) (2) 2.5"C - XFMR "TB". (N) (2) 2.5"C - XFMR "TP". (N) (2) 2.5"C - FUTURE PV.
11. (N) (2) 2.5"C - XFMR "TD". (N) (1) 2"C - PANEL "DPA".
12. (N) (1) 2"C - PANEL "DPA".
13. (N) (2) 2.5"C - XFMR "TC".
14. (N) (2) 2.5"C - XFMR "TD". (N) (2) 2.5"C - FUTURE PV.
15. (N) (2) 2.5"C - XFMR "TD". (N) (2) 2.5"C - XFMR "TC". (N) (3) 2.5"C - FUTURE PV.
16. (N) (7) 2.5"C - FUTURE PV.
17. (N) (1) 1"C - PG&E COMMUNICATIONS. (N) 2"C - FUTURE PV COMMUNICATIONS.
18. (N) 2"C - FUTURE PV COMMUNICATIONS.
19. (N) (1) 1½"C - PANEL "P1"
20. (N) (1) 1½"C - PANEL "P2"
21. (N) (3) 4"CO - SPARE



ELECTRICAL SITE PLAN

1 / E1.1 — SCALE: 1" = 20'-0"

ELECTRICAL SWITCHGEAR DIMENSIONS

2 / E1.1 — SCALE: 1/8"=1'-0"

N

IDENTIFICATION STAMP
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APP: 01-119551 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/05/2021

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PROJECT

LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

American Consulting Engineers Electrical, Inc.
1580 The Alameda, Suite 200
San Jose, CA 95126
408/236-2312
Fax: 408/236-2316

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119551

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	

SHEET

ELECTRICAL SITE PLAN

DATE 05/28/2021
JOB # 2021005.03
SHEET # E1.1

KITCHELL Attendance Sign-in Sheet

99 S. Almaden Rd., Suite 600, San Jose CA 95113 (408) 483-4267

DATE: Wednesday, December 1 at 10:00am

PROJECT: San Mateo-Foster City School District
Multi-Site HVAC Replacements – Phase 1 for Seven Campuses
Bid Number #21-190 and 21-189

MEETING: PRE-BID CONFERENCE

Pre-Bid Conference Sign-In Sheet			
	Name	Company Name	Telephone
1	Justin Libay	Marina Mechanical	(510) 715-1326
	Email: jlibay@marinam.com		
2	Don Teixeira	Strawn Construction	(650) 888-9599
	Email: don@scmdinc.com		
3	Tyler Valencia	GLS Electric	(209) 914-4094
	Email: tvalencia@gls-inc.net		
4	Phil Enfantini	ESI Mechanical	(409) 980-1711
	Email: penfantini@esite.net		
5	(Bobo Construction)	Bobo Construction	(916) 383-7777
	Email: bestimating@boboconstructioninc.com		
6	(EF Brett)	EF Brett	(415) 524-8351
	Email: estimator@efbrett.com		
7	(Rodan Builders)	Rodan Builders	(650) 508-1700
	Email: bids@rodanbuilders.com		
8	TJ Kay	ESI Controls	(408) 980-1711
	Email: tjkay@esite.net		
9	Jake Barker	Air Treatment	(402) 643-0661
	Email: jbarker@airtreatment.com		

Pre-Bid Conference Sign-In Sheet			
	Name	Company Name	Telephone
10	Steve Davies	Foothill Air Conditioning	(408) 395-2500
	Email: steve@foothillac.com		
11			
	Email:		
12			
	Email:		
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	Email:		
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21			
	Email:		

KITCHELL Attendance Sign-in Sheet

99 S. Almaden Rd., Suite 600, San Jose CA 95113 (408) 483-4267

DATE: Wednesday, December 8 at 10:00am

PROJECT: San Mateo-Foster City School District
Multi-Site HVAC Replacements – Phase 1 for Seven Campuses
Bid Number #21-190 and 21-189

MEETING: PRE-BID CONFERENCE

Pre-Bid Conference Sign-In Sheet				Site Location Visited						
	Name	Company Name	Telephone	BMS	MHES	ABS	LES	GHES	NSMS	CPES
1	Tyler Armstrong	Quality Air Services	510.728.7700	YES	NO	NO	NO	NO	NO	NO
	Email: chasecontracting@yahoo.com									
2	Jared Perry	Calstate Construction, Inc	510.657.1800	YES	YES	YES	YES	YES	YES	YES
	Email: calstatebid@gmail.com									
3	Willie Cestarrallo	CWS Construction Group, Inc	515.599.6545	YES	YES	YES	YES	YES	YES	YES
	Email: charliejr.cws@gmail.com									
4	Huan Truong	DL Falk Construction	510.857.6500	YES	NO	NO	NO	NO	NO	NO
	Email: htruong@dlfalk.com									
5	Jordan Bramleff	Aire Sheet Metal	510.246.6745	YES	YES	NO	NO	NO	NO	NO
	Email: joprdan@airsm.com									
6	Ryan Alipate	Aire Sheet Metal	510.246.6745	YES	YES	NO	NO	NO	NO	NO
	Email: ryana@airsm.com									

Pre-Bid Conference Sign-In Sheet				Site Location Visited						
	Name	Company Name	Telephone	BMS	MHES	ABS	LES	GHES	NSMS	CPES
7	Bryan Martin	OC McDonald	408.569.8267	YES	YES	YES	YES	YES	YES	YES
	Email: bmartin@ocmcdonald.com	hduur@ocmcdonald.com								
8	Steve Perry	F & H Construction	209.931.3738	YES	YES	YES	YES	YES	YES	YES
	Email: estimating@f-hconst.com									
9	April Karsemeyer	BHM Construction	707.643.454580	YES	NO	NO	NO	NO	NO	NO
	Email: bids@bhmconstruction.com									
10	Alyssa Countryman	BRCO Construction	916.253.9373	YES	YES	YES	YES	YES	YES	YES
	Email: acountryman@gobrco.com									
11	Chahan Shah	Cypress Engineering	831.664.8779	YES	YES	NO	NO	NO	NO	NO
	Email: chahan@cyresseng.com									
12	Eric Tsai	Aedis	408.300.5160	YES	YES	YES	YES	YES	YES	YES
	Email:									
13	Kaitlin Bailey	Aedis	408.300.5160	YES	YES	YES	YES	YES	YES	YES
	Email:									
14	John Cacka	American Consulting Engineers	408.236,2312	YES	YES	NO	NO	NO	NO	NO
	Email:									
15										
	Email:									

KITCHELL Attendance Sign-in Sheet

99 S. Almaden Rd., Suite 600, San Jose CA 95113 (408) 483-4267

DATE: Wednesday, December 15, 2021 at 10:00am

PROJECT: San Mateo-Foster City School District
Multi-Site HVAC Replacements – Phase 1 for Seven Campuses
Bid Number #21-190 and 21-189

MEETING: PRE-BID CONFERENCE

Pre-Bid Conference Sign-In Sheet				Site Location Visited						
	Name	Company Name	Telephone	BMS	MHES	ABS	LES	GHES	NSMS	CPES
1	Thomas Francis	Dowdle & Sons Mechanical	707-224-6968	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Email: tomf@dowdleandsonsmech.com									
2	Chip Brennand	Rodan Builders	650-508-1700	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Email: bids@rodanbuilders.com									
3										
	Email:									
4										
	Email:									
5										
	Email:									
6										
	Email:									

Pre-Bid Conference Sign-In Sheet				Site Location Visited						
	Name	Company Name	Telephone	BMS	MHES	ABS	LES	GHES	NSMS	CPES
7										
	Email:									
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15										
	Email:									

aedis
architects

December 22, 2021

Aedis Architects
387 S. First St., Suite 300
San Jose, CA 95113

Subject: Abbott Middle School HVAC Replacement
San Mateo - Foster City School District
Aedis Project No. 2021005.06
DSA Application #01-119556

ADDENDUM NO. 3

CHANGES AND/OR CLARIFICATIONS OF THE DRAWINGS AND SPECIFICATIONS ARE AS FOLLOWS:

GENERAL

ITEM NO. 3.1: HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT

Add: The report in its entirety per attached "HVAC And Power Upgrade Project Hazardous Materials Survey Report Abbott Middle School"

ITEM NO. 3.2: DSA FORM 103-19 LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS

Add: The DSA form in its entirety per attached DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC

SPECIFICATIONS

ITEM NO. 3.3: TABLE OF CONTENTS:

Add: 02 80 00 HAZARDOUS MATERIALS ABATEMENT
Add: 07 62 00 SHEET METAL FLASHING & TRIM
Add: 32 17 23 PAVEMENT MARKINGS

ITEM NO. 3.4: SECTION 02 80 00 HAZARDOUS MATERIALS ABATEMENT

Add: The specification in its entirety per attached 02 80 00 Hazardous Materials Abatement

ITEM NO. 3.5: SECTION 07 31 13 ASPHALT SHINGLES

Revise: Paragraph 2.1 to read: "Acceptable Manufacturer: GAF Corporation; Timberline HD Reflector Series in Golding Amber Color to match existing roof."
Revise: Paragraph 2.3A to read: "Underlayment: GAF Corporation; Shingle Mate

Underlayment."

Add: Paragraph 3.10 to read: "Provide water leak test at roof areas where cutting and patching occurs, including flashings, with hose spray test in front of District personnel. Spray flashing in both directions for no less than five (5) minutes and confirm there is no leaking."

ITEM NO. 3.6: SECTION 07 51 13 BUILT–UP ASPHALT ROOFING

Add: Paragraph 3.7G to read: "Provide water leak test at roof areas where cutting and patching occurs, including flashings, with hose spray test in front of District personnel. Spray flashing in both directions for no less than five (5) minutes and confirm there is no leaking."

ITEM NO. 3.7: SECTION 07 62 00 SHEET METAL FLASHING & TRIM

Add: The specification in its entirety per attached 07 62 00 - Sheet Metal Flashing and Trim.

ITEM NO. 3.8: SECTION 09 65 13 RESILIENT BASE AND ACCESSORIES:

Revise: Paragraph 2.1H to read: "Colors: Selected from manufacturer's full range to match existing."

ITEM NO. 3.9: SECTION 32 17 23 PAVEMENT MARKINGS

Add: The specification in its entirety per attached 32 17 23 Pavement Markings.

DRAWINGS

ARCHITECTURAL

ITEM NO. 3.10: DRAWING SHEET A1.02 – SITE PLAN

Revise: Existing striping at existing asphalt paving per attached AD3-A1.02.
Revise: Electrical trench routing per attached AD3-A1.02.
Add: Existing chain link fencing locations in plan per attached AD3-A1.02.
Add: Fire department access route in plan per attached AD3-A1.02.
Add: (E) Chain-link fence & (E) Fire Department Access graphics to Graphic Key per attached AD3-A1.02.
Add: Site Plan Keynotes #3 & #4 and associated tags in plan per attached AD3-A1.02.

ITEM NO. 3.11: DRAWING SHEET A2.01 - DEMOLITION FLOOR PLAN – WINGS 1, 2, & 3

Clarification: Existing VCT-1 flooring to remain at new partition wall framing at room 36.

ITEM NO. 3.12: DRAWING SHEET A3.01 – NEW FLOOR PLANS – WINGS 1, 2 & 3

Add: General Sheet Note #G per attached AD3-A3.01
Add: Floor Plan Keynote #11 and related tags on the new floor plans per attached AD3-A3.01.
Revise: Floor Plan Keynote #9 per attached AD3-A3.01
Revise: Framing dimensions per attached AD3-A3.01

ITEM NO. 3.13: DRAWING SHEET A3.02 – NEW FLOOR PLANS – MULTIPURPOSE BLDG.

Add: General Sheet Note #G to read "AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK"

ITEM NO. 3.14: DRAWING SHEET A8.10 – EXTERIOR DETAILS

Revise: Detail 6/A8.10 Concrete Patch per attached AD3-A8.10A.
Revise: Detail 9/A8.10 Asphalt/Concrete Joint per attached AD3-A8.10A.
Revise: Detail 10/A8.10 Shingle Side Flashing per attached AD3-A8.10B.
Revise: Detail 11/A8.10 Shingle Lower Flashing per attached AD3-A8.10B.

ITEM NO. 3.15: DRAWING SHEET A9.10 – INTERIOR DETAILS, WALL TYPES, AND INTERIOR ELEVATIONS

Revise: Detail 16/A9.10 Mech. Enclosure Clearances, Typ. per attached AD3-A9.10.
Revise: In typical elevations 9/A9.10 and 10/A9.10 revise finish tag VWC-1 to GB-1

ITEM NO. 3.16: DRAWING SHEET A11.01 – FINISH SCHEDULE & OPENING SCHEDULE, LEGENDS, & DETAILS

Remove: In Finish Schedule, remove VWC-1 from Wall Finish at all rooms
Revise: In Finish Legend, revise GB-1 from "GYPSUM BOARD" to "GYPSUM BOARD, PAINTED"

STRUCTURAL

ITEM NO. 3.17: DRAWING SHEET S8.01 – FRAMING DETAILS AND NAILING SCHEDULE

Remove: Vertical nailing requirement in detail 7 per attached AD3-S8.01

MECHANICAL

ITEM NO. 3.18: DRAWING SHEET MP0.02 – SCHEDULES – MECHANICAL & PLUMBING

Revise: Classroom split system heat pump schedule note #5 per attached AD3-MP0.02
Revise: Package Rooftop Air Conditioning Units Schedule notes per attached AD3-MP0.02
Add: Package Rooftop Air Conditioning Units Schedule Note #5 per attached AD3-MP0.02

ITEM NO. 3.19: DRAWING SHEET MP2.06 – FLOOR PLANS – NEW – WINGS 1 & 2 – MECHANICAL & PLUMBING

Revise: Keynote #16 per attached AD3-MP2.06

Revise: Keynote #28 per attached AD3-MP2.06. Intent is Damper and actuator are concealed inside the opening and covered with grilles similar to picture below.

Add: Keynote #29 and associated tag in partial floor plan per attached AD3-MP2.06. Intent is to provide a duct collar at enclosure penetration similar to the picture below.

ITEM NO. 3.20: DRAWING SHEET MP2.07 – FLOOR PLANS – NEW – WINGS 3 – MECHANICAL & PLUMBING

Revise: Keynote #5 per attached AD3-MP2.07

ITEM NO. 3.21: DRAWING SHEET MP2.08 – FLOOR PLANS – NEW – MUSIC BLDG. & MEDIA CENTER – MECHANICAL & PLUMBING

Revise: Keynote #7 per attached sheet AD3-MP2.08

ITEM NO. 3.22: DRAWING SHEET MP6.01 – DETAILS – MECHANICAL & PLUMBING

Revise: Detail 9 Round duct hanger per attached AD3-MP6.01

ELECTRICAL

ITEM NO. 3.23: DRAWING SHEET E0.1 Electrical Cover Sheet

Revise: Wiring & Conduit Run Symbols per attached AD3-E0.1

ITEM NO. 3.24: DRAWING SHEET E1.1 Electrical Site Plan

Revise: General Note #2 per attached Sheet AD3-E1.1.
Revise: Conduit schedule #2, #3, #4 and #5 per attached AD3-E1.1.
Remove: Conduit schedule #6 per attached AD3-E1.1.
Revise: Conduit routing on the plan per attached AD3-E1.1.

ITEM NO. 3.25: DRAWING SHEET E2.1 Electrical Demo Floor Plan Wings 1, 2, 3.

Add: Demolition Note #2 per attached AD3-E2.1.
Add: Demolition Note #2 tag on plan per attached AD3-E2.1.

ITEM NO. 3.26: DRAWING SHEET E3.1 Electrical New Floor Plan Wings 1, 2, 3

Add: Sheet Note #11, #12, #13 per attached AD3-E3.1.
Add: Sheet Note #11, #12, #13 tag on plan per attached Sheet AD3-E3.1.

ITEM NO. 3.27: DRAWING SHEET E4.1 Demo Single Line Diagram

Add: Demolition sheet Note #9, #10, #11 per attached Sheet AD3-E4.1.
Add: Demolition sheet Note #9, #10, #11 tags per attached Sheet AD3-E4.1.

ITEM NO. 3.28: DRAWING SHEET E4.2 New Single Line Diagram

Add: Sheet Note #9, #10, #11 per attached Sheet AD3-E4.2.
Add: Sheet Note #9, #10, #11 tags per attached Sheet AD3-E4.2
Revise: New Single line diagram per attached Sheet AD3-E4.2.

ITEM NO. 3.29: DRAWING SHEET E4.3 Panel Schedules

Revise: Panel schedules per attached Sheet AD3-E4.3.

ITEM NO. 3.30: DRAWING SHEET E5.2 Electrical Details

Revise: Detail 3/E5.2 Note #1 per attached Sheet AD3-E5.2.
Add: Detail 3/E5.2 Note #5 per attached Sheet AD3-E5.2.

Aedis Architects
Thang Do, Principal

Structural, BASE Design
Gokhan Akalan

Electrical, American Consulting Engineers Electrical
Sammy Fernandez

Mechanical, Cypress Engineering Group
Metin Serttunc

Division of the State Architect

Attachments:

General:
HVAC And Power Upgrade Project Hazardous Materials Survey Report Abbott Middle School (45 pages)
DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC (13 pages)

Specifications:
02 80 00 Hazardous Materials Abatement (42 Pages)
07 62 00 Sheet Metal Flashing and Trim (11 Pages)
32 17 23 Pavement Markings (2 Pages)

Drawing:
ARCHITECTURAL:
SHEET AD3-A1.02
SHEET AD3-A3.01
SHEET AD3-A8.10A
SHEET AD3-A8.10B
SHEET AD3-A9.10
STRUCTURAL:
SHEET AD3-S8.01
MECHANICAL:
SHEET AD3-MP0.02
SHEET AD3-MP2.06
SHEET AD3-MP2.07
SHEET AD3-MP2.08
SHEET AD3-MP6.01
ELECTRICAL:
SHEET AD3-E0.1
SHEET AD3-E1.1
SHEET AD3-E2.1
SHEET AD3-E3.1
SHEET AD3-E4.1
SHEET AD3-E4.2
SHEET AD3-E4.3
SHEET AD3-E5.2

ZNAP FLY ENVIRONMENTAL TESTING

HVAC and Power Upgrade Project

HAZARDOUS MATERIALS SURVEY REPORT

Abbott Middle School

For

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

LIVE · LEAD · LEARN

419 Mason Street Suite 109 | Vacaville CA 95688 | 707.999.5234 Email: erica@znapfly.com

Table of Contents

Cover Letter

Thursday, September 9, 2021

Mark Sanders
San Mateo Foster City School District
1170 Chess Drive
Foster City, California 94404

SUBJECT: **HVAC and Power Upgrades Project - Hazardous Materials Survey Report**

Dear Mr. Sanders,

At the request of the San Mateo Foster City School District, Znap Fly provided an asbestos and lead survey of suspect building construction materials at Abbott Middle School located at 600 36th Avenue in San Mateo, California as part of the San Mateo Foster City School District (SMFCSD).

Onsite testing was performed on July 1, and August 2, 2021, by Ms. Erica Sattar.

This report is intended as an informational resource for the San Mateo Foster City School District and includes sample/test results, conclusions and recommendations regarding hazardous materials based upon information obtained from samples and tests collected at specific locations, review of information/drawings provided to us, and professional judgment.

Shall you have any questions or concerns regarding this document, following review, please contact us at 707-999-5234.

With Gratitude,

Erica Sattar, CAC, CDPH
Principal Consultant / Director of Environmental
Znap Fly

Description of Buildings Surveyed

The buildings surveyed at Abbott Middle School are concrete exterior with metal framed windows with shingle roofing system. Interior finishes anticipated to be impacted by project work include acoustic ceiling panels, plaster soffit, sheetrock on walls, acoustic wall tiles, carpet, cove base, sealants and window putty. Floor tile was also sampled in areas outside the scope of work at the request of SMFCSD.

Survey Methodology: Sampling & Analytical

All onsite testing was performed at 7-sites throughout the San Mateo Foster City School District (SMFCSD), with XRF lead testing completed on July 1, 2021 and bulk samples from Abbott Middle School collected on August 2, 2021, by Ms. Erica Sattar. The project was planned and overseen by Ms. Sattar and Mr. Christopher Smith. Both, Ms. Sattar and Mr. Smith, are Cal/OSHA Certified Asbestos Consultants (CACs) and CDPH Lead Consultants, with mold investigation and remediation training. The report was prepared by Ms. Sattar and reviewed by Mr. Smith.

Asbestos

All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. Znap Fly was not prevented and/or instructed by the owner/operator of SMFCSD as to what materials were to be sampled. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.
- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the demolition project being undertaken at each site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMSL Analytical, Inc. (EMSL) in San Leandro, California. EMSL is a laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" US EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Standard PLM analytical method has a limit of quantification of 1% asbestos. For materials with asbestos detected at trace levels or below 1% by standard PLM, the material must be considered to be above 1% (ACM) unless re-analyzed and found to be less than 1% by the PLM point count method (400 points minimum). Each sample of a homogeneous area material with trace result(s) must be re-analyzed by point count and found to be less than 1% in order to avoid assuming the material to be ACM according to EPA regulation. For this project, no materials were analyzed by point count methods.

Lead

Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%), as set forth in the Department of Housing and Urban Development (HUD) guidelines and California Department of Public Health (CDPH) regulations. Lead-Containing Paints (LCPs) are paints and coatings that contain detectable lead as defined by Cal/OSHA. Most paint and coatings on pre-1978 buildings contain some detectable lead subject to Cal/OSHA regulation. Therefore the exhaustive testing required to prove painted coatings do not contain lead is not practical or cost effective. Consequently, all paints and architectural coatings must be considered to contain some detectable levels of lead unless proven otherwise by laboratory analysis.

This survey included screening level LBP testing for the purpose of characterizing the general presence of lead in existing paints and coatings. As such, this survey included paint testing using a C series Vanta XRF direct read lead testing instrument. The results presented herein are representative of typical conditions but are not inclusive of all painted/coated surfaces present at the site. The results of this survey should assist with compliance to the California Occupational Safety and Health Administration (Cal/OSHA) lead construction standard and preliminary evaluation of potential construction waste streams. All painted/coated surfaces including untested surfaces, must be assumed to contain some detectable level of lead in the absence of representative paint chip analytical results demonstrating that lead levels are below analytical detection limits. This is because the XRF instrument, while providing a cost effective, non-destructive test method, the instrument is calibrated to detect LBP and cannot detect lead at the lowest levels regulated Cal/OSHA and Cal/EPA. Any detectable level of lead is subject to Cal/OSHA regulation.

Universal Wastes & Other Suspected Hazardous Materials

The building areas were visually surveyed for universal wastes and other hazardous materials. These universal wastes include fluorescent lighting fixtures manufactured prior to 1979 that have the potential to contain Polychlorinated Biphenyl (PCB) ballasts, mercury containing lighting tubes, and other components considered to be "universal wastes" upon disposal. "Universal wastes" include mercury-containing non-incandescent lamps, batteries, mercury thermostat switches and other hazardous wastes commonly found in building components and equipment. Other suspect hazardous materials include refrigerants, paints, and solvents.

Survey Results

Asbestos Containing Materials

Znap Fly collected a total of 55 bulk samples with 81 sample layers of suspect ACM analyzed by PLM analysis. Two plaster samples collected from the rough plaster soffit reported asbestos, while all other samples collected reported "none detected" by laboratory analysis. The analytical laboratory results for sampled suspect ACMs are listed below and in the attached Analytical Laboratory Reports.

Assumed Asbestos-Containing Material

The following list of materials are assumed to contain asbestos, pending testing prior to construction to confirm asbestos content or prove no asbestos is present by laboratory analysis.

- Plaster, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 5 square feet may be impacted at each work location
- Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
- Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location

Suspect Asbestos-Containing Materials Sampled with No Asbestos Reported

Materials listed below were sampled and analyzed by an accredited laboratory by PLM analysis reported "none detected" for asbestos. The following list are all materials sampled.

- Sheetrock with joint compound
- Floor tile, 12" x 12" blue and white pattern with associated yellow mastics
- Cove base, 4" green cove base with associated white mastics
- Acoustic ceiling panel, 2' x 4' white with random pinhole pattern
- Acoustic ceiling tile, 12" x 12" fibrous material (mastic associated is assumed ACM unless proven otherwise by laboratory data)
- Sealant at HVAC unit and conduit box at interior classroom areas
- Carpet mastic
- Window putty
- Concrete
- Roof materials
    - These materials were previously sampled. Report is attached along with laboratory results.

Refer to Attachment for a complete set of the laboratory results and sample locations, including existing roof report.

Lead Containing Paints, Coatings and Materials

Znap Fly performed a total of 82 XRF lead tests from the interior and exterior building surfaces. The results of the XRF LBP screening survey are provided in the table shown below. A total of four XRF tests contained lead at LBP levels above the threshold 1.0 mg/cm^2 of the 82 total tests of painted surfaces tested.

The following is a brief summary of types of building components that tested above 1.0 mg/cm^2 and should be considered lead based paint (LBP) as determined by XRF.

	Component	*Substrate*	*Condition*	*Result* (mg/cm2)
Exterior	Window/window cover (wall panel)	Plexiglas	Intact/good	3.47
	Window frame	Metal	Intact/good	3.32
	Window trim	Wood	Intact/good	1.29
	Wall panel (window/window cover)	Unknown	Intact/good	2.97

The tabulated data is not intended to be all inclusive and must be extrapolated to similar surfaces that were not tested. Lead content will vary according to painting histories involved. Generally on a building by building basis, component type and substrate are more reliable indicators.

General Interpretation of Lead-Containing Paint Findings Reported:

All painted components must be presumed to contain some detectable levels of lead regardless of non – detection by the XRF method unless exhaustively tested by paint chip analysis. Untested painted/coated components must be presumed to contain some lead at detectable levels. About 5% of the painted/glazed surfaces tested contained high levels of lead considered to be LBP and most of the remaining surfaces contained some detectable lead. In general, LBP was detected on exterior window components. The frequency of occurrence was typically low. The tested surfaces that reported low levels of detected lead must be considered lead-containing paints (LCP) and coatings in the absence of exhaustive testing by wet chemistry methods.

Paint Condition Findings:

The condition of paint at this site is generally in good/intact condition. Since even low levels of paint (e.g., just over 50 ppm) may exhibit hazardous waste characteristics, care must be taken to eliminate loose and peeling paint prior to general building demolition. Any loose, peeling or flaking paint should be removed and disposed of as lead hazardous waste.

Universal Wastes & Other Potential Hazardous Materials

Znap Fly visually inspected readily accessible areas of the building for other hazardous materials PCB lighting ballasts, Universal Wastes (such as mercury containing lighting tubes, thermostats, and batteries), and other suspect hazardous waste and contamination. No attempt to disassemble equipment or sample any additionally discovered suspect materials was included. Any suspect hazardous material must be presumed hazardous pending complete identification. For example, fluorescent lighting fixtures must be presumed to contain PCB ballasts pending removal and disassembly of each unit to determine ballast type and/or labeling in the absence of other explicit product specific information to the contrary.

Conclusions and Recommendations

Asbestos Containing Construction Materials

Prior to renovation/demolition construction activities, known or assumed ACMs that are likely to be disturbed by those activities must be removed and disposed of in accordance with all applicable regulations including federal National Emissions Standard for Hazardous Air Pollutants (NESHAPS) and Cal/OSHA regulations. A Cal-OSHA registered and State licensed, registered asbestos contractor (abatement/demolition/roofing) is required for removal of ACM prior to general demolition and renovation. For this project, mastic associated with tack board/white board/chalk board, mastic associated with acoustic wall tiles, and rough plaster at the soffit are considered asbestos containing materials unless proven otherwise by laboratory data. The mastics are considered Category I non-friable asbestos containing materials, while the plaster is considered a Category II ACM. Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately. Assumed materials can be sampled on a rush turnaround time to prove a material does not contain asbestos. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Other Considerations and Rules

Where removal is unavoidable, the contractor's abatement sub-contractor should remove all friable RACM under class I removal requirements and dispose of waste as hazardous asbestos waste at a landfill permitted for asbestos hazardous waste disposal, this work is anticipated for this project at select locations; refer to project documents on-site. The contractor's abatement sub-contractor should also remove all category I & II non-friable ACM in a manner that does not produce friable ACM under Cal/OSHA Class I removal requirements and dispose of removed materials as non-hazardous asbestos waste at a landfill permitted for asbestos waste disposal.

The following additional requirements should be adhered to for any maintenance, renovation, or demolition projects requiring asbestos disturbance and/or removal:

- *All asbestos-containing wastes shall be manifested as either hazardous or non-hazardous based on asbestos content, friability, and actual waste stream classification.*
- *All asbestos removal should be overseen by a qualified independent third party, retained by the building owner or manager of the building to ensure proper removal, clean up, work area clearance, and review waste shipping and disposal documentation.*

Contractor should perform all work in compliance with contract documents and the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos.

Lead Containing Paints and Coatings

The painted components tested at the subject buildings typically had detectable levels of lead and should be considered LCP coated. LBP was detected on about 5% of the surfaces or components tested and consisted of exterior window components. All paints and coatings should be considered LCP or coatings in the absence of exhaustive sampling and laboratory analysis. The disturbance of these components during demolition and renovation activities will require use of personnel trained in lead hazards for construction and will require compliance with applicable Cal/OSHA and Cal/EPA regulation. Any detectable level of lead is subject to Cal/OSHA regulation.

At present there is no state or federal regulation requiring mandatory lead removal or abatement prior to disturbance, demolition or renovation of structures with identified lead materials. However, prior to hot work on painted metal, the

paint either needs to be removed or supplied air respirators worn during welding or cutting operation. In addition, there are applicable lead specific Cal/OSHA worker protection requirements and Cal/EPA waste disposal requirements that do apply to lead-related construction activities and associated wastes:

- ***Cal/OSHA:*** The Cal/OSHA regulation, Title 8, CCR, Section 1532.1 Lead governs occupation exposure to lead. This regulation requires that any task that may potentially expose workers to any concentration of lead, be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to initiation of certain activities, referred to as "trigger tasks," that are believed to have the capability of creating an excessive lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels. Pertinent examples of trigger tasks are manual demolition, manual paint scraping and power tool removal, and hot work involving lead-containing coatings or materials. Cal/OSHA also has agency pre-start notification requirements and worker training and certification depending on exposure levels. Clearly these requirements will apply to demolition, patch and repair, paint removal, and surface preparation work at this site.
- ***Cal/EPA:*** Cal/EPA regulates disposal of lead hazardous waste (22 CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Waste). The Cal/EPA Department of Toxic Substance Control (DTSC) has issued guidance indicating that architectural debris with intact lead paint is normally anticipated to be handled as general construction waste. Since detected LCP was generally in intact/good condition and 95% of paint coatings tested had low to moderate lead content, it is unlikely that most of the demolition debris will be hazardous as a composite sample. However, all lead containing waste streams should be considered potentially lead hazardous pending waste testing. Further, all surface preparation and paint removal wastes must be considered hazardous wastes due to the likelihood of paint chip lead levels exceeding 1,000 total lead or 5 ppm soluble lead.

All construction activities impacting lead must be performed in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials. Selective and general demolition activities will involve disturbing lead and possibly creating lead hazardous wastes. These construction activities must be controlled to prevent uncontrolled release of lead contamination and for environmental protection.

The Contractor conducting building demolition and any selective demolition controls the means and methods used and therefore should be required by the contract document to ensure that the demolition processes are conducted in a manner that creates the minimum amount of hazardous waste and leaves the site free of lead contamination exceeding regulatory levels.

Universal Wastes and Other Known or Presumed Hazardous Materials

PCB Lighting Ballasts: Znap Fly's visual inspection indicated that fluorescent light fixtures may contain PCB ballasts are present in the building. However, as it is not practically feasible to check each ballast for labeling prior to renovation, Znap Fly recommends that all light fixtures be visually inspected by the Contractor upon removal to determine if they contain PCB's. Electronic ballasts and ballasts marked "No PCB's" or "PCB Free" should be considered non-hazardous and recycled or disposed of accordingly. However, ballasts that are unmarked must be considered PCB-containing and properly handled, collected, stored, transported and recycled or disposed of by an approved recycling or disposal facility in accordance with the requirements of 22 CCR, Section 67426.1 and the contract.

Universal Wastes: All potential and identified mercury-containing light tubes, high intensity lamps, and other universal wastes such as batteries should be removed and recycled or disposed of in accordance with the guidelines established by the California Department of Toxic Substance Control Universal Waste Rule, as stated in 22 CCR Sections 66261.9 and 66273.1 thru 66273.90.

Other Suspect Hazardous Materials: Coolant gasses in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Reclaimer for the removal and recycling of the gases.

Limitations

Znap Fly conducted this survey in support of the HVAC Power Upgrade Project for San Mateo Foster City School District. Rooms and areas surveyed were based on access to unoccupied classrooms within the work scope defined in SD 90% CD drawings provided by the District dated 06/03/2021. No excavation or subsurface investigation was conducted to discover buried insulated piping and/or asbestos cement pipes concealed below the surface or interstitial wall spaces. Cement pipe and insulated pipe is assumed below the surface and/or in interstitial wall spaces. No samples were collected in rooms not anticipated to be impacted by this project and outside the scope of work anticipated. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Closing

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for the San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available information and for verifying existing site conditions including location and extent of hazardous materials present at specific areas.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for the San Mateo Foster City School District by:

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Certified Asbestos Consultant #14-5250
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Report reviewed for the San Mateo Foster City School District by:

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Attachments

Laboratory Reports with Chain of Custody Record

Asbestos Sampling Plan

Suspect Asbestos Containing Materials Sample Table

Lead Sampling Plan

Lead Paint Testing and Sampling Table

Existing Roof Report with Laboratory Data

Znap Fly Personnel Certifications

CDPH Lead Hazard Evaluation Report

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EMSL Order:	432105953
Customer ID:	ZNAP75
Customer PO:	
Project ID:	

Attention:	Erica Sattar	**Phone:**	(707) 999-5234
	Znap Fly	**Fax:**	
	419 Mason Street	**Received Date:**	08/05/2021 1:45 PM
	Suite 109	**Analysis Date:**	08/06/2021 - 08/07/2021
	Vacaville, CA 95688	**Collected Date:**	
Project:	EN210601 / SAN MATEO FOSTER CITY SCHOOL DISTRICT		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A1 - 32-Sheetrock *432105953-0001*	BLDG AB - ROOM 32 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
A1 - 32-Joint Compound *432105953-0001A*	BLDG AB - ROOM 32 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A1 - 05-Sheetrock *432105953-0002*	BLDG AB - ROOM 5 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
A1 - 05-Joint Compound *432105953-0002A*	BLDG AB - ROOM 5 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A1 - 19 *432105953-0003*	BLDG AB - ROOM 19 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
Only sheetrock present in sample.					
A1 - 03 *432105953-0004*	BLDG AB - ROOM 3 - SHEETROCK WITH JOINT COMPOUND - WHITE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 32 *432105953-0005*	BLDG AB - ROOM 32 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 37B *432105953-0006*	BLDG AB - ROOM 37 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 36 *432105953-0007*	BLDG AB - ROOM 36 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 16 *432105953-0008*	BLDG AB - ROOM 16 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 05 *432105953-0009*	BLDG AB - ROOM 5 - PLASTER - ROUGH SOFFIT	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1 - 19 *432105953-0010*	BLDG AB - ROOM 19 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
B1 - 03 *432105953-0011*	BLDG AB - ROOM 3 - PLASTER - ROUGH SOFFIT	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
B2 - 14 *432105953-0012*	BLDG AB - ROOM 14 - PLASTER - SMOOTH	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B2 - 14B *432105953-0013*	BLDG AB - ROOM 14 - PLASTER - SMOOTH	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 32-Floor Tile 1 *432105953-0014*	BLDG AB - ROOM 32 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 32-Mastic 1 *432105953-0014A*	BLDG AB - ROOM 32 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 32-Floor Tile 2 *432105953-0014B*	BLDG AB - ROOM 32 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 32-Mastic 2 *432105953-0014C*	BLDG AB - ROOM 32 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 36-Floor Tile 1 *432105953-0015*	BLDG AB - ROOM 36 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 36-Mastic 1 *432105953-0015A*	BLDG AB - ROOM 36 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 36-Floor Tile 2 *432105953-0015B*	BLDG AB - ROOM 36 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 36-Mastic 2 *432105953-0015C*	BLDG AB - ROOM 36 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 16-Floor Tile 1 *432105953-0016*	BLDG AB - ROOM 16 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 16-Mastic 1 *432105953-0016A*	BLDG AB - ROOM 16 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 16-Floor Tile 2 *432105953-0016B*	BLDG AB - ROOM 16 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
E1 - 16-Mastic 2 *432105953-0016C*	BLDG AB - ROOM 16 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 05-Floor Tile 1 *432105953-0017*	BLDG AB - ROOM 5 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 05-Mastic 1 *432105953-0017A*	BLDG AB - ROOM 5 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 05-Floor Tile 2 *432105953-0017B*	BLDG AB - ROOM 5 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 05-Mastic 2 *432105953-0017C*	BLDG AB - ROOM 5 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 19-Floor Tile 1 *432105953-0018*	BLDG AB - ROOM 19 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 19-Mastic 1 *432105953-0018A*	BLDG AB - ROOM 19 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 19-Floor Tile 2 *432105953-0018B*	BLDG AB - ROOM 19 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 19-Mastic 2 *432105953-0018C*	BLDG AB - ROOM 19 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 03-Floor Tile 1 *432105953-0019*	BLDG AB - ROOM 3 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 03-Mastic 1 *432105953-0019A*	BLDG AB - ROOM 3 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1 - 03-Floor Tile 2 *432105953-0019B*	BLDG AB - ROOM 3 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
E1 - 03-Mastic 2 *432105953-0019C*	BLDG AB - ROOM 3 - FLOOR TILE - 12" X 12" BLUE / WHITE PATTERN WITH YELLOW MASTIC	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 32-Cove Base *432105953-0020*	BLDG AB - ROOM 32 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 32-Mastic *432105953-0020A*	BLDG AB - ROOM 32 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 36-Cove Base *432105953-0021*	BLDG AB - ROOM 36 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 36-Mastic *432105953-0021A*	BLDG AB - ROOM 36 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 16-Cove Base *432105953-0022*	BLDG AB - ROOM 16 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 16-Mastic *432105953-0022A*	BLDG AB - ROOM 16 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 05-Cove Base *432105953-0023*	BLDG AB - ROOM 5 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 05-Mastic *432105953-0023A*	BLDG AB - ROOM 5 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 19-Cove Base *432105953-0024*	BLDG AB - ROOM 19 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 19-Mastic *432105953-0024A*	BLDG AB - ROOM 19 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 03-Cove Base *432105953-0025*	BLDG AB - ROOM 3 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1 - 03-Mastic *432105953-0025A*	BLDG AB - ROOM 3 - 4" COVE BASE, GREEN - OFF WHITE MASTIC	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
I1 - M2 *432105953-0026*	BLDG AB - MECHANICAL ROOM - ACOUSTIC CEILING PANEL - 2' X 4' RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	5% Perlite 15% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
I1 - 36 *432105953-0027*	BLDG AB - ROOM 36 - ACOUSTIC CEILING PANEL - 2' X 4' RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	60% Cellulose	20% Perlite 20% Non-fibrous (Other)	None Detected
I1 - 16 *432105953-0028*	BLDG AB - ROOM 16 - ACOUSTIC CEILING PANEL - 2' X 4' RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	60% Cellulose 10% Min. Wool	5% Perlite 25% Non-fibrous (Other)	None Detected
I1 - 05 *432105953-0029*	BLDG AB - ROOM 5 - ACOUSTIC CEILING PANEL - 2' X 4' RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	40% Cellulose 10% Min. Wool	2% Perlite 48% Non-fibrous (Other)	None Detected
I1 - 19 *432105953-0030*	BLDG AB - ROOM 19 - ACOUSTIC CEILING PANEL - 2' X 4' RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	40% Cellulose 15% Min. Wool	5% Perlite 40% Non-fibrous (Other)	None Detected
I2 - 03 *432105953-0031*	BLDG AB - ROOM 3 - ACOUSTIC CEILING PANEL, FIBERGLASS - 2' X 4' YELLOW FIBERGLASS MATERIAL	Yellow Fibrous Homogeneous	90% Min. Wool	10% Non-fibrous (Other)	None Detected
J1 - 14 *432105953-0032*	BLDG AB - ROOM 14 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
J1 - 32 *432105953-0033*	BLDG AB - ROOM 32 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
J1 - 36 *432105953-0034*	BLDG AB - ROOM 36 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
J1 - 16 *432105953-0035*	BLDG AB - ROOM 16 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
J1 - 05 *432105953-0036*	BLDG AB - ROOM 5 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	Tan/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
J1 - 19 *432105953-0037*	BLDG AB - ROOM 19 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	Tan/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
J1 - 03 *432105953-0038*	BLDG AB - ROOM 3 - ACOUSTIC CEILING TILE, 12 X 12 - PINHOLE PATTERN W/ BROWN FIBROUS MATERIAL	Tan/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
Q1 - 32 *432105953-0039*	BLDG AB - ROOM 32 - CARPET MASTIC (YELLOW)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1 - 16 *432105953-0040*	BLDG AB - ROOM 16 - CARPET MASTIC (YELLOW)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1 - 03 *432105953-0041*	BLDG AB - ROOM 3 - CARPET MASTIC (YELLOW)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1 - 19 *432105953-0042*	BLDG AB - ROOM 19 - CARPET MASTIC (YELLOW)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1 - 05 *432105953-0043*	BLDG AB - ROOM 5 - CARPET MASTIC (YELLOW)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1 - 32 *432105953-0044*	BLDG AB - ROOM 32 - SEALANT (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1 - 16 *432105953-0045*	BLDG AB - ROOM 16 - SEALANT (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 36 *432105953-0046*	EXTERIOR WINDOW - ROOM 36 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 32 *432105953-0047*	EXTERIOR WINDOW - ROOM 32 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 17 *432105953-0048*	EXTERIOR WINDOW - ROOM 17 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 13 *432105953-0049*	EXTERIOR WINDOW - ROOM 13 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 03 *432105953-0050*	EXTERIOR WINDOW - ROOM 3 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
O1 - 11 *432105953-0051*	EXTERIOR WINDOW - ROOM 11 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/09/2021 14:05:51

EMSL Analytical, Inc.
8145 Ronson Road, Suite B San Diego, CA 92111
Tel/Fax: (858) 499-1303 / (858) 499-1304
http://www.EMSL.com / sandiegolab@emsl.com

EMSL Order: 432105953
Customer ID: ZNAP75
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
O1 - 14 *432105953-0052*	EXTERIOR WINDOW - ROOM 14 - WINDOW PUTTY (WHITE)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Z1 - 14 *432105953-0053*	WALL MATERIAL - ROOM 14 - CONCRETE (GREY)	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
I1 - 32 *432105953-0054*	ROOM 32 - ACP - 2 X 4 RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	60% Cellulose	20% Perlite 20% Non-fibrous (Other)	None Detected
I1 - M *432105953-0055*	MECHANICAL ROOM - ACP - 2 X 4 RANDOM PINHOLE PATTERN	White Fibrous Homogeneous	40% Cellulose 25% Min. Wool	15% Perlite 20% Non-fibrous (Other)	None Detected

Analyst(s)

Ashley Hill (22)
Everette Reyna (13)
Eric Sun (46)

Mariah Curran, Laboratory Manager
or Other Approved Signatory

Initial report from: 08/09/2021 14:05:51

OrderID: 432105953

#432105953

ZNAP FLY

Asbestos Bulk Sample Log

Row ID: T0069607

Client:	San Mateo Foster City School District	**Sample Date:**	8/2/21
Project:	7 School HVAC project, Abbott Middle	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
Ab	A1	32	Sheetrock with joint compound	White	Room 32
Ab	A1	05	Sheetrock with joint compound	White	Room 5
Ab	A1	19	Sheetrock with joint compound	White	Room 19
Ab	A1	03	Sheetrock with joint compound	White	Room 3
Ab	B1	32	Plaster	Rough soffit	Room 32
Ab	B1	37b	Plaster	Rough soffit	Room 37
Ab	B1	36	Plaster	Rough soffit	Room 36
Ab	B1	16	Plaster	Rough soffit	Room16
Ab	B1	05	Plaster	Rough soffit	Room 5
Ab	B1	19	Plaster	Rough soffit	Room 19
Ab	B1	03	Plaster	Rough soffit	Room 3
Ab	B2	14	Plaster	Smooth	Room 14
Ab	B2	14b	Plaster	Smooth	Room 14
Ab	E1	32	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 32
Ab	E1	36	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 36
Ab	E1	16	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 16
Ab	E1	05	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 5
Ab	E1	19	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 19
Ab	E1	03	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 03
Ab	F1	32	4" cove base, green	Off-white mastic	Room 32

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
Erica Sattar	8/5/21
Relinquished: FX	8-5-21 4:00PM

CHAIN OF CUSTODY:

Signatures	DATE&TIME
FX W/I	8-5-21 1:45PM
Received by Lab43	8/6/21 Fedex

Asbestos Bulk Sample Log

ZNAP FLY #432105953

ROW ID: T0069967

Client:	San Mateo Foster City School District	**Sample Date**	8/2/21
Project:	7 School HVAC project, Abbott Middle	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
Ab	F1	36	4" cove base, green	Off-white mastic	Room 36
Ab	F1	16	4" cove base, green	Off-white mastic	Room 16
Ab	F1	05	4" cove base, green	Off-white mastic	Room 5
Ab	F1	19	4" cove base, green	Off-white mastic	Room 19
Ab	F1	03	4" cove base, green	Off-white mastic	Room 3
Ab	I1	M2	Acoustic ceiling panel	2' x 4' random pinhole pattern	mechanical room
~~Ab~~	~~I1~~	~~M32~~	~~Acoustic ceiling panel~~	2' x 4' random pinhole pattern	~~mechanical room~~ VOID PER ERICA SATTAR 8-5-21
Ab	I1	36	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 36
Ab	I1	16	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 16
Ab	I1	05	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 5
Ab	I1	19	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 19
Ab	I2	03	Acoustic ceiling panel, fiberglass	2' x 4' Yellow fiberglass material	Room 3
Ab	J1	14	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 14
Ab	J1	32	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 32
Ab	J1	36	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 36
Ab	J1	16	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room16
Ab	J1	05	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 5
Ab	J1	19	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 19
Ab	J1	03	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 3
Ab	Q1	32	Carpet mastic	Yellow	Room 32

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
[signature]	8/5/21
Relinquished: [signature] 8-5-21 4:00PM	

CHAIN OF CUSTODY:

Signatures	DATE&TIME
[signature] W/2	8-5-21 1:45PM
Received by lab43	8/6/21 Fedex

Asbestos Bulk Sample Log

ZNAPFLY #432105953

ROW ID: TOOC9G7

Client:	San Mateo Foster City School District	**Sample Date:**	8/2/21
Project:	7 School HVAC project, Abbott Middle	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
	Q1	16	Carpet mastic	Yellow	Room 16
	Q1	03	Carpet mastic	Yellow	Room 3
	Q1	19	Carpet mastic	Yellow	Room 19
	Q1	05	Carpet mastic	Yellow	Room 5
	N1	32	Sealant	White	Room 32
	N1	16	Sealant	White	Room 16
	O1	36	Window putty	White	Exterior window, rm 36
	O1	32	Window putty	White	Exterior window, rm 32
	O1	17	Window putty	White	Exterior window, rm 17
	O1	13	Window putty	White	Exterior window, rm 13
	O1	03	Window putty	White	Exterior window, rm 03
	O1	11	Window putty	White	Exterior window, rm 11
	O1	14	Window putty	White	Exterior window, rm 14
	Z1	14	Concrete	Gray	Wall material, rm 14

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

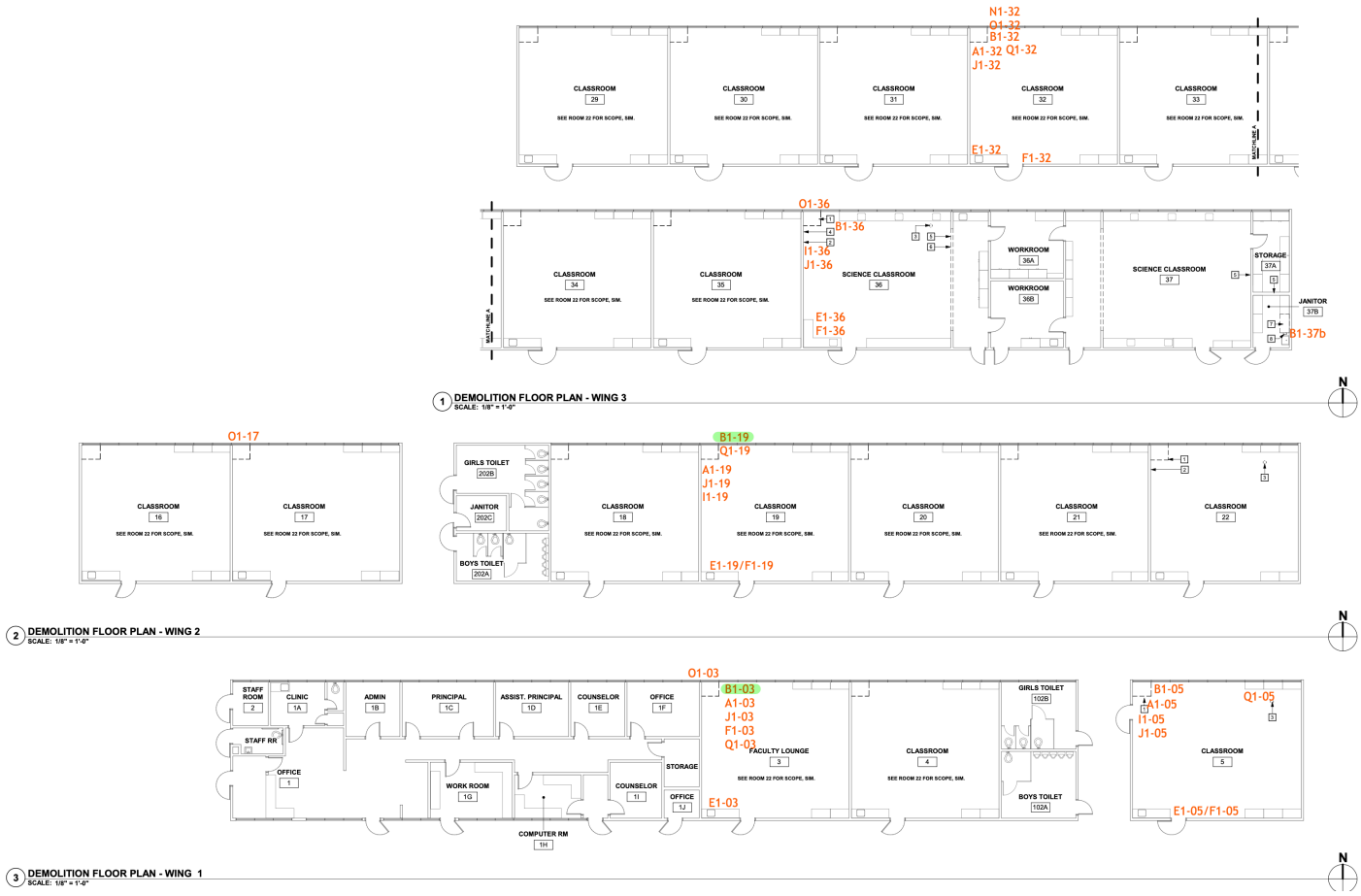
CHAIN OF CUSTODY:

Signatures	DATE&TIME
GSattar	8/5/21
Relinquished: Fx	8-5-21 4:00PM

CHAIN OF CUSTODY:

Signatures	DATE&TIME
W/I	8-5-21 1:45PM
Received Lab 43	8/5/21

Asbestos Sampling Plan



Legend

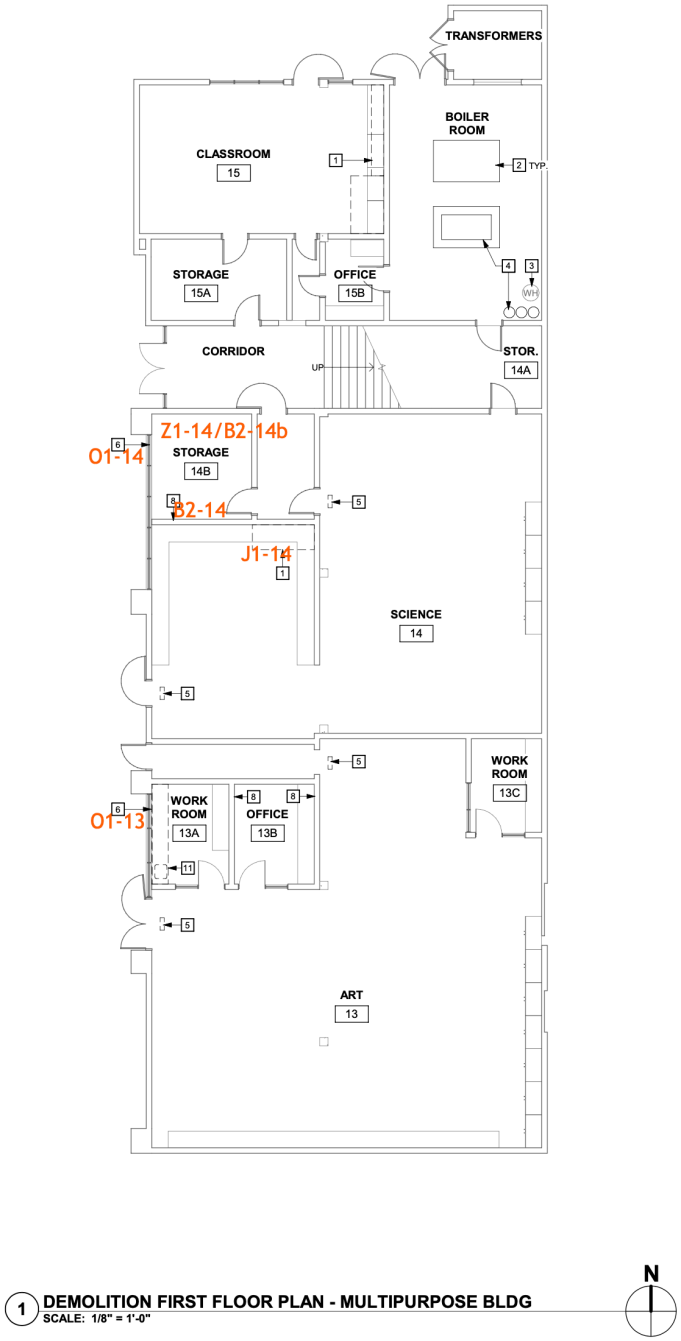
1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.

Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.

2. Green highlight indicates asbestos detected or >1% asbestos detected or assumed present.

Project	HVAC and Power Upgrade Project Abbott Middle School
ZF Project #	EN210601

Asbestos Sampling Plan



1 DEMOLITION FIRST FLOOR PLAN - MULTIPURPOSE BLDG
SCALE: 1/8" = 1'-0"

Legend

1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.
Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.
2. Green highlight indicates asbestos detected or >1% asbestos detected or assumed present.

Project	HVAC and Power Upgrade Project Abbott Middle School
ZF Project #	EN210601

Suspect Asbestos Containing Materials Sample Table

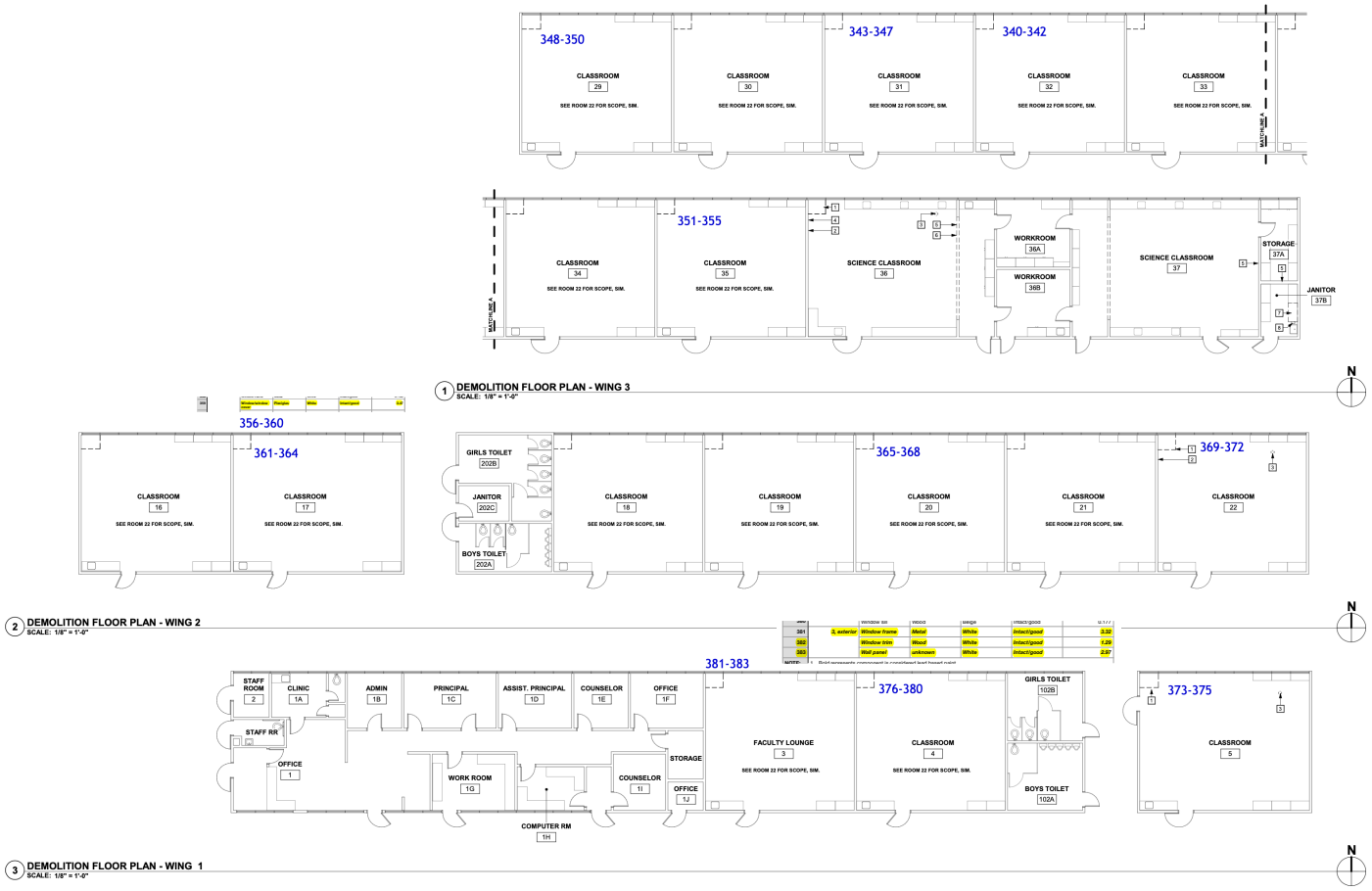
Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
A1	32	Sheetrock with joint compound	White	Room 32	ND
A1	05	Sheetrock with joint compound	White	Room 5	ND
A1	19	Sheetrock with joint compound	White	Room 19	ND
A1	03	Sheetrock with joint compound	White	Room 3	ND
B1	32	Plaster	Rough soffit	Room 32	ND
B1	37b	Plaster	Rough soffit	Room 37	ND
B1	36	Plaster	Rough soffit	Room 36	ND
B1	16	Plaster	Rough soffit	Room16	ND
B1	05	Plaster	Rough soffit	Room 5	ND
B1	***19***	***Plaster***	***Rough soffit***	***Room 19***	***< 1%***
B1	***03***	***Plaster***	***Rough soffit***	***Room 3***	***< 1%***
B2	14	Plaster	Smooth	Room 14	ND
B2	14b	Plaster	Smooth	Room 14	ND
E1	32	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 32	ND
E1	36	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 36	ND
E1	16	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 16	ND
E1	05	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 5	ND
E1	19	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 19	ND
E1	03	Floor tile	12" x 12" blue/white pattern with yellow mastic	Room 03	ND
F1	32	4" cove base, green	Off-white mastic	Room 32	ND
F1	36	4" cove base, green	Off-white mastic	Room 36	ND
F1	16	4" cove base, green	Off-white mastic	Room 16	ND
F1	05	4" cove base, green	Off-white mastic	Room 5	ND
F1	19	4" cove base, green	Off-white mastic	Room 19	ND
F1	03	4" cove base, green	Off-white mastic	Room 3	ND
I1	M2	Acoustic ceiling panel	2' x 4' random pinhole pattern	mechanical room	ND
I1	M32	Acoustic ceiling panel	2' x 4' random pinhole pattern	mechanical room	ND
I1	36	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 36	ND
I1	16	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 16	ND
I1	05	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 5	ND
I1	19	Acoustic ceiling panel	2' x 4' random pinhole pattern	Room 19	ND
I2	03	Acoustic ceiling panel, fiberglass	2' x 4' Yellow fiberglass material	Room 3	ND
J1	14	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 14	ND

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
J1	32	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 32	ND
J1	36	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 36	ND
J1	16	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room16	ND
J1	05	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 5	ND
J1	19	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 19	ND
J1	03	Acoustic ceiling tile, 12 x 12	Pinhole pattern w/ Brown fibrous material	Room 3	ND
Q1	32	Carpet mastic	Yellow	Room 32	ND
Q1	16	Carpet mastic	Yellow	Room 16	ND
Q1	03	Carpet mastic	Yellow	Room 3	ND
Q1	19	Carpet mastic	Yellow	Room 19	ND
Q1	05	Carpet mastic	Yellow	Room 5	ND
N1	32	Sealant	White	Room 32	ND
N1	16	Sealant	White	Room 16	ND
O1	36	Window putty	White	Exterior window, rm 36	ND
O1	32	Window putty	White	Exterior window, rm 32	ND
O1	17	Window putty	White	Exterior window, rm 17	ND
O1	13	Window putty	White	Exterior window, rm 13	ND
O1	03	Window putty	White	Exterior window, rm 03	ND
O1	11	Window putty	White	Exterior window, rm 11	ND
O1	14	Window putty	White	Exterior window, rm 14	ND
Z1	14	Concrete	Gray	Wall material, rm 14	ND
I1	32	ACP	2' x 4' random pinhole pattern	Room 32	ND
I1	M	ACP	2' x 4' random pinhole pattern	Mechanical rm	ND
*S	01	Sealant	Gray at HV seal	Roof C, NW corner	ND
*S	02	Sealant	Gray at vent penetration	C wing, west end	ND
*S	03	Sealant	Gray felt sealant at flashing	B wing, SW end	ND
*S	04	Sealant	Black HV unit	B wing, east end	ND
*LP	05	Tar	Black	Roof, at large penetration	ND
*LP	06	Tar	Black	Roof, at large penetration	ND
*LP	07	Tar	Black	Roof, at large penetration	ND
*LP	08	Tar	Black	Roof, at large penetration	ND
*LP	09	Tar	Black	Roof, at large penetration	ND
*RS	10	Roof field, shingles and felt	Dark brown/black	Roof field, c wing	ND
*RS	11	Roof field, shingles and felt	Dark brown/black	Roof field, north corner at walkway	ND
*RS	12	Roof field, shingles and felt	Dark brown/black	E & B wing	ND

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
*RS	13	Roof field, shingles and felt	Dark brown/black	A wing, west end	ND
*RS	14	Roof field, shingles and felt	Dark brown/black	A wing, center	ND
*RS	15	Roof field, shingles and felt	Dark brown/black	A wing, East end	ND
*RS	16	Roof field, shingles and felt	Dark brown/black	A-B walkway	ND
*CS	17	Sealant	Gray at cutter joints	C wing, SW end	ND
*CS	18	Sealant	Gray	C wing, SW end	ND

1. ND = No asbestos detected by laboratory analysis. "None Detected".
2. Materials with <1% asbestos reported are assumed >1% unless proven otherwise by point count analysis.
3. All reported asbestos is chrysotile unless noted otherwise.
4. *Material sampled in previous survey. Report and data is attached in this report.

Lead Sampling Plan

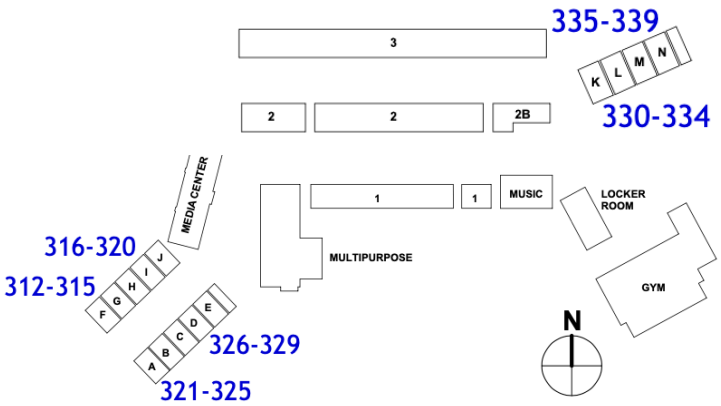


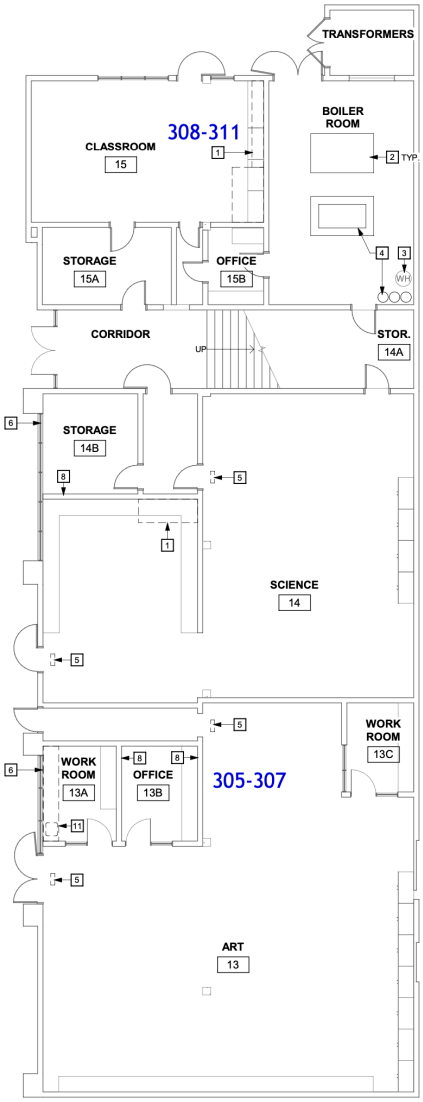
Legend

1. Refer to XRF Lead Paint Reading for results.
2. Lead-based painted (LBP) components were limited to window components, see Lead Paint Testing & Sampling Table.

Project	HVAC and Power Upgrade Project Abbott Middle School
ZF Project #	EN210601

Lead Sampling Plan





Legend

1. Refer to XRF Lead Paint Reading for results.
2. Lead-based painted (LBP) components were limited to window components, see Lead Paint Testing & Sampling Table.

1 **DEMOLITION FIRST FLOOR PLAN - MULTIPURPOSE BLDG**
SCALE: 1/8" = 1'-0"

N

Project	HVAC and Power Upgrade Project Abbott Middle School
ZF Project #	EN210601

Lead Paint Testing and Sampling Table

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
302	Music	Wall	Concrete	Tan	Intact/good	0
303		Wall	Concrete	Tan	Intact/good	0
304		Wall	Concrete	Tan	Intact/good	0
305	13	Wall, lower	Concrete	Beige	Intact/good	0
306		Wall, upper	ACT	Beige	Intact/good	0.0053
307		Wall	Wood	Beige	Intact/good	0
308	15	Wall	Concrete	Beige	Intact/good	0.056
309		Wall	Sheetrock	Beige	Intact/good	0
310		Wall	Sheetrock	Beige	Intact/good	0
311		Wall	Sheetrock	Beige	Intact/good	0
312	G, portable exterior	Wall	Wood	Tan	Intact/good	0
313		Wall trim	Wood	White	Intact/good	0
314		Wall trim	Wood	White	Intact/good	0
315		Wall	Wood	Tan	Intact/good	0
316	I, portable exterior	Wall trim	Wood	White	Intact/good	0
317		Wall trim	Wood	White	Intact/good	0
318		Wall	Wood	Tan	Intact/good	0
319		Wall	Wood	Tan	Intact/good	0
320		Wall	Wood	Tan	Intact/good	0
321	A, portable exterior	Wall	Wood	Tan	Intact/good	0
322		Wall	Wood	Tan	Intact/good	0
323		Wall	Wood	Tan	Intact/good	0
324		Wall trim	Wood	White	Intact/good	0
325		Wall trim	Wood	White	Intact/good	0
326	D, portable exterior	Wall trim	Wood	White	Intact/good	0
327		Wall trim	Wood	White	Intact/good	0
328		Wall	Wood	Tan	Intact/good	0
329		Wall	Wood	Tan	Intact/good	0
330	K, portable exterior	Wall	Wood	Tan	Intact/good	0
331		Wall	Wood	Tan	Intact/good	0
332		Wall trim	Wood	White	Intact/good	0
333		Wall trim	Wood	White	Intact/good	0
334		Wall trim	Wood	White	Intact/good	0
335	M, portable exterior	Wall trim	Wood	White	Intact/good	0
336		Wall trim	Wood	White	Intact/good	0
337		Wall trim	Wood	White	Intact/good	0
338		Wall	Wood	Tan	Intact/good	0
339		Wall	Wood	Tan	Intact/good	0

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
340	32	Wall	Wood	Beige	Intact/good	0
341		Window casing	Wood	Beige	Intact/good	0.088
342		HVAC case	Metal	Beige	Intact/good	0
343	31	Wall trim	Wood	Beige	Intact/good	0
344		HVAC case	Metal	Beige	Intact/good	0
345		Window casing	Wood	Beige	Intact/good	0.116
346		Window sill	Wood	Beige	Intact/good	0.451
347		Wall	Sheetrock	Beige	Intact/good	0
348	29	Window casing	Wood	Beige	Intact/good	0.155
349		Window sill	Wood	Beige	Intact/good	0.154
350		Wall	Wood	Beige	Intact/good	0
351	35	Wall	Wood	Beige	Intact/good	0
352		Window sill	Wood	Beige	Intact/good	0.457
353		Window casing	Wood	Beige	Intact/good	0.611
354		Wall	Plaster	Beige	Intact/good	0
355		Wall	ACT	Beige	Intact/good	0
356	17, exterior	Wall	Stucco	Tan	Intact/good	0
357		Wall	Stucco	Tan	Intact/good	0
358		Window frame	Metal	White	Intact/good	0.168
359		**Window/window cover**	**Plexiglas**	**White**	**Intact/good**	**3.47**
360		Window trim	Wood	White	Intact/good	0.352
361	17	Wall	Sheetrock	Beige	Intact/good	0
362		Window casing	Wood	Beige	Intact/good	0.082
363		Window trim	Wood	Beige	Intact/good	0.035
364		Wall	Plaster	Beige	Intact/good	0
365	20	Window sill	Wood	Beige	Intact/good	0.100
366		Wall	Sheetrock	Beige	Intact/good	0
367		HVAC case	Metal	Beige	Intact/good	0
368		Wall	Sheetrock	Beige	Intact/good	0
369	22	Wall	Wood	Beige	Intact/good	0.054
370		Wall trim	Wood	Beige	Intact/good	0
371		Window sill	Wood	Beige	Intact/good	0.573
372		Window casing	Wood	Beige	Intact/good	0.529
373	5	Wall, lower	Wood	Beige	Intact/good	0.210
374		Window sill	Wood	Beige	Intact/good	0.013
375		Wall	Wood	Beige	Intact/good	0
376	4	Window trim	Wood	Beige	Intact/good	0
377		Wood	Sheetrock	Beige	Intact/good	0
378		HVAC case	Metal	Beige	Intact/good	0

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
379		Wall	Wood	Beige	Intact/good	0
380		Window sill	Wood	Beige	Intact/good	0.177
381	***3, exterior***	***Window frame***	***Metal***	***White***	***Intact/good***	***3.32***
382		***Window trim***	***Wood***	***White***	***Intact/good***	***1.29***
383		***Wall panel***	***unknown***	***White***	***Intact/good***	***2.97***
NOTE:	1. Bold represents component is considered lead based paint. 2. Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%) 3. * Materials were sampled in a previous survey. Report and results are attached.					

Znap Fly

November 26, 2018

San Mateo Foster City School District (SMFCSD)
1410 South Amphlett Blvd
San Mateo, California 94402

Attention: Mark Sherrill

SUBJECT: Re-Roof Project - Asbestos Sample Results
Abbott Middle School
600 36th Avenue, San Mateo CA 94403

Dear Mr. Sherrill,

At the request of Mr. Mark Sherrill from the District, Znap Fly provided a limited asbestos survey of suspect asbestos roof materials throughout the roof areas scheduled for removal at Abbott Middle School, 600 36th Avenue in San Mateo, California. Onsite testing was performed on November 15, 2018, by Mr. Richard Casey, a Certified Site Surveillance Technician and CDPH Lead Sampling Technician and Construction Supervisor/Project Monitor. The project was planned and overseen by Mr. Chris Smith is a Cal/OSHA CAC and CDPH Certified Lead Inspector/Risk Assessor and Project Designer. The report was prepared by Ms. Erica Sattar, a Cal/OSHA Certified Asbestos Consultant (CAC) and CDPH Lead Sampling Technician.

METHODOLOGY: SAMPLING & ANALYTICAL

Znap Fly collected a total of 18 samples of suspect materials to be impacted by renovation work. All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.

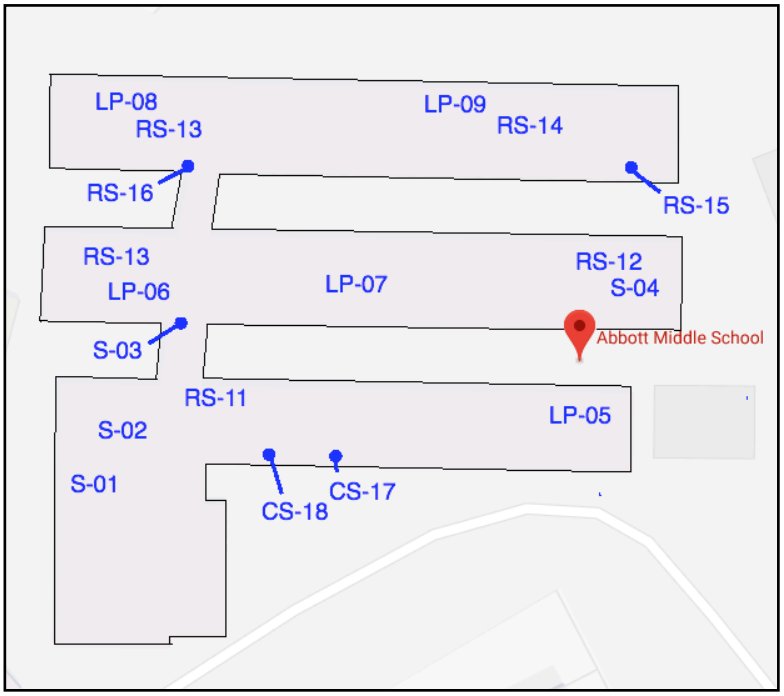
- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the renovation/ demolition project being undertaken at the site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMLab P&K (EM Lab) in South San Francisco, California. EM Lab is laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" U.S. EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Materials Tested & Sample Locations (See Chain of custody attached)

- Roof Sealants
- Flashing Sealants
- H-Vac Unit Sealants
- Vent Penetration Sealants
- Composite Roof field w/ Felt
- Gutter Sealants



RESULTS

Znap Fly collected a total of 18 samples with 25 total layers of suspect ACM analyzed by PLM analysis. All of the roof samples tested at Abbott Middle School Roof reported back as No asbestos Detected (ND).

Refer to **Attachment** for a complete set of the laboratory results and Figure for sample locations.

CONCLUSIONS AND RECOMMENDATIONS

No asbestos was detected at roof sample locations.

Other Considerations and Rules

Where protective measures are feasible to prevent damaging or disturbance of asbestos-containing materials or materials that have not been sampled, they should be employed to avoid unnecessary abatement removal operations.

Where removal is unavoidable, the contractor's abatement sub-contractor should remove all friable RACM under class I removal requirements and dispose of waste as hazardous asbestos waste at a landfill permitted for asbestos hazardous waste disposal, this work is not anticipated for this project. The contractor's abatement sub-contractor should also remove all category I & II non-friable ACM in a manner that does not produce friable ACM under Cal/OSHA Class I removal requirements and dispose of removed materials as non-hazardous asbestos waste at a landfill permitted for asbestos waste disposal, for this project the work should not impact asbestos materials at roof locations.

The following additional requirements should be adhered to for any maintenance, renovation, or demolition projects requiring asbestos disturbance and/or removal:

- *All asbestos-containing wastes shall be manifested as either hazardous or non-hazardous based on asbestos content, friability, and actual waste stream classification.*
- *All asbestos removal should be overseen by a qualified independent third party, retained by the building owner or manager of the building to ensure proper removal, clean up, work area clearance, and review waste shipping and disposal documentation.*

Contractor should perform all work in compliance with contract documents and the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos.

LIMITATIONS

Znap Fly conducted this survey in support of the upcoming Re-Roofing Project located at Abbott Middle School, 600 36th Avenue in San Mateo, California. Areas outside of that shown

in Figure 1 were not considered. The survey was limited to roofing at the main school buildings only.

Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available information and for verifying existing site conditions including location and extent of hazardous materials present at specific roof areas of Abbott Middle School.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

CLOSING

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for SMFCSD by:

Erica Sattar, CAC, CDPH
Certified Asbestos Consultant #14-5250
CDPH Lead Sampling Technician #20425

Report reviewed for SMFCSD by:

Chris Smith, CAC, CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector Assessor/Project Designer #12430

EMLab P&K
A TestAmerica Company

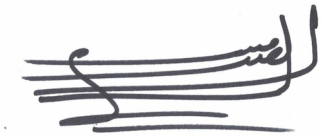
Znap Fly

Report for:

Erica Sattar
Znap Fly
419 Mason St. #108
Vacaville, CA 95688

Regarding: Project: EN180604; San Mateo Foster City School District
EML ID: 2045512

Approved by:



Approved Signatory
Amin Suliman

Dates of Analysis:
Asbestos PLM: 11-23-2018

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
6000 Shoreline Ct, Ste 205, So. San Francisco, CA 94080
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Znap Fly
C/O: Erica Sattar
Re: EN180604; San Mateo Foster City School District

Date of Submittal: 11-15-2018
Date of Receipt: 11-19-2018
Date of Report: 11-23-2018

ASBESTOS PLM REPORT

Total Samples Submitted:	18
Total Samples Analyzed:	18
Total Samples with Layer Asbestos Content > 1%:	0

Location: S-01, Sealant-grey HV seal-N/W corner upper roof C W. end Lab ID-Version‡: 9658131-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Poor

Location: S-02, Sealant-grey vent penetration-W. end C wing Lab ID-Version‡: 9658132-1

Sample Layers	Asbestos Content
Gray/Black Roofing Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: S-03, Sealant-grey felt sealant at flashing-SW end B wing Lab ID-Version‡: 9658133-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Good

Location: S-04, Sealant-black HV unit sealant-E. end B wing Lab ID-Version‡: 9658134-1

Sample Layers	Asbestos Content
Black Sealant	ND
Sample Composite Homogeneity:	Good

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Submittal: 11-15-2018
Date of Receipt: 11-19-2018
Date of Report: 11-23-2018

ASBESTOS PLM REPORT

Location: LP-05, Black tar-large penetration black tar-E. end C wing Lab ID-Version‡: 9658135-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Location: LP-06, Black tar-large penetration black tar-W. end B wing Lab ID-Version‡: 9658136-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Location: LP-07, Black tar-large penetration black tar-NW end A wing Lab ID-Version‡: 9658137-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Location: LP-08, Black tar-large penetration black tar-N. side center A wing Lab ID-Version‡: 9658138-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Date of Submittal: 11-15-2018
Date of Receipt: 11-19-2018
Date of Report: 11-23-2018

ASBESTOS PLM REPORT

Location: LP-09, Black tar-large penetration black tar Lab ID-Version‡: 9658139-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Location: RS-10, 3 layers shings/felt-throughout all wings-pre damaged area C wing Lab ID-Version‡: 9658140-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: RS-11, 3 layers shings/felt-throughout all wings-N. corner at walkway Lab ID-Version‡: 9658141-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: RS-12, 3 layers shings/felt-throughout all wings-E. end B wing Lab ID-Version‡: 9658142-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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C/O: Erica Sattar
Re: EN180604; San Mateo Foster City School District

Date of Submittal: 11-15-2018
Date of Receipt: 11-19-2018
Date of Report: 11-23-2018

ASBESTOS PLM REPORT

Location: RS-13, 3 layers shings/felt-throughout all wings-W. end A wing Lab ID-Version‡: 9658143-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: RS-14, 3 layers shings/felt-throughout all wings-center A wing Lab ID-Version‡: 9658144-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: RS-15, 3 layers shings/felt-throughout all wings-E. end A wing Lab ID-Version‡: 9658145-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: RS-16, 3 layers shings/felt-throughout all wings-H.B walk way Lab ID-Version‡: 9658146-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Re: EN180604; San Mateo Foster City School District

Date of Submittal: 11-15-2018
Date of Receipt: 11-19-2018
Date of Report: 11-23-2018

ASBESTOS PLM REPORT

Location: CS-17, Cutter sealant grey-at cutter joints-C wing SW side Lab ID-Version‡: 9658147-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Good

Location: CS-18, Cutter sealant grey-at cutter joints-C wing SW side Lab ID-Version‡: 9658148-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Good

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

002045512

Znap Fly

CHAIN OF CUSTODY-BULK

COMPANY CONTACT INFORMATION			
Contact:	Erica Sattar	Turnaround Time:	Standard
Address:	419 Mason Street, Suite 108, Vacaville CA 95688	Analysis:	PLM
Phone:	707.999.5234	Number of Samples:	
Email:	info@znapfly.com	Sampled By:	RichardCasey

PROJECT INFORMATION		
Project Number:	EN180604	Notes: Roof only
Client:	San Mateo Foster City School District	
Project Address:	600 36th Ave, San Mateo, CA 94403 - ABBOTT Roof	

Sample ID	Material Sampled	Description of Material	Sample Location
S-01	Sealent	grey HV seal	N/w corner upper Roof C
S-02	"	" Vent Penetration	w end C wing.
S-03	"	" felt Sealent AT flashing	SW End B wing
S-04	"	BLK. HV unit Sealent	E. End B wing
LP-05	BLK TAR	Large Penetration BLACK TAR	E End C wing
LP-06	↓	↓	W End B wing
LP-07			N.W. End A wing
LP-08			N. Side Center A wing
LP-09			
RS-10	3 Layers Shings/Felt →	Throughout all wings	Pre damaged area C wing
RS-11	↓	↓	N corner AT walkway
RS 12			E End B wing
RS 13			W end A wing
RS 14			center A wing
RS 15			E End A wing
RS 16			H-B WALK WAY
C.S.17	Cutter Sealant grey	AT Cutter joints	C wing SW side
C.S.18	↓	↓	" "

Relinquished by:	Richard Casey	Date/Time: 11.15.18
Received by:		Date/Time: 11-19-18 9:35a

Personnel Certifications


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Erica E Sattar
Name

Certification No. 14-5250

Expires on 02/11/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Erica Sattar	Lead Sampling Technician	LRC-00003791	11/22/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Christopher E Smith
Name

Certification No. 05-3823

Expires on 06/16/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Christopher Smith	Lead Inspector/Assessor	LRC-00006885	7/1/2021
	Lead Project Monitor	LRC-00006884	7/1/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

Project	HVAC and Power Upgrade Projects
ZF Project #	EN210601

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 7/1/2021

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

[X] Lead Inspection [ ] Risk assessment [ ] Clearance Inspection [ ] Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
600 36th Avenue	San Mateo	San Mateo	94403

Construction date (year) of structure	Type of structure		Children living in structure?	
unknown	[ ] Multi-unit building	[X] School or daycare	[ ] Yes	[X] No
	[ ] Single family dwelling	[ ] Other_____	[ ] Don't Know	

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
San Mateo Foster City School District, Kevin Sanders	650-655-3331

Address [number, street, apartment (if applicable)]	City	State	Zip Code
1170 Chess Drive	Foster City	CA	94404

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

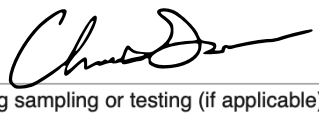
[ ] No lead-based paint detected [X] Intact lead-based paint detected [ ] Deteriorated lead-based paint detected

[ ] No lead hazards detected [ ] Lead-contaminated dust found [ ] Lead-contaminated soil found [ ] Other_____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Chris Smith	707-999-5234

Address [number, street, apartment (if applicable)]	City	State	Zip Code
419 Mason Street	Vacaville	CA	95688

CDPH certification number	Signature	Date
00006885/0006884		8/4/2021

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Erica Sattar, 00003791

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2019 CBC

Application Number:	**School Name:**	**School District:**
01-119556	Abbott Middle School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-28 08:55:17

2019 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2019 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic** – Indicates that a periodic special inspection is required **Test** – Indicates that a test is required	**GE** – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR** – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI –** Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI** – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

Geotechnical Reports: Project does NOT have and does NOT require a geotechnical report

	1. GENERAL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	**See Notes**	**PI**	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

	2. SOIL COMPACTION AND FILL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Compaction testing.	**Test**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.

	3. DRIVEN DEEP FOUNDATIONS (PILES):	Table 1705A.7

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		
☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	**Table 1705A.8**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Verify pier locations, diameters, plumbness and lengths.Record concrete or grout volumes.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**c.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See Section 2 above).
☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

	6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
☐	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Concrete), 2019 CBC

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

Application Number:	**School Name:**	**School District:**
01-119556	Abbott Middle School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-28 08:55:17

	7. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing:				
☑	**a.** Verify use of required design mix.	**Periodic**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☑	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-14 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.15;** ACI 318-14 Section 26.12.
Inspection:				
☑	**e.** Batch plant inspection: **Eliminated**	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or eliminated per **1705A.3.3.2.** (See Appendix for exemptions.)
☐	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

	8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 11.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-14 Section 26.13

	9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-14 Section 26.13.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.

	10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.19, Table 1705A.3 Item 7, 1908A.6, 1908A.7, 1908A.8, 1908A.9, 1908A.11, 1908A.12.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.5, 1908A.10.**

	11. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix for exemptions.)

	12. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-119556	Abbott Middle School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-28 08:55:17

Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests **/** special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☐	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
☐	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment **-** see item 7 for "Welding") given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
☑	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

☐	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
☑	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.
☑	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	Welding:
☐	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☑	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).
☑	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).

☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 located in the Steel/Aluminum category).
☑	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2019 CBC

Application Number: 01-119556	**School Name:** Abbott Middle School	**School District:** San Mateo-Foster City School District
DSA File Number: 41-26	**Increment Number:**	**Date Created:** 2021-09-28 08:55:17

Name of Architect or Engineer in general responsible charge:

Name of Structural Engineer (When structural design has been delegated):

Gokhan Akalan

Signature of Architect or Structural Engineer:

Date: 9/28/2021

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119556 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/11/2021

DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

Application Number:	School Name:	School District:
01-119556	Abbott Middle School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-28 08:55:17

1. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291

2. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292

Specification

This Hazardous Material Abatement & Related Construction Specification 02 80 00 was prepared for San Mateo Foster City School District in support of the HVAC and Power Upgrade Project for the following schools:

School Name	Address
Abbott Middle School	600 36th Avenue, San Mateo, CA 94403
Borel Middle School	425 Barenson Avenue, San Mateo, CA 94403
College Park	715 Indian Avenue, San Mateo, CA 94402
Laurel Elementary	316 36th Avenue, San Mateo, CA 94403
Meadow Heights	2619 Dolores Street, San Mateo, CA 94403
North Shoreview	1301 Cypress Avenue, San Mateo, CA 94401
George Hall	130 San Miguel Way, San Mateo, CA 94403

Prepared for:

San Mateo Foster City School District
1170 Chess Drive
Foster City, CA 94404

Prepared by:

ZNAP FLY
419 Mason Street
Vacaville, CA 95688

SECTION 02 80 00

HAZARDOUS MATERIAL ABATEMENT & RELATED CONSTRUCTION

PART 1. GENERAL

1.1 SCOPE

A. The work of this section includes removal, clean up and disposal of the below listed hazardous materials prior to the general building and structure renovation and/or demolition work of the project. These work scope items are generally described as follows for the buildings and structures indicated. Contractor is to review all demolition/construction project plans and field verify location and extent of hazardous materials-related work.

1. **Asbestos-Containing Materials – Remove all:**

a. Abbott Middle School

1. Plaster, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 5 square feet may be impacted at each work location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location

b. Borel Middle School

1. Window putty at window HVAC unit, 2% asbestos, Category II ACM, approximately 2 square feet limited to Room 34
2. Mastic Associate with tack board/white board/chalkboard, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
4. Roof mastic, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work location

c. College Park Elementary School

1. Texture coat associated with sheetrock above acoustical ceiling panel, < 1 - 2% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Regulated Asbestos Containing Material (RACM), approximately 5 square feet may be impacted at each work location, however may not be impacted with the given scope of work
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Roof shingle & roof mastics, assumed asbestos, located throughout the roof system, non-friable Category I ACM, approximately 5 square feet may be impacted at each work location

d. George Hall Elementary School

1. Stucco, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 2 square feet may be impacted at each work location, however this material may not be impacted by scheduled work
2. Floor tile beneath existing tile and/or carpet, 2% asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
4. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, however this material may not be impacted by scheduled work

e. Laurel Elementary School

1. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
2. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet

f. Meadow Heights Elementary School

1. Floor tile, tan tile beneath existing flooring, 5% asbestos, with residual mastic (insufficient material to analyze) Category I non-friable ACM, approximately 5 square feet to be impacted at each work area location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work area location
3. Roof shingles, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location
4. Roof mastics, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location

g. North Shoreview Montessori School

1. Joint compound associated with sheetrock wall system, joint compound = 2% asbestos, sheetrock = no asbestos detected, Regulated Asbestos Containing Material (RACM) - friable asbestos containing material, approximately 15 square feet may be impacted at each work location, refer to project drawings
2. Residual floor tile mastic, found in one of seven samples collected at Room 18, 3% asbestos approximately 8 square feet at each work location may be impacted, refer to project drawings
3. Stucco, <1% asbestos assumed >1% asbestos without point count analysis, Category II non-friable asbestos containing material, quantity impacted is dependent on the scope of work, refer to project drawings
4. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location, may not be impacted.
5. Mastic associated with acoustic ceiling tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, although material may not be impacted by scope of work
6. Roof field, shingle with associated mastic (assumed asbestos, this material may be sampled during construction if impacted to prove no asbestos by laboratory analysis, non-friable Category I ACM, quantity impacted is dependent on the scope of work, refer to project drawings

2. **Lead-Based Paint (LBP).** Remove loose and peeling LBP where occurs on lead-based components including:
   - **a. Abbott Middle School**
     1. Exterior plexiglas windows/window covers (wall panels)
     2. Exterior metal window frames
     3. Exterior wood window trims
     4. Window panels (windows/window covers)
   - **b. Borel Middle School**
     1. Exterior wood window frames
   - **c. George Hall Elementary School**
     1. Interior wood window sills
     2. Interior wood wall trim
     3. Exterior metal collars
     4. Exterior metal equipment
   - **d. Laurel Elementary School**
     1. Exterior wood window sills
     2. Exterior wood window casings
     3. Exterior metal roof collars
     4. Exterior metal roof HVAC/mechanical equipment
   - **e. Meadow Heights Elementary School**
     1. Interior wood window sills
     2. Exterior wood wall trim
   - **f. North Shoreview Montessori School**
     1. Interior wood lower walls
     2. Exterior metal window trims
     3. Exterior metal wall trims

3. Presumed Polychlorinated Biphenyl (PCB) lighting ballasts. Remove presumed PCB items, verify PCB content by labeling or manufacturing information and dispose of as PCB items unless proven non-PCB and/or labeled 'PCB FREE'. Recycle non-PCB components to extent possible.
4. Universal Waste including lighting tubes and exterior non-incandescent lighting. Remove and properly recycle.
5. Chlorofluorocarbons (CFCs) coolant gases in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Re-claimer for the removal and recycling of the CFC gases.

B. The Contractor's work scope includes all removal, waste testing, and disposal or recycling costs associated with removed materials and removal operations for this project.

C. Subsurface concrete piping shall be presumed to be asbestos cement (Transite®).

D. The Contractor shall make any necessary arrangements for temporary water and power necessary to conduct the work of this project. Power and water are available on site but will require Contractor to make any necessary temporary connections. Coordinate schedule and phasing with architectural.

E. Contractor shall review the demolition/construction project plans, reports, related documents identified herein, and shall visit the site during the scheduled bid walk and field verify the location and extent of hazardous materials removal work prior to submitting bid.

F. The Contractor's work scope includes all removal, waste testing, and disposal and/or recycling of removed and demolished materials. The Contractor is responsible for all costs associated with removed hazardous materials and removal/demolition operations during abatement, disposal, and testing for waste stream during renovation and demolition work.

1. Removed friable asbestos, including but not limited to texture coat and doing compound associated with sheetrock/wallboard and mechanically removed floor tile and flooring mastic, is to be disposed of as hazardous asbestos waste. Non-friable asbestos materials removed in a non-friable state shall be disposed of as a non-hazardous asbestos waste at an asbestos permitted landfill.
2. Lead debris resulting from removal of loose LBP prior to demolition shall be disposed of as lead hazardous waste.
3. PCB ballasts are to be disposed of as hazardous PCB wastes at a Class I landfill or permitted PCB incineration facility.
4. All remaining hazardous materials wastes, including lighting tubes & lamps, batteries, refrigerants/coolants, and other universal wastes are to be recycled by a permitted facility or disposed of as hazardous wastes as it pertains to this project.

G. The Contractor's work scope also includes removal of loose LBP and all required lead-related protective measures for Cal/OSHA, CDPH, and Cal/EPA compliance associated with renovation/demolition of the buildings and associated structures or other components on this site.

H. The Contractors shall be responsible for all agency permits, notices, and fees required to conduct the abatement and demolition and shall be responsible for all costs of removal, demolition, waste characterization and profiling, and disposal associated with abatement and demolition.

1.2. RELATED DOCUMENTS / WORK IN OTHER SECTIONS

A. HVAC and Power Upgrade Project, Hazardous Materials Survey Reports, prepared for each school by Znap Fly.

B. Project Drawings.

C. All other sections of the specifications.

1.3. REFERENCES

A. General: Codes, regulations, and references to hazardous materials abatement work include, but are not limited to the most current versions of the following:
   1. California Code of Regulations (CCR):
      a. Title 8, Article 2.5 Registration Asbestos-Related Work
      b. Title 8, Section 1529 Construction Safety Orders, Asbestos Regulations
      c. Title 8, Section 1531 Construction Safety Orders, Respiratory Protection
      d. Title 8, Section 1532.1 Construction Safety Orders, Lead in Construction
      e. Title 17, Div. 1, Ch. 8 Accreditation, Certification and Work Practices for Lead-Based Paint and Lead Hazards
      f. Title 22, Div. 4.5 Environmental Health Standards for Management of Hazardous Waste
      g. Title 22, Div. 4.5, Ch 23 Universal Waste Rule
   2. Bay Area Air Quality Management District (BAAQMD):
      a. Regulation 11 Hazardous pollutants Rule 2 Asbestos Demolition, Renovation and Manufacturing
   3. Other Local Regulations
      a. California Health and Safety Code 25249-25249.13
      b. California Health and Safety Code 25915-25919.7

1.4. DEFINITIONS

A. Definitions specific to Work of this Section.
   1. Abatement – Procedures to control airborne contaminate and other releases from hazardous material-containing building materials. Includes removal, repair, encapsulation, and enclosure.
   2. Airlock – A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

3. Air Monitoring – The processing of measuring the air contaminants such as asbestos or lead for measured volume of air collected over the specific period of time being monitored.
4. Air Sampling Professional – The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an abatement project.
5. Amended Water – A water to which a surfactant has been added.
6. Asbestos – The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
7. Asbestos Containing Construction Material (ACCM) – Any construction material with asbestos content of 0.1 percent or greater by weight.
8. Asbestos Containing Material (ACM) – Any material which contains over one percent asbestos as determined by current EPA bulk sample analysis method.
9. Asbestos Fibers – This expression refers to asbestos fibers longer than five micrometers with an aspect ratio of 3:1 or larger under phase contrast microscopy (PCM) analytical procedures.
10. Authorized Visitor – Any Owner Representative, Consultant or Agent and any representative of a regulatory of other agency having jurisdiction over the project.
11. Certified Supervisor – An individual who is capable of identifying asbestos or lead hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. In addition, the Certified Supervisor is responsible for conducting and approving all required inspections as specified. Also known as the "Competent Person."
12. Class I Asbestos Removal – Class I Asbestos work means activities involving the removal of thermal system insulation (TSI) and surfacing ACM.
13. Class II Asbestos Work – Class II Asbestos Work means activities associated with removal of any asbestos containing material that is not a Class I surfacing material or thermal system insulation.
14. Clean Room – An uncontaminated area or room that is a part of the Worker decontamination enclosure with provisions for storage of Workers' street clothes and protective equipment.
15. Critical Barrier – A unit of temporary construction of air-tight and impermeable barrier which provides the only separation between a contained asbestos Work Area and an adjacent, potentially occupied area.
16. Decontamination Enclosure System – A series of connected rooms, with air-tight doorways between any two adjacent rooms, for the

decontamination of Workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.

17. Differential Pressure Equipment – A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated area from adjacent uncontaminated areas. Also referred to as HEPA Exhaust Units or Negative Pressure Units (NPUs).
18. Encapsulant (sealant) – A liquid material which can be applied to asbestos-containing material or surface and which controls the possible release of asbestos fiber from the material or surface by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant), or by locking down invisible fibers (lockdown encapsulant).
19. Fluorescent Light Ballast (FLB) – A device that electrically controls fluorescent light fixtures. Most existing FLBs include a capacitor containing 0.1 kilograms or less of dielectric fluid that may contain PCBs. Ballasts manufactured prior to 1979 may contain PCB capacitors. More recently, electronic ballasts have come into use that do not have dielectric fluids or PCBs. Ballasts with PCB capacitors also contain asphalt potting compounds which are likely to contain PCBs.
20. Hazardous Materials – Hazardous materials include, but are not limited to: asbestos containing materials, lead and lead-based paint, mercury, PCB, coolant gases, universal wastes, solvents, fuels and other chemical products or wastes.
21. HEPA Filter – A high-efficiency particulate absolute (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
22. HEPA Vacuum Equipment – Vacuuming equipment with a HEPA (UL 586 labeled) filter system.
23. Lead-Based Paint (LBP) – Lead-Containing Paint (LCP) that is at least 5,000 ppm, 0.5% lead by weight, or 1.0 milligrams of lead per square centimeter of surface area (as measured by XRF lead analyzer). Note: any untested paints or coatings must be presumed to be LBP.
24. Lead Hazardous Waste – Lead-based paint waste or other debris that has been classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. A hazardous waste is any substance(s) listed in Article 11 Section 66699 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC). The STLC for lead is 5.0 parts per million (ppm) and the TTLC for lead is 1,000 ppm lead. If either of these values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristic

Leaching Procedure (TCLP) in accordance with 40 CFR 261 and possibly other tests prior to disposal as a hazardous waste. Waste testing for proper disposal is the responsibility of the Contractor.

25. Negative Pressure Enclosure (NPE) – An enclosed or contained area of any configuration constructed of polyethylene sheeting with a minimum of four (4) air changes per hour and a negative pressure of -0.022 inches of water as compared to surrounding areas outside the enclosure. NPE must be maintained until post abatement sampling.
26. Non-Friable Asbestos Material – Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
27. Non-hazardous Asbestos Waste – Wastes which are non-friable and/or are below one percent asbestos by weight as determined by objective testing. These wastes require OSHA Asbestos Hazard warning labels and disposal at landfills that accept such asbestos wastes.
28. Observation Service – Environmental Consultant hired to conduct compliance observation and air monitoring services on behalf of the Owner. Sometimes referred to as the Owner's Observation Service.
29. Owner – The San Mateo Foster City School District and any of its designated representatives for this project.
30. Owner's Representative – Representative(s) the District (Owner) has assigned to manage, oversee, and inspect this project. This may include an architectural and/or construction management consultant hired by the Owner to oversee the project.
31. Polychlorinated Biphenyl (PCB) – PCB's are any chemical substances consisting of the biphenyl molecule chlorinated to varying degrees or any combination of such molecules. PCBs have had a wide variety of uses in the past including dielectric fluids in capacitors. PCBs are clear to yellow oily substances which are toxic to the liver and reproductive system. PCBs are also suspect human carcinogens.
32. PCB Ballast – An FLB that is known or suspected to contain PCBs. All FLBs must be considered PCB ballasts unless they are:
    a. Labeled or marked "No PCB" by the manufacturer.
    b. Manufactured in 1979 or later as indicated and verified on a date stamp or code, located on the ballast.
    c. Labeled as "Electronic Ballasts" by the manufacturer.
    d. General Electric HDF Ballasts manufactured from 1977 to 1978 and which have a "W" added to their catalogue number on the label of the ballast.
33. Removal – Procedures necessary to remove hazardous materials such as, but not limited to, asbestos or lead from designated areas and to

dispose of these materials at an acceptable properly permitted waste disposal site.

34. Surfactant – A chemical wetting agent added to water to improve penetration.
35. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, & Mercury & other batteries (often used in building alarms and emergency systems), and other items.
36. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
37. Waste Generator Label – Waste Generator label shall include the Generator's Name, ID Number, Address, and Waste Manifest Number.
38. Wet Cleaning – The process of eliminating asbestos or lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water or water/ detergent solution, and by afterwards disposing of these cleaning tools and materials as contaminated waste.
39. Work Area – Designated rooms, spaces, or areas of the project in which hazardous material removal actions are to be undertaken or which may become contaminated as a result of such removal actions during the process and prior to final clean-up and decontamination. A contained Work Area is a Work Area that has been sealed and equipped with a Decontamination Enclosure System. Also referred to as a "Regulated Area."
40. Worker Decontamination Enclosure System (Worker Decon) – That portion of a Decontamination Enclosure System designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

1.5. SUBMITTALS

A. General:
   1. Requirements are as set forth in the General Conditions documents (001 000 to 019 9999) that are prepared by aedis architects for items required to be submitted under this section.
   2. Submittals that are incomplete, disorganized, unreadable, or not project specific will be rejected.

B. Pre-Start Submittal-Part A; Submit and obtain approval prior to starting on-site set-up for asbestos removal work. Submit the following:

1. Licensing and Registration for Contractor or Subcontractor responsible for removal of hazardous materials. Submit copies of current and valid:
   a. The Contractor's license and Contractor's asbestos certificate issued by the California State Contractor's Licensing Board (CSLB);
   b. Registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with CCR, Title 8, Article 2.5 of the California Administrative Code and C-22 Asbestos Abatement Contractor in accordance with CCR, Title 16, Div 8, Article 3.
2. Notifications, Communications, and Postings.
   a. Submit copies of notifications to appropriate government agencies where required, including the following:

      Division of Occupational Safety and Health
      1065 East Hillsdale Blvd., Suite 110
      Foster City, California 94404
      (650) 573– 3812
      Email: DOSHFC@dir.ca.gov
      Notifications shall be in accordance with the Title 8 CCR Section 341.9 for asbestos and Section 1532.1 for lead.

      Bay Area Air Quality Management District (BAAQMD)
      Attn: Asbestos Section
      375 Beale Street, Suite 600
      San Francisco, California 94105
      (415) 749-4900
      Notifications shall be in accordance with the Regulation 11 Rule 2 for Asbestos.
   b. Copies of Government agency correspondence shall be included in the submittals.
3. Respiratory Protection Plan: Submit a written standard operating procedure governing selection, fit-testing, and use of respirators for asbestos and lead removal.
4. Detailed Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of these specifications. The detailed work plan shall include, at a minimum, the following information:
   a. Procedures: Job-specific procedures proposed for completing the scope of work outlined herein including: means of Work Area containment including barriers and other protective measures for

removal at each location; means for provision of decontamination units; removal methods to be employed;

b. Detailed schedule with calendar dates showing all phases of work. Where scheduled start dates have not been confirmed, provide the number of consecutive work days to complete each phase of work.

5. Plan for personnel air monitoring required by law by the Contractor for Worker protection. The Plan shall include, but not be limited to the following:
   a. Personnel Air Monitoring conducted in strict accordance with 8 CCR 1529. Include calibration data for the secondary standard to be used for air sampling pump calibration on-site. This data must be within six (6) months of the projected completion of this project.
   b. Name, address and accreditation and/or certification of laboratory selected by the contractor to analyze personal air samples for workers.
6. Hazardous Waste Transporter. Submit name, address and EPA# for each transporter to be used.
7. Waste Disposal Sites: Submit name location, class, and EPA# for each waste disposal site to be used for asbestos, lead, PCB, and other hazardous wastes for this project.
8. Method of disposal (i.e., landfill or incineration) for PCB ballasts and PCB contaminated materials shall be indicated. List transporter and disposal site(s) and their respective EPA ID number(s).
9. Method of on-site storage and shipping for packaging to keep lighting tubes and lamps intact from removal until their delivery to a recycling facility.
10. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for all items listed under Part 2 - Products. Product data shall include manufacturing product data, specifications, samples and application instructions, material safety data sheet (MSDS), and other pertinent information as necessary.

C. Pre-Start Submittal-Part B; Submit and obtain approval prior to any asbestos and/or lead removal work. Submit the following:
   1. Personnel Qualifications: Personnel documents required per this section shall be organized by individual employee and include the following information:
      a. Personnel Training (asbestos)
         1. Competent Person/Supervisor: Submit a copy of current AHERA asbestos training certificates for the Contractor's

Competent Person and Quality Control Person documenting successful completion of a training course in asbestos abatement project supervision offered by a Cal/OSHA accredited educational institution. Designate by name, the person who will act as the Certified Supervisor/Competent Person and Qualified Person for the project.

2. Workers: Submit a copy of the current asbestos training certificates for the Contractor's asbestos abatement workers documenting successful completion of a training course in asbestos abatement for workers offered by an EPA accredited education institution.
3. For lead abatement or removal work, supervisors and workers shall have appropriate training and CDPH certification documentation. For lead related demolition work, comply with CAL/OSHA training and certification requirements as applicable and submit documentation.

b. Medical Examination: Submit proof that personnel who will be performing asbestos-related work, lead related work, or otherwise wearing respirators shall have had medical examinations within the last 12 months in conformance with Title 8 CCR; Section 1529 asbestos, and furnish the results of each exam in the form of the physician's written opinion or approval with regard to worker fitness to wear a respirator and perform asbestos and lead work as applicable.

c. Respirator fit tests: Submit proof that personnel who will be entering asbestos Work Areas have had a qualitative respiratory fit test performed within 12 months from the scheduled completion date of the project.

2. HEPA Filtration Certifications:

a. Provide third party test certificates for al Differential Pressure Equipment and HEPA Vacuums to be used on this project. Such certificates shall document that each item of equipment has been tested on-site prior to start-up and that the results have demonstrated that each HEPA equipment assembly meets the efficiency requirement for HEPA filtration as an installed system or unit of equipment.

b. All HEPA filtration testing must be conducted by challenging the installed filter system with 0.3 micrometer diameter particles using a dioctyl-phthalate (DOP) particle generator and appropriate aerosol measurement test equipment designed for this purpose. Alternate test methods may be accepted if certified to be equivalent. Test certificate stickers shall be placed on each machine tested and a copy of the testing certification shall be

submitted. The test result, date and time of testing, testing firm, and signature of qualified test technician shall be included on each certification along with equipment identification information.

D. Daily & Other Progress Submittals: Submit the following within 24 hours following the completion of each Work Shift. The Contractor shall submit the following information to the Observation Service.

1. A complete asbestos worker/employee roster for each work shift prior to the commencement of each shift.
2. Work Area entry/exit logs completed for each Work Area and each Work Shift.
3. Worker exposure ("OSHA") sample results for asbestos including eight (8) hour Time Weighted Average (TWA) sampling and 30-minute excursion limit sampling. Sample results must indicate the person sampled, description of work activity, start and stop times, liters per minute, total volume and laboratory result expressed as an eight-hour TWA or excursion limit sample.
4. Waste Manifests:
    a. Each time hazardous waste (asbestos, lead, PCB, etc) is picked up from the site the Contractor is responsible for preparing an accurate hazardous waste manifest, presenting the manifest to the Owner's Representative for review and signature, and submitting the generator and DTSC copies to the Owner's Representative.
    b. Each time a non-hazardous asbestos waste is shipped, the Contractor shall submit the non-hazardous shipping manifests to the Owner's Representative for review and signature and provide the Owner's Representative a signed copy.
    c. All asbestos and other hazardous material waste manifests are to be reviewed and signed by an Owner Representative.
    d. All materials shipped for recycling (lighting tubes, mercury, etc.) shall be accompanied by a manifest prepared by the Contractor, review and signed by the Owner's Representative. A copy of the signed manifest shall be provided to the Owner Representative.
    e. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-generator to the Owner's Representative.
5. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-

generator to the San Mateo Foster City School District's Construction Supervisor.

6. Special Reports: (Submit to the Owner's Observation Service within 24 hours of occurrence.)
   a. The Contractor shall complete a report of unusual events when an event of unusual significance occurs at the site including loss of negative pressure, power failures, breeches in containment, etc. This report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective action taken, and action taken to prevent a reoccurrence.
   b. The Contractor shall submit a detailed accident report in the event of an accident or injury at the site. This report shall include the date and time of the injured, persons involved, cause of injury, detailed description of loss or injury, response actions taken and action taken to prevent a reoccurrence.

E. Close-Out Submittals:
   1. Within 10 days of completion of all hazardous material removal work, submit to the Owner's Observation Service:
      a. One copy of all outstanding daily submittals;
      b. One copy of each hazardous waste manifest and one copy of each non-hazardous asbestos waste manifest;
      c. One copy of Work Area entry/exit logs completed for each Work Area and each Work Shift.

1.6. CERTIFICATIONS

A. Inspection Certifications (Asbestos)
   1. Pre-Abatement Visual Inspection Forms and Final Visual Inspection and Post Abatement Certification Forms will be provided at the pre-construction start up meeting by the Observation Service.
   2. Pre-Abatement Visual Inspection: Upon inspection and approval of each Work Area by the Contractor's Certified Supervisor, a Pre-Visual Inspection Form shall be signed and submitted to the Observation Service for review and approval. The approved inspection form shall be considered notice to proceed with abatement operations within the Work Area.
   3. Final Visual Inspection and Post Abatement Certification: Upon completion of asbestos abatement and before encapsulation in each Work Area, the Contractor's Certified Supervisor shall thoroughly inspect the Work Area for completeness of work. The Contractor's Competent Person shall sign and submit a completed Final Visual Inspection and

Post Abatement Certification Form for review and approval by the Observation Service. The approved inspection form shall be considered notice to proceed with encapsulation.

1.7. POSTINGS

A. Before the commencement of any asbestos related work at the site, Cal/OSHA warning signs in and around the Work Area to comply with Cal/OSHA regulations.

B. Copies of the Contractor's SCLB license, Cal/OSHA registration certificate, temporary job-site notifications, pre-start LBP notifications to Cal/OSHA, local agency notifications, emergency exit diagram, emergency phone numbers, Cal/OSHA poster on worker's rights, and worker's compensation poster shall be posted proximate to the entrance to each Work Area.

C. The Contractor shall have at least one copy of the Contract Documents including project plans and specifications, and a current copy of 8 CCR 1529 & 1532.1.

PART 2. PRODUCTS

2.1. GENERAL

A. Submit manufacturer's product data for all items to be used including the items listed below.

B. All materials to be used on the project shall be new in original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Used materials will not be permitted.

2.2. PROTECTIVE COVERING (PLASTIC SHEETING)

A. For standard containment and critical barrier usage: Fire Retardant Polyethylene sheets six (6) mil and four (4) mil in sizes to minimize frequency of joints, approved and listed by the State Fire Marshall per Section 13121 and/or 13144.1 of the California Health and Safety Code.

2.3. TAPE, ADHESIVE, SEALANTS

A. Duct tape two inches or wider, or equivalent, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheets to finished

or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

B. Spray adhesives for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.4. PROTECTIVE PACKAGING

A. Appropriately labeled six (6) mil sealable polyethylene bags as a minimum.

B. Appropriately labeled, impermeable drum containers with sealable lids.

C. Bilingual labels (English and Spanish) on waste packages, contaminated material packages and other containers shall be in accordance with applicable Cal/EPA and Cal/OSHA standards.

2.5 WARNING LABELS AND SIGNS

A. All warning signs and labels must meet all applicable regulatory requirements for wording, size of lettering, and use of language, pictographs, and graphics to effectively convey the warning. Additional requirements apply for hazardous waste containers and shipments for transportation to disposal sites.

B. Lead Caution Signs must include phrase "**WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING**" in minimum two-inch high letters. These shall be posted at each approach to each lead paint stabilization/surface preparation and manual demolition Work Area.

C. Cal/OSHA Lead Warning Posters: "**DANGER, LEAD WORK AREA, MAY DAMAGE FERTILITY OR THE UNBORN CHILD, CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM, DO NOT EAT, DRINK OR SMOKE IN THIS AREA**" shall be posted at the entrance to each LBP stabilization/surface preparation and manual demolition Work Area.

D. Asbestos Warning signs for Regulated Areas must contain the following wording:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY

E. Labels for packaging and containers containing ACM waste must contain the following wording:

DANGER
CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2.6. SURFACTANT

A. Surfactant, or wetting agent, for amending water will be 50 percent polyethylene ether and 50 percent polyethylene ester, or equivalent, at a concentration of one ounce per five gallons of water.

2.7. VENTILATION EQUIPMENT

A. Provide differential pressure equipment in areas as shown on Contractor's work plans. High-efficiency particulate absolute (HEPA) filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the work area. Differential pressure within the work area shall be maintained at negative 0.022 inches of water during abatement.

B. Provide air filtration equipment with HEPA filtration system to cleanse air of particulate matter during abatement. Replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the work area to maintain fiber levels within the protection factors of workers' respirators.

2.8. PERSONAL PROTECTIVE EQUIPMENT

A. Personal Protective Equipment shall comply with the requirements of 29 CFR 1910, Subpart 1 and 8CCR 1514, 1515, 1516, and 1517.

B. Work clothes shall consist of impervious disposable, full-body coveralls, head covers, boots, rubber gloves, and work boots (or sneakers). Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn when required by applicable safety regulations and shall conform to ANSI 87.1 and 89.1.

D. Provide Authorized Visitors with suitable protection clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.9. RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors' personally-issued and marked, clean and sanitized respiratory equipment approved by NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this specification. Selection of respirators shall be made according to the guidance of 8 CCR 1529 and 1532.1.

B. The minimum respiratory protection required for this project is a half mask respirator as long as the airborne levels do not exceed one tenth of the applicable PEL established by regulation.

PART 3. EXECUTION

3.1. PROJECT PROCEDURES

A. Prior to the start of on-site work, the Contractor shall hold an on-site start-up safety meeting for all of contractor and facility employees that addresses at least the following issues specific for the project.
   1. Safety and health hazards;
   2. Procedures and work practices;
   3. Respiratory protection and instruction; and
   4. Special conditions and/or work requirements.

B. Worker Protection Procedures
   1. Provide Authorized Visitors with suitable protective clothing, respirators, headgear, eye protection, and footwear whenever they are required to enter the Work Area. All provided equipment shall be new or in good working condition and clean, sanitized, and inspected by a competent person since last use.
   2. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the clean-change rooms and put on a respirator and clean protective clothing before entering the Work Area.
   3. Workers shall, each time they leave the Work Area, remove gross contamination from protective clothing before leaving the Work Area, proceed to the Equipment Room or decontamination area and remove protective clothing except respirators; still wearing the respirator, proceed to the showers or wash area, clean the outside of the respirator

with soap and water while showering; remove the respirator, and thoroughly shampoo and wash themselves.

4. Following washing and/or showering and drying off, each Worker shall proceed directly to the clean change room/area and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the Work Area from the clean change room, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
5. Contaminated work footwear shall be stored in the Decontamination Area when not in use in the Work Area. Upon completion of abatement, dispose of footwear as contaminated waste.
6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Wash Room or the Work Area.
7. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
8. Workers and Authorized Visitors with beards shall not enter the Work Area unless equipped with respirators approved for use with beards.

3.2. COORDINATION REQUIREMENTS

A. Coordinate with the Observation Service and Owner's Representative the locations of the Worker Decontamination Unit, waste load out, staging areas, and emergency egress exits.

B. Coordinate timing of waste bag-out and waste shipping activities with the Owner's Representative and Observation Service. All asbestos and hazardous waste manifests shall be signed by the owner or designated owners's representative. The Contractor shall be aware that these activities may need to take place during times when it is most convenient to the facility.

C. Coordinate and provide to the Observation Service the required number of GFCI protected energized 110 Volt AC power outlets needed inside and outside each Work Area. These outlets shall be solely dedicated for the use of the Owner's Observation Service.

3.3. PREPARATION

A. General Preparation Requirements for All Interior Work Areas. Not each area will require abatement of all materials. Each school differs. Refer to project plans/ drawings.

1. Prior to Work Area set up and preparation, remove all movable objects that will not disturb existing ACM or asbestos contaminated materials in the process.
2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
3. Clean and decontaminate all accessible areas above ceiling prior to hazardous material remediation, demolition, and other construction activities.
4. Install a Decontamination Enclosure System or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.
5. Seal off all other accesses to the Work Area with hard barriers and polyethylene sheeting sealed with tape.
6. Install Differential Pressure Equipment for all Class I and Class II Asbestos Removal Operations in accordance with the requirements herein. Establish a negative pressure of -0.022 inches water or greater inside the Work Area containment with respect to the outside and non-involved building areas.
7. Install an adequate number of HEPA Units to obtain the required negative pressure continuously and achieve at least four (4) complete air changes per hour inside the containment.
8. Conduct any required non-ACM selective demolition including demolition to reveal concealed ACM prior to starting ACM removal work to ensure such areas are prepared with additional critical barriers to ensure negative pressure can be maintained at a negative (-) 0.022 inches or better during asbestos removal.
9. Pre-clean fixed objects and surfaces within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers. Protective barriers will consist of plastic sheeting and plywood as appropriate.
10. Seal all remaining openings, including but limited to ducts, grills, diffusers, and any other penetrations of the Work Areas, with two (2) layers of six (6) mil polyethylene sheeting sealed with tape.
11. Seal all joints of conduit, junction boxes, and ductwork with duct tape and plastic sheeting. Cover and protect during abatement.

12. Install Viewing Ports of size, quantity, and location to meet local AQMD/ APCD requirements. Where no requirements are specified, install an adequate number of windows to view the entire removal Work Areas as feasible.
13. Establish and maintain emergency and fire exits from each Work Area.

B. Decontamination Enclosure System (General)
1. Construct or establish Decontamination Enclosure System or area contiguous to the work area for proper decontamination of worker as they exit a Regulated Area or containment system.
2. Provide separate designated areas or chambers for: removal of contaminated clothing prior to exiting the contaminated area; for washing or showering (as appropriate); and for donning clean protective clothing and equipment prior to re-entry. The decontamination system shall comply with applicable regulation taking into account the Cal/ OSHA asbestos removal work class as well as site conditions.
3. In the event that the Decontamination Enclosure System is not contiguous with the Work Area, there must be at least an established area for removing and properly disposing of contaminated clothing and equipment, minimum amenities for washing hands, respirator and face, to allow exiting the work areas prior to going to a remote decontamination enclosure on site. Under these conditions, double suit procedures are required.

C. Mini Containments
1. The use of mini-containments shall be permitted only if entire removal can be completely contained by the enclosure or as needed to isolate the HVAC, Plumbing, Electrical or other system as part of localized preparatory activities.
2. Mini-containments shall shall be constructed with rigid framing and shall have a minimum of one layer of 6 mil polyethylene sheeting sealed with tape.
3. The mini-containment enclosure shall have a decontamination enclosure system in accordance with the requirements herein or as approved by the Observation Service.
4. The The mini-containment enclosure shall be placed under negative pressure for the duration of work in the containment until final air clearance is obtained.

D. Maintenance of Enclosure Systems
1. Ensure that all barriers intact and are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

2. Visually inspect enclosures at the beginning of each work period and periodically throughout each shift. Inspection shall include, but not be limited to, the protective critical barriers and the worker Decon unit barriers, warning signage, and Work Area barriers or barricades.
3. Use smoke test methods to evaluate effectiveness of barriers prior to implementing asbestos removal and when directed by the Observation Service.
4. Ensure all negative pressure containment enclosures for regulated asbestos-containing material removal meet all BAAQMD requirements at all times from start up through completion and post abatement sampling.

E. Asbestos, lead, and hazardous material removal work shall not commence until:
1. Submittals as required herein have been reviewed and approved in writing by the Observation Service;
2. Arrangements have been made for secure temporary storage of asbestos wastes and other hazardous wastes on-site and for disposal of such wastes at an acceptable permitted disposal sites;
3. Work Areas and Decontamination Enclosure Systems (or equivalent) have been installed and approved and all parts of the building or facility required to remain in use are effectively segregated and isolated;
4. Tools, equipment, and secure material waste receptors are on hand;
5. Arrangements have been made for buildings' and Work Area security during removal operations including periods when no work is in progress such as off hours, weekends, and holidays; and
6. Differential pressure systems, as required for interior asbestos removal, are installed, operating, and recording properly.

3.4. CLASS I & II ASBESTOS REMOVAL OPERATIONS

A. General Requirements. Not each area will require abatement of all materials. Each school differs. Refer to project plans/drawings.
1. Class I Asbestos Work is defined as removal of ACM that is a surfacing material or thermal system insulation. Class II Asbestos Work is defined as the removal of ACM that is not a surfacing material or thermal system insulation.
2. The Class I Asbestos Work of this project includes but is not limited to removal of: non-friable ACM and PACM if made friable by removal process.
3. The Class II Asbestos Work means activities involving removal of ACM which is not thermal system insulation or surfacing materials. For this project materials include, but is not limited to removal of the following

materials: wallboard, floor tile, roofing and siding shingles, and construction mastics.

B. Class I & II Asbestos Work Preparation Requirements

1. All interior work shall be conducted within negative pressure containments with contiguous decontamination units for worker enter & exit.
2. Negative pressure shall be maintained at -0.025 inches of differential pressure (water column) or higher compared to the exterior pressure.
3. All negative pressure exhaust units shall be HEPA filtered and exhausted to the building exterior. All HEPA exhaust units shall be DOP (or equivalent) tested on-site and certified to meet HEPA efficiency standards.
4. Interior walls and other non-movable objects shall be covered with at least one layer of four (4) mil plastic sheeting. Wall covering may be reduced to 4' splash guards in Work Areas where glove bags or "cut, wrap, and remove" methods are the sole method used for pipe and fitting insulation removal.
5. Floor areas shall be covered with two (2) layers of six (6) mil plastic sheeting unless glove bags and/or cut, wrap and remove methods for pipe insulation are used. Where glove bags and cut & wrap methods are used, six (6) mil plastic drop sheets extending at least 5 feet on each side of pipe at minimum are required.

C. General Removal Procedures

1. Spray asbestos materials with amended water, using only spray equipment capable of dispensing a fine mist application. Apply amended water sufficiently to wet material surfaces without causing excess dripping or pooling. Spray materials and Work Area repeatedly during work process to control airborne fiber levels.
2. Place asbestos waste in clear asbestos-labeled plastic bags or lined drums. Plastic bags must be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Clean external surfaces of containers thoroughly prior to setting down on a clean plastic drop cloth.
3. Move waste containers to washroom or wash area, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas.
4. After completion of removal work, equipment surfaces from which asbestos has been removed shall be wet cleaned and/or wet sponged by an equivalent method to remove all visible material and residue. During this work, the surfaces being cleaned shall be kept damp. Do not allow water to pond at any time.

5. Clean all surfaces of the Work Area including remaining sheeting by use of damp cleaning and/or HEPA filtered vacuum.
6. Proceed with final decontamination of the Work Area.

D. Glove bag Technique
1. Removal of Class I and II asbestos-containing materials from piping may be accomplished using approved glove bag techniques in specified areas. In all cases, removal shall be conducted in secondary negative pressure containment or mini-containment.
2. After installation of glove bag, smoke test the glove bag to verify that it is air tight.
3. Thoroughly wet material to be removed with amended water before and during the removal process.
4. Thoroughly wash the inside of the bag, the piping surfaces and the tools upon completion.
5. Encapsulate all surfaces inside the glove bag including the piping and ends of exposed coating material.
6. Evacuate bag with an approved HEPA vacuum; tie off waste area; remove tools from bag; remove bag from pipe, folding inward the sides of the bag; then twist and tape the open end, the wand opening, and the vacuum opening.
7. Place glove bag directly into another six (6) mil sealable labeled plastic waste bag or other appropriate waste container. Seal the outer bag using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Seal container with duct tape.

E. Modified Cut, Wrap, and Remove Technique
1. Removal of pipe insulation may be accomplished using approved Modified Cut, Wrap, and Removal Techniques where piping is to be demolished or abandoned in place unless otherwise noted.
2. Verify the piping being removed scheduled for removal or abandonment in place prior to proceeding.
3. Verify pipe lines have be isolated and drained prior to cutting pipe(s).
4. Use glove bag technique to remove insulation at location of pipe to be cut. Wrap pipe including all insulation being removed with two layers of six (6) mil polyethylene sheeting secured with duct tape.
5. Cut the pipe and remove wrapped pipe with ACM insulation for disposal.

F. Floor Tile Removal
1. Remove wall base, cabinets, and any other components and materials as necessary to expose and access all resilient floor tiles for removal.

2. Thoroughly wet floor tiles with amended water but do not let water pool or pond.
3. Remove tile by prying with scrapers or spud bars taking care to minimize breakage.
4. Place removed tiles in appropriately labeled impervious bags or containers and seal.
5. Do not subject floor tiles to any sanding, grinding, cutting, abrading activities likely to create friable ACM.

G. Flooring Mastics Removal
1. Remove all overlaying non-asbestos carpet and other materials concealing the flooring mastics.
2. Remove all asbestos and/or asbestos mastic contaminated floor tiles prior to initiating mastic removal in the Work Area.
3. Remove all flooring mastics using a suitable mastic solvent along with manual scraping and/or mechanical removal methods as necessary for complete removal.
4. Where removal solvents are used, clean up slurry as the mastic is removed and place in properly labeled containers for disposal as a hazardous waste.
5. As an alternative to solvent removal, use bead blast systems for removal is acceptable if permitted by the AQMD and any required variance or waiver is obtained in advance by the Contractor. Likewise, removal by high pressure water systems is allowable if water is fully contained and removal is complete. All floor mastic removal operations must be conducted as a Class I removal operations unless removal is limited to manual scraping methods.
6. Regardless of removal method used, all three dimensional mastic residues must be removed and extent of removal must sufficient to allow for recycling of concrete foundations and decks.

H. Mastic behind chalkboard/ACT
1. Removal of non-friable shall be conducted using wet methods using hand
scrapers and cutting tools to remove the ACM mastic from the non-ACM substrate materials.
2. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
3. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

I. Texture coat, wallboard (sheetrock) and joint tape compound

1. Mist the gypsum board/joint tape compound/texture continuously with amended.
   water during removal.
2. Remove gypsum board in larger sections or pieces where possible. Use pry bars, utility knives, claw hammers and other appropriate tools to loosen and remove wallboard from framing. Remove all wallboard fasteners.
3. Place removed gypsum board/joint tape compound/texture in impervious containers with asbestos warning labels as it is removed. Wall insulation shall be placed in same bags as asbestos contaminated.
4. Complete Work Area clean-up including: all remaining nails; framing; electrical junction boxes, outlets, wiring, and conduit; plumbing fixtures, piping, and hanger, and all other surfaces in the work area.

J. Window Glazing/putty
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable sealants and caulking to be removed.
   2. Removal of non-friable shall be conducted using wet methods using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

K. Exterior Stucco wall
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable stucco to be removed.
   2. Removal of non-friable shall be conducted using wet methods using manual demolition.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

L. Roofing Materials (shingles and mastic)
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable roofing mastic or penetration mastic to be removed.

2. Removal of non-friable roofing shall be conducted using wet methods and appropriate cutting tools. Remove roofing in small sections and place in waste bags or containers.
3. If a chute is used to remove ACM roofing waste from the roof, it must be totally enclosed and air tight to and including the bin it is connected to.
4. Removal of roofing flashing and sealants shall be conducted using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
5. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
6. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the State or State's representative.

M. Cutting, Tapping, Demolition of Asbestos Cement (AC) Piping
1. Carefully machine excavate to exposed AC pipe as necessary. Once exposed, hand excavate areas where cuts, breaks or taps are to be made to prevent pipe breakage.
2. Establish a regulated Work Area surrounding the location of pipe cutting and/or modification. At minimum, use barrier tape and signage.
3. Place plastic sheeting under the area to be cut or altered to catch any resulting chips or dust debris.
4. The methods and procedures used to cut or modify pipe shall not cause the pipe to shatter, crumble, be pulverized or release airborne asbestos dust.
5. Keep the AC pipe wet at all times during cutting or tapping work.
6. Use only industry recommended practices for cutting, splicing and tapping AC pipe. At minimum:
    a. Cutting is to be by special carbide tipped blade cutters that are frame adjustable to the circumference of the pipe and that have self –tracking rollers or "snap cutters" that operate with cutting wheels on a chain wrapper around the pipe barrel.
    b. Machining, if necessary, shall be conducted wet using manual field lathe or manual rasp.
    c. Tapping, whether under pressure or on non-pressured lines, shall be conducted wet and include provisions for internal pipe cleaning by flushing, purging or other means to prevent asbestos dust and chips from entering the drinking water system.
    d. Do not blow out with compressed air or dry sweep. Do not vacuum dust and debris without a HEPA filtered vacuum.
    e. All cutting, machining, tapping procedures must be conducted wet and all resulting AC pipe dust and debris must be cleaned up and disposed of as asbestos contaminated waste.

f. Piping sections to be demolished shall be carefully cut into manageable sections, wrapped and sealed and plastic sheeting, and carefully placed in a lined asbestos waste disposal bin.

g. All intact AC pipe waste and debris shall be disposed of as non-hazardous asbestos waste under a non-hazardous asbestos manifest at a permitted asbestos landfill.

3.5. FINAL ASBESTOS DECONTAMINATION AND TESTING

A. Previous Work: During completion of the interior asbestos removal and visible debris clean up work specified, the first cleaning of all exposed equipment and building surfaces should be completed. Likewise for exterior Work Areas, all visible debris and removed materials must be bagged up for disposal.

B. Clean all surfaces within the Work Area by wet wiping and HEPA vacuuming.

C. Clean any remaining materials and debris exposed by the plastic barrier removal. Final independent layer of polyethylene sheeting and all isolation barriers, vents, grilles, diffusers, etc., shall remain in place.

D. At the completion of this cleaning phase, the Work Area shall be free of all unnecessary equipment/materials and waste containers.

E. The Contractor's Competent Person/Supervisor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, and dust.

F. The Contractor's Competent Person/Supervisor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor shall submit a completed and signed Final Visual Certification Form along with a request for a final visual inspection by the Observation Service once the Competent Person/Supervisor concludes that the area is acceptable for final visual inspection.

G. After final visual inspection of the Work Area shall be conducted by the Observation Service. The standard for visual acceptance shall be no visible dust, debris or three dimensional suspect ACM residues within the Work Area. After written notification to proceed from the Observation Service, encapsulate all surfaces within the Work Area.

H. For interior work areas, the Observation Service will conduct post abatement air testing to evaluate the final acceptability of the Work Area for release to unprotected personnel and the environment. Each interior containment will be evaluated by collection and analysis of a minimum of three and up to five (5)

phase contract microscopy (PCM) air samples collected by the Observation Services and analyzed in accordance with NIOSH Method 7400 or equivalent. The standard for acceptance shall be that each sample result for the containment shall be less than 0.010 fibers per cubic centimeter of air (f/cc). The Contractor shall allow for up to 24 hours for collection of post abatement air samples to allow Work Area and encapsulants drying and up to another 24 hours for air test results.

I. The Contractor shall re-clean and re-encapsulate all surfaces within any Work Area Containment that fails post abatement air testing at no additional cost to the Owner. Likewise, the Contractor is responsible for all costs associated with failed visual inspections including additional cleaning and inspection. All costs associated with failed inspections shall be borne by the Contractor.

J. After written notification from the Observation Service in the form of a fully completed Final Visual Inspection/Post Abatement Certification Form accepting decontamination of the Work Area as acceptable, proceed with removal of critical barriers.

K. For exterior non-friable ACM removals such as sealants, mastics, Transite® pipe and/or similar materials, following abatement inspection will consist of a visual inspection by the Observation Service. If all ACM materials have been removed and the Work Area is free of visible ACM material, dust and debris, the removal will be considered complete.

3.6. LOOSE LEAD-BASED PAINT SURFACE PREPARATION

A. Prepare the exterior Work Area with plastic flooring and another plastic drop sheet, place lead caution tape demarkation around removal area.

B. Wet the surfaces with loose LBP by misting lightly with water.

C. Wet scrape loose LBP until remaining paint is intact.

D. Clean up removed LBP chips, debris and dust using HEPA vacuuming and wet wiping. Containerize all lead waste including vacuum bags for disposal as hazardous lead waste. Label and place container into secure storage pending waste characterization testing and disposal.

E. Clean up plastic sheeting and place in separate lead related waste bags or drums along with protective clothing and related potentially contaminated materials.

F. Conduct final clean up and all necessary waste profiling, evaluation, and testing of lead-related waste as specified herein.

3.7. LEAD WASTE CLEAN UP AND WASTE EVALUATION

A. Clean up paint chips and debris using wet cleaning methods and HEPA vacuuming. All surfaces shall be free of all visible paint chips, dust and debris. Place all paint chips in a labeled waste bag or container.

B. Place all contaminated cleaning materials, disposal personal protective equipment (PPE) and contaminated plastic in separate waste bags. The Contractor shall assume all lead-related waste is RCRA hazardous waste and shall conduct required waste testing as necessary for disposal at a permitted waste disposal site.

C. All waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. All testing of demolition waste wastes is the responsibility of the Contractor. The Contractor shall be responsible for segregating suspect lead hazardous waste based on potential for exhibiting hazardous waste characteristics. Lead-related wastes are to be segregated into the below listed categories at a minimum.
   1. Category I: LBP paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes.
   2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials should be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous subject to testing.

D. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a California hazardous waste.

E. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes.

3.8. LEAD- RELATED DEMOLITION

A. General: All painted or coated surfaces are known or presumed to contain lead subject to worker protection and environmental regulations. Refer to related documents identified herein for additional information including components with LBP requiring agency notification.

B. Conduct selective as well as general building and structural demolition in a manner that does not result in site contamination above background levels.
   1. Remove any loose, peeling, or flaking paint before demolition in accordance with this section.
   2. Clean up any demolition-related lead wastes including any resulting paint chips and debris.
   3. Do not let any wetting agents or water enter soil or storm drain.

C. The Contractor shall evaluate each demolition debris waste stream and ensure proper disposal of all generated wastes. All waste profiling and testing required by the disposal site is the responsibility of the Contractor.

3.9. FLUORESCENT LIGHTING & BALLASTS

A. Remove fluorescent lighting tubes from fixtures in and on buildings to be renovation/demolished, in accordance with project documents.
   1. Carefully place all tubes in storage or shipping containers so the risk of breakage is minimized.
   2. Place containerized light tubes in a safe and secure storage area pending shipping to the recycler or reuse.

B. Remove presumed PCB ballasts from all fluorescent lighting fixtures presumed PCB transformers in buildings to be renovation/demolished.
   1. Any ballast not marked "PCB Free" or "No PCB" shall be lab packed with adsorbent in a waste drum for disposal as hazardous PCB ballast waste.
   2. Ballasts that are clearly marked "PCB Free" shall be set aside for verification inspection by the Observation Service. All ballasts verified to be PCB free may be disposed of as ordinary construction waste or recycled.
   3. Ensure PCB ballast drum is properly labeled for PCB wastes and shipping.
   4. Any electrical transformer that cannot be determined to be PCB free by labeling, date of manufacture, or manufacturer's information shall be disposed of as a PCB item.

3.10. UNIVERSAL WASTES AND OTHER HAZARDOUS WASTES

A. Refrigerators, air conditioners, and other equipment with refrigerant or coolant gases shall be assumed to contain chlorofluorocarbon (CFC) gases and shall have those gases removed by appropriately certified mechanics or technicians and recycled according to state and federal regulation.

B. Carefully segregate waste by type and lab pack for disposal in impervious labeled waste containers.

C. Dispose of or recycle each type of waste in accordance with applicable regulation at permitted facilities. Maintain all shipping and disposal record and provide copies to Owner's Representative and the Observation Service.

3.11. PACKAGING & LABELING

A. All asbestos wastes shall be adequately wetted prior to packaging.

B. Place asbestos waste in six (6) mil labeled asbestos waste bags or approved equivalent containers.

C. Goose neck and seal each bag and place in a second clean-labeled bag, drum or impervious container.

D. Decontaminate waste bags and containers prior to removing from regulated or contained area.

E. Label all asbestos waste bags or containers with OSHA warning label: "DANGER CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. DO NOT BREATHE DUST. AVOID CREATING DUST" and other information as required by regulation.

F. All other hazardous lead, PCB, and universal wastes shall be properly labeled and containerized in leak tight containers.

3.12. WASTE DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous asbestos wastes including name, address, EPA ID number, and telephone number of transporter.

B. Waste Disposal Site(s): Submit for approval the name, class, address, EPA ID number, and telephone number of waste disposal site(s) to be utilized for:
   1. Disposal of non-hazardous non-friable asbestos wastes;
   2. Disposal of hazardous lead, PCB, and Mercury wastes; and
   3. Disposal of any other universal wastes.

C. Waste Manifest: Submit for approval at the Pre-construction meeting a filled out Waste Manifest form. For Waste Manifest purposes, the Generator is the facility of the subject work.

1. Obtain necessary information including generator EPA number for this purpose from the Owner or Owner's Representative prior to start up of any abatement or demolition.
2. After removal and packaging waste for shipment, provide a copy of the Waste Manifest to the Observation Service for each required shipment.
3. Use the uniform hazardous waste manifest for hazardous wastes including lead, PCBs, universal wastes and other hazardous wastes. Include a properly completed Land Disposal Restriction Notice and Certification form with each manifest submitted for signature by the generator (Owner).
4. Use a non-hazardous wastes manifest for disposal of non-friable asbestos wastes.

D. Each hazardous waste manifest and each non-hazardous asbestos waste manifest shall be prepared for the Owner or Owner's Representative's review and approval prior to shipment.

E. The sealed hazardous waste containers shall be delivered to the Contractor's pre-designated, approved hazardous waste treatment and waste disposal site for burial in accordance with applicable state and federal regulations. Likewise, non-hazardous asbestos waste shall be delivered under manifest to a permitted asbestos waste disposal site.

F. Notify the Owner's facility representative 48 hours in advance of the time when hazardous waste materials of all types and non-hazardous asbestos wastes are to be removed and transported from the site to allow for manifest review and approval.

G. The Contractor shall be responsible for safe handling and transportation of all hazardous waste generated by this Contract to the designated Hazardous Waste Site and shall hold the Owner and the Owner's agents and consultants harmless for claims, damages, losses, and expenses against the Owner, including attorney's fees arising out of our resulting from asbestos and hazardous materials spills on the site or en route to the disposal site.

3.13. AIR MONITORING

A. Area Air Monitoring
1. Throughout the asbestos removal process, area air monitoring may be conducted by the Observation Service to ensure work is done in conformance with the fiber concentration limits of these specifications. Likewise, lead removal work areas may be visually inspected and/or monitored during removal.

2. If results of area air monitoring outside the Work Area are in excess of 0.010 f/cc for asbestos or 50 micrograms per cubic meter of airborne lead per cubic meter of air for lead, the Contractor shall make changes in work procedures to assure compliance with minimum standards. At a minimum, the Contractor shall stop all work and implement additional remedial controls and conduct decontamination as necessary in response to exceeding these limits.
3. Unsatisfactory asbestos results are fiber counts in excess of 0.010 fibers/ cc by PCM Method NIOSH 7400 determined as a TWA outside the Work Area by general air monitoring. All results greater than 0.010 fibers/cc shall be subject to further laboratory analysis by the TEM method at the Contractor's sole expense.

B. The Contractor shall submit a written report to the Owner's Observation Service of the Contractor's personnel exposure monitoring within 48 hours of sample collection. The Contractor shall take all necessary control and protective measures to ensure airborne contaminate levels based on personnel air monitoring results do not exceed the levels recommended for the type of respiratory gear in use.

C. Interior Asbestos Post Abatement Air Sampling. The Owner's Observation Service, upon receipt of the post abatement certification from the Contractor, will take a minimum of one (1,200-2,800) liter air sample(s) "post abatement tests" upon completion of each Work Area. For the purpose of this work, adequate decontamination shall be defined as an air sample showing less than 70 structures/cc by TEM AHERA.

D. Lead Post Abatement Inspections. All LBP Work Areas will be cleared by visual inspection by the San Mateo Foster City School District Observation Service.

3.14. CLOSE-OUT

A. All submittal and punch list items must be complete and provided to the Observation Service. These include daily work-force rosters, work area sign-in/ out sheets, and waste test data and waste manifests.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

PROJECT NAME: _____
PROJECT ADDRESS: _____
CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PERSON.

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have completed an asbestos-training course of not less than 3 days. I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

1) Physical characteristics of asbestos; 2) Health hazards associated with asbestos; 3:) Respiratory protection; 4) Use of personal protective equipment; 5) Pressure Differential Systems; 6) Work practices including hands-on or on-the-job training; 7) Personal decontamination procedures; and 8) Air monitoring, personal, and area.

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Printed Name: _____
Signature: _____ Date: _____
Social Security No.: _____
Witness: _____

EMPLOYEE DAILY ROSTER

DATE: _____PROJECT NO. _____

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SOCIAL SECURITY #	START TIME	STOP TIME

WORK AREA ENTRY / EXIT LOG

DATE:_____PROJECT NO._____

PROJECT TITLE: _____

BUILDING NAME: _____

LOCATION OF WORK AREA: _____

DESCRIPTION OF WORK: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SIGNATURE	SOCIAL SECURITY #	TIME IN/OUT	TIME IN/OUT

DAILY MANOMETER REPORT

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

LOCATION OF WORK AREA: _____

START TIME: START DATE: STOP TIME: STOP DATE:

_____
_____
_____
_____
_____
_____
_____
_____

(CONTRACTOR TO ATTACH A COPY OF THE NEGATIVE PRESSURE RECORDING HERETO AND COMPLETE THIS FORM FOR EACH WORK AREA ON A DAILY BASIS).

I hereby declare the above data is true and correct.

COMPETENT PERSON'S SIGNATURE: _____ DATE: _____

PRE-ABATEMENT VISUAL INSPECTION FORM

CLIENT NAME: _____

PROJECT NAME: _____
BUILDING NAME _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found it to be prepared in accordance with the project specifications. This inspection included the verification that Primary Barriers have been installed and are sealed, specified number of layers of polyethylene sheeting has been installed properly, Decontamination Enclosure System(s) is fully functional, HEPA units are operational, negative air pressure is >0.02 inches of water, manometer unit recording properly, HVAC and electrical systems have been locked and tagged out, there is adequate power and lighting, and all electric sources are supplied from GFIs outside the Work Area.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

OWNER'S CONSULTANT hereby certifies that he has conducted a pre-abatement visual inspection of the referenced Work Area and verifies that the Contractor has prepared the Work Area in accordance with the Specifications and is ready to start abatement operations.

Name:_____ Inspection Date: _____

Signature:_____ Certification No. _____

FINAL VISUAL INSPECTION/CLEARANCE CERTIFICATION FORM

CLIENT NAME: _____
PROJECT NAME: _____
BUILDING NAME: _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found no dust, debris or residue. This inspection included all surfaces including pipes, beams, ledges, walls, ceiling, floor, Decontamination Unit, sheet plastic, etc.

Name: _____ Inspection Date: _____Signature: _____
Certification No._____

OWNER'S CONSULTANT hereby certifies that he has performed the final visual inspection of the referenced Work Area and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

CLEARANCE AIR SAMPLING

Pre-Abatement/Background fiber levels: _____

OWNER'S CONSULTANT hereby certifies that the results of air samples collected and analyzed in this work area meet the clearance criteria indicated below:

PCM samples at or below _____ fibers/cc.
TEM samples at or below _____ structures/mm^2.

Circle One: Aggressive Non-Aggressive

Other criteria:
Name:_____ Inspection Date: _____
Signature:_____ Certification No.: _____
Reviewer:_____ CAC Cert. No.: _____

SECTION 02 80 00

HAZARDOUS MATERIAL ABATEMENT & RELATED CONSTRUCTION

PART 1. GENERAL

1.1 SCOPE

A. The work of this section includes removal, clean up and disposal of the below listed hazardous materials prior to the general building and structure renovation and/or demolition work of the project. These work scope items are generally described as follows for the buildings and structures indicated. Contractor is to review all demolition/construction project plans and field verify location and extent of hazardous materials-related work.

1. **Asbestos-Containing Materials – Remove all:**

a. Abbott Middle School

1. Plaster, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 5 square feet may be impacted at each work location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location

b. Borel Middle School

1. Window putty at window HVAC unit, 2% asbestos, Category II ACM, approximately 2 square feet limited to Room 34
2. Mastic Associate with tack board/white board/chalkboard, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
4. Roof mastic, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work location

c. College Park Elementary School

1. Texture coat associated with sheetrock above acoustical ceiling panel, < 1 - 2% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Regulated Asbestos Containing Material (RACM), approximately 5 square feet may be impacted at each work location, however may not be impacted with the given scope of work
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Roof shingle & roof mastics, assumed asbestos, located throughout the roof system, non-friable Category I ACM, approximately 5 square feet may be impacted at each work location

d. George Hall Elementary School

1. Stucco, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 2 square feet may be impacted at each work location, however this material may not be impacted by scheduled work
2. Floor tile beneath existing tile and/or carpet, 2% asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
4. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, however this material may not be impacted by scheduled work

e. Laurel Elementary School

1. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
2. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet

f. Meadow Heights Elementary School

1. Floor tile, tan tile beneath existing flooring, 5% asbestos, with residual mastic (insufficient material to analyze) Category I non-friable ACM, approximately 5 square feet to be impacted at each work area location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work area location
3. Roof shingles, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location
4. Roof mastics, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location

g. North Shoreview Montessori School

1. Joint compound associated with sheetrock wall system, joint compound = 2% asbestos, sheetrock = no asbestos detected, Regulated Asbestos Containing Material (RACM) - friable asbestos containing material, approximately 15 square feet may be impacted at each work location, refer to project drawings
2. Residual floor tile mastic, found in one of seven samples collected at Room 18, 3% asbestos approximately 8 square feet at each work location may be impacted, refer to project drawings
3. Stucco, <1% asbestos assumed >1% asbestos without point count analysis, Category II non-friable asbestos containing material, quantity impacted is dependent on the scope of work, refer to project drawings
4. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location, may not be impacted.
5. Mastic associated with acoustic ceiling tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, although material may not be impacted by scope of work
6. Roof field, shingle with associated mastic (assumed asbestos, this material may be sampled during construction if impacted to prove no asbestos by laboratory analysis, non-friable Category I ACM, quantity impacted is dependent on the scope of work, refer to project drawings

2. **Lead-Based Paint (LBP).** Remove loose and peeling LBP where occurs on lead-based components including:
   - **a. Abbott Middle School**
     1. Exterior plexiglas windows/window covers (wall panels)
     2. Exterior metal window frames
     3. Exterior wood window trims
     4. Window panels (windows/window covers)
   - **b. Borel Middle School**
     1. Exterior wood window frames
   - **c. George Hall Elementary School**
     1. Interior wood window sills
     2. Interior wood wall trim
     3. Exterior metal collars
     4. Exterior metal equipment
   - **d. Laurel Elementary School**
     1. Exterior wood window sills
     2. Exterior wood window casings
     3. Exterior metal roof collars
     4. Exterior metal roof HVAC/mechanical equipment
   - **e. Meadow Heights Elementary School**
     1. Interior wood window sills
     2. Exterior wood wall trim
   - **f. North Shoreview Montessori School**
     1. Interior wood lower walls
     2. Exterior metal window trims
     3. Exterior metal wall trims

3. Presumed Polychlorinated Biphenyl (PCB) lighting ballasts. Remove presumed PCB items, verify PCB content by labeling or manufacturing information and dispose of as PCB items unless proven non-PCB and/or labeled 'PCB FREE'. Recycle non-PCB components to extent possible.
4. Universal Waste including lighting tubes and exterior non-incandescent lighting. Remove and properly recycle.
5. Chlorofluorocarbons (CFCs) coolant gases in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Re-claimer for the removal and recycling of the CFC gases.

B. The Contractor's work scope includes all removal, waste testing, and disposal or recycling costs associated with removed materials and removal operations for this project.

C. Subsurface concrete piping shall be presumed to be asbestos cement (Transite®).

D. The Contractor shall make any necessary arrangements for temporary water and power necessary to conduct the work of this project. Power and water are available on site but will require Contractor to make any necessary temporary connections. Coordinate schedule and phasing with architectural.

E. Contractor shall review the demolition/construction project plans, reports, related documents identified herein, and shall visit the site during the scheduled bid walk and field verify the location and extent of hazardous materials removal work prior to submitting bid.

F. The Contractor's work scope includes all removal, waste testing, and disposal and/or recycling of removed and demolished materials. The Contractor is responsible for all costs associated with removed hazardous materials and removal/demolition operations during abatement, disposal, and testing for waste stream during renovation and demolition work.

1. Removed friable asbestos, including but not limited to texture coat and doing compound associated with sheetrock/wallboard and mechanically removed floor tile and flooring mastic, is to be disposed of as hazardous asbestos waste. Non-friable asbestos materials removed in a non-friable state shall be disposed of as a non-hazardous asbestos waste at an asbestos permitted landfill.
2. Lead debris resulting from removal of loose LBP prior to demolition shall be disposed of as lead hazardous waste.
3. PCB ballasts are to be disposed of as hazardous PCB wastes at a Class I landfill or permitted PCB incineration facility.
4. All remaining hazardous materials wastes, including lighting tubes & lamps, batteries, refrigerants/coolants, and other universal wastes are to be recycled by a permitted facility or disposed of as hazardous wastes as it pertains to this project.

G. The Contractor's work scope also includes removal of loose LBP and all required lead-related protective measures for Cal/OSHA, CDPH, and Cal/EPA compliance associated with renovation/demolition of the buildings and associated structures or other components on this site.

H. The Contractors shall be responsible for all agency permits, notices, and fees required to conduct the abatement and demolition and shall be responsible for all costs of removal, demolition, waste characterization and profiling, and disposal associated with abatement and demolition.

1.2. RELATED DOCUMENTS / WORK IN OTHER SECTIONS

A. HVAC and Power Upgrade Project, Hazardous Materials Survey Reports, prepared for each school by Znap Fly.

B. Project Drawings.

C. All other sections of the specifications.

1.3. REFERENCES

A. General: Codes, regulations, and references to hazardous materials abatement work include, but are not limited to the most current versions of the following:
   1. California Code of Regulations (CCR):
      a. Title 8, Article 2.5 Registration Asbestos-Related Work
      b. Title 8, Section 1529 Construction Safety Orders, Asbestos Regulations
      c. Title 8, Section 1531 Construction Safety Orders, Respiratory Protection
      d. Title 8, Section 1532.1 Construction Safety Orders, Lead in Construction
      e. Title 17, Div. 1, Ch. 8 Accreditation, Certification and Work Practices for Lead-Based Paint and Lead Hazards
      f. Title 22, Div. 4.5 Environmental Health Standards for Management of Hazardous Waste
      g. Title 22, Div. 4.5, Ch 23 Universal Waste Rule
   2. Bay Area Air Quality Management District (BAAQMD):
      a. Regulation 11 Hazardous pollutants Rule 2 Asbestos Demolition, Renovation and Manufacturing
   3. Other Local Regulations
      a. California Health and Safety Code 25249-25249.13
      b. California Health and Safety Code 25915-25919.7

1.4. DEFINITIONS

A. Definitions specific to Work of this Section.
   1. Abatement – Procedures to control airborne contaminate and other releases from hazardous material-containing building materials. Includes removal, repair, encapsulation, and enclosure.
   2. Airlock – A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

3. Air Monitoring – The processing of measuring the air contaminants such as asbestos or lead for measured volume of air collected over the specific period of time being monitored.
4. Air Sampling Professional – The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an abatement project.
5. Amended Water – A water to which a surfactant has been added.
6. Asbestos – The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
7. Asbestos Containing Construction Material (ACCM) – Any construction material with asbestos content of 0.1 percent or greater by weight.
8. Asbestos Containing Material (ACM) – Any material which contains over one percent asbestos as determined by current EPA bulk sample analysis method.
9. Asbestos Fibers – This expression refers to asbestos fibers longer than five micrometers with an aspect ratio of 3:1 or larger under phase contrast microscopy (PCM) analytical procedures.
10. Authorized Visitor – Any Owner Representative, Consultant or Agent and any representative of a regulatory of other agency having jurisdiction over the project.
11. Certified Supervisor – An individual who is capable of identifying asbestos or lead hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. In addition, the Certified Supervisor is responsible for conducting and approving all required inspections as specified. Also known as the "Competent Person."
12. Class I Asbestos Removal – Class I Asbestos work means activities involving the removal of thermal system insulation (TSI) and surfacing ACM.
13. Class II Asbestos Work – Class II Asbestos Work means activities associated with removal of any asbestos containing material that is not a Class I surfacing material or thermal system insulation.
14. Clean Room – An uncontaminated area or room that is a part of the Worker decontamination enclosure with provisions for storage of Workers' street clothes and protective equipment.
15. Critical Barrier – A unit of temporary construction of air-tight and impermeable barrier which provides the only separation between a contained asbestos Work Area and an adjacent, potentially occupied area.
16. Decontamination Enclosure System – A series of connected rooms, with air-tight doorways between any two adjacent rooms, for the

decontamination of Workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.

17. Differential Pressure Equipment – A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated area from adjacent uncontaminated areas. Also referred to as HEPA Exhaust Units or Negative Pressure Units (NPUs).
18. Encapsulant (sealant) – A liquid material which can be applied to asbestos-containing material or surface and which controls the possible release of asbestos fiber from the material or surface by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant), or by locking down invisible fibers (lockdown encapsulant).
19. Fluorescent Light Ballast (FLB) – A device that electrically controls fluorescent light fixtures. Most existing FLBs include a capacitor containing 0.1 kilograms or less of dielectric fluid that may contain PCBs. Ballasts manufactured prior to 1979 may contain PCB capacitors. More recently, electronic ballasts have come into use that do not have dielectric fluids or PCBs. Ballasts with PCB capacitors also contain asphalt potting compounds which are likely to contain PCBs.
20. Hazardous Materials – Hazardous materials include, but are not limited to: asbestos containing materials, lead and lead-based paint, mercury, PCB, coolant gases, universal wastes, solvents, fuels and other chemical products or wastes.
21. HEPA Filter – A high-efficiency particulate absolute (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
22. HEPA Vacuum Equipment – Vacuuming equipment with a HEPA (UL 586 labeled) filter system.
23. Lead-Based Paint (LBP) – Lead-Containing Paint (LCP) that is at least 5,000 ppm, 0.5% lead by weight, or 1.0 milligrams of lead per square centimeter of surface area (as measured by XRF lead analyzer). Note: any untested paints or coatings must be presumed to be LBP.
24. Lead Hazardous Waste – Lead-based paint waste or other debris that has been classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. A hazardous waste is any substance(s) listed in Article 11 Section 66699 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC). The STLC for lead is 5.0 parts per million (ppm) and the TTLC for lead is 1,000 ppm lead. If either of these values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristic

Leaching Procedure (TCLP) in accordance with 40 CFR 261 and possibly other tests prior to disposal as a hazardous waste. Waste testing for proper disposal is the responsibility of the Contractor.

25. Negative Pressure Enclosure (NPE) – An enclosed or contained area of any configuration constructed of polyethylene sheeting with a minimum of four (4) air changes per hour and a negative pressure of -0.022 inches of water as compared to surrounding areas outside the enclosure. NPE must be maintained until post abatement sampling.
26. Non-Friable Asbestos Material – Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
27. Non-hazardous Asbestos Waste – Wastes which are non-friable and/or are below one percent asbestos by weight as determined by objective testing. These wastes require OSHA Asbestos Hazard warning labels and disposal at landfills that accept such asbestos wastes.
28. Observation Service – Environmental Consultant hired to conduct compliance observation and air monitoring services on behalf of the Owner. Sometimes referred to as the Owner's Observation Service.
29. Owner – The San Mateo Foster City School District and any of its designated representatives for this project.
30. Owner's Representative – Representative(s) the District (Owner) has assigned to manage, oversee, and inspect this project. This may include an architectural and/or construction management consultant hired by the Owner to oversee the project.
31. Polychlorinated Biphenyl (PCB) – PCB's are any chemical substances consisting of the biphenyl molecule chlorinated to varying degrees or any combination of such molecules. PCBs have had a wide variety of uses in the past including dielectric fluids in capacitors. PCBs are clear to yellow oily substances which are toxic to the liver and reproductive system. PCBs are also suspect human carcinogens.
32. PCB Ballast – An FLB that is known or suspected to contain PCBs. All FLBs must be considered PCB ballasts unless they are:
    a. Labeled or marked "No PCB" by the manufacturer.
    b. Manufactured in 1979 or later as indicated and verified on a date stamp or code, located on the ballast.
    c. Labeled as "Electronic Ballasts" by the manufacturer.
    d. General Electric HDF Ballasts manufactured from 1977 to 1978 and which have a "W" added to their catalogue number on the label of the ballast.
33. Removal – Procedures necessary to remove hazardous materials such as, but not limited to, asbestos or lead from designated areas and to

dispose of these materials at an acceptable properly permitted waste disposal site.

34. Surfactant – A chemical wetting agent added to water to improve penetration.
35. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, & Mercury & other batteries (often used in building alarms and emergency systems), and other items.
36. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
37. Waste Generator Label – Waste Generator label shall include the Generator's Name, ID Number, Address, and Waste Manifest Number.
38. Wet Cleaning – The process of eliminating asbestos or lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water or water/ detergent solution, and by afterwards disposing of these cleaning tools and materials as contaminated waste.
39. Work Area – Designated rooms, spaces, or areas of the project in which hazardous material removal actions are to be undertaken or which may become contaminated as a result of such removal actions during the process and prior to final clean-up and decontamination. A contained Work Area is a Work Area that has been sealed and equipped with a Decontamination Enclosure System. Also referred to as a "Regulated Area."
40. Worker Decontamination Enclosure System (Worker Decon) – That portion of a Decontamination Enclosure System designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

1.5. SUBMITTALS

A. General:
   1. Requirements are as set forth in the General Conditions documents (001 000 to 019 9999) that are prepared by aedis architects for items required to be submitted under this section.
   2. Submittals that are incomplete, disorganized, unreadable, or not project specific will be rejected.

B. Pre-Start Submittal-Part A; Submit and obtain approval prior to starting on-site set-up for asbestos removal work. Submit the following:

1. Licensing and Registration for Contractor or Subcontractor responsible for removal of hazardous materials. Submit copies of current and valid:
   a. The Contractor's license and Contractor's asbestos certificate issued by the California State Contractor's Licensing Board (CSLB);
   b. Registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with CCR, Title 8, Article 2.5 of the California Administrative Code and C-22 Asbestos Abatement Contractor in accordance with CCR, Title 16, Div 8, Article 3.
2. Notifications, Communications, and Postings.
   a. Submit copies of notifications to appropriate government agencies where required, including the following:

      Division of Occupational Safety and Health
      1065 East Hillsdale Blvd., Suite 110
      Foster City, California 94404
      (650) 573– 3812
      Email: DOSHFC@dir.ca.gov
      Notifications shall be in accordance with the Title 8 CCR Section 341.9 for asbestos and Section 1532.1 for lead.

      Bay Area Air Quality Management District (BAAQMD)
      Attn: Asbestos Section
      375 Beale Street, Suite 600
      San Francisco, California 94105
      (415) 749-4900
      Notifications shall be in accordance with the Regulation 11 Rule 2 for Asbestos.
   b. Copies of Government agency correspondence shall be included in the submittals.
3. Respiratory Protection Plan: Submit a written standard operating procedure governing selection, fit-testing, and use of respirators for asbestos and lead removal.
4. Detailed Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of these specifications. The detailed work plan shall include, at a minimum, the following information:
   a. Procedures: Job-specific procedures proposed for completing the scope of work outlined herein including: means of Work Area containment including barriers and other protective measures for

removal at each location; means for provision of decontamination units; removal methods to be employed;

b. Detailed schedule with calendar dates showing all phases of work. Where scheduled start dates have not been confirmed, provide the number of consecutive work days to complete each phase of work.

5. Plan for personnel air monitoring required by law by the Contractor for Worker protection. The Plan shall include, but not be limited to the following:
   a. Personnel Air Monitoring conducted in strict accordance with 8 CCR 1529. Include calibration data for the secondary standard to be used for air sampling pump calibration on-site. This data must be within six (6) months of the projected completion of this project.
   b. Name, address and accreditation and/or certification of laboratory selected by the contractor to analyze personal air samples for workers.
6. Hazardous Waste Transporter. Submit name, address and EPA# for each transporter to be used.
7. Waste Disposal Sites: Submit name location, class, and EPA# for each waste disposal site to be used for asbestos, lead, PCB, and other hazardous wastes for this project.
8. Method of disposal (i.e., landfill or incineration) for PCB ballasts and PCB contaminated materials shall be indicated. List transporter and disposal site(s) and their respective EPA ID number(s).
9. Method of on-site storage and shipping for packaging to keep lighting tubes and lamps intact from removal until their delivery to a recycling facility.
10. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for all items listed under Part 2 - Products. Product data shall include manufacturing product data, specifications, samples and application instructions, material safety data sheet (MSDS), and other pertinent information as necessary.

C. Pre-Start Submittal-Part B; Submit and obtain approval prior to any asbestos and/or lead removal work. Submit the following:
   1. Personnel Qualifications: Personnel documents required per this section shall be organized by individual employee and include the following information:
      a. Personnel Training (asbestos)
         1. Competent Person/Supervisor: Submit a copy of current AHERA asbestos training certificates for the Contractor's

Competent Person and Quality Control Person documenting successful completion of a training course in asbestos abatement project supervision offered by a Cal/OSHA accredited educational institution. Designate by name, the person who will act as the Certified Supervisor/Competent Person and Qualified Person for the project.

2. Workers: Submit a copy of the current asbestos training certificates for the Contractor's asbestos abatement workers documenting successful completion of a training course in asbestos abatement for workers offered by an EPA accredited education institution.
3. For lead abatement or removal work, supervisors and workers shall have appropriate training and CDPH certification documentation. For lead related demolition work, comply with CAL/OSHA training and certification requirements as applicable and submit documentation.

b. Medical Examination: Submit proof that personnel who will be performing asbestos-related work, lead related work, or otherwise wearing respirators shall have had medical examinations within the last 12 months in conformance with Title 8 CCR; Section 1529 asbestos, and furnish the results of each exam in the form of the physician's written opinion or approval with regard to worker fitness to wear a respirator and perform asbestos and lead work as applicable.

c. Respirator fit tests: Submit proof that personnel who will be entering asbestos Work Areas have had a qualitative respiratory fit test performed within 12 months from the scheduled completion date of the project.

2. HEPA Filtration Certifications:

a. Provide third party test certificates for al Differential Pressure Equipment and HEPA Vacuums to be used on this project. Such certificates shall document that each item of equipment has been tested on-site prior to start-up and that the results have demonstrated that each HEPA equipment assembly meets the efficiency requirement for HEPA filtration as an installed system or unit of equipment.

b. All HEPA filtration testing must be conducted by challenging the installed filter system with 0.3 micrometer diameter particles using a dioctyl-phthalate (DOP) particle generator and appropriate aerosol measurement test equipment designed for this purpose. Alternate test methods may be accepted if certified to be equivalent. Test certificate stickers shall be placed on each machine tested and a copy of the testing certification shall be

submitted. The test result, date and time of testing, testing firm, and signature of qualified test technician shall be included on each certification along with equipment identification information.

D. Daily & Other Progress Submittals: Submit the following within 24 hours following the completion of each Work Shift. The Contractor shall submit the following information to the Observation Service.

1. A complete asbestos worker/employee roster for each work shift prior to the commencement of each shift.
2. Work Area entry/exit logs completed for each Work Area and each Work Shift.
3. Worker exposure ("OSHA") sample results for asbestos including eight (8) hour Time Weighted Average (TWA) sampling and 30-minute excursion limit sampling. Sample results must indicate the person sampled, description of work activity, start and stop times, liters per minute, total volume and laboratory result expressed as an eight-hour TWA or excursion limit sample.
4. Waste Manifests:
    a. Each time hazardous waste (asbestos, lead, PCB, etc) is picked up from the site the Contractor is responsible for preparing an accurate hazardous waste manifest, presenting the manifest to the Owner's Representative for review and signature, and submitting the generator and DTSC copies to the Owner's Representative.
    b. Each time a non-hazardous asbestos waste is shipped, the Contractor shall submit the non-hazardous shipping manifests to the Owner's Representative for review and signature and provide the Owner's Representative a signed copy.
    c. All asbestos and other hazardous material waste manifests are to be reviewed and signed by an Owner Representative.
    d. All materials shipped for recycling (lighting tubes, mercury, etc.) shall be accompanied by a manifest prepared by the Contractor, review and signed by the Owner's Representative. A copy of the signed manifest shall be provided to the Owner Representative.
    e. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-generator to the Owner's Representative.
5. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-

generator to the San Mateo Foster City School District's Construction Supervisor.

6. Special Reports: (Submit to the Owner's Observation Service within 24 hours of occurrence.)
   a. The Contractor shall complete a report of unusual events when an event of unusual significance occurs at the site including loss of negative pressure, power failures, breeches in containment, etc. This report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective action taken, and action taken to prevent a reoccurrence.
   b. The Contractor shall submit a detailed accident report in the event of an accident or injury at the site. This report shall include the date and time of the injured, persons involved, cause of injury, detailed description of loss or injury, response actions taken and action taken to prevent a reoccurrence.

E. Close-Out Submittals:
   1. Within 10 days of completion of all hazardous material removal work, submit to the Owner's Observation Service:
      a. One copy of all outstanding daily submittals;
      b. One copy of each hazardous waste manifest and one copy of each non-hazardous asbestos waste manifest;
      c. One copy of Work Area entry/exit logs completed for each Work Area and each Work Shift.

1.6. CERTIFICATIONS

A. Inspection Certifications (Asbestos)
   1. Pre-Abatement Visual Inspection Forms and Final Visual Inspection and Post Abatement Certification Forms will be provided at the pre-construction start up meeting by the Observation Service.
   2. Pre-Abatement Visual Inspection: Upon inspection and approval of each Work Area by the Contractor's Certified Supervisor, a Pre-Visual Inspection Form shall be signed and submitted to the Observation Service for review and approval. The approved inspection form shall be considered notice to proceed with abatement operations within the Work Area.
   3. Final Visual Inspection and Post Abatement Certification: Upon completion of asbestos abatement and before encapsulation in each Work Area, the Contractor's Certified Supervisor shall thoroughly inspect the Work Area for completeness of work. The Contractor's Competent Person shall sign and submit a completed Final Visual Inspection and

Post Abatement Certification Form for review and approval by the Observation Service. The approved inspection form shall be considered notice to proceed with encapsulation.

1.7. POSTINGS

A. Before the commencement of any asbestos related work at the site, Cal/OSHA warning signs in and around the Work Area to comply with Cal/OSHA regulations.

B. Copies of the Contractor's SCLB license, Cal/OSHA registration certificate, temporary job-site notifications, pre-start LBP notifications to Cal/OSHA, local agency notifications, emergency exit diagram, emergency phone numbers, Cal/OSHA poster on worker's rights, and worker's compensation poster shall be posted proximate to the entrance to each Work Area.

C. The Contractor shall have at least one copy of the Contract Documents including project plans and specifications, and a current copy of 8 CCR 1529 & 1532.1.

PART 2. PRODUCTS

2.1. GENERAL

A. Submit manufacturer's product data for all items to be used including the items listed below.

B. All materials to be used on the project shall be new in original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Used materials will not be permitted.

2.2. PROTECTIVE COVERING (PLASTIC SHEETING)

A. For standard containment and critical barrier usage: Fire Retardant Polyethylene sheets six (6) mil and four (4) mil in sizes to minimize frequency of joints, approved and listed by the State Fire Marshall per Section 13121 and/or 13144.1 of the California Health and Safety Code.

2.3. TAPE, ADHESIVE, SEALANTS

A. Duct tape two inches or wider, or equivalent, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheets to finished

or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

B. Spray adhesives for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.4. PROTECTIVE PACKAGING

A. Appropriately labeled six (6) mil sealable polyethylene bags as a minimum.

B. Appropriately labeled, impermeable drum containers with sealable lids.

C. Bilingual labels (English and Spanish) on waste packages, contaminated material packages and other containers shall be in accordance with applicable Cal/EPA and Cal/OSHA standards.

2.5 WARNING LABELS AND SIGNS

A. All warning signs and labels must meet all applicable regulatory requirements for wording, size of lettering, and use of language, pictographs, and graphics to effectively convey the warning. Additional requirements apply for hazardous waste containers and shipments for transportation to disposal sites.

B. Lead Caution Signs must include phrase "**WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING**" in minimum two-inch high letters. These shall be posted at each approach to each lead paint stabilization/surface preparation and manual demolition Work Area.

C. Cal/OSHA Lead Warning Posters: "**DANGER, LEAD WORK AREA, MAY DAMAGE FERTILITY OR THE UNBORN CHILD, CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM, DO NOT EAT, DRINK OR SMOKE IN THIS AREA**" shall be posted at the entrance to each LBP stabilization/surface preparation and manual demolition Work Area.

D. Asbestos Warning signs for Regulated Areas must contain the following wording:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY

E. Labels for packaging and containers containing ACM waste must contain the following wording:

DANGER
CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2.6. SURFACTANT

A. Surfactant, or wetting agent, for amending water will be 50 percent polyethylene ether and 50 percent polyethylene ester, or equivalent, at a concentration of one ounce per five gallons of water.

2.7. VENTILATION EQUIPMENT

A. Provide differential pressure equipment in areas as shown on Contractor's work plans. High-efficiency particulate absolute (HEPA) filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the work area. Differential pressure within the work area shall be maintained at negative 0.022 inches of water during abatement.

B. Provide air filtration equipment with HEPA filtration system to cleanse air of particulate matter during abatement. Replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the work area to maintain fiber levels within the protection factors of workers' respirators.

2.8. PERSONAL PROTECTIVE EQUIPMENT

A. Personal Protective Equipment shall comply with the requirements of 29 CFR 1910, Subpart 1 and 8CCR 1514, 1515, 1516, and 1517.

B. Work clothes shall consist of impervious disposable, full-body coveralls, head covers, boots, rubber gloves, and work boots (or sneakers). Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn when required by applicable safety regulations and shall conform to ANSI 87.1 and 89.1.

D. Provide Authorized Visitors with suitable protection clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.9. RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors' personally-issued and marked, clean and sanitized respiratory equipment approved by NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this specification. Selection of respirators shall be made according to the guidance of 8 CCR 1529 and 1532.1.

B. The minimum respiratory protection required for this project is a half mask respirator as long as the airborne levels do not exceed one tenth of the applicable PEL established by regulation.

PART 3. EXECUTION

3.1. PROJECT PROCEDURES

A. Prior to the start of on-site work, the Contractor shall hold an on-site start-up safety meeting for all of contractor and facility employees that addresses at least the following issues specific for the project.
   1. Safety and health hazards;
   2. Procedures and work practices;
   3. Respiratory protection and instruction; and
   4. Special conditions and/or work requirements.

B. Worker Protection Procedures
   1. Provide Authorized Visitors with suitable protective clothing, respirators, headgear, eye protection, and footwear whenever they are required to enter the Work Area. All provided equipment shall be new or in good working condition and clean, sanitized, and inspected by a competent person since last use.
   2. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the clean-change rooms and put on a respirator and clean protective clothing before entering the Work Area.
   3. Workers shall, each time they leave the Work Area, remove gross contamination from protective clothing before leaving the Work Area, proceed to the Equipment Room or decontamination area and remove protective clothing except respirators; still wearing the respirator, proceed to the showers or wash area, clean the outside of the respirator

with soap and water while showering; remove the respirator, and thoroughly shampoo and wash themselves.

4. Following washing and/or showering and drying off, each Worker shall proceed directly to the clean change room/area and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the Work Area from the clean change room, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
5. Contaminated work footwear shall be stored in the Decontamination Area when not in use in the Work Area. Upon completion of abatement, dispose of footwear as contaminated waste.
6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Wash Room or the Work Area.
7. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
8. Workers and Authorized Visitors with beards shall not enter the Work Area unless equipped with respirators approved for use with beards.

3.2. COORDINATION REQUIREMENTS

A. Coordinate with the Observation Service and Owner's Representative the locations of the Worker Decontamination Unit, waste load out, staging areas, and emergency egress exits.

B. Coordinate timing of waste bag-out and waste shipping activities with the Owner's Representative and Observation Service. All asbestos and hazardous waste manifests shall be signed by the owner or designated owners's representative. The Contractor shall be aware that these activities may need to take place during times when it is most convenient to the facility.

C. Coordinate and provide to the Observation Service the required number of GFCI protected energized 110 Volt AC power outlets needed inside and outside each Work Area. These outlets shall be solely dedicated for the use of the Owner's Observation Service.

3.3. PREPARATION

A. General Preparation Requirements for All Interior Work Areas. Not each area will require abatement of all materials. Each school differs. Refer to project plans/ drawings.

1. Prior to Work Area set up and preparation, remove all movable objects that will not disturb existing ACM or asbestos contaminated materials in the process.
2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
3. Clean and decontaminate all accessible areas above ceiling prior to hazardous material remediation, demolition, and other construction activities.
4. Install a Decontamination Enclosure System or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.
5. Seal off all other accesses to the Work Area with hard barriers and polyethylene sheeting sealed with tape.
6. Install Differential Pressure Equipment for all Class I and Class II Asbestos Removal Operations in accordance with the requirements herein. Establish a negative pressure of -0.022 inches water or greater inside the Work Area containment with respect to the outside and non-involved building areas.
7. Install an adequate number of HEPA Units to obtain the required negative pressure continuously and achieve at least four (4) complete air changes per hour inside the containment.
8. Conduct any required non-ACM selective demolition including demolition to reveal concealed ACM prior to starting ACM removal work to ensure such areas are prepared with additional critical barriers to ensure negative pressure can be maintained at a negative (-) 0.022 inches or better during asbestos removal.
9. Pre-clean fixed objects and surfaces within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers. Protective barriers will consist of plastic sheeting and plywood as appropriate.
10. Seal all remaining openings, including but limited to ducts, grills, diffusers, and any other penetrations of the Work Areas, with two (2) layers of six (6) mil polyethylene sheeting sealed with tape.
11. Seal all joints of conduit, junction boxes, and ductwork with duct tape and plastic sheeting. Cover and protect during abatement.

12. Install Viewing Ports of size, quantity, and location to meet local AQMD/ APCD requirements. Where no requirements are specified, install an adequate number of windows to view the entire removal Work Areas as feasible.
13. Establish and maintain emergency and fire exits from each Work Area.

B. Decontamination Enclosure System (General)
1. Construct or establish Decontamination Enclosure System or area contiguous to the work area for proper decontamination of worker as they exit a Regulated Area or containment system.
2. Provide separate designated areas or chambers for: removal of contaminated clothing prior to exiting the contaminated area; for washing or showering (as appropriate); and for donning clean protective clothing and equipment prior to re-entry. The decontamination system shall comply with applicable regulation taking into account the Cal/ OSHA asbestos removal work class as well as site conditions.
3. In the event that the Decontamination Enclosure System is not contiguous with the Work Area, there must be at least an established area for removing and properly disposing of contaminated clothing and equipment, minimum amenities for washing hands, respirator and face, to allow exiting the work areas prior to going to a remote decontamination enclosure on site. Under these conditions, double suit procedures are required.

C. Mini Containments
1. The use of mini-containments shall be permitted only if entire removal can be completely contained by the enclosure or as needed to isolate the HVAC, Plumbing, Electrical or other system as part of localized preparatory activities.
2. Mini-containments shall shall be constructed with rigid framing and shall have a minimum of one layer of 6 mil polyethylene sheeting sealed with tape.
3. The mini-containment enclosure shall have a decontamination enclosure system in accordance with the requirements herein or as approved by the Observation Service.
4. The The mini-containment enclosure shall be placed under negative pressure for the duration of work in the containment until final air clearance is obtained.

D. Maintenance of Enclosure Systems
1. Ensure that all barriers intact and are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

2. Visually inspect enclosures at the beginning of each work period and periodically throughout each shift. Inspection shall include, but not be limited to, the protective critical barriers and the worker Decon unit barriers, warning signage, and Work Area barriers or barricades.
3. Use smoke test methods to evaluate effectiveness of barriers prior to implementing asbestos removal and when directed by the Observation Service.
4. Ensure all negative pressure containment enclosures for regulated asbestos-containing material removal meet all BAAQMD requirements at all times from start up through completion and post abatement sampling.

E. Asbestos, lead, and hazardous material removal work shall not commence until:
1. Submittals as required herein have been reviewed and approved in writing by the Observation Service;
2. Arrangements have been made for secure temporary storage of asbestos wastes and other hazardous wastes on-site and for disposal of such wastes at an acceptable permitted disposal sites;
3. Work Areas and Decontamination Enclosure Systems (or equivalent) have been installed and approved and all parts of the building or facility required to remain in use are effectively segregated and isolated;
4. Tools, equipment, and secure material waste receptors are on hand;
5. Arrangements have been made for buildings' and Work Area security during removal operations including periods when no work is in progress such as off hours, weekends, and holidays; and
6. Differential pressure systems, as required for interior asbestos removal, are installed, operating, and recording properly.

3.4. CLASS I & II ASBESTOS REMOVAL OPERATIONS

A. General Requirements. Not each area will require abatement of all materials. Each school differs. Refer to project plans/drawings.
1. Class I Asbestos Work is defined as removal of ACM that is a surfacing material or thermal system insulation. Class II Asbestos Work is defined as the removal of ACM that is not a surfacing material or thermal system insulation.
2. The Class I Asbestos Work of this project includes but is not limited to removal of: non-friable ACM and PACM if made friable by removal process.
3. The Class II Asbestos Work means activities involving removal of ACM which is not thermal system insulation or surfacing materials. For this project materials include, but is not limited to removal of the following

materials: wallboard, floor tile, roofing and siding shingles, and construction mastics.

B. Class I & II Asbestos Work Preparation Requirements

1. All interior work shall be conducted within negative pressure containments with contiguous decontamination units for worker enter & exit.
2. Negative pressure shall be maintained at -0.025 inches of differential pressure (water column) or higher compared to the exterior pressure.
3. All negative pressure exhaust units shall be HEPA filtered and exhausted to the building exterior. All HEPA exhaust units shall be DOP (or equivalent) tested on-site and certified to meet HEPA efficiency standards.
4. Interior walls and other non-movable objects shall be covered with at least one layer of four (4) mil plastic sheeting. Wall covering may be reduced to 4' splash guards in Work Areas where glove bags or "cut, wrap, and remove" methods are the sole method used for pipe and fitting insulation removal.
5. Floor areas shall be covered with two (2) layers of six (6) mil plastic sheeting unless glove bags and/or cut, wrap and remove methods for pipe insulation are used. Where glove bags and cut & wrap methods are used, six (6) mil plastic drop sheets extending at least 5 feet on each side of pipe at minimum are required.

C. General Removal Procedures

1. Spray asbestos materials with amended water, using only spray equipment capable of dispensing a fine mist application. Apply amended water sufficiently to wet material surfaces without causing excess dripping or pooling. Spray materials and Work Area repeatedly during work process to control airborne fiber levels.
2. Place asbestos waste in clear asbestos-labeled plastic bags or lined drums. Plastic bags must be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Clean external surfaces of containers thoroughly prior to setting down on a clean plastic drop cloth.
3. Move waste containers to washroom or wash area, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas.
4. After completion of removal work, equipment surfaces from which asbestos has been removed shall be wet cleaned and/or wet sponged by an equivalent method to remove all visible material and residue. During this work, the surfaces being cleaned shall be kept damp. Do not allow water to pond at any time.

5. Clean all surfaces of the Work Area including remaining sheeting by use of damp cleaning and/or HEPA filtered vacuum.
6. Proceed with final decontamination of the Work Area.

D. Glove bag Technique
1. Removal of Class I and II asbestos-containing materials from piping may be accomplished using approved glove bag techniques in specified areas. In all cases, removal shall be conducted in secondary negative pressure containment or mini-containment.
2. After installation of glove bag, smoke test the glove bag to verify that it is air tight.
3. Thoroughly wet material to be removed with amended water before and during the removal process.
4. Thoroughly wash the inside of the bag, the piping surfaces and the tools upon completion.
5. Encapsulate all surfaces inside the glove bag including the piping and ends of exposed coating material.
6. Evacuate bag with an approved HEPA vacuum; tie off waste area; remove tools from bag; remove bag from pipe, folding inward the sides of the bag; then twist and tape the open end, the wand opening, and the vacuum opening.
7. Place glove bag directly into another six (6) mil sealable labeled plastic waste bag or other appropriate waste container. Seal the outer bag using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Seal container with duct tape.

E. Modified Cut, Wrap, and Remove Technique
1. Removal of pipe insulation may be accomplished using approved Modified Cut, Wrap, and Removal Techniques where piping is to be demolished or abandoned in place unless otherwise noted.
2. Verify the piping being removed scheduled for removal or abandonment in place prior to proceeding.
3. Verify pipe lines have be isolated and drained prior to cutting pipe(s).
4. Use glove bag technique to remove insulation at location of pipe to be cut. Wrap pipe including all insulation being removed with two layers of six (6) mil polyethylene sheeting secured with duct tape.
5. Cut the pipe and remove wrapped pipe with ACM insulation for disposal.

F. Floor Tile Removal
1. Remove wall base, cabinets, and any other components and materials as necessary to expose and access all resilient floor tiles for removal.

2. Thoroughly wet floor tiles with amended water but do not let water pool or pond.
3. Remove tile by prying with scrapers or spud bars taking care to minimize breakage.
4. Place removed tiles in appropriately labeled impervious bags or containers and seal.
5. Do not subject floor tiles to any sanding, grinding, cutting, abrading activities likely to create friable ACM.

G. Flooring Mastics Removal
1. Remove all overlaying non-asbestos carpet and other materials concealing the flooring mastics.
2. Remove all asbestos and/or asbestos mastic contaminated floor tiles prior to initiating mastic removal in the Work Area.
3. Remove all flooring mastics using a suitable mastic solvent along with manual scraping and/or mechanical removal methods as necessary for complete removal.
4. Where removal solvents are used, clean up slurry as the mastic is removed and place in properly labeled containers for disposal as a hazardous waste.
5. As an alternative to solvent removal, use bead blast systems for removal is acceptable if permitted by the AQMD and any required variance or waiver is obtained in advance by the Contractor. Likewise, removal by high pressure water systems is allowable if water is fully contained and removal is complete. All floor mastic removal operations must be conducted as a Class I removal operations unless removal is limited to manual scraping methods.
6. Regardless of removal method used, all three dimensional mastic residues must be removed and extent of removal must sufficient to allow for recycling of concrete foundations and decks.

H. Mastic behind chalkboard/ACT
1. Removal of non-friable shall be conducted using wet methods using hand
scrapers and cutting tools to remove the ACM mastic from the non-ACM substrate materials.
2. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
3. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

I. Texture coat, wallboard (sheetrock) and joint tape compound

1. Mist the gypsum board/joint tape compound/texture continuously with amended.
   water during removal.
2. Remove gypsum board in larger sections or pieces where possible. Use pry bars, utility knives, claw hammers and other appropriate tools to loosen and remove wallboard from framing. Remove all wallboard fasteners.
3. Place removed gypsum board/joint tape compound/texture in impervious containers with asbestos warning labels as it is removed. Wall insulation shall be placed in same bags as asbestos contaminated.
4. Complete Work Area clean-up including: all remaining nails; framing; electrical junction boxes, outlets, wiring, and conduit; plumbing fixtures, piping, and hanger, and all other surfaces in the work area.

J. Window Glazing/putty
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable sealants and caulking to be removed.
   2. Removal of non-friable shall be conducted using wet methods using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

K. Exterior Stucco wall
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable stucco to be removed.
   2. Removal of non-friable shall be conducted using wet methods using manual demolition.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

L. Roofing Materials (shingles and mastic)
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable roofing mastic or penetration mastic to be removed.

2. Removal of non-friable roofing shall be conducted using wet methods and appropriate cutting tools. Remove roofing in small sections and place in waste bags or containers.
3. If a chute is used to remove ACM roofing waste from the roof, it must be totally enclosed and air tight to and including the bin it is connected to.
4. Removal of roofing flashing and sealants shall be conducted using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
5. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
6. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the State or State's representative.

M. Cutting, Tapping, Demolition of Asbestos Cement (AC) Piping
1. Carefully machine excavate to exposed AC pipe as necessary. Once exposed, hand excavate areas where cuts, breaks or taps are to be made to prevent pipe breakage.
2. Establish a regulated Work Area surrounding the location of pipe cutting and/or modification. At minimum, use barrier tape and signage.
3. Place plastic sheeting under the area to be cut or altered to catch any resulting chips or dust debris.
4. The methods and procedures used to cut or modify pipe shall not cause the pipe to shatter, crumble, be pulverized or release airborne asbestos dust.
5. Keep the AC pipe wet at all times during cutting or tapping work.
6. Use only industry recommended practices for cutting, splicing and tapping AC pipe. At minimum:
    a. Cutting is to be by special carbide tipped blade cutters that are frame adjustable to the circumference of the pipe and that have self –tracking rollers or "snap cutters" that operate with cutting wheels on a chain wrapper around the pipe barrel.
    b. Machining, if necessary, shall be conducted wet using manual field lathe or manual rasp.
    c. Tapping, whether under pressure or on non-pressured lines, shall be conducted wet and include provisions for internal pipe cleaning by flushing, purging or other means to prevent asbestos dust and chips from entering the drinking water system.
    d. Do not blow out with compressed air or dry sweep. Do not vacuum dust and debris without a HEPA filtered vacuum.
    e. All cutting, machining, tapping procedures must be conducted wet and all resulting AC pipe dust and debris must be cleaned up and disposed of as asbestos contaminated waste.

f. Piping sections to be demolished shall be carefully cut into manageable sections, wrapped and sealed and plastic sheeting, and carefully placed in a lined asbestos waste disposal bin.

g. All intact AC pipe waste and debris shall be disposed of as non-hazardous asbestos waste under a non-hazardous asbestos manifest at a permitted asbestos landfill.

3.5. FINAL ASBESTOS DECONTAMINATION AND TESTING

A. Previous Work: During completion of the interior asbestos removal and visible debris clean up work specified, the first cleaning of all exposed equipment and building surfaces should be completed. Likewise for exterior Work Areas, all visible debris and removed materials must be bagged up for disposal.

B. Clean all surfaces within the Work Area by wet wiping and HEPA vacuuming.

C. Clean any remaining materials and debris exposed by the plastic barrier removal. Final independent layer of polyethylene sheeting and all isolation barriers, vents, grilles, diffusers, etc., shall remain in place.

D. At the completion of this cleaning phase, the Work Area shall be free of all unnecessary equipment/materials and waste containers.

E. The Contractor's Competent Person/Supervisor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, and dust.

F. The Contractor's Competent Person/Supervisor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor shall submit a completed and signed Final Visual Certification Form along with a request for a final visual inspection by the Observation Service once the Competent Person/Supervisor concludes that the area is acceptable for final visual inspection.

G. After final visual inspection of the Work Area shall be conducted by the Observation Service. The standard for visual acceptance shall be no visible dust, debris or three dimensional suspect ACM residues within the Work Area. After written notification to proceed from the Observation Service, encapsulate all surfaces within the Work Area.

H. For interior work areas, the Observation Service will conduct post abatement air testing to evaluate the final acceptability of the Work Area for release to unprotected personnel and the environment. Each interior containment will be evaluated by collection and analysis of a minimum of three and up to five (5)

phase contract microscopy (PCM) air samples collected by the Observation Services and analyzed in accordance with NIOSH Method 7400 or equivalent. The standard for acceptance shall be that each sample result for the containment shall be less than 0.010 fibers per cubic centimeter of air (f/cc). The Contractor shall allow for up to 24 hours for collection of post abatement air samples to allow Work Area and encapsulants drying and up to another 24 hours for air test results.

I. The Contractor shall re-clean and re-encapsulate all surfaces within any Work Area Containment that fails post abatement air testing at no additional cost to the Owner. Likewise, the Contractor is responsible for all costs associated with failed visual inspections including additional cleaning and inspection. All costs associated with failed inspections shall be borne by the Contractor.

J. After written notification from the Observation Service in the form of a fully completed Final Visual Inspection/Post Abatement Certification Form accepting decontamination of the Work Area as acceptable, proceed with removal of critical barriers.

K. For exterior non-friable ACM removals such as sealants, mastics, Transite® pipe and/or similar materials, following abatement inspection will consist of a visual inspection by the Observation Service. If all ACM materials have been removed and the Work Area is free of visible ACM material, dust and debris, the removal will be considered complete.

3.6. LOOSE LEAD-BASED PAINT SURFACE PREPARATION

A. Prepare the exterior Work Area with plastic flooring and another plastic drop sheet, place lead caution tape demarkation around removal area.

B. Wet the surfaces with loose LBP by misting lightly with water.

C. Wet scrape loose LBP until remaining paint is intact.

D. Clean up removed LBP chips, debris and dust using HEPA vacuuming and wet wiping. Containerize all lead waste including vacuum bags for disposal as hazardous lead waste. Label and place container into secure storage pending waste characterization testing and disposal.

E. Clean up plastic sheeting and place in separate lead related waste bags or drums along with protective clothing and related potentially contaminated materials.

F. Conduct final clean up and all necessary waste profiling, evaluation, and testing of lead-related waste as specified herein.

3.7. LEAD WASTE CLEAN UP AND WASTE EVALUATION

A. Clean up paint chips and debris using wet cleaning methods and HEPA vacuuming. All surfaces shall be free of all visible paint chips, dust and debris. Place all paint chips in a labeled waste bag or container.

B. Place all contaminated cleaning materials, disposal personal protective equipment (PPE) and contaminated plastic in separate waste bags. The Contractor shall assume all lead-related waste is RCRA hazardous waste and shall conduct required waste testing as necessary for disposal at a permitted waste disposal site.

C. All waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. All testing of demolition waste wastes is the responsibility of the Contractor. The Contractor shall be responsible for segregating suspect lead hazardous waste based on potential for exhibiting hazardous waste characteristics. Lead-related wastes are to be segregated into the below listed categories at a minimum.
   1. Category I: LBP paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes.
   2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials should be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous subject to testing.

D. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a California hazardous waste.

E. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes.

3.8. LEAD- RELATED DEMOLITION

A. General: All painted or coated surfaces are known or presumed to contain lead subject to worker protection and environmental regulations. Refer to related documents identified herein for additional information including components with LBP requiring agency notification.

B. Conduct selective as well as general building and structural demolition in a manner that does not result in site contamination above background levels.
   1. Remove any loose, peeling, or flaking paint before demolition in accordance with this section.
   2. Clean up any demolition-related lead wastes including any resulting paint chips and debris.
   3. Do not let any wetting agents or water enter soil or storm drain.

C. The Contractor shall evaluate each demolition debris waste stream and ensure proper disposal of all generated wastes. All waste profiling and testing required by the disposal site is the responsibility of the Contractor.

3.9. FLUORESCENT LIGHTING & BALLASTS

A. Remove fluorescent lighting tubes from fixtures in and on buildings to be renovation/demolished, in accordance with project documents.
   1. Carefully place all tubes in storage or shipping containers so the risk of breakage is minimized.
   2. Place containerized light tubes in a safe and secure storage area pending shipping to the recycler or reuse.

B. Remove presumed PCB ballasts from all fluorescent lighting fixtures presumed PCB transformers in buildings to be renovation/demolished.
   1. Any ballast not marked "PCB Free" or "No PCB" shall be lab packed with adsorbent in a waste drum for disposal as hazardous PCB ballast waste.
   2. Ballasts that are clearly marked "PCB Free" shall be set aside for verification inspection by the Observation Service. All ballasts verified to be PCB free may be disposed of as ordinary construction waste or recycled.
   3. Ensure PCB ballast drum is properly labeled for PCB wastes and shipping.
   4. Any electrical transformer that cannot be determined to be PCB free by labeling, date of manufacture, or manufacturer's information shall be disposed of as a PCB item.

3.10. UNIVERSAL WASTES AND OTHER HAZARDOUS WASTES

A. Refrigerators, air conditioners, and other equipment with refrigerant or coolant gases shall be assumed to contain chlorofluorocarbon (CFC) gases and shall have those gases removed by appropriately certified mechanics or technicians and recycled according to state and federal regulation.

B. Carefully segregate waste by type and lab pack for disposal in impervious labeled waste containers.

C. Dispose of or recycle each type of waste in accordance with applicable regulation at permitted facilities. Maintain all shipping and disposal record and provide copies to Owner's Representative and the Observation Service.

3.11. PACKAGING & LABELING

A. All asbestos wastes shall be adequately wetted prior to packaging.

B. Place asbestos waste in six (6) mil labeled asbestos waste bags or approved equivalent containers.

C. Goose neck and seal each bag and place in a second clean-labeled bag, drum or impervious container.

D. Decontaminate waste bags and containers prior to removing from regulated or contained area.

E. Label all asbestos waste bags or containers with OSHA warning label: "DANGER CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. DO NOT BREATHE DUST. AVOID CREATING DUST" and other information as required by regulation.

F. All other hazardous lead, PCB, and universal wastes shall be properly labeled and containerized in leak tight containers.

3.12. WASTE DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous asbestos wastes including name, address, EPA ID number, and telephone number of transporter.

B. Waste Disposal Site(s): Submit for approval the name, class, address, EPA ID number, and telephone number of waste disposal site(s) to be utilized for:
   1. Disposal of non-hazardous non-friable asbestos wastes;
   2. Disposal of hazardous lead, PCB, and Mercury wastes; and
   3. Disposal of any other universal wastes.

C. Waste Manifest: Submit for approval at the Pre-construction meeting a filled out Waste Manifest form. For Waste Manifest purposes, the Generator is the facility of the subject work.

1. Obtain necessary information including generator EPA number for this purpose from the Owner or Owner's Representative prior to start up of any abatement or demolition.
2. After removal and packaging waste for shipment, provide a copy of the Waste Manifest to the Observation Service for each required shipment.
3. Use the uniform hazardous waste manifest for hazardous wastes including lead, PCBs, universal wastes and other hazardous wastes. Include a properly completed Land Disposal Restriction Notice and Certification form with each manifest submitted for signature by the generator (Owner).
4. Use a non-hazardous wastes manifest for disposal of non-friable asbestos wastes.

D. Each hazardous waste manifest and each non-hazardous asbestos waste manifest shall be prepared for the Owner or Owner's Representative's review and approval prior to shipment.

E. The sealed hazardous waste containers shall be delivered to the Contractor's pre-designated, approved hazardous waste treatment and waste disposal site for burial in accordance with applicable state and federal regulations. Likewise, non-hazardous asbestos waste shall be delivered under manifest to a permitted asbestos waste disposal site.

F. Notify the Owner's facility representative 48 hours in advance of the time when hazardous waste materials of all types and non-hazardous asbestos wastes are to be removed and transported from the site to allow for manifest review and approval.

G. The Contractor shall be responsible for safe handling and transportation of all hazardous waste generated by this Contract to the designated Hazardous Waste Site and shall hold the Owner and the Owner's agents and consultants harmless for claims, damages, losses, and expenses against the Owner, including attorney's fees arising out of our resulting from asbestos and hazardous materials spills on the site or en route to the disposal site.

3.13. AIR MONITORING

A. Area Air Monitoring
1. Throughout the asbestos removal process, area air monitoring may be conducted by the Observation Service to ensure work is done in conformance with the fiber concentration limits of these specifications. Likewise, lead removal work areas may be visually inspected and/or monitored during removal.

2. If results of area air monitoring outside the Work Area are in excess of 0.010 f/cc for asbestos or 50 micrograms per cubic meter of airborne lead per cubic meter of air for lead, the Contractor shall make changes in work procedures to assure compliance with minimum standards. At a minimum, the Contractor shall stop all work and implement additional remedial controls and conduct decontamination as necessary in response to exceeding these limits.
3. Unsatisfactory asbestos results are fiber counts in excess of 0.010 fibers/ cc by PCM Method NIOSH 7400 determined as a TWA outside the Work Area by general air monitoring. All results greater than 0.010 fibers/cc shall be subject to further laboratory analysis by the TEM method at the Contractor's sole expense.

B. The Contractor shall submit a written report to the Owner's Observation Service of the Contractor's personnel exposure monitoring within 48 hours of sample collection. The Contractor shall take all necessary control and protective measures to ensure airborne contaminate levels based on personnel air monitoring results do not exceed the levels recommended for the type of respiratory gear in use.

C. Interior Asbestos Post Abatement Air Sampling. The Owner's Observation Service, upon receipt of the post abatement certification from the Contractor, will take a minimum of one (1,200-2,800) liter air sample(s) "post abatement tests" upon completion of each Work Area. For the purpose of this work, adequate decontamination shall be defined as an air sample showing less than 70 structures/cc by TEM AHERA.

D. Lead Post Abatement Inspections. All LBP Work Areas will be cleared by visual inspection by the San Mateo Foster City School District Observation Service.

3.14. CLOSE-OUT

A. All submittal and punch list items must be complete and provided to the Observation Service. These include daily work-force rosters, work area sign-in/ out sheets, and waste test data and waste manifests.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

PROJECT NAME: _____
PROJECT ADDRESS: _____
CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PERSON.

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have completed an asbestos-training course of not less than 3 days. I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

1) Physical characteristics of asbestos; 2) Health hazards associated with asbestos; 3:) Respiratory protection; 4) Use of personal protective equipment; 5) Pressure Differential Systems; 6) Work practices including hands-on or on-the-job training; 7) Personal decontamination procedures; and 8) Air monitoring, personal, and area.

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Printed Name: _____
Signature: _____ Date: _____
Social Security No.: _____
Witness: _____

EMPLOYEE DAILY ROSTER

DATE: _____PROJECT NO. _____

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SOCIAL SECURITY #	START TIME	STOP TIME

WORK AREA ENTRY / EXIT LOG

DATE:_____PROJECT NO._____

PROJECT TITLE: _____

BUILDING NAME: _____

LOCATION OF WORK AREA: _____

DESCRIPTION OF WORK: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SIGNATURE	SOCIAL SECURITY #	TIME IN/OUT	TIME IN/OUT

DAILY MANOMETER REPORT

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

LOCATION OF WORK AREA: _____

START TIME: START DATE: STOP TIME: STOP DATE:

_____
_____
_____
_____
_____
_____
_____
_____

(CONTRACTOR TO ATTACH A COPY OF THE NEGATIVE PRESSURE RECORDING HERETO AND COMPLETE THIS FORM FOR EACH WORK AREA ON A DAILY BASIS).

I hereby declare the above data is true and correct.

COMPETENT PERSON'S SIGNATURE: _____ DATE: _____

PRE-ABATEMENT VISUAL INSPECTION FORM

CLIENT NAME: _____

PROJECT NAME: _____
BUILDING NAME _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found it to be prepared in accordance with the project specifications. This inspection included the verification that Primary Barriers have been installed and are sealed, specified number of layers of polyethylene sheeting has been installed properly, Decontamination Enclosure System(s) is fully functional, HEPA units are operational, negative air pressure is >0.02 inches of water, manometer unit recording properly, HVAC and electrical systems have been locked and tagged out, there is adequate power and lighting, and all electric sources are supplied from GFIs outside the Work Area.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

OWNER'S CONSULTANT hereby certifies that he has conducted a pre-abatement visual inspection of the referenced Work Area and verifies that the Contractor has prepared the Work Area in accordance with the Specifications and is ready to start abatement operations.

Name:_____ Inspection Date: _____

Signature:_____ Certification No. _____

FINAL VISUAL INSPECTION/CLEARANCE CERTIFICATION FORM

CLIENT NAME: _____
PROJECT NAME: _____
BUILDING NAME: _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found no dust, debris or residue. This inspection included all surfaces including pipes, beams, ledges, walls, ceiling, floor, Decontamination Unit, sheet plastic, etc.

Name: _____ Inspection Date: _____Signature: _____
Certification No._____

OWNER'S CONSULTANT hereby certifies that he has performed the final visual inspection of the referenced Work Area and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

CLEARANCE AIR SAMPLING

Pre-Abatement/Background fiber levels: _____

OWNER'S CONSULTANT hereby certifies that the results of air samples collected and analyzed in this work area meet the clearance criteria indicated below:

PCM samples at or below _____ fibers/cc.
TEM samples at or below _____ structures/mm^2.

Circle One: Aggressive Non-Aggressive

Other criteria:
Name:_____ Inspection Date: _____
Signature:_____ Certification No.: _____
Reviewer:_____ CAC Cert. No.: _____

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Formed roof-drainage sheet metal fabrications.
2. Formed low-slope roof sheet metal fabrications.
3. Formed steep-slope roof sheet metal fabrications.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct a conference at Project Site.

1. Review construction schedule. Verify availability of materials, installer’s personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
3. Review requirements for insurance and certificates if applicable.
4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each of the following, including manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of roof-penetration flashing.
8. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
9. Include details of special conditions.
10. Include details of connections to adjoining work.
11. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Special warranty.

1.8 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA “Architectural Sheet Metal Manual” and NRCA “Roofing and Waterproofing Manual” unless more stringent requirements are indicated or specified.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing, trim materials, and fabrications during transportation and handling.

C. Unload, store and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting and surface damage.

D. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting or other surface damage.

E. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Coordinate with work of other Sections for watertight installation at interface with other materials and systems.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and

Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that to not allow water infiltration to building interior.

E. Provide materials that are compatible with one another under conditions or service and application required, as demonstrated by testing and field experience.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 (Z275) coating designation; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat and mill phosphatized for field painting or with manufacturer's standard clear acrylic coating on both sides.

C. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

H. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated and with interlocking counterflashing on exterior face, of same metal as reglet.

1. Source Limitations: Obtain reglets from single source from single manufacturer.
2. Material: Galvanized steel, 0.022 inch (0.56 mm) thick.
3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
4. Accessories:

    a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
    b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.

5. Finish: With manufacturer's standard color coating.

I. Metal Accessories: Provide sheet metal clips, cleats, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

G. Do not use graphite pencils to mark metal surfaces.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof and Roof-to-Wall Transition Expansion-Joint Cover: Fabricate from the following materials:

1. Galvanized Steel: 0.034 inch (0.86 mm) thick.

B. Base Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

2.7 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

B. Valley Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

F. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.
2. Lead: 4 lb (1.8 kg).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lap joints not less than 2 inches (50 mm).

B. Install slip sheet, wrinkle free, directly on substrate before installing sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lapp joints not less than 4 inches (100 mm).

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds or sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.

4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches (300 mm) o.c.
6. Space individual cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.

1) Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pretin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pretinning where pretinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

3.4 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless steel draw band and tighten.

C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
2. Extend counterflashing 4 inches (100 mm) over base flashing.
3. Lap counterflashing joints minimum of 4 inches (100 mm).
4. Secure in waterproof manner by means of interlocking folded seam or blind rivets and sealant unless otherwise indicated.

D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.5 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.
2. Painted markings applied to concrete surfaces.

1.3 ACTION SUBMITTALS

A. Product Data: Include technical data and tested physical and performance properties.

1. Pavement-marking paint, acrylic.

B. Shop Drawings:

1. Indicate areas to be re-striped.

C. Samples: For each exposed product and for each color and texture specified; on rigid backing, 8 inches (200 mm) square.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F (12.8 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

PART 2 - PRODUCTS

2.1 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint, Acrylic: Acrylic, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952F, Type II, with drying time of less than three minutes.

1. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Sweep and clean surface to eliminate loose material and dust.

C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

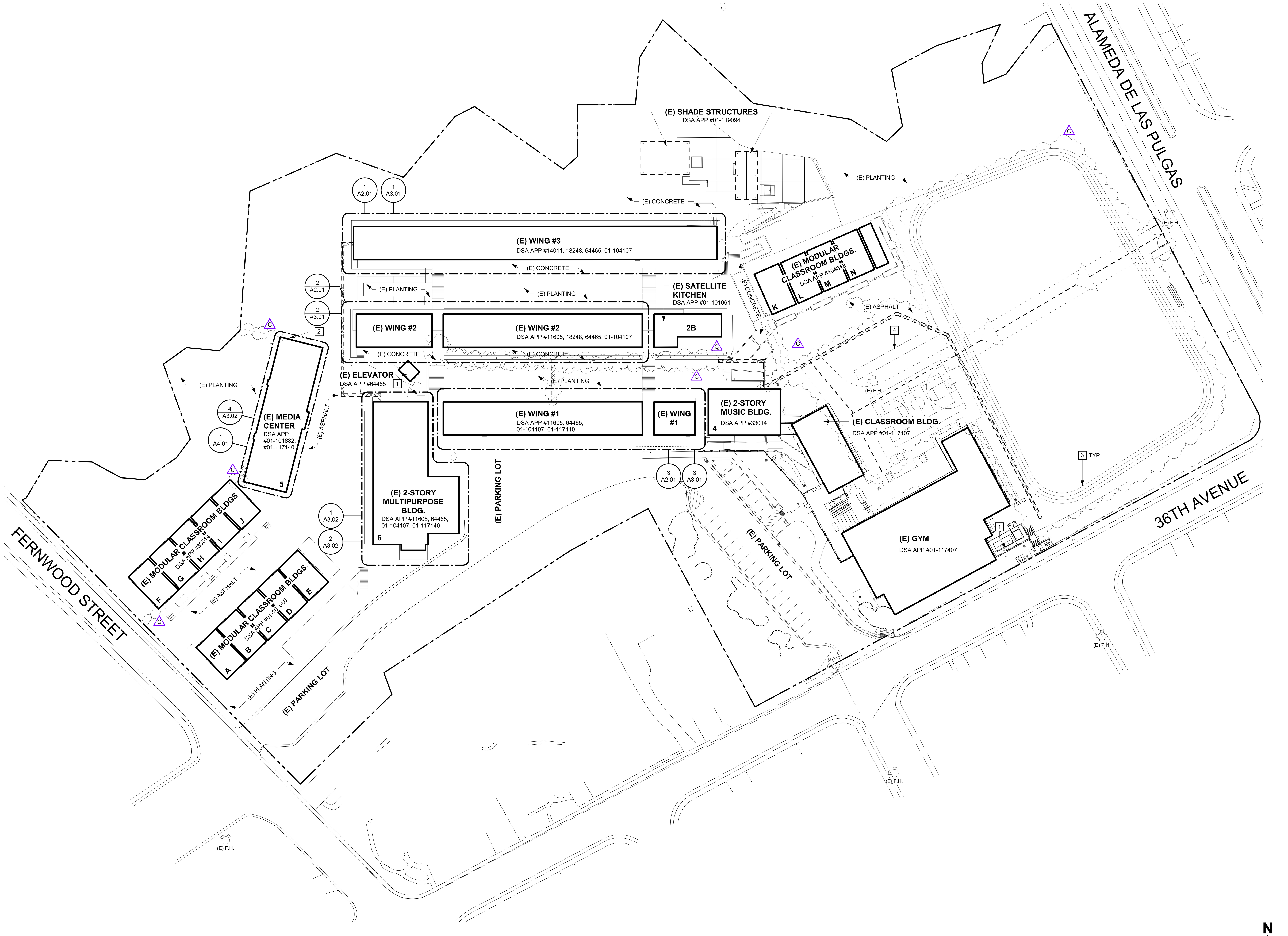
1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.3 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723



1 **NEW SITE PLAN**
SCALE: 1" = 40'-0"

N

GENERAL SHEET NOTES

A BUILDINGS ARE UNSPRINKLERED, TYPE V-B CONSTRUCTION UNLESS OTEHRWISE NOTED.

B NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

C CONTRACTOR SHALL MAINTAIN FIRE LANE ACCESS THROUGHOUT PROJECT.

D DO NOT INTERRUPT EXISTING UTILITY SERVICES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AND COORDINATED WITH THE OWNER.

E PROTECT EXISTING & NEW STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, TREES AND SHRUBS FROM DAMAGE DURING CONSTRUCTION.

F REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

G ALL EXISTING FINISHES OR MATERIALS DAMAGED OR DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL STATE, INCLUDING BUT NOT LIMITED TO REINSTALLING OR REPLACING EXISTING CHAINLINK FENCING AS REQUIRED AND RESTRIPING PAVING IN KIND. S.E.D. FOR TRENCH ROUTING. SEE ARCHITECTURAL SITE PLAN FOR STRIPING AT EXISTING PAVING

SITE PLAN KEYNOTES

1 (E) SWITCHBOARD, S.E.D.
2 REMOVE (E) MECHANICAL UNITS AND HOUSEKEEPING PAD. PREP FOR NEW WORK, S.M.D. AND SEE A3.02.
3 (E) STRIPING TO REMAIN.
4 (E) PLANTING AND IRRIGATION TO REMIAN. SALVAGE AND REINSTALL AS REQUIRED.

GRAPHIC KEY

EXISTING CONSTRUCTION TO REMAIN
EXISTING COVERED STRUCTURE
TRENCH FOR ELECTRICAL WORK, S.E.D. , 8/S5.01 & DETAILS ON SHEET A8.10
PROPERTY LINE
(E) CHAINLINK FENCE
(E) FIRE DEPARTMENT ACCESS
FIRE DEPARTMENT ACCESS IS 20'-0" WIDE AND RATED FOR 96,000 LBS.
EXISTING FIRE HYDRANT

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119556

REVISIONS

No.	Description	Date
△	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	06/03/21
BACKCHECK	09/29/21

SHEET
SITE PLAN

DATE 12/22/2021
JOB # 2021005.06
SHEET # AD3-A1.02

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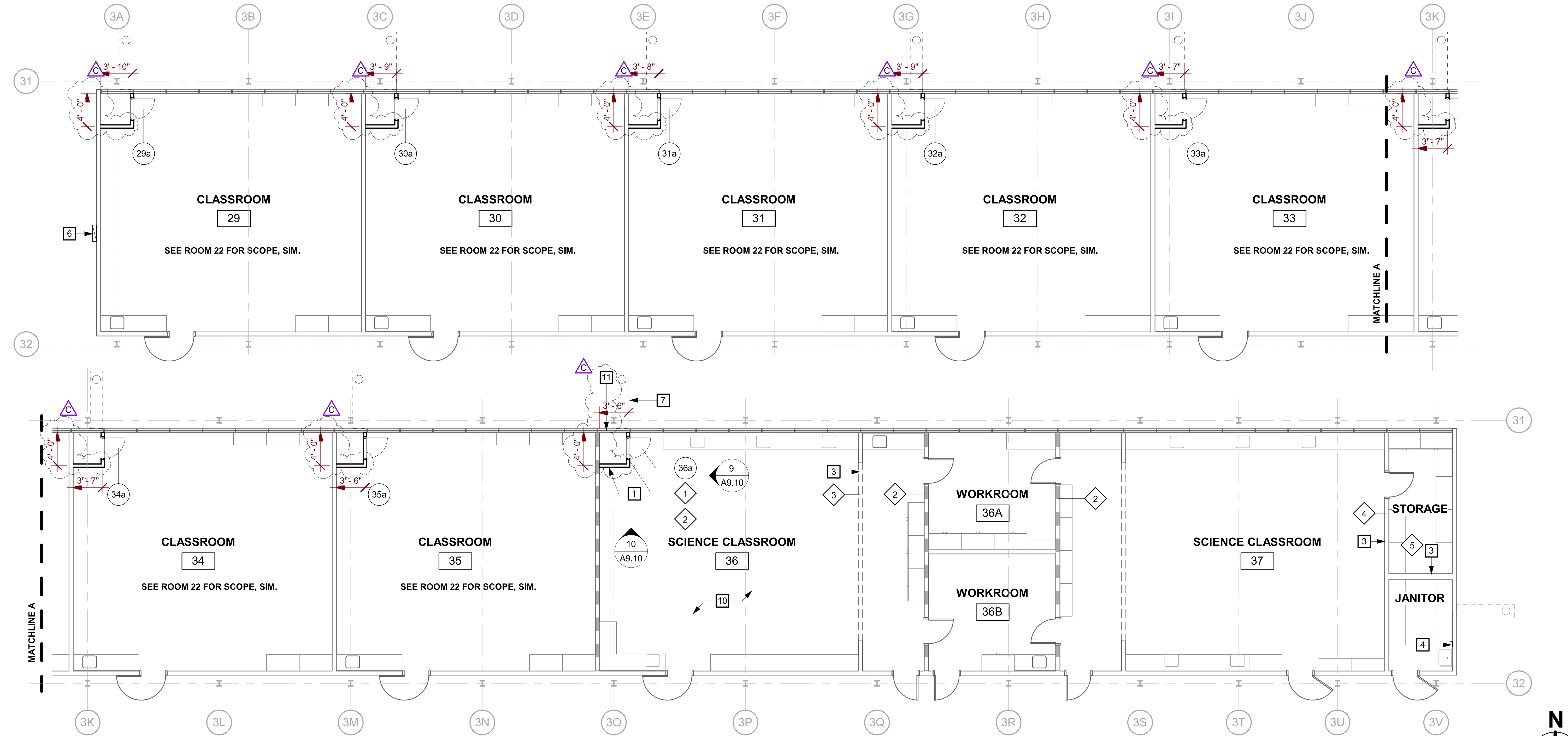
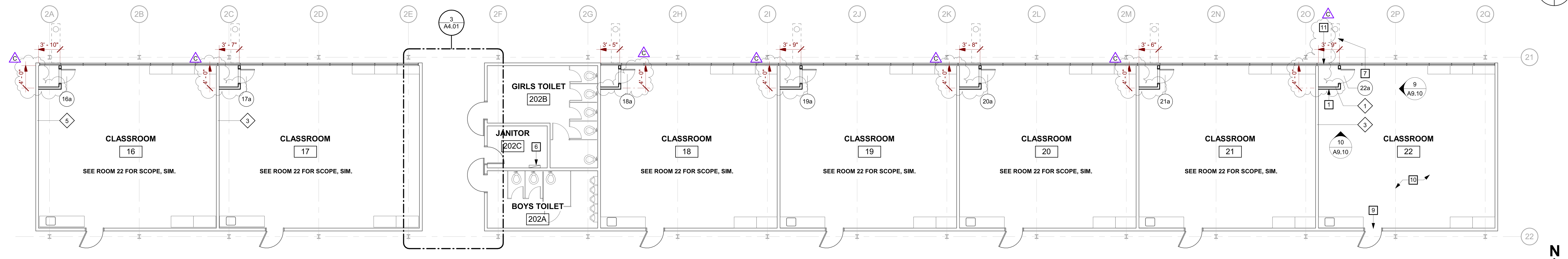
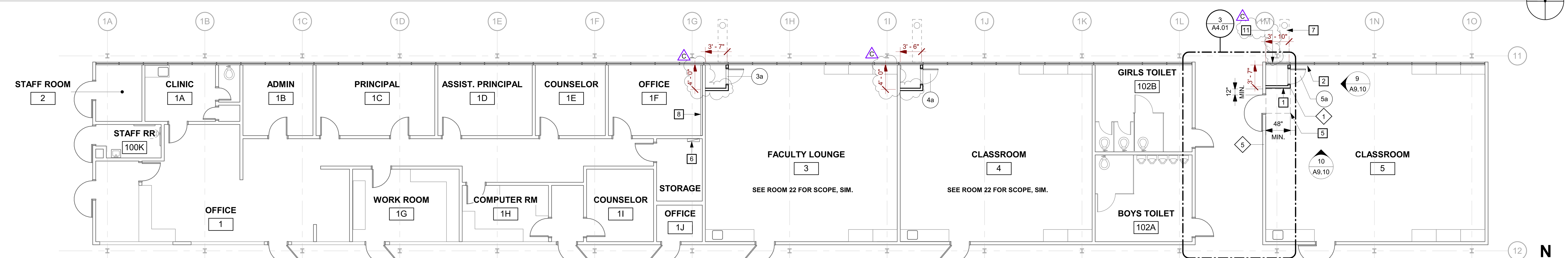


1 NEW FLOOR PLAN - WING 3
SCALE: 1/8" = 1'-0"



2 NEW FLOOR PLAN - WING 2
SCALE: 1/8" = 1'-0"



3 NEW FLOOR PLAN - WING 1
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN FLOOR PLANS.

B REFER TO STRUCTURAL,MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

C DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

D SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING WALL FINISHES, WINDOWS, AND DUCTWORK.

E REMOVE AND REPLACE (E) WALL BASE AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

F RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

G AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK.

NEW FLOOR PLAN KEYNOTES

1 FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES. V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 15/A9.10, 11/A9.10, & 12/A9.10

2 RECONFIGURE (E) WIREMOLD. SHORTEN CONFIGURATION TIGHT TO NEW ENCLOSURE AND PROVIDE END CAP. RELOCATE (E) OUTLET 6" FROM (N) WALL FINISH

3 PATCH OPENING TIGHT TO MECHANICAL WORK, S.M.D AND SEE DETAIL 7/A9.10.

4 REINSTALL SALVAGED (E) CLEANER DISPENSER, 40" MAX A.F.F.

5 MAINTAIN DOOR CLEARANCE AS NOTED FOR FRONT APPROACH PUSH SIDE, WITH CLOSER AND LATCH

6 ELECTRICAL PANEL, PROVIDE BACKING, S.E.D.

7 PATCH PAVING AT DRY WELL. SEE 6/A8.10 AND S.M.D.

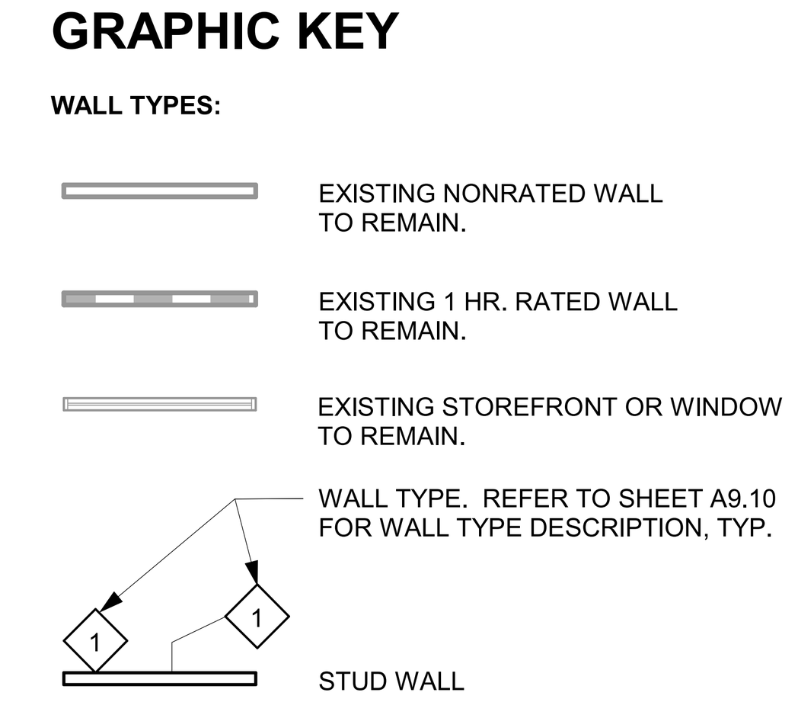
8 INTERIOR CONDUIT ENCLOSURE, SEE 20/A9.10 AND S.E.D.

9 DAMPER @ (E) WINDOW FRAME, S.M.D. CONT. CAULKING AT INTERIOR AND EXTERIOR OF MOTORIZED RELIEF DAMPER.

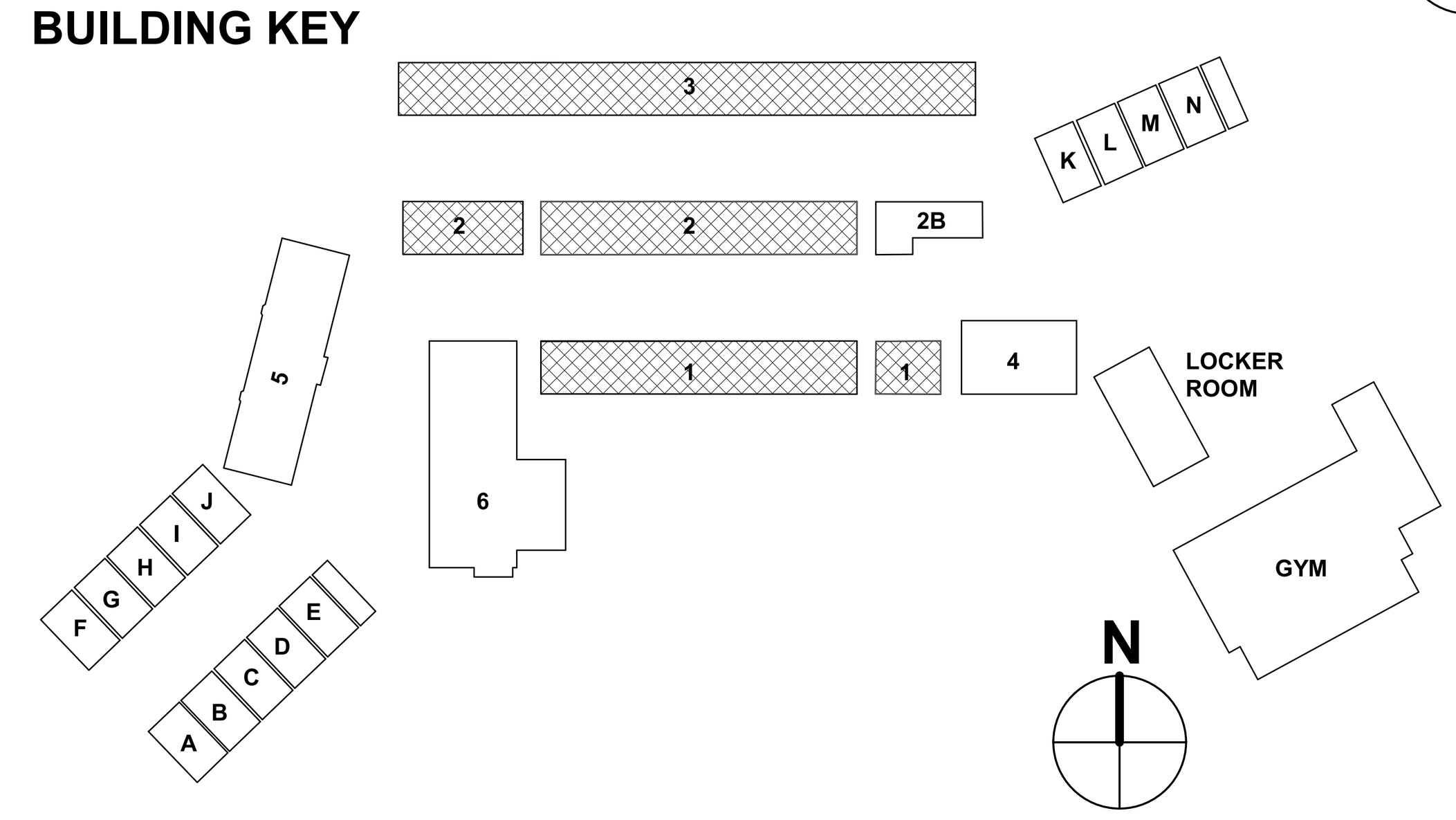
10 REFER TO 2/A4.01 FOR TYPICAL CLASSROOM NEW REFLECTED CEILING PLAN. REMOVE AND REINSTALL (E) ACOUSTICAL CEILING TILES ABOVE AS REQUIRED FOR CONSTRUCTION ACCESS INCLUDING BUT NOT LIMITED TO ELECTRICAL ROUTING, MECHANICAL DUCTWORK ANCHORAGE, BLOCKING FOR ROOFTOP PLATFORMS. DO NOT ALTER SUSPENDED A.C.T. GRID.

11 CONT. CAULKING AT INTERIOR AND EXTERIOR OF LOUVER.

GRAPHIC KEY



BUILDING KEY



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PROJECT
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119556

REVISIONS

No.	Description	Date
A	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	06/03/21
BACKCHECK	09/29/21

SHEET
NEW FLOOR PLANS - WINGS 1, 2, & 3

DATE 12/22/2021
JOB # 2021005.06
SHEET # AD-3
A3.01

12/21/2021 10:56:45 AM
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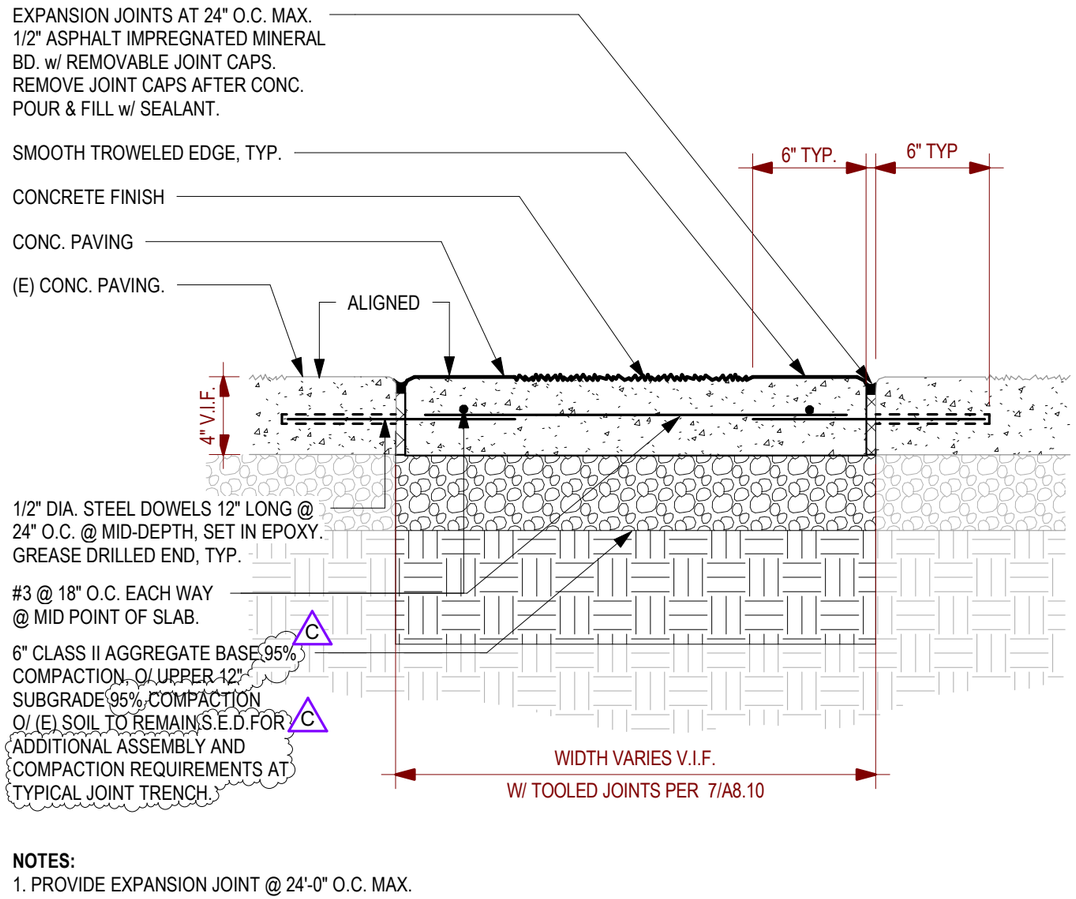
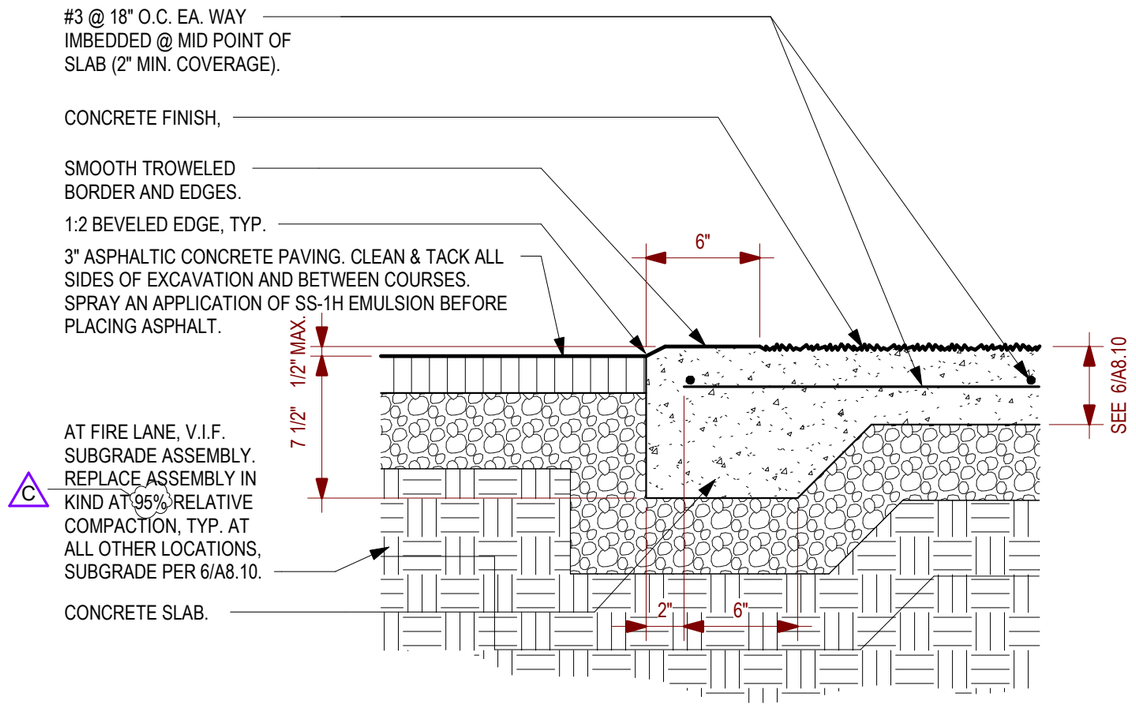


NOTES:
1. PROVIDE EXPANSION JOINT @ 24'-0" O.C. MAX.

6 CONCRETE PATCH
SCALE: 1 1/2" = 1'-0"



9 ASPHALT/CONCRETE JOINT
SCALE: 1 1/2" = 1'-0"

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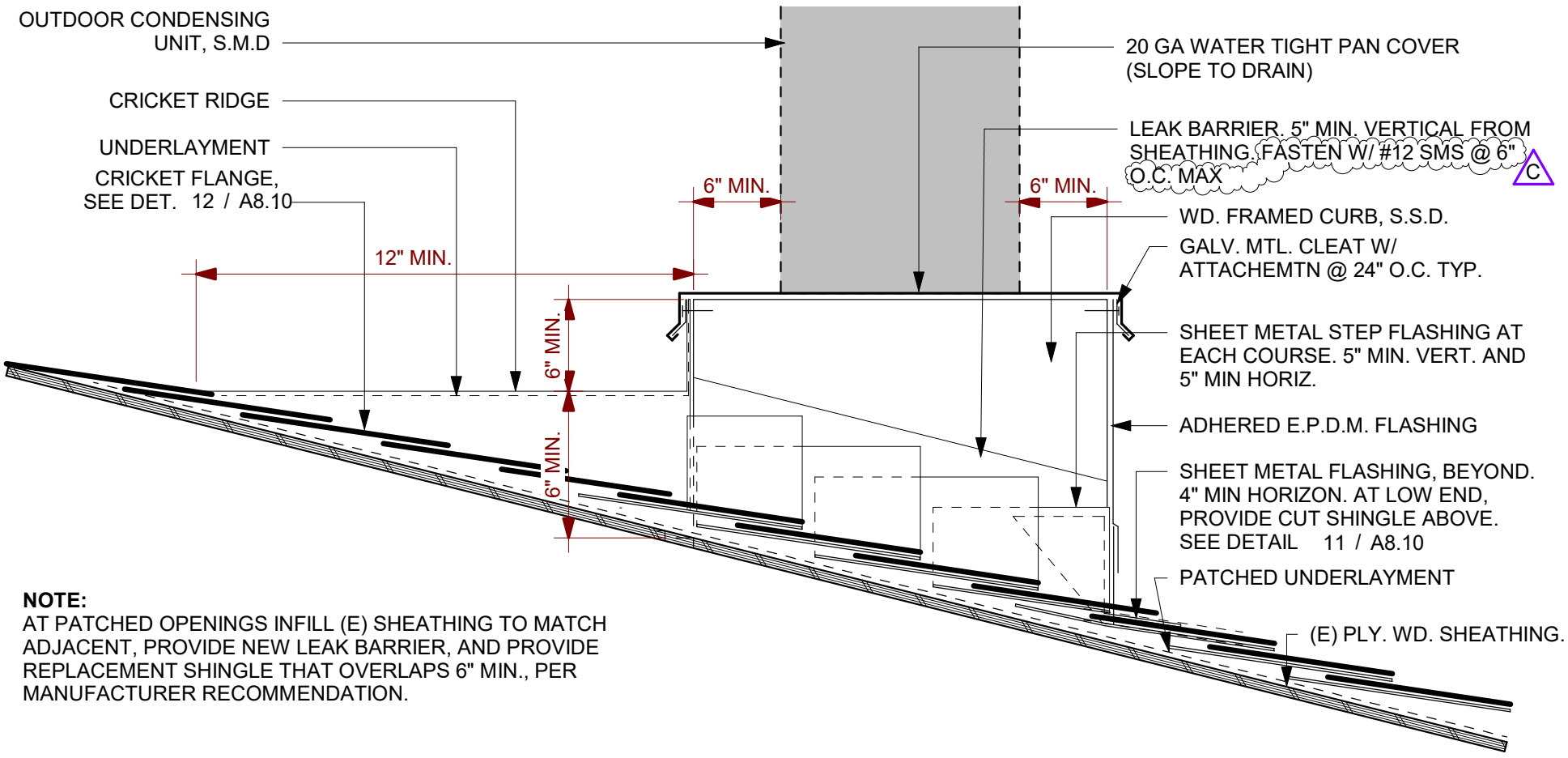
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

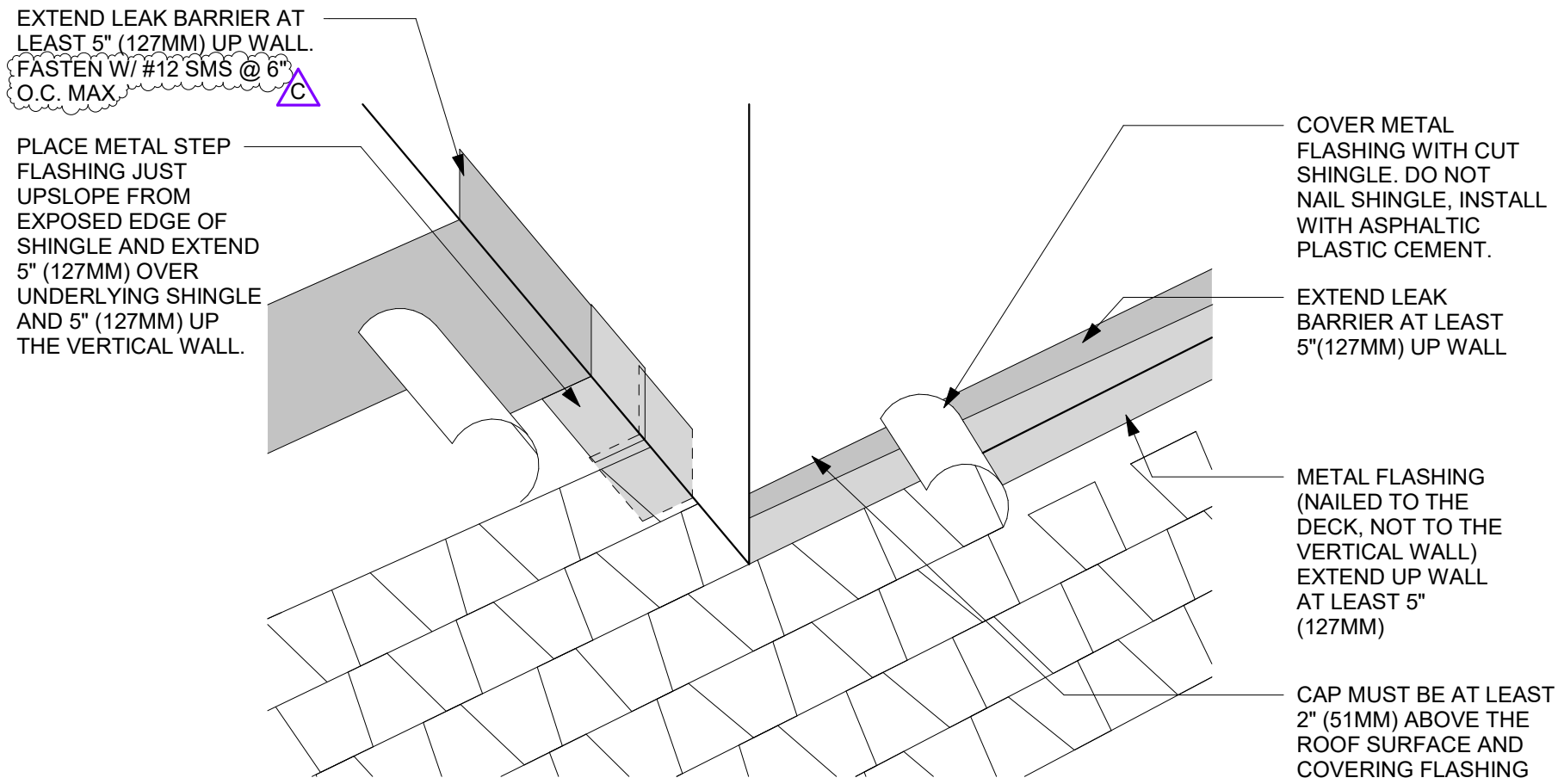
FILE NO.: 41-26	SHEET
APPL NO.: 01-119556	AD3-A8.10A
JOB NO. 2021005.06	
DATE 12/22/2021	



NOTE:
AT PATCHED OPENINGS INFILL (E) SHEATHING TO MATCH ADJACENT, PROVIDE NEW LEAK BARRIER, AND PROVIDE REPLACEMENT SHINGLE THAT OVERLAPS 6" MIN., PER MANUFACTURER RECOMMENDATION.

10 SHINGLE SIDE FLASHING

SCALE: 1 1/2" = 1'-0"



11 SHINGLE LOWER FLASHING

SCALE: 1" = 1'-0"

LICENSED ARCHITECT
THANG N. DO
No. C-018127
REN. 11/30/21
STATE OF CALIFORNIA

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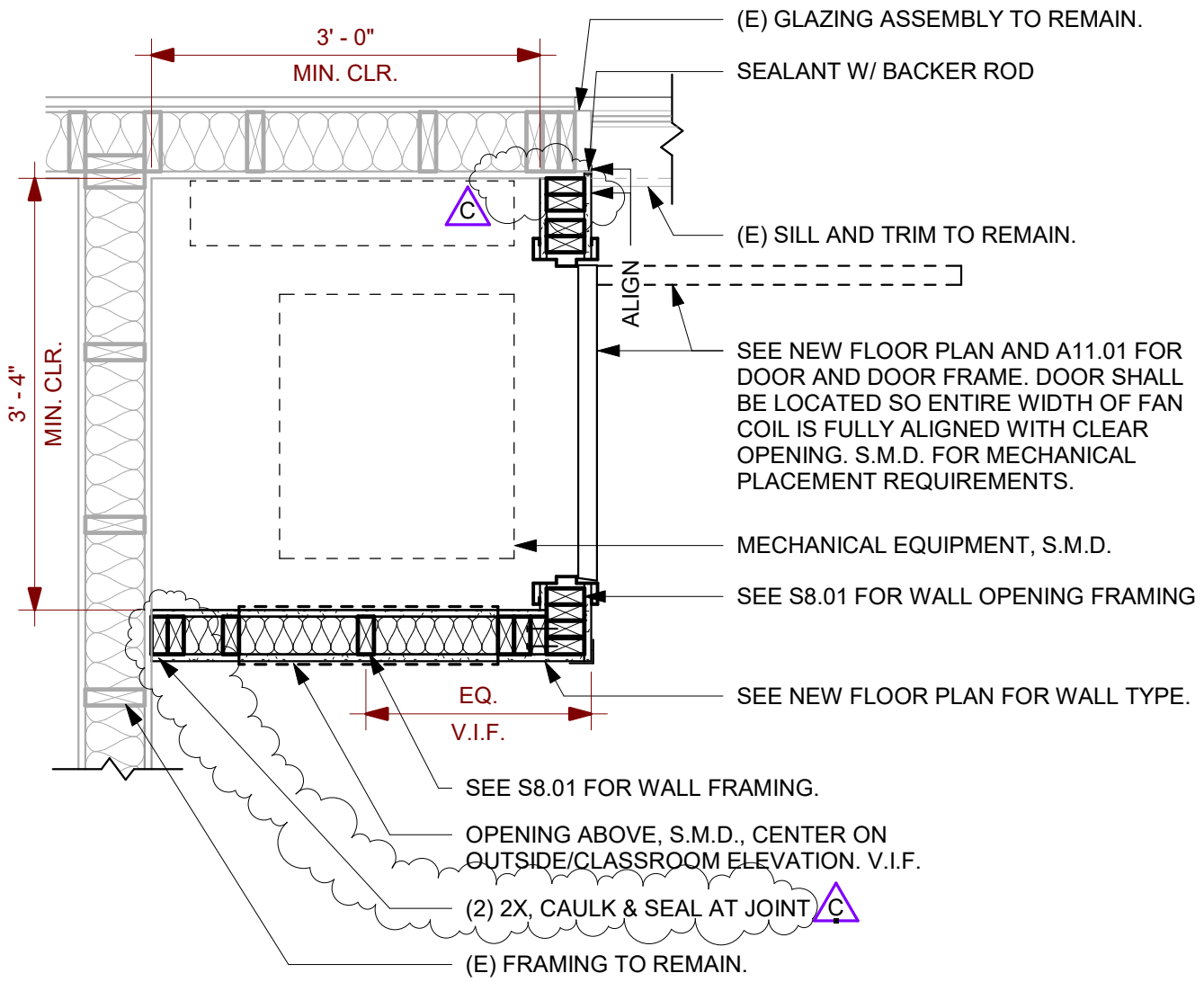
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119556
JOB NO.	2021005.06
DATE	12/22/2021

SHEET
AD3-A8.10B



NOTE: NOT ALL MECHANICAL ELEMENTS SHOWN. S.M.D. FOR MORE INFORMATION.

16 MECH. ENCLOSURE CLEARANCES, TYP.

SCALE: 3/4" = 1'-0"

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ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119556
JOB NO.	2021005.06
DATE	12/22/2021

SHEET

AD1-A9.10

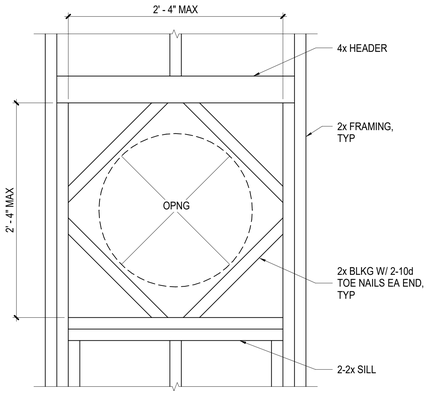
FASTENING SCHEDULE		
DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2 1/2" × 0.131") 2-3" × 0.131" nails 2-3" 14 gage staples	Each end, toenail
	2-16 d common (3 1/2" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3 1/2" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust)	3-16d common (3 1/2" x 0.163") 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint)	Per Table 2308.7.3.1, CBC 2019	Face nail
5. Collar tie to rafter	3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10 common (3" × 0.148"); or 3-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3"14 gage staples, 7/16" crown; or	End nail
	3-10d common (3 1/2" × 0.148"); or 4-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail
WALL		
8. Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or	12" o.c. face nail
	3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3 1/2" × 0.162"); or	16" o.c. each edge, face nail
	16d box (3 1/2" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toenail
12. Top plate to top plate	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8-16d common (3 1/2" × 0.162"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2"x0.163"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3 1/2 " × 0.162"); or 3-16d box (3 1/2" × 0.135"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown; or	Toenail
	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128")	Face nail
20. 1" × 8" and wider sheathing to each bearing	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128")	Face nail

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

12 NAILING SCHEDULE

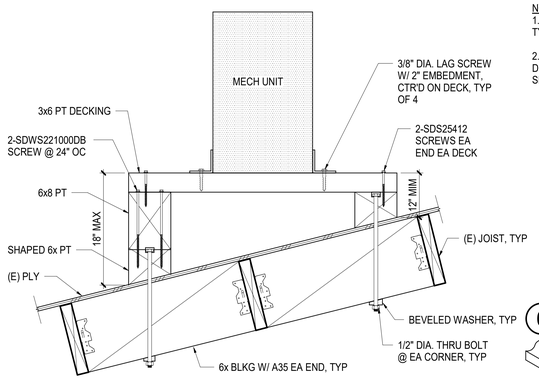
NTS



NOTES:
1. FOR INFO NOT SHOWN OR NOTED, SEE 5

9 FRAMING DETAIL AT ROUND OPENING

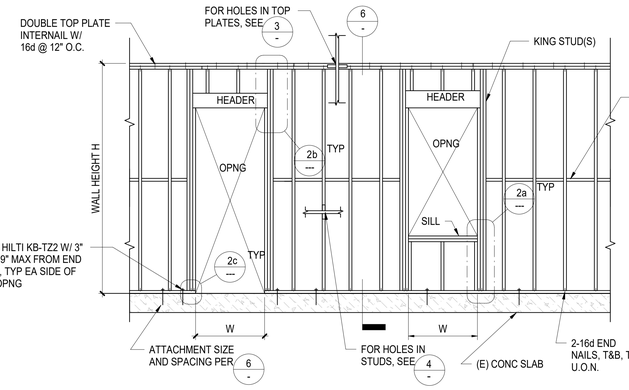
NTS



PLAN VIEW

11 MECH UNIT PLATFORM FRAMING DETAIL

NTS



NON-BEARING WALL STUD SCHEDULE		
WALL HEIGHT	STUD SIZE	SPACING
H < 13'-0"	2x4	16"

b

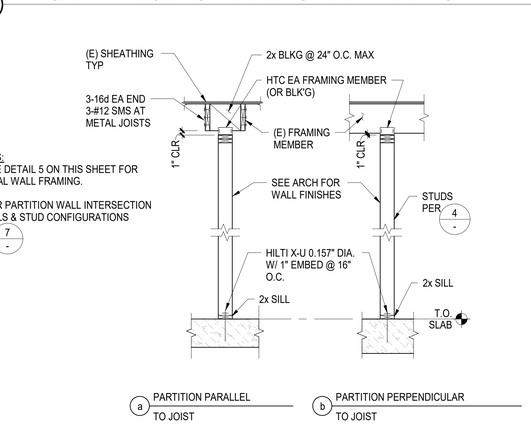
NON-BEARING WALL SCHEDULE AT OPENINGS				
OPENING WIDTH	KING STUD(S)	HEADER DEPTH	BEARING STUD(S)	SILL
W< 4'-6"	2x	4x	1-2x	2-2x

a

NOTE:
STUD, SILL, AND HEADER WIDTHS TO MATCH WALL FRAMING SIZE.

5 TYPICAL INTERIOR NON-BEARING WALL FRAMING

NTS



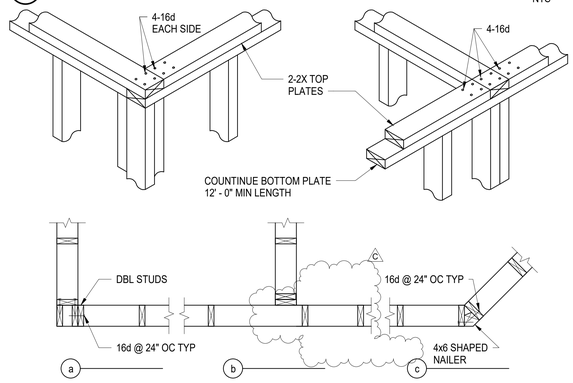
NOTES:
1. SEE DETAIL 5 ON THIS SHEET FOR TYPICAL WALL FRAMING.
2. FOR PARTITION WALL INTERSECTION DETAILS & STUD CONFIGURATIONS SEE 7

a PARTITION PARALLEL TO JOIST

b PARTITION PERPENDICULAR TO JOIST

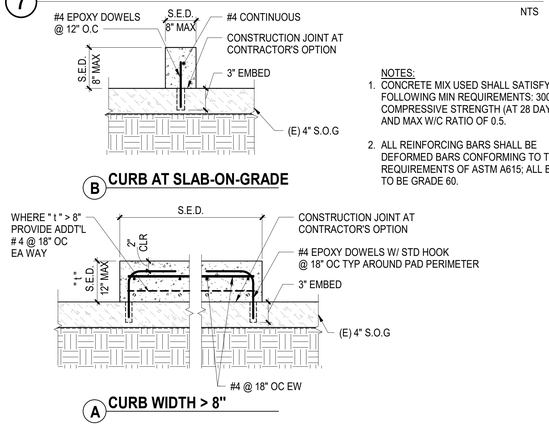
6 NON-BEARING WALL PARTITION

NTS



7 WALL INTERSECTIONS

NTS

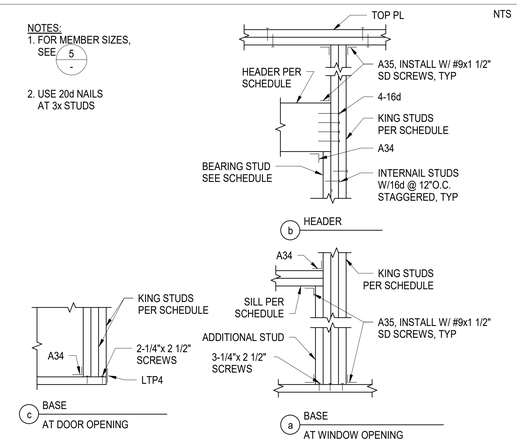


NOTES:
1. CONCRETE MIX USED SHALL SATISFY THE FOLLOWING MIN REQUIREMENTS: 3000 PSI COMPRESSIVE STRENGTH (AT 28 DAYS), AND MAX W/C RATIO OF 0.5.
2. ALL REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A615; ALL BARS TO BE GRADE 60.

8 CURBS AND HOUSEKEEPING PADS AT (E) S.O.G

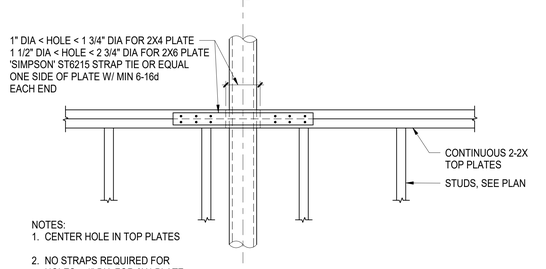
NTS

NOTES:
1. FOR MEMBER SIZES, SEE 5
2. USE 20d NAILS AT 3x STUDS



2 WALL OPENING

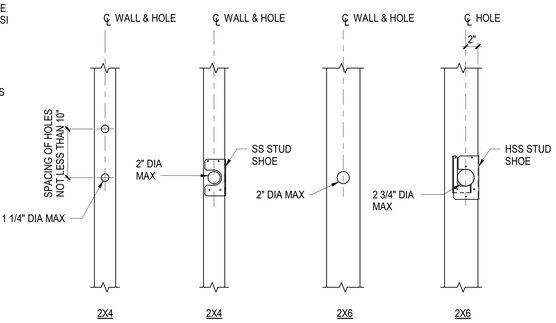
NTS



NOTES:
1. CENTER HOLE IN TOP PLATES
2. NO STRAPS REQUIRED FOR HOLES < 1" DIA FOR 2X4 PLATE HOLES < 1 1/2" DIA FOR 2X6 PLATE

3 TOP PLATE PENETRATIONS

NTS



4 PENETRATIONS IN STUDS

NTS

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PROJECT

ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

BASE DESIGN
582 MARKET ST. STE. 1402
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STAMP

REGISTERED PROFESSIONAL ENGINEER GOKHAN AKALAN NO. 5594 STRUCTURAL STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119556

REVISIONS

No.	Description	Date
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	06/03/2021
BACKCHECK	

SHEET

FRAMING DETAILS AND NAILING SCHEDULE

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3-S8.01

PACKAGED ROOFTOP AIR CONDITIONING UNITS SCHEDULE

TAG	MANUFACTURER	MODEL NO.	BUILDING	AREA SERVED	COOLING MBH		GAS HEATING MBH		AIRFLOW CFM	ESP IN. W.G.	OUTSIDE AIR CFM	FAN RPM	MOTOR BHP	SEER	AFUE %	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
					TOTAL	SENSIBLE	INPUT	OUTPUT								V / PH	MCA	MOCP			
AC-1	CARRIER	48JCEV06	WING 1	ADMINISTRATION	59.06	53.82	82 110	65 88	1990	0.60	450	1959	0.80	19	80	208 / 3	26	30	750	6/MP6.01	1, 2, 3, 4, 5
AC-2	CARRIER	48VCE05		ADMINISTRATION	47.81	44.72	82 110	65 88	1600	0.60	450	1682	0.51	20	80	208 / 3	25	30	740	6/MP6.01	1, 2, 3, 4, 5
AC-3	CARRIER	48VCE05	MUSIC BLDG	PE STORAGE 8	47.81	44.72	82 110	65 88	1600	0.60	450	1682	0.51	20	80	208 / 3	25	30	740	6/MP6.01	1, 2, 3, 4, 5
AC-4	CARRIER	48VCE05		CLUB ROOM 9	47.81	44.72	82 110	65 88	1600	0.60	450	1682	0.51	20	80	208 / 3	25	30	740	6/MP6.01	1, 2, 3, 4, 5
AC-5	CARRIER	48VCE05		CLUB ROOM 9	47.81	44.72	82 110	65 88	1600	0.60	450	1682	0.51	20	80	208 / 3	25	30	740	6/MP6.01	1, 2, 3, 4, 5
AC-6	CARRIER	48JCEV06		BAND ROOM 6	59.06	53.82	82 110	65 88	1990	0.60	450	1959	0.80	19	80	208 / 3	26	30	750	6/MP6.01	1, 2, 3, 4, 5
AC-7	CARRIER	48JCEV06		CLASSROOM 7, STORAGE, OFFICES, PRACTICE ROOM, CONF.	59.06	53.82	82 110	65 88	1990	0.60	450	1959	0.80	19	80	208 / 3	26	30	750	6/MP6.01	1, 2, 3, 4, 5

1. WEIGHT INCLUDES ALL OPTIONS AND ACCESSORIES.
2. PROVIDE WITH LOW LEAK ECONOMIZER WITH BAROMETRIC RELIEF, MEDIUM GAS HEAT, VARIABLE SPEED COOLING CAPACITY, HIGH STATIC DIRECT DRIVE FAN, LOUVERED HAIL GUARDS, HINGED ACCESS PANELS, UNPOWERED CONVENIENCE OUTLET, PHASE MONITOR, AND E-COAT COILS.
3. PROVIDE WITH MERV 13 FILTERS.
4. PROVIDE WITH DELTA CONTROLS THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
5. OWNER FURNISHED CONTRACTOR INSTALLED.

C

HP-36	SAMSUNG	AM053TXMDCH/AA		ROOF	53	61	—	—
FC-37	SAMSUNG	AM054TNZDCH/AA		JANITOR 37B	53	61	1400	450
HP-37	SAMSUNG	AM053TXMDCH/AA		ROOF			—	—

1. SPLIT SYSTEM SHALL BE ABLE TO OPERATE AT 94% HEATING CAPACITY DOWN TO 32°F OUTDOOR AMBIENT TEMPERATURE.
2. CFM BASED ON 0.55 ESP.
3. PROVIDE WITH SAMSUNG MIM-A60UN 24VAC THERMOSTAT ADAPTER AND 24VAC TRANSFORMER.
4. PROVIDE WITH DELTA CONTROLS THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
5. PROVIDE CONDENSATE PUMP, LITTLE GIANT VCMX-20ULS WITH OVERFLOW PROTECTION, OR APPROVED EQUAL.
6. PRO
7. FAN
8. INDC
9. PRO
10. PRO

C

REGISTERED PROFESSIONAL ENGINEER
METIN SERTTUNC
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

CEG JOB NO: 21039

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cypresseg.com

HVAC, Plumbing, Fire Protection
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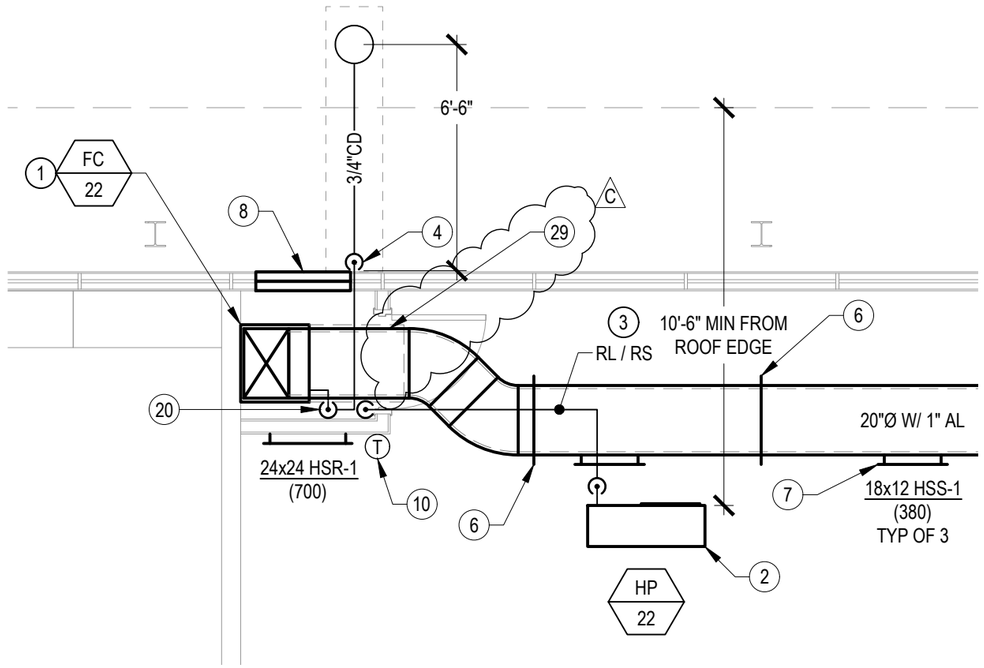
ABBOTT MIDDLE SCHOOL -
HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET REF. SHEET MP0.02
APPL NO.: 01-119556	AD3-MP0.02
JOB NO. 2021005.06	
DATE 12/22/2021	



3 MP2.06 PARTIAL FLOOR PLAN - TYPICAL CLASSROOM

SCALE: 1/4" = 1'-0"

NEW SHEET NOTES

16. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO ABOVE EXTERIOR CONCRETE WALL, DROP CD TIGHT TO EXTERIOR CONCRETE WALL TO BELOW GRADE, ROUTE TO CD DRYWELL IN LANDSCAPE AREA. SEE DETAILS 8/MP6.01 C FOR CD CONNECTION TO EQUIPMENT, SEE 3/MP6.02 AND 5/MP6.02 FOR CD DRYWELL. C

28. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 44"x32". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING, MINIMIZE EXPOSED CABLE, PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES

29. PROVIDE DUCT COLLAR TO CONCEAL DUCT OPENING AT ENCLOSURE.

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No. M31059
EXP. JUNE 30, 2023
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ABBOTT MIDDLE SCHOOL -
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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

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NEW SHEET NOTES

5. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 44"x32". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING, MINIMIZE EXPOSED CABLE, PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES △C

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DATE 12/22/2021	

(#) NEW SHEET NOTES

1. INSTALL ROOFTOP AC UNIT ON NEW ROOF CURB. ENSURE CORRECT UNIT ORIENTATION AND CONNECT TO (E) SUPPLY AND RETURN DUCTWORK, TYP.
2. INSTALL GAS PIPE FROM POC TO AC UNIT. INSTALL GAS PIPE WITH SHUTOFF VALVE, DIRT LEG, AND FLEX CONNECTION AT AC UNIT. INSTALL CONDENSATE DRAIN PIPE WITH TRAP AND CONNECT TO (E) CD PIPE. FOR PIPE SUPPORT ON ROOF, SEE DETAIL 11/MP6.01. CONNECT TO AC UNIT PER 8/MP6.01.
3. INSTALL CONDENSATE DRAIN PIPE WITH TRAP AND CONNECT TO (E) CD PIPE. CONNECT TO AC UNIT PER 8/MP6.01.
4. INSTALL THERMOSTAT ON WALL AND WIRE TO AC UNIT, TYP OF (5).
5. INSTALL CONDENSING UNIT ON HOUSEKEEPING PAD, CONNECT REFRIGERANT PIPING TO COOLING COIL.
6. INSTALL COOLING COIL IN CEILING SPACE AND CONNECT TO (E) DUCTWORK. PROVIDE FLEX CONNECTOR AT DUCT CONNECTION. INSTALL DRAIN PAN UNDER COIL. CONNECT CONDENSATE DRAIN TO (E) CD AND ADD SECONDARY CD PIPE.
7. INSTALL FURNACE IN CEILING SPACE AND CONNECT TO (E) DUCTWORK. INSTALL COMBUSTION AIR INTAKE. CONNECT FLUE PIPE TO (E) FLUE AT BOTTOM OF ROOF STRUCTURE. SALVAGE AND REINSTALL (E) SUPPORTS AS REQUIRED FOR CONSTRUCTION ACCESS AS REQUIRED PER 6/MP7.02. C
8. INSTALL FILTER BOX AND CONNECT TO FURNACE. PROVIDE FLEX CONNECTOR AT FURNACE CONNECTION. FILTER BOX SHALL HAVE SIDE ACCESS, WITH HINGED ACCESS PANEL AND TOOL-LESS CAM LOCKS.
9. CONNECT (E) GAS TO NEW FURNACE PER 8/MP6.01.
10. INSTALL REFRIGERANT PIPE FROM CONDENSING UNIT TO COOLING COIL. SIZE PER MANUFACTURER'S REQUIREMENTS. PROVIDE ALUMINUM JACKETING AT EXTERIOR.
11. INSTALL THERMOSTAT ON WALL AND WIRE TO HVAC EQUIPMENT.

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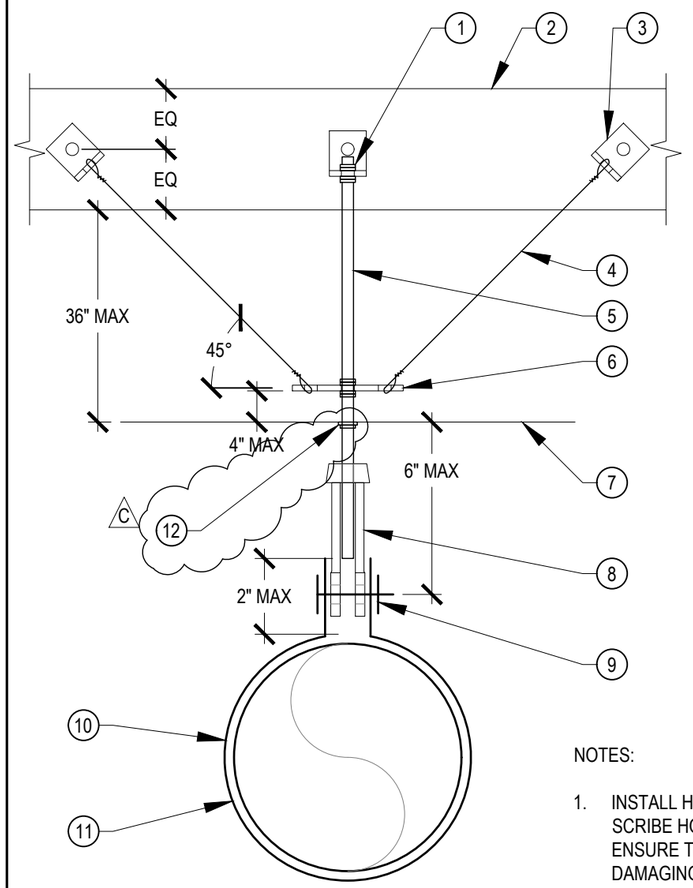
APPL NO.: 01-119556	
JOB NO. 2021005.06	**AD3-MP2.08**
DATE 12/22/2021	

8 GAS AND CONDENSATE DRAIN CONNECTION TO EQUIPMENT N.T.S.



DETAIL NOTES:

1. PROVIDE DOUBLE NUT AT FITTINGS, TYP AT ROD.
2. (E) FRAMING.
3. UNISTRUT P1026 W/ 3/8" THRU BOLT, TYP.
4. 12 GA WIRE W/ (3) TIGHT TURNS WITHIN 3", TYP. 4 WAYS.
5. 3/8"Ø HANGER ROD.
6. UNISTRUT P1925.
7. (E) T-BAR CEILING.
8. GRINNELL FORGED STEEL CLEVIS END.
9. 3/8"Ø THRU BOLT W/ LOCKWASHER AND NUT.
10. DUCT. MAX WEIGHT OF DUCT = 10 LB/FT. SEE PLANS FOR SIZES AND LOCATIONS.
11. 1" x 16 GAUGE CONTINUOUS COLLAR DRAWN TIGHT AROUND DUCT.
12. WASHER AND NUT. C

NOTES:

1. INSTALL HANGER ROD AT EDGE OF T-BAR CEILING TILE. SCRIBE HOLE TIGHT TO ROD. DO NOT OVERCUT. ENSURE T-BAR CEILING CAN BE REPLACED WITHOUT DAMAGING THE CEILING TILE.
2. HANGER ROD & WIRE BRACING ASSEMBLY SPACING 10 FT OC MAX.

9 ROUND DUCT HANGER N.T.S.

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SYMBOL LIST:

- (1 / E1.1) PLAN, DETAIL OR SECTION DESIGNATION.
- 201 ROOM NUMBER.
- SHEET REFERENCE SYMBOL - SEE ASSOCIATED NOTE ON SAME SHEET.
- FEEDER SCHEDULE SYMBOL.
- (CH 1) MECHANICAL EQUIPMENT TAG.
- (A) INDICATES FIXTURE TYPE

LUMINAIRE SYMBOLS

- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
- POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE WALL MOUNTED-SEE SCHEDULE.
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- (EM) EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE WALL MOUNTED- PROVIDE EM. BATTERY BALLAST
- EXIT LIGHT SINGLE FACE - SEE SCHEDULE.
- EXIT LIGHT SINGLE FACE (WITH ARROW)- SEE SCHEDULE.
- EXIT LIGHT (DOUBLE FACED WITH ARROW)- SEE SCHEDULE.
- EMERGENCY BATTERY PACK EXIT LIGHT INSTALL AS DIRECTED.

TYPICAL LUMINAIRE NOMENCLATURE

3a — INDICATES SWITCHING DESIGNATION

INDICATES CIRCUIT NUMBER

SWITCH SYMBOLS

- $ SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- $a SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX, a = CIRCUIT CONTROLLED.
- $3 THREE WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- $4 FOUR WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- MOTOR RATED SWITCH
- LVS a WALL MOUNTED LOW VOLTAGE "DATALINE SWITCH =48" FROM TOP OF BOX, UON, a = CIRCUIT CONTROLLED
- OS LIGHTING OCCUPANCY SENSOR
- P MOTION DETECTOR POWER PACK
- OS ONE CIRCUIT WALL SWITCH WITH BUILT IN OCCUPANCY SENSOR. CONNECT SWITCHING TO LIGHTING FIXTURES AS REQUIRED. MOUNT AT +48"AFF TO THE TOP OF THE SWITCH BOX, UON.

RECEPTACLE SYMBOLS

- CONVENIENCE RECEPTACLE - DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- GFCI CONVENIENCE RECEPTACLE - DUPLEX AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- RECEPTACLE - DOUBLE DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- SINGLE RECEPTACLE - NEMA 5-20R UON, AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- SINGLE RECEPTACLE - NEMA L21 - 208 VOLT, THREE PHASE, 5 WIRE, AT + 18" AFF UON AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- C DOUBLE DUPLEX RECEPTACLE WITH (1) CONTROLLED DUPLEX AND (1) UNCONTROLLED DUPLEX, AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- 3-CHANNEL SURFACE RACEWAY, INSTALL AT +36" AFF UON. RACEWAY SHALL BE WIREMOLD #5500.
- FLOOR BOX WITH (2) DUPLEX RECEPTACLES AND DATA OUTLETS. QUANTITY OF DATA OUTLETS AS INDICATED ON THE FLOOR PLANS.

POWER DISTRIBUTION SYMBOLS

- PANELBOARD - SURFACE OR FLUSH MOUNTED.
- LCP LIGHTING CONTROL CABINET.
- EM EMERGENCY POWER INVERTER.
- J JUNCTION BOX - CEILING OR WALL MOUNTED, SIZE PER CEC, TAPE AND TAG WIRES.
- MAIN SWITCHBOARD OR DISTRIBUTION PANEL.
- M MOTOR
- 30 RATING AS INDICATED.
- 60 UNFUSED DISCONNECT SWITCH - RATING AS INDICATED.
- 100 FUSED DISCONNECT SWITCH - SIZE FUSES PER MOTOR MANUFACTURER'S RECOMMENDATIONS. RATING AS INDICATED.
- II MAGNETIC STARTER - NEMA SIZE INDICATED.
- T TRANSFORMER - SEE SINGLE LINE FOR REQUIREMENTS.
- GROUND ROD.
- P IN-GRADE ELECTRICAL PULL BOX WITH TRAFFIC RATED LID.
- L IN-GRADE LIGHTING PULL BOX WITH TRAFFIC RATED LID.
- C IN-GRADE COMMUNICATION PULL BOX WITH TRAFFIC RATED LID.
- EV1 SINGLE EV CHARGER FOR BUS
- EV2 DOUBLE EV CHARGER FOR CAR

POWER DISTRIBUTION SINGLE LINE SYMBOLS

- DRAW-OUT CIRCUIT BREAKER.
- CIRCUIT BREAKER.
- FUSED SWITCH.
- M "PG&E" METER W/ CURRENT TRANSFORMER.
- TRANSFORMER.
- NORMALLY OPENED, AUXILIARY CONTACT.
- NORMALLY CLOSED, AUXILIARY CONTACT.
- AUTOMATIC TRANSFER SWITCH.
- EMERGENCY GENERATOR.

WIRING & CONDUIT RUN SYMBOLS

(C)

- CONDUIT - CONCEALED IN WALLS OR CEILING.
- CONDUIT - EXPOSED.
- CONDUIT - UNDERGROUND OR BELOW FLOOR
- EXISTING CONDUIT, CABLES OR DEVICE
- #10 G CONDUIT - HOME RUN TO PANEL, TERMINAL CABINET, ETC. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. CROSSHATCHES WITH "#10" INDICATES WIRE SIZE OTHER THAN #12'S.
- FLEX CONDUIT WITH CONNECTION.
- CONDUIT - STUB UP.
- CONDUIT - STUB DOWN.
- —E—E— CONDUIT EMERGENCY SYSTEM.
- CAPPED CONDUIT.
- CONDUIT CONTINUATION.

WATTSTOPPER DIGITAL LIGHTING MANAGEMENT CONTROLS

- LCP WATTSTOPPER LMCP24
- LMRC 101 WATTSTOPPER LMRC-101
- LMRC 211 WATTSTOPPER LMRC-211
- LMRC 212 WATTSTOPPER LMRC-212
- LMRC 213 WATTSTOPPER LMRC-213
- PC WATTSTOPPER LMDC-100, CEILING MOUNT
- 101 WATTSTOPPER LMDW-101, + 48" AFF TO TOP OF THE BOX, UON.
- DL WATTSTOPPER LMLS-500, CEILING/WALL MOUNT
- $101 WATTSTOPPER LMSW-101, + 48" AFF TO TOP OF THE BOX, UON.
- $102 WATTSTOPPER LMSW-102, + 48" AFF TO TOP OF THE BOX, UON.

COMMUNICATIONS SYMBOLS

- 19" FLOOR MOUNTED DATA RACK.
- DATA/TEL STATION AT +18" AFF UON WITH (1) DATA OUTLET. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
- (2) DATA/TEL STATION AT +18" AFF UON WITH (2) DATA OUTLETS. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
- WAP (2) DATA OUTLETS FOR WIRELESS ACCESS POINT EQUIPMENT TO BE MOUNTED IN CEILING CHASE.
- S INTERIOR SPEAKER WALL MOUNTED AT + 8'-0" AFF UON. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
- S CEILING MOUNTED SPEAKER. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
- S FLUSH MOUNTED EXTERIOR SPEAKER AT +8'-0" AFF UON. CONNECT EXTERIOR SPEAKER PER THE PA/CLOCK RISER DIAGRAM.
- C S COMBINATION FLUSH MOUNTED CLOCK/SPEAKER DEVICE AT +8'-0" AFF UON. CONNECT CLOCK/SPEAKER PER THE PA/CLOCK RISER DIAGRAM. PROVIDE $\frac{3}{4}$"C TO ACCESSIBLE CEILING.
- HDMI DEVICE. CONNECT PER A $4\frac{11}{16}$" EXTRA DEEP BOX WITH A 2 GANG RING THROUGH $1\frac{1}{4}$"C TO CEILING.

FIRE ALARM SYMBOLS

- FACP FIRE ALARM CONTROL PANEL.
- RPS REMOTE POWER SUPPLY.
- AMP EVAC SPEAKER AMPLIFIER.
- FATC FIRE ALARM TERMINAL CABINET.
- ANN REMOTE FIRE ALARM ANNUNCIATOR.
- SMOKE DETECTOR
- F PULL STATION
- HORN STROBE

GENERAL ANCHORAGE NOTES:

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTIONS 1617A.1.18 THOUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26, AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIREd) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/120 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

A. COMPONENTS WEIGHTING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

B. COMPONENTS WEIGHTING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2019 CBC, SECTION 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEM. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☐ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☒ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) # 0043-13 .

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE LICENSED BY THE STATE OF CALIFORNIA C-10 AND SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY THIS CONTRACT WORK.
3. PRIOR TO SUBMITTING A BID THE CONTRACTOR SHALL VISIT THE SITE, REVIEW THE EXISTING CONDITIONS AND ALLOW FOR LABOR, MATERIAL AND COORDINATION THAT IS NECESSARY TO PROVIDE A COMPLETE INSTALLATION OF EACH SYSTEM. THE CONTRACTOR SHALL OBTAIN AND BE FAMILIAR WITH ALL OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE ACCURATE "AS-BUILT" DRAWINGS. "AS-BUILT" DRAWINGS SHALL SHOW ACTUAL CHANGES TO ORIGINAL ELECTRICAL DRAWING, SHOW LOCATIONS OF PULL BOXES, CONDUIT RUNS AND WIRING CHANGES. THE CONTRACTOR SHALL PROVIDE ONE (1) HARDCOPY SET OF DOCUMENT DRAWINGS AND ONE (1) SET OF DOCUMENT DRAWINGS IN ELECTRONIC CAD FILE THAT REPRESENTS THE ACTUAL "AS-BUILTS". CAD FILES SHALL BE AUTOCAD 2010 FORMAT.
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
7. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK. THE CONTRACTOR SHALL CONTACT "UNDERGROUND SERVICES ALERT" FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF UNDERGROUND WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS. ALL EXTERIOR CONDUITS SHALL BE "RSG" UNLESS OTHERWISE NOTED ON DRAWINGS.
11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12'S WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR "ROUGH" ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
12. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID CONFLICTS.
13. SEE ARCHITECTURAL DOCUMENTS FOR EXACT PLACEMENT OF LIGHTING FIXTURES AND DEVICES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF CEILING TYPES FROM ARCHITECTURAL DOCUMENTS AND PROVIDE AND INSTALL ALL REQUIRED FIXTURE MOUNTING HARDWARE. PROVIDE AND INSTALL U.L. LISTED FIRE STOP ENCLOSURES FOR ALL RECESSED FIXTURES IN FIRE RATED CEILINGS.
14. THE CONTRACTOR SHALL PROVIDE IN EVERY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.
15. POWER FEEDERS MAY NOT BE SHOWN ON THE DRAWINGS, REFER TO THE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER INFORMATION. ALL DRAWINGS ARE DIAGRAMMATIC INDICATING LOCATION OR POSITION OF EQUIPMENT. FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION OF ANY WORK.
16. MANUFACTURER'S RECOMMENDATIONS FOR CONDUCTOR SIZING, CIRCUIT BREAKER OR FUSE PROTECTION OF ELECTRICALLY OPERATED EQUIPMENT MAY DIFFER FROM THOSE INDICATED ON DRAWINGS. CONTRACTOR SHALL CONFIRM RATINGS PRIOR TO ORDERING EQUIPMENT. PROVIDE ELECTRICAL PROTECTION TO EQUIPMENT IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND PER NATIONAL ELECTRICAL CODE REQUIREMENTS.
17. CONTRACTOR SHALL REVIEW EQUIPMENT REQUIREMENTS OF OTHER TRADES AND PROVIDE POWER CIRCUITS AND CONNECTIONS TO ELECTRICALLY OPERATED EQUIPMENT.
18. EFFECTIVELY BOND ELECTRICAL CABINETS, ENCLOSURES AND CONDUIT RACEWAYS TO CODE APPROVED GROUND AS PART OF THE CONTINUOUS GROUNDING SYSTEM.
19. MEASEURE THE 3-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 208/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 208/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS. TRANSFORMER TAP SETTING MAY REQUIRE CHANGING.
20. MEASURE THE 1-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 240/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 240/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS.
21. DO NOT SUBSTITUTE SPECIFIED MATERIAL OR EQUIPMENT WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER OR HIS REPRESENTATIVE.
22. IDENTIFY ALL ABOVE CEILING JUNCTION BOXES COVERS WITH PANEL AND CIRCUITS IN LEGIBLE PRINT USING BLACK INDELIBLE INK. ABOVE CEILING JUNCTION BOXES SHALL ALSO BE LABELED AT THE REAR INTERIOR BOX WITH AN INDELIBLE BLACK MARKER.
23. LABEL ALL WALL AND/OR WIREMOLD MOUNTED OUTLET DEVICES WITH PANEL CIRCUIT IDENTIFICATION WITH BOLD TYPE-PRINTED LABELING. BLACK LETTERING ON WHITE BACKGROUND PREFERRED.
24. DERATE CONDUCTORS IN RACEWAYS IN ACCORDANCE WITH NEC CODE REQUIREMENTS. PANEL FEEDERS TO WIREMOLDS CAN ENTER AT VARIOUS LOCATIONS TO LIMIT CONDUCTOR CIRCUITS PER WIREMOLD CAPACITIES.

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ABBREVIATIONS

A	AMPERE
ABV	ABOVE
AF	AMP FRAME OR AMP FUSE
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CD	CANDELAS
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CTR	CENTER
(D)	DEMOLISH
DET	DETAIL
DIM	DIMENSION
DISTR	DISTRIBUTION
DWG	DRAWING
(E)	EXISTING
EM	EMERGENCY
EQPT	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
(F)	FUTURE
FIN	FINISH
FL	FLOOR
G , GND	GROUND
HGT	HEIGHT
HP	HORSEPOWER
IC	INTERCOM
IDF	INTERMEDIATE DISTRIBUTION FRAME
JB	JUNCTION BOX
KAIC	KILOAMPERE INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
MCM	THOUSAND CIRCULAR MILS
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MH	MANHOLE
MTD	MOUNTED
MTG	MOUNTING
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NUMBER/ NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
P	POLE CIRCUIT BREAKER
PA	PUBLIC ADDRESS
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
(R)	EXISTING TO BE RELOCATED
REQD	REQUIRED
REQT	REQUIREMENT(S)
RM	ROOM
RSC	RIGID STEEL CONDUIT
SHT	SHEET
SW	SWITCH
SWBD	SWITCHBOARD
TC	TERMINAL CABINET
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER

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PROJECT

ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

American Consulting Engineers Electrical, Inc.

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DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

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1	ADDENDUM 1	11/24/2021
3	ADDENDUM 3	12/22/2021

MILESTONES

DD

90% CD

DSA SUB 06/03/2021

BACKCHECK

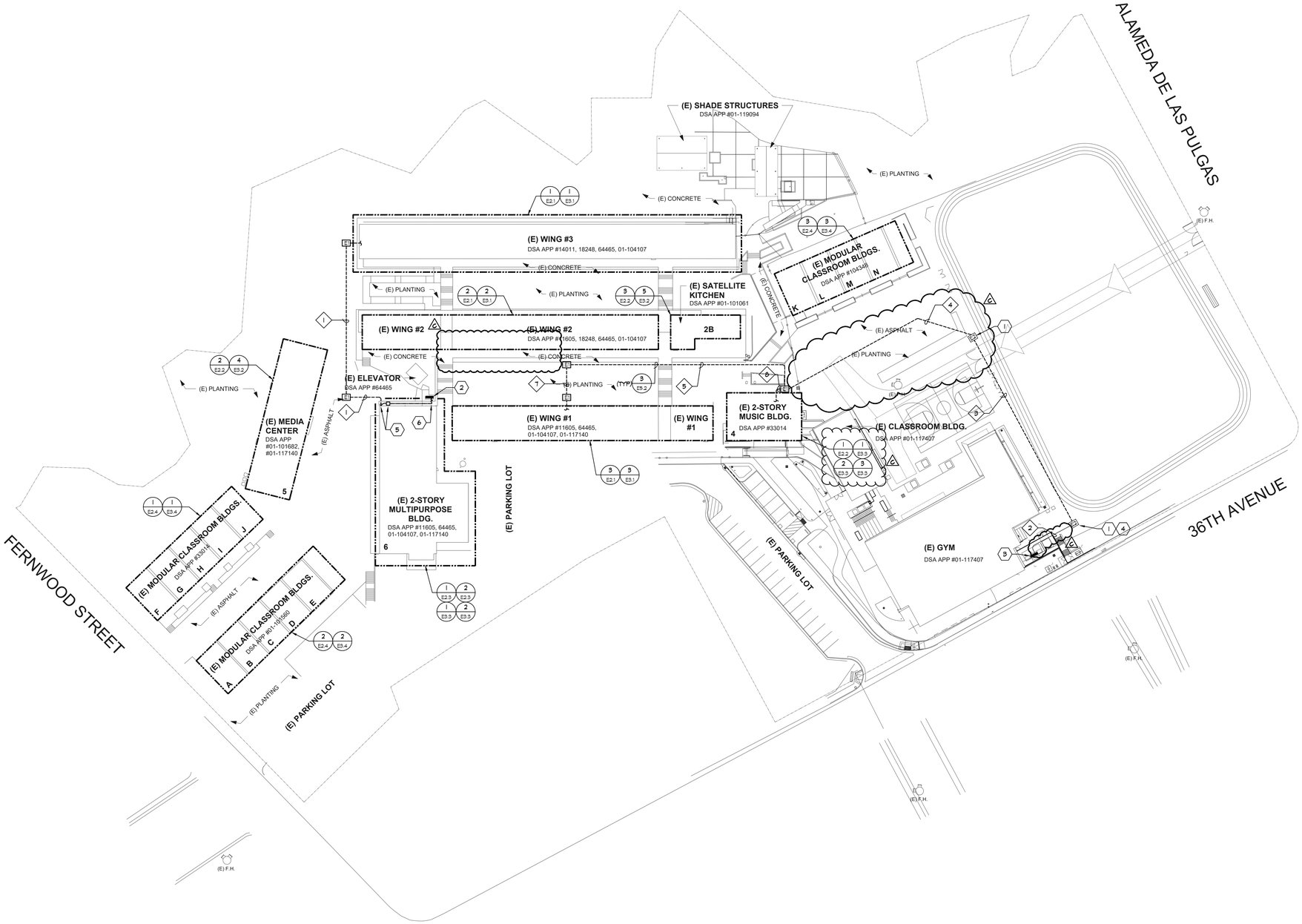
SHEET

ELECTRICAL COVER SHEET

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3 E0.1



ELECTRICAL SITE PLAN

1 / E1.1

SCALE: 1" = 40'-0"

N

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE UNDERGROUND CONDUITS AND CABLING.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS. WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. ALL ON-SITE TRENCHING SHALL BE INSTALLED PER DETAIL 3/E5.2.
5. SEE DEMOLITION SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
6. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER, CABLE, AND CONDUIT REQUIREMENTS.

SHEET NOTES:

1. EXISTING IN-GRADE BOX.
2. EXISTING MAIN SWITCHBOARD #1.
3. EXISTING MAIN SWITCHBOARD #2.
4. SPLICE CABLES INSIDE THIS EXISTING IN-GRADE ELECTRICAL PULL BOX. PROVIDE POLARIS SUBMERSIBLE SPLICE CONNECTORS.
5. TRANSITION CONDUITS FROM UNDERGROUND TO ABOVE GROUND AT THE EXTERIOR WALL. ROUTE CONDUITS ON WALL TO ABOVE OVERHANG. PROVIDE NEMA-3R PULL CAN AND ROUTE CONDUITS UNDERNEATH OVERHANG.
6. ROUTE CONDUITS UNDERNEATH OVERHANG TO EXISTING SWITCHGEAR LOCATION. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT AND TRANSITION CONDUITS INTO THE TOP OF THE SWITCHGEAR.

CONDUIT SCHEDULE:

1. (N) (3) 3"C - PANEL 'EM'
2. (E) (1) 4"C - FNL 'A' (MUSIC BUILDING)
   (E) (1) 4"C - FNL 'A' (WING I)
3. (E) (2) 4"C - FNL 'A' (MUSIC BUILDING)
   (N) (3) 4"C - FNL 'A' (WING I)
4. (E) (2) 4"C - FNL 'A' (MUSIC BUILDING)
   (N) (3) 4"C - FNL 'A' (WING I)
5. (N) (3) 4"C - FNL 'A' (WING I)
6. NOT USED
7. (N) (3) 4"C - FNL 'A' (WING I)
8. (N) (2) 4"C - FNL 'A' (MUSIC BUILDING)

PULLBOX SCHEDULE:

E1 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.

E2 - EXISTING B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.

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DSA SUB	06/03/2021
BACKCHECK	

SHEET

ELECTRICAL SITE PLAN

DATE 12/22/2021

JOB # 2021005.06

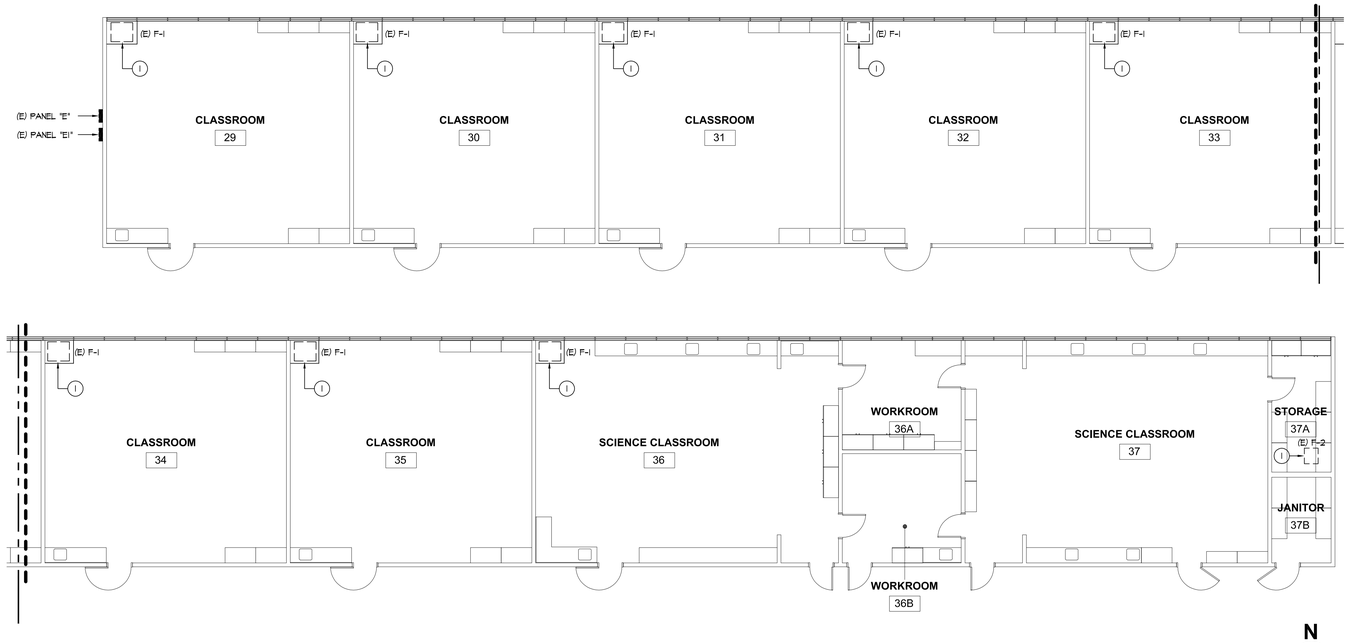
SHEET # AD3 E1.1

GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL DEMO REQUIREMENTS.
2. EXISTING ELECTRICAL PANELS ARE TO REMAIN.
3. SEE NEW ELECTRICAL FLOOR PLANS FOR ADDTIONAL REQUIREMENTS.
4. SEE DEMO AND NEW SINGLE LINE DIAGRAMS FOR ADDTIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

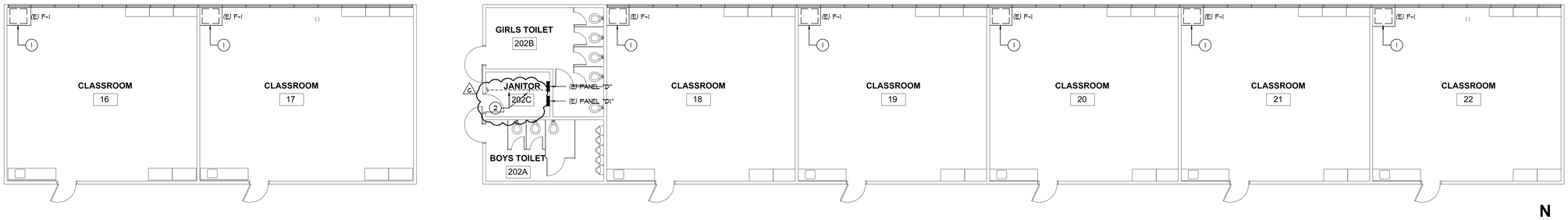
1. EXISTING MECHANICAL UNIT TO BE DEMOLISHED. PULL EXISTING ELECTRICAL CIRCUITRY BACK TO SOURCE AND REMOVE. REMOVE ALL CONDUITS, J-BOXES AND DISCONNECT SWITCH ASSOCIATED WITH THE DEMOLISHED UNIT.
2. EXISTING FEEDER CONDUIT AND CIRCUITRY FOR EXISTING ELECTRICAL PANEL. INTERCEPT EXISTING CONDUIT AND FEEDER CIRCUITRY. PREP FOR SPLICING AND INSTALLATION OF NEW PULL CAN. SEE NEW FLOOR PLANS FOR ADDITIONAL REQUIREMENTS.



1 E2.1 **ELECTRICAL DEMO FLOOR PLAN - WING 3**

SCALE: 1/8" = 1'-0"

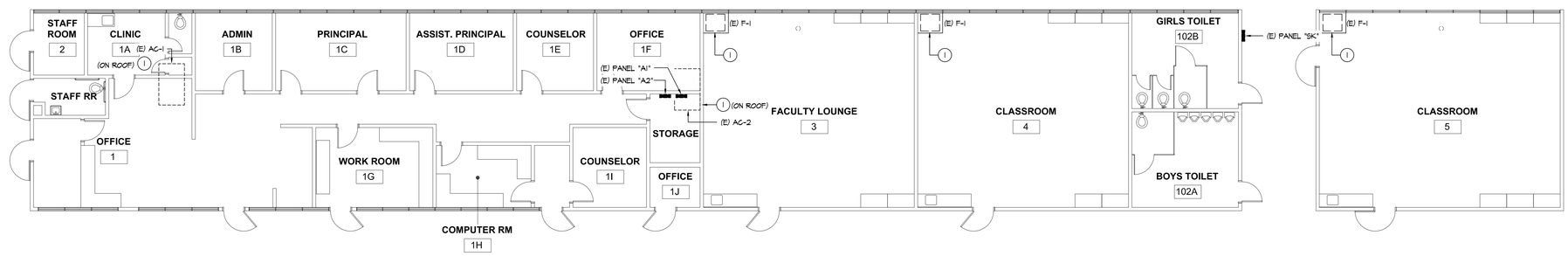
N



2 E2.1 **ELECTRICAL DEMO FLOOR PLAN - WING 2**

SCALE: 1/8" = 1'-0"

N

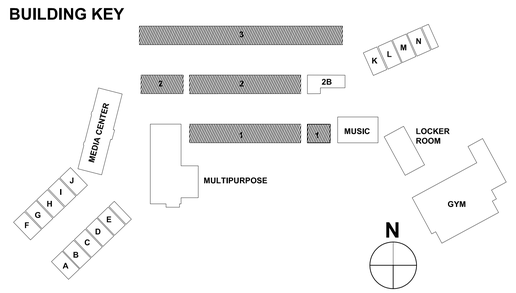


3 E2.1 **ELECTRICAL DEMO FLOOR PLAN - WING 1**

SCALE: 1/8" = 1'-0"

N

BUILDING KEY



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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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BACKCHECK

SHEET

ELECTRICAL DEMO FLOOR PLANS - WINGS 1, 2 & 3

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3 E2.1

GENERAL NOTES:

1. ALL CONDUITS SHALL BE ROUTED CONCEALED IN CEILING BELOW WHERE POSSIBLE.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND POINTS OF CONNECTION FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR. ADJUST LOCATION AND CONNECTION POINTS AS NEEDED.
3. SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR POWER CONNECTION REQUIREMENTS.
4. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL REQUREMENTS.
5. FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE 600V RATED, HEAVY DUTY CYCLE. FUSES FOR MECHANICAL UNITS SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATION.

SHEET NOTES:

1. NEW 60A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
2. NEW 30A-2P, NEMA-1, MOTOR-RATED DISCONNECT SWITCH FOR MECHANICAL UNIT.
3. NEW 30A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
4. NOT USED.
5. NEW 60A-3P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
6. PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE. RECEPTACLE SHALL BE MOUNTED ON A WEATHERPROOF BOX WITH WHILE-IN-USE COVER. COVER SHALL BE INTERMATIC WP1OIMXD "BOSS".
7. PROVIDE MOTOR RATED SWITCH AND 120V POWER FOR CONDENSATION PUMP.
8. TRANSITIONING CONDUIT FROM UNDERGROUND TO ABOVE GRADE BEFORE COLUMN AND FOOTING TO AVOID. EXTEND CONDUIT TO WALL.
9. PROVIDE (N) 40A-3P CIRCUIT BREAKER IN PANEL AND CIRCUIT SPACE INDICATED.
10. PROVIDE NEW DUCT SMOKE DETECTOR AND RELAY MODULE FOR EXISTING FIRE SMOKE DAMPER SHUTDOWN. CONNECT NEW DUCT SMOKE DETECTOR TO EXISTING FIRE ALARM PULL STATION IN THE ROOM AS REQUIRED.
11. INTERCEPT EXISTING FEEDER CONDUIT WITH NEW PULL CAN. SPLICE EXISTING CABLES AND EXTEND TO PANEL WITH NEW.
12. REMOVE EXISTING MAIN CIRCUIT BREAKER WITH REPLACE NEW 200A-3P MAIN CIRCUIT BREAKER.
13. PROVIDE NEW CONNECTION FROM PANEL "DM" AND RE-FEED EXISTING PANEL D.

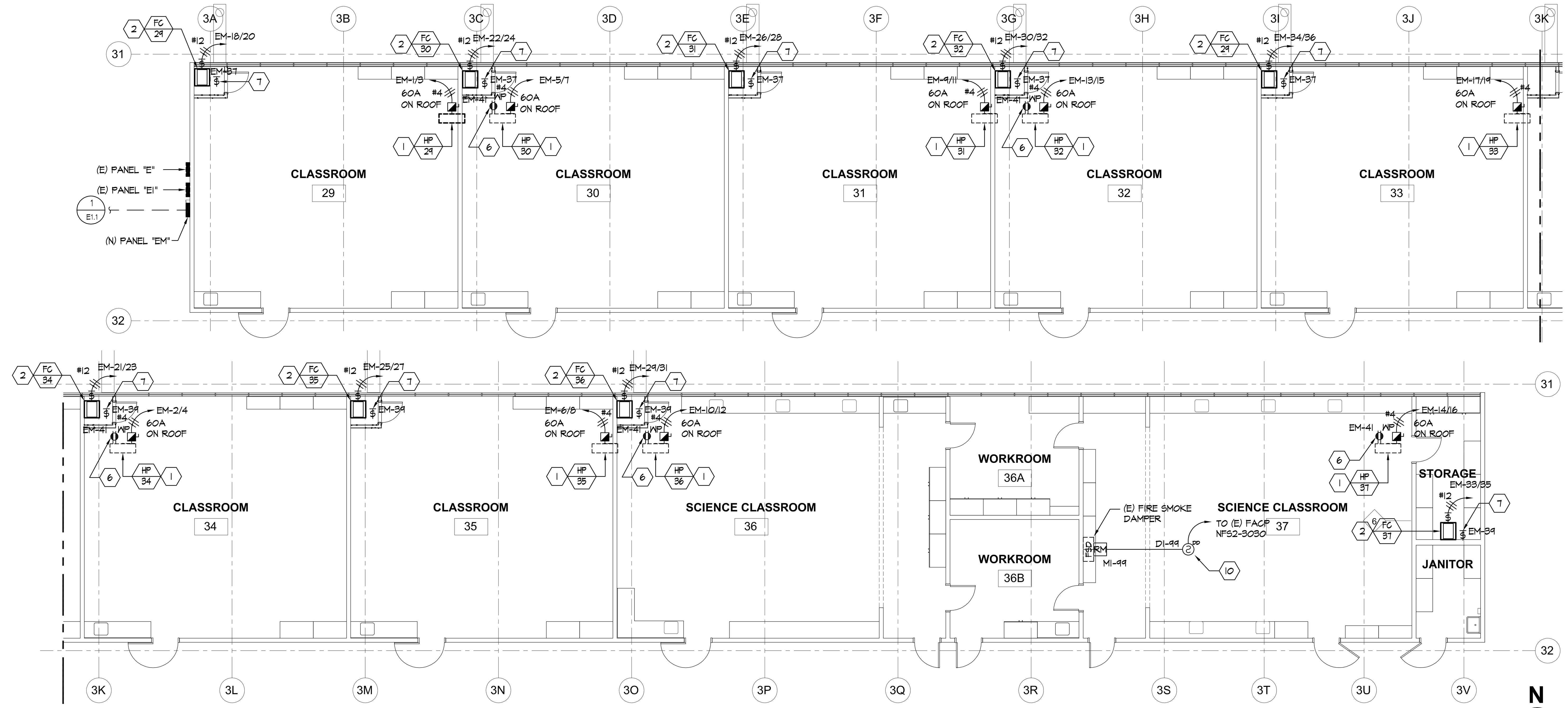
C

CABLE SCHEDULE:

A - (1) #14 UNSHIELDED TWISTED PAIR FOR SIGNALING LINE CIRCUITS.
B - (2) #12 FOR 24V POWER (CO DETECTOR)

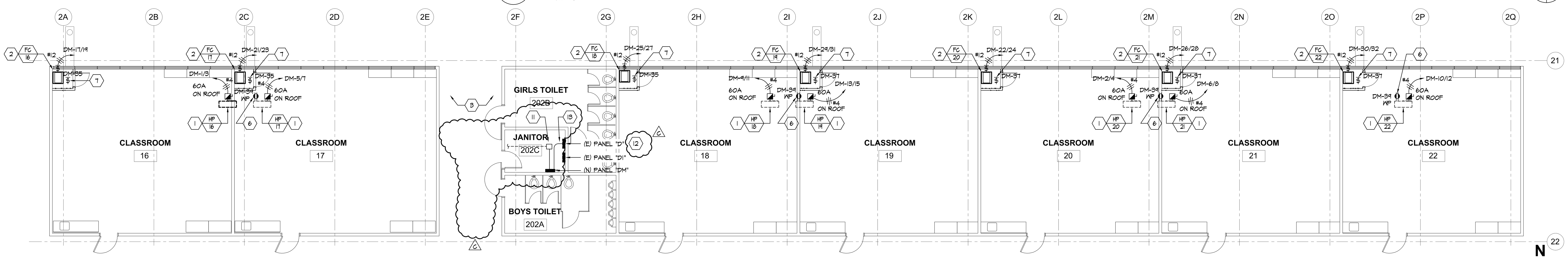
EQUIPMENT SCHEDULE:

RM	FIRE ALARM: (N) RELAY MODULE MODEL: NOTIFIER FRM-1 CSFM: 7300-0028:219
DD	FIRE ALARM: (N) SMOKE DETECTOR W/ DUCT HOUSING MODEL: NOTIFIER FSP-951/DNR CSFM: 7272-0028:503/3240-1653:209



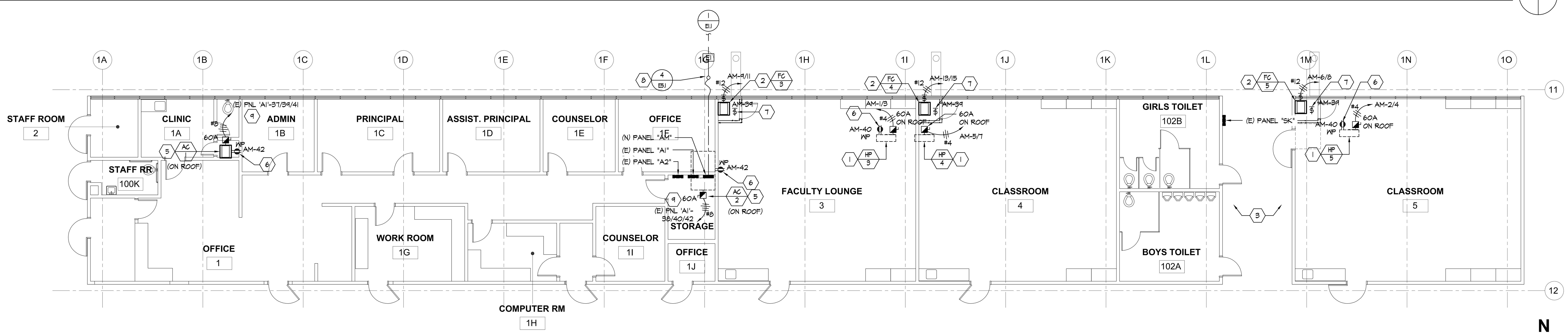
1 E3.1 ELECTRICAL NEW FLOOR PLAN - WING 3

SCALE: 1/8" = 1'-0"



2 E3.1 ELECTRICAL NEW FLOOR PLAN - WING 2

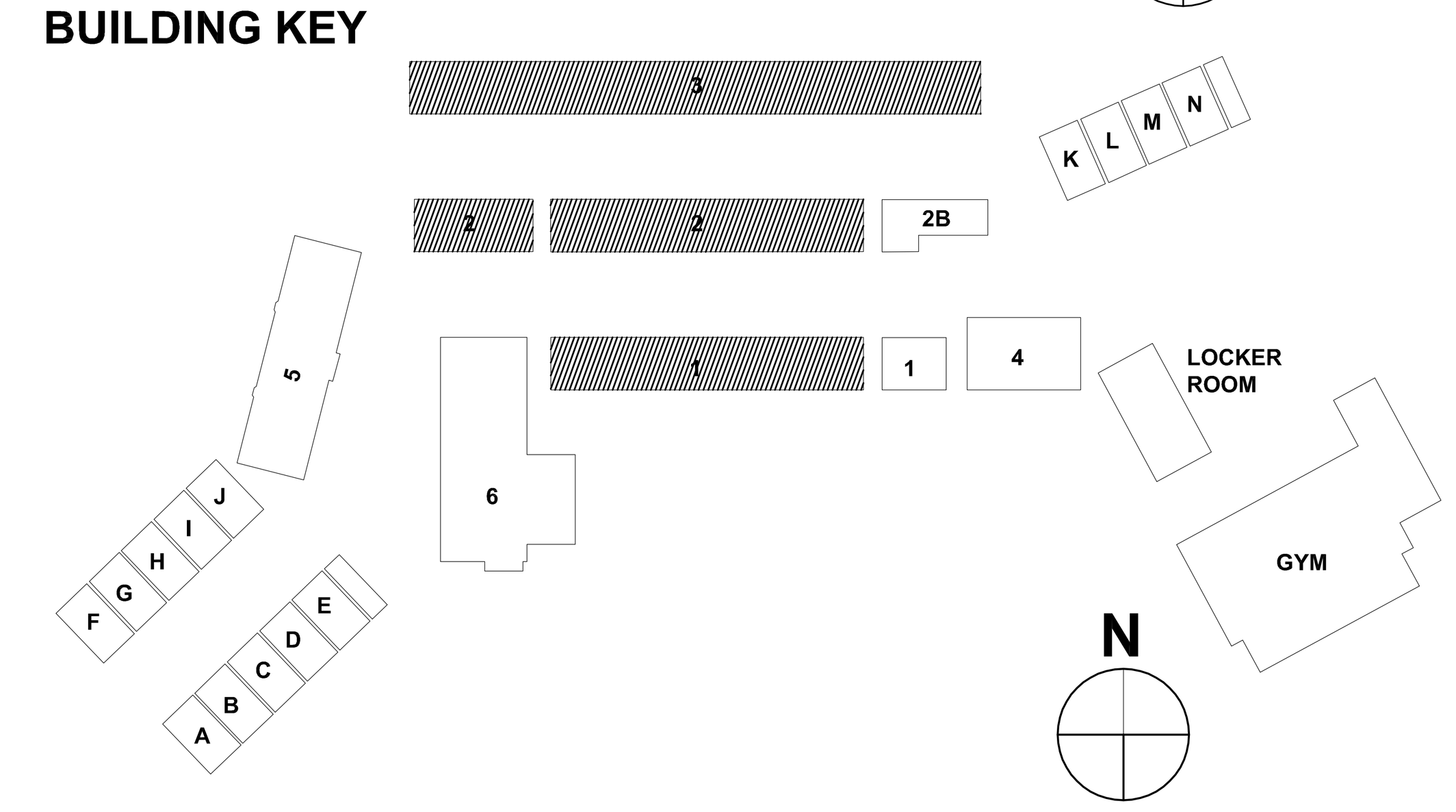
SCALE: 1/8" = 1'-0"



3 E3.1 ELECTRICAL NEW FLOOR PLAN - WING 1

SCALE: 1/8" = 1'-0"

BUILDING KEY



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90% CD	
DSA SUB	06/03/2021
BACKCHECK	

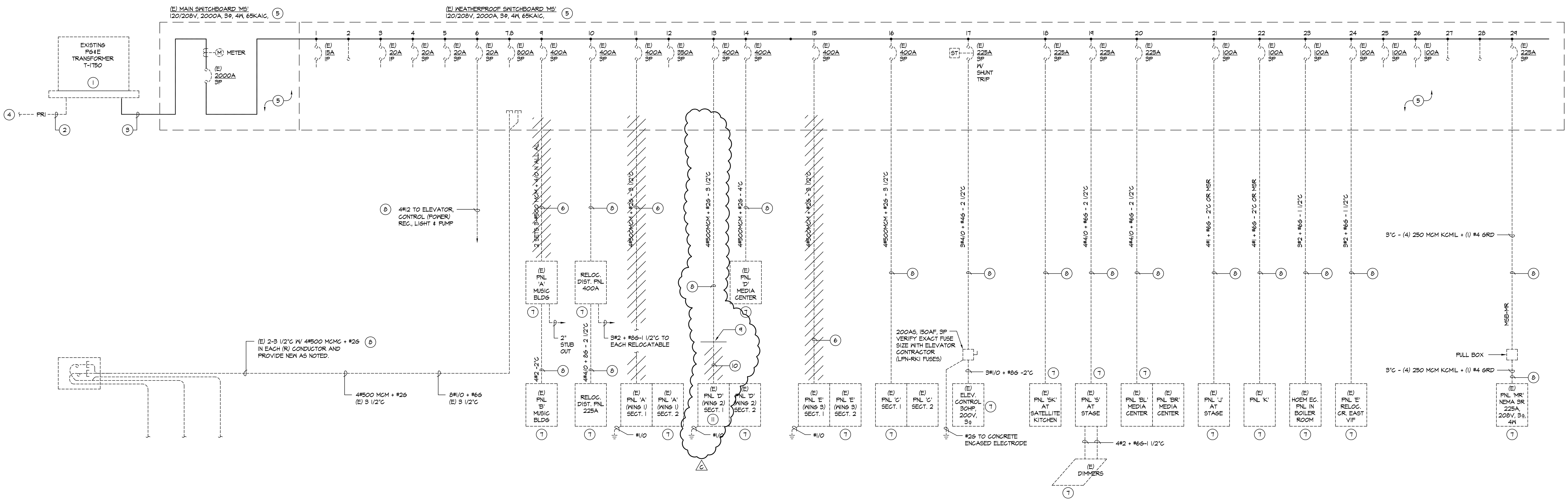
SHEET

ELECTRICAL NEW FLOOR PLANS - WING 1, 2 & 3

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3 E3.1



1 DEMO SINGLE LINE DIAGRAM

E4.1 NOT TO SCALE

GENERAL NOTES:

1. SEE ELECTRICAL SITE PLAN AND ENLARGED SWITCHGEAR PLAN FOR ADDITIONAL REQUIREMENTS.
2. SEE NEW SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
3. COORDINATE WITH THE PG&E UTILITY COMPANY FOR THE DISCONNECTING AND REMOVAL OF ALL ASSOCIATED EQUIPMENT AND CABLES.

DEMOLITION SHEET NOTES:

1. EXISTING PG&E TRANSFORMER TO REMAIN.
2. EXISTING PG&E PRIMARY CONDUCTORS TO REMAIN.
3. EXISTING PG&E SECONDARY CONDUCTORS TO REMAIN.
4. EXISTING PG&E UTILITY POLE TO REMAIN.
5. EXISTING MAIN SWITCHBOARD "MS" TO REMAIN.
6. EXISTING FEEDERS CABLES TO BE DISCONNECTED FROM EXISTING PANEL. PULL BACK TO SOURCE AND REMOVE.
7. EXISTING ELECTRICAL PANEL TO REMAIN.
8. EXISTING FEEDER CABLES TO REMAIN.
9. INTERCEPT EXISTING FEEDER CABLES AND CONDUIT. PREP EXISTING FEEDER CIRCUITRY IN THE ELECTRICAL ROOM AS REQUIRED FOR SPLICING INSIDE NEW PULL CAN.
10. EXISTING FEEDER CONDUIT TO BE REMOVED.
11. EXISTING MAIN CIRCUIT BREAKER TO BE DISCONNECTED AND REMOVED. PREP FOR INSTALLATION OF NEW 200A-3P MAIN CIRCUIT BREAKER.

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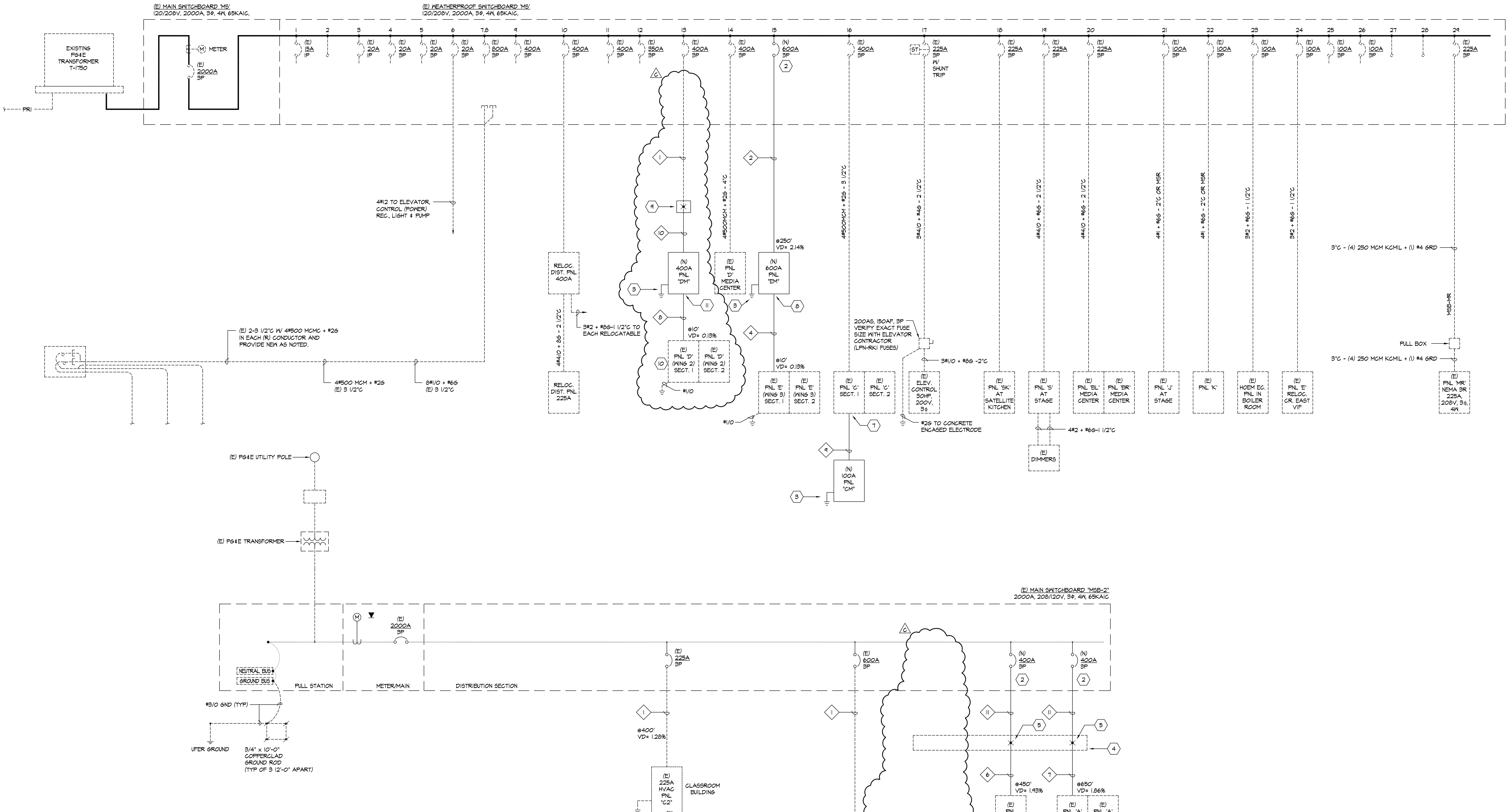
SHEET

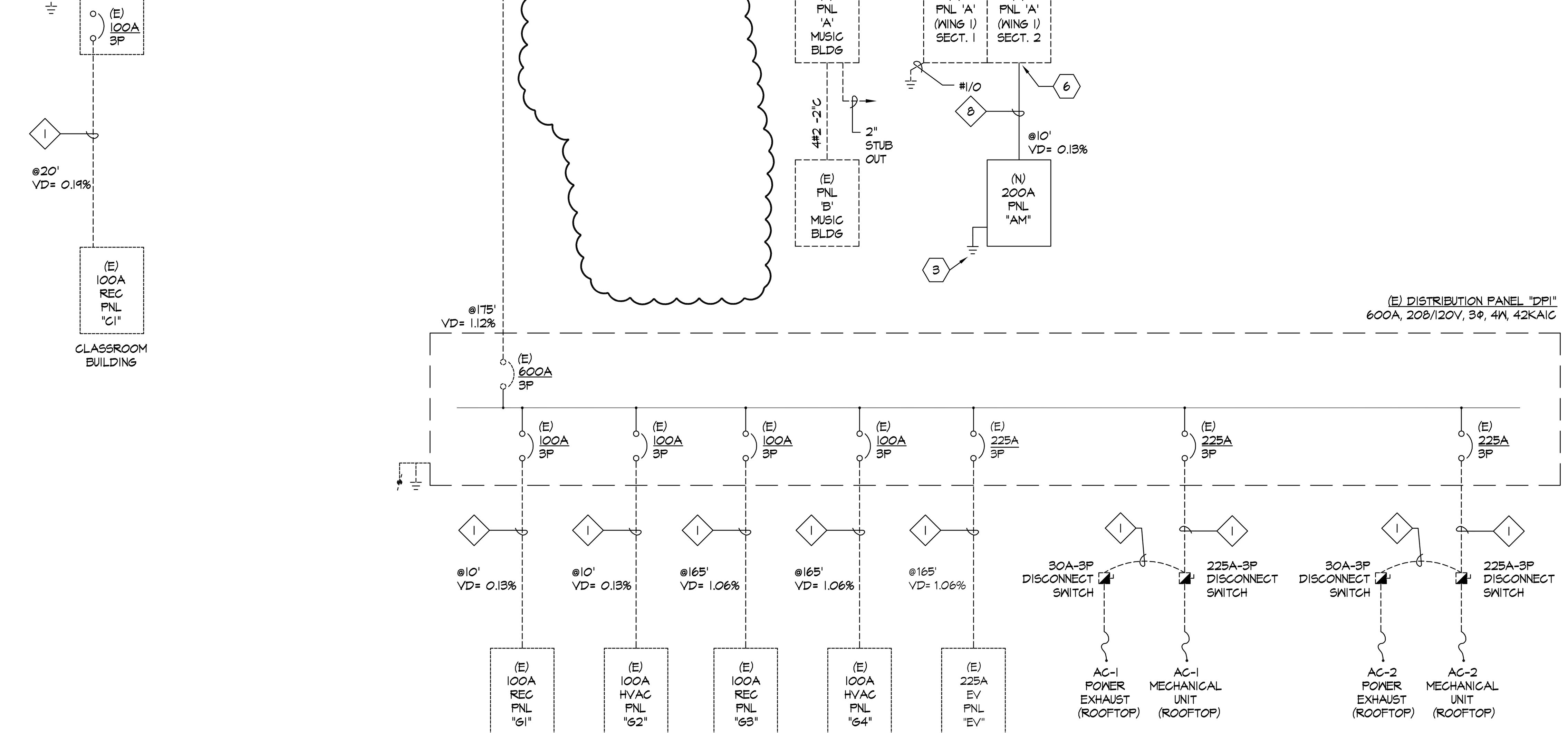
DEMO SINGLE LINE DIAGRAM

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3 E4.1





GENERAL NOTES:

1. SEE THE SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
2. PROVIDE THE REQUIRED ARC FLASH HAZARD WARNING LABEL TO MEET THE REQUIREMENTS OF CEC 110.16. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE MAINTENANCE SWITCH FOR ARC ENERGY REDUCTION TO MEET THE REQUIREMENTS OF CEC 240.87.

FEEDER SCHEDULE:

1. EXISTING FEEDER TO REMAIN.
2. (N) 3 SETS - (N) 3"C - (N) (4) #250 + (1) #1/0 GND
3. (N) 2½"C - (N) (4) #4/0 + (1) #4 GND
4. (N) 4"C - (N) (4) #500 + (1) #3 GND
5. (N) 3 SETS - (N) 4"C - (N) (4) #500 + (1) #1/0 GND
6. (N) 2 SETS - (N) 4"C - (N) (4) #500 + (1) #1/0 GND
7. (N) 3 SETS - (N) 4"C - (N) (4) #500 + (1) #1/0 GND
8. (N) 4"C - (N) (4) #3/0 + (1) #8 GND
9. (N) 1½"C - (N) (4) #2 + (1) #6 GND
10. (N) 4"C - (N) (4) #600 + (1) #3 GND
11. (E) 4"C WITH (N) (4) #600 + (1) #3 GND

SHEET NOTES:

1. DISCONNECT EXISTING FEEDER AND TURN OFF BREAKER AND LABEL AS SPARE.
2. INSTALL NEW CIRCUIT BREAKER IN AVAILABLE SPACE. MATCH EXISTING FRAME STYLE AND AIC. PROVIDE ALL HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.
3. GROUND PER CEC.
4. EXISTING IN-GRADE ELECTRICAL PULL BOX LOCATED NEAR EXISTING SWITCHGEAR #2. SEE SITE PLAN FOR APPROXIMATE LOCATION AND SPLICE POINT.
5. SPLICE CABLES AT INSIDE THE EXISTING IN-GRADE PULL BOX. PROVIDE POLARIS SUBMERSIBLE ELECTRICAL CONNECTORS FOR SPLICING INSIDE THE PULL BOX.
6. PROVIDE (N) 200A-3P CIRCUIT BREAKER AND INSTALL INSIDE THE EXISTING PANEL'S SUBFEED SPACE.
7. INSTALL (N) 100A-3P CIRCUIT BREAKER IN EXISTING PANEL. REMOVE (3) EXISTING 20A-1P CIRCUIT BREAKERS FROM THE EXISTING PANEL TO INSTALL THE (N) 100A-3P CIRCUIT BREAKER. RECONNECT EXISTING LOADS TO (N) PANEL CM. PROVIDE CIRCUIT BREAKERS, CONDUIT AND CIRCUITRY REQUIRED.
8. PROVIDE (N) 400A-3P CIRCUIT BREAKER IN NEW PANEL'S SUBFEED CIRCUIT BREAKER POSITION FOR CONNECTION OF THE EXISTING PANEL.
9. PROVIDE (N) PULL CAN AND INTERCEPT EXISTING CONDUIT. CONDUIT INTERCEPT. PREP AND SPLICE EXISTING CIRCUITRY IN PULL CAN AND EXTEND TO NEW PANEL.
10. PROVIDE (N) 200A-3P MAIN CIRCUIT BREAKER IN EXISTING PANEL D.
11. PROVIDE (N) 200A-3P CIRCUIT BREAKER IN NEW PANEL'S SUBFEED CIRCUIT BREAKER POSITION FOR CONNECTION OF THE EXISTING PANEL.

1 / E4.2 NEW SINGLE LINE DIAGRAM

NOT TO SCALE

aedis architects
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PROJECT
ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

American Consulting Engineers Electrical, Inc.

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
A	ADDENDUM 1	11/24/2021
C	ADDENDUM 3	12/22/2021

MILESTONES
DD
90% CD
DSA SUB 06/03/2021
BACKCHECK

SHEET
NEW SINGLE LINE DIAGRAM

DATE 12/22/2021
JOB # 2021005.06
SHEET # AD3 E4.2

PANEL NAME:	AM	FED FROM:	(E)PNL. A
VOLTAGE:	208/120V	MAIN C/B:	200 AMP
PHASE:	3	BUSSING:	200 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 3 - CLASSROOM 3				3.74	50A	1	A	2	50A				3.74	(N) HEAT PUMP 5 - CLASSROOM 5
" " " " "				3.74	2P	3	B	4	2P				3.74	" " " " "
(N) HEAT PUMP 4 - CLASSROOM 4				3.74	50A	5	C	6	15A				0.89	(N) FAN COIL 5 - CLASSROOM 5
" " " " "				3.74	2P	7	A	8	2P				0.89	" " " " "
(N) FAN COIL 3 - CLASSROOM 3				0.89	15A	9	B	10	20A/1P					SPARE
" " " " "				0.89	2P	11	C	12	20A/1P					SPARE
(N) FAN COIL 4 - CLASSROOM 4				0.89	15A	13	A	14	20A/1P					SPARE
" " " " "				0.89	2P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	20A/1P					SPARE
(N) MOTOR RATED SWITCH FOR COND. PUMP - WING 1			0.36		20A/1P	39	B	40	20A/1P		0.36			(N) WEATHERPROOF GFCI REC. ROOF MOUNT - WING 1
SPARE					20A/1P	41	C	42	20A/1P		0.36			(N) WEATHERPROOF GFCI REC. ROOF MOUNT - WING 1
	0	0	0.4	18.6						0	0.7	0	9.3	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.7	1.00	0.7
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.4	1.25	0.5
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	27.8	1.00	27.8

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	13.0
KVA PHASE B (CONNECTED)	10.0
KVA PHASE C (CONNECTED)	5.9
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	29.0
TOTAL LOAD AMPERES	80.6

PANEL NAME:	CM	FED FROM:	(E)PNL C
VOLTAGE:	208/120V	MAIN C/B:	100 AMP
PHASE:	3	BUSSING:	100 AMP
WIRE:	4	MIN. AIC:	30,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP T1A - MEZZANINE				3.74	50A	1	A	2	50A				3.74	(N) HEAT PUMP 15 - CLASSROOM 15
" " " " "				3.74	2P	3	B	4	2P				3.74	" " " " "
(N) FAN COIL T1A - MEZZANINE				0.89	15A	5	C	6	15A				0.89	(N) FAN COIL 15 - CLASSROOM 15
" " " " "				0.89	2P	7	A	8	2P				0.89	" " " " "
(N) HEAT PUMP T1A - MEZZANINE				3.74	50A	9	B	10	20A/1P					SPARE
" " " " "				3.74	2P	11	C	12	20A/1P					SPARE
(N) FAN COIL T1A - MEZZANINE				0.89	15A	13	A	14	20A/1P					SPARE
" " " " "				0.89	2P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	20A/1P					SPARE
SPARE					20A/1P	39	B	40	20A/1P		0.36			(N) WEATHERPROOF GFCI REC. ROOF MOUN-MULTI-PURPOS
(N) MOTOR RATED SWITCH - MULTIPURPOSE BLDG			0.12		20A/1P	41	C	42	20A/1P		0.36			" " " " "
	0	0	0.1	18.6						0	0.7	0	9.3	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.7	1.00	0.7
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.1	1.25	0.2
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	27.8	1.00	27.8

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	10.2
KVA PHASE B (CONNECTED)	12.5
KVA PHASE C (CONNECTED)	6.0
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	28.7
TOTAL LOAD AMPERES	79.7

PANEL NAME:	DM	FED FROM:	(E)MSB-1
VOLTAGE:	208/120V	MAIN C/B:	400 AMP
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	30,000
TYPE:	NEMA 1	SUB-FEED C/B:	200A-3P
MOUNTING:	SURFACE	FEED THRU LUGS:	NO

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 16 - CLASSROOM 16				3.74	50A	1	A	2	50A				3.74	(N) HEAT PUMP 20 - CLASSROOM 20
" " " " "				3.74	2P	3	B	4	2P				3.74	" " " " "
(N) HEAT PUMP 17 - CLASSROOM 17				3.74	50A	5	C	6	50A				3.74	(N) HEAT PUMP 21 - CLASSROOM 21
" " " " "				3.74	2P	7	A	8	2P				3.74	" " " " "
(N) HEAT PUMP 18 - CLASSROOM 18				3.74	50A	9	B	10	50A				3.74	(N) HEAT PUMP 22 - CLASSROOM 22
" " " " "				3.74	2P	11	C	12	2P				3.74	" " " " "
(N) HEAT PUMP 19 - CLASSROOM 19				3.74	50A	13	A	14	50A				2.75	(N) HEAT PUMP T-1A, FAN COIL T-1A - TEACHERS AREA
" " " " "				3.74	2P	15	B	16	2P				2.75	" " " " "
(N) FAN COIL 16 - CLASSROOM 16				0.89	15A	17	C	18	20A				2.75	(N) HEAT PUMP T-1B, FAN COIL T-1B - STORAGE
" " " " "				0.89	2P	19	A	20	2P				2.75	" " " " "
(N) FAN COIL 17 - CLASSROOM 17				0.89	15A	21	B	22	15A				0.89	(N) FAN COIL 20 - CLASSROOM 20
" " " " "				0.89	2P	23	C	24	2P				0.89	" " " " "
(N) FAN COIL 18 - CLASSROOM 18				0.89	15A	25	A	26	15A				0.89	(N) FAN COIL 21 - CLASSROOM 21
" " " " "				0.89	2P	27	B	28	2P				0.89	" " " " "
(N) FAN COIL 19 - CLASSROOM 19				0.89	15A	29	C	30	15A				0.89	(N) FAN COIL 22 - CLASSROOM 22
" " " " "				0.89	2P	31	A	32	2P				0.89	" " " " "
SPARE					20A/1P	33	B	34	20A/1P					SPARE
(N) MOTOR RATED SWITCH FOR COND. PUMP - WING 2			0.36		20A/1P	35	C	36	20A/1P					SPARE
" " " " "			0.48		20A/1P	37	A	38	400A					(E) PNL. 'E'
(N) WEATHERPROOF GFCI REC. ROOF MOUNT - WING 2		0.72			20A/1P	39	B	40						" " " " "
SPARE					20A/1P	41	C	42	3P					" " " " "
	0	0.7	0.8	37.1						0	0	0	38.8	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.7	1.00	0.7
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.5	1.25	0.6
+ REMAINING MOTORS x 100%	0.4	1.00	0.4
(NCL) NON CONTINOUS LOAD x 100%	75.9	1.00	75.9

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	29.2
KVA PHASE B (CONNECTED)	25.8
KVA PHASE C (CONNECTED)	22.6
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	77.6
TOTAL LOAD AMPERES	215.6

PANEL NAME:	EM	FED FROM:	(E)MSB-1
VOLTAGE:	208/120V	MAIN C/B:	600 AMP
PHASE:	3	BUSSING:	600 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 3	SUB-FEED C/B:	400 AMP
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 29 - CLASSROOM 29				3.74	50A	1	A	2	50A				3.74	(N) HEAT PUMP 34 - CLASSROOM 34
" " " " "				3.74	2P	3	B	4	2P				3.74	" " " " "
(N) HEAT PUMP 30 - CLASSROOM 30				3.74	50A	5	C	6	50A				3.74	(N) HEAT PUMP 35 - CLASSROOM 35
" " " " "				3.74	2P	7	A	8	2P				3.74	" " " " "
(N) HEAT PUMP 31 - CLASSROOM 31				3.74	50A	9	B	10	50A				3.74	(N) HEAT PUMP 36 - CLASSROOM 36
" " " " "				3.74	2P	11	C	12	2P				3.74	" " " " "
(N) HEAT PUMP 32 - CLASSROOM 32				3.74	50A	13	A	14	50A				3.74	(N) HEAT PUMP 37 - CLASSROOM 37
" " " " "				3.74	2P	15	B	16	2P				3.74	" " " " "
(N) HEAT PUMP 33 - CLASSROOM 33				3.74	50A	17	C	18	15A				0.89	(N) FAN COIL 29 - CLASSROOM 29
" " " " "				3.74	2P	19	A	20	2P				0.89	" " " " "
(N) FAN COIL 34 - CLASSROOM 34				0.89	15A	21	B	22	15A				0.89	(N) FAN COIL 30 - CLASSROOM 30
" " " " "				0.89	2P	23	C	24	2P				0.89	" " " " "
(N) FAN COIL 35 - CLASSROOM 35				0.89	15A	25	A	26	15A				0.89	(N) FAN COIL 31 - CLASSROOM 31
" " " " "				0.89	2P	27	B	28	2P				0.89	" " " " "
(N) FAN COIL 36 - CLASSROOM 36				0.89	15A	29	C	30	15A				0.89	(N) FAN COIL 32 - CLASSROOM 32
" " " " "				0.89	2P	31	A	32	2P				0.89	" " " " "
(N) FAN COIL 37 - CLASSROOM 37				0.89	15A	33	B	34	15A				0.89	(N) FAN COIL 33 - CLASSROOM 33
" " " " "				0.89	2P	35	C	36	2P				0.89	" " " " "
(N) MOTOR RATED SWITCH FOR COND. PUMP - WING 3			0.60		20A/1P	37	A	38	400A					(E) PNL. 'E'
" " " " "			0.48		20A/1P	39	B	40						" " " " "
(N) WEATHERPROOF GFCI REC. ROOF MOUNT - WING 3		0.90			20A/1P	41	C	42	3P					" " " " "
	0	0.9	1.1	44.6						0	0	0	38.9	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.9	1.00	0.9
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.6	1.25	0.8
+ REMAINING MOTORS x 100%	0.5	1.00	0.5
(NCL) NON CONTINOUS LOAD x 100%	83.5	1.00	83.5

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	31.3
KVA PHASE B (CONNECTED)	28.3
KVA PHASE C (CONNECTED)	25.9
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	85.6
TOTAL LOAD AMPERES	237.8

PANEL NAME:	(E)SK	FED FROM:	MSB-1
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
EXISTING LOAD		0.72			20A/1P	1	A	2	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	3	B	4	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	5	C	6	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	7	A	8	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	9	B	10	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	11	C	12	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	13	A	14	20A/1P		0.72			EXISTING LOAD
SPARE					20A/1P	15	B	16	20A/1P		0.72			EXISTING LOAD
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	(N)80A				3.00	(N) WHP 1 - PREP AREA 207
SPARE					20A/1P	39	B	40					3.00	" " " " "
SPARE					20A/1P	41	C	42	3P				3.00	" " " " "
	0	5.0	0	0						0	5.8	0	9.0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	10.0	1.00	10.0
10KVA x 100% + REMAINDER x 50%	0.8	0.50	0.4
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	9.0	1.00	9.0

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.3
KVA PHASE B (CONNECTED)	6.6
KVA PHASE C (CONNECTED)	5.9
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	19.4
TOTAL LOAD AMPERES	53.9

PANEL NAME:	(E)BL	FED FROM:	MSB-1
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
EXISTING LOAD		0.72			20A/1P	1	A	2	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	3	B	4	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	5	C	6	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	7	A	8	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	9	B	10	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	11	C	12	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	13	A	14	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	15	B	16	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	17	C	18	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	19	A	20	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	21	B	22	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	23	C	24	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	25	A	26	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	27	B	28	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	29	C	30	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	31	A	32	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	33	B	34	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	35	C	36	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	37	A	38	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	39	B	40	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	41	C	42	20A/1P		0.72			EXISTING LOAD

PANEL NAME:	(E)BR	FED FROM:	FEED THRU LUG
VOLTAGE:	208/120V		
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	NO

EXISTING LOAD		0.72			20A/1P	43	A	44	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	45	B	46	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	47	C	48	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	49	A	50	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	51	B	52	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	53	C	54	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	55	A	56	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	57	B	58	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	59	C	60	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	61	A	62	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	63	B	64	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	65	C	66	20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			20A/1P	67	A	68	20A/1P		0.72			EXISTING LOAD
(N) EXTERIOR GFCI REC. - MEDIA CENTER		0.36			(N)20A/1P	69	B	70	(N)40A				2.31	(N) CONDENSING UNIT C - MEDIA CENTER
(N) CONDENSING UNIT A - MEDIA CENTER				2.31	(N)40A	71	C	72	2P				2.31	" " " " "
" " " " "				2.31	2P	73	A	74	(N)40A				2.31	(N) CONDENSING UNIT D - MEDIA CENTER
(N) CONDENSING UNIT B - MEDIA CENTER				2.31	(N)40A	75	B	76	2P				2.31	" " " " "
" " " " "				2.31	2P	77	C	78	(N)35A				1.65	(N) CONDENSING UNIT E - MEDIA CENTER
(N) FURNACE A - MEDIA CENTER				1.38	(N)20A/1P	79	A	80	2P				1.65	" " " " "
(N) FURNACE B - MEDIA CENTER				1.38	(N)20A/1P	81	B	82	(N)20A/1P				1.38	(N) FURNACE D - MEDIA CENTER
(N) FURNACE C - MEDIA CENTER				1.38	(N)20A/1P	83	C	84	(N)20A/1P				1.38	(N) FURNACE E - MEDIA CENTER
	0	24.8	0	13.4						0	24.5	0	15.3	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	10.0	1.00	10.0
10KVA x 100% + REMAINDER x 50%	39.3	0.50	19.7
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	28.7	1.00	28.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	24.9
KVA PHASE B (CONNECTED)	25.9
KVA PHASE C (CONNECTED)	27.2
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	58.3
TOTAL LOAD AMPERES	162.1

PANEL NAME:	(E)A	FED FROM:	MSB-2
VOLTAGE:	208/120V	MAIN C/B:	400 AMP
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(E) LTG - 103, 106					20A/1P	1	A	2	20A/1P					(E) LTG - 101, 104
(E) LTG - 103, 106					20A/1P	3	B	4	20A/1P					(E) LTG - 101, 104
(E) LTG - 103, 106					20A/1P	5	C	6	20A/1P					(E) LTG - 101, 104
(E) LTG - 102, 105					20A/1P	7	A	8	20A/1P					(E) EXIT LIGHTS
(E) LTG - 102, 105					20A/1P	9	B	10	20A/1P					SPARE
(E) LTG - 102, 105					20A/1P	11	C	12	20A/1P					SPARE
(E) REC - 101, 102, 103					20A/1P	13	A	14	20A/1P					(E) REC - 104, 105, 107
(E) REC - 101, 102, 103					20A/1P	15	B	16	20A/1P					(E) REC - 104, 105, 107
(E) REC - 101, 102, 103					20A/1P	17	C	18	20A/1P					(E) REC - 102, 103
(N) AC 3 - MUSIC BUILDING			1.40		(N)40A	19	A	20	(N)40A			1.45		(N) AC 6 - MUSIC BUILDING
" " " " "			1.40			21	B	22				1.45		" " " " "
" " " " "			1.40		3P	23	C	24	3P			1.45		" " " " "
(N) AC 4 - MUSIC BUILDING			1.40		(N)40A	25	A	26	(N)40A			1.45		(N) AC 7 - MUSIC BUILDING
" " " " "			1.40			27	B	28				1.45		" " " " "
" " " " "			1.40		3P	29	C	30	3P			1.45		" " " " "
(N) AC 5 - MUSIC BUILDING			1.40		(N)40A	31	A	32	(N)90A					(E) PNL. 'B'
" " " " "			1.40			33	B	34						" " " " "
" " " " "			1.40		3P	35	C	36	3P					" " " " "
SPARE					20A/1P	37	A	38	(N)20A/1P		0.18			(N) EXTERIOR GFCI REC. - MUSIC BUILDING
SPARE					20A/1P	39	B	40	20A/1P					SPARE
SPARE					20A/1P	41	C	42	20A/1P					SPARE
	0	0	12.6	0						0	0.2	8.7	0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.2	1.00	0.2
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	4.4	1.25	5.4
+ REMAINING MOTORS x 100%	17.0	1.00	17.0
(NCL) NON CONTINOUS LOAD x 100%	0	1.00	0.0

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.3
KVA PHASE B (CONNECTED)	7.1
KVA PHASE C (CONNECTED)	7.1
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	22.6
TOTAL LOAD AMPERES	62.7

PANEL NAME:	(E)J	FED FROM:	MSB
VOLTAGE:	208/120V	MAIN C/B:	100 AMP
PHASE:	3	BUSSING:	100 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(E) LIGHTING - RM.13					20A/1P	1	A	2	20A/1P					(E) LIGHTING - RM.12
(E) LIGHTING - RM.13					20A/1P	3	B	4	20A/1P					(E) LOAD
(E) LIGHTING - RM.13					20A/1P	5	C	6	20A/1P					(E) LIGHTING - RM.12
(E) LIGHTING - RM.13					20A/1P	7	A	8	20A/1P					(E) REC. - RM.13 B
(E) LIGHTING - RM.13					20A/1P	9	B	10	20A/1P					(E) REC. - RM.13 A
(E) LIGHTING - RM.13					20A/1P	11	C	12	20A/1P					(E) REC. - RM.13
(E) TV - RM.13					20A/1P	13	A	14	20A/1P					(E) REC. - RM.12 A & C
(E) FAN - RM.13					20A/1P	15	B	16	20A/1P					(E) REC. - RM.13
(E) LOAD					20A/1P	17	C	18	20A/1P					(E) REC. - RM.13
(E) LOAD					20A/1P	19	A	20	20A/1P					(E) REC. - RM.13
(E) LOAD					20A/1P	21	B	22	20A/1P					(E) LOAD
(E) LOAD					20A/1P	23	C	24	20A/1P					(E) LOAD
(E) HV-4					15A	25	A	26	40A					(E) LOAD
" " " " "						27	B	28						(E) LOAD
" " " " "					3P	29	C	30	3P					(E) LOAD
(N) FURNACE 13 - CLASSROOM 13				2.40	(N)20A/1P	31	A	32	(N)60A				3.10	(N) CONDENSING UNIT 13
(N) FURNACE 14 - CLASSROOM 14				2.40	(N)20A/1P	33	B	34	2P				3.10	" " " " "
(N) WEATHERPROOF GFCI REC.		0.36			(N)20A/1P	35	C	36	(N)60A				3.10	(N) CONDENSING UNIT 14
SPARE					20A/1P	37	A	38	2P				3.10	" " " " "
SPARE					20A/1P	39	B	40	20A/1P					SPARE
SPARE					20A/1P	41	C	42	20A/1P					SPARE
	0	0.4	0	4.8						0	0	0	12.4	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.4	1.00	0.4
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	17.2	1.00	17.2

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	8.6
KVA PHASE B (CONNECTED)	5.5
KVA PHASE C (CONNECTED)	3.5
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	17.6
TOTAL LOAD AMPERES	48.8

aedis
architects

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PROJECT

ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY
SCHOOL DISTRICT

CONSULTANT

SAMMY S. FERNANDEZ
E16890
Exp. 06/30/2

American Consulting Engineers
Electrical, Inc.
1590 The Alameda, Suite 200
San Jose, CA 95126
JOB # EK21030.00
408/236-2312
Fax: 408/236-2316

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
△		
A	ADDENDUM 1	11/24/2021
C	ADDENDUM 3	12/22/2021

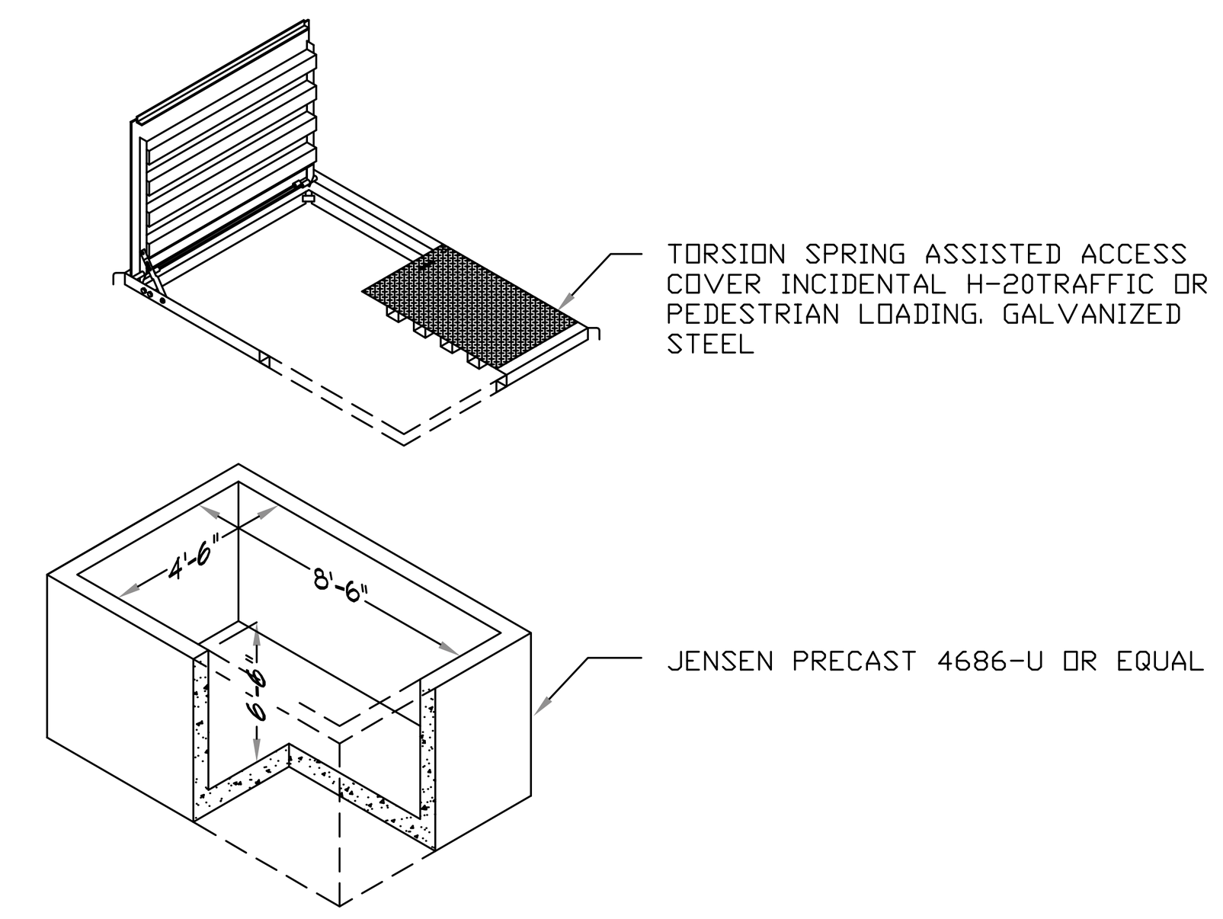
MILESTONES

DD	
90% CD	
DSA SUB	06/03/2021
BACKCHECK	

SHEET

PANEL SCHEDULES

DATE 12/22/2021
JOB # 2021005.06
SHEET # AD3
E4.3

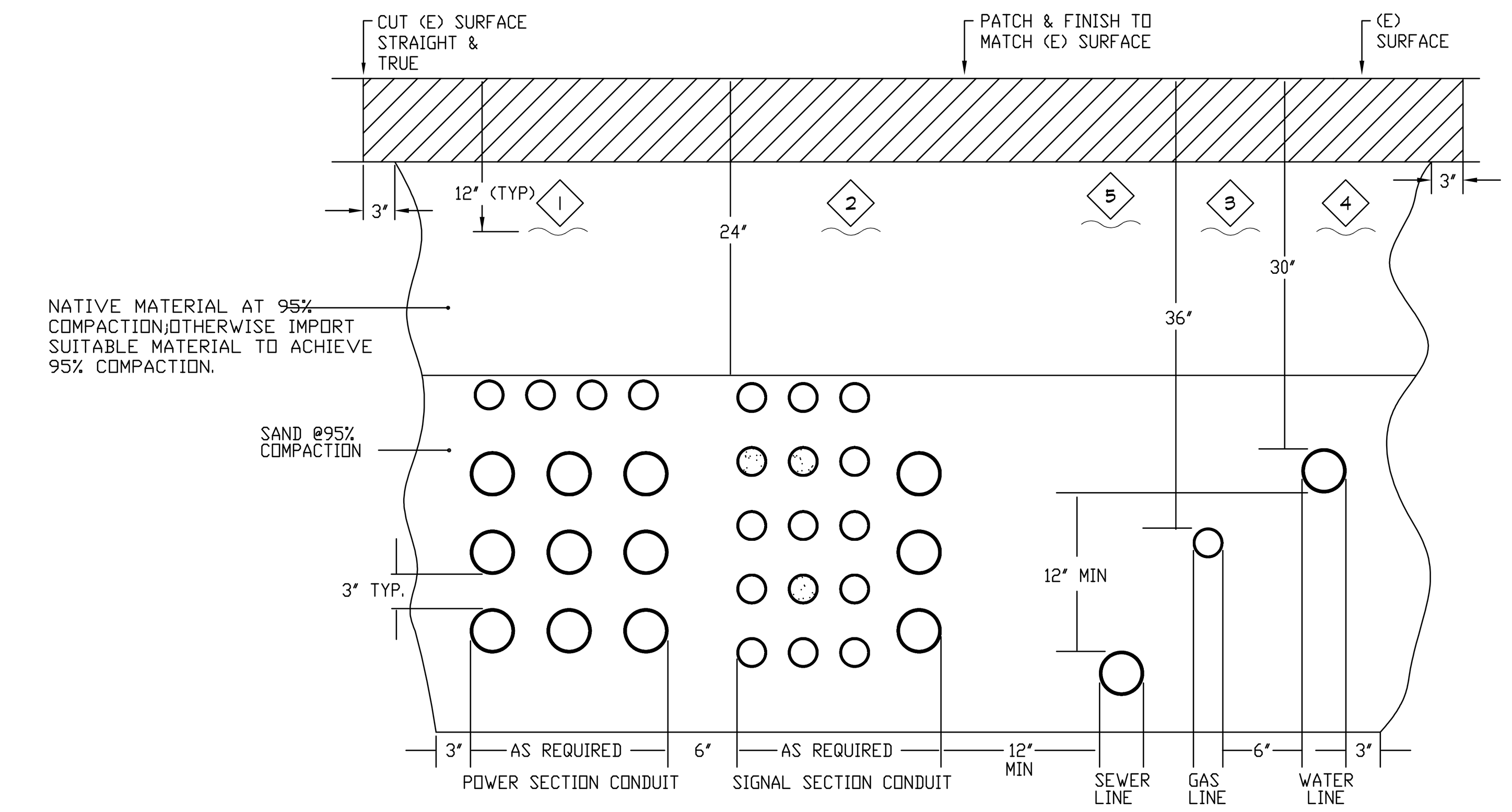


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.

2 / E5.2 **4'6" x 8'6" ELECTRICAL VAULT**

NOT TO SCALE



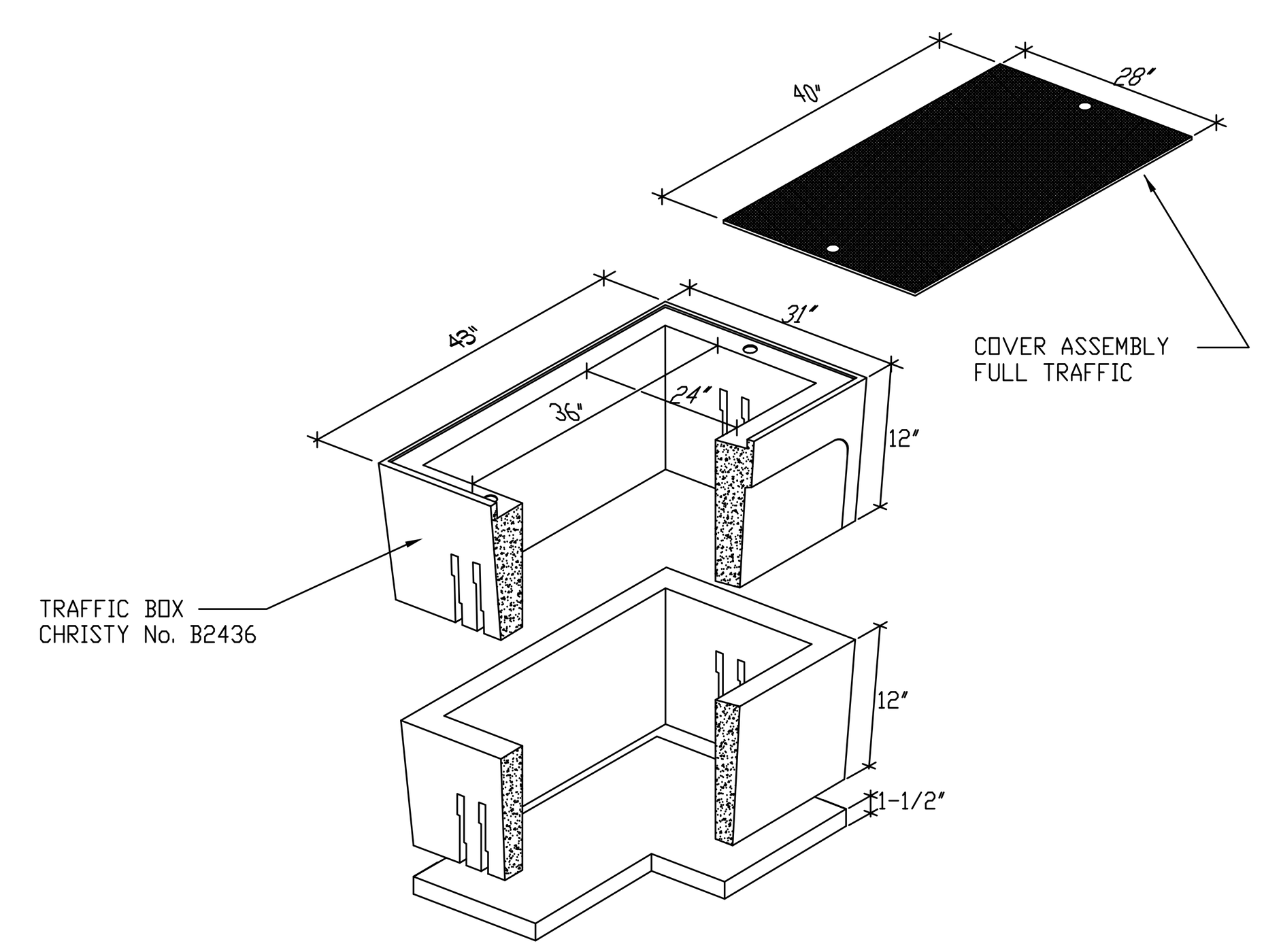
1 WARNING TAPE MARKED "POWER"
2 WARNING TAPE MARKED "SIGNAL"
3 WARNING TAPE MARKED "GAS"
4 WARNING TAPE MARKED "WATER"
5 WARNING TAPE MARKED "SEWER"

C NOTES:

1. UNDERGROUND CONDUITS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
2. MINIMUM SPACING BETWEEN CONDUITS IS 3".
3. SEE SITE/FLOOR PLANS AND SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
4. ~~ALL UNDERGROUND CONDUITS TO BE IN CONFORMANCE WITH DETAIL 1/S5.1~~
5. REFER TO ARCHITECTURAL DRAWING FOR ADDITIONAL REQUIREMENT.

3 / E5.2 **TYPICAL JOINT TRENCH & DUCT BANK DETAIL**

NOT TO SCALE

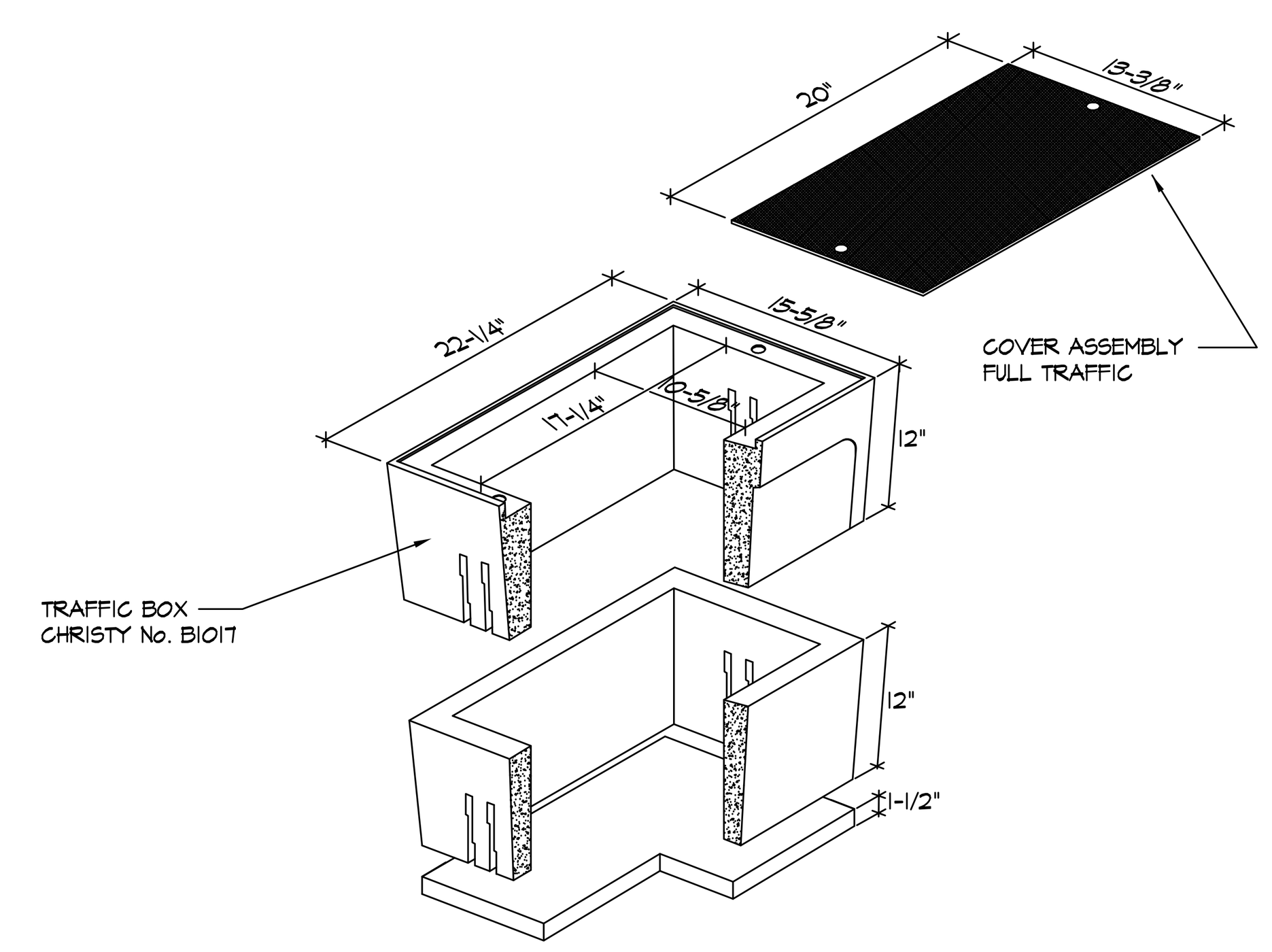


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. CONTRACTOR SHALL PROVIDE PULL BOX EXTENSION AS REQUIRED. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.

4 / E5.2 **B2436 ELECTRICAL VAULT**

NOT TO SCALE (FULL TRAFFIC COVER)

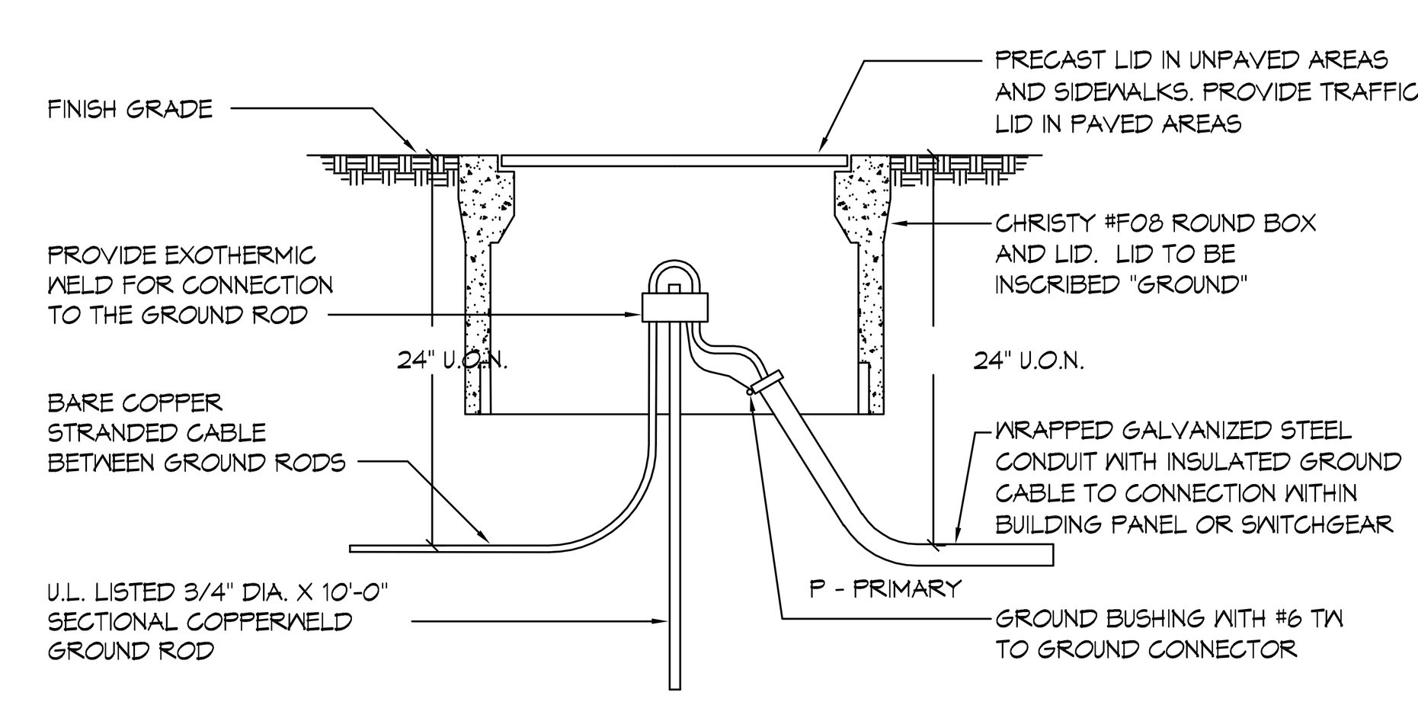


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. CONTRACTOR SHALL PROVIDE PULL BOX EXTENSION AS REQUIRED. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.

5 / E5.2 **B1017 ELECTRICAL VAULT**

NOT TO SCALE (FULL TRAFFIC COVER)



NOTE:

SEE SINGLE LINE DIAGRAM AND FLOOR PLANS FOR SIZE OF CONDUCTORS AND ARRANGEMENT OF GROUNDING SYSTEM

6 / E5.2 **GROUND ROD INSPECTION WELL FOR MULTIPLE GROUND RODS**

NOT TO SCALE

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fax: (408)-300-5121

PROJECT

ABBOTT MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER E16890 Exp. 06/30/ ELECTRICAL STATE OF CALIFORNIA

American Consulting Engineers Electrical, Inc.

STAMP

STATE

DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

No.	Description	Date
A	ADDENDUM 1	11/24/2021
C	ADDENDUM 3	12/22/2021

MILESTONES

DD
90% CD
DSA SUB 06/03/2021
BACKCHECK

SHEET

ELECTRICAL DETAILS

DATE 12/22/2021

JOB # 2021005.06

SHEET # AD3 E5.2

aedis
architects

December 22, 2021

Aedis Architects
387 S. First St., Suite 300
San Jose, CA 95113

Subject: George Hall Elementary School HVAC Replacement
San Mateo - Foster City School District
Aedis Project No. 2021005.02
DSA Application #01-119523

ADDENDUM NO. 3

CHANGES AND/OR CLARIFICATIONS OF THE DRAWINGS AND SPECIFICATIONS ARE AS FOLLOWS:

GENERAL

ITEM NO. 3.3: HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT

Add: The report in its entirety per attached HVAC And Power Upgrade Project Hazardous Materials Survey Report George Hall Elementary School

ITEM NO. 3.4: DSA FORM 103-19 LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS

Add: The DSA form in its entirety per attached DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC

ITEM NO. 3.5: REFERENCE PLAN

Add: Utility survey for reference only, per attached George Hall Campus Utility Survey

SPECFICATIONS

ITEM NO. 3.6: TABLE OF CONTENTS

Add: 02 80 00 HAZARDOUS MATERIALS ABATEMENT
Add: 07 62 00 SHEET METAL FLASHING & TRIM
Add: 32 17 23 PAVEMENT MARKINGS

ITEM NO. 3.7: SECTION 01 56 39 TEMPORARY TREE AND PLANT PROTECTION

Add: Part 3.1 paragraph E to read: “Refer to report *Evaluation Of Construction Effects On Three Trees At The George Hall Elementary School 130 San Miguel Way, San Mateo, California 94403* for additional comments and recommendations to be implemented.”

Add: Report: *Evaluation Of Construction Effects On Three Trees At The George Hall Elementary School 130 San Miguel Way, San Mateo, California 94403*

ITEM NO. 3.8: SECTION 02 80 00 HAZARDOUS MATERIALS ABATEMENT

Add: The specification in its entirety per attached 02 80 00 Hazardous Materials Abatement.

ITEM NO. 3.9: SECTION 07 31 13 ASPHALT SHINGLES

Add: Paragraph 3.10 to read: "Provide water leak test at roof areas where cutting and patching occurs, including flashings, with hose spray test in front of District personnel. Spray flashing in both directions for no less than five (5) minutes and confirm there is no leaking."

ITEM NO. 3.1: SECTION 07 62 00 SHEET METAL FLASHING & TRIM

Add: The specification in its entirety per attached 07 62 00 - Sheet Metal Flashing and Trim.

ITEM NO. 3.10: SECTION 09 65 13 RESILIENT BASE AND ACCESSORIES

Revise: Paragraph 2.1H to read: "Colors: Selected from manufacturer's full range to match existing."

ITEM NO. 3.11: SECTION 32 17 23 PAVEMENT MARKINGS

Add: The specification in its entirety per attached 32 17 23 Pavement Markings.

DRAWINGS

ARCHITECTURAL

ITEM NO. 3.12: DRAWING SHEET A1.02 – SITE PLAN

Add: Fire department access route in plan per attached AD3-A1.02
Add: (E) Fire Department Access graphics to Graphic Key attached AD3-A1.02
Add: Paving labels in plan per attached AD3-A1.02
Revise: Paving labels in plan per attached AD3-A1.02
Remove: Select instances of keynote 10 in plan per attached AD3-A1.02

ITEM NO. 3.13: DRAWING SHEET A2.01 – DEMOLITION FLOOR PLANS – WINGS 1, 2, 3, & 4

Revise: Demolition Floor Plan Keynote #1 per attached AD3-A2.01.
Revise: Demo and prep for drywell at locations indicated on attached AD3-A2.01.

Clarification: Existing VCT-1 flooring to remain at new partition wall framing at rooms 1, 5, 8, 9, and 12.

ITEM NO. 3.14: DRAWING SHEET A2.02 – DEMOLITION FLOOR PLANS – ESCALON BUILDING

Revise: Demo and prep for drywell at locations indicated on attached AD3-A2.02
Clarification: Existing VCT-1 flooring to remain at new partition wall framing at rooms 34, 35, and 36.

ITEM NO. 3.15: DRAWING SHEET A3.01 – NEW FLOOR PLANS – WINGS 1, 2, 3 & 4

Add: General Sheet Note #H per attached AD3-A3.01
Revise: Drywell at locations indicated on attached AD3-A3.01
Add: New Floor Plan Keynote #11 & associated tags on the new floor plan per attached AD3-A3.01
Revise: Framing dimensions per attached AD3-A3.01

ITEM NO. 3.16: DRAWING SHEET A3.02 – NEW FLOOR PLANS – ESCALON BUILDING

Add: General Sheet Note #H per attached AD3-A3.02
Revise: Drywell at locations indicated on attached AD3-A3.02
Add: New Floor Plan Keynote #11 & associated tags on the new floor plan per attached AD3-A3.02
Revise: Detail references within details 2/A3.02, 3/A3.02, 3/A3.02, 4/A3.02 and 5/A3.02 per attached AD3-A3.02
Revise: Framing dimensions per attached AD3-A3.01

ITEM NO. 3.17: DRAWING SHEET A4.01 – DEMOLITION & NEW REFLECTED CEILING PLANS

Revise: Revise finish tag in views 1/A4.01, 2/A4.01, 11/A4.01, and 12/A4.01 per attached AD3-4.01

ITEM NO. 3.18: DRAWING SHEET A8.10 – EXTERIOR DETAILS

Revise: Detail 6/A8.10 Concrete Patch per attached AD3-A8.10A.
Revise: Detail 2/A8.10 Typical Chain link Gate (Single) per attached AD3-A8.10B.
Revise: Detail 10/A8.10 Shingle Side Flashing per attached AD3-A8.10B.
Revise: Detail 11/A8.10 Shingle Lower Flashing per attached AD3-A8.10B.

ITEM NO. 3.19: DRAWING SHEET A9.10 - INTERIOR ELEVATIONS & DETAILS

Revise: In elevations 9/A9.10, 10/A9.10, 13/A9.10 & 14/A9.10 revise finish tag VWC-1 to GB-1
Revise: Detail 16/A9.10 Mech Enclosure Clearances, Typ. per attached AD3-A9.10.

ITEM NO. 3.20: DRAWING SHEET A11.01 – FINISH SCHEDULE & FURNITURE SCHEDULE, & OPENING SCHEDULE, LEGENDS, & DETAILS

Remove: In Finish Schedule, remove VWC-1 from Wall Finish at all rooms
Revise: In Finish Legend, revise GB-1 from "GYPSUM BOARD" to "GYPSUM BOARD, PAINTED"

STRUCTURAL

ITEM NO. 3.21: DRAWING SHEET S8.01 – FRAMING DETAILS AND NAILING SCHEDULE

Remove: Vertical nailing requirement in detail 7 per Attached AD3-S8.01

MECHANICAL

ITEM NO. 3.22: DRAWING SHEET MP0.02 – SCHEDULES – MECHANICAL & PLUMBING

Revise: Classroom split system heat pump schedule notes referenced, and revise note #5 per attached AD3-MP0.02

ITEM NO. 3.23: DRAWING SHEET MP2.03 – FLOOR PLAN – NEW – BLDGS 1, 2, 3, & 4 MECHANICAL & PLUMBING

Clarification: Condensate pipe revisions and associated notes moved to new sheet AD3-P2.03
Revise: Drywell locations per attached AD3-MP2.03
Remove: Keynotes #5, #13, #14, #17, #18, #19, #20 & #21 per attached AD3-MP2.03
Revise: Keynote #22 per attached AD3-MP2.03. Intent is damper and actuator are concealed inside the opening and covered with grilles similar to picture below.


Add: Keynote #25 and associated tag in plan per attached Sheet AD3-MP2.03. Intent is to provide a duct collar at enclosure penetration similar to the picture below.

ITEM NO. 3.24: DRAWING SHEET MP2.04 – FLOOR PLAN – NEW – ESCALON BLDG MECHANICAL & PLUMBING

Clarification: Condensate pipe revisions and associated notes moved to new sheet AD3-P2.04
Remove: Keynotes #9, #10, #16, #30 & #31 per attached AD3-MP2.03
Revise: Keynotes #36 & #37 per attached AD3-MP2.03
Revise: Drywell locations per attached AD3-MP2.03

ITEM NO. 3.25: DRAWING SHEET P2.03 – FLOOR PLAN – NEW – BLDGS 1, 2, 3, & 4 CONDENSATE & DRAINS PLUMBING

Add: New sheet in its entirety per attached AD3-P2.03

ITEM NO. 3.26: DRAWING SHEET P2.04 – FLOOR PLAN – NEW – ESCALON BLDG CONDENSATE & DRAINS PLUMBING

Add: New sheet in its entirety per attached AD3-P2.04

ITEM NO. 3.27: DRAWING SHEET MP6.01 – DETAILS – MECHANICAL & PLUMBING

Revise: Details 6/MP6.01 & 14/MP6.01 per attached AD3-MP6.01a
Revise: Detail 5/MP6.01 per attached AD3-MP6.01b

ELECTRICAL

ITEM NO. 3.28: DRAWING SHEET E0.1 – Electrical Cover Sheet

Revise: Wiring & Conduit Run Symbols per attached AD3-E0.1

ITEM NO. 3.29: DRAWING SHEET E1.1 Electrical Site Plan

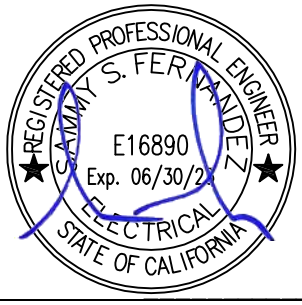
Revise: General Note #2 per attached AD3-E1.1.

ITEM NO. 3.30: DRAWING SHEET E5.4 Electrical Details.

Revise: Detail 3/E5.4 Note #1 per attached AD3-E5.4.
Add: Detail 3/E5.4 Note #5 per attached AD3-E5.4

Aedis Architects
Thang Do, Principal

Structural, BASE Design
Gokhan Akalan



Electrical, American Consulting Engineers Electrical
Sammy Fernandez

Mechanical, Cypress Engineering Group
Metin Serttunc

Division of the State Architect

Attachments:

General:
HVAC And Power Upgrade Project Hazardous Materials Survey Report George Hall Elementary School (58 pages)
DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC (17 pages)
George Hall Campus Utility Survey (1 page)

Specifications:
01 56 39 Temporary Tree and Plant Protection: Evaluation Of Construction Effects On Three Trees At The George Hall Elementary School (10 pages)
02 80 00 Hazardous Materials Abatement (42 Pages)
07 62 00 Sheet Metal Flashing & Trim (11 pages)
32 17 23 Pavement Markings (2 Pages)

Drawings:
ARCHITECTURAL:
SHEET AD3-A1.02
SHEET AD3-A2.01
SHEET AD3-A2.02
SHEET AD3-A3.01
SHEET AD3-A3.02
SHEET AD3-A4.01
SHEET AD3-A8.10A
SHEET AD3-A8.10B
SHEET AD3-A9.10
STRUCTURAL:
SHEET AD3-S8.01
MECHANICAL:
SHEET AD3-MP0.02
SHEET AD3-MP2.03
SHEET AD3-MP2.04
SHEET AD3-P2.03
SHEET AD3-P2.04
SHEET AD3-MP6.01a
SHEET AD3-MP6.01b
ELECTRICAL:
SHEET AD3-E0.1
SHEET AD3-E1.1
SHEET AD3-E5.4

ZNAP FLY ENVIRONMENTAL TESTING

HVAC and Power Upgrade Project

HAZARDOUS MATERIALS SURVEY REPORT

George Hall Elementary School

For

SAN MATEO-FOSTER CITY SCHOOL DISTRICT
LIVE · LEAD · LEARN

419 Mason Street Suite 109 | Vacaville CA 95688 | 707.999.5234 Email: erica@znapfly.com

Table of Contents

Cover Letter

Monday, September 13, 2021

Mark Sanders
San Mateo Foster City School District
1170 Chess Drive
Foster City, California 94404

SUBJECT: **HVAC and Power Upgrades Project - Hazardous Materials Survey Report**

Dear Mr. Sanders,

At the request of the San Mateo Foster City School District, Znap Fly provided an asbestos and lead survey of suspect building construction materials at George Hall Elementary School located at 130 San Miguel Way in San Mateo, California as part of the San Mateo Foster City School District (SMFCSD).

Onsite testing was performed on June 30, and July 19, 2021, by Ms. Erica Sattar.

This report is intended as an informational resource for the San Mateo Foster City School District and includes sample/test results, conclusions and recommendations regarding hazardous materials based upon information obtained from samples and tests collected at specific locations, review of information/drawings provided to us, and professional judgment.

Shall you have any questions or concerns regarding this document, following review, please contact us at 707-999-5234.

With Gratitude,

Erica Sattar, CAC, CDPH
Principal Consultant / Director of Environmental
Znap Fly

Description of Buildings Surveyed

The buildings surveyed at George Hall Elementary School are stucco concrete exterior with wood framed windows with shingle roofing system. Interior finishes anticipated to be impacted by project work include acoustic ceiling panels, plaster walls, carpet with mastic, cove base and sealants. Floor tile was also sampled in areas outside the scope of work at the request of SMFCSD.

Survey Methodology: Sampling & Analytical

All onsite testing was performed at 7-sites throughout the San Mateo Foster City School District (SMFCSD), with XRF lead testing completed on June 30, 2021 and bulk samples from George Hall Elementary School collected on July 19, 2021, by Ms. Erica Sattar. The project was planned and overseen by Ms. Sattar and Mr. Christopher Smith. Both, Ms. Sattar and Mr. Smith, are Cal/OSHA Certified Asbestos Consultants (CACs) and CDPH Lead Consultants, with mold investigation and remediation training. The report was prepared by Ms. Sattar and reviewed by Mr. Smith.

Asbestos

All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. Znap Fly was not prevented and/or instructed by the owner/operator of SMFCSD as to what materials were to be sampled. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.
- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the demolition project being undertaken at each site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMSL Analytical, Inc. (EMSL) in San Leandro, California, however EMSL forwarded these samples to their sister lab, LA Testing in Pasadena California. EMSL/LA Testing is a laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in

accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" US EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Standard PLM analytical method has a limit of quantification of 1% asbestos. For materials with asbestos detected at trace levels or below 1% by standard PLM, the material must be considered to be above 1% (ACM) unless re-analyzed and found to be less than 1% by the PLM point count method (400 points minimum). Each sample of a homogeneous area material with trace result(s) must be re-analyzed by point count and found to be less than 1% in order to avoid assuming the material to be ACM according to EPA regulation. For this project, no materials were analyzed by point count methods.

Lead

Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%), as set forth in the Department of Housing and Urban Development (HUD) guidelines and California Department of Public Health (CDPH) regulations. Lead-Containing Paints (LCPs) are paints and coatings that contain detectable lead as defined by Cal/OSHA. Most paint and coatings on pre-1978 buildings contain some detectable lead subject to Cal/OSHA regulation. Therefore the exhaustive testing required to prove painted coatings do not contain lead is not practical or cost effective. Consequently, all paints and architectural coatings must be considered to contain some detectable levels of lead unless proven otherwise by laboratory analysis.

This survey included screening level LBP testing for the purpose of characterizing the general presence of lead in existing paints and coatings. As such, this survey included paint testing using a C series Vanta XRF direct read lead testing instrument. The results presented herein are representative of typical conditions but are not inclusive of all painted/coated surfaces present at the site. The results of this survey should assist with compliance to the California Occupational Safety and Health Administration (Cal/OSHA) lead construction standard and preliminary evaluation of potential construction waste streams. All painted/coated surfaces including untested surfaces, must be assumed to contain some detectable level of lead in the absence of representative paint chip analytical results demonstrating that lead levels are below analytical detection limits. This is because the XRF instrument, while providing a cost effective, non-destructive test method, the instrument is calibrated to detect LBP and cannot detect lead at the lowest levels regulated Cal/OSHA and Cal/EPA. Any detectable level of lead is subject to Cal/OSHA regulation.

Universal Wastes & Other Suspected Hazardous Materials

The building areas were visually surveyed for universal wastes and other hazardous materials. These universal wastes include fluorescent lighting fixtures manufactured prior to 1979 that have the potential to contain Polychlorinated Biphenyl (PCB) ballasts, mercury containing lighting tubes, and other components considered to be "universal wastes" upon disposal. "Universal wastes" include mercury-containing non-incandescent lamps, batteries, mercury thermostat switches and other hazardous wastes commonly found in building components and equipment. Other suspect hazardous materials include refrigerants, paints, and solvents.

Survey Results

Asbestos Containing Materials

Znap Fly collected a total of 64 bulk samples with 115 sample layers of suspect ACM analyzed by PLM analysis. Floor tile beneath existing tile and/or carpet and stucco samples collected reported asbestos, while all other samples collected reported "none detected" by laboratory analysis. The analytical laboratory results for sampled suspect ACMs are listed below and in the attached Analytical Laboratory Reports.

Assumed Asbestos-Containing Material

The following list of materials are assumed to contain asbestos, pending testing prior to construction to confirm asbestos content or prove no asbestos is present by laboratory analysis.

- Stucco, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 2 square feet may be impacted at each work location, however this material may not be impacted by scheduled work
- Floor tile beneath existing tile and/or carpet, 2% asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
- Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
- Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, however this material may not be impacted by scheduled work

Suspect Asbestos-Containing Materials Sampled with No Asbestos Reported

Materials listed below were sampled and analyzed by an accredited laboratory by PLM analysis reported "none detected" for asbestos. The following list are all materials sampled.

- Plaster
- Vinyl flooring with associated mastics
- Resilient sheet flooring
- Cove base, 4" green and black cove base with associated white mastics
- Acoustic ceiling panel, 2' x 4' white with random pinhole pattern
- Acoustic ceiling tile, 12" x 12" fibrous material (mastic associated is assumed ACM unless proven otherwise by laboratory data)
- Sealant at HVAC unit and conduit box at interior classroom areas
- Carpet mastic, floor tile beneath carpet is an asbestos containing material
- Roof materials
    - These materials were previously sampled. Report is attached along with laboratory results.

Refer to Attachment for a complete set of the laboratory results and sample locations, including existing roof report.

Lead Containing Paints, Coatings and Materials

Znap Fly performed a total of 58 XRF lead tests from the interior and exterior building surfaces. The results of the XRF LBP screening survey are provided in the table shown below. A total of eight XRF tests contained lead at LBP levels above the threshold 1.0 mg/cm^2 of the 58 total tests of painted surfaces tested.

The following is a brief summary of types of building components that tested above 1.0 mg/cm^2 and should be considered lead based paint (LBP) as determined by XRF.

	Component	*Substrate*	*Condition*	*Result* (mg/cm2)
Interior	Window sill	Wood	Intact/good	1.335 - 1.970
Interior	Wall trim	Wood	Intact/good	1.016 - 1.529
Exterior	Collar	Metal	Intact/good	26,000 ppm
Exterior	Equipment	Metal	Intact/good	9,300 ppm

The tabulated data is not intended to be all inclusive and must be extrapolated to similar surfaces that were not tested. Lead content will vary according to painting histories involved. Generally on a building by building basis, component type and substrate are more reliable indicators.

General Interpretation of Lead-Containing Paint Findings Reported:

All painted components must be presumed to contain some detectable levels of lead regardless of non – detection by the XRF method unless exhaustively tested by paint chip analysis. Untested painted/coated components must be presumed to contain some lead at detectable levels. About 13% of the painted/glazed surfaces tested contained high levels of lead considered to be LBP and most of the remaining surfaces contained some detectable lead. In general, LBP was detected on window components and roof collar and equipment. The frequency of occurrence was typically low. The tested surfaces that reported low levels of detected lead must be considered lead-containing paints (LCP) and coatings in the absence of exhaustive testing by wet chemistry methods.

Paint Condition Findings:

The condition of paint at this site is generally in good/intact condition. Since even low levels of paint (e.g., just over 50 ppm) may exhibit hazardous waste characteristics, care must be taken to eliminate loose and peeling paint prior to general building demolition. Any loose, peeling or flaking paint should be removed and disposed of as lead hazardous waste.

Universal Wastes & Other Potential Hazardous Materials

Znap Fly visually inspected readily accessible areas of the building for other hazardous materials PCB lighting ballasts, Universal Wastes (such as mercury containing lighting tubes, thermostats, and batteries), and other suspect hazardous waste and contamination. No attempt to disassemble equipment or sample any additionally discovered suspect materials was included. Any suspect hazardous material must be presumed hazardous pending complete identification. For example, fluorescent lighting fixtures must be presumed to contain PCB ballasts pending removal and disassembly of each unit to determine ballast type and/or labeling in the absence of other explicit product specific information to the contrary.

Conclusions and Recommendations

Asbestos Containing Construction Materials

Prior to renovation/demolition construction activities, known or assumed ACMs that are likely to be disturbed by those activities must be removed and disposed of in accordance with all applicable regulations including federal National Emissions Standard for Hazardous Air Pollutants (NESHAPS) and Cal/OSHA regulations. A Cal-OSHA registered and State licensed, registered asbestos contractor (abatement/demolition/roofing) is required for removal of ACM prior to general demolition and renovation. For this project, floor tile beneath flooring, mastic associated with tack board/white board/ chalk board, mastic associated with acoustic wall tiles, and exterior stucco are considered asbestos containing materials unless proven otherwise by laboratory data. The mastics are considered Category I non-friable asbestos containing materials, while the stucco is considered a Category II ACM. Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately. Assumed materials can be sampled on a rush turnaround time to prove a material does not contain asbestos. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Other Considerations and Rules

Where removal is unavoidable, the contractor's abatement sub-contractor should remove all friable RACM under class I removal requirements and dispose of waste as hazardous asbestos waste at a landfill permitted for asbestos hazardous waste disposal, this work is anticipated for this project at select locations; refer to project documents on-site. The contractor's abatement sub-contractor should also remove all category I & II non-friable ACM in a manner that does not produce friable ACM under Cal/OSHA Class I removal requirements and dispose of removed materials as non-hazardous asbestos waste at a landfill permitted for asbestos waste disposal.

The following additional requirements should be adhered to for any maintenance, renovation, or demolition projects requiring asbestos disturbance and/or removal:

- *All asbestos-containing wastes shall be manifested as either hazardous or non-hazardous based on asbestos content, friability, and actual waste stream classification.*
- *All asbestos removal should be overseen by a qualified independent third party, retained by the building owner or manager of the building to ensure proper removal, clean up, work area clearance, and review waste shipping and disposal documentation.*

Contractor should perform all work in compliance with contract documents and the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos.

Lead Containing Paints and Coatings

The painted components tested at the subject buildings typically had detectable levels of lead and should be considered LCP coated. LBP was detected on about 13% of the surfaces or components tested and consisted of window and roof components. All paints and coatings should be considered LCP or coatings in the absence of exhaustive sampling and laboratory analysis. The disturbance of these components during demolition and renovation activities will require use of personnel trained in lead hazards for construction and will require compliance with applicable Cal/OSHA and Cal/EPA regulation. Any detectable level of lead is subject to Cal/OSHA regulation.

At present there is no state or federal regulation requiring mandatory lead removal or abatement prior to disturbance, demolition or renovation of structures with identified lead materials. However, prior to hot work on painted metal, the

paint either needs to be removed or supplied air respirators worn during welding or cutting operation. In addition, there are applicable lead specific Cal/OSHA worker protection requirements and Cal/EPA waste disposal requirements that do apply to lead-related construction activities and associated wastes:

- ***Cal/OSHA:*** The Cal/OSHA regulation, Title 8, CCR, Section 1532.1 Lead governs occupation exposure to lead. This regulation requires that any task that may potentially expose workers to any concentration of lead, be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to initiation of certain activities, referred to as "trigger tasks," that are believed to have the capability of creating an excessive lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels. Pertinent examples of trigger tasks are manual demolition, manual paint scraping and power tool removal, and hot work involving lead-containing coatings or materials. Cal/OSHA also has agency pre-start notification requirements and worker training and certification depending on exposure levels. Clearly these requirements will apply to demolition, patch and repair, paint removal, and surface preparation work at this site.
- ***Cal/EPA:*** Cal/EPA regulates disposal of lead hazardous waste (22 CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Waste). The Cal/EPA Department of Toxic Substance Control (DTSC) has issued guidance indicating that architectural debris with intact lead paint is normally anticipated to be handled as general construction waste. Since detected LCP was generally in intact/good condition and 87% of paint coatings tested had low to moderate lead content, it is unlikely that most of the demolition debris will be hazardous as a composite sample. However, all lead containing waste streams should be considered potentially lead hazardous pending waste testing. Further, all surface preparation and paint removal wastes must be considered hazardous wastes due to the likelihood of paint chip lead levels exceeding 1,000 total lead or 5 ppm soluble lead.

All construction activities impacting lead must be performed in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials. Selective and general demolition activities will involve disturbing lead and possibly creating lead hazardous wastes. These construction activities must be controlled to prevent uncontrolled release of lead contamination and for environmental protection.

The Contractor conducting building demolition and any selective demolition controls the means and methods used and therefore should be required by the contract document to ensure that the demolition processes are conducted in a manner that creates the minimum amount of hazardous waste and leaves the site free of lead contamination exceeding regulatory levels.

Universal Wastes and Other Known or Presumed Hazardous Materials

PCB Lighting Ballasts: Znap Fly's visual inspection indicated that fluorescent light fixtures may contain PCB ballasts are present in the building. However, as it is not practically feasible to check each ballast for labeling prior to renovation, Znap Fly recommends that all light fixtures be visually inspected by the Contractor upon removal to determine if they contain PCB's. Electronic ballasts and ballasts marked "No PCB's" or "PCB Free" should be considered non-hazardous and recycled or disposed of accordingly. However, ballasts that are unmarked must be considered PCB-containing and properly handled, collected, stored, transported and recycled or disposed of by an approved recycling or disposal facility in accordance with the requirements of 22 CCR, Section 67426.1 and the contract.

Universal Wastes: All potential and identified mercury-containing light tubes, high intensity lamps, and other universal wastes such as batteries should be removed and recycled or disposed of in accordance with the guidelines established by the California Department of Toxic Substance Control Universal Waste Rule, as stated in 22 CCR Sections 66261.9 and 66273.1 thru 66273.90.

Other Suspect Hazardous Materials: Coolant gasses in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Reclaimer for the removal and recycling of the gases.

Limitations

Znap Fly conducted this survey in support of the HVAC Power Upgrade Project for San Mateo Foster City School District. Rooms and areas surveyed were based on access to unoccupied classrooms within the work scope defined in DD 90% CD drawings provided by the District dated 05/21/2021. No excavation or subsurface investigation was conducted to discover buried insulated piping and/or asbestos cement pipes concealed below the surface or interstitial wall spaces. Cement pipe and insulated pipe is assumed below the surface and/or in interstitial wall spaces. No samples were collected in rooms not anticipated to be impacted by this project and outside the scope of work anticipated. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Closing

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for the San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available information and for verifying existing site conditions including location and extent of hazardous materials present at specific areas.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for the San Mateo Foster City School District by:

Erica Sattar, CAC, CDPH
Certified Asbestos Consultant #14-5250
CDPH Lead Sampling Technician #20425

Report reviewed for the San Mateo Foster City School District by:

Chris Smith, CAC, CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector Assessor/Project Designer #12430

Attachments

Laboratory Reports with Chain of Custody Record

Asbestos Sampling Plan

Suspect Asbestos Containing Materials Sample Table

Lead Sampling Plan

Lead Paint Testing and Sampling Table

Existing Roof Report with Laboratory Data

Znap Fly Personnel Certifications

CDPH Lead Hazard Evaluation Report

LA Testing

4335 E. Airport Dr. Unit 110 Ontario, CA 91761

Tel/Fax: (909) 295-6825 / (909) 295-6826

http://www.LATesting.com / InlandEmpireLab@latesting.com

LA Testing Order:	712101753
Customer ID:	ZNAP75
Customer PO:	
Project ID:	

Attention:	Erica Sattar	**Phone:**	(707) 999-5234
	Znap Fly	**Fax:**	
	419 Mason Street	**Received Date:**	08/16/2021 9:15 AM
	Suite 109	**Analysis Date:**	08/16/2021 - 08/17/2021
	Vacaville, CA 95688	**Collected Date:**	07/23/2021
Project:	EN210601/7 School HVAC project, George Hall/San Mateo Foster City School District		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B1-13 *712101753-0001*	Room 13 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1-11 *712101753-0002*	Room 11 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL1-Skim Coat *712101753-0003*	Electrical room near 15 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL1-Plaster *712101753-0003A*	Electrical room near 15 - Plaster-white/gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL2-Skim Coat *712101753-0004*	Electrical room near 15 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL2-Plaster *712101753-0004A*	Electrical room near 15 - Plaster-white/gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL3 *712101753-0005*	Electrical room near 3 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-EL4 *712101753-0006*	Electrical room near 3 - Plaster-white/gray	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B3-16 *712101753-0007*	Room 16 - Plaster-tan	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B3-19 *712101753-0008*	Room 19 - Plaster-tan	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-01-Floor Tile 1 *712101753-0009*	Room 1 - Floor tile, 12" x 12" blue with streaks-mastic yellow, tile beneath	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-01-Mastic 1 *712101753-0009A*	Room 1 - Floor tile, 12" x 12" blue with streaks-mastic yellow, tile beneath	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-01-Floor Tile 2 *712101753-0009B*	Room 1 - Floor tile, 12" x 12" blue with streaks-mastic yellow, tile beneath	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-01-Mastic 2 *712101753-0009C*	Room 1 - Floor tile, 12" x 12" blue with streaks-mastic yellow, tile beneath	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 08/17/2021 20:14:11

LA Testing

4335 E. Airport Dr. Unit 110 Ontario, CA 91761

Tel/Fax: (909) 295-6825 / (909) 295-6826

http://www.LATesting.com / InlandEmpireLab@latesting.com

LA Testing Order:	712101753
Customer ID:	ZNAP75
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
E2-32-Floor Tile *712101753-0010*	Room 32 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-32-Mastic *712101753-0010A*	Room 32 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-33-Floor Tile *712101753-0011*	Room 33 - Floor tile, 12" x 12" blue with streaks-yellow mastic, tile beneah	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-33-Mastic *712101753-0011A*	Room 33 - Floor tile, 12" x 12" blue with streaks-yellow mastic, tile beneah	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-33-Leveling Compound *712101753-0011B*	Room 33 - Floor tile, 12" x 12" blue with streaks-yellow mastic, tile beneah	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
E2-03-Floor Tile *712101753-0012*	Room 3 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-03-Mastic *712101753-0012A*	Room 3 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-03-Leveling Compound *712101753-0012B*	Room 3 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-11-Floor Tile *712101753-0013*	Room 11 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-11-Mastic *712101753-0013A*	Room 11 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-11-Leveling Compound *712101753-0013B*	Room 11 - Floor tile, 12" x 12" blue with streaks-mastic, leveling compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-13-Floor Tile *712101753-0014*	Room 13 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-13-Mastic *712101753-0014A*	Room 13 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-19-Floor Tile *712101753-0015*	Room 19 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-19-Mastic 1 *712101753-0015A*	Room 19 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-19-Mastic 2 *712101753-0015B*	Room 19 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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LA Testing Order: 712101753
Customer ID: ZNAP75
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
E2-19-Concrete *712101753-0015C*	Room 19 - Floor tile, 12" x 12" blue with streaks-yellow mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-16-Floor Tile 1 *712101753-0016*	4X3 area at entry only, rm 16 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic & tile	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-16-Mastic 1 *712101753-0016A*	4X3 area at entry only, rm 16 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic & tile	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E2-16-Floor Tile 2 *712101753-0016B*	4X3 area at entry only, rm 16 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic & tile	Beige Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
E2-16-Mastic 2 *712101753-0016C*	4X3 area at entry only, rm 16 - Floor tile, 12" x 12" blue with streaks-yellow mastic, black residual mastic & tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E3-08-Vinyl Flooring *712101753-0017*	Room 8 - Vinyl flooring-gray with adhesive	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E3-08-Adhesive *712101753-0017A*	Room 8 - Vinyl flooring-gray with adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-32-Cove Base *712101753-0018*	Room 32 - Covebase, 4" green-beige mastic, residual yellow	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-32-Mastic *712101753-0018A*	Room 32 - Covebase, 4" green-beige mastic, residual yellow	Yellow/Beige Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
F1-01-Cove Base *712101753-0019*	Room 1 - Covebase, 4" green-beige mastic, residual yellow	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-01-Mastic *712101753-0019A*	Room 1 - Covebase, 4" green-beige mastic, residual yellow	White/Clear Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
F1-33-Cove Base *712101753-0020*	Room 33 - Covebase, 4" green-beige mastic, residual yellow	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-33-Mastic *712101753-0020A*	Room 33 - Covebase, 4" green-beige mastic, residual yellow	Yellow/Beige Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
F1-03-Cove Base *712101753-0021*	Room 3 - Covebase, 4" green-beige mastic	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-03-Mastic *712101753-0021A*	Room 3 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-11-Cove Base *712101753-0022*	Room 11 - Covebase, 4" green-beige mastic	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-11-Mastic *712101753-0022A*	Room 11 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F2-02-Cove Base *712101753-0023*	Room 2 - Covebase, 4" green-beige mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F2-02-Mastic *712101753-0023A*	Room 2 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-08-Cove Base *712101753-0024*	Room 8 - Covebase, 4" green-beige mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-08-Mastic *712101753-0024A*	Room 8 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-19-Cove Base *712101753-0025*	Room 19 - Covebase, 4" green-beige mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-19-Mastic *712101753-0025A*	Room 19 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-16-Cove Base *712101753-0026*	Room 16 - Covebase, 4" green-beige mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F3-16-Mastic *712101753-0026A*	Room 16 - Covebase, 4" green-beige mastic	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
H1-02-RSF *712101753-0027*	Room 2 - Resilient sheet flooring, tan-mastic/adhesive (beige)	Tan Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
H1-02-Mastic *712101753-0027A*	Room 2 - Resilient sheet flooring, tan-mastic/adhesive (beige)	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
I1-11 *712101753-0028*	Room 11 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Gray/White Fibrous Homogeneous	70% Cellulose	20% Perlite 10% Non-fibrous (Other)	None Detected
I1-03 *712101753-0029*	Room 3 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Gray/White Fibrous Homogeneous	70% Cellulose	20% Perlite 10% Non-fibrous (Other)	None Detected
I1-08 *712101753-0030*	Room 8 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Gray/White Fibrous Homogeneous	70% Cellulose	20% Perlite 10% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
I1-33 *712101753-0031*	Room 33 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Gray Fibrous Homogeneous	70% Cellulose	20% Perlite 10% Non-fibrous (Other)	None Detected
I1-13 *712101753-0032*	Room 13 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Gray Fibrous Homogeneous	70% Cellulose	20% Perlite 10% Non-fibrous (Other)	None Detected
I1-19 *712101753-0033*	Room 19 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Brown/White Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	None Detected
I1-16 *712101753-0034*	Room 16 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Brown/White Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	None Detected
I1-01 *712101753-0035*	Room 1 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Brown/White Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	None Detected
I1-02 *712101753-0036*	Room 2 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Brown/White Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	None Detected
I1-32 *712101753-0037*	Room 32 - Acoustic ceiling panel-2' x 4' random pinhole pattern fiber material	Brown Fibrous Homogeneous	60% Cellulose 20% Glass	20% Non-fibrous (Other)	None Detected
J1-33 *712101753-0038*	Room 33 - Acoustic ceiling tile-12" x 12" pinhole pattern fiber material	Tan/Beige Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
J1-32 *712101753-0039*	Room 32 - Acoustic ceiling tile-12" x 12" pinhole pattern fiber material	Tan/Beige Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
N1-33 *712101753-0040*	At conduit, room 33 - Sealant-beige/gray	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-03 *712101753-0041*	At conduit, rm 3 - Sealant-beige/gray	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-08 *712101753-0042*	At conduit, rm 8 - Sealant-beige/gray	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-11 *712101753-0043*	At conduit, rm 11 - Sealant-beige/gray	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-13 *712101753-0044*	At conduit, rm 13 - Sealant-beige/gray	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-19 *712101753-0045*	At conduit, rm 19 - Sealant-beige/gray	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-13 *712101753-0046*	At HVAC seam, rm 13 - Sealant-beige	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
N2-08 *712101753-0047*	At HVAC seam, rm 8 - Sealant-beige	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-11 *712101753-0048*	At HVAC seam, rm 11 - Sealant-beige	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-03 *712101753-0049*	At HVAC seam, rm 3 - Sealant-beige	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-32-Carpet *712101753-0050*	Room 32 - Carpet mastic-yellow mastic	Blue/Pink/Beige Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-32-Mastic 1 *712101753-0050A*	Room 32 - Carpet mastic-yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-32-Mastic 2 *712101753-0050B*	Room 32 - Carpet mastic-yellow mastic	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-32-Leveler *712101753-0050C*	Room 32 - Carpet mastic-yellow mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-33-Carpet *712101753-0051*	Room 33 - Carpet mastic-yellow mastic	Blue/Pink/Beige Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-33-Mastic 1 *712101753-0051A*	Room 33 - Carpet mastic-yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-33-Mastic 2 *712101753-0051B*	Room 33 - Carpet mastic-yellow mastic	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-3-Carpet *712101753-0052*	Room 3 - Carpet mastic-yellow mastic, tile with black mastic	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-3-Mastic 1 *712101753-0052A*	Room 3 - Carpet mastic-yellow mastic, tile with black mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-3-Floor Tile *712101753-0052B*	Room 3 - Carpet mastic-yellow mastic, tile with black mastic	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
Q1-3-Mastic 2 *712101753-0052C*	Room 3 - Carpet mastic-yellow mastic, tile with black mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-11-Carpet *712101753-0053*	Room 11 - Carpet mastic-yellow mastic	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-11-Mastic *712101753-0053A*	Room 11 - Carpet mastic-yellow mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-11-Leveler *712101753-0053B*	Room 11 - Carpet mastic-yellow mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-13-Carpet *712101753-0054*	Room 13 - Carpet mastic-yellow mastic, tile with black mastic	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-13-Mastic 1 *712101753-0054A*	Room 13 - Carpet mastic-yellow mastic, tile with black mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
Q1-13-Floor Tile *712101753-0054B*	Room 13 - Carpet mastic-yellow mastic, tile with black mastic	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
Q1-13-Mastic 2 *712101753-0054C* *Insufficient amount of black mastic for analysis.*	Room 13 - Carpet mastic-yellow mastic, tile with black mastic				Insufficient Material
Q1-19-Carpet *712101753-0055*	Room 19 - Carpet mastic-yellow mastic, tile with black mastic	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-19-Mastic 1 *712101753-0055A*	Room 19 - Carpet mastic-yellow mastic, tile with black mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-19-Floor Tile *712101753-0055B*	Room 19 - Carpet mastic-yellow mastic, tile with black mastic	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
Q1-19-Mastic 2 *712101753-0055C* *Insufficient amount of black mastic for analysis.*	Room 19 - Carpet mastic-yellow mastic, tile with black mastic				Insufficient Material
Q1-16-Carpet *712101753-0056* *Sample did not contain black mastic.*	Room 16 - Carpet mastic-yellow mastic, tile with black mastic	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-16-Mastic *712101753-0056A*	Room 16 - Carpet mastic-yellow mastic, tile with black mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-16-Floor Tile *712101753-0056B*	Room 16 - Carpet mastic-yellow mastic, tile with black mastic	Tan Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
Q1-1-Carpet *712101753-0057* *Leveling compound not present in sample.*	Room 1 - Carpet mastic-yellow mastic with leveling compound	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q1-1-Mastic *712101753-0057A*	Room 1 - Carpet mastic-yellow mastic with leveling compound	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q2-1-Carpet *712101753-0058*	Carpet mastic-yellow mastic with leveling compound	Various Fibrous Homogeneous	98% Synthetic	2% Non-fibrous (Other)	None Detected
Q2-1-Mastic *712101753-0058A*	Carpet mastic-yellow mastic with leveling compound	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q2-1-Leveler *712101753-0058B*	Carpet mastic-yellow mastic with leveling compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
W1-35 *712101753-0059* *Result is a composite result of inseparable gray finish coat and gray base coat.*	Building exterior, near rm 35 - Stucco-tan with gray inner	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
W1-34 *712101753-0060* *Result is a composite result of inseparable gray finish coat and gray base coat*	Building exterior, near rm 34 - Stucco-tan with gray inner	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
W1-20	Building exterior, near rm 20 - Stucco-tan with gray inner	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
712101753-0061					
Result is a composite result of inseparable tan finish coat and gray base coat					
W1-3	Building exterior, near rm 3 - Stucco-tan with gray inner	Gray/Tan Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	<1% Chrysotile
712101753-0062					
Result is a composite result of inseparable tan finish coat and gray base coat					
W1-2	Building exterior, near rm 2 - Stucco-tan with gray inner	Gray/Tan Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	<1% Chrysotile
712101753-0063					
Result is a composite result of inseparable tan finish coat and gray base coat					
W1-14	Building exterior, near rm 14 - Stucco-tan with gray inner	Gray/Beige Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	<1% Chrysotile
712101753-0064					
Result is a composite result of inseparable beige finish coat and gray base coat					

Analyst(s)

Andrea Pedraza (24)

Carolynn Tom (27)

Humberto Espinoza (62)

Carolynn Tom, Laboratory Manager
or Other Approved Signatory

Initial report from: 08/17/2021 20:14:11

OrderID: 712101753

ZNAP FLY ZNAP75

Asbestos Bulk Sample Log

#712101753

Client:	San Mateo Foster City School District	**Sample Date:**	7/19/21
Project:	7 School HVAC project, George Hall	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO.		MATERIAL	DESCRIPTION	LOCATION
	ID	NO.			
GH	B1	13	Plaster	White/gray	Room 13
GH	B1	11	Plaster	White/gray	Room 11
GH	B2	EL1	Plaster	White/gray	Electrical room near 15
GH	B2	EL2	Plaster	White/gray	Electrical room near 15
GH	B2	EL3	Plaster	White/gray	Electrical room near 3
GH	B2	EL4	Plaster	White/gray	Electrical room near 3
GH	B3	16	Plaster	Tan	Room 16
GH	B3	19	Plaster	Tan	Room 19
GH	E2	01	Floor tile, 12" x 12" blue with streaks	Mastic yellow, tile beneath	Room 1
GH	E2	32	Floor tile, 12" x 12" blue with streaks	Yellow mastic, black residual mastic	Room 32
GH	E2	33	Floor tile, 12" x 12" blue with streaks	Yellow mastic, tile beneath	Room 33
GH	E2	03	Floor tile, 12" x 12" blue with streaks	Mastic, leveling compound	Room 3
GH	E2	11	Floor tile, 12" x 12" blue with streaks	Mastic, leveling compound	Room 11
GH	E2	13	Floor tile, 12" x 12" blue with streaks	Yellow mastic	Room 13
GH	E2	19	Floor tile, 12" x 12" blue with streaks	Yellow mastic	Room 19
GH	E2	16	Floor tile, 12" x 12" blue with streaks	Yellow mastic, black residual mastic & tile	4X3 area at entry only, Rm 16
GH	E3	08	Vinyl flooring	Gray with adhesive	Room 8
GH	F1	32	Covebase, 4" green	Beige mastic, residual yellow	Room 32
GH	F1	01	Covebase, 4" green	Beige mastic, residual yellow	Room 1
GH	F1	33	Covebase, 4" green	Beige mastic, residual yellow	Room 33

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
Erica Sattar	7/23/21 - 1600

CHAIN OF CUSTODY:

Signatures	DATE&TIME
NS	8/13/21 9:00 T0071174
Ctom	8/16/21 9:15A (EMSL-fedex)

ZNAP FLY

Asbestos Bulk Sample Log
#712101753

Client:	San Mateo Foster City School District	**Sample Date**	7/19/21
Project:	7 School HVAC project, George Hall	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
GH	F1	03	Covebase, 4" green	Beige mastic	Room 3
GH	F1	11	Covebase, 4" green	Beige mastic	Room 11
GH	F2	02	Covebase, 4" Blue	Beige mastic	Room 2
GH	F3	08	Covebase, 4" Black	Beige mastic	Room 8
GH	F3	19	Covebase, 4" Black	Beige mastic	Room 19
GH	F3	16	Covebase, 4" Black	Beige mastic	Room 16
GH	H1	02	Resilient sheet flooring, tan	Mastic/adhesive (beige)	Room 2
GH	I1	11	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 11
GH	I1	03	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 3
GH	I1	08	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 8
GH	I1	33	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 33
GH	I1	13	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 13
GH	I1	19	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 19
GH	I1	16	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 16
GH	I1	01	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 1
GH	I1	02	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 2
GH	I1	32	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 32
GH	J1	33	Acoustic ceiling tile	12" x 12" pinhole pattern fiber material	Room 33
GH	J1	32	Acoustic ceiling tile	12" x 12" pinhole pattern fiber material	Room 32
GH	N1	33	Sealant	Beige/gray	At conduit, Room 33

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
Erica Sattar	7/23/21 -1600

CHAIN OF CUSTODY:

Signatures	DATE&TIME

OrderID: 712101753

ZNAP FLY

Asbestos Bulk Sample Log
#712101753

Client:	San Mateo Foster City School District	**Sample Date:**	7/19/21
Project:	7 School HVAC project, George Hall	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
GH	N1	03	Sealant	Beige/gray	At conduit, Rm 3
GH	N1	08	Sealant	Beige/gray	At conduit, Rm 8
GH	N1	11	Sealant	Beige/gray	At conduit, Rm 11
GH	N1	13	Sealant	Beige/gray	At conduit, Rm 13
GH	N1	19	Sealant	Beige/gray	At conduit, Rm 19
GH	N2	13	Sealant	Beige	At HVAC seam, Rm 13
GH	N2	08	Sealant	Beige	At HVAC seam, Rm 8
GH	N2	11	Sealant	Beige	At HVAC seam, Rm 11
GH	N2	03	Sealant	Beige	At HVAC seam, Rm 3
GH	Q1	32	Carpet mastic	Yellow mastic	Room 32
GH	Q1	33	Carpet mastic	Yellow mastic	Room 33
GH	Q1	3	Carpet mastic	Yellow mastic, tile with black mastic	Room 3
GH	Q1	11	Carpet mastic	Yellow mastic	Room 11
GH	Q1	13	Carpet mastic	Yellow mastic, tile with black mastic	Room 13
GH	Q1	19	Carpet mastic	Yellow mastic, tile with black mastic	Room 19
GH	Q1	16	Carpet mastic	Yellow mastic, tile with black mastic	Room 16
GH	Q1	1	Carpet mastic	Yellow mastic with leveling compound	Room 1
GH	Q2	1	Carpet mastic	Yellow mastic with leveling compound	
GH	W1	35	Stucco	Tan with gray inner	Building exterior, near Rm 35
GH	W1	34	Stucco	Tan with gray inner	Building exterior, near Rm 34

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
Erica Sattar	7/23/21 -16a

CHAIN OF CUSTODY:

Signatures	DATE&TIME

ZNAP FLY

Asbestos Bulk Sample Log
#712101753

Client:	San Mateo Foster City School District	**Sample Date:**	7/19/21
Project:	7 School HVAC project, George Hall	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO. ID	SAMPLE NO. NO.	MATERIAL	DESCRIPTION	LOCATION
GH	W1	20	Stucco	Tan with gray inner	Building exterior, near Rm 20
GH	W1	3	Stucco	Tan with gray inner	Building exterior, near Rm 3
GH	W1	2	Stucco	Tan with gray inner	Building exterior, near Rm 2
GH	W1	14	Stucco	Tan with gray inner	Building exterior, near Rm 14

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

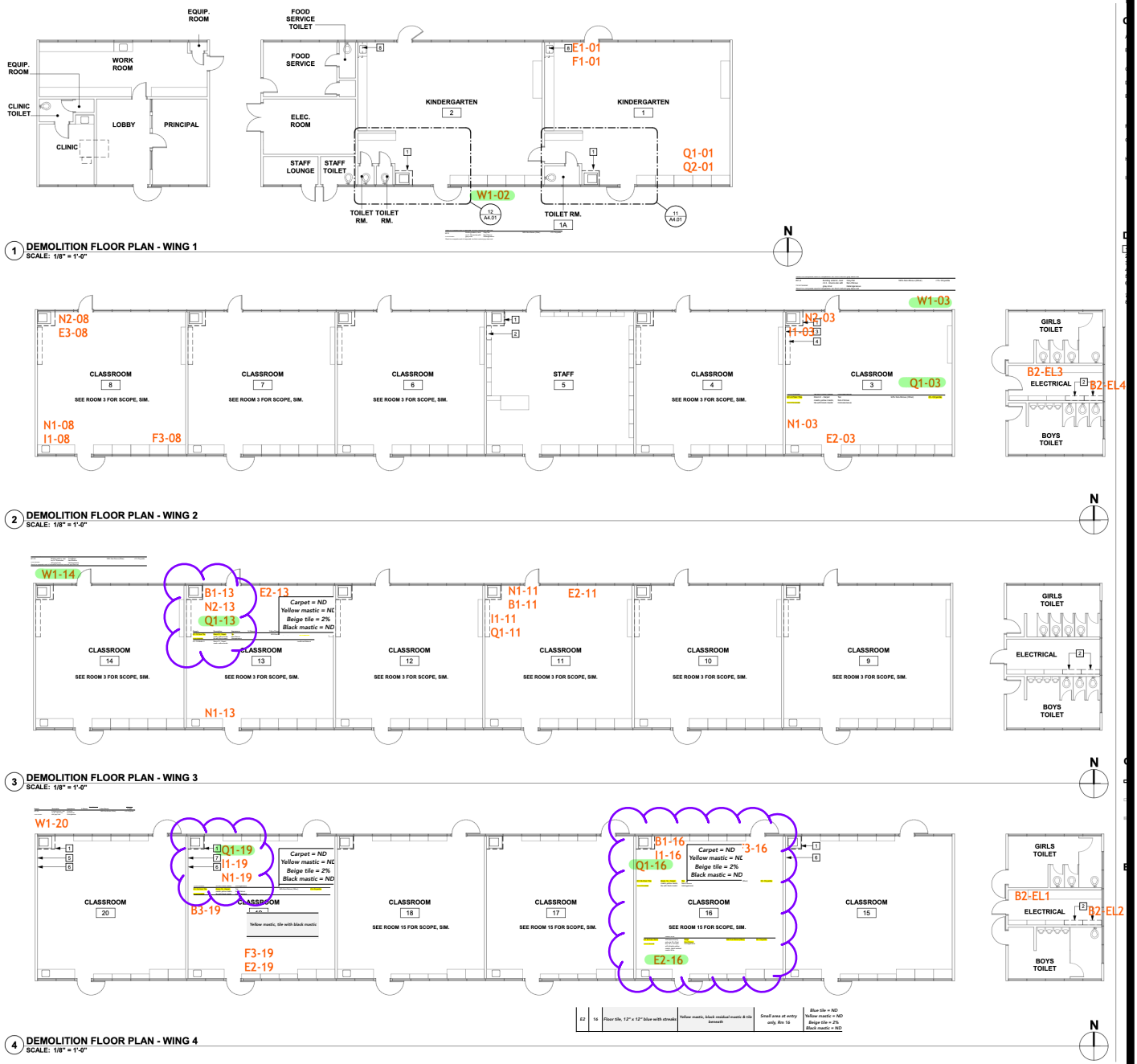
Signatures	DATE&TIME
Erica Sattar	7/23/21 - 1602

CHAIN OF CUSTODY:

Signatures	DATE&TIME

Asbestos Sampling Plan

Q1	3	Carpet mastic	Yellow mastic, tile with black mastic	Room 3
Q1	11	Carpet mastic	Yellow mastic	Room 11
Q1	13	Carpet mastic	Yellow mastic, tile with black mastic	Room 13
Q1	19	Carpet mastic	Yellow mastic, tile with black mastic	Room 19
Q1	16	Carpet mastic	Yellow mastic, tile with black mastic	Room 16



Legend

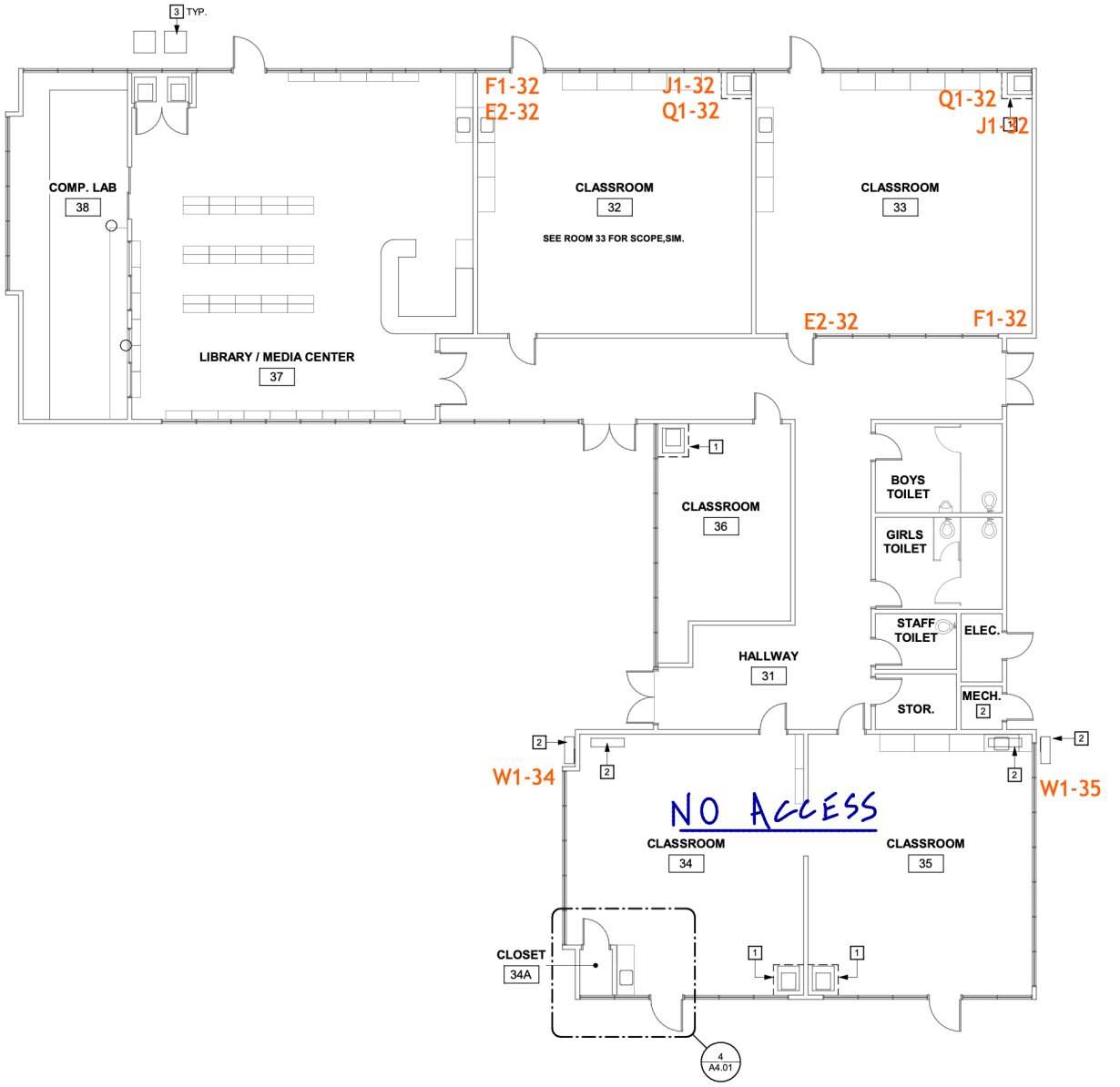
1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.

Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.

2. Green highlight indicates asbestos detected or >1% asbestos detected or assumed present.

Project	HVAC and Power Upgrade Project George Hall Elementary School
ZF Project #	EN210601

Asbestos Sampling Plan



1 **DEMOLITION FLOOR PLAN - ESCALON BLDG.**
SCALE: 1/8" = 1'-0"

Legend

1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.
Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.
2. Green highlight indicates asbestos detected or >1% asbestos detected or assumed present.

Project	HVAC and Power Upgrade Project George Hall Elementary School
ZF Project #	EN210601

Suspect Asbestos Containing Materials Sample Table

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
B1	13	Plaster	White/gray	Room 13	ND
B1	11	Plaster	White/gray	Room 11	ND
B2	EL1	Plaster	White/gray	Electrical room near 15	ND
B2	EL2	Plaster	White/gray	Electrical room near 15	ND
B2	EL3	Plaster	White/gray	Electrical room near 3	ND
B2	EL4	Plaster	White/gray	Electrical room near 3	ND
B3	16	Plaster	Tan	Room 16	ND
B3	19	Plaster	Tan	Room 19	ND
E2	01	Floor tile, 12" x 12" blue with streaks	Mastic yellow, tile beneath	Room 1	ND
E2	32	Floor tile, 12" x 12" blue with streaks	Yellow mastic, black residual mastic	Room 32	ND
E2	33	Floor tile, 12" x 12" blue with streaks	Yellow mastic, tile beneath	Room 33	ND
E2	03	Floor tile, 12" x 12" blue with streaks	Mastic, leveling compound	Room 3	ND
E2	11	Floor tile, 12" x 12" blue with streaks	Mastic, leveling compound	Room 11	ND
E2	13	Floor tile, 12" x 12" blue with streaks	Yellow mastic	Room 13	ND
E2	19	Floor tile, 12" x 12" blue with streaks	Yellow mastic	Room 19	ND
E2	***16***	***Floor tile, 12" x 12" blue with streaks***	***Yellow mastic, black residual mastic & tile beneath***	***Small area at entry only, Rm 16***	***Blue tile = ND Yellow mastic = ND Beige tile = 2% Black mastic = ND***
E3	08	Vinyl flooring	Gray with adhesive	Room 8	ND
F1	32	Covebase, 4" green	Beige mastic, residual yellow	Room 32	ND
F1	01	Covebase, 4" green	Beige mastic, residual yellow	Room 1	ND
F1	33	Covebase, 4" green	Beige mastic, residual yellow	Room 33	ND
F1	03	Covebase, 4" green	Beige mastic	Room 3	ND
F1	11	Covebase, 4" green	Beige mastic	Room 11	ND
F2	02	Covebase, 4" Blue	Beige mastic	Room 2	ND
F3	08	Covebase, 4" Black	Beige mastic	Room 8	ND
F3	19	Covebase, 4" Black	Beige mastic	Room 19	ND
F3	16	Covebase, 4" Black	Beige mastic	Room 16	ND
H1	02	Resilient sheet flooring, tan	Mastic/adhesive (beige)	Room 2	ND
I1	11	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 11	ND
I1	03	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 3	ND
I1	08	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 8	ND
I1	33	Acoustic ceiling panel	2' x 4' random pinhole pattern fiber material	Room 33	ND

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
I1	13	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 13	ND
I1	19	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 19	ND
I1	16	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 16	ND
I1	01	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 1	ND
I1	02	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 2	ND
I1	32	Acoustic ceiling panel	2′ x 4′ random pinhole pattern fiber material	Room 32	ND
J1	33	Acoustic ceiling tile	12″ x 12″ pinhole pattern fiber material	Room 33	ND
J1	32	Acoustic ceiling tile	12″ x 12″ pinhole pattern fiber material	Room 32	ND
N1	33	Sealant	Beige/gray	At conduit, Room 33	ND
N1	03	Sealant	Beige/gray	At conduit, Rm 3	ND
N1	08	Sealant	Beige/gray	At conduit, Rm 8	ND
N1	11	Sealant	Beige/gray	At conduit, Rm 11	ND
N1	13	Sealant	Beige/gray	At conduit, Rm 13	ND
N1	19	Sealant	Beige/gray	At conduit, Rm 19	ND
N2	13	Sealant	Beige	At HVAC seam, Rm 13	ND
N2	08	Sealant	Beige	At HVAC seam, Rm 8	ND
N2	11	Sealant	Beige	At HVAC seam, Rm 11	ND
N2	03	Sealant	Beige	At HVAC seam, Rm 3	ND
Q1	32	Carpet mastic	Yellow mastic	Room 32	ND
Q1	33	Carpet mastic	Yellow mastic	Room 33	ND
Q1	***03***	***Carpet mastic***	***Yellow mastic, tile with black mastic***	***Room 3***	***Carpet = ND Yellow mastic = ND Beige tile = 2% Black mastic = ND***
Q1	11	Carpet mastic	Yellow mastic	Room 11	ND
Q1	***13***	***Carpet mastic***	***Yellow mastic, tile with black mastic***	***Room 13***	***Carpet = ND Yellow mastic = ND Beige tile = 2%***
Q1	***19***	***Carpet mastic***	***Yellow mastic, tile with black mastic***	***Room 19***	***Carpet = ND Yellow mastic = ND Beige tile = 2%***
Q1	***16***	***Carpet mastic***	***Yellow mastic, tile with black mastic***	***Room 16***	***Carpet = ND Yellow mastic = ND Beige tile = 2%***
Q1	01	Carpet mastic	Yellow mastic with leveling compound	Room 1	ND
Q2	01	Carpet mastic	Yellow mastic with leveling compound	Room 1	ND
W1	35	Stucco	Tan with gray inner	Building exterior, near Rm 35	ND

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
W1	34	Stucco	Tan with gray inner	Building exterior, near Rm 34	ND
*W1	20	Stucco	Tan with gray inner	Building exterior, near Rm 20	< 1%
W1	***03***	***Stucco***	***Tan with gray inner***	***Building exterior, near Rm 3***	***< 1%***
W1	***02***	***Stucco***	***Tan with gray inner***	***Building exterior, near Rm 2***	***< 1%***
W1	***14***	***Stucco***	***Tan with gray inner***	***Building exterior, near Rm 14***	***< 1%***

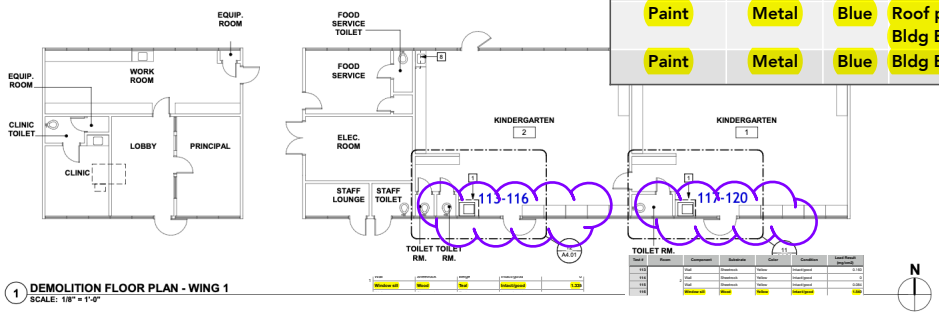
1. ND = No asbestos detected by laboratory analysis. "None Detected".
2. * = Material is assumed >1% unless proven otherwise by laboratory analysis. At the time of this report point count was not conducted.

Lead Sampling Plan

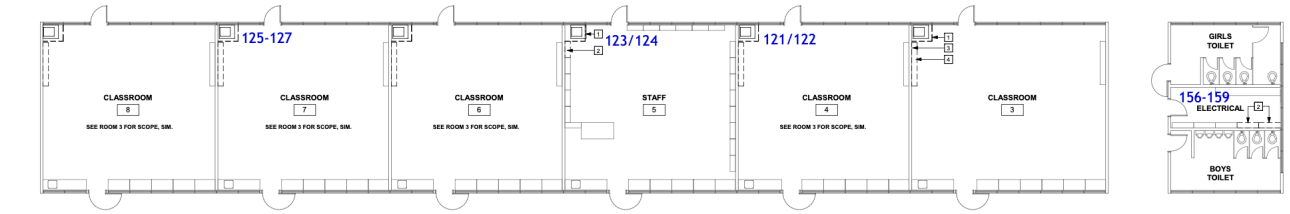
Lead

Paint was found to have levels of lead above the lead-based paint threshold. Roof collars and metal painted components at the roof should be considered to be a lead-based paint.

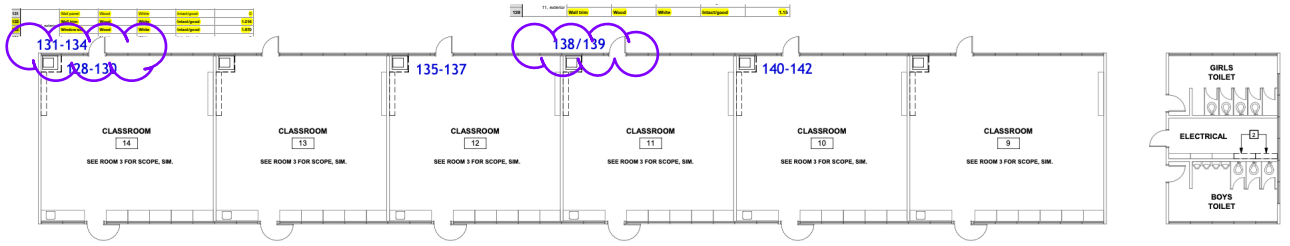
Component	Substrate	Color	Location	Total Quantity
Collar	Metal	Silver	Building A	2 each
Paint	Metal	Blue	Roof pitch cover, building perimeter, Bldg B, C, D, E, Portables	2,725 square feet
Paint	Metal	Blue	Bldg B and D, equipment	75 square feet



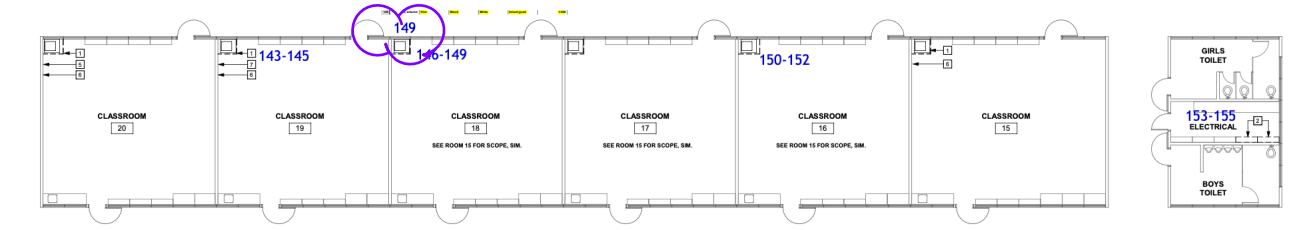
1 DEMOLITION FLOOR PLAN - WING 1
SCALE: 1/8" = 1'-0"



2 DEMOLITION FLOOR PLAN - WING 2
SCALE: 1/8" = 1'-0"



3 DEMOLITION FLOOR PLAN - WING 3
SCALE: 1/8" = 1'-0"



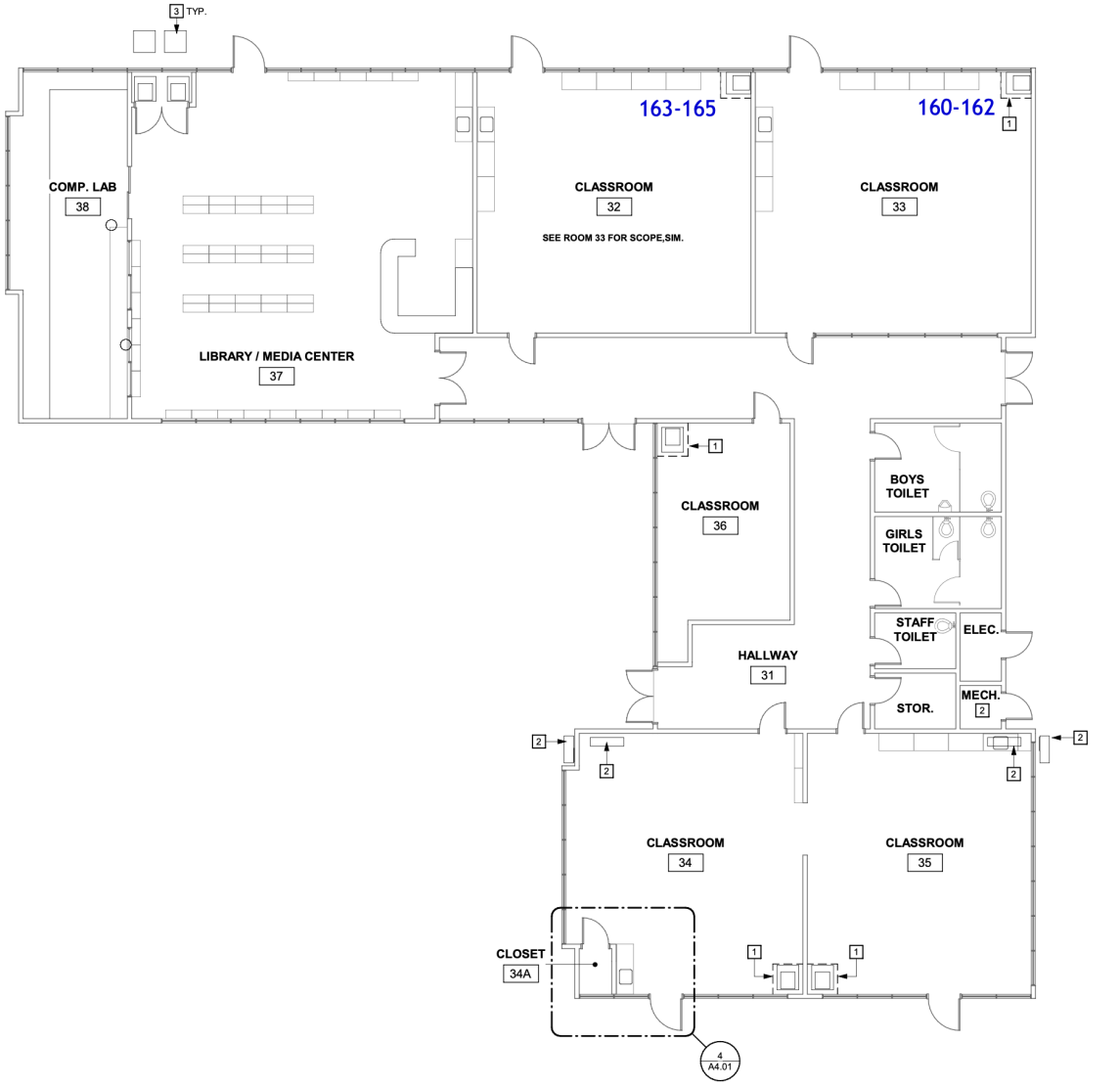
4 DEMOLITION FLOOR PLAN - WING 4
SCALE: 1/8" = 1'-0"

Legend

1. Refer to XRF Lead Paint Reading for results.
2. Lead-based painted (LBP) components were limited to window components.

Project	HVAC and Power Upgrade Project George Hall Elementary School
ZF Project #	EN210601

Lead Sampling Plan



1 **DEMOLITION FLOOR PLAN - ESCALON BLDG.**
SCALE: 1/8" = 1'-0"

Legend

1. Refer to XRF Lead Paint Reading for results.
2. Lead-based painted (LBP) components were limited to window components.

Project	HVAC and Power Upgrade Project George Hall Elementary School
ZF Project #	EN210601

Lead Paint Testing and Sampling Table

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
113	2	Wall	Sheetrock	Yellow	Intact/good	0.160
114		Wall	Sheetrock	Yellow	Intact/good	0
115		Wall	Sheetrock	Yellow	Intact/good	0.084
116		Window sill	Wood	Yellow	Intact/good	1.540
117	1	Wall	Sheetrock	Beige	Intact/good	0
118		Wall	Sheetrock	Beige	Intact/good	0
119		Window sill	Wood	Teal	Intact/good	1.335
120		Wall	Sheetrock	Teal	Intact/good	0
121	4	Window casing	Wood	Beige	Intact/good	0.382
122		Wall	Sheetrock	Beige	Intact/good	0.210
123	5	Wall	Sheetrock	Beige	Intact/good	0
124		Window casing	Wood	White	Intact/good	0.271
125	7	Window casing	Wood	Beige	Intact/good	0.583
126		Wall	Sheetrock	Gray	Intact/good	0.169
127		Shelf	Wood	Gray	Intact/good	0
128	14	Shelf	Wood	Beige	Intact/good	0
129		Wall	Sheetrock	Beige	Intact/good	0.147
130		Window casing	Wood	Beige	Intact/good	0.077
131	14, exterior	Wall panel	Wood	White	Intact/good	0
132		Wall trim	Wood	White	Intact/good	1.016
133		Window sill	Wood	White	Intact/good	1.970
134		Louver	Metal	White	Intact/good	0
135	12	Shelf	Wood	Gray	Intact/good	0
136		Window casing	Wood	Beige	Intact/good	0.625
137		Window sill	Wood	Beige	Intact/good	0.812
138	11, exterior	Wall	Wood	White	Intact/good	0
139		Wall trim	Wood	White	Intact/good	1.15
140	10	Wall	Sheetrock	Beige	Intact/good	0.112
141		Shelf	Wood	Beige	Intact/good	0
142		Wall Casing	Wood	Beige	Intact/good	0.609
143	19	Window casing	Wood	Beige	Intact/good	0.623
144		Window sill	Wood	Beige	Intact/good	0.610
145		Wall	Sheetrock	Beige	Intact/good	0
146	18	Wall casing	Wood	Beige	Intact/good	0.964
147		Window sill	Wood	Beige	Intact/good	0.661
148		Wall	Wood	Beige	Intact/good	0
149	18, exterior	Trim	Wood	White	Intact/good	1.529

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
150	16	Wall	Wood	Beige	Intact/good	0
151		Window sill	Wood	Beige	Intact/good	0.340
152		Window casing	Wood	Beige	Intact/good	0.343
153	Electrical near Rm 15	Door	Wood	Blue	Intact/good	0
154		Shelf	Wood	White	Intact/good	0.025
155		Shelf	Wood	White	Intact/good	0.023
156	Electrical near Rm 3	Table top	Wood	White	Intact/good	0.511
157		Cabinet	Wood	White	Intact/good	0.15
158		Drawer door	Wood	White	Intact/good	0.544
159		Cabinet	Wood	White	Intact/good	0.19
160	33	Wall	Wood	Beige	Intact/good	0
161		Window sill	Wood	Beige	Intact/good	0.30
162		Window casing	Wood	Beige	Intact/good	0.289
163	32	Window casing	Wood	Beige	Intact/good	0.311
164		Window sill	Wood	Beige	Intact/good	0.356
165		Wall	Wood	Beige	Intact/good	0
*	Roof	**Collar**	**Metal**	**Silver**	**Intact/good**	**26,000 ppm**
*		Pitch cover	Metal	Blue	Intact/good	< 39 ppm
*		Pitch cover	Metal	Blue	Intact/good	<38 ppm
*		Pitch cover	Metal	Blue	Intact/good	1,800 ppm
*		**Equipment**	**Metal**	**Blue**	**Intact/good**	**9,300 ppm**

NOTE:

1. Bold represents component is considered lead based paint.
2. Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%)
3. * Materials were sampled in a previous survey. Report and results are attached.

Znap Fly

January 11, 2019

San Mateo Foster City School District (SMFCSD)
1410 South Amphlett Blvd
San Mateo, California 94402

Attention: Alex Krystal

SUBJECT: Re-Roof Project - Asbestos and Lead Sample Results
George Hall Elementary School
130 San Miguel Way, San Mateo CA 94403

Dear Mr. Krystal,

At the request of Mr. Alex Krystal, Znap Fly provided a limited asbestos and lead survey of suspect roof materials throughout the roof areas scheduled for removal at George Hall Elementary School, 130 San Miguel Way in San Mateo, California. Our survey did not include the Multipurpose Building. Onsite testing was performed on January 3, 2019, by Mr. Chris Smith and Mrs. Erica Sattar. Mr Smith is a Cal/OSHA Certified Asbestos Consultant (CAC) and CDPH Lead Inspector/Risk Assessor and Project Designer. The project was planned and overseen by Mrs. Erica Sattar, a Cal/OSHA CAC and CDPH Sampling Technician. The report was prepared by Ms. Sattar and reviewed by Mr. Smith.

METHODOLOGY: SAMPLING & ANALYTICAL

Asbestos

Znap Fly collected a total of 34 samples with 73 sample layers of suspect materials to be impacted by renovation work. All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.

- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the renovation/ demolition project being undertaken at the site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMLab P&K (EM Lab) in South San Francisco, California. EM Lab is laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" U.S. EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Lead

This survey included screening level LBP testing and paint chip sampling for the purpose of characterizing the general presence of lead in existing paints and coatings at specific locations anticipated to be impacted by construction activities.

LBP is defined as any painted surface with lead levels exceeding 5,000 ppm, 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 % by weight, as set forth in the Department of Housing and Urban Development (HUD) guidelines and California Department of Health Services (DHS) regulations. Lead-Containing Paints (LCPs) are paints and coatings that contain detectable lead as defined by Cal/OSHA. Most paint and coatings on pre-1978 buildings contain some detectable lead subject to Cal/OSHA regulation. Therefore the exhaustive testing required to prove painted coatings do not contain lead is not practical or cost effective. Consequently, all paints and architectural coatings must be considered to contain some detectable levels of lead unless proven otherwise by laboratory analysis.

RESULTS

Asbestos

Znap Fly collected a total of 34 samples with 73 total layers of suspect ACM analyzed by PLM analysis. All of the roof samples tested at George Hall Elementary School Roof reported back as No asbestos Detected (ND).

Materials Tested & Sample Locations (laboratory results and chain of custody attached)

- Roof field, shingle with underlayment
- Sealant, gray with paint at seams
- Sealant, black at exhaust base, some with paint
- Sealant, gray at seams and corners
- Sealant, white at exhaust units, some with paint
- Sealant, black at base mount
- Roof field, rolled roofing material
- Paint, blue at metal roof materials

Refer to **Attachment** for a complete set of the laboratory results and Figure for sample locations.

Lead

Previous reports show lead based paint is present at roof collars and painted metal roof components. For this limited testing, five bulk samples were collected from a roof collar with silver paint and blue paint at metal roof components and submitted for laboratory analysis.

Component	Substrate	Color	Sample Location	Result (ppm)
Collar	**Metal**	**Silver**	**Building A**	**26,000**
Paint	Metal	Blue	Roof pitch cover	< 39
Paint	Metal	Blue	Roof pitch cover, Bldg D, west	< 38
Paint	**Metal**	**Blue**	**Roof pitch cover, Bldg D, east**	**1,800**
Paint	**Metal**	**Blue**	**Equipment, Bldg B, center**	**9,300**

Note: The above listing is not intended to be all inclusive and must be extrapolated to similar surfaces that were not tested. Colors are provided to assist in identification of specific surfaces tested but may not be a reliable indicator of lead content alone due to varied painting histories

involved. Generally on a building by building basis, component type and substrate are more reliable indicators. All paints must be considered to contain some lead subject to regulation.

Paint Condition Findings.

The painted building components at this site were generally in an intact condition. Prior to selective demolition, patching or repair, painting and other construction activities, visibly significant areas of loose, peeling or flaking paint should be removed and disposed of as lead hazardous waste.

CONCLUSIONS AND RECOMMENDATIONS

Asbestos

No asbestos was detected at roof sample locations.

Lead

Paint was found to have levels of lead above the lead-based paint threshold. Roof collars and metal painted components at the roof should be considered to be a lead-based paint.

Component	Substrate	Color	Location	Total Quantity
Collar	Metal	Silver	Building A	2 each
Paint	Metal	Blue	Roof pitch cover, building perimeter, Bldg B, C, D, E, Portables	2,725 square feet
Paint	Metal	Blue	Bldg B and D, equipment	75 square feet

The contractor should perform all work in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials.

At the present time, there is no state or federal regulation requiring mandatory lead removal or abatement prior to disturbance, demolition or renovation of structures with identified lead materials. However, prior to hot work on painted metal, the paint either needs to be removed or supplied air respirators worn during welding or cutting operation. In addition, there are applicable lead specific Cal/OSHA worker protection requirements and Cal/EPA waste disposal requirements that do apply to lead-related construction activities and associated wastes:

- **Cal/OSHA:** The Cal/OSHA regulation, Title 8, CCR, Section 1532.1 Lead governs occupation exposure to lead. This regulation requires that any task that may potentially expose workers to any concentration of lead, be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to

initiation of certain activities, referred to as "trigger tasks", that are believed to have the capability of creating an excessive lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels. Pertinent examples of trigger tasks are manual demolition, manual paint scraping and power tool removal, and hot work involving lead-containing coatings or materials. Cal/OSHA also has agency pre-start notification requirements and worker training and certification depending on exposure levels. Clearly these requirements will apply to demolition, patch and repair, paint removal, and surface preparation work at this site.

- **Cal/EPA**: Cal/EPA regulates disposal of lead hazardous waste (22 CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Waste). The Cal/EPA Department of Toxic Substance Control (DTSC) has issued guidance indicating that architectural debris with intact lead paint is normally anticipated to be handled as general construction waste. Since detected LBP was generally in fair to good condition and most paint coatings tested had low to moderate lead content, it is unlikely that most of the demolition debris will be hazardous as a composite sample. However, all lead containing waste streams should be considered potentially lead hazardous pending waste testing. Further, all surface preparation and paint removal wastes must be considered hazardous wastes due to the likelihood of paint chip lead levels exceeding 1,000 total lead or 5 ppm soluble lead.

All construction activities impacting lead must be performed in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials. Selective and general demolition activities will involve disturbing lead and possibly creating lead hazardous wastes. These construction activities must be controlled to prevent uncontrolled release of lead contamination and for environmental protection.

The Contractor conducting building renovation and selective demolition controls the means and methods used and therefore should be required by the contract document to ensure that the renovation and demolition processes are conducted in a manner that creates the minimum amount of hazardous waste and leaves the site free of lead contamination exceeding regulatory levels.

LIMITATIONS

Znap Fly conducted this survey in support of the George Hall Re-Roofing Project located at 130 San Miguel Way in San Mateo, California. Buildings included were limited to those shown in the Sample Location Figure. Buildings not included were metal corrugated roofs at all portable buildings and Multipurpose Building.

CLOSING

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.
Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available information and for verifying existing site conditions including location and extent of hazardous materials present at specific areas.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for San Mateo Foster City School District by:

Erica Sattar, CAC, CDPH
Certified Asbestos Consultant #14-5250
CDPH Lead Sampling Technician #20425

Report reviewed for San Mateo Foster City School District by:

Chris Smith, CAC, CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector Assessor/Project Designer #12430

Attachments:
Laboratory Report with chain of custody record
Sample Location Diagram
Znap Fly Personnel Certifications

EMLab P&K
A TestAmerica Company

Znap Fly

Report for:

Erica Sattar
Znap Fly
419 Mason St. #108
Vacaville, CA 95688

Regarding: Project: EN180608-George Hall Elem Roof; SMFCSD, 130 San Miguel Way, San Mateo, CA
EML ID: 2071373

Approved by:

Approved Signatory
Danny Li

Dates of Analysis:
Asbestos PLM: 01-08-2019 and 01-09-2019

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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Client: Znap Fly
C/O: Erica Sattar
Re: EN180608-George Hall Elem Roof; SMFCSD, 130 San Miguel Way, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Total Samples Submitted:	34
Total Samples Analyzed:	34
Total Samples with Layer Asbestos Content > 1%:	0

Location: R1-01, Roof field, shingle with underlayment, Bldg E, West Lab ID-Version‡: 9785828-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Green Pebbles	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: R1-02, Roof field, shingle with underlayment, Bldg E, center Lab ID-Version‡: 9785829-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Green Pebbles	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: R1-03, Roof field, shingle with underlayment, Bldg E, East Lab ID-Version‡: 9785830-1

Sample Layers	Asbestos Content
Black Roofing Tar and Felt	ND
Black Roofing Shingle with Green Pebbles	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-04, Roof field, shingle with underlayment, Bldg D, East Lab ID-Version‡: 9785831-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: R1-05, Roof field, shingle with underlayment, Bldg D, center Lab ID-Version‡: 9785832-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-06, Roof field, shingle with underlayment, Bldg D, West Lab ID-Version‡: 9785833-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Black Roofing Tar	ND
Composite Non-Asbestos Content:	55% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-07, Roof field, shingle with underlayment, Bldg C, East Lab ID-Version‡: 9785834-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-08, Roof field, shingle with underlayment, Bldg C, center Lab ID-Version‡: 9785835-1

Sample Layers	Asbestos Content
Black Roofing Material with Paint	ND
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: R1-09, Roof field, shingle with underlayment, Bldg C, West Lab ID-Version‡: 9785836-1

Sample Layers	Asbestos Content
Black Roofing Material with Paint	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-10, Roof field, shingle with underlayment, Bldg B, West Lab ID-Version‡: 9785837-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Black Roofing Tar and Felt	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-11, Roof field, shingle with underlayment, Bldg B, East Lab ID-Version‡: 9785838-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R1-12, Roof field, shingle with underlayment, Bldg A, NE Lab ID-Version‡: 9785839-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: R1-13, Roof field, shingle with underlayment, Bldg A, SW Lab ID-Version‡: 9785840-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Blue Pebbles	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	45% Glass Fibers 35% Cellulose
Sample Composite Homogeneity:	Poor

Location: R2-01, Sealant, gray, painted blue at seams, Bldg E, West Lab ID-Version‡: 9785841-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R2-02, Sealant, gray, painted blue at seams, Bldg D, West Lab ID-Version‡: 9785842-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R3-01, Sealant, black at exhaust base, Bldg E, West Lab ID-Version‡: 9785843-1

Sample Layers	Asbestos Content
Black Sealant	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: R3-02, Sealant, black at exhaust base, Bldg C, West Lab ID-Version‡: 9785844-1

Sample Layers	Asbestos Content
Black Sealant	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R3-03, Sealant, black at exhaust base, Bldg B Lab ID-Version‡: 9785845-1

Sample Layers	Asbestos Content
Black Sealant	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R3-04, Sealant, black at exhaust base painted white, Bldg A, East Lab ID-Version‡: 9785846-1

Sample Layers	Asbestos Content
Black Sealant	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R4-01, Sealant, gray at seams, corners and sides, Bldg E, East Lab ID-Version‡: 9785847-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: R4-02, Sealant, gray at seams, corners and sides, Bldg C, East Lab ID-Version‡: 9785848-1

Sample Layers	Asbestos Content
Gray Sealant	ND
Sample Composite Homogeneity:	Moderate

Location: R5-01, Sealant, white with some clear, painted blue at exhaust units, Bldg D, East Lab ID-Version‡: 9785849-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R5-02, Sealant, white with some clear, painted blue at exhaust units, Bldg B, center Lab ID-Version‡: 9785850-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R8-01, Sealant, black with white paint at basement, Bldg A, East Lab ID-Version‡: 9785852-1

Sample Layers	Asbestos Content
Black Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: R6-01, Roof field, rolled roofing material, Bldg B Lab ID-Version‡: 9785853-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Brown Wood	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R6-02, Roof field, rolled roofing material, Bldg C Lab ID-Version‡: 9785854-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R6-03, Roof field, rolled roofing material, Bldg D Lab ID-Version‡: 9785855-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: R6-04, Roof field, rolled roofing material, Bldg A, East

Lab ID-Version‡: 9785856-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Brown Wood	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: R6-05, Roof field, rolled roofing material, Bldg A, center Lab ID-Version‡: 9785857-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Brown Wood	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R6-06, Roof field, rolled roofing material, Bldg A, West Lab ID-Version‡: 9785858-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Material	ND
Black Roofing Material	ND
White Compound	ND
Brown Wood	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: P1-01, Paint, blue at metal roof areas Lab ID-Version‡: 9785859-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material (Trace)	ND
Blue-Green Paint	ND
Sample Composite Homogeneity:	Moderate

Location: P1-02, Paint, blue at metal roof areas, Bldg D, West Lab ID-Version‡: 9785861-1

Sample Layers	Asbestos Content
Blue-Green Paint	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: P2-01, Paint, blue at metal roof areas, Bldg D, East Lab ID-Version‡: 9785863-1

Sample Layers	Asbestos Content
Blue-Green Paint	ND
Sample Composite Homogeneity:	Moderate

Location: P2-02, Paint, blue at metal roof areas, Bldg B, center Lab ID-Version‡: 9785865-1

Sample Layers	Asbestos Content
Blue-Green Paint	ND
Sample Composite Homogeneity:	Moderate

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A TestAmerica Company

Znap Fly

Report for:

Erica Sattar
Znap Fly
419 Mason St. #108
Vacaville, CA 95688

Regarding: Project: EN180608-George Hall Elem Roof; SMFCSD, 130 San Miguel Way, San Mateo, CA
EML ID: 2071373

Approved by:

Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 01-08-2019

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

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LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	R7-01: Collar, silver with paint, Bldg A	P1-01: Paint, blue at metal roof areas	P1-02: Paint, blue at metal roof areas, Bldg D, West	P2-01: Paint, blue at metal roof areas, Bldg D, East	P2-02: Paint, blue at metal roof areas, Bldg B, center
Comments (see below)	A	A	A	A	A
Lab ID-Version‡:	9785851-1	9785860-1	9785862-1	9785864-1	9785866-1
Analysis Date:	01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Sample type	Bulk sample	Paint Chip sample	Paint Chip sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	32 ppm	39 ppm	38 ppm	38 ppm	40 ppm
Sample size	0.3158 grams	0.2595 grams	0.2622 grams	0.2623 grams	0.2476 grams
§Total Lead Result	26000 ppm	< 39 ppm	< 38 ppm	1800 ppm	9300 ppm

Comments: A) Secondary data review is delayed. The relative percent difference of the matrix duplicate pair was above control limits. The laboratory control sample and matrix blank were both within control limits and validated the batch.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Znap Fly

CHAIN OF CUSTODY-BULK

COMPANY CONTACT INFORMATION			
Contact:	Erica Sattar	Turnaround Time:	Standard - 2 day
Address:	419 Mason Street, Suite 108, Vacaville CA 95688	Analysis:	PLM & AA as noted
Phone:	707.999.5234	Number of Samples:	35
Email:	info@znapfly.com	Sampled By:	E. Sattar/C. Smith on 1/3/19

PROJECT INFORMATION		
Project Number:	EN180608 - George Hall Elem. Roof	**Notes:** ** analyze for AA only **Please call with any questions; erica 916.799.8333**
Client:	SMFCSD	
Project Address:	130 San miguel Way, San Mateo CA	

Sample ID	Material Sampled	Description of Material	Sample Location
R1-01	Roof field,	Shingle with underlayment	Bldg E, West
02			E, Center
03			E, East
04			D, East
05			D, Center
06			D, West
07			C, East
08			C, Center
09			C, West
10			B, West
11			B, East
12			A NE
13			A SW
R2-01	Sealant	Gray, painted blue @ seams	E, West
02			D, West
R3-01		Black @ exhaust base	E, West
02			C, West
03			B
04			A, East
R4-01		Gray @ seams & corners & sides (painted white)	E, East
02			C, East
R5-01		White w/ some clear, painted blue @ exhaust Units	D, East
02			B, Center
** R7-01	Collar	silver w/ paint	A ** AA
R8-01	Sealant	Black w/ white paint @ basement	A, East

002071373

Relinquished by:	Erica Sattar	**Date/Time:** 1/4/19 /1100
Received by:		**Date/Time:** 1/7/19 1003

Znap Fly

CHAIN OF CUSTODY-BULK

COMPANY CONTACT INFORMATION			
Contact:	Erica Sattar	Turnaround Time:	Standard - 2 day
Address:	419 Mason Street, Suite 108, Vacaville CA 95688	Analysis:	PLM & AA as noted
Phone:	707.999.5234	Number of Samples:	35
Email:	info@znapfly.com	Sampled By:	E. Sattar/C. Smith on 1/3/19

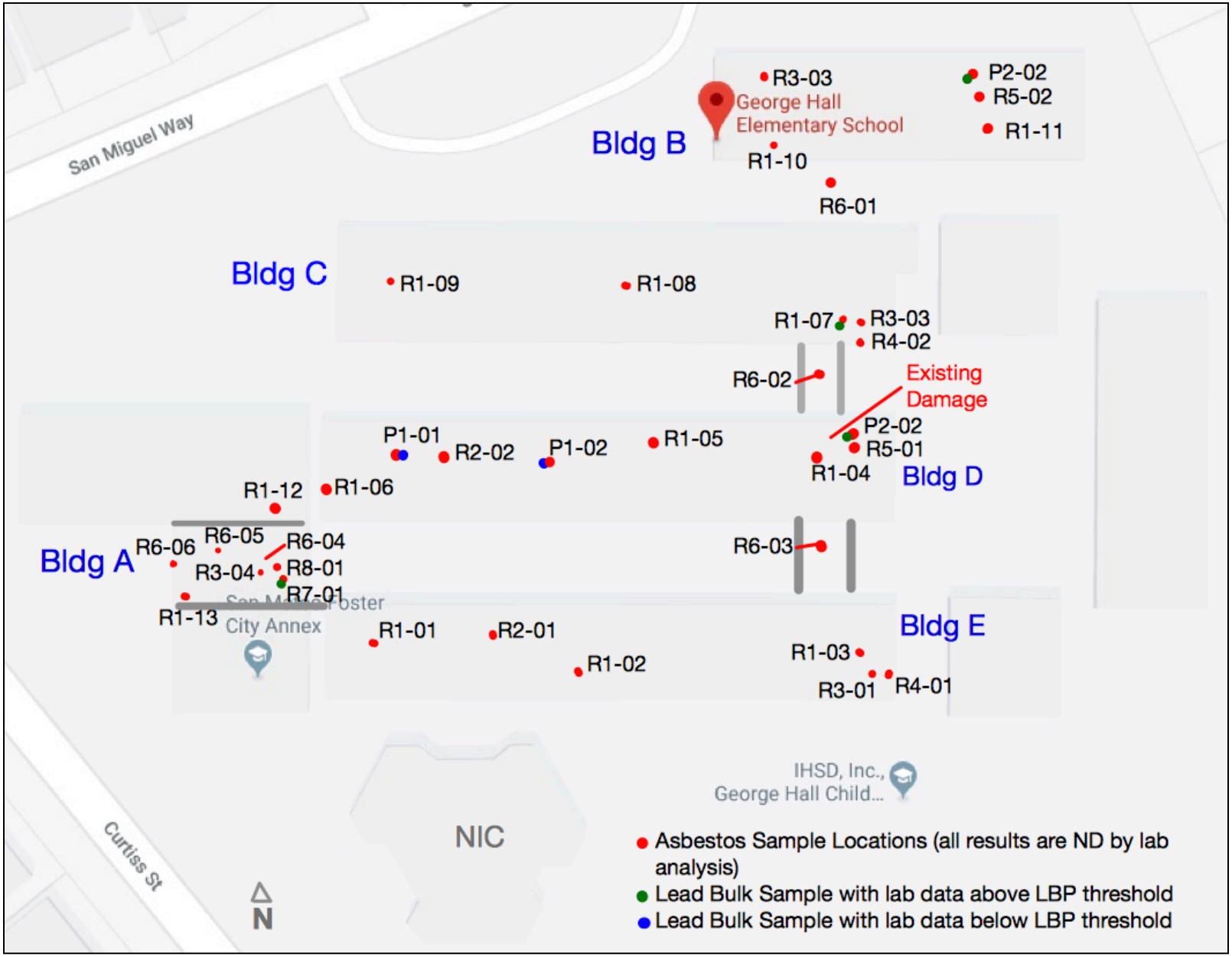
PROJECT INFORMATION		
Project Number:	EN180608 - George Hall Elem. Roof	**Notes:** * Analyze PLM followed by AA **Please call with any questions; erica 916.799.8333**
Client:	SMFCSD	
Project Address:	~~&~~ 130 San miguel Way, San mateo CA	

Sample ID	Material Sampled	Description of Material	Sample Location
Rb-01	Roof field.	rolled roofing material	Bldg B
02			C
03			D
04			A East
05			A Center
06			A West
* P1-01	Paint	Blue @ metal roof areas	
* 02			D West
* P2-01			D East
* 02			B Center

ES

00207373

Relinquished by:	Erica Sattar	**Date/Time:** 01/04/19/1100
Received by:		**Date/Time:** 1/7/19 1000



Sample Locations - Asbestos & Lead

SMFCSD, George Hall Elementary School Re-Roof Project

Znap Fly


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant
Christopher E Smith
Name
Certification No. 05-3823
Expires on 06/16/19
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Inspector/Assessor 05/22/2019
Project Monitor 05/22/2019
Christopher E. Smith
ID #: 12430


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant
Erica E Sattar
Name
Certification No. 14-5250
Expires on 02/11/20
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Sampling Technician 11/22/2018
Erica E. Sattar
ID #: 20425

Personnel Certifications


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Erica E Sattar
Name

Certification No. 14-5250

Expires on 02/11/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Erica Sattar	Lead Sampling Technician	LRC-00003791	11/22/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Christopher E Smith
Name

Certification No. 05-3823

Expires on 06/16/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Christopher Smith	Lead Inspector/Assessor	LRC-00006885	7/1/2021
	Lead Project Monitor	LRC-00006884	7/1/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

Project	HVAC and Power Upgrade Projects
ZF Project #	EN210601

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 6/30/2021

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

[X] Lead Inspection [ ] Risk assessment [ ] Clearance Inspection [ ] Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
130 San Miguel Way	San Mateo	San Mateo	94403

Construction date (year) of structure	Type of structure		Children living in structure?	
unknown	[ ] Multi-unit building	[X] School or daycare	[ ] Yes	[X] No
	[ ] Single family dwelling	[ ] Other_____	[ ] Don't Know	

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
San Mateo Foster City School District, Kevin Sanders	650-655-3331

Address [number, street, apartment (if applicable)]	City	State	Zip Code
1170 Chess Drive	Foster City	CA	94404

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

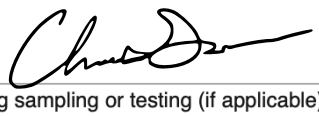
[ ] No lead-based paint detected [X] Intact lead-based paint detected [ ] Deteriorated lead-based paint detected

[ ] No lead hazards detected [ ] Lead-contaminated dust found [ ] Lead-contaminated soil found [ ] Other_____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Chris Smith	707-999-5234

Address [number, street, apartment (if applicable)]	City	State	Zip Code
419 Mason Street	Vacaville	CA	95688

CDPH certification number	Signature	Date
00006885/0006884		8/3/2021

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Erica Sattar, 00003791

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2019 CBC

Application Number:	**School Name:**	**School District:**
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

2019 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2019 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic** – Indicates that a periodic special inspection is required **Test** – Indicates that a test is required	**GE** – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR** – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI –** Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI** – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

Geotechnical Reports: Project does NOT have and does NOT require a geotechnical report

	1. GENERAL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	**See Notes**	**PI**	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

	2. SOIL COMPACTION AND FILL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Compaction testing.	**Test**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.

	3. DRIVEN DEEP FOUNDATIONS (PILES):	Table 1705A.7

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		
☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	**Table 1705A.8**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Verify pier locations, diameters, plumbness and lengths.Record concrete or grout volumes.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**c.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See Section 2 above).
☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

	6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
☐	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Concrete), 2019 CBC

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

Application Number:	**School Name:**	**School District:**
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

	7. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing:				
☑	**a.** Verify use of required design mix.	**Periodic**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☑	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-14 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.15;** ACI 318-14 Section 26.12.
Inspection:				
☑	**e.** Batch plant inspection: **Eliminated**	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or eliminated per **1705A.3.3.2.** (See Appendix for exemptions.)
☐	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

	8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 11.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-14 Section 26.13

	9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-14 Section 26.13.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.

	10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.19, Table 1705A.3 Item 7, 1908A.6, 1908A.7, 1908A.8, 1908A.9, 1908A.11, 1908A.12.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.5, 1908A.10.**

	11. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix for exemptions.)

	12. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Masonry), 2019 CBC

1705A.4; TMS 602-16, Tables 3 and 4.

Application Number:	**School Name:**	**School District:**
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

	13. STRUCTURAL MASONRY: 2000 psi			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing: (See Appendix for exemptions.)				
☑	**a.** Mill certificate indicatescompliance with requirements forreinforcement, anchors,ties, fasteners and metal accessories. See item 7b for identification, sampling and testing of reinforcing steel.	**Periodic**	**SI***	**2103A.4**; TMS 602-13 Article 1.5B.2 & 2.4. * To be performed by qualified LOR representative. Applicable testing by LOR. See IR 17-10.16 for unidentified reinforcing steel.
☑	**b.** Producer's certificate of compliance for masonry units, mortar and grout materials.	**Test**	**LOR**	**1705A.4, 2103A.2.1, 2103A.3, 2103A.5;** TMS 602-16 Articles 2.1, 2.2,2.6A and 2.6B, and Table 6 footnote 3.
☑	**c.** Test masonry (f'_m).	**Test**	**LOR**	**1705A.4. For Unit Strength: 2105A.3** (2114.6.1+); TMS 602-16 Articles 1.4B.2 ,1.5B.1 & 1.5B.2. **For Prism (required when f'_m > 2000 psi):2105A.2;** TMS 602-16 Articles 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.
☑	**d.** Verify proportions of siteprepared,premixed or preblended mortar and grout.	**Periodic**	**SI**	TMS 602-16 Table 3 Item 5, Table 4 Item 1a & 2d.
☑	**e.** Test core-drilled samples.	**Test**	**LOR**	**2105A.4**. (See Appendix for exemptions.)
Inspection: (See Appendix for exemptions.)				
☑	**f.** Inspect preparation of prisms.	**Continuous**	**SI**	TMS 602-16 Articles 1.4.B.3 & 1.4.B.4 & Table 4 Item 4.
☑	**g.** Verify size, location and condition of all dowels, construction supporting masonry, etc.	**Periodic**	**SI**	

☑	**h.** Verify size, grade and type of reinforcement and anchor bolts.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 1c.
☐	**i.** Welding of reinforcing steel.	TMS 602-16 Table 4 Item 3e. Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		
☑	**j.** Inspect placement of reinforcement and connectors.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 2c.
☑	**k.** Inspect placement of masonry units and construction of mortar joints.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3b.
☑	**l.** Verify preparation, construction and protection of masonry during cold weather (temperature below 40^{o} F) or hot weather (temperature above 90^{o} F).	**Periodic**	**SI***	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
☑	**m.** Inspect type, size and location of anchors and all other items to embedded in masonry including other details of anchorage of masonry to structural members,frames and other construction.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 3d.
☑	**n.** Inspect grout space prior to placement of grout.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 2a.

	14. VENEER OR GLASS BLOCK PARTITIONS: 1705A.4.1; TMS 602-16 Tables 3 and 4.			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify proportions of siteprepared mortar and grout and/or verify certification of premixed mortar.	**Periodic**	**SI**	TMS 602-16 Table 3 Item 5 and Table 4 Items 1a & 2d.

☐	**b.** Inspect placement of units and construction of mortar joints.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3b.
☐	**c.** Inspect placement of reinforcement, connectors and anchors.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 2c.
☐	**d.** Inspect type, size and location of anchors and all other items to be embedded in masonry including details of anchorage of masonry to structural members, frames and other construction.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3d.
☐	**e.** Verify preparation, construction and protection of masonry during cold weather (temperature below 40^{o} F) or hot weather (above 90^{o} F).	**Periodic**	**SI***	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
☐	**f.** Test veneer bond strength	**Test**	**LOR**	**1410.2.1;** TMS 402 Article 12.3.2.4. **(Field constructed mock-up laboratory tested in accordance with ASTM C482).**

	15. POST-INSTALLED ANCHORS IN MASONRY:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of postinstalled anchors	**See Notes**	**SI***	**1617A.1.19, 1705A.4, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic);** ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix for exemptions.)
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1705A.4, 1910A.5.** (See Appendix for exemptions.)

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Masonry), 2019 CBC

1705A.4; TMS 602-16, Tables 3 and 4.

Application Number:	**School Name:**	**School District:**
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

	16. OTHER MASONRY:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests **/** special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☑	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
☐	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment **-** see item 7 for "Welding") given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
☑	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

☑	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
☑	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.
☑	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	Welding:
☐	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☑	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).
☑	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

Application Number:	School Name:	School District:
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
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☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 located in the Steel/Aluminum category).
☑	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2019 CBC

Application Number:	**School Name:**	**School District:**
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

Name of Architect or Engineer in general responsible charge:

Name of Structural Engineer (When structural design has been delegated):

Gokhan Akalan

Signature of Architect or Structural Engineer:

Date:

9/30/2021

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

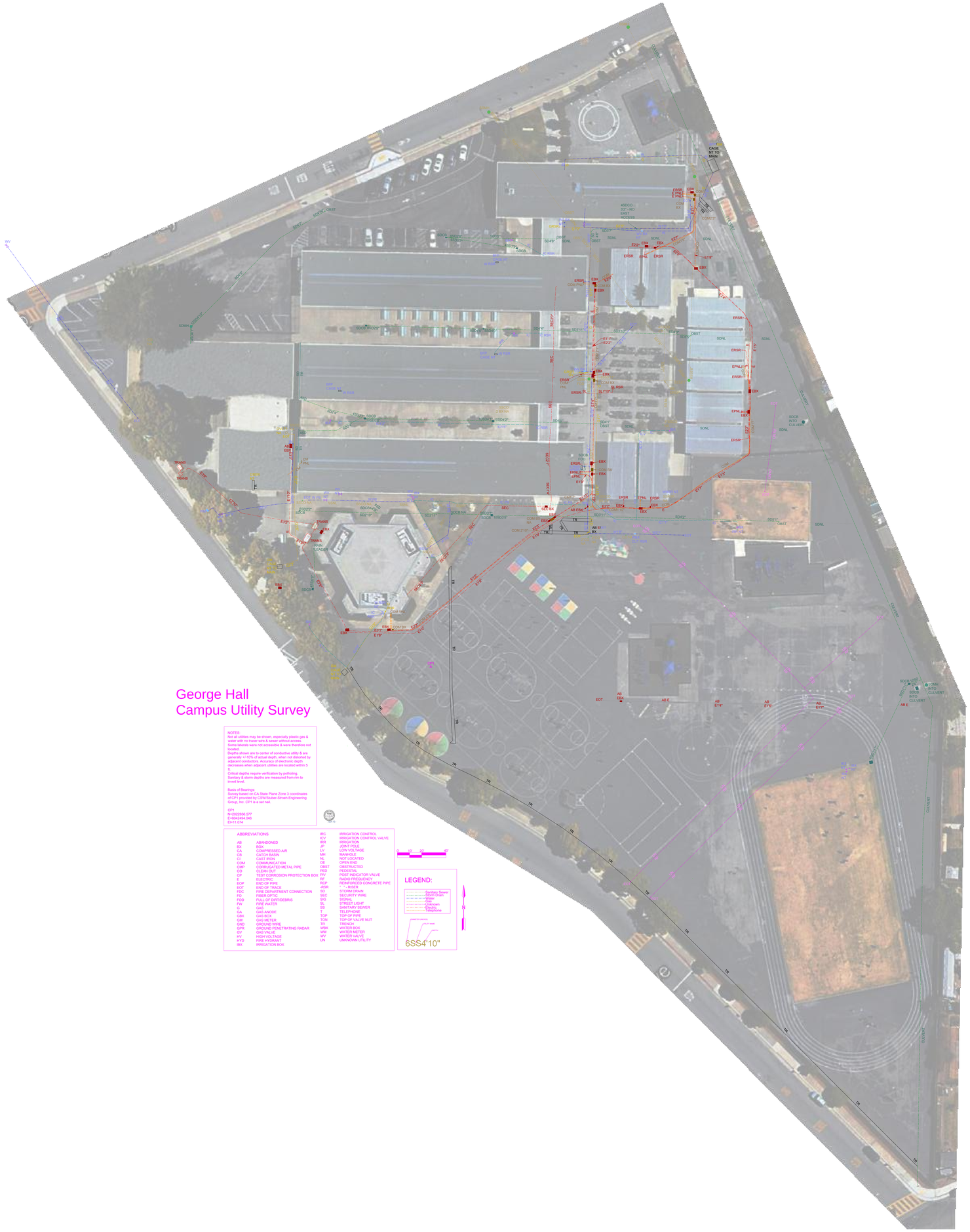
DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119523 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☐
DATE: 10/26/2021

DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

Application Number:	School Name:	School District:
01-119523	George Hall Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-30 10:13:30

1. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
2. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
3. Masonry Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292



George Hall
Campus Utility Survey

NOTES:
Not all utilities may be shown, especially plastic gas & water with no tracer wire & sewer without access.
Some laterals were not accessible & were therefore not located.
Depths shown are to center of conductive utility & are generally +/-10% of actual depth, when not distorted by adjacent conductors. Accuracy of electronic depth decreases when adjacent utilities are located within 5 ft.
Critical depths require verification by potholing.
Sanitary & storm depths are measured from rim to invert level.

Basis of Bearings:
Survey based on CA State Plane Zone 3 coordinates of CP1 provided by CSW/Stuber-Stroeh Engineering Group, Inc. CP1 is a set nail.

CP1
N=2022856.577
E=6042494.046
El=11.074

MATTHEW CHAPMAN
Exp. 12-31-20
No. 7054

ABBREVIATIONS

AB	ABANDONED	IRC	IRRIGATION CONTROL
BX	BOX	ICV	IRRIGATION CONTROL VALVE
CA	COMPRESSED AIR	IRR	IRRIGATION
CB	CATCH BASIN	JP	JOINT POLE
CI	CAST IRON	LV	LOW VOLTAGE
COM	COMMUNICATION	MH	MANHOLE
CMP	CORRUGATED METAL PIPE	NL	NOT LOCATED
CO	CLEAN OUT	OE	OPEN END
CP	TEST CORROSION PROTECTION BOX	OBST	OBSTRUCTED
E	ELECTRIC	PED	PEDESTAL
EOP	END OF PIPE	PIV	POST INDICATOR VALVE
EOT	END OF TRACE	RF	RADIO FREQUENCY
FDC	FIRE DEPARTMENT CONNECTION	RCP	REINFORCED CONCRETE PIPE
FO	FIBER OPTIC	-RSR	" " - RISER
FOD	FULL OF DIRT/DEBRIS	SD	STORM DRAIN
FW	FIRE WATER	SEC	SECURITY WIRE
G	GAS	SIG	SIGNAL
GA	GAS ANODE	SL	STREET LIGHT
GBX	GAS BOX	SS	SANITARY SEWER
GM	GAS METER	T	TELEPHONE
GND	GROUND WIRE	TOP	TOP OF PIPE
GPR	GROUND PENETRATING RADAR	TON	TOP OF VALVE NUT
GV	GAS VALVE	TR	TRENCH
HV	HIGH VOLTAGE	WBX	WATER BOX
HYD	FIRE HYDRANT	WM	WATER METER
IBX	IRRIGATION BOX	WV	WATER VALVE
		UN	UNKNOWN UTILITY

0' 10' 20' 40'

LEGEND:

- — SS — SS — SS — SS — Sanitary Sewer
- — SD — SD — SD — SD — Storm Drain
- — W — W — W — W — Water
- — GAS — GAS — GAS — GAS — Gas
- — UN — UN — UN — UN — Unknown
- — EL — EL — EL — EL — Electric
- — COM — COM — COM — Telephone

DIAMETER (INCHES)
UTILITY NAME
DEPTH
6SS4'10"

N

Dennis Yniguez
Registered Consulting Arborist
Board Certified Master Arborist
Dennis@TreeDecisions.com

TREE DECISIONS

1428 Spruce Street
Berkeley, CA 94709
510-649-9291 Tel
510-682-6411 Cell

EVALUATION OF CONSTRUCTION EFFECTS ON THREE TREES AT THE GEORGE HALL ELEMENTARY SCHOOL 130 SAN MIGUEL WAY, SAN MATEO, CALIFORNIA 94403

George Hall
Elementary School

FOR

MARK SHERRILL—PROJECT MANAGER
SAN MATEO-FOSTER CITY SCHOOL DISTRICT
1410 SOUTH AMPHLETT BOULEVARD
SAN MATEO, CALIFORNIA 94402
MSHERRILL@SMFC.K12.CA.US
(408) 315-0043

BY

DENNIS YNIGUEZ, REGISTERED CONSULTING ARBORIST
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DECEMBER 17, 2021

CONTENTS

EXECUTIVE SUMMARY

Installation of electrical upgrades at George Hall Elementary School will require excavation of trenches for upgraded electrical conduits.

The wire-mesh fence that parallels Curtiss Street will remain in place before, during, and after construction.

No excavation or construction will take place on the street side of the wire-mesh fence where the trunks of Trees No. 1--6 are growing.

Trench excavation for electrical conduits must not take place within 10 feet of the trunks of Trees No. 1--6.

BACKGROUND AND ASSIGNMENT

On November 18, 2021, I was contacted by Mark Sherrill, a Project Manager for the San Mateo-Foster City School District. Mr. Sherrill informed me that the District is preparing plans to install robust electrical upgrades to accommodate new air conditioning equipment at three elementary schools in San Mateo.

Installation of upgraded electrical equipment will require considerable trenching for installation of underground conduits between utility power sources and sizable new electrical boxes.

I was asked to schedule a time to meet with Mr. Sherrill at each of the three elementary schools to discuss proposed locations for new trench excavations and to consider how best to avoid significant damage to established trees.

I was not retained to do a formal tree risk assessment. My assignment did not include the use of invasive diagnostic techniques to examine or test any trees for structural integrity.

OBSERVATIONS AND DISCUSSION

On November 29, 2021, an associate and I visited the George Hall Elementary School site to examine, measure, and photograph trees adjacent to proposed trench locations, and to recommend measures for avoiding damage to nearby trees when conduit trenches are excavated.

Table 1. Relevant Trees at George Hall Elementary School				
Tree Number	Species	*Tree Diameter (inches)	Location	Comments
1	Camphor *(Cinnamomum camphora)*	20 (est.)	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
2	Camphor *(Cinnamomum camphora)*	16 (est.)	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
3	Camphor *(Cinnamomum camphora)*	15 (est.)	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
4	Camphor *(Cinnamomum camphora)*	16	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
5	Camphor *(Cinnamomum camphora)*	13.25	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
6	Camphor *(Cinnamomum camphora)*	13	On the sidewalk side of the wire-mesh fence that parallels Curtiss Street	The nearest edge of the utility box excavation must not be closer than 10 feet from the trunk.
Note: Tree roots over ½ inch in diameter must be cut with a sharp tool such as a handsaw, reciprocating saw, loppers, or hand pruners. Roots that are cleanly cut will be significantly more resistant to decay. * Tree Diameters are described as DBH (Diameter Breast Height), a forestry term to indicate measurements of tree diameter at 54” above ground.				

RECOMMENDATIONS FOR TREE PROTECTION

The TPZ would be demarcated by placing fixed, upright fence sections onto the soil as illustrated in Exhibit 1, in lieu of driving five-foot steel survey stakes into the root-permeated soil. Fencing would remain in place before and during construction to prevent soil compaction, materials storage, and soil contamination within the root health zone of adjacent camphor trees.

Because of the location of the trunks on the street side of the wire mesh fence, there is no need to affix protective padding against the trunks to prevent damage from construction machinery.

Two outward-facing weatherproof signs at least 11" X 17" in size must be affixed to the TPZ fence with the following language:

TREE PROTECTION ZONE
Do Not Move this Fence

No parking or storing of vehicles, construction trailers, equipment, machinery, chemicals, excavated soil, or construction materials of any kind shall be permitted within the defined Tree Protection Zone.

CONCLUSION

Tree protection measures set forth in this report include the use of protective tree fencing before and throughout construction, proper storage of materials, and avoidance of soil contamination or compaction.

Respectfully submitted,

Dennis Yniguez
Registered Consulting Arborist (ASCA No. 362)
Board Certified Master Arborist (ISA WE-0130)

1. George Hall Elementary School. Well-established camphor trees *(Cinnamomum camphora)* are growing adjacent to an area where a trench will be excavated for installation of an electrical conduit. Tree health and stability will not be diminished if protective measures and specified trench distances in this report are implemented.

2. George Hall Elementary School. Well-established camphor trees *(Cinnamomum camphora)* are growing adjacent to an area where a trench will be excavated for installation of an electrical conduit. Tree health and stability will not be diminished if protective measures and specified trench distances in this report are implemented.

3. George Hall Elementary School. Well-established camphor trees *(Cinnamomum camphora)* are growing adjacent to an area where a trench will be excavated for installation of an electrical conduit. Tree health and stability will not be diminished if protective measures and specified trench distances in this report are implemented.

QUALIFICATIONS, ASSUMPTIONS, AND LIMITING CONDITIONS

Any legal description provided to the consultant is assumed to be correct. Any titles or ownership of properties are assumed to be valid and marketable. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

All property is presumed to be in conformance with applicable codes, ordinances, statutes, or other regulations.

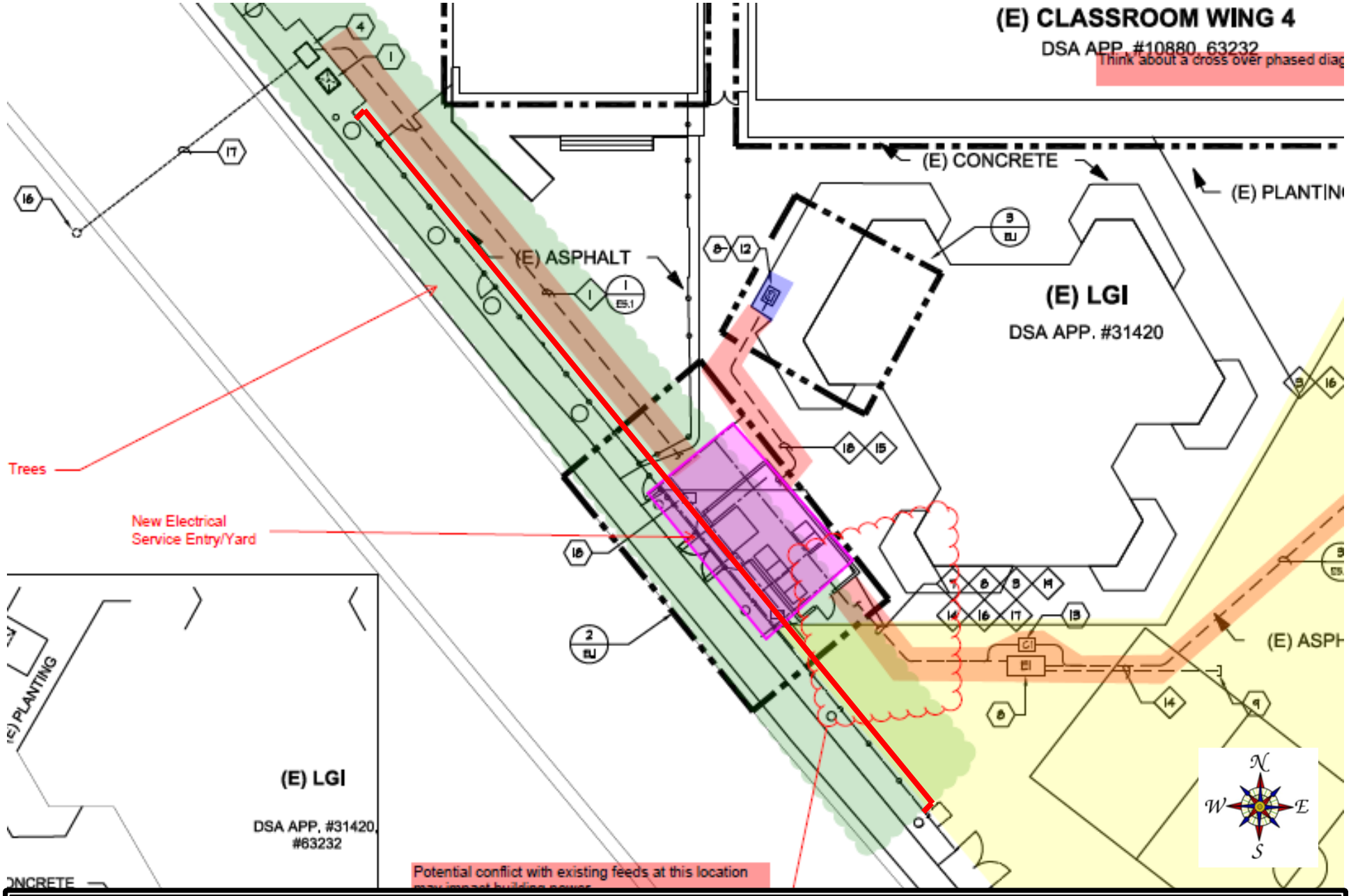
Care has been taken to obtain information from reliable sources. However, the consultant cannot be responsible for the accuracy of information provided by others.

The consultant shall not be required to give testimony or to attend meetings, hearings, conferences, mediations, arbitrations, or trials by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

This report represents the opinion of the consultant, and the consultant's fee is not contingent upon making any recommendation.

Sketches, drawings, and photographs in this report are intended for use as visual aids, are not necessarily to scale, and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is only for coordination and ease of reference. Inclusion of said information with any drawings or other documents does not constitute a representation by Dennis Yniguez or Tree Decisions as to the sufficiency or accuracy of said information.

Unless otherwise expressed: a) this report covers only the examined items and their condition at the time of inspection; and b) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that structural problems or deficiencies of plants or property may not arise in the future.



Excerpt from *George Hall Elementary School - Electrical Site Diagram*, dated October 4, 2021. A ***Tree Protection Zone*** fence (**bold red line**) will be erected 6-feet from the existing wire mesh fence to protect this row of Camphor trees from root damage or contamination during construction of a new electrical conduit.

Specification

This Hazardous Material Abatement & Related Construction Specification 02 80 00 was prepared for San Mateo Foster City School District in support of the HVAC and Power Upgrade Project for the following schools:

School Name	Address
Abbott Middle School	600 36th Avenue, San Mateo, CA 94403
Borel Middle School	425 Barenson Avenue, San Mateo, CA 94403
College Park	715 Indian Avenue, San Mateo, CA 94402
Laurel Elementary	316 36th Avenue, San Mateo, CA 94403
Meadow Heights	2619 Dolores Street, San Mateo, CA 94403
North Shoreview	1301 Cypress Avenue, San Mateo, CA 94401
George Hall	130 San Miguel Way, San Mateo, CA 94403

Prepared for:

San Mateo Foster City School District
1170 Chess Drive
Foster City, CA 94404

Prepared by:

ZNAP FLY
419 Mason Street
Vacaville, CA 95688

SECTION 02 80 00

HAZARDOUS MATERIAL ABATEMENT & RELATED CONSTRUCTION

PART 1. GENERAL

1.1 SCOPE

A. The work of this section includes removal, clean up and disposal of the below listed hazardous materials prior to the general building and structure renovation and/or demolition work of the project. These work scope items are generally described as follows for the buildings and structures indicated. Contractor is to review all demolition/construction project plans and field verify location and extent of hazardous materials-related work.

1. **Asbestos-Containing Materials – Remove all:**

a. Abbott Middle School

1. Plaster, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 5 square feet may be impacted at each work location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location

b. Borel Middle School

1. Window putty at window HVAC unit, 2% asbestos, Category II ACM, approximately 2 square feet limited to Room 34
2. Mastic Associate with tack board/white board/chalkboard, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
4. Roof mastic, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work location

c. College Park Elementary School

1. Texture coat associated with sheetrock above acoustical ceiling panel, < 1 - 2% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Regulated Asbestos Containing Material (RACM), approximately 5 square feet may be impacted at each work location, however may not be impacted with the given scope of work
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Roof shingle & roof mastics, assumed asbestos, located throughout the roof system, non-friable Category I ACM, approximately 5 square feet may be impacted at each work location

d. George Hall Elementary School

1. Stucco, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 2 square feet may be impacted at each work location, however this material may not be impacted by scheduled work
2. Floor tile beneath existing tile and/or carpet, 2% asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
4. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, however this material may not be impacted by scheduled work

e. Laurel Elementary School

1. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
2. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet

f. Meadow Heights Elementary School

1. Floor tile, tan tile beneath existing flooring, 5% asbestos, with residual mastic (insufficient material to analyze) Category I non-friable ACM, approximately 5 square feet to be impacted at each work area location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work area location
3. Roof shingles, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location
4. Roof mastics, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location

g. North Shoreview Montessori School

1. Joint compound associated with sheetrock wall system, joint compound = 2% asbestos, sheetrock = no asbestos detected, Regulated Asbestos Containing Material (RACM) - friable asbestos containing material, approximately 15 square feet may be impacted at each work location, refer to project drawings
2. Residual floor tile mastic, found in one of seven samples collected at Room 18, 3% asbestos approximately 8 square feet at each work location may be impacted, refer to project drawings
3. Stucco, <1% asbestos assumed >1% asbestos without point count analysis, Category II non-friable asbestos containing material, quantity impacted is dependent on the scope of work, refer to project drawings
4. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location, may not be impacted.
5. Mastic associated with acoustic ceiling tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, although material may not be impacted by scope of work
6. Roof field, shingle with associated mastic (assumed asbestos, this material may be sampled during construction if impacted to prove no asbestos by laboratory analysis, non-friable Category I ACM, quantity impacted is dependent on the scope of work, refer to project drawings

2. **Lead-Based Paint (LBP).** Remove loose and peeling LBP where occurs on lead-based components including:
   - **a. Abbott Middle School**
     1. Exterior plexiglas windows/window covers (wall panels)
     2. Exterior metal window frames
     3. Exterior wood window trims
     4. Window panels (windows/window covers)
   - **b. Borel Middle School**
     1. Exterior wood window frames
   - **c. George Hall Elementary School**
     1. Interior wood window sills
     2. Interior wood wall trim
     3. Exterior metal collars
     4. Exterior metal equipment
   - **d. Laurel Elementary School**
     1. Exterior wood window sills
     2. Exterior wood window casings
     3. Exterior metal roof collars
     4. Exterior metal roof HVAC/mechanical equipment
   - **e. Meadow Heights Elementary School**
     1. Interior wood window sills
     2. Exterior wood wall trim
   - **f. North Shoreview Montessori School**
     1. Interior wood lower walls
     2. Exterior metal window trims
     3. Exterior metal wall trims

3. Presumed Polychlorinated Biphenyl (PCB) lighting ballasts. Remove presumed PCB items, verify PCB content by labeling or manufacturing information and dispose of as PCB items unless proven non-PCB and/or labeled 'PCB FREE'. Recycle non-PCB components to extent possible.
4. Universal Waste including lighting tubes and exterior non-incandescent lighting. Remove and properly recycle.
5. Chlorofluorocarbons (CFCs) coolant gases in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Re-claimer for the removal and recycling of the CFC gases.

B. The Contractor's work scope includes all removal, waste testing, and disposal or recycling costs associated with removed materials and removal operations for this project.

C. Subsurface concrete piping shall be presumed to be asbestos cement (Transite®).

D. The Contractor shall make any necessary arrangements for temporary water and power necessary to conduct the work of this project. Power and water are available on site but will require Contractor to make any necessary temporary connections. Coordinate schedule and phasing with architectural.

E. Contractor shall review the demolition/construction project plans, reports, related documents identified herein, and shall visit the site during the scheduled bid walk and field verify the location and extent of hazardous materials removal work prior to submitting bid.

F. The Contractor's work scope includes all removal, waste testing, and disposal and/or recycling of removed and demolished materials. The Contractor is responsible for all costs associated with removed hazardous materials and removal/demolition operations during abatement, disposal, and testing for waste stream during renovation and demolition work.

1. Removed friable asbestos, including but not limited to texture coat and doing compound associated with sheetrock/wallboard and mechanically removed floor tile and flooring mastic, is to be disposed of as hazardous asbestos waste. Non-friable asbestos materials removed in a non-friable state shall be disposed of as a non-hazardous asbestos waste at an asbestos permitted landfill.
2. Lead debris resulting from removal of loose LBP prior to demolition shall be disposed of as lead hazardous waste.
3. PCB ballasts are to be disposed of as hazardous PCB wastes at a Class I landfill or permitted PCB incineration facility.
4. All remaining hazardous materials wastes, including lighting tubes & lamps, batteries, refrigerants/coolants, and other universal wastes are to be recycled by a permitted facility or disposed of as hazardous wastes as it pertains to this project.

G. The Contractor's work scope also includes removal of loose LBP and all required lead-related protective measures for Cal/OSHA, CDPH, and Cal/EPA compliance associated with renovation/demolition of the buildings and associated structures or other components on this site.

H. The Contractors shall be responsible for all agency permits, notices, and fees required to conduct the abatement and demolition and shall be responsible for all costs of removal, demolition, waste characterization and profiling, and disposal associated with abatement and demolition.

1.2. RELATED DOCUMENTS / WORK IN OTHER SECTIONS

A. HVAC and Power Upgrade Project, Hazardous Materials Survey Reports, prepared for each school by Znap Fly.

B. Project Drawings.

C. All other sections of the specifications.

1.3. REFERENCES

A. General: Codes, regulations, and references to hazardous materials abatement work include, but are not limited to the most current versions of the following:
   1. California Code of Regulations (CCR):
      a. Title 8, Article 2.5 Registration Asbestos-Related Work
      b. Title 8, Section 1529 Construction Safety Orders, Asbestos Regulations
      c. Title 8, Section 1531 Construction Safety Orders, Respiratory Protection
      d. Title 8, Section 1532.1 Construction Safety Orders, Lead in Construction
      e. Title 17, Div. 1, Ch. 8 Accreditation, Certification and Work Practices for Lead-Based Paint and Lead Hazards
      f. Title 22, Div. 4.5 Environmental Health Standards for Management of Hazardous Waste
      g. Title 22, Div. 4.5, Ch 23 Universal Waste Rule
   2. Bay Area Air Quality Management District (BAAQMD):
      a. Regulation 11 Hazardous pollutants Rule 2 Asbestos Demolition, Renovation and Manufacturing
   3. Other Local Regulations
      a. California Health and Safety Code 25249-25249.13
      b. California Health and Safety Code 25915-25919.7

1.4. DEFINITIONS

A. Definitions specific to Work of this Section.
   1. Abatement – Procedures to control airborne contaminate and other releases from hazardous material-containing building materials. Includes removal, repair, encapsulation, and enclosure.
   2. Airlock – A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

3. Air Monitoring – The processing of measuring the air contaminants such as asbestos or lead for measured volume of air collected over the specific period of time being monitored.
4. Air Sampling Professional – The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an abatement project.
5. Amended Water – A water to which a surfactant has been added.
6. Asbestos – The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
7. Asbestos Containing Construction Material (ACCM) – Any construction material with asbestos content of 0.1 percent or greater by weight.
8. Asbestos Containing Material (ACM) – Any material which contains over one percent asbestos as determined by current EPA bulk sample analysis method.
9. Asbestos Fibers – This expression refers to asbestos fibers longer than five micrometers with an aspect ratio of 3:1 or larger under phase contrast microscopy (PCM) analytical procedures.
10. Authorized Visitor – Any Owner Representative, Consultant or Agent and any representative of a regulatory of other agency having jurisdiction over the project.
11. Certified Supervisor – An individual who is capable of identifying asbestos or lead hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. In addition, the Certified Supervisor is responsible for conducting and approving all required inspections as specified. Also known as the "Competent Person."
12. Class I Asbestos Removal – Class I Asbestos work means activities involving the removal of thermal system insulation (TSI) and surfacing ACM.
13. Class II Asbestos Work – Class II Asbestos Work means activities associated with removal of any asbestos containing material that is not a Class I surfacing material or thermal system insulation.
14. Clean Room – An uncontaminated area or room that is a part of the Worker decontamination enclosure with provisions for storage of Workers' street clothes and protective equipment.
15. Critical Barrier – A unit of temporary construction of air-tight and impermeable barrier which provides the only separation between a contained asbestos Work Area and an adjacent, potentially occupied area.
16. Decontamination Enclosure System – A series of connected rooms, with air-tight doorways between any two adjacent rooms, for the

decontamination of Workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.

17. Differential Pressure Equipment – A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated area from adjacent uncontaminated areas. Also referred to as HEPA Exhaust Units or Negative Pressure Units (NPUs).
18. Encapsulant (sealant) – A liquid material which can be applied to asbestos-containing material or surface and which controls the possible release of asbestos fiber from the material or surface by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant), or by locking down invisible fibers (lockdown encapsulant).
19. Fluorescent Light Ballast (FLB) – A device that electrically controls fluorescent light fixtures. Most existing FLBs include a capacitor containing 0.1 kilograms or less of dielectric fluid that may contain PCBs. Ballasts manufactured prior to 1979 may contain PCB capacitors. More recently, electronic ballasts have come into use that do not have dielectric fluids or PCBs. Ballasts with PCB capacitors also contain asphalt potting compounds which are likely to contain PCBs.
20. Hazardous Materials – Hazardous materials include, but are not limited to: asbestos containing materials, lead and lead-based paint, mercury, PCB, coolant gases, universal wastes, solvents, fuels and other chemical products or wastes.
21. HEPA Filter – A high-efficiency particulate absolute (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
22. HEPA Vacuum Equipment – Vacuuming equipment with a HEPA (UL 586 labeled) filter system.
23. Lead-Based Paint (LBP) – Lead-Containing Paint (LCP) that is at least 5,000 ppm, 0.5% lead by weight, or 1.0 milligrams of lead per square centimeter of surface area (as measured by XRF lead analyzer). Note: any untested paints or coatings must be presumed to be LBP.
24. Lead Hazardous Waste – Lead-based paint waste or other debris that has been classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. A hazardous waste is any substance(s) listed in Article 11 Section 66699 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC). The STLC for lead is 5.0 parts per million (ppm) and the TTLC for lead is 1,000 ppm lead. If either of these values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristic

Leaching Procedure (TCLP) in accordance with 40 CFR 261 and possibly other tests prior to disposal as a hazardous waste. Waste testing for proper disposal is the responsibility of the Contractor.

25. Negative Pressure Enclosure (NPE) – An enclosed or contained area of any configuration constructed of polyethylene sheeting with a minimum of four (4) air changes per hour and a negative pressure of -0.022 inches of water as compared to surrounding areas outside the enclosure. NPE must be maintained until post abatement sampling.
26. Non-Friable Asbestos Material – Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
27. Non-hazardous Asbestos Waste – Wastes which are non-friable and/or are below one percent asbestos by weight as determined by objective testing. These wastes require OSHA Asbestos Hazard warning labels and disposal at landfills that accept such asbestos wastes.
28. Observation Service – Environmental Consultant hired to conduct compliance observation and air monitoring services on behalf of the Owner. Sometimes referred to as the Owner's Observation Service.
29. Owner – The San Mateo Foster City School District and any of its designated representatives for this project.
30. Owner's Representative – Representative(s) the District (Owner) has assigned to manage, oversee, and inspect this project. This may include an architectural and/or construction management consultant hired by the Owner to oversee the project.
31. Polychlorinated Biphenyl (PCB) – PCB's are any chemical substances consisting of the biphenyl molecule chlorinated to varying degrees or any combination of such molecules. PCBs have had a wide variety of uses in the past including dielectric fluids in capacitors. PCBs are clear to yellow oily substances which are toxic to the liver and reproductive system. PCBs are also suspect human carcinogens.
32. PCB Ballast – An FLB that is known or suspected to contain PCBs. All FLBs must be considered PCB ballasts unless they are:
    a. Labeled or marked "No PCB" by the manufacturer.
    b. Manufactured in 1979 or later as indicated and verified on a date stamp or code, located on the ballast.
    c. Labeled as "Electronic Ballasts" by the manufacturer.
    d. General Electric HDF Ballasts manufactured from 1977 to 1978 and which have a "W" added to their catalogue number on the label of the ballast.
33. Removal – Procedures necessary to remove hazardous materials such as, but not limited to, asbestos or lead from designated areas and to

dispose of these materials at an acceptable properly permitted waste disposal site.

34. Surfactant – A chemical wetting agent added to water to improve penetration.
35. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, & Mercury & other batteries (often used in building alarms and emergency systems), and other items.
36. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
37. Waste Generator Label – Waste Generator label shall include the Generator's Name, ID Number, Address, and Waste Manifest Number.
38. Wet Cleaning – The process of eliminating asbestos or lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water or water/ detergent solution, and by afterwards disposing of these cleaning tools and materials as contaminated waste.
39. Work Area – Designated rooms, spaces, or areas of the project in which hazardous material removal actions are to be undertaken or which may become contaminated as a result of such removal actions during the process and prior to final clean-up and decontamination. A contained Work Area is a Work Area that has been sealed and equipped with a Decontamination Enclosure System. Also referred to as a "Regulated Area."
40. Worker Decontamination Enclosure System (Worker Decon) – That portion of a Decontamination Enclosure System designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

1.5. SUBMITTALS

A. General:
   1. Requirements are as set forth in the General Conditions documents (001 000 to 019 9999) that are prepared by aedis architects for items required to be submitted under this section.
   2. Submittals that are incomplete, disorganized, unreadable, or not project specific will be rejected.

B. Pre-Start Submittal-Part A; Submit and obtain approval prior to starting on-site set-up for asbestos removal work. Submit the following:

1. Licensing and Registration for Contractor or Subcontractor responsible for removal of hazardous materials. Submit copies of current and valid:
   a. The Contractor's license and Contractor's asbestos certificate issued by the California State Contractor's Licensing Board (CSLB);
   b. Registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with CCR, Title 8, Article 2.5 of the California Administrative Code and C-22 Asbestos Abatement Contractor in accordance with CCR, Title 16, Div 8, Article 3.
2. Notifications, Communications, and Postings.
   a. Submit copies of notifications to appropriate government agencies where required, including the following:

      Division of Occupational Safety and Health
      1065 East Hillsdale Blvd., Suite 110
      Foster City, California 94404
      (650) 573– 3812
      Email: DOSHFC@dir.ca.gov
      Notifications shall be in accordance with the Title 8 CCR Section 341.9 for asbestos and Section 1532.1 for lead.

      Bay Area Air Quality Management District (BAAQMD)
      Attn: Asbestos Section
      375 Beale Street, Suite 600
      San Francisco, California 94105
      (415) 749-4900
      Notifications shall be in accordance with the Regulation 11 Rule 2 for Asbestos.
   b. Copies of Government agency correspondence shall be included in the submittals.
3. Respiratory Protection Plan: Submit a written standard operating procedure governing selection, fit-testing, and use of respirators for asbestos and lead removal.
4. Detailed Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of these specifications. The detailed work plan shall include, at a minimum, the following information:
   a. Procedures: Job-specific procedures proposed for completing the scope of work outlined herein including: means of Work Area containment including barriers and other protective measures for

removal at each location; means for provision of decontamination units; removal methods to be employed;

b. Detailed schedule with calendar dates showing all phases of work. Where scheduled start dates have not been confirmed, provide the number of consecutive work days to complete each phase of work.

5. Plan for personnel air monitoring required by law by the Contractor for Worker protection. The Plan shall include, but not be limited to the following:
   a. Personnel Air Monitoring conducted in strict accordance with 8 CCR 1529. Include calibration data for the secondary standard to be used for air sampling pump calibration on-site. This data must be within six (6) months of the projected completion of this project.
   b. Name, address and accreditation and/or certification of laboratory selected by the contractor to analyze personal air samples for workers.
6. Hazardous Waste Transporter. Submit name, address and EPA# for each transporter to be used.
7. Waste Disposal Sites: Submit name location, class, and EPA# for each waste disposal site to be used for asbestos, lead, PCB, and other hazardous wastes for this project.
8. Method of disposal (i.e., landfill or incineration) for PCB ballasts and PCB contaminated materials shall be indicated. List transporter and disposal site(s) and their respective EPA ID number(s).
9. Method of on-site storage and shipping for packaging to keep lighting tubes and lamps intact from removal until their delivery to a recycling facility.
10. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for all items listed under Part 2 - Products. Product data shall include manufacturing product data, specifications, samples and application instructions, material safety data sheet (MSDS), and other pertinent information as necessary.

C. Pre-Start Submittal-Part B; Submit and obtain approval prior to any asbestos and/or lead removal work. Submit the following:
   1. Personnel Qualifications: Personnel documents required per this section shall be organized by individual employee and include the following information:
      a. Personnel Training (asbestos)
         1. Competent Person/Supervisor: Submit a copy of current AHERA asbestos training certificates for the Contractor's

Competent Person and Quality Control Person documenting successful completion of a training course in asbestos abatement project supervision offered by a Cal/OSHA accredited educational institution. Designate by name, the person who will act as the Certified Supervisor/Competent Person and Qualified Person for the project.

2. Workers: Submit a copy of the current asbestos training certificates for the Contractor's asbestos abatement workers documenting successful completion of a training course in asbestos abatement for workers offered by an EPA accredited education institution.
3. For lead abatement or removal work, supervisors and workers shall have appropriate training and CDPH certification documentation. For lead related demolition work, comply with CAL/OSHA training and certification requirements as applicable and submit documentation.

b. Medical Examination: Submit proof that personnel who will be performing asbestos-related work, lead related work, or otherwise wearing respirators shall have had medical examinations within the last 12 months in conformance with Title 8 CCR; Section 1529 asbestos, and furnish the results of each exam in the form of the physician's written opinion or approval with regard to worker fitness to wear a respirator and perform asbestos and lead work as applicable.

c. Respirator fit tests: Submit proof that personnel who will be entering asbestos Work Areas have had a qualitative respiratory fit test performed within 12 months from the scheduled completion date of the project.

2. HEPA Filtration Certifications:

a. Provide third party test certificates for al Differential Pressure Equipment and HEPA Vacuums to be used on this project. Such certificates shall document that each item of equipment has been tested on-site prior to start-up and that the results have demonstrated that each HEPA equipment assembly meets the efficiency requirement for HEPA filtration as an installed system or unit of equipment.

b. All HEPA filtration testing must be conducted by challenging the installed filter system with 0.3 micrometer diameter particles using a dioctyl-phthalate (DOP) particle generator and appropriate aerosol measurement test equipment designed for this purpose. Alternate test methods may be accepted if certified to be equivalent. Test certificate stickers shall be placed on each machine tested and a copy of the testing certification shall be

submitted. The test result, date and time of testing, testing firm, and signature of qualified test technician shall be included on each certification along with equipment identification information.

D. Daily & Other Progress Submittals: Submit the following within 24 hours following the completion of each Work Shift. The Contractor shall submit the following information to the Observation Service.

1. A complete asbestos worker/employee roster for each work shift prior to the commencement of each shift.
2. Work Area entry/exit logs completed for each Work Area and each Work Shift.
3. Worker exposure ("OSHA") sample results for asbestos including eight (8) hour Time Weighted Average (TWA) sampling and 30-minute excursion limit sampling. Sample results must indicate the person sampled, description of work activity, start and stop times, liters per minute, total volume and laboratory result expressed as an eight-hour TWA or excursion limit sample.
4. Waste Manifests:
    a. Each time hazardous waste (asbestos, lead, PCB, etc) is picked up from the site the Contractor is responsible for preparing an accurate hazardous waste manifest, presenting the manifest to the Owner's Representative for review and signature, and submitting the generator and DTSC copies to the Owner's Representative.
    b. Each time a non-hazardous asbestos waste is shipped, the Contractor shall submit the non-hazardous shipping manifests to the Owner's Representative for review and signature and provide the Owner's Representative a signed copy.
    c. All asbestos and other hazardous material waste manifests are to be reviewed and signed by an Owner Representative.
    d. All materials shipped for recycling (lighting tubes, mercury, etc.) shall be accompanied by a manifest prepared by the Contractor, review and signed by the Owner's Representative. A copy of the signed manifest shall be provided to the Owner Representative.
    e. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-generator to the Owner's Representative.
5. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-

generator to the San Mateo Foster City School District's Construction Supervisor.

6. Special Reports: (Submit to the Owner's Observation Service within 24 hours of occurrence.)
   a. The Contractor shall complete a report of unusual events when an event of unusual significance occurs at the site including loss of negative pressure, power failures, breeches in containment, etc. This report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective action taken, and action taken to prevent a reoccurrence.
   b. The Contractor shall submit a detailed accident report in the event of an accident or injury at the site. This report shall include the date and time of the injured, persons involved, cause of injury, detailed description of loss or injury, response actions taken and action taken to prevent a reoccurrence.

E. Close-Out Submittals:
   1. Within 10 days of completion of all hazardous material removal work, submit to the Owner's Observation Service:
      a. One copy of all outstanding daily submittals;
      b. One copy of each hazardous waste manifest and one copy of each non-hazardous asbestos waste manifest;
      c. One copy of Work Area entry/exit logs completed for each Work Area and each Work Shift.

1.6. CERTIFICATIONS

A. Inspection Certifications (Asbestos)
   1. Pre-Abatement Visual Inspection Forms and Final Visual Inspection and Post Abatement Certification Forms will be provided at the pre-construction start up meeting by the Observation Service.
   2. Pre-Abatement Visual Inspection: Upon inspection and approval of each Work Area by the Contractor's Certified Supervisor, a Pre-Visual Inspection Form shall be signed and submitted to the Observation Service for review and approval. The approved inspection form shall be considered notice to proceed with abatement operations within the Work Area.
   3. Final Visual Inspection and Post Abatement Certification: Upon completion of asbestos abatement and before encapsulation in each Work Area, the Contractor's Certified Supervisor shall thoroughly inspect the Work Area for completeness of work. The Contractor's Competent Person shall sign and submit a completed Final Visual Inspection and

Post Abatement Certification Form for review and approval by the Observation Service. The approved inspection form shall be considered notice to proceed with encapsulation.

1.7. POSTINGS

A. Before the commencement of any asbestos related work at the site, Cal/OSHA warning signs in and around the Work Area to comply with Cal/OSHA regulations.

B. Copies of the Contractor's SCLB license, Cal/OSHA registration certificate, temporary job-site notifications, pre-start LBP notifications to Cal/OSHA, local agency notifications, emergency exit diagram, emergency phone numbers, Cal/OSHA poster on worker's rights, and worker's compensation poster shall be posted proximate to the entrance to each Work Area.

C. The Contractor shall have at least one copy of the Contract Documents including project plans and specifications, and a current copy of 8 CCR 1529 & 1532.1.

PART 2. PRODUCTS

2.1. GENERAL

A. Submit manufacturer's product data for all items to be used including the items listed below.

B. All materials to be used on the project shall be new in original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Used materials will not be permitted.

2.2. PROTECTIVE COVERING (PLASTIC SHEETING)

A. For standard containment and critical barrier usage: Fire Retardant Polyethylene sheets six (6) mil and four (4) mil in sizes to minimize frequency of joints, approved and listed by the State Fire Marshall per Section 13121 and/or 13144.1 of the California Health and Safety Code.

2.3. TAPE, ADHESIVE, SEALANTS

A. Duct tape two inches or wider, or equivalent, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheets to finished

or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

B. Spray adhesives for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.4. PROTECTIVE PACKAGING

A. Appropriately labeled six (6) mil sealable polyethylene bags as a minimum.

B. Appropriately labeled, impermeable drum containers with sealable lids.

C. Bilingual labels (English and Spanish) on waste packages, contaminated material packages and other containers shall be in accordance with applicable Cal/EPA and Cal/OSHA standards.

2.5 WARNING LABELS AND SIGNS

A. All warning signs and labels must meet all applicable regulatory requirements for wording, size of lettering, and use of language, pictographs, and graphics to effectively convey the warning. Additional requirements apply for hazardous waste containers and shipments for transportation to disposal sites.

B. Lead Caution Signs must include phrase "**WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING**" in minimum two-inch high letters. These shall be posted at each approach to each lead paint stabilization/surface preparation and manual demolition Work Area.

C. Cal/OSHA Lead Warning Posters: "**DANGER, LEAD WORK AREA, MAY DAMAGE FERTILITY OR THE UNBORN CHILD, CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM, DO NOT EAT, DRINK OR SMOKE IN THIS AREA**" shall be posted at the entrance to each LBP stabilization/surface preparation and manual demolition Work Area.

D. Asbestos Warning signs for Regulated Areas must contain the following wording:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY

E. Labels for packaging and containers containing ACM waste must contain the following wording:

DANGER
CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2.6. SURFACTANT

A. Surfactant, or wetting agent, for amending water will be 50 percent polyethylene ether and 50 percent polyethylene ester, or equivalent, at a concentration of one ounce per five gallons of water.

2.7. VENTILATION EQUIPMENT

A. Provide differential pressure equipment in areas as shown on Contractor's work plans. High-efficiency particulate absolute (HEPA) filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the work area. Differential pressure within the work area shall be maintained at negative 0.022 inches of water during abatement.

B. Provide air filtration equipment with HEPA filtration system to cleanse air of particulate matter during abatement. Replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the work area to maintain fiber levels within the protection factors of workers' respirators.

2.8. PERSONAL PROTECTIVE EQUIPMENT

A. Personal Protective Equipment shall comply with the requirements of 29 CFR 1910, Subpart 1 and 8CCR 1514, 1515, 1516, and 1517.

B. Work clothes shall consist of impervious disposable, full-body coveralls, head covers, boots, rubber gloves, and work boots (or sneakers). Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn when required by applicable safety regulations and shall conform to ANSI 87.1 and 89.1.

D. Provide Authorized Visitors with suitable protection clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.9. RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors' personally-issued and marked, clean and sanitized respiratory equipment approved by NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this specification. Selection of respirators shall be made according to the guidance of 8 CCR 1529 and 1532.1.

B. The minimum respiratory protection required for this project is a half mask respirator as long as the airborne levels do not exceed one tenth of the applicable PEL established by regulation.

PART 3. EXECUTION

3.1. PROJECT PROCEDURES

A. Prior to the start of on-site work, the Contractor shall hold an on-site start-up safety meeting for all of contractor and facility employees that addresses at least the following issues specific for the project.
   1. Safety and health hazards;
   2. Procedures and work practices;
   3. Respiratory protection and instruction; and
   4. Special conditions and/or work requirements.

B. Worker Protection Procedures
   1. Provide Authorized Visitors with suitable protective clothing, respirators, headgear, eye protection, and footwear whenever they are required to enter the Work Area. All provided equipment shall be new or in good working condition and clean, sanitized, and inspected by a competent person since last use.
   2. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the clean-change rooms and put on a respirator and clean protective clothing before entering the Work Area.
   3. Workers shall, each time they leave the Work Area, remove gross contamination from protective clothing before leaving the Work Area, proceed to the Equipment Room or decontamination area and remove protective clothing except respirators; still wearing the respirator, proceed to the showers or wash area, clean the outside of the respirator

with soap and water while showering; remove the respirator, and thoroughly shampoo and wash themselves.

4. Following washing and/or showering and drying off, each Worker shall proceed directly to the clean change room/area and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the Work Area from the clean change room, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
5. Contaminated work footwear shall be stored in the Decontamination Area when not in use in the Work Area. Upon completion of abatement, dispose of footwear as contaminated waste.
6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Wash Room or the Work Area.
7. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
8. Workers and Authorized Visitors with beards shall not enter the Work Area unless equipped with respirators approved for use with beards.

3.2. COORDINATION REQUIREMENTS

A. Coordinate with the Observation Service and Owner's Representative the locations of the Worker Decontamination Unit, waste load out, staging areas, and emergency egress exits.

B. Coordinate timing of waste bag-out and waste shipping activities with the Owner's Representative and Observation Service. All asbestos and hazardous waste manifests shall be signed by the owner or designated owners's representative. The Contractor shall be aware that these activities may need to take place during times when it is most convenient to the facility.

C. Coordinate and provide to the Observation Service the required number of GFCI protected energized 110 Volt AC power outlets needed inside and outside each Work Area. These outlets shall be solely dedicated for the use of the Owner's Observation Service.

3.3. PREPARATION

A. General Preparation Requirements for All Interior Work Areas. Not each area will require abatement of all materials. Each school differs. Refer to project plans/ drawings.

1. Prior to Work Area set up and preparation, remove all movable objects that will not disturb existing ACM or asbestos contaminated materials in the process.
2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
3. Clean and decontaminate all accessible areas above ceiling prior to hazardous material remediation, demolition, and other construction activities.
4. Install a Decontamination Enclosure System or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.
5. Seal off all other accesses to the Work Area with hard barriers and polyethylene sheeting sealed with tape.
6. Install Differential Pressure Equipment for all Class I and Class II Asbestos Removal Operations in accordance with the requirements herein. Establish a negative pressure of -0.022 inches water or greater inside the Work Area containment with respect to the outside and non-involved building areas.
7. Install an adequate number of HEPA Units to obtain the required negative pressure continuously and achieve at least four (4) complete air changes per hour inside the containment.
8. Conduct any required non-ACM selective demolition including demolition to reveal concealed ACM prior to starting ACM removal work to ensure such areas are prepared with additional critical barriers to ensure negative pressure can be maintained at a negative (-) 0.022 inches or better during asbestos removal.
9. Pre-clean fixed objects and surfaces within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers. Protective barriers will consist of plastic sheeting and plywood as appropriate.
10. Seal all remaining openings, including but limited to ducts, grills, diffusers, and any other penetrations of the Work Areas, with two (2) layers of six (6) mil polyethylene sheeting sealed with tape.
11. Seal all joints of conduit, junction boxes, and ductwork with duct tape and plastic sheeting. Cover and protect during abatement.

12. Install Viewing Ports of size, quantity, and location to meet local AQMD/ APCD requirements. Where no requirements are specified, install an adequate number of windows to view the entire removal Work Areas as feasible.
13. Establish and maintain emergency and fire exits from each Work Area.

B. Decontamination Enclosure System (General)
1. Construct or establish Decontamination Enclosure System or area contiguous to the work area for proper decontamination of worker as they exit a Regulated Area or containment system.
2. Provide separate designated areas or chambers for: removal of contaminated clothing prior to exiting the contaminated area; for washing or showering (as appropriate); and for donning clean protective clothing and equipment prior to re-entry. The decontamination system shall comply with applicable regulation taking into account the Cal/ OSHA asbestos removal work class as well as site conditions.
3. In the event that the Decontamination Enclosure System is not contiguous with the Work Area, there must be at least an established area for removing and properly disposing of contaminated clothing and equipment, minimum amenities for washing hands, respirator and face, to allow exiting the work areas prior to going to a remote decontamination enclosure on site. Under these conditions, double suit procedures are required.

C. Mini Containments
1. The use of mini-containments shall be permitted only if entire removal can be completely contained by the enclosure or as needed to isolate the HVAC, Plumbing, Electrical or other system as part of localized preparatory activities.
2. Mini-containments shall shall be constructed with rigid framing and shall have a minimum of one layer of 6 mil polyethylene sheeting sealed with tape.
3. The mini-containment enclosure shall have a decontamination enclosure system in accordance with the requirements herein or as approved by the Observation Service.
4. The The mini-containment enclosure shall be placed under negative pressure for the duration of work in the containment until final air clearance is obtained.

D. Maintenance of Enclosure Systems
1. Ensure that all barriers intact and are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

2. Visually inspect enclosures at the beginning of each work period and periodically throughout each shift. Inspection shall include, but not be limited to, the protective critical barriers and the worker Decon unit barriers, warning signage, and Work Area barriers or barricades.
3. Use smoke test methods to evaluate effectiveness of barriers prior to implementing asbestos removal and when directed by the Observation Service.
4. Ensure all negative pressure containment enclosures for regulated asbestos-containing material removal meet all BAAQMD requirements at all times from start up through completion and post abatement sampling.

E. Asbestos, lead, and hazardous material removal work shall not commence until:
1. Submittals as required herein have been reviewed and approved in writing by the Observation Service;
2. Arrangements have been made for secure temporary storage of asbestos wastes and other hazardous wastes on-site and for disposal of such wastes at an acceptable permitted disposal sites;
3. Work Areas and Decontamination Enclosure Systems (or equivalent) have been installed and approved and all parts of the building or facility required to remain in use are effectively segregated and isolated;
4. Tools, equipment, and secure material waste receptors are on hand;
5. Arrangements have been made for buildings' and Work Area security during removal operations including periods when no work is in progress such as off hours, weekends, and holidays; and
6. Differential pressure systems, as required for interior asbestos removal, are installed, operating, and recording properly.

3.4. CLASS I & II ASBESTOS REMOVAL OPERATIONS

A. General Requirements. Not each area will require abatement of all materials. Each school differs. Refer to project plans/drawings.
1. Class I Asbestos Work is defined as removal of ACM that is a surfacing material or thermal system insulation. Class II Asbestos Work is defined as the removal of ACM that is not a surfacing material or thermal system insulation.
2. The Class I Asbestos Work of this project includes but is not limited to removal of: non-friable ACM and PACM if made friable by removal process.
3. The Class II Asbestos Work means activities involving removal of ACM which is not thermal system insulation or surfacing materials. For this project materials include, but is not limited to removal of the following

materials: wallboard, floor tile, roofing and siding shingles, and construction mastics.

B. Class I & II Asbestos Work Preparation Requirements

1. All interior work shall be conducted within negative pressure containments with contiguous decontamination units for worker enter & exit.
2. Negative pressure shall be maintained at -0.025 inches of differential pressure (water column) or higher compared to the exterior pressure.
3. All negative pressure exhaust units shall be HEPA filtered and exhausted to the building exterior. All HEPA exhaust units shall be DOP (or equivalent) tested on-site and certified to meet HEPA efficiency standards.
4. Interior walls and other non-movable objects shall be covered with at least one layer of four (4) mil plastic sheeting. Wall covering may be reduced to 4' splash guards in Work Areas where glove bags or "cut, wrap, and remove" methods are the sole method used for pipe and fitting insulation removal.
5. Floor areas shall be covered with two (2) layers of six (6) mil plastic sheeting unless glove bags and/or cut, wrap and remove methods for pipe insulation are used. Where glove bags and cut & wrap methods are used, six (6) mil plastic drop sheets extending at least 5 feet on each side of pipe at minimum are required.

C. General Removal Procedures

1. Spray asbestos materials with amended water, using only spray equipment capable of dispensing a fine mist application. Apply amended water sufficiently to wet material surfaces without causing excess dripping or pooling. Spray materials and Work Area repeatedly during work process to control airborne fiber levels.
2. Place asbestos waste in clear asbestos-labeled plastic bags or lined drums. Plastic bags must be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Clean external surfaces of containers thoroughly prior to setting down on a clean plastic drop cloth.
3. Move waste containers to washroom or wash area, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas.
4. After completion of removal work, equipment surfaces from which asbestos has been removed shall be wet cleaned and/or wet sponged by an equivalent method to remove all visible material and residue. During this work, the surfaces being cleaned shall be kept damp. Do not allow water to pond at any time.

5. Clean all surfaces of the Work Area including remaining sheeting by use of damp cleaning and/or HEPA filtered vacuum.
6. Proceed with final decontamination of the Work Area.

D. Glove bag Technique
1. Removal of Class I and II asbestos-containing materials from piping may be accomplished using approved glove bag techniques in specified areas. In all cases, removal shall be conducted in secondary negative pressure containment or mini-containment.
2. After installation of glove bag, smoke test the glove bag to verify that it is air tight.
3. Thoroughly wet material to be removed with amended water before and during the removal process.
4. Thoroughly wash the inside of the bag, the piping surfaces and the tools upon completion.
5. Encapsulate all surfaces inside the glove bag including the piping and ends of exposed coating material.
6. Evacuate bag with an approved HEPA vacuum; tie off waste area; remove tools from bag; remove bag from pipe, folding inward the sides of the bag; then twist and tape the open end, the wand opening, and the vacuum opening.
7. Place glove bag directly into another six (6) mil sealable labeled plastic waste bag or other appropriate waste container. Seal the outer bag using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Seal container with duct tape.

E. Modified Cut, Wrap, and Remove Technique
1. Removal of pipe insulation may be accomplished using approved Modified Cut, Wrap, and Removal Techniques where piping is to be demolished or abandoned in place unless otherwise noted.
2. Verify the piping being removed scheduled for removal or abandonment in place prior to proceeding.
3. Verify pipe lines have be isolated and drained prior to cutting pipe(s).
4. Use glove bag technique to remove insulation at location of pipe to be cut. Wrap pipe including all insulation being removed with two layers of six (6) mil polyethylene sheeting secured with duct tape.
5. Cut the pipe and remove wrapped pipe with ACM insulation for disposal.

F. Floor Tile Removal
1. Remove wall base, cabinets, and any other components and materials as necessary to expose and access all resilient floor tiles for removal.

2. Thoroughly wet floor tiles with amended water but do not let water pool or pond.
3. Remove tile by prying with scrapers or spud bars taking care to minimize breakage.
4. Place removed tiles in appropriately labeled impervious bags or containers and seal.
5. Do not subject floor tiles to any sanding, grinding, cutting, abrading activities likely to create friable ACM.

G. Flooring Mastics Removal
1. Remove all overlaying non-asbestos carpet and other materials concealing the flooring mastics.
2. Remove all asbestos and/or asbestos mastic contaminated floor tiles prior to initiating mastic removal in the Work Area.
3. Remove all flooring mastics using a suitable mastic solvent along with manual scraping and/or mechanical removal methods as necessary for complete removal.
4. Where removal solvents are used, clean up slurry as the mastic is removed and place in properly labeled containers for disposal as a hazardous waste.
5. As an alternative to solvent removal, use bead blast systems for removal is acceptable if permitted by the AQMD and any required variance or waiver is obtained in advance by the Contractor. Likewise, removal by high pressure water systems is allowable if water is fully contained and removal is complete. All floor mastic removal operations must be conducted as a Class I removal operations unless removal is limited to manual scraping methods.
6. Regardless of removal method used, all three dimensional mastic residues must be removed and extent of removal must sufficient to allow for recycling of concrete foundations and decks.

H. Mastic behind chalkboard/ACT
1. Removal of non-friable shall be conducted using wet methods using hand
scrapers and cutting tools to remove the ACM mastic from the non-ACM substrate materials.
2. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
3. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

I. Texture coat, wallboard (sheetrock) and joint tape compound

1. Mist the gypsum board/joint tape compound/texture continuously with amended.
   water during removal.
2. Remove gypsum board in larger sections or pieces where possible. Use pry bars, utility knives, claw hammers and other appropriate tools to loosen and remove wallboard from framing. Remove all wallboard fasteners.
3. Place removed gypsum board/joint tape compound/texture in impervious containers with asbestos warning labels as it is removed. Wall insulation shall be placed in same bags as asbestos contaminated.
4. Complete Work Area clean-up including: all remaining nails; framing; electrical junction boxes, outlets, wiring, and conduit; plumbing fixtures, piping, and hanger, and all other surfaces in the work area.

J. Window Glazing/putty
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable sealants and caulking to be removed.
   2. Removal of non-friable shall be conducted using wet methods using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

K. Exterior Stucco wall
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable stucco to be removed.
   2. Removal of non-friable shall be conducted using wet methods using manual demolition.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

L. Roofing Materials (shingles and mastic)
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable roofing mastic or penetration mastic to be removed.

2. Removal of non-friable roofing shall be conducted using wet methods and appropriate cutting tools. Remove roofing in small sections and place in waste bags or containers.
3. If a chute is used to remove ACM roofing waste from the roof, it must be totally enclosed and air tight to and including the bin it is connected to.
4. Removal of roofing flashing and sealants shall be conducted using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
5. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
6. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the State or State's representative.

M. Cutting, Tapping, Demolition of Asbestos Cement (AC) Piping
1. Carefully machine excavate to exposed AC pipe as necessary. Once exposed, hand excavate areas where cuts, breaks or taps are to be made to prevent pipe breakage.
2. Establish a regulated Work Area surrounding the location of pipe cutting and/or modification. At minimum, use barrier tape and signage.
3. Place plastic sheeting under the area to be cut or altered to catch any resulting chips or dust debris.
4. The methods and procedures used to cut or modify pipe shall not cause the pipe to shatter, crumble, be pulverized or release airborne asbestos dust.
5. Keep the AC pipe wet at all times during cutting or tapping work.
6. Use only industry recommended practices for cutting, splicing and tapping AC pipe. At minimum:
    a. Cutting is to be by special carbide tipped blade cutters that are frame adjustable to the circumference of the pipe and that have self –tracking rollers or "snap cutters" that operate with cutting wheels on a chain wrapper around the pipe barrel.
    b. Machining, if necessary, shall be conducted wet using manual field lathe or manual rasp.
    c. Tapping, whether under pressure or on non-pressured lines, shall be conducted wet and include provisions for internal pipe cleaning by flushing, purging or other means to prevent asbestos dust and chips from entering the drinking water system.
    d. Do not blow out with compressed air or dry sweep. Do not vacuum dust and debris without a HEPA filtered vacuum.
    e. All cutting, machining, tapping procedures must be conducted wet and all resulting AC pipe dust and debris must be cleaned up and disposed of as asbestos contaminated waste.

f. Piping sections to be demolished shall be carefully cut into manageable sections, wrapped and sealed and plastic sheeting, and carefully placed in a lined asbestos waste disposal bin.

g. All intact AC pipe waste and debris shall be disposed of as non-hazardous asbestos waste under a non-hazardous asbestos manifest at a permitted asbestos landfill.

3.5. FINAL ASBESTOS DECONTAMINATION AND TESTING

A. Previous Work: During completion of the interior asbestos removal and visible debris clean up work specified, the first cleaning of all exposed equipment and building surfaces should be completed. Likewise for exterior Work Areas, all visible debris and removed materials must be bagged up for disposal.

B. Clean all surfaces within the Work Area by wet wiping and HEPA vacuuming.

C. Clean any remaining materials and debris exposed by the plastic barrier removal. Final independent layer of polyethylene sheeting and all isolation barriers, vents, grilles, diffusers, etc., shall remain in place.

D. At the completion of this cleaning phase, the Work Area shall be free of all unnecessary equipment/materials and waste containers.

E. The Contractor's Competent Person/Supervisor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, and dust.

F. The Contractor's Competent Person/Supervisor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor shall submit a completed and signed Final Visual Certification Form along with a request for a final visual inspection by the Observation Service once the Competent Person/Supervisor concludes that the area is acceptable for final visual inspection.

G. After final visual inspection of the Work Area shall be conducted by the Observation Service. The standard for visual acceptance shall be no visible dust, debris or three dimensional suspect ACM residues within the Work Area. After written notification to proceed from the Observation Service, encapsulate all surfaces within the Work Area.

H. For interior work areas, the Observation Service will conduct post abatement air testing to evaluate the final acceptability of the Work Area for release to unprotected personnel and the environment. Each interior containment will be evaluated by collection and analysis of a minimum of three and up to five (5)

phase contract microscopy (PCM) air samples collected by the Observation Services and analyzed in accordance with NIOSH Method 7400 or equivalent. The standard for acceptance shall be that each sample result for the containment shall be less than 0.010 fibers per cubic centimeter of air (f/cc). The Contractor shall allow for up to 24 hours for collection of post abatement air samples to allow Work Area and encapsulants drying and up to another 24 hours for air test results.

I. The Contractor shall re-clean and re-encapsulate all surfaces within any Work Area Containment that fails post abatement air testing at no additional cost to the Owner. Likewise, the Contractor is responsible for all costs associated with failed visual inspections including additional cleaning and inspection. All costs associated with failed inspections shall be borne by the Contractor.

J. After written notification from the Observation Service in the form of a fully completed Final Visual Inspection/Post Abatement Certification Form accepting decontamination of the Work Area as acceptable, proceed with removal of critical barriers.

K. For exterior non-friable ACM removals such as sealants, mastics, Transite® pipe and/or similar materials, following abatement inspection will consist of a visual inspection by the Observation Service. If all ACM materials have been removed and the Work Area is free of visible ACM material, dust and debris, the removal will be considered complete.

3.6. LOOSE LEAD-BASED PAINT SURFACE PREPARATION

A. Prepare the exterior Work Area with plastic flooring and another plastic drop sheet, place lead caution tape demarkation around removal area.

B. Wet the surfaces with loose LBP by misting lightly with water.

C. Wet scrape loose LBP until remaining paint is intact.

D. Clean up removed LBP chips, debris and dust using HEPA vacuuming and wet wiping. Containerize all lead waste including vacuum bags for disposal as hazardous lead waste. Label and place container into secure storage pending waste characterization testing and disposal.

E. Clean up plastic sheeting and place in separate lead related waste bags or drums along with protective clothing and related potentially contaminated materials.

F. Conduct final clean up and all necessary waste profiling, evaluation, and testing of lead-related waste as specified herein.

3.7. LEAD WASTE CLEAN UP AND WASTE EVALUATION

A. Clean up paint chips and debris using wet cleaning methods and HEPA vacuuming. All surfaces shall be free of all visible paint chips, dust and debris. Place all paint chips in a labeled waste bag or container.

B. Place all contaminated cleaning materials, disposal personal protective equipment (PPE) and contaminated plastic in separate waste bags. The Contractor shall assume all lead-related waste is RCRA hazardous waste and shall conduct required waste testing as necessary for disposal at a permitted waste disposal site.

C. All waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. All testing of demolition waste wastes is the responsibility of the Contractor. The Contractor shall be responsible for segregating suspect lead hazardous waste based on potential for exhibiting hazardous waste characteristics. Lead-related wastes are to be segregated into the below listed categories at a minimum.
   1. Category I: LBP paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes.
   2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials should be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous subject to testing.

D. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a California hazardous waste.

E. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes.

3.8. LEAD- RELATED DEMOLITION

A. General: All painted or coated surfaces are known or presumed to contain lead subject to worker protection and environmental regulations. Refer to related documents identified herein for additional information including components with LBP requiring agency notification.

B. Conduct selective as well as general building and structural demolition in a manner that does not result in site contamination above background levels.
   1. Remove any loose, peeling, or flaking paint before demolition in accordance with this section.
   2. Clean up any demolition-related lead wastes including any resulting paint chips and debris.
   3. Do not let any wetting agents or water enter soil or storm drain.

C. The Contractor shall evaluate each demolition debris waste stream and ensure proper disposal of all generated wastes. All waste profiling and testing required by the disposal site is the responsibility of the Contractor.

3.9. FLUORESCENT LIGHTING & BALLASTS

A. Remove fluorescent lighting tubes from fixtures in and on buildings to be renovation/demolished, in accordance with project documents.
   1. Carefully place all tubes in storage or shipping containers so the risk of breakage is minimized.
   2. Place containerized light tubes in a safe and secure storage area pending shipping to the recycler or reuse.

B. Remove presumed PCB ballasts from all fluorescent lighting fixtures presumed PCB transformers in buildings to be renovation/demolished.
   1. Any ballast not marked "PCB Free" or "No PCB" shall be lab packed with adsorbent in a waste drum for disposal as hazardous PCB ballast waste.
   2. Ballasts that are clearly marked "PCB Free" shall be set aside for verification inspection by the Observation Service. All ballasts verified to be PCB free may be disposed of as ordinary construction waste or recycled.
   3. Ensure PCB ballast drum is properly labeled for PCB wastes and shipping.
   4. Any electrical transformer that cannot be determined to be PCB free by labeling, date of manufacture, or manufacturer's information shall be disposed of as a PCB item.

3.10. UNIVERSAL WASTES AND OTHER HAZARDOUS WASTES

A. Refrigerators, air conditioners, and other equipment with refrigerant or coolant gases shall be assumed to contain chlorofluorocarbon (CFC) gases and shall have those gases removed by appropriately certified mechanics or technicians and recycled according to state and federal regulation.

B. Carefully segregate waste by type and lab pack for disposal in impervious labeled waste containers.

C. Dispose of or recycle each type of waste in accordance with applicable regulation at permitted facilities. Maintain all shipping and disposal record and provide copies to Owner's Representative and the Observation Service.

3.11. PACKAGING & LABELING

A. All asbestos wastes shall be adequately wetted prior to packaging.

B. Place asbestos waste in six (6) mil labeled asbestos waste bags or approved equivalent containers.

C. Goose neck and seal each bag and place in a second clean-labeled bag, drum or impervious container.

D. Decontaminate waste bags and containers prior to removing from regulated or contained area.

E. Label all asbestos waste bags or containers with OSHA warning label: "DANGER CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. DO NOT BREATHE DUST. AVOID CREATING DUST" and other information as required by regulation.

F. All other hazardous lead, PCB, and universal wastes shall be properly labeled and containerized in leak tight containers.

3.12. WASTE DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous asbestos wastes including name, address, EPA ID number, and telephone number of transporter.

B. Waste Disposal Site(s): Submit for approval the name, class, address, EPA ID number, and telephone number of waste disposal site(s) to be utilized for:
   1. Disposal of non-hazardous non-friable asbestos wastes;
   2. Disposal of hazardous lead, PCB, and Mercury wastes; and
   3. Disposal of any other universal wastes.

C. Waste Manifest: Submit for approval at the Pre-construction meeting a filled out Waste Manifest form. For Waste Manifest purposes, the Generator is the facility of the subject work.

1. Obtain necessary information including generator EPA number for this purpose from the Owner or Owner's Representative prior to start up of any abatement or demolition.
2. After removal and packaging waste for shipment, provide a copy of the Waste Manifest to the Observation Service for each required shipment.
3. Use the uniform hazardous waste manifest for hazardous wastes including lead, PCBs, universal wastes and other hazardous wastes. Include a properly completed Land Disposal Restriction Notice and Certification form with each manifest submitted for signature by the generator (Owner).
4. Use a non-hazardous wastes manifest for disposal of non-friable asbestos wastes.

D. Each hazardous waste manifest and each non-hazardous asbestos waste manifest shall be prepared for the Owner or Owner's Representative's review and approval prior to shipment.

E. The sealed hazardous waste containers shall be delivered to the Contractor's pre-designated, approved hazardous waste treatment and waste disposal site for burial in accordance with applicable state and federal regulations. Likewise, non-hazardous asbestos waste shall be delivered under manifest to a permitted asbestos waste disposal site.

F. Notify the Owner's facility representative 48 hours in advance of the time when hazardous waste materials of all types and non-hazardous asbestos wastes are to be removed and transported from the site to allow for manifest review and approval.

G. The Contractor shall be responsible for safe handling and transportation of all hazardous waste generated by this Contract to the designated Hazardous Waste Site and shall hold the Owner and the Owner's agents and consultants harmless for claims, damages, losses, and expenses against the Owner, including attorney's fees arising out of our resulting from asbestos and hazardous materials spills on the site or en route to the disposal site.

3.13. AIR MONITORING

A. Area Air Monitoring
1. Throughout the asbestos removal process, area air monitoring may be conducted by the Observation Service to ensure work is done in conformance with the fiber concentration limits of these specifications. Likewise, lead removal work areas may be visually inspected and/or monitored during removal.

2. If results of area air monitoring outside the Work Area are in excess of 0.010 f/cc for asbestos or 50 micrograms per cubic meter of airborne lead per cubic meter of air for lead, the Contractor shall make changes in work procedures to assure compliance with minimum standards. At a minimum, the Contractor shall stop all work and implement additional remedial controls and conduct decontamination as necessary in response to exceeding these limits.
3. Unsatisfactory asbestos results are fiber counts in excess of 0.010 fibers/ cc by PCM Method NIOSH 7400 determined as a TWA outside the Work Area by general air monitoring. All results greater than 0.010 fibers/cc shall be subject to further laboratory analysis by the TEM method at the Contractor's sole expense.

B. The Contractor shall submit a written report to the Owner's Observation Service of the Contractor's personnel exposure monitoring within 48 hours of sample collection. The Contractor shall take all necessary control and protective measures to ensure airborne contaminate levels based on personnel air monitoring results do not exceed the levels recommended for the type of respiratory gear in use.

C. Interior Asbestos Post Abatement Air Sampling. The Owner's Observation Service, upon receipt of the post abatement certification from the Contractor, will take a minimum of one (1,200-2,800) liter air sample(s) "post abatement tests" upon completion of each Work Area. For the purpose of this work, adequate decontamination shall be defined as an air sample showing less than 70 structures/cc by TEM AHERA.

D. Lead Post Abatement Inspections. All LBP Work Areas will be cleared by visual inspection by the San Mateo Foster City School District Observation Service.

3.14. CLOSE-OUT

A. All submittal and punch list items must be complete and provided to the Observation Service. These include daily work-force rosters, work area sign-in/ out sheets, and waste test data and waste manifests.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

PROJECT NAME: _____
PROJECT ADDRESS: _____
CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PERSON.

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have completed an asbestos-training course of not less than 3 days. I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

1) Physical characteristics of asbestos; 2) Health hazards associated with asbestos; 3:) Respiratory protection; 4) Use of personal protective equipment; 5) Pressure Differential Systems; 6) Work practices including hands-on or on-the-job training; 7) Personal decontamination procedures; and 8) Air monitoring, personal, and area.

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Printed Name: _____
Signature: _____ Date: _____
Social Security No.: _____
Witness: _____

EMPLOYEE DAILY ROSTER

DATE: _____PROJECT NO. _____

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SOCIAL SECURITY #	START TIME	STOP TIME

WORK AREA ENTRY / EXIT LOG

DATE:_____PROJECT NO._____

PROJECT TITLE: _____

BUILDING NAME: _____

LOCATION OF WORK AREA: _____

DESCRIPTION OF WORK: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SIGNATURE	SOCIAL SECURITY #	TIME IN/OUT	TIME IN/OUT

DAILY MANOMETER REPORT

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

LOCATION OF WORK AREA: _____

START TIME: START DATE: STOP TIME: STOP DATE:

_____
_____
_____
_____
_____
_____
_____
_____

(CONTRACTOR TO ATTACH A COPY OF THE NEGATIVE PRESSURE RECORDING HERETO AND COMPLETE THIS FORM FOR EACH WORK AREA ON A DAILY BASIS).

I hereby declare the above data is true and correct.

COMPETENT PERSON'S SIGNATURE: _____ DATE: _____

PRE-ABATEMENT VISUAL INSPECTION FORM

CLIENT NAME: _____

PROJECT NAME: _____
BUILDING NAME _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found it to be prepared in accordance with the project specifications. This inspection included the verification that Primary Barriers have been installed and are sealed, specified number of layers of polyethylene sheeting has been installed properly, Decontamination Enclosure System(s) is fully functional, HEPA units are operational, negative air pressure is >0.02 inches of water, manometer unit recording properly, HVAC and electrical systems have been locked and tagged out, there is adequate power and lighting, and all electric sources are supplied from GFIs outside the Work Area.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

OWNER'S CONSULTANT hereby certifies that he has conducted a pre-abatement visual inspection of the referenced Work Area and verifies that the Contractor has prepared the Work Area in accordance with the Specifications and is ready to start abatement operations.

Name:_____ Inspection Date: _____

Signature:_____ Certification No. _____

FINAL VISUAL INSPECTION/CLEARANCE CERTIFICATION FORM

CLIENT NAME: _____
PROJECT NAME: _____
BUILDING NAME: _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found no dust, debris or residue. This inspection included all surfaces including pipes, beams, ledges, walls, ceiling, floor, Decontamination Unit, sheet plastic, etc.

Name: _____ Inspection Date: _____Signature: _____
Certification No._____

OWNER'S CONSULTANT hereby certifies that he has performed the final visual inspection of the referenced Work Area and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

CLEARANCE AIR SAMPLING

Pre-Abatement/Background fiber levels: _____

OWNER'S CONSULTANT hereby certifies that the results of air samples collected and analyzed in this work area meet the clearance criteria indicated below:

PCM samples at or below _____ fibers/cc.
TEM samples at or below _____ structures/mm^2.

Circle One: Aggressive Non-Aggressive

Other criteria:
Name:_____ Inspection Date: _____
Signature:_____ Certification No.: _____
Reviewer:_____ CAC Cert. No.: _____

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Formed roof-drainage sheet metal fabrications.
2. Formed low-slope roof sheet metal fabrications.
3. Formed steep-slope roof sheet metal fabrications.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct a conference at Project Site.

1. Review construction schedule. Verify availability of materials, installer’s personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
3. Review requirements for insurance and certificates if applicable.
4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each of the following, including manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of roof-penetration flashing.
8. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
9. Include details of special conditions.
10. Include details of connections to adjoining work.
11. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Special warranty.

1.8 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA “Architectural Sheet Metal Manual” and NRCA “Roofing and Waterproofing Manual” unless more stringent requirements are indicated or specified.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing, trim materials, and fabrications during transportation and handling.

C. Unload, store and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting and surface damage.

D. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting or other surface damage.

E. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Coordinate with work of other Sections for watertight installation at interface with other materials and systems.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and

Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that to not allow water infiltration to building interior.

E. Provide materials that are compatible with one another under conditions or service and application required, as demonstrated by testing and field experience.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 (Z275) coating designation; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat and mill phosphatized for field painting or with manufacturer's standard clear acrylic coating on both sides.

C. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

H. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated and with interlocking counterflashing on exterior face, of same metal as reglet.

1. Source Limitations: Obtain reglets from single source from single manufacturer.
2. Material: Galvanized steel, 0.022 inch (0.56 mm) thick.
3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
4. Accessories:

    a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
    b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.

5. Finish: With manufacturer's standard color coating.

I. Metal Accessories: Provide sheet metal clips, cleats, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

G. Do not use graphite pencils to mark metal surfaces.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof and Roof-to-Wall Transition Expansion-Joint Cover: Fabricate from the following materials:

1. Galvanized Steel: 0.034 inch (0.86 mm) thick.

B. Base Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

2.7 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

B. Valley Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

F. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.
2. Lead: 4 lb (1.8 kg).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lap joints not less than 2 inches (50 mm).

B. Install slip sheet, wrinkle free, directly on substrate before installing sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lapp joints not less than 4 inches (100 mm).

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds or sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.

4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches (300 mm) o.c.
6. Space individual cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.

1) Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pretin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pretinning where pretinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

3.4 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless steel draw band and tighten.

C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
2. Extend counterflashing 4 inches (100 mm) over base flashing.
3. Lap counterflashing joints minimum of 4 inches (100 mm).
4. Secure in waterproof manner by means of interlocking folded seam or blind rivets and sealant unless otherwise indicated.

D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.5 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.
2. Painted markings applied to concrete surfaces.

1.3 ACTION SUBMITTALS

A. Product Data: Include technical data and tested physical and performance properties.

1. Pavement-marking paint, acrylic.

B. Shop Drawings:

1. Indicate areas to be re-striped.

C. Samples: For each exposed product and for each color and texture specified; on rigid backing, 8 inches (200 mm) square.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F (12.8 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

PART 2 - PRODUCTS

2.1 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint, Acrylic: Acrylic, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952F, Type II, with drying time of less than three minutes.

1. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Sweep and clean surface to eliminate loose material and dust.

C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.3 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

GENERAL SHEET NOTES

A BUILDINGS ARE UNSPRINKLERED, TYPE V-B CONSTRUCTION UNLESS OTHERWISE NOTED
B NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA
C CONTRACTOR SHALL MAINTAIN FIRE LANE ACCESS THROUGHOUT PROJECT.
D DO NOT INTERRUPT EXISTING UTILITY SERVICES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AND COORDINATED WITH THE OWNER.
E PROTECT EXISTING & NEW STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, TREES AND SHRUBS FROM DAMAGE DURING CONSTRUCTION.
F REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR EXTENT OF ELECTRICAL AND MECHANICAL WORK.
G ALL EXISTING FINISHES OR MATERIALS DAMAGED OR DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL STATE, INCLUDING BUT NOT LIMITED TO REINSTALLING OR REPLACING EXISTING CHAINLINK FENCING AS REQUIRED AND RESTRIPING PAVING IN KIND. S.E.D. FOR TRENCH ROUTING. SEE ARCHITECTURAL SITE PLAN FOR STRIPING AT EXISTING PAVING

DEMO & NEW SITE PLAN KEYNOTES

1 REMOVE (E) ELECTRICAL EQUIPMENT AND PAD, S.E.D.
2 (E) CHAINLINK FENCING TO REMAIN. SALVAGE AND REINSTALL FABRIC AND BOTTOM BAR AS REQUIRED FOR CONSTRUCTION ACCESS.
3 (E) GATE TO REMAIN
4 (E) ELECTRICAL BOX, S.E.D. CAP CONDUIT AND REMOVE ABANDONED PULL BOX.
5 (E) PLANTING AND IRRIGATION TO BE REMOVED. CAP IRRIGATION BEFORE REMOVAL. PREP FOR NEW WORK.
6 (E) IRRIGATION BOX TO REMAIN.
7 (E) PLANTING TO REMAIN
8 (E) SIDEWALK TO REMAIN
9 (E) CHAINLINK FENCING TO REMAIN.
10 PAVING MATERIAL TRANSITION, SEE DETAIL 9/A8.10
11 INFILL CONCRETE AT REMOVED PLANTING. SEE DETAIL 6/A8.10
12 AT CHAINLINK FENCING AND POSTS, 4" SPHERE SHALL NOT PASS BETWEEN FENCING AND ADJACENT SURFACES, TYP.
13 CHAINLINK FENCE, SEE DETAIL 2/A8.10 AND S.E.D.
14 AT (E) 8'H CHAINLINK FENCING TO REMAIN ADJACENT REMOVED CHAINLINK, RECONNECT (E) CHAINLINK FABRIC TO (E) POLE. SEE DETAIL 4/A8.10 SIM. FOR REQUIREMENTS.
15 10'-0"W DOUBLE GATE, SEE DETAIL 3/A8.10 AND S.E.D.
16 FEATHER CONCRETE FINISH AT (N) PAVING TO FACILITATE DRAINAGE TOWARD OPENINGS IN CMU
17 4'-0"W GATE. SEE DETAIL 2/A8.10 AND S.E.D.
18 ROUTE ELECTRICAL CONDUIT 5' MIN. CLR. OF FUTURE CONSTRUCTION, S.E.D. FOR MORE INFORMATION
19 REMOVE (E) 8'H CHAINLINK FENCING FOR INSTALLATION OF (N) GATE. SEE NEW SITE PLAN FOR ADDITIONAL INFORMATION.
20 ELECTRICAL EQUIPMENT, S.E.D.
21 INFILL CONCRETE AT REMOVED PLANTING. SEE DETAIL 6/A8.10. CONFORM TO ADJACENT PAVING. SLOPE 2% MIN AWAY FROM (E) BUILDING.
22 REMOVE AND REINSTALL CHAINLINK RAILS AND FABRIC AS REQUIRED FOR TRENCHING, TYP.
23 RESTRIPE (E) PLAYGROUND STRIPING IN KIND AT TRENCHING, S.E.D.
24 (E) ELECTRICAL EQUIPMNET. S.E.D.
25 (E) STRIPING TO REMAIN

GRAPHIC KEY

EXISTING TOILET ROOMS.
EXISTING CONSTRUCTION TO REMAIN
EXISTING COVERED STRUCTURE
TRENCH FOR ELECTRICAL WORK, S.E.D. , 8/S5.01 & DETAILS ON SHEET A8.10
ASSUMED PROPERTY LINE
(E) CHAINLINK FENCE
(N) CHAINLINK FENCE
EXISTING FIRE HYDRANT
(E) FIRE DEPARTMENT ACCESS
FIRE DEPARTMENT ACCESS IS 20'-0" WIDE AND RATED FOR 96,000 LBS.

1 **NEW SITE PLAN**
SCALE: 1/32" = 1'-0"

2 **DEMOLITION ENLARGED SITE PLAN**
SCALE: 1" = 20'-0"

3 **NEW ENLARGED SITE PLAN**
SCALE: 1" = 20'-0"

NOTES:
1. ELECTRICAL EQUIPMENT OBSCURED FOR CLARITY. S.E.D. FOR MORE INFORMATION.
2. ALL EXISTING PAVING DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE REPLACED WITH NEW MATERIALS FINISHED TO MATCH EXISTING.
3. S.O.G. TO CONFORM TO SIDEWALK ELEVATION. MAINTAIN FLAT AND LEVEL TRANSFORMER CLEARANCE, S.E.D.

4 **ELECTRICAL ENCLOSURE ENLARGED LAYOUT**
SCALE: 1/4" = 1'-0"

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PROJECT
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP
LICENSED ARCHITECT — STATE OF CALIFORNIA — 12/22/21

STATE
DSA FILE NUMBER 41-26
APPL # 01-119523

REVISIONS

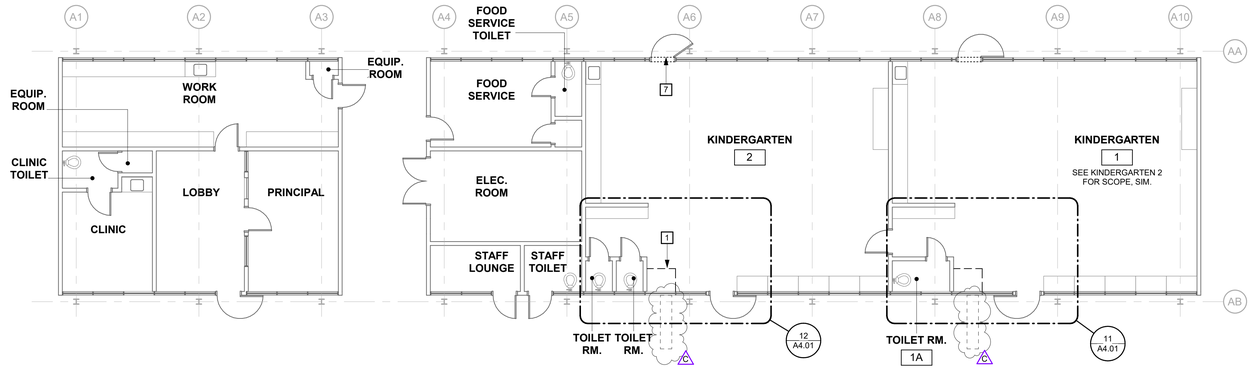
No.	Description	Date
1	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

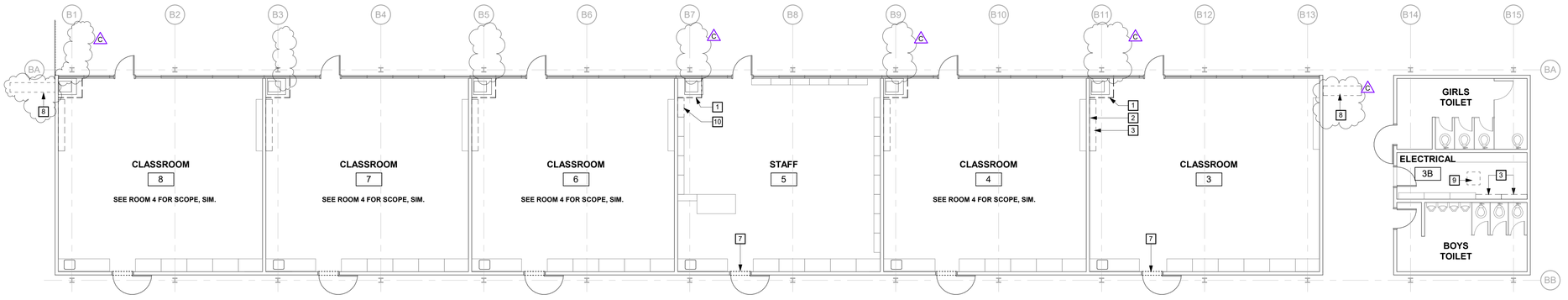
SHEET
DEMOLITION & NEW SITE PLAN

DATE 12/22/2021
JOB # 2021005.02
SHEET # AD3-A1.02



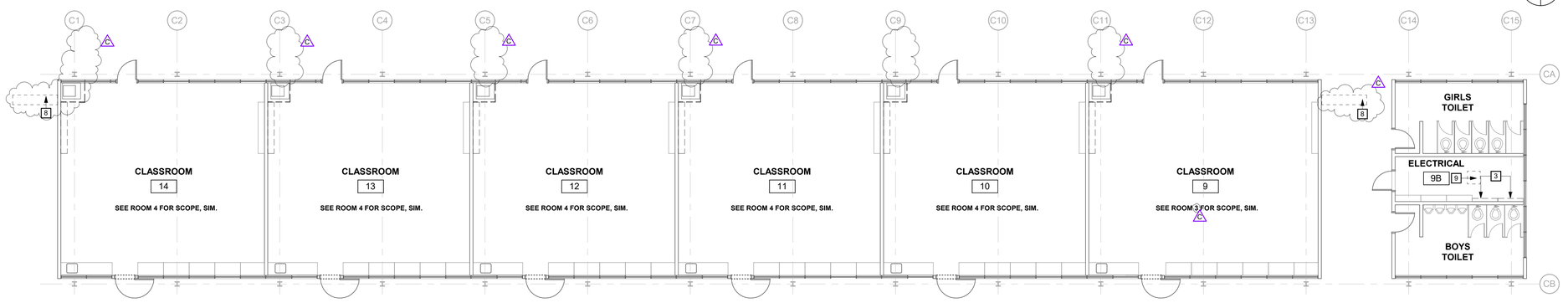
1 DEMOLITION FLOOR PLAN - WING 1

SCALE: 1/8" = 1'-0"



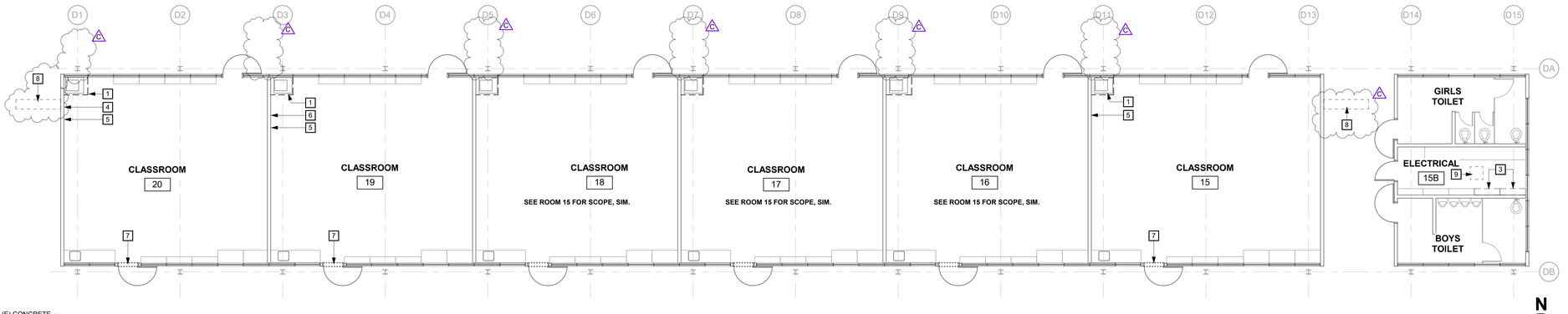
2 DEMOLITION FLOOR PLAN - WING 2

SCALE: 1/8" = 1'-0"



3 DEMOLITION FLOOR PLAN - WING 3

SCALE: 1/8" = 1'-0"



(E) CONCRETE

4 DEMOLITION FLOOR PLAN - WING 4

SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL DEMOLITION WORK.

C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.

D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.

E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.

F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.

G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.

H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA

I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

J REFER TO "HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT." CONTRACTOR TO ABATE AREAS AFFECTED BY SCOPE OF WORK. REMOVE AND DISPOSE OF MATERIALS PER REPORT RECOMMENDATIONS.

DEMOLITION FLOOR PLAN KEYNOTES

1 REMOVE (E) MECHANICAL UNIT AND METAL ENCLOSURE, S.M.D. REMOVE A.C.T., A.C.T. GRID, AND SOFFIT AS REQUIRED FOR CONSTRUCTION ACCESS. C
2 REMOVE (E) 4'x 8' TACK PANEL
3 REMOVE (E) CABINET
4 SALVAGE (E) 8'x 4' WHITEBOARD AND TURN OVER TO OWNER
5 SHORTEN (E) RACEWAY. COORDINATE LENGTH TIGHT TO NEW ENCLOSURE, SEE NEW FLOOR PLANS.
6 SALVAGE (E) 36" x 48" TACK PANEL AND TURN OVER TO DISTRICT
7 REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D
8 REMOVE PAVING AND PREP FOR NEW WORK, S.M.D.
9 REMOVE (E) GYP. BD CEILING FOR EXHAUST FAN INSTALLATION, S.M.D.
10 REMOVE FIRST SECTION OF CASEWORK. CUT TOP AND BOTTOM SHELF FLUSH TO ADJACENT CASEWORK TO REMAIN. REMOVE SHELVING.

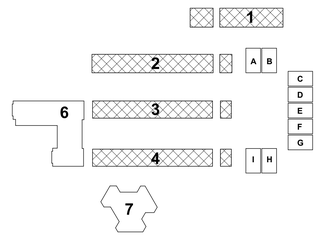
GRAPHIC KEY

EXISTING WALL TO BE DEMOLISHED.

EXISTING WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

BUILDING KEY



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PROJECT

GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT ... STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
2	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

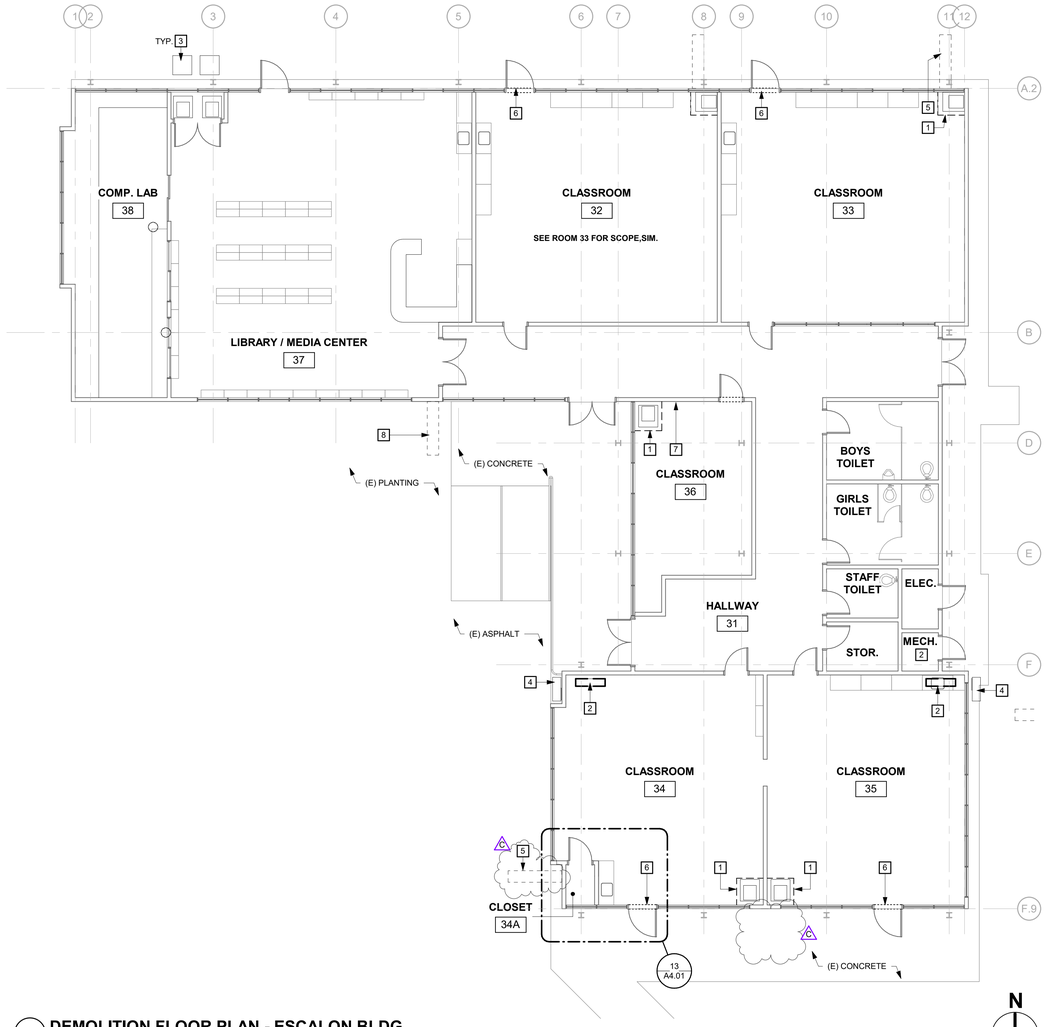
SHEET

DEMOLITION FLOOR PLANS - WINGS 1, 2, 3 & 4

DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-A2.01



1 DEMOLITION FLOOR PLAN - ESCALON BLDG.
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL DEMOLITION WORK.

C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.

D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.

E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.

F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.

G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.

H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA

I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

J REFER TO "HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT." CONTRACTOR TO ABATE AREAS AFFECTED BY SCOPE OF WORK. REMOVE AND DISPOSE OF MATERIALS PER REPORT RECOMMENDATIONS.

DEMOLITION FLOOR PLAN KEYNOTES

1 REMOVE (E) MECHANICAL UNIT AND ENCLOSURE, S.M.D. RECONFIGURE (E) ADJACENT WIREMOLD
2 REMOVE (E) MECHANICAL UNIT; PATCH AND PAINT WALL TO MATCH ADJACENT
3 (E) EQUIPMENT TO REMAIN, S.M.D.
4 REMOVE (E) MECHANICAL UNIT AND ENCLOSURE; PATCH AND PAINT WALL TO MATCH ADJACENT
5 REMOVE PAVING AND PREP FOR NEW WORK, S.M.D.
6 REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D
7 SALVAGE (E) TACK PANEL AND PROJECTOR SCREEN, TURN OVER TO DISTRICT
8 REMOVE PLANTING AND PREP FOR NEW WORK. DO NOT CUT TREE ROOTS OVER 2" DIA. SEE NEW FLOOR PLAN FOR MORE INFORMATION

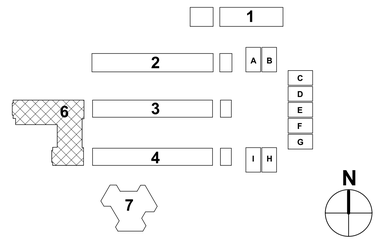
GRAPHIC KEY

EXISTING WALL TO BE DEMOLISHED.

EXISTING WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

BUILDING KEY



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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT — STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
A	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

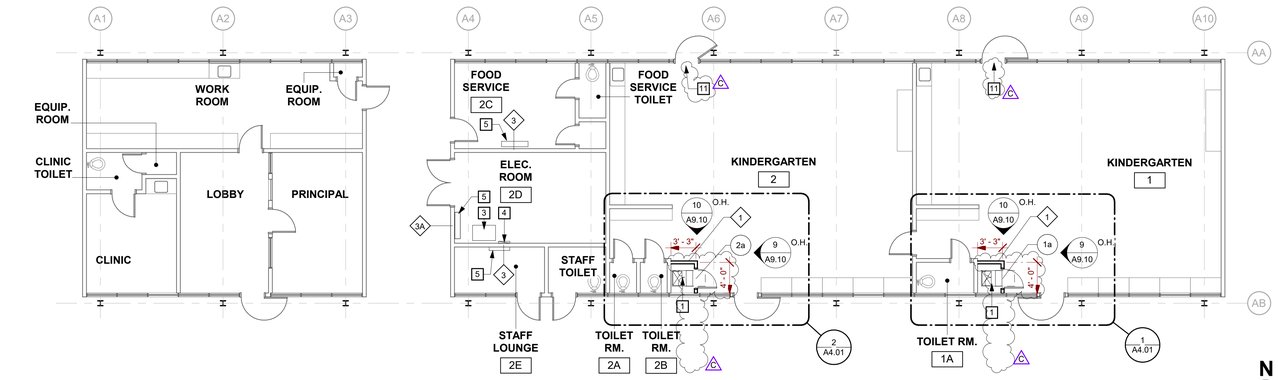
SHEET

DEMOLITION FLOOR PLAN - ESCALON BLDG.

DATE 12/22/2021

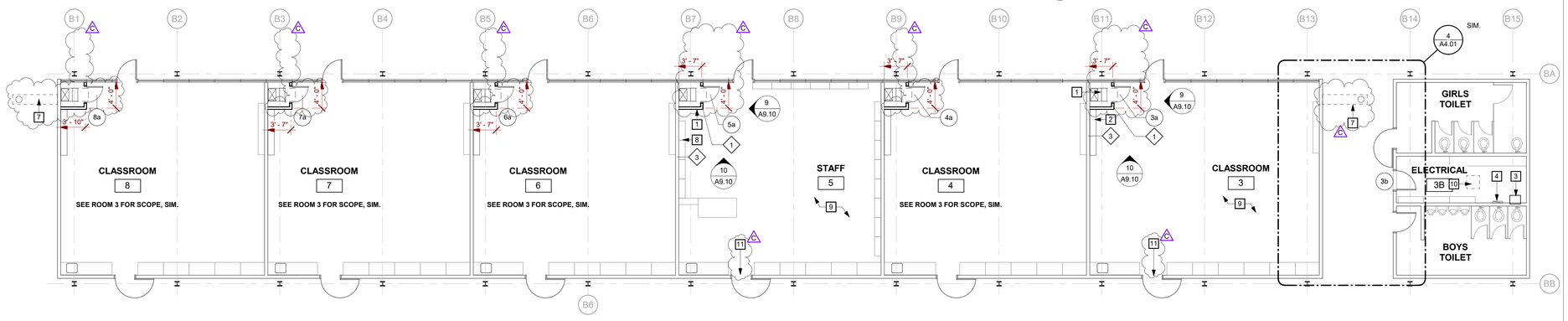
JOB # 2021005.02

SHEET # AD3-A2.02



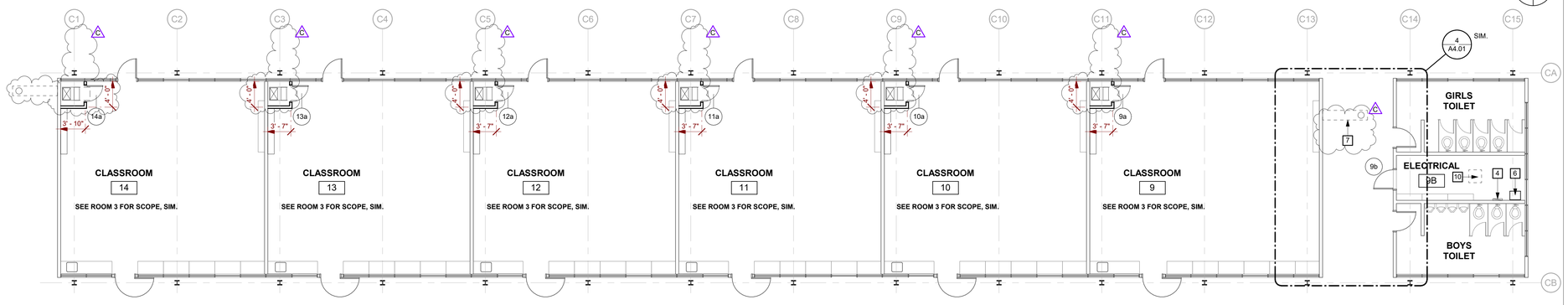
1 NEW FLOOR PLAN - WING 1

SCALE: 1/8" = 1'-0"



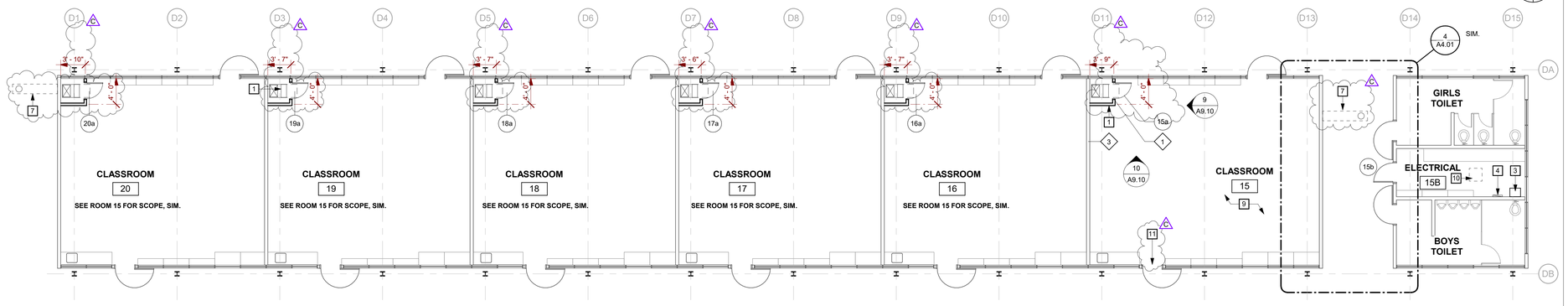
2 NEW FLOOR PLAN - WING 2

SCALE: 1/8" = 1'-0"



3 NEW FLOOR PLAN - WING 3

SCALE: 1/8" = 1'-0"



4 NEW FLOOR PLAN - WING 4

SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND FLOOR PLANS.

B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

C DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

D REMOVE AND REPLACE (E) WALL BASE AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

E RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

F PATCH AND PAINT WALL AT BACKING, REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.

G SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING BUT NOT LIMITED TO WALL FINISHES, WINDOWS, CURTAIN RAILS, AND DUCTWORK.

H AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK. C

NEW FLOOR PLAN KEYNOTES

1 FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES, V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10

2 NONFIXED CABINET NOT MORE THAN 5'-9" IN HEIGHT. SEE CABINET SCHEDULE TYPE C-1.

3 TRANSFORMER, S.E.D

4 ELECTRICAL PANEL, PROVIDE BACKING, S.E.D.

5 MECHANICAL UNIT, S.M.D.

6 ELECTRICAL PANEL, PROVIDE BACKING, S.E.D.

7 PATCH PAVING AT DRY WELL. SEE 6/A8.10 AND S.M.D.

8 PATCH AND PAINT EXTERIOR FACE WHERE FIRST SECTION OF CASEWORK HAS BEEN REMOVED

9 REFER TO 5/A4.01 FOR TYPICAL CLASSROOM NEW REFLECTED CEILING PLAN. REMOVE AND REINSTALL (E) ACOUSTICAL CEILING TILES ABOVE AS REQUIRED FOR CONSTRUCTION ACCESS INCLUDING BUT NOT LIMITED TO ELECTRICAL ROUTING, MECHANICAL DUCTWORK ANCHORAGE, BLOCKING FOR ROOFTOP PLATFORMS. DO NOT ALTER SUSPENDED A.C.T. GRID.

10 PATCH AND PAINT GYP. BD. CEILING ADJACENT EXHAUST FAN, S.M.D.

11 DAMPER @ (E) WINDOW FRAME, S.M.D. CONT. CAULKING AT INTERIOR AND EXTERIOR OF MOTORIZED RELIEF DAMPER. C

GRAPHIC KEY

WALL TYPES:

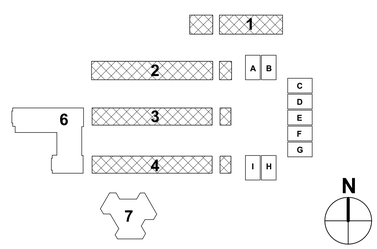
EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

WALL TYPE. REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

STUD WALL

BUILDING KEY



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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

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C	Addendum 3	12/22/2021

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DD	
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BACKCHECK	10/04/2021

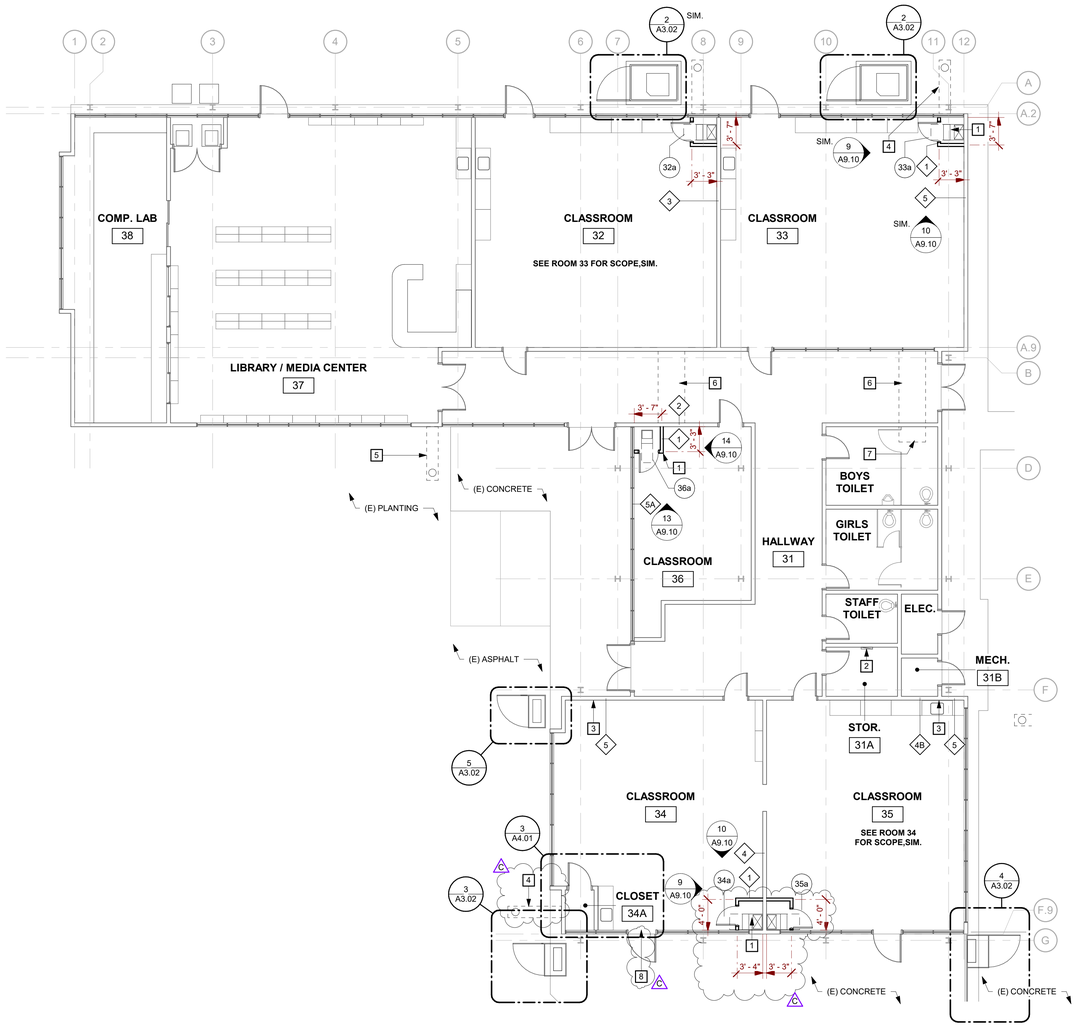
SHEET

NEW FLOOR PLANS - WINGS 1, 2, 3 & 4

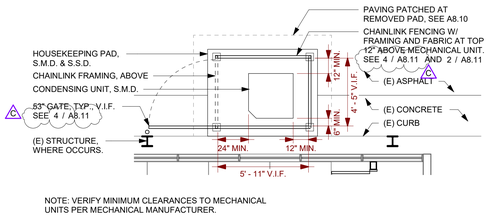
DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-A3.01

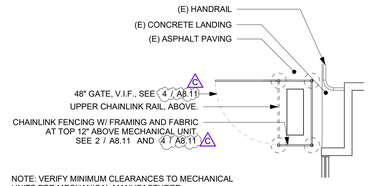


1 NEW FLOOR PLAN - ESCALON BLDG
SCALE: 1/8" = 1'-0"



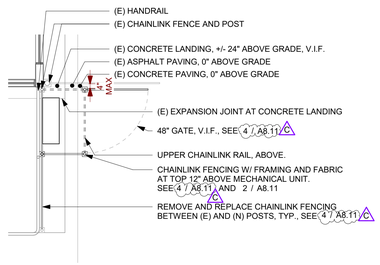
NOTE: VERIFY MINIMUM CLEARANCES TO MECHANICAL UNITS PER MECHANICAL MANUFACTURER.

2 ROOM 32 AND 33 ENLARGED CONDENSER PLAN
SCALE: 1/4" = 1'-0"

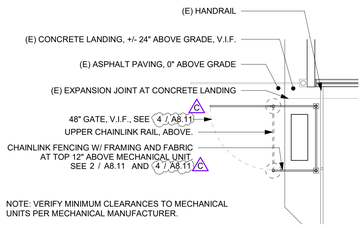


NOTE: VERIFY MINIMUM CLEARANCES TO MECHANICAL UNITS PER MECHANICAL MANUFACTURER.

5 ROOM 36 ENLARGED CONDENSER PLAN
SCALE: 1/4" = 1'-0"



4 ROOM 35 ENLARGED CONDENSER PLAN
SCALE: 1/4" = 1'-0"



NOTE: VERIFY MINIMUM CLEARANCES TO MECHANICAL UNITS PER MECHANICAL MANUFACTURER.

3 ROOM 34 ENLARGED CONDENSER PLAN
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND FLOOR PLANS.

B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

C DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

D REMOVE AND REPLACE (E) WALL BASE AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

E RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

F PATCH AND PAINT WALL AT BACKING, REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.

G SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING BUT NOT LIMITED TO WALL FINISHES, WINDOWS, CURTAIN RAILS, AND DUCTWORK.

H AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK. C

NEW FLOOR PLAN KEYNOTES

1 FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES, V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10

2 ELECTRICAL PANEL, PROVIDE BACKING, S.E.D.

3 PATCH WALL FINISH. REMOVE & REPLACE (E) GLUE-UP ACT

4 PATCH PAVING AT DRY WELL. SEE 6/A8.10 AND S.M.D.

5 COORDINATE DRY WELL LOCATION AND DEPTH WITH EXISTING TREE. HAND DIG TRENCH. DO NOT CUT ROOTS OVER 3" DIA.

6 (E) GLUE-UP A.C.T. O/ GYP. BD. SOFFIT OVERHEAD. AS REQUIRED FOR CONSTRUCTION ACCESS, REMOVE FINISH ASSEMBLY AND PATCH BACK IN KIND. S.E.D.

7 (E) GYP. BD. SOFFIT OVERHEAD. AS REQUIRED FOR CONSTRUCTION ACCESS, REMOVE FINISH AND PATCH BACK IN KIND. S.E.D.

8 DAMPER @ (E) WINDOW FRAME. S.M.D. CONT. CAULKING AT INTERIOR AND EXTERIOR OF MOTORIZED RELIEF DAMPER. C

GRAPHIC KEY

WALL TYPES:

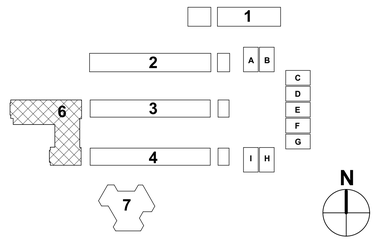
EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

WALL TYPE. REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

STUD WALL

BUILDING KEY



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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT — STATE OF CALIFORNIA — 11-30-22

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/04/2021

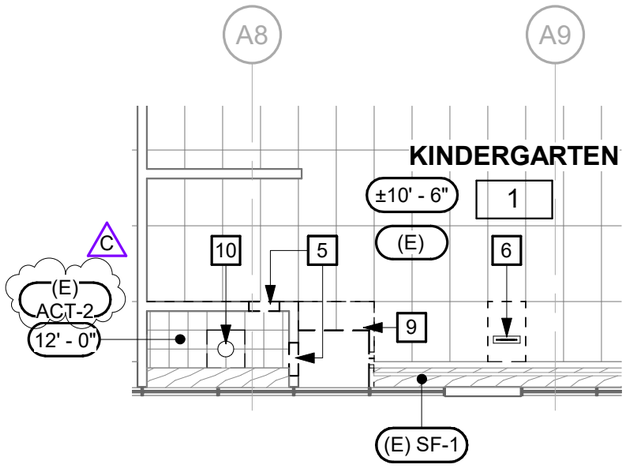
SHEET

NEW FLOOR PLAN - ESCALON BLDG

DATE 12/22/2021

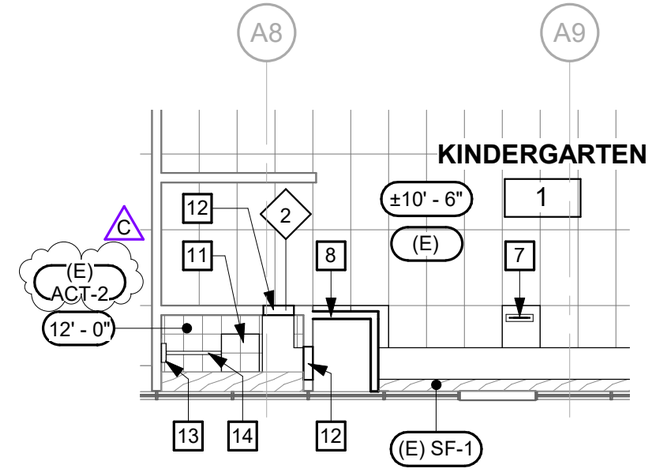
JOB # 2021005.02

SHEET # AD3-A3.02



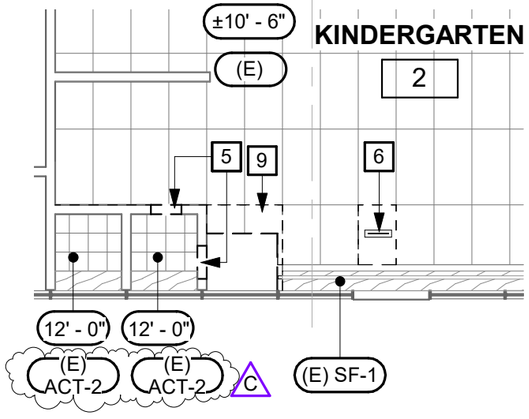
11 DEMOLITION REFLECTED PLAN - ROOM 1

SCALE: 1/8" = 1'-0"



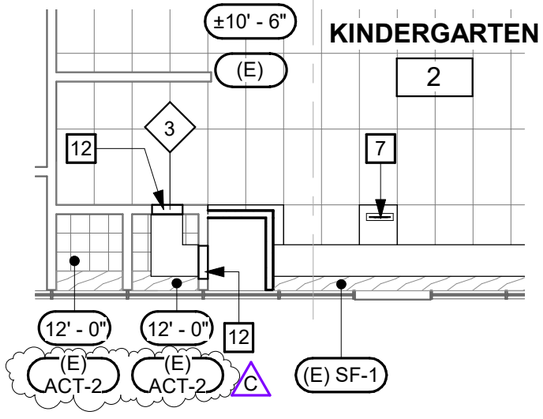
1 NEW REFLECTED PLAN - ROOM 1

SCALE: 1/8" = 1'-0"



12 DEMOLITION REFLECTED PLAN - ROOM 2

SCALE: 1/8" = 1'-0"



2 NEW REFLECTED PLAN - ROOM 2

SCALE: 1/8" = 1'-0"

LICENSED ARCHITECT
THANG N. DO
C-018127
REN. 11/30/21
STATE OF CALIFORNIA

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387 S. 1st Street, Suite 300
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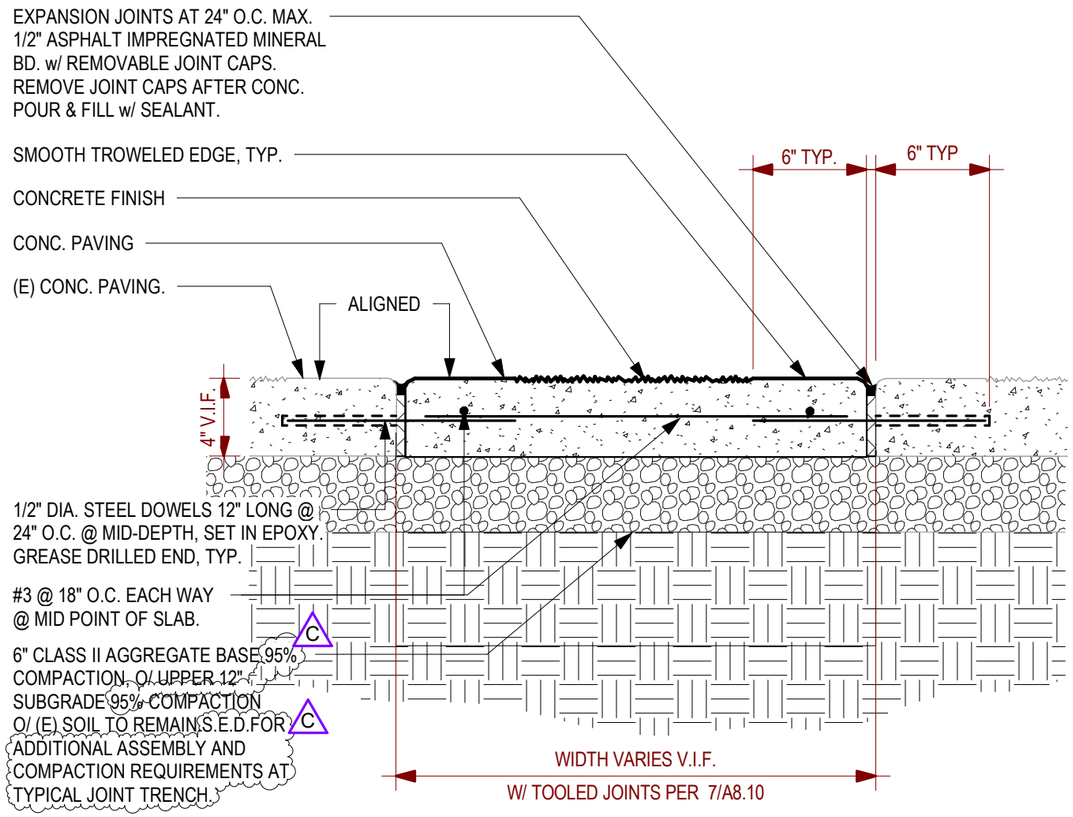
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119523
JOB NO.	2021005.02
DATE	12/22/2021

SHEET **AD3-A4.01**



NOTES:
1. PROVIDE EXPANSION JOINT @ 24'-0" O.C. MAX.

6 CONCRETE PATCH

SCALE: 1 1/2" = 1'-0"

LICENSED ARCHITECT
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No. C-018127
REN. 11/30/21
STATE OF CALIFORNIA

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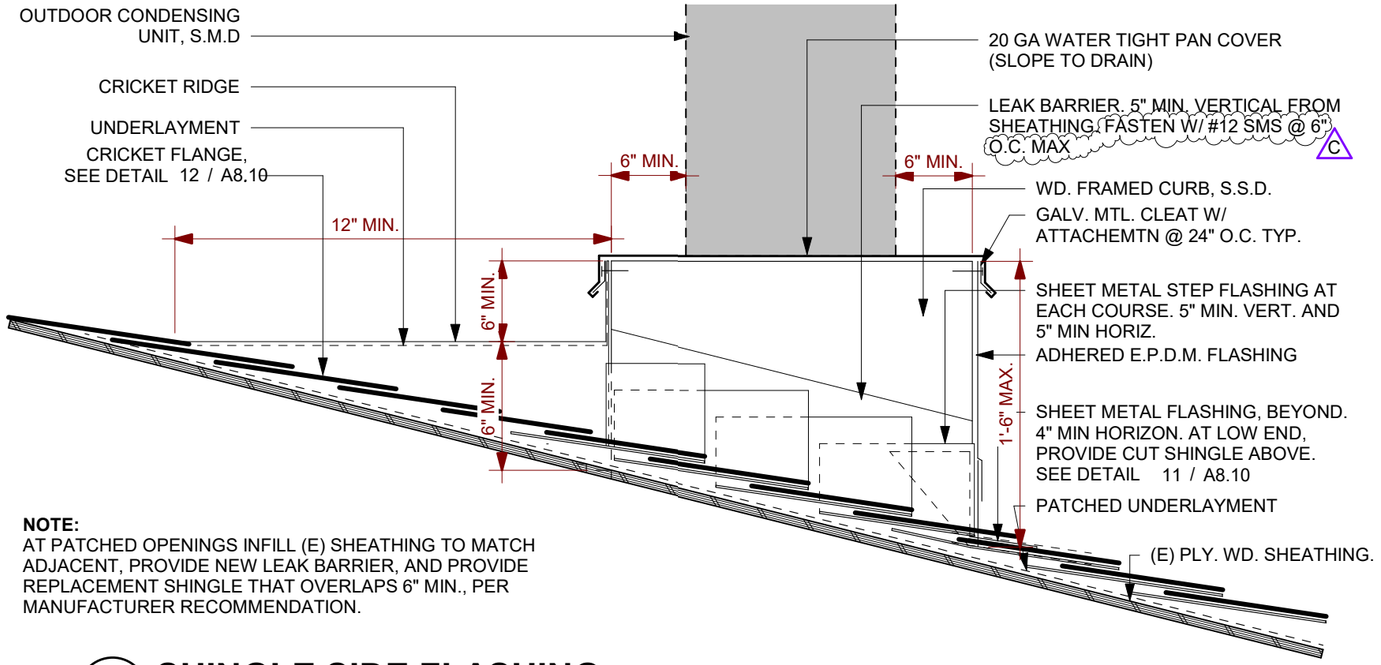
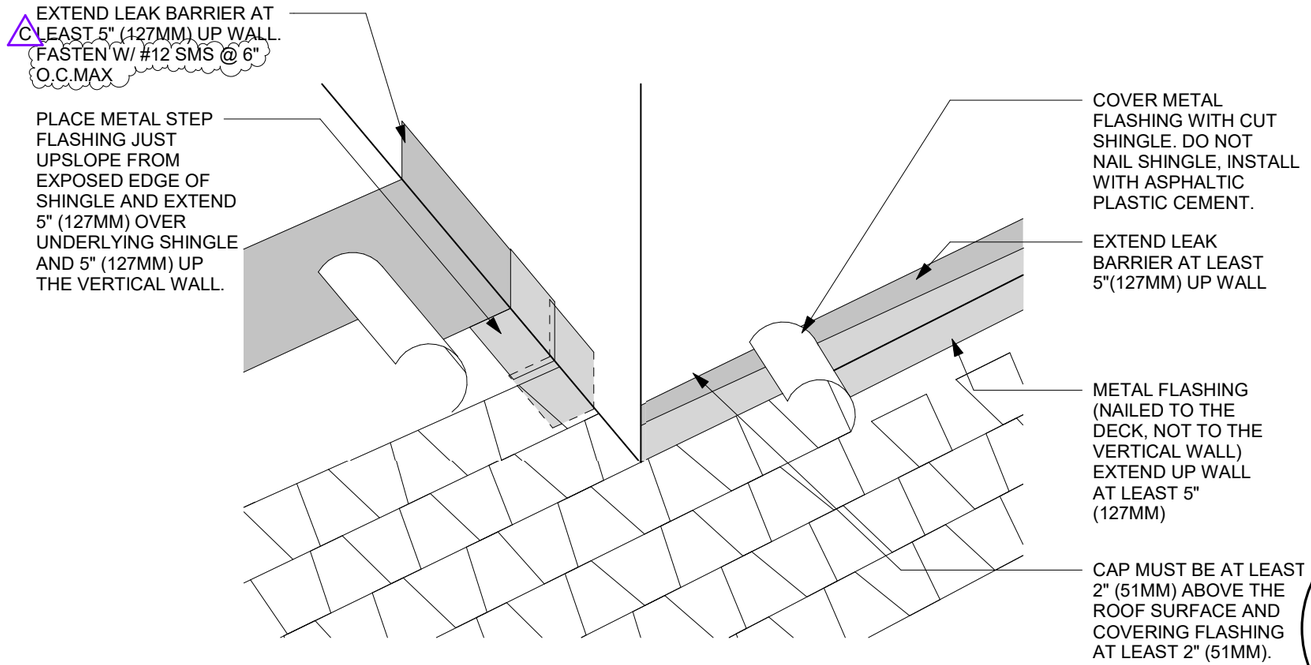
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET
APPL NO.: 01-119523	**AD3-A8.10A**
JOB NO. 2021005.02	
DATE 12/22/2021	

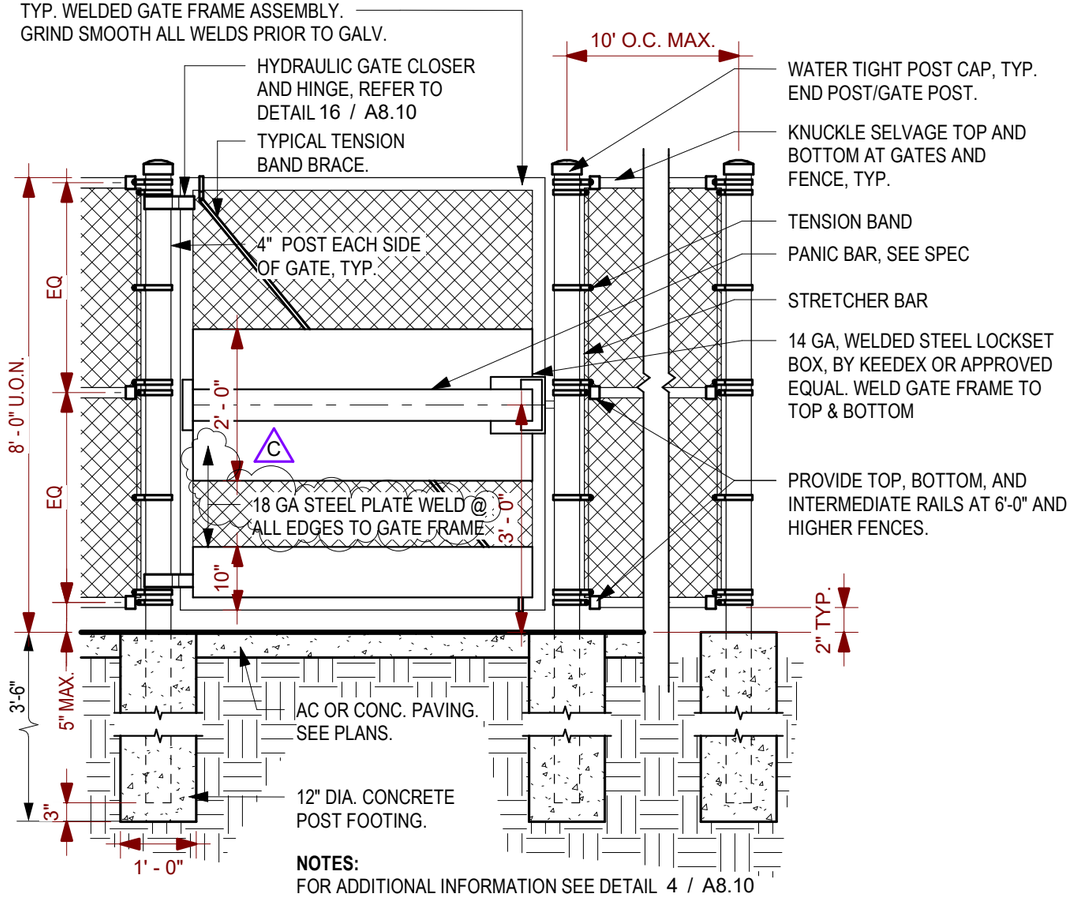


NOTE:
AT PATCHED OPENINGS INFILL (E) SHEATHING TO MATCH ADJACENT, PROVIDE NEW LEAK BARRIER, AND PROVIDE REPLACEMENT SHINGLE THAT OVERLAPS 6" MIN., PER MANUFACTURER RECOMMENDATION.

10 SHINGLE SIDE FLASHING
SCALE: 1 1/2" = 1'-0"



11 SHINGLE LOWER FLASHING
SCALE: 1" = 1'-0"



NOTES:
FOR ADDITIONAL INFORMATION SEE DETAIL 4 / A8.10

2 TYPICAL CHAINLINK GATE (SINGLE, EGRESS)
SCALE: 1/2" = 1'-0"

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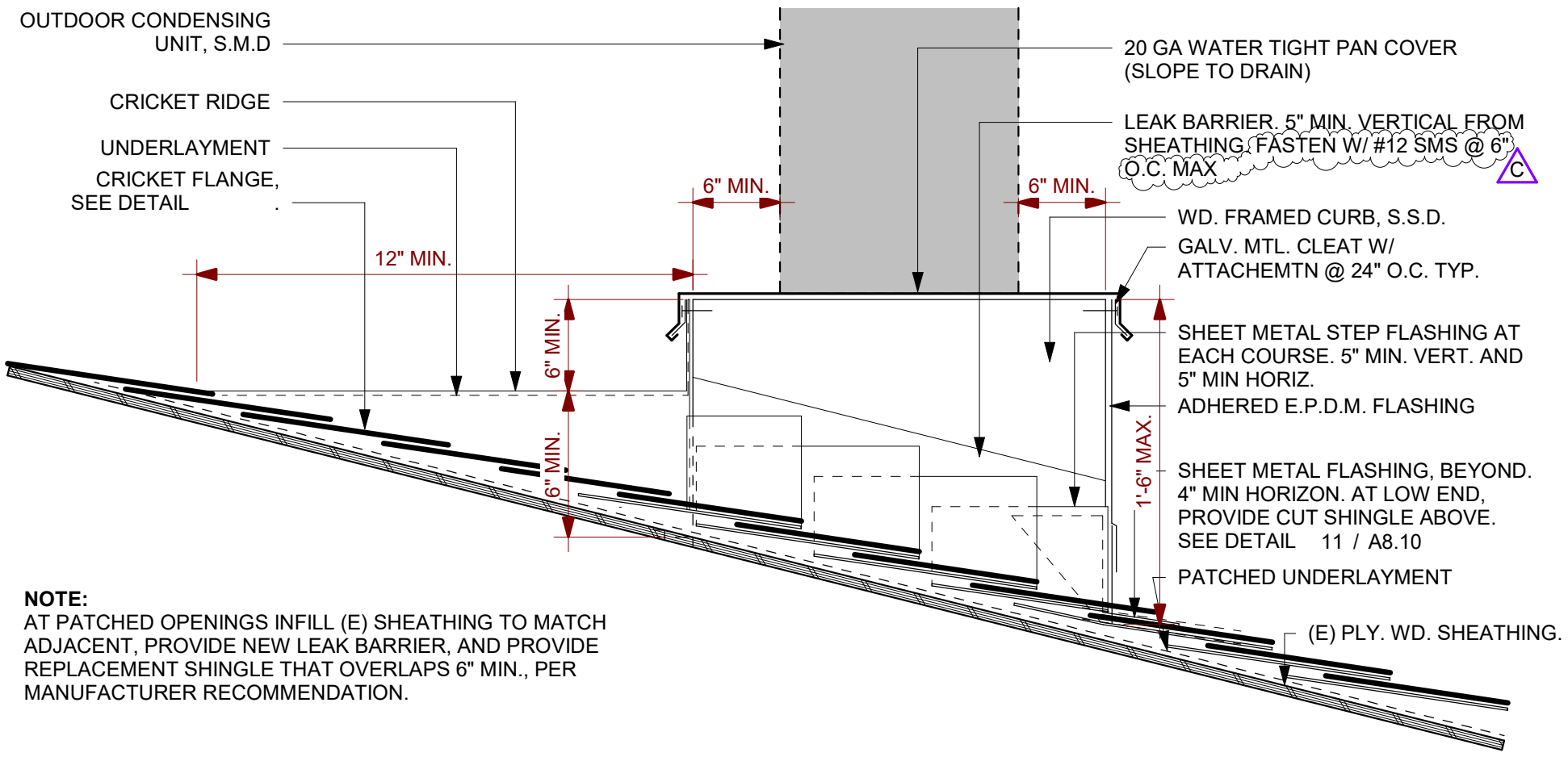
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119523
JOB NO.	2021005.02
DATE	12/22/2021

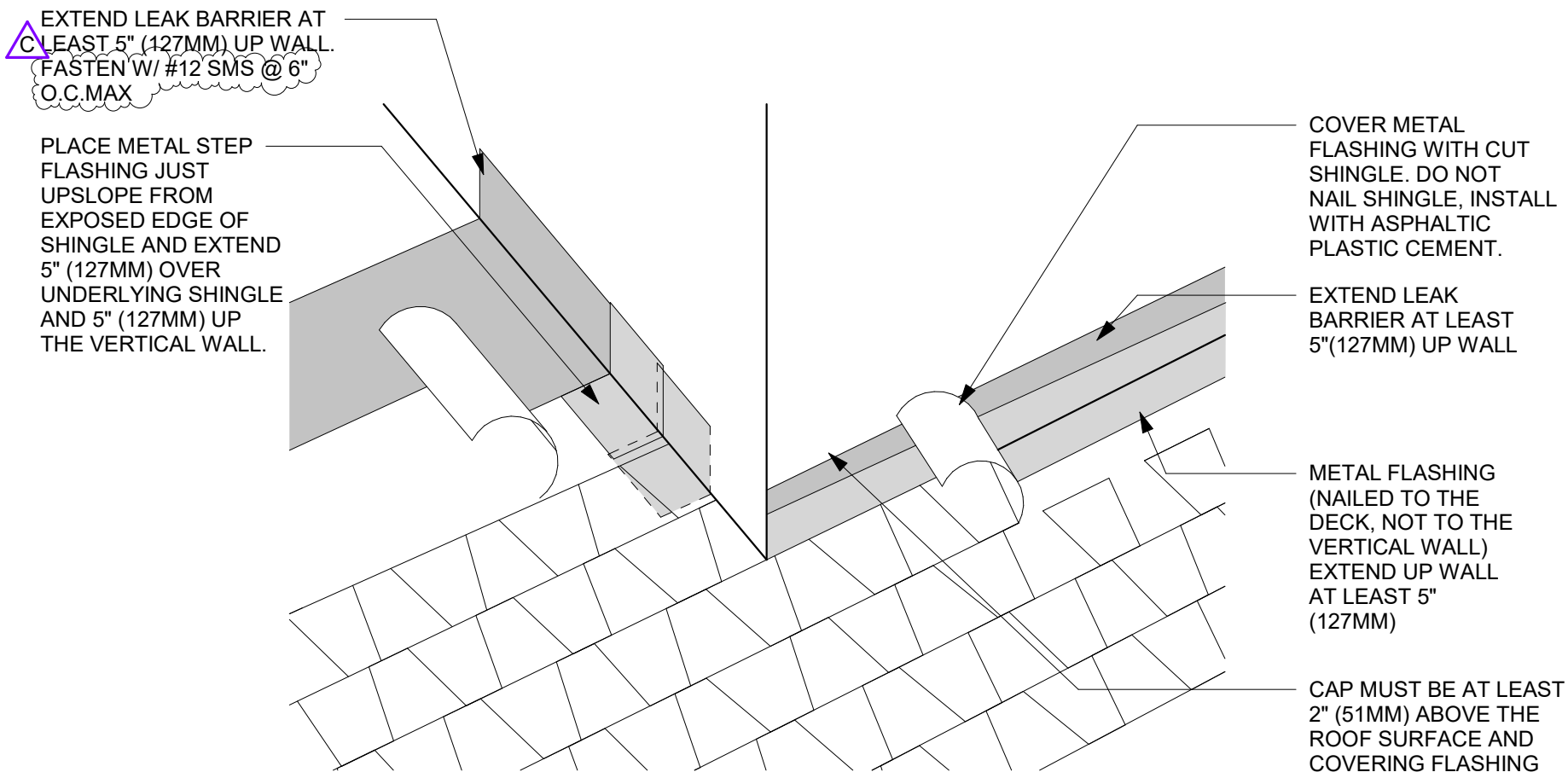
SHEET
AD3-A8.10B



NOTE:
AT PATCHED OPENINGS INFILL (E) SHEATHING TO MATCH ADJACENT, PROVIDE NEW LEAK BARRIER, AND PROVIDE REPLACEMENT SHINGLE THAT OVERLAPS 6" MIN., PER MANUFACTURER RECOMMENDATION.

10 SHINGLE SIDE FLASHING

SCALE: 1 1/2" = 1'-0"



11 SHINGLE LOWER FLASHING

SCALE: 1" = 1'-0"

LICENSED ARCHITECT
THANG N. DO
No. C018127
REN. 11/30/21
STATE OF CALIFORNIA

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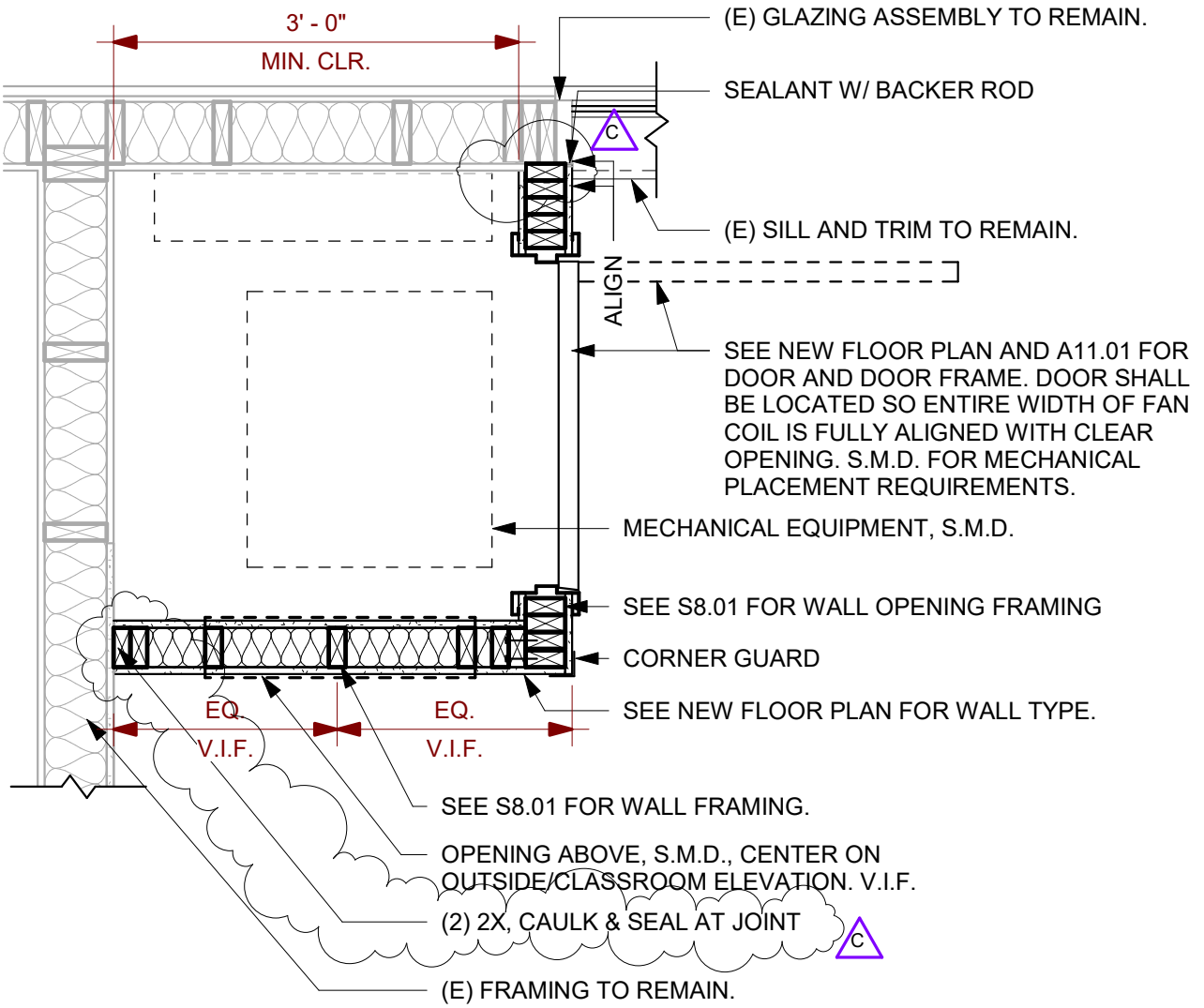
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET
APPL NO.: 01-119523	**AD3-A8.10B**
JOB NO. 2021005.02	
DATE 12/22/2021	



NOTE: NOT ALL MECHANICAL ELEMENTS SHOWN. S.M.D. FOR MORE INFORMATION.

16 MECH. ENCLOSURE CLEARANCES, TYP.

SCALE: 3/4" = 1'-0"

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GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119523
JOB NO.	2021005.02
DATE	12/22/2021

SHEET

AD1-A9.10

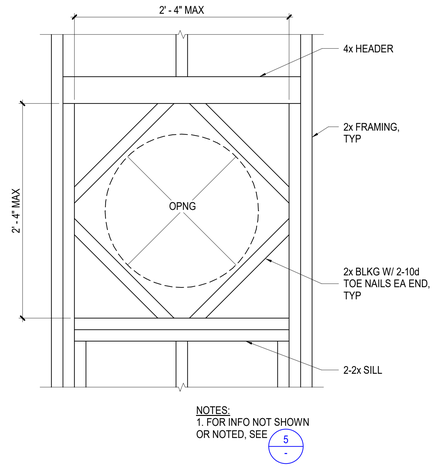
FASTENING SCHEDULE		
DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2 1/2" × 0.131") 2-3" × 0.131" nails 2-3" 14 gage staples	Each end, toenail
	2-16 d common (3 1/2" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3 1/2" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust)	3-16d common (3 1/2" x 0.163") 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint)	Per Table 2308.7.3.1, CBC 2019	Face nail
5. Collar tie to rafter	3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10 common (3" × 0.148"); or 3-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3"14 gage staples, 7/16" crown; or	End nail
	3-10d common (3 1/2" × 0.148"); or 4-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail
WALL		
8. Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or	12" o.c. face nail
	3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3 1/2" × 0.162"); or	16" o.c. each edge, face nail
	16d box (3 1/2" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toenail
12. Top plate to top plate	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8-16d common (3 1/2" × 0.162"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2"x0.163"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3 1/2 " × 0.162"); or 3-16d box (3 1/2" × 0.135"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown; or	Toenail
	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128")	Face nail
20. 1" × 8" and wider sheathing to each bearing	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128")	Face nail

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

12 NAILING SCHEDULE

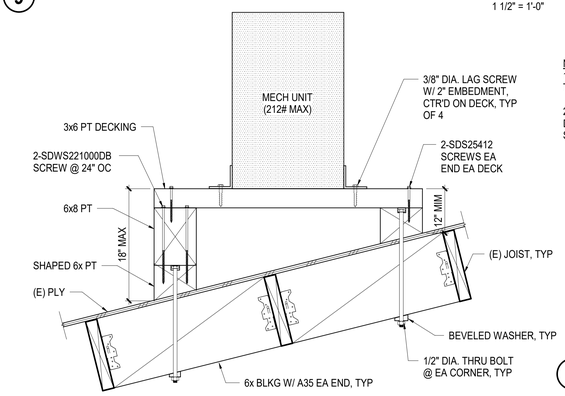
NTS



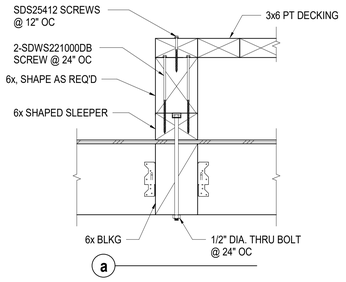
NOTES:
1. FOR INFO NOT SHOWN OR NOTED, SEE 5

9 FRAMING DETAIL AT ROUND OPENING

1 1/2" = 1'-0"



b



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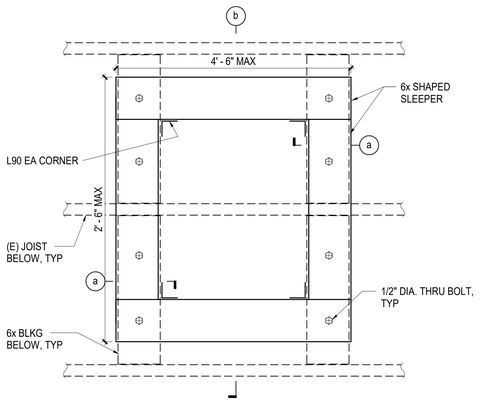
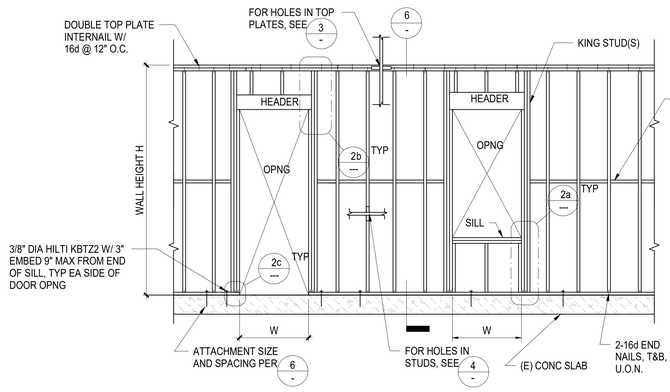


PLAN VIEW

11 MECH UNIT PLATFORM FRAMING DETAIL

1 1/2" = 1'-0"



NON-BEARING WALL STUD SCHEDULE		
WALL HEIGHT	STUD SIZE	SPACING
H < 13'-0"	2x4	16"

b

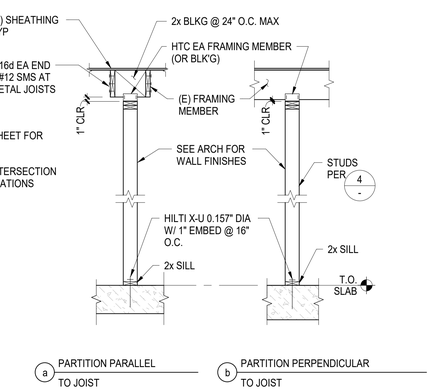
NON-BEARING WALL SCHEDULE AT OPENINGS				
OPENING WIDTH	KING STUD(S)	HEADER DEPTH	BEARING STUD(S)	SILL
W< 4'-6"	2x	4x	1-2x	2-2x

a

NOTE:
STUD, SILL, AND HEADER WIDTHS TO MATCH WALL FRAMING SIZE.

5 TYPICAL INTERIOR NON-BEARING WALL FRAMING

NTS



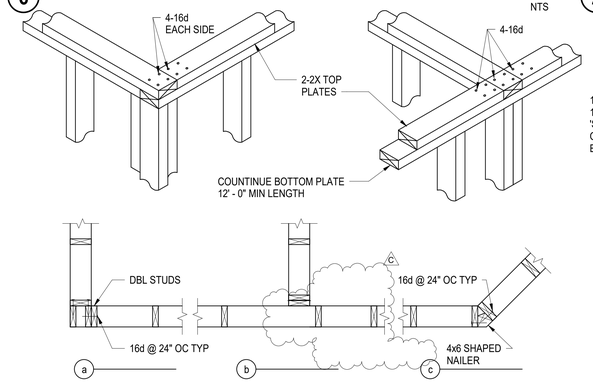
NOTES:
1. SEE DETAIL 5 ON THIS SHEET FOR TYPICAL WALL FRAMING.
2. FOR PARTITION WALL INTERSECTION DETAILS & STUD CONFIGURATIONS SEE 7

a PARTITION PARALLEL TO JOIST

b PARTITION PERPENDICULAR TO JOIST

6 NON-BEARING WALL PARTITION

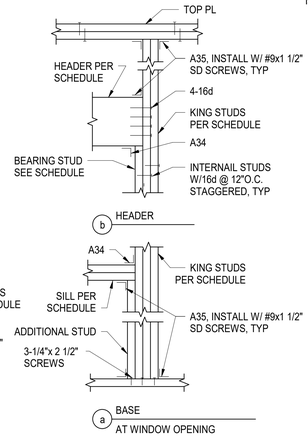
NTS

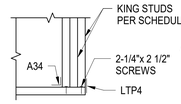


7 WALL INTERSECTIONS

NTS

NOTES:
1. FOR MEMBER SIZES, SEE 5
2. USE 20d NAILS AT 3x STUDS



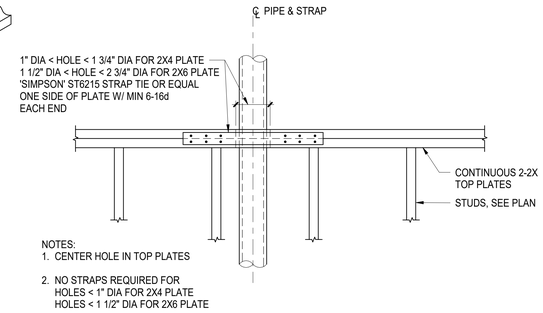


c BASE AT DOOR OPENING

a BASE AT WINDOW OPENING

2 WALL OPENING

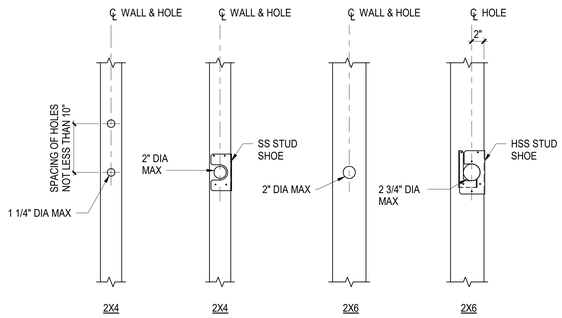
NTS



NOTES:
1. CENTER HOLE IN TOP PLATES
2. NO STRAPS REQUIRED FOR HOLES < 1" DIA FOR 2X4 PLATE
HOLES < 1 1/2" DIA FOR 2X6 PLATE

3 TOP PLATE PENETRATIONS

NTS



4 PENETRATIONS IN STUDS

NTS

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PROJECT

GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

BASE DESIGN
582 MARKET ST. STE. 1402
SAN FRANCISCO, CA 94104
Office:(415) 466-2997
www.BASEdesigninc.com

STAMP

REGISTERED PROFESSIONAL ENGINEER GOKHAN AKALAN NO. S594 STRUCTURAL STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	

SHEET

FRAMING DETAILS AND NAILING SCHEDULE

DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-S8.01

SPLIT SYSTEM AIR CONDITIONERS SCHEDULE

TAG	MANUFACTURER	MODEL	WING / BUILDING	LOCATION	COOLING	HEATING	AIRFLOW	REFRIGERANT PIPING		SEER	ELECTRICAL			WEIGHT	MOUNTING	NOTES
					TOTAL MBH	TOTAL MBH	CFM	LIQUID	GAS		V / PH	MCA	MOCP	LBS	DETAIL	
SSO-1	SAMSUNG	AR24TSFYBWKXCV	WING 1	ROOF	22	24	--	1/4"	5/8"	18	208 / 1	20	30	125	2/MP6.01	
SSI-1	SAMSUNG	AR24TSFYBWKNCV		KITCHEN			657	1/4"	5/8"	--	NOTE 1			30	3/MP6.01	2, 3, 4, 5
SSO-2	SAMSUNG	AR09TSFYBWKXCV	WING 1	ROOF	9	11	--	1/4"	3/8"	23.5	208 / 1	12	20	70	2/MP6.01	
SSI-2	SAMSUNG	AR09TSFYBWKNCV		PSYCH 2A			371	1/4"	3/8"	--	NOTE 1			25	3/MP6.01	2, 3, 4, 5
SSO-3	SAMSUNG	AR24TSFYBWKXCV	WING 1	ROOF	22	NOTE 6	--	1/4"	5/8"	18	208 / 1	20	30	125	2/MP6.01	
SSI-3	SAMSUNG	AR24TSFYBWKNCV		ELECTRICAL ROOM			657	1/4"	5/8"	--	NOTE 1			30	3/MP6.01	2, 3, 4, 5

1. INDOOR UNITS ARE POWERED BY OUTDOOR UNIT.
2. PROVIDE WITH WALL MOUNTING BRACKET.
3. PROVIDE WITH SAMSUNG WALL MOUNTED THERMOSTAT.
4. PROVIDE WITH BACNET INTERFACE CARD. SEE MP5.01 FOR CONTROLS.
5. PROVIDE WITH CONDENSATE PUMP.
6. LOCK OUT HEATING.

AIR DISTRIBUTION SCHEDULE

TAG	MANUFACTURER	MODEL NO.	DESCRIPTION	BORDER TYPE	MOUNTING DETAIL	NOTES
HSS-1	TITUS	S300FL	HIGH SIDEWALL SUPPLY	TYPE 1	12/MP6.01	1, 2, 4
HSS-2	TITUS	300RL	HIGH SIDEWALL SUPPLY	TYPE 1	13/MP6.01	1, 2
HSR-1	TITUS	350RL	HIGH SIDEWALL RETURN	TYPE 1	13/MP6.01	2, 3
RG-1	TITUS	30RL	RELIEF GRILLE	TYPE 1	10/MP6.01	2, 5
EG-1	TITUS	8R	EXHAUST GRILLE	LAY-IN	17/MP6.01	2

1. SET BLADES AT 22.5° DEFLECTION.
2. PRIME AND PAINT PER ARCHITECTS INSTRUCTIONS. REGISTER COLOR SELECTED BY ARCHITECT.
3. PROVIDE WITH AIRSAN COMPACT DUCT SILENCER.
4. PROVIDE WITH ASD AIR SCOOP DEVICE.
5. CONTRACTOR TO FIELD VERIFY (E) DIMENSIONS PRIOR TO ORDERING.

ROOF EXHAUST FANS SCHEDULE

TAG	MANUFACTURER	MODEL NO.	AREA SERVED	AIRFLOW CFM	ESP IN. W.G.	FAN RPM	SOUND POWER SONES	MOTOR		WEIGHT LBS	MOUNTING DETAIL	NOTES
								HP / WATTS	V / PH			
REF-2-1	GREENHECK	G-098-VG	ELEC. RM 3B	450	0.25	1125	6.0	1/4	115 / 1	45	16/MP6.01	1, 2
REF-3-1	GREENHECK	G-098-VG	ELEC. RM 9B	450	0.25	1125	6.0	1/4	115 / 1	45	16/MP6.01	1, 2
REF-4-1	GREENHECK	G-098-VG	ELEC. RM 15B	450	0.25	1125	6.0	1/4	115 / 1	45	16/MP6.01	1, 2
REF-E-1	GREENHECK	G-070-VG	ELEC	250	0.25	1479	4.1	1/15	115 / 1	45	16/MP6.01	1, 2

1. PROVIDE WITH UL LISTING, FAN MOUNTED SPEED CONTROL, BACKDRAFT DAMPER, BIRDSCREEN, AND ROOF CURB.
2. PROVIDE WITH LINE VOLTAGE TSTAT.

CLASSROOM SPLIT SYSTEM HEAT PUMPS SCHEDULE

TAG	MANUFACTURER	MODEL	BUILDING / WING	LOCATION	COOLING	HEATING	AIRFLOW	OUTSIDE AIR CFM	REFRIGERANT PIPING		SEER	HSPF	ELECTRICAL			WEIGHT	MOUNTING	NOTES
					TOTAL MBH	TOTAL MBH	CFM		LIQUID	GAS			V / PH	MCA	MOCP	LBS	DETAIL	
FC-1	SAMSUNG	AM054TNZDCH/AA	WING 1	CLASSROOM 1	53	61	1600	450	3/8"	3/4"	-	-	208/1	2.6	15	164	15	2, 3, 4, 5, 6, 7 C
HP-1	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	50	1
FC-2	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 2	53	61	1600	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-2	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-3	SAMSUNG	AM054TNZDCH/AA	WING 2	CLASSROOM 3	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-3	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-4	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 4	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-4	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-5	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 5	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-5	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-6	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 6	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-6	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-7	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 7	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-7	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-8	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 8	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-8	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-9	SAMSUNG	AM054TNZDCH/AA	WING 3	CLASSROOM 9	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-9	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-10	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 10	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-10	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-11	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 11	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-11	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-12	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 12	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-12	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-13	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 13	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-13	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-14	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 14	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-14	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-15	SAMSUNG	AM054TNZDCH/AA	WING 4	CLASSROOM 15	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-15	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-16	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 16	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-16	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-17	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 17	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-17	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-18	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 18	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-18	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-19	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 19	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-19	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-20	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 20	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-20	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
FC-32	SAMSUNG	AM054TNZDCH/AA	ESCALON BLDG	CLASSROOM 32	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 6, 7
HP-32	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	15/MP6.01	1
FC-33	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 33	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 6, 7
HP-33	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	15/MP6.01	1
FC-34	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 34	53	61	1155	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-34	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	15/MP6.01	1
FC-35	SAMSUNG	AM054TNZDCH/AA		CLASSROOM 35	53	61	900	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7 C
HP-35	SAMSUNG	AM053TXMDCH/AA		ROOF			-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	15/MP6.01	1
FC-36	SAMSUNG	ACO24KNZDCH/AA		CLASSROOM 36	24	27	760	150	1/4"	5/8"	-	-	NOTE 8			100	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-36	SAMSUNG	AM024JXADCH/AA		ROOF			-	-	1/4"	5/8"	17.5	10	208 / 1	34	50	145	15/MP6.01	1

1. SPLIT SYSTEM SHALL BE ABLE TO OPERATE AT 94% HEATING CAPACITY DOWN TO 32°F OUTDOOR AMBIENT TEMPERATURE.
2. CFM BASED ON 0.55 ESP.
3. PROVIDE WITH SAMSUNG MIM-A60UN 24VAC THERMOSTAT ADAPTER AND 24VAC TRANSFORMER.
4. PROVIDE WITH DELTA CONTROL THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
5. PROVIDE CONDENSATE PUMP, LITTLE GIANT VCMX-20ULS WITH OVERFLOW PROTECTION, OR APPROVED EQUAL. C
6. PROVIDE WITH MERV-13 FILTERS WITH FILTER ACCESS PANEL.
7. FAN COIL SHALL BE ADJUSTED TO OPERATE AT CONSTANT SPEED AT INDICATED CFM.
8. INDOOR UNIT POWERED BY OUTDOOR UNIT.

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PROJECT

GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

CEG JOB NO. 21034
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
Building Commissioning
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STAMP

REGISTERED PROFESSIONAL ENGINEER
MEETA SERT UPADHYAY
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
A	Addendum 1	11/19/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/07/2021

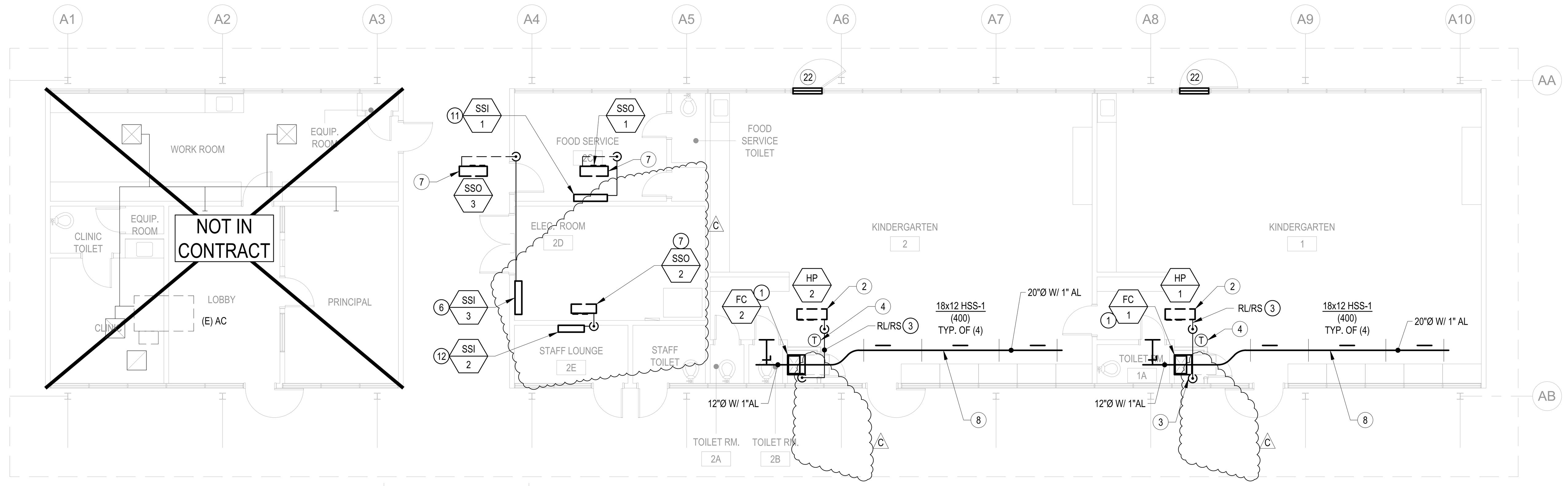
SHEET

SCHEDULES- MECHANICAL & PLUMBING

DATE 12/22/2021

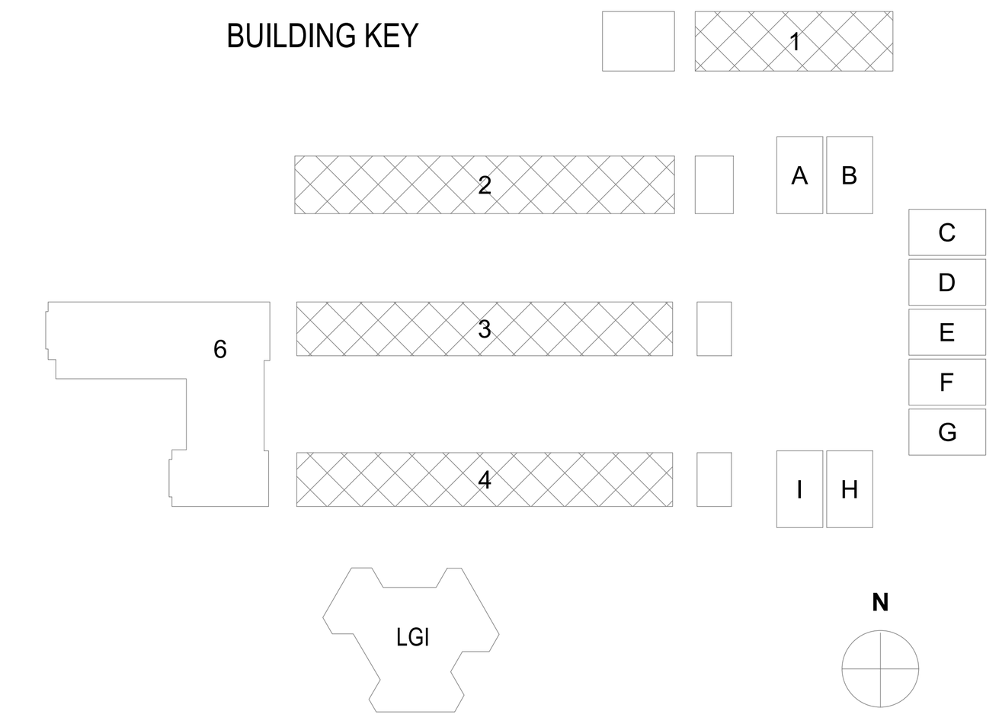
JOB # 2021005.02

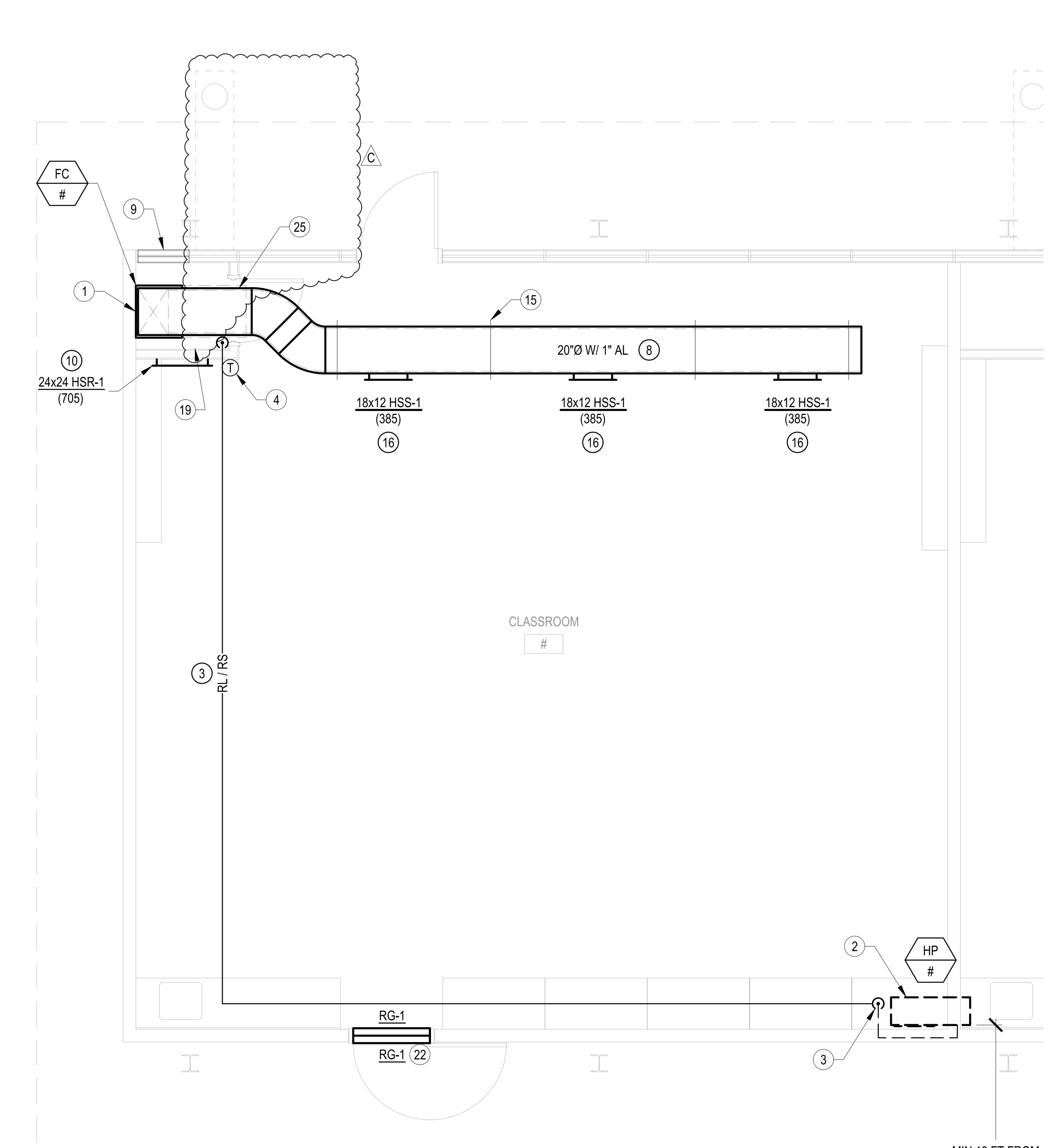
SHEET # AD3-MP0.02



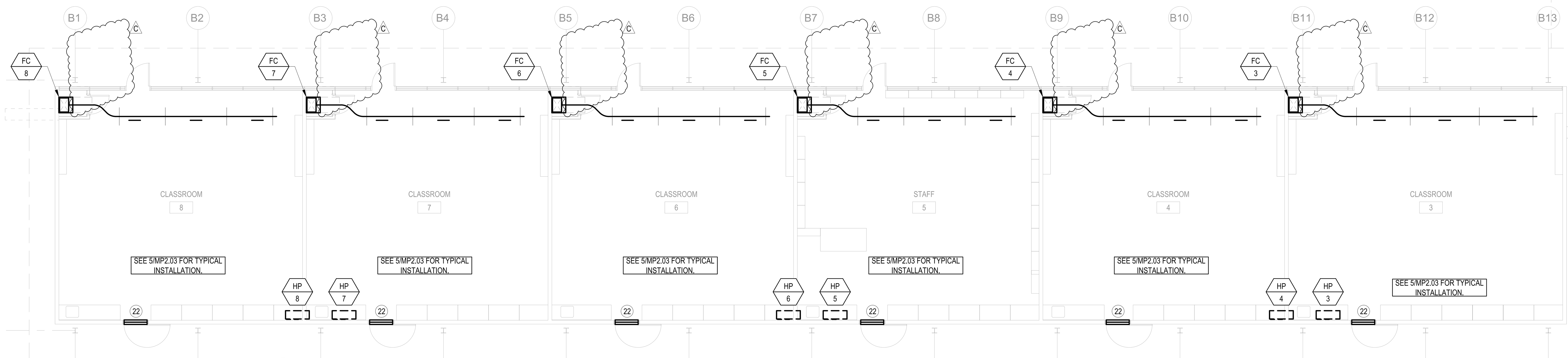
1 / MP2.03 **FLOOR PLAN - WING 1 - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"

NORTH



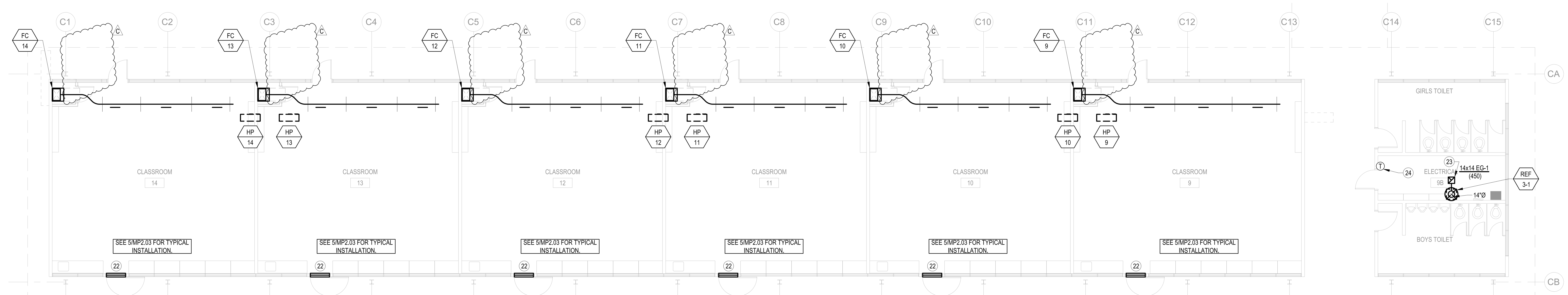


5 / MP2.03 **TYPICAL CLASSROOM ENLARGED FLOOR PLAN**
SCALE: 1/4" = 1'-0"



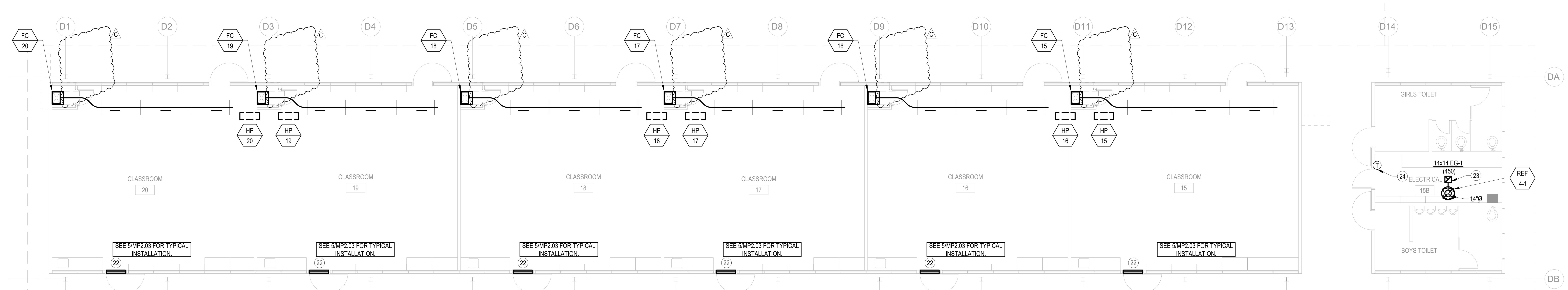
2 / MP2.03 **FLOOR PLAN - WING 2 - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"

NORTH



3 / MP2.03 **FLOOR PLAN - WING 3 - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"

NORTH



4 / MP2.03 **FLOOR PLAN - WING 4 - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"

NORTH

GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS ARE NOT SHOWN ON THIS PLAN. SEE MP2.01.
4. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS TO MATCH ADJACENT.
5. PAINT CONDENSATE PIPING AT EXTERIOR OF BUILDING TO MATCH ADJACENT.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
7. CONTRACTOR TO PROVIDE AND INSTALL THERMOSTAT WIRING AND ASSOCIATED CONDUITS FOR ALL NEW HVAC EQUIPMENT AND CONNECTIONS.

NEW SHEET NOTES

1. INSTALL FAN COIL, TYP. SEE 2/MP2.04 AND 3/MP2.04 FOR TYPICAL FAN COIL INSTALLATION. SEE 1/MP6.01 FOR TYPICAL FAN COIL MOUNTING.
2. INSTALL HEAT PUMP ON ROOF, MIN 10 FT AWAY FROM EDGE OF ROOF, TYP.
3. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, TYP. MINIMIZE EXPOSED PIPING ON ROOF. PENETRATE ROOF WITHIN 36" OF HEAT PUMP. RUN PIPE CONCEALED ABOVE T-BAR CEILING TO FAN COIL ENCLOSURE. PENETRATE FAN COIL ENCLOSURE WALL ABOVE CEILING. DROP DOWN TO FAN COIL AT LEFT SIDE OF UNIT. ENSURE REFRIGERANT PIPING DOES NOT BLOCK FILTER ACCESS.
4. INSTALL THERMOSTAT ON WALL, 48" MAX A.F.F., AND WIRE TO NEW FAN COIL, TYP.
5. NOT USED. (C)
6. INSTALL FAN COIL SSI-3 ABOVE (E) CONDUIT. COORDINATE EXACT HEIGHT WITH DISTRICT.
7. INSTALL CONDENSING UNIT ON ROOF, MIN 10 FT AWAY FROM EDGE OF ROOF, TYP. INSTALL REFRIGERANT PIPING FROM CONDENSING UNIT TO FAN COIL. REFRIGERANT PIPING TO PENETRATE ROOF WITHIN 36" OF CONDENSING UNIT. RUN REMAINDER OF REFRIGERANT PIPING EXPOSED BELOW HARDLID CEILING.
8. INSTALL EXPOSED SUPPLY DUCT. PAINT ALL EXPOSED DUCTWORK AND REGISTERS.
9. EXISTING OUTSIDE AIR LOUVER.
10. RETURN REGISTER WITH GRILLE SILENCER.
11. INSTALL FAN COIL SSI-1. BOTTOM OF UNIT TO BE 9 FT AFF.
12. INSTALL FAN COIL SSI-2. BOTTOM OF UNIT TO BE 7 FT AFF.
13. NOT USED.
14. NOT USED. (C)
15. INSTALL DUCT SUPPORTS, TYP. SEE DETAIL 5/MP6.01.
16. INSTALL FACE OPERABLE KEY EXTRACTOR, TYP. FOR ALL SUPPLY REGISTERS.
17. NOT USED.
18. NOT USED.
19. NOT USED.
20. NOT USED.
21. NOT USED.
22. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 44"x32". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL. VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING, MINIMIZE EXPOSED CABLE, PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES. (C)
23. INSTALL ROOFTOP EXHAUST FAN ON PITCHED ROOF CURB. ENSURE EXHAUST FAN IS A MINIMUM OF 10 FT AWAY FROM ANY OUTSIDE AIR INTAKES.
24. INSTALL THERMOSTAT ON INTERIOR WALL AND WIRE TO EXHAUST FAN EXHAUST FANS, TYP.
25. PROVIDE DUCT COLLAR TO CONCEAL DUCT OPENING AT ENCLOSURE. (C)

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PROJECT
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT
CEG JOB NO. 21034
CYPRESS Engineering Group
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STAMP
REGISTERED PROFESSIONAL ENGINEER
METIN SERTURK
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119523

REVISIONS

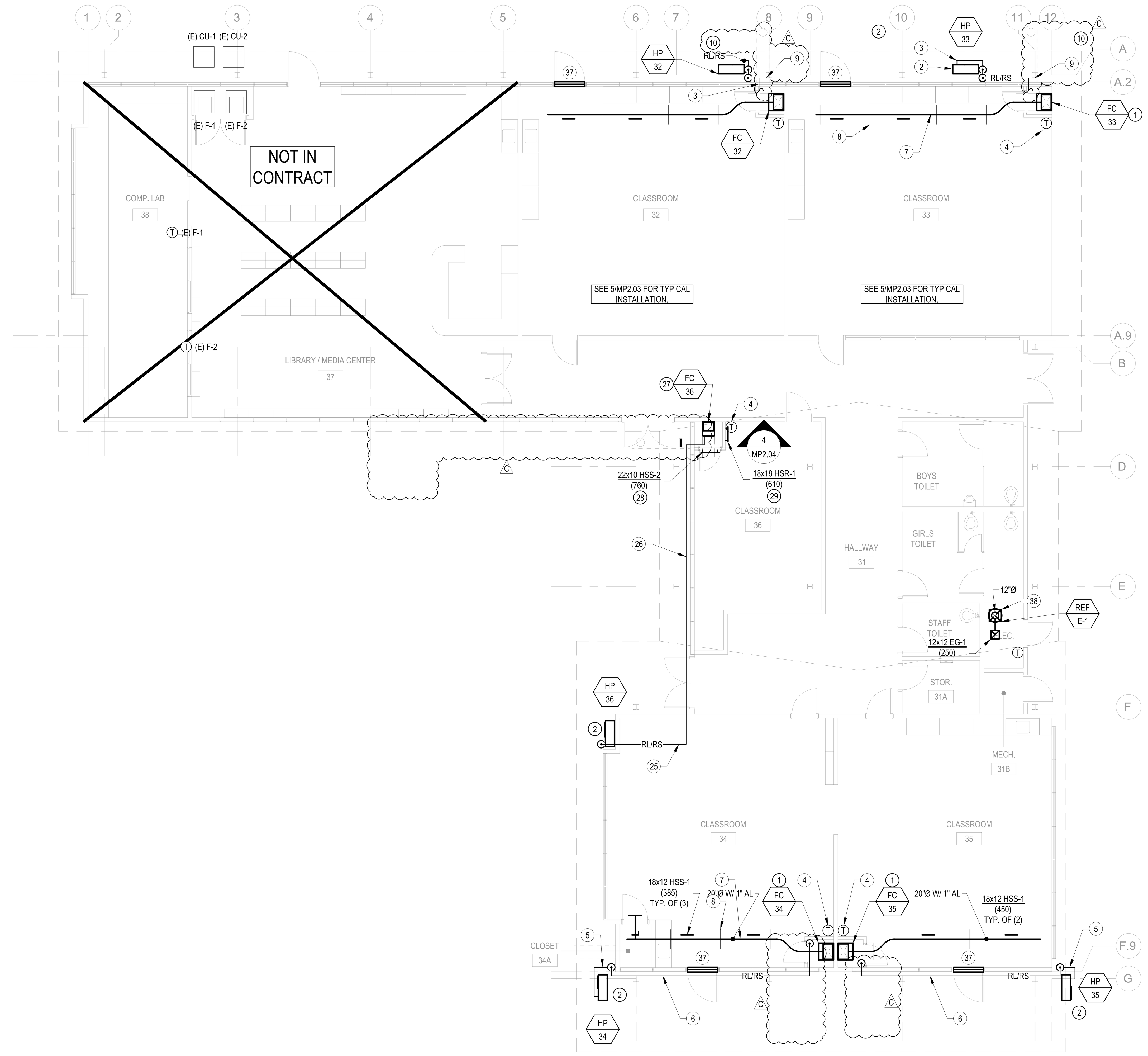
No.	Description	Date
A	Addendum 1	11/19/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/07/2021

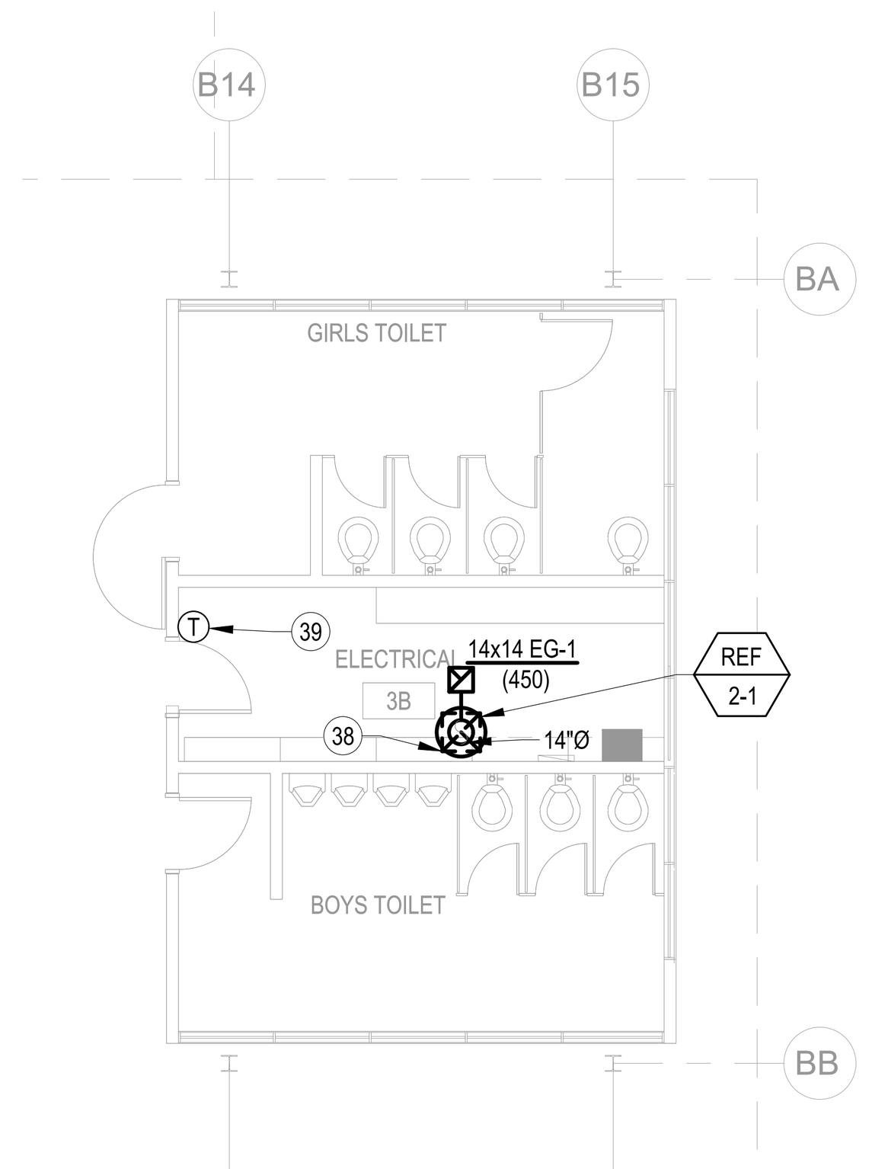
SHEET
FLOOR PLAN - NEW - WINGS 1, 2, 3, 4 - MECHANICAL & PLUMBING

DATE 12/22/2021
JOB # 2021005.02
SHEET # AD3-MP2.03



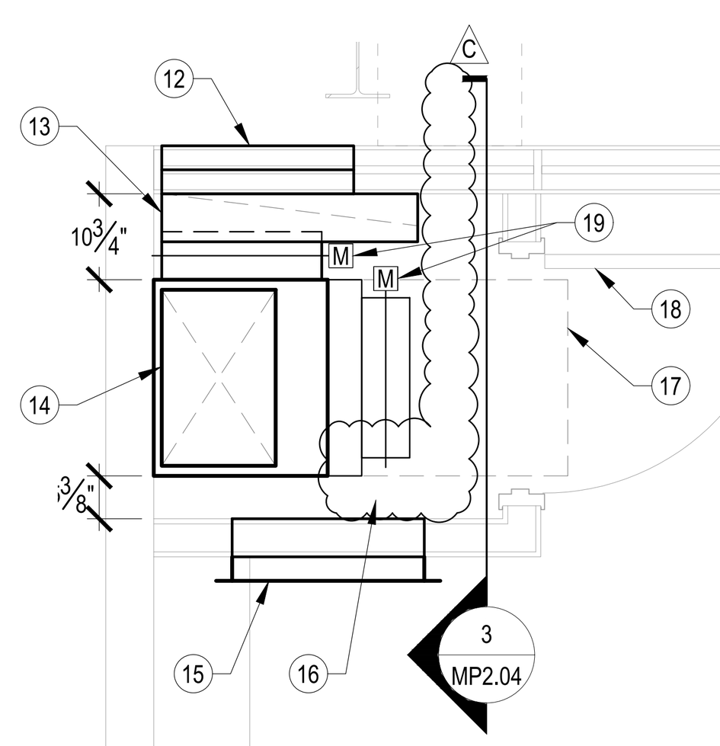
1 MP2.04 FLOOR PLAN - ESCALON BLDG - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

NORTH

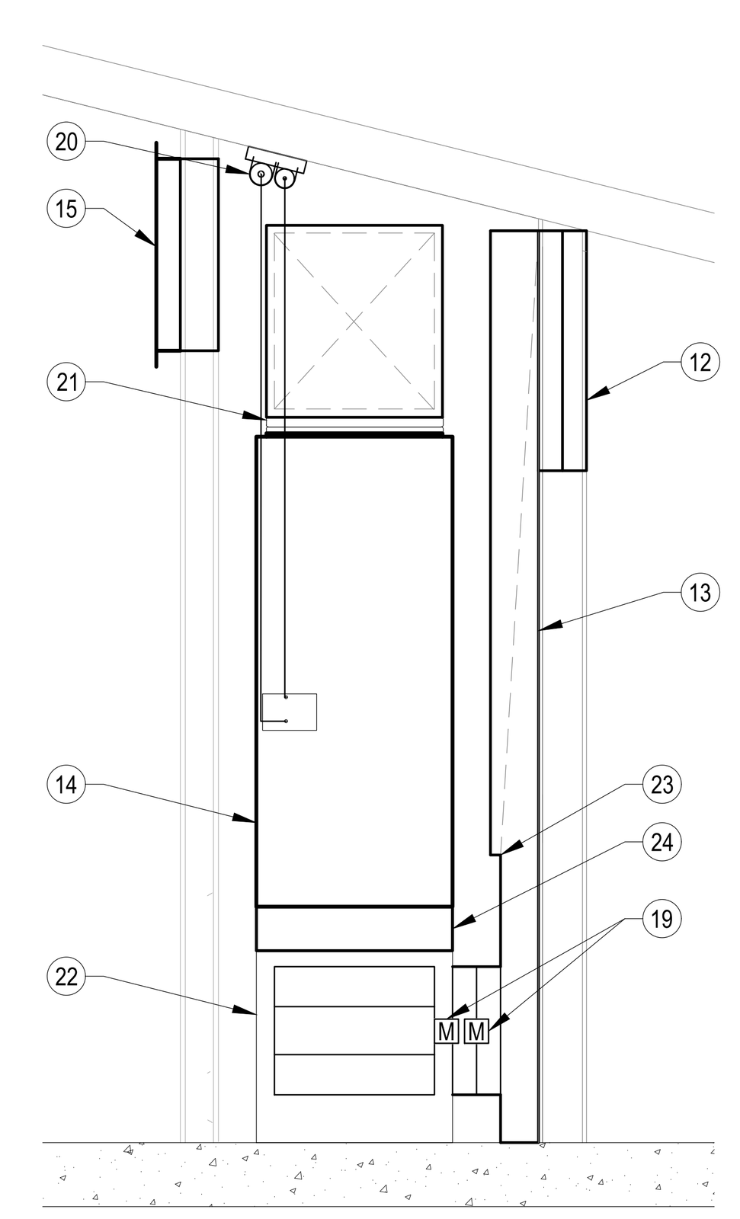


5 AD1-MP2.04b PARTIAL FLOOR PLAN - WING 2 - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

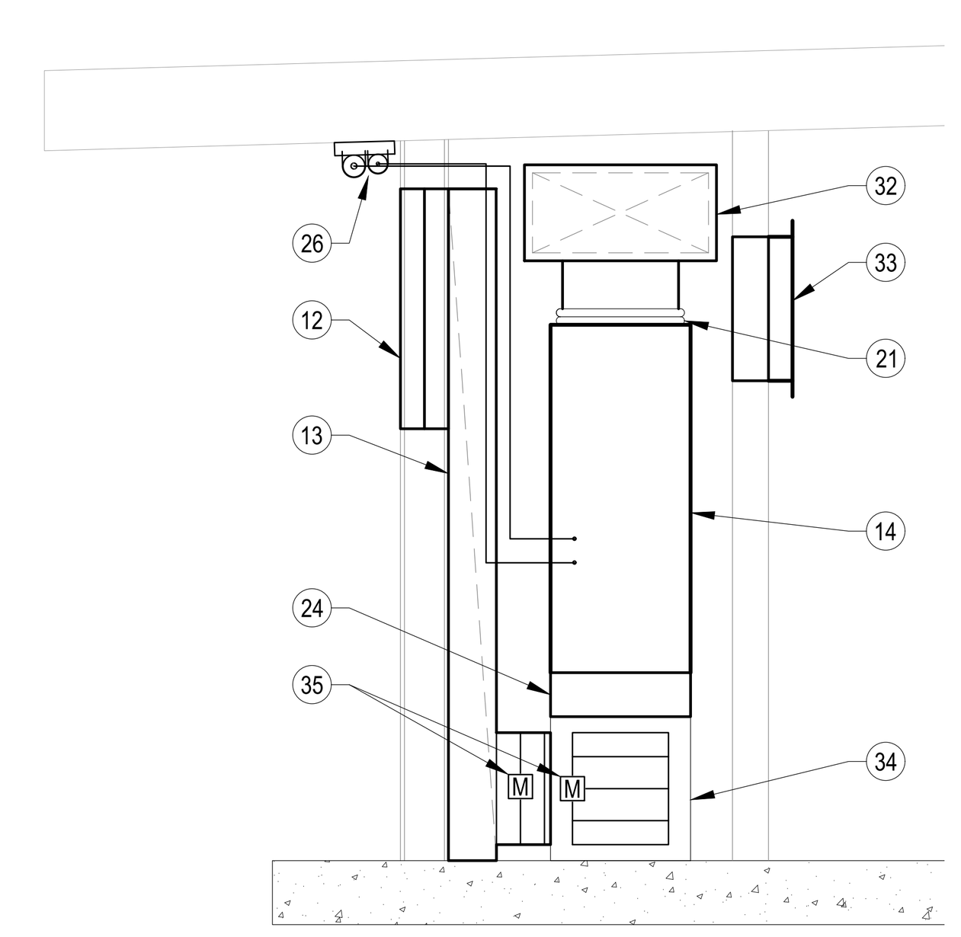
NORTH



2 MP2.04 FLOOR PLAN - ENCLOSURE
SCALE: NONE



3 MP2.04 SECTION - ENCLOSURE
SCALE: NONE



4 MP2.04 SECTION - ENCLOSURE AT FC-36
SCALE: NONE

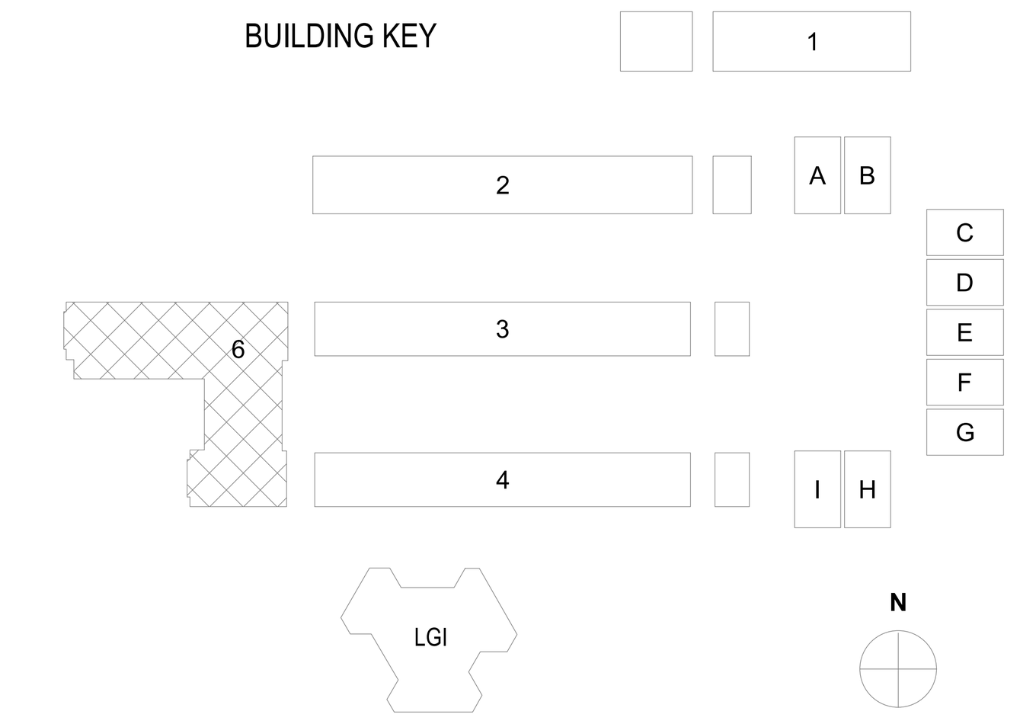
GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS ARE NOT SHOWN ON THIS PLAN. SEE MP2.01.
4. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS TO MATCH ADJACENT.
5. PAINT CONDENSATE PIPING AT EXTERIOR OF BUILDING TO MATCH ADJACENT.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
7. CONTRACTOR TO PROVIDE AND INSTALL THERMOSTAT WIRING AND ASSOCIATED CONDUITS FOR ALL NEW HVAC EQUIPMENT AND CONNECTIONS.

(#) NEW SHEET NOTES

1. INSTALL FAN COIL, TYP. SEE 2/MP2.04 AND 3/MP2.04 FOR TYPICAL FAN COIL INSTALLATION. SEE 1/MP6.01 FOR TYPICAL FAN COIL MOUNTING.
2. INSTALL HEAT PUMP ON HOUSEKEEPING PAD, TYP.
3. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, TYP. ROUTE PIPE UP AND OVER BUILDING FOOTING. PENETRATE FAN COIL ENCLOSURE IN SAME AREA AS CONDENSATE DRAIN PIPE FROM FAN COIL. ROUTE PIPE ON FLOOR TO LEFT SIDE OF FAN COIL.
4. INSTALL THERMOSTAT ON WALL AND WIRE TO FAN COIL, TYP.
5. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, TYP. ROUTE PIPE ALONG GROUND, THEN UP AND OVER BUILDING FOOTING.
6. RUN REFRIGERANT PIPING UNDER ROOF OVERHANG.
7. INSTALL SUPPLY DUCT EXPOSED .
8. INSTALL DUCT SUPPORT. SEE DETAIL 5/MP6.01.
9. NOT USED. (C)
10. NOT USED.
11. PENETRATE EXTERIOR WALL NEAR TOP OF FAN COIL ENCLOSURE. RUN ALONG ENCLOSURE CEILING. DROP DOWN AT LEFT SIDE OF FAN COIL, AND CONNECT TO FAN COIL.
12. EXISTING OUTSIDE AIR LOUVER.
13. 6"x32" OUTSIDE AIR DUCT DOWN TO MIXING PLENUM.
14. FAN COIL. SEE PLANS FOR LOCATION.
15. 24"x24" RETURN REGISTER HSR-1 WITH GRILLE SILENCER.
16. NOT USED. (C)
17. CLEARANCE REQUIRED FOR FILTER REPLACEMENT.
18. 30" FULL HEIGHT DOOR. SEE ARCHITECTS DRAWINGS.
19. 20"X16" MOTORIZED DAMPER (LOW VOLTAGE).
20. REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL. SEE 15/MP6.01 FOR PIPE SUPPORT.
21. FLEX DUCT AT CONNECTION TO UNIT.
22. MIXING PLENUM BELOW FAN COIL.
23. DUCT TRANSITION TO ALLOW DAMPER CONNECTION.
24. FILTER BOX THAT CAN FIT 4" OR 2" FILTER.
25. RUN REFRIGERANT PIPING ABOVE CEILING.
26. RUN REFRIGERANT PIPING UNDER OVERHANG.
27. INSTALL FAN COIL. SEE 4/MP2.04 FOR INSTALLATION AND 1/MP6.01 FOR MOUNTING.
28. INSTALL SUPPLY REGISTER ABOVE FAN COIL ENCLOSURE DOOR.
29. INSTALL RETURN REGISTER HIGH ON WALL.
30. NOT USED.
31. NOT USED. (C)
32. 22"x10" SUPPLY DUCT TO 22"x10" SUPPLY REGISTER ABOVE ENCLOSURE DOOR.
33. 18"x18" RETURN REGISTER HSR-1 WITH GRILLE SILENCER.
34. 18" TALL MIXING PLENUM BELOW FAN COIL.
35. 12"X14" MOTORIZED DAMPER (LOW VOLTAGE).
36. CONDENSATE DRYWELL IN LANDSCAPE AREA. (C)
37. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 44"x32". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL. VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING, MINIMIZE EXPOSED CABLE, PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES.
38. INSTALL ROOFTOP EXHAUST FAN ON PITCHED ROOF CURB. ENSURE EXHAUST FAN IS A MINIMUM OF 10 FT AWAY FROM ANY OUTSIDE AIR INTAKES.
39. INSTALL THERMOSTAT ON INTERIOR WALL AND WIRE TO EXHAUST FAN EXHAUST FANS, TYP.

BUILDING KEY



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PROJECT
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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT
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STAMP
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METIN SERTTUNC
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EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119523

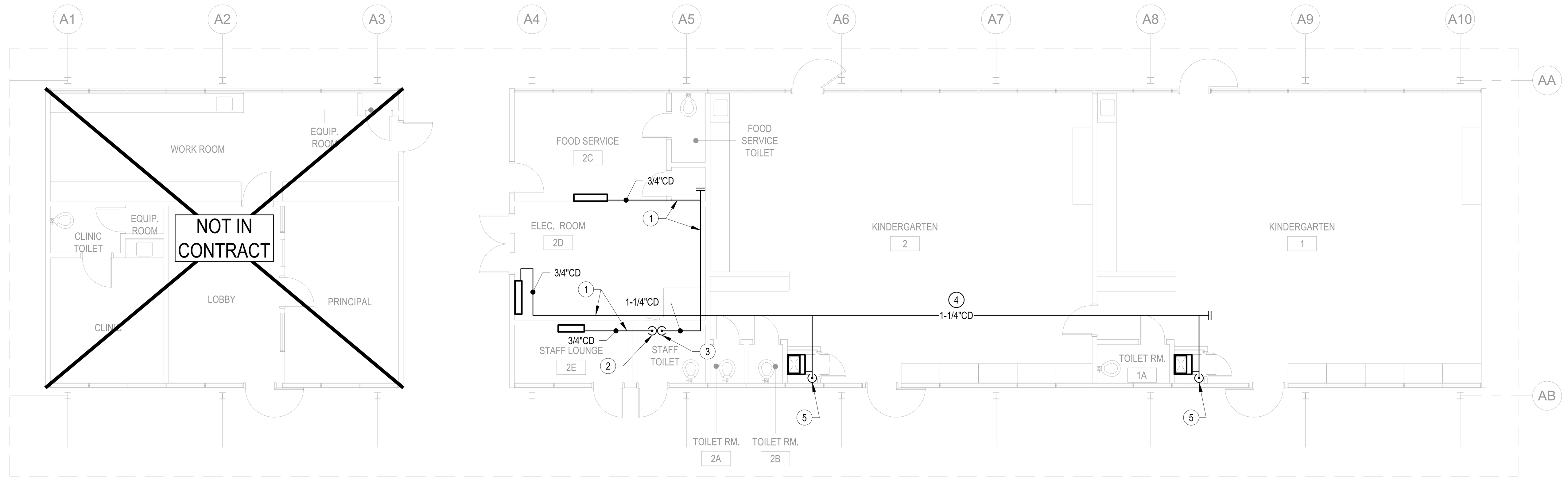
REVISIONS

No.	Description	Date
A	Addendum 1	11/19/2021
C	Addendum 3	12/22/2021

MILESTONES
DD
90% CD
DSA SUB
BACKCHECK

SHEET
FLOOR PLAN - NEW - ESCALON BLDG - MECHANICAL & PLUMBING

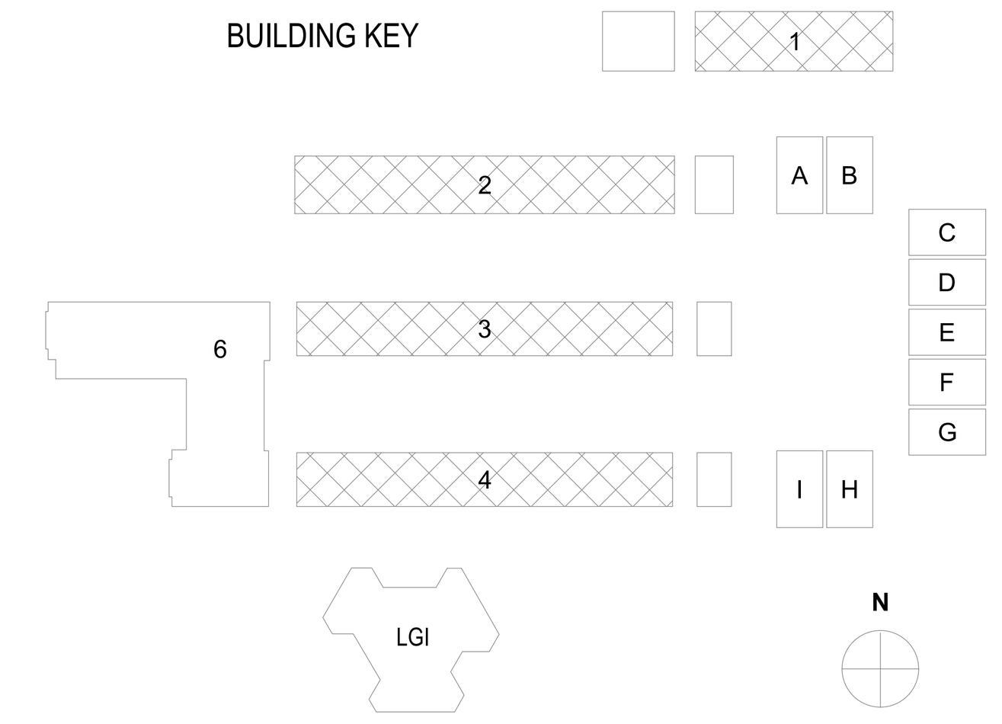
DATE 12/22/2021
JOB # 2021005.02
SHEET # AD3-MP2.04

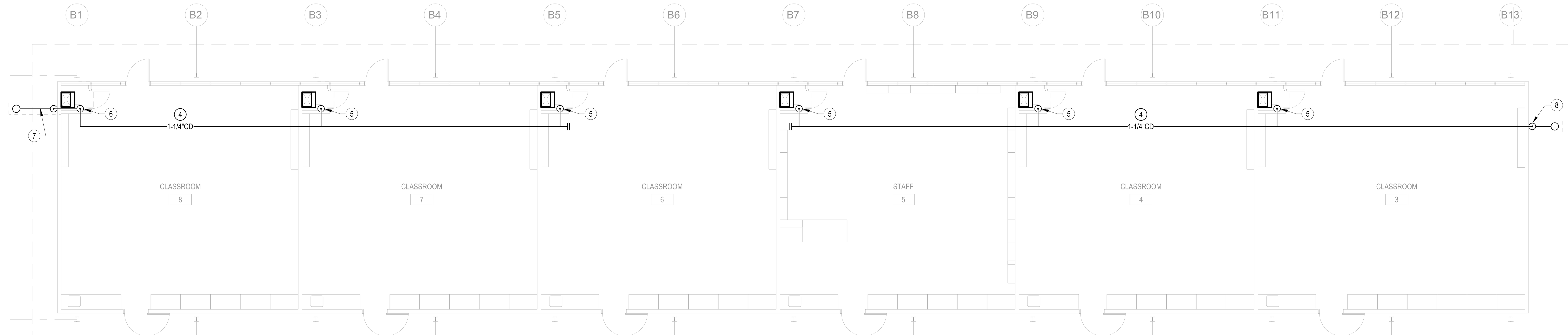


1 MP2.03 **FLOOR PLAN - WING 1 - NEW - PLUMBING**

SCALE: 1/8" = 1'-0"

NORTH

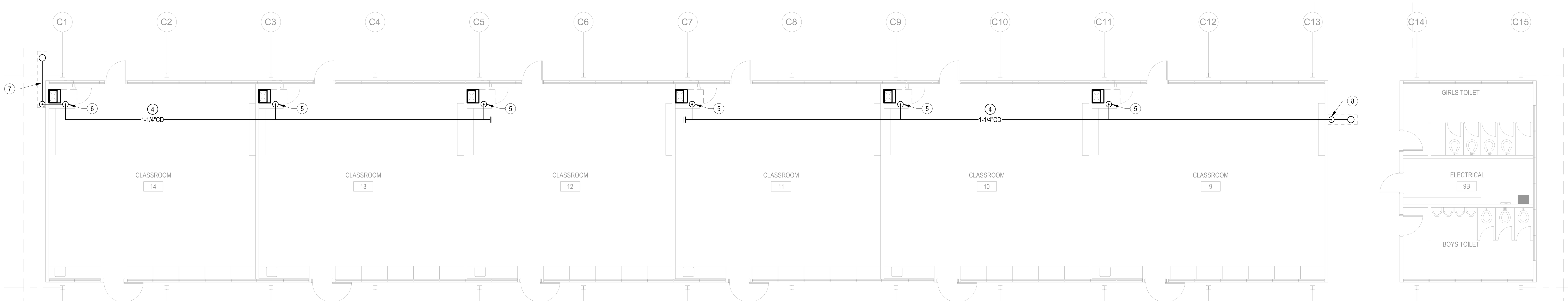




2 MP2.03 **FLOOR PLAN - WING 2 - NEW - PLUMBING**

SCALE: 1/8" = 1'-0"

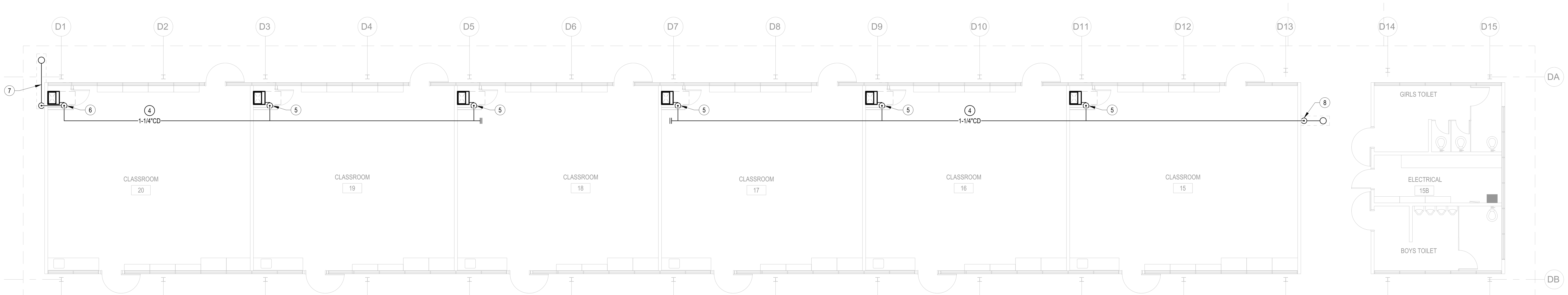
NORTH



3 MP2.03 **FLOOR PLAN - WING 3 - NEW - PLUMBING**

SCALE: 1/8" = 1'-0"

NORTH



4 MP2.03 **FLOOR PLAN - WING 4 - NEW - PLUMBING**

SCALE: 1/8" = 1'-0"

NORTH

ADDENDUM 3 NOTES

1. THIS SHEET COVERS CONDENSATE DRAINS FOR WINGS 1, 2, 3, AND 4 AND SUPERCEDES CONDENSATE DRAINS SHOWN FOR WINGS 1, 2, 3, AND 4 IN BID DOCUMENTS AND ADDENDUMS 1 AND 2.

(#) NEW SHEET NOTES

1. PUMP CD UP AND RUN BELOW HARDLID CEILING. TYP. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
2. DROP DOWN AND COMBINE WITH OTHER CD HEADER.
3. RUN CD PIPE INSIDE WIREMOLD ON WALL, DOWN TO SINK TAILPIECE, TYP.
4. CONDENSATE DRAIN PIPE ABOVE ACT. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
5. CD FROM FAN COIL. SEE 9/MP6.01 FOR CONNECTION TO UNIT. INSTALL CONDENSATE PUMP AT LEFT SIDE OF UNIT. ENSURE PUMP AND PIPE DO NOT BLOCK FILTER ACCESS. PUMP CD UP TO ENCLOSURE CEILING AND CONNECT TO CD HEADER ABOVE ACT.
6. DROP CD HEADER DOWN INSIDE LEFT SIDE OF FAN COIL ENCLOSURE AND COMBINE WITH CD FROM FAN COIL. ENSURE PIPE DOES NOT BLOCK FILTER ACCESS. RUN PIPE ALONG LEFT ENCLOSURE WALL AND PENETRATE BACK OF ENCLOSURE. ROUTE TO CD DRYWELL.
7. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE. SEE DETAIL 14/MP6.01 FOR CD DRYWELL.
8. DROP CD PIPE AT EXTERIOR WALL AND ROUTE TO CD DRYWELL. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE. SEE DETAIL 14/MP6.01 FOR CD DRYWELL.

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STAMP

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REVISIONS

No.	Description	Date
C	Addendum 3	12/22/2021

MILESTONES

DD

90% CD

DSA SUB

BACKCHECK

SHEET

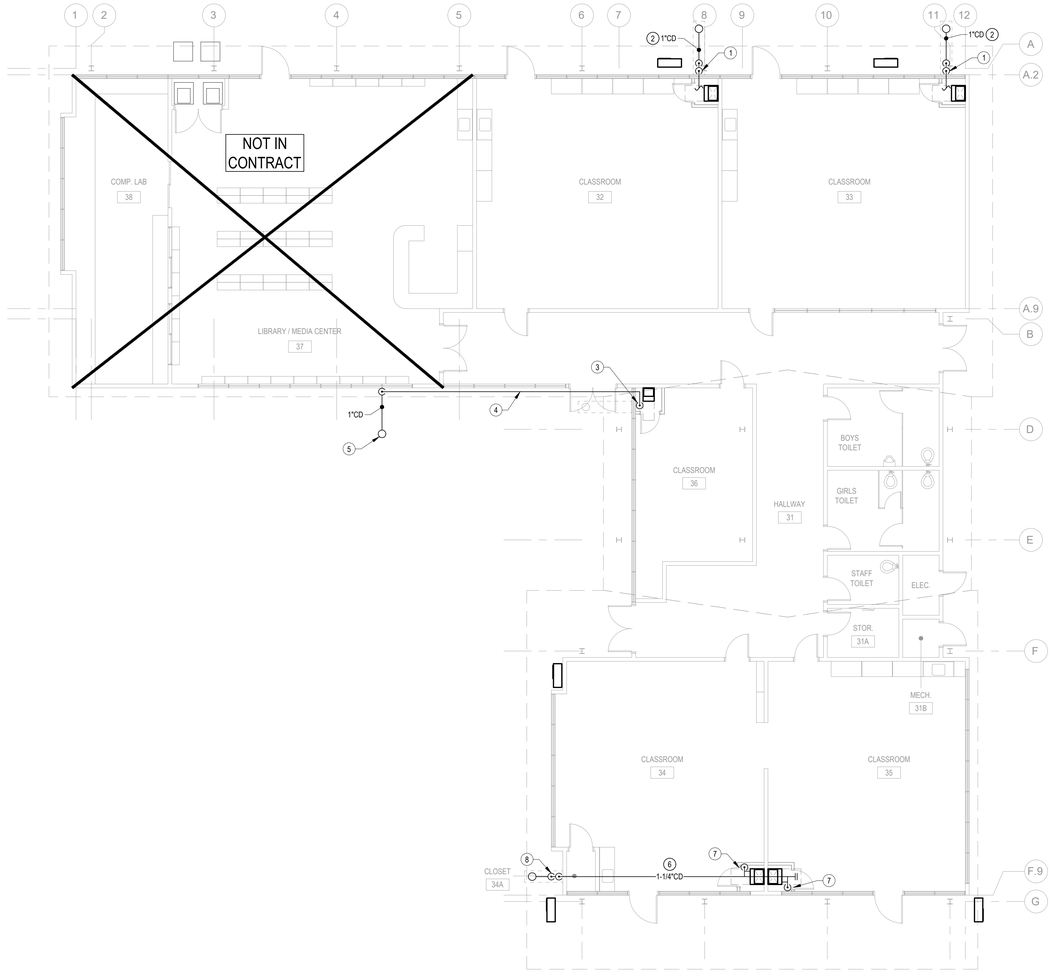
FLOOR PLAN - NEW - WINGS 1, 2, 3, 4 - CONDENSATE DRAINS - PLUMBING

DATE 12/22/2021

JOB # 2021005.02

SHEET #

AD3-P2.03



1 P2.04 FLOOR PLAN - ESCALON BLDG - NEW - PLUMBING

SCALE: 1/8" = 1'-0"

NORTH

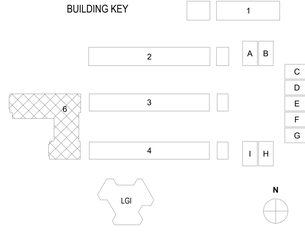
ADDENDUM 3 NOTES

1. THIS SHEET COVERS CONDENSATE DRAINS FOR ESCALON BUILDING AND SUPERCEDES CONDENSATE DRAINS SHOWN FOR ESCALON BUILDING IN BID DOCUMENTS AND ADDENDUMS 1 AND 2.

(#) NEW SHEET NOTES

1. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO ABOVE CONCRETE FOOTING. DROP CD TIGHT TO EXTERIOR CONCRETE FOOTING TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 6/MP6.01 FOR CONDENSATE DRYWELL AROUND BUILDING FOOTING.
2. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE.
3. CD FROM FAN COIL. PUMP CD UP TO CEILING OF FAN COIL ENCLOSURE. SEE 9/MP6.01 FOR CONNECTION TO UNIT.
4. RUN CD ALONG EXTERIOR WALL, ABOVE WINDOWS, TO LANDSCAPE AREA. DROP CD TIGHT TO EXTERIOR WALL TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAIL 14/MP6.01 FOR CD DRYWELL.
5. CONDENSATE DRYWELL IN LANDSCAPE AREA.
6. CONDENSATE DRAIN PIPE ABOVE ACT. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
7. CD FROM FAN COIL. SEE 9/MP6.01 FOR CONNECTION TO UNIT. INSTALL CONDENSATE PUMP AT LEFT SIDE OF UNIT. ENSURE PUMP AND PIPE DO NOT BLOCK FILTER ACCESS. PUMP CD UP TO ENCLOSURE CEILING AND CONNECT TO CD HEADER ABOVE ACT.
8. DROP CD TIGHT TO EXTERIOR WALL TO ABOVE CONCRETE FOOTING. DROP CD TIGHT TO EXTERIOR CONCRETE FOOTING TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAIL 6/MP6.01 FOR CONDENSATE DRYWELL AROUND BUILDING FOOTING.

BUILDING KEY



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MEYN SERT VANDER
No. M31059
EXP. JUNE 30, 2023
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STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

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C	Addendum 3	12/22/2021

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DD
90% CD
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BACKCHECK

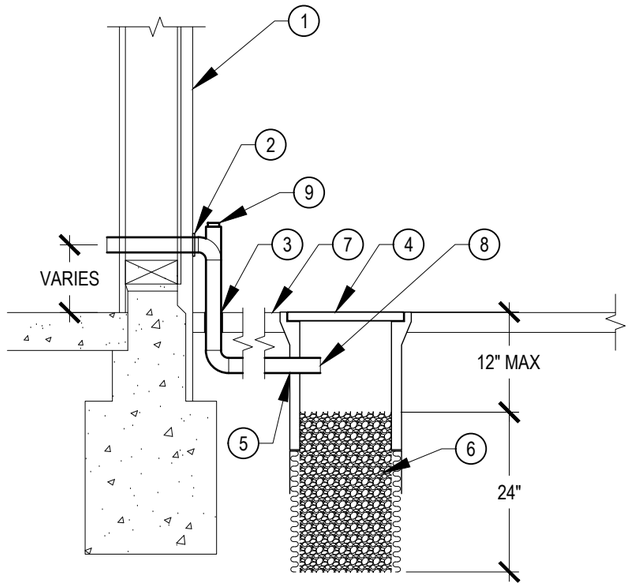
SHEET

FLOOR PLAN - NEW - ESCALON BLDG - CONDENSATE DRAINS - PLUMBING

DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-P2.04



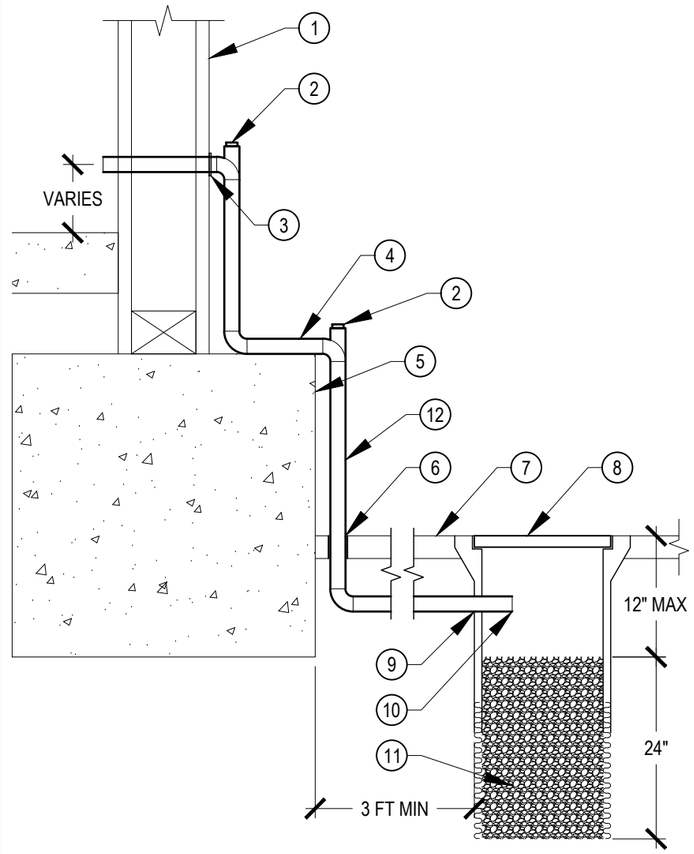
DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. SEAL PENETRATION WATERTIGHT. PROVIDE ESCUTCHEON AT EXTERIOR.
3. DROP PIPE BELOW GRADE.
4. CHRISTY F22 CURB VALVE BOX WITH ADS SNAP ADAPTER AND 18" ADS EXTENSION. WITH F08R REINFORCED CONCRETE LID. FLUSH WITH GRADE.
5. CORE DRILL BOX FOR PIPE TO PASS THROUGH.
6. FILL WITH WASHED PEA GRAVEL.
7. GRADE. UNLESS DRYWELL IS IN LANDSCAPE AREA, SEE A8.10 FOR PATCHING.
8. SPILL WITH 1" AIR GAP.
9. CLEANOUT.

NOTES:

1. BRACE PIPE ON VERTICAL RUNS.

14 CONDENSATE DRYWELL N.T.S.



DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
3. SEAL PENETRATION WATERTIGHT. PROVIDE ESCUTCHEON AT EXTERIOR.
4. RUN PIPE ON TOP OF (E) BUILDING FOOTING. DO NOT PENETRATE THROUGH FOOTINGS. OFFSET PIPE IF NECESSARY TO CLEAR (E) BRACE FOOTING.
5. (E)BUILDING FOOTING.
6. DROP PIPE BELOW GRADE.
7. GRADE. UNLESS DRYWELL IS IN LANDSCAPE AREA, SEE A8.10 FOR PATCHING.
8. CHRISTY F22 CURB VALVE BOX WITH ADS SNAP ADAPTER AND 18" ADS EXTENSION. WITH F08R REINFORCED CONCRETE LID. FLUSH WITH GRADE.
9. CORE DRILL BOX FOR PIPE TO PASS THROUGH.
10. SPILL WITH 1" AIR GAP.
11. FILL WITH WASHED PEA GRAVEL.
12. BRACE PIPE ON VERTICAL RUNS.

6 CONDENSATE DRYWELL AROUND BUILDING FOOTING N.T.S.

C C

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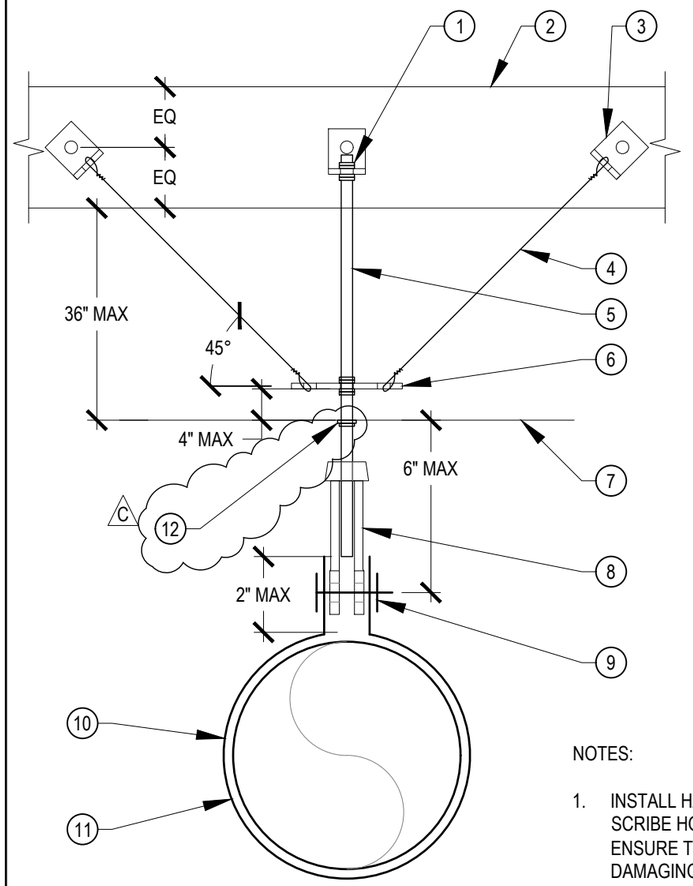
GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET REF. SHEET MP6.01
APPL NO.: 01-119523	AD3-MP6.01a
JOB NO. 2021005.02	
DATE 12/22/2021	



DETAIL NOTES:

1. PROVIDE DOUBLE NUT AT FITTINGS, TYP AT ROD.
2. (E) FRAMING.
3. UNISTRUT P1026 W/ 3/8" THRU BOLT, TYP.
4. 12 GA WIRE W/ (3) TIGHT TURNS WITHIN 3", TYP. 4 WAYS.
5. 3/8"Ø HANGER ROD.
6. UNISTRUT P1925.
7. (E) T-BAR CEILING.
8. GRINNELL FORGED STEEL CLEVIS END.
9. 3/8"Ø THRU BOLT W/ LOCKWASHER AND NUT.
10. DUCT. MAX WEIGHT OF DUCT = 10 LB/FT. SEE PLANS FOR SIZES AND LOCATIONS.
11. 1" x 16 GAUGE CONTINUOUS COLLAR DRAWN TIGHT AROUND DUCT.
12. WASHER AND NUT. (C)

NOTES:

1. INSTALL HANGER ROD AT EDGE OF T-BAR CEILING TILE. SCRIBE HOLE TIGHT TO ROD. DO NOT OVERCUT. ENSURE T-BAR CEILING CAN BE REPLACED WITHOUT DAMAGING THE CEILING TILE.
2. HANGER ROD & WIRE BRACING ASSEMBLY SPACING 10 FT OC MAX.

5	ROUND DUCT HANGER	N.T.S.

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DATE 12/22/2021	

SYMBOL LIST:

- PLAN, DETAIL OR SECTION DESIGNATION.
- ROOM NUMBER.
- SHEET REFERENCE SYMBOL - SEE ASSOCIATED NOTE ON SAME SHEET.
- FEEDER SCHEDULE SYMBOL.
- MECHANICAL EQUIPMENT TAG.
- INDICATES FIXTURE TYPE

LUMINAIRE SYMBOLS

- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
- POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE WALL MOUNTED-SEE SCHEDULE.
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EM — EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
- EMERGENCY LUMINAIRE WALL MOUNTED- PROVIDE EM. BATTERY BALLAST
- EXIT LIGHT SINGLE FACE - SEE SCHEDULE.
- EXIT LIGHT SINGLE FACE (WITH ARROW)- SEE SCHEDULE.
- EXIT LIGHT (DOUBLE FACED WITH ARROW)- SEE SCHEDULE.
- EMERGENCY BATTERY PACK EXIT LIGHT INSTALL AS DIRECTED.

TYPICAL LUMINAIRE NOMENCLATURE

- 3a — INDICATES SWITCHING DESIGNATION
- INDICATES CIRCUIT NUMBER

SWITCH SYMBOLS

- SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- $a — SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX, a = CIRCUIT CONTROLLED.
- $3 — THREE WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- $4 — FOUR WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
- $ — MOTOR RATED SWITCH
- LVS a — WALL MOUNTED LON VOLTAGE "DATALINE SWITCH =48" FROM TOP OF BOX, UON, a = CIRCUIT CONTROLLED
- LIGHTING OCCUPANCY SENSOR
- MOTION DETECTOR POWER PACK
- ONE CIRCUIT WALL SWITCH WITH BUILT IN OCCUPANCY SENSOR. CONNECT SWITCHING TO LIGHTING FIXTURES AS REQUIRED. MOUNT AT +48"AFF TO THE TOP OF THE SWITCH BOX, UON.

RECEPTACLE SYMBOLS

- CONVENIENCE RECEPTACLE - DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- GFCI CONVENIENCE RECEPTACLE - DUPLEX AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- RECEPTACLE - DOUBLE DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- SINGLE RECEPTACLE - NEMA 5-20R UON, AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- SINGLE RECEPTACLE - NEMA L21 - 208 VOLT, THREE PHASE, 5 WIRE, AT + 18" AFF UON AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- C — DOUBLE DUPLEX RECEPTACLE WITH (1) CONTROLLED DUPLEX AND (1) UNCONTROLLED DUPLEX, AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
- 3-CHANNEL SURFACE RACEWAY, INSTALL AT +36" AFF UON. RACEWAY SHALL BE WIREMOLD #5500.
- FLOOR BOX WITH (2) DUPLEX RECEPTACLES AND DATA OUTLETS. QUANTITY OF DATA OUTLETS AS INDICATED ON THE FLOOR PLANS.

POWER DISTRIBUTION SYMBOLS

- PANELBOARD - SURFACE OR FLUSH MOUNTED.
- LCP — LIGHTING CONTROL CABINET.
- EM — EMERGENCY POWER INVERTER.
- JUNCTION BOX - CEILING OR WALL MOUNTED, SIZE PER CEC, TAPE AND TAG WIRES.
- MAIN SWITCHBOARD OR DISTRIBUTION PANEL.
- M — MOTOR
- 30 — RATING AS INDICATED.
- 60 — UNFUSED DISCONNECT SWITCH - RATING AS INDICATED.
- 100 — FUSED DISCONNECT SWITCH - SIZE FUSES PER MOTOR MANUFACTURER'S RECOMMENDATIONS. RATING AS INDICATED.
- II — MAGNETIC STARTER - NEMA SIZE INDICATED.
- T — TRANSFORMER - SEE SINGLE LINE FOR REQUIREMENTS.
- GROUND ROD.
- P — IN-GRADE ELECTRICAL PULL BOX WITH TRAFFIC RATED LID.
- L — IN-GRADE LIGHTING PULL BOX WITH TRAFFIC RATED LID.
- C — IN-GRADE COMMUNICATION PULL BOX WITH TRAFFIC RATED LID.
- EV1 — SINGLE EV CHARGER FOR BUS
- EV2 — DOUBLE EV CHARGER FOR CAR

POWER DISTRIBUTION SINGLE LINE SYMBOLS

- DRAW-OUT CIRCUIT BREAKER.
- CIRCUIT BREAKER.
- FUSED SWITCH.
- M — "PG&E" METER W/ CURRENT TRANSFORMER.
- TRANSFORMER.
- NORMALLY OPENED, AUXILIARY CONTACT.
- NORMALLY CLOSED, AUXILIARY CONTACT.
- AUTOMATIC TRANSFER SWITCH.
- EMERGENCY GENERATOR.

WIRING & CONDUIT RUN SYMBOLS

- CONDUIT - CONCEALED IN WALLS OR CEILINGS.
- CONDUIT - EXPOSED.
- CONDUIT - UNDERGROUND OR BELOW FLOOR
- EXISTING CONDUIT, CABLES OR DEVICE
- CONDUIT - HOME RUN TO PANEL, TERMINAL CABINET, ETC. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. CROSSHATCHES WITH "#10" INDICATES WIRE SIZE OTHER THAN #12'S.
- FLEX CONDUIT WITH CONNECTION.
- CONDUIT - STUB UP.
- CONDUIT - STUB DOWN.
- CONDUIT EMERGENCY SYSTEM.
- E — CAPPED CONDUIT.
- CONDUIT CONTINUATION.

WATTSTOPPER DIGITAL LIGHTING MANAGEMENT CONTROLS

- LCP — WATTSTOPPER LMCP24
- LMRC 101 — WATTSTOPPER LMRC-101
- LMRC 211 — WATTSTOPPER LMRC-211
- LMRC 212 — WATTSTOPPER LMRC-212
- LMRC 213 — WATTSTOPPER LMRC-213
- WC — WATTSTOPPER LMDC-100, CEILING MOUNT
- D 101 — WATTSTOPPER LMDW-101, + 48" AFF TO TOP OF THE BOX, UON.
- WL — WATTSTOPPER LMLS-500, CEILING/WALL MOUNT
- $ 101 — WATTSTOPPER LMSW-101, + 48" AFF TO TOP OF THE BOX, UON.
- $ 102 — WATTSTOPPER LMSW-102, + 48" AFF TO TOP OF THE BOX, UON.

COMMUNICATIONS SYMBOLS

- 19" FLOOR MOUNTED DATA RACK.
- DATA/TEL STATION AT +18" AFF UON WITH (1) DATA OUTLET. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
- (2) — DATA/TEL STATION AT +18" AFF UON WITH (2) DATA OUTLETS. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
- WAP — (2) DATA OUTLETS FOR WIRELESS ACCESS POINT EQUIPMENT TO BE MOUNTED IN CEILING CHASE.
- INTERIOR SPEAKER WALL MOUNTED AT + 8'-0" AFF UON. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
- CEILING MOUNTED SPEAKER. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
- FLUSH MOUNTED EXTERIOR SPEAKER AT +8'-0" AFF UON. CONNECT EXTERIOR SPEAKER PER THE PA/CLOCK RISER DIAGRAM.
- COMBINATION FLUSH MOUNTED CLOCK/SPEAKER DEVICE AT +8'-0" AFF UON. CONNECT CLOCK/SPEAKER PER THE PA/CLOCK RISER DIAGRAM. PROVIDE ¾"C TO ACCESSIBLE CEILING.
- HDMI DEVICE. CONNECT PER A 4⅛" EXTRA DEEP BOX WITH A 2 GANG RING THROUGH 1¼"C TO CEILING.

FIRE ALARM SYMBOLS

- FACP — FIRE ALARM CONTROL PANEL.
- RPS — REMOTE POWER SUPPLY.
- AMP — EVAC SPEAKER AMPLIFIER.
- FATC — FIRE ALARM TERMINAL CABINET.
- ANN — REMOTE FIRE ALARM ANNUNCIATOR.
- SMOKE DETECTOR
- PULL STATION
- HORN STROBE

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BEANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTIONS 1617A.1.18 THROUGH 1617A1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLE HAVING A FLEIXBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHIGH IS HEAVIER THAN 400 OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LINGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OF ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., SMACNA OR OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEM. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

- MP☐ MD☐ PP☐ E☒ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
- MP☐ MD☐ PP☐ E☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) #

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE LICENSED BY THE STATE OF CALIFORNIA C-10 AND SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY THIS CONTRACT WORK.
3. PRIOR TO SUBMITTING A BID THE CONTRACTOR SHALL VISIT THE SITE. REVIEW THE EXISTING CONDITIONS AND ALLOW FOR LABOR, MATERIAL AND COORDINATION THAT IS NECESSARY TO PROVIDE A COMPLETE INSTALLATION OF EACH SYSTEM. THE CONTRACTOR SHALL OBTAIN AND BE FAMILIAR WITH ALL OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE ACCURATE "AS-BUILT" DRAWINGS. "AS-BUILT" DRAWINGS SHALL SHOW ACTUAL CHANGES TO ORIGINAL ELECTRICAL DRAWING, SHOW LOCATIONS OF PULL BOXES, CONDUIT RUNS AND WIRING CHANGES. THE CONTRACTOR SHALL PROVIDE ONE (1) HARDCOPY SET OF DOCUMENT DRAWINGS AND ONE (1) SET OF DOCUMENT DRAWINGS IN ELECTRONIC CAD FILE THAT REPRESENTS THE ACTUAL "AS-BUILTS". CAD FILES SHALL BE AUTOCAD 2010 FORMAT.
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
7. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK. THE CONTRACTOR SHALL CONTACT "UNDERGROUND SERVICES ALERT" FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF UNDERGROUND WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS. ALL EXTERIOR CONDUITS SHALL BE "RSG" UNLESS OTHERWISE NOTED ON DRAWINGS.
11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM, TWO (2) #12'S WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR "ROUGH" ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
12. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID CONFLICTS.
13. SEE ARCHITECTURAL DOCUMENTS FOR EXACT PLACEMENT OF LIGHTING FIXTURES AND DEVICES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF CEILING TYPES FROM ARCHITECTURAL DOCUMENTS AND PROVIDE AND INSTALL ALL REQUIRED FIXTURE MOUNTING HARDWARE. PROVIDE AND INSTALL U.L. LISTED FIRE STOP ENCLOSURES FOR ALL RECESSED FIXTURES IN FIRE RATED CEILINGS.
14. THE CONTRACTOR SHALL PROVIDE IN EVERY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.
15. POWER FEEDERS MAY NOT BE SHOWN ON THE DRAWINGS, REFER TO THE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER INFORMATION. ALL DRAWINGS ARE DIAGRAMMATIC INDICATING LOCATION OR POSITION OF EQUIPMENT. FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION OF ANY WORK.
16. MANUFACTURER'S RECOMMENDATIONS FOR CONDUCTOR SIZING, CIRCUIT BREAKER OR FUSE PROTECTION OF ELECTRICALLY OPERATED EQUIPMENT MAY DIFFER FROM THOSE INDICATED ON DRAWINGS. CONTRACTOR SHALL CONFIRM RATINGS PRIOR TO ORDERING EQUIPMENT. PROVIDE ELECTRICAL PROTECTION TO EQUIPMENT IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND PER NATIONAL ELECTRICAL CODE REQUIREMENTS.
17. CONTRACTOR SHALL REVIEW EQUIPMENT REQUIREMENTS OF OTHER TRADES AND PROVIDE POWER CIRCUITS AND CONNECTIONS TO ELECTRICALLY OPERATED EQUIPMENT.
18. EFFECTIVELY BOND ELECTRICAL CABINETS, ENCLOSURES AND CONDUIT RACEWAYS TO CODE APPROVED GROUND AS PART OF THE CONTINUOUS GROUNDING SYSTEM.
19. MEASURE THE 3-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 208/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 208/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS. TRANSFORMER TAP SETTING MAY REQUIRE CHANGING.
20. MEASURE THE 1-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 240/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 240/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS.
21. DO NOT SUBSTITUTE SPECIFIED MATERIAL OR EQUIPMENT WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER OR HIS REPRESENTATIVE.
22. IDENTIFY ALL ABOVE CEILING JUNCTION BOXES COVERS WITH PANEL AND CIRCUITS IN LESIBLE PRINT USING BLACK INDELIBLE INK. ABOVE CEILING JUNCTION BOXES SHALL ALSO BE LABELED AT THE REAR INTERIOR BOX WITH AN INDELIBLE BLACK MARKER.
23. LABEL ALL WALL AND/OR WIREMOLD MOUNTED OUTLET DEVICES WITH PANEL CIRCUIT IDENTIFICATION WITH BOLD TYPE-PRINTED LABELING. BLACK LETTERING ON WHITE BACKGROUND PREFERRED.
24. DERATE CONDUCTORS IN RACEWAYS IN ACCORDANCE WITH NEC CODE REQUIREMENTS. PANEL FEEDERS TO WIREMOLDS CAN ENTER AT VARIOUS LOCATIONS TO LIMIT CONDUCTOR CIRCUITS PER WIREMOLD CAPACITIES.

DRAWING INDEX

ABBREVIATIONS

A	AMPERE
ABV	ABOVE
AF	AMP FRAME OR AMP FUSE
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CD	CANDELAS
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CTR	CENTER
(D)	DEMOLISH
DET	DETAIL
DIM	DIMENSION
DISTR	DISTRIBUTION
DWG	DRAWING
(E)	EXISTING
EM	EMERGENCY
EQPT	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
(F)	FUTURE
FIN	FINISH
FL	FLOOR
G , GND	GROUND
HGT	HEIGHT
HP	HORSEPOWER
IC	INTERCOM
IDF	INTERMEDIATE DISTRIBUTION FRAME
JB	JUNCTION BOX
KAIC	KILOAMPERE INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
MCM	THOUSAND CIRCULAR MILS
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MH	MANHOLE
MTD	MOUNTED
MTG	MOUNTING
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NUMBER/ NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
P	POLE CIRCUIT BREAKER
PA	PUBLIC ADDRESS
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
(R)	EXISTING TO BE RELOCATED
REQD	REQUIRED
REQT	REQUIREMENT(S)
RM	ROOM
RSG	RIGID STEEL CONDUIT
SHT	SHEET
SW	SWITCH
SWBD	SWITCHBOARD
TC	TERMINAL CABINET
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER

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PROJECT

GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER — ROBERT STERN — E16890 — Exp. 06/30/23 — ELECTRICAL — STATE OF CALIFORNIA

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JOB # DC21030.00

STAMP

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
1	ADDENDUM 1	11/24/2021
3	ADDENDUM 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/01/2021

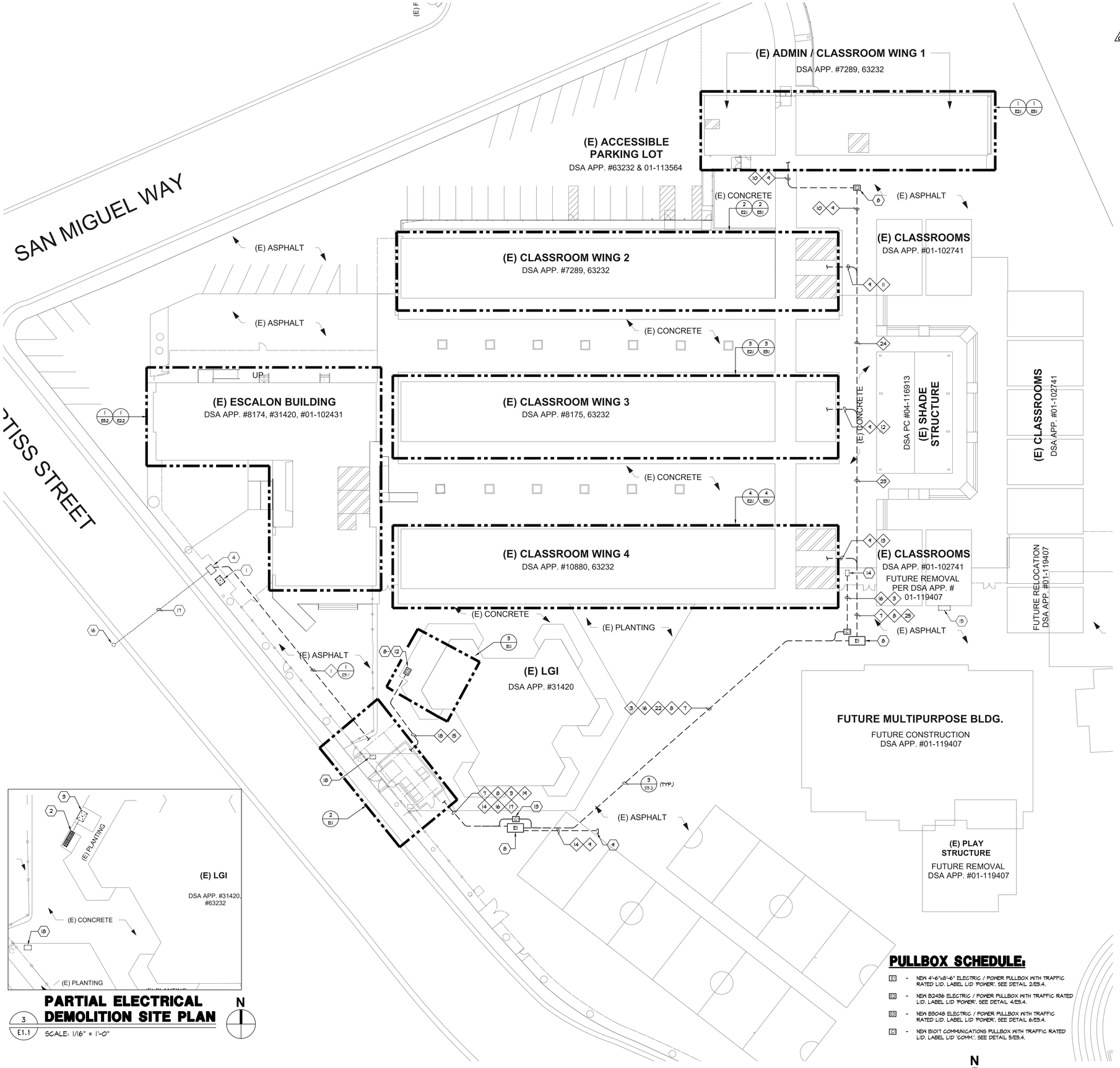
SHEET

ELECTRICAL COVER SHEET

DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-E0.1



PARTIAL ELECTRICAL DEMOLITION SITE PLAN

3 / E1.1 SCALE: 1/16" = 1'-0"

ELECTRICAL SITE PLAN

1 / E1.1 SCALE: 1" = 20'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE UNDERGROUND CONDUITS AND CABLING.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS, WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. INSTALL PG&E PRIMARY TRENCH PER 1/ E5.1.
5. INSTALL PG&E SECONDARY TRENCH PER 3/ E5.1.
6. PG&E TRANSFORMER PAD SHALL BE PER 2/ E5.1.
7. ALL ON SITE TRENCH SHALL BE INSTALLED PER 3/ E5.4.
8. SEE THE DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
9. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER CABLE AND CONDUIT REQUIREMENTS.
10. THE CONTRACTOR SHALL MANDREL THROUGH THE ENTIRE PG&E CONDUIT SYSTEM. COORDINATE WITH PG&E FOR ADDITIONAL REQUIREMENTS AND PROCEDURES.

SHEET NOTES:

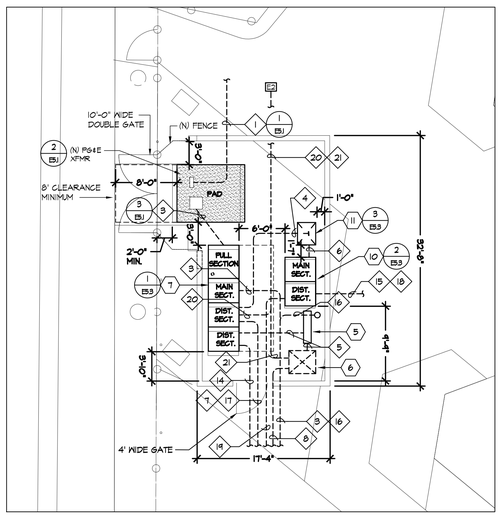
1. EXISTING PG&E TRANSFORMER TO REMAIN.
2. EXISTING 1200A MAIN SWITCHBOARD AND PAD TO BE DEMOLISHED AND REPLACED WITH AN IN-GRADE PULL BOX. INTERCEPT L61 CONDUIT AT THIS LOCATION.
3. EXISTING PG&E TRANSFORMER TO BE REMOVED BY PG&E. DEMOLISH EXISTING TRANSFORMER PAD AND PATCH SURFACE TO MATCH EXISTING.
4. EXISTING PG&E ABOVE GRADE SWITCH LOCATION TO REMAIN.
5. FUTURE PV DISCONNECT SWITCH.
6. FUTURE PV DISTRIBUTION PANEL.
7. NEW 2500A MAIN SWITCHBOARD.
8. NEW IN-GRADE ELECTRICAL PULL BOX. LABEL LID "ELECTRICAL".
9. STUB CONDUIT FOR FUTURE MU TO THIS LOCATION AND CAP FOR FUTURE USE.
10. (N) 1000A DISTRIBUTION PANEL "DP1".
11. (N) 500KVA TRANSFORMER "T-DP".
12. PROVIDE NEW PULL BOX IN PLACE OF THE EXISTING MAIN SWITCHBOARD. INTERCEPT THE EXISTING FEEDER AND CONDUIT FOR EXISTING PANEL 'L61', 'E' AND 'DP2' AT THIS LOCATION.
13. NEW SIGNAL PULL BOX LABEL LID "SIGNAL".
14. EXISTING SIGNAL PULL BOX STUB NEW CONDUIT INTO EXISTING BOX AS REQUIRED.
15. EXISTING PANEL 'DP2' TO REMAIN.
16. EXISTING PG&E POLE TO REMAIN.
17. EXISTING PG&E UNDERGROUND PRIMARY STREET CROSSING TO REMAIN.
18. EXISTING UNUSED UNDERGROUND IN-GRADE PULL BOX TO BE DEMOLISHED AND REMOVED. CAP EXISTING CONDUIT

CONDUIT SCHEDULE:

1. (N) (1) 4"C - PG&E PRIMARY.
2. (N) (1) 5"C - PG&E SECONDARY.
3. (N) (1) 1"C - PG&E COMMUNICATIONS.
4. (N) (2) 2.5"C - XFMR "TDP1".
5. (N) (2) 3"C - FUTURE PV DISTRIBUTION PANEL.
6. (N) (3) 3"C - PANEL "DP1".
7. (N) (1) 2.5"C - XFMR "AM".
   (N) (1) 2.5"C - XFMR "BM".
   (N) (1) 2.5"C - XFMR "CM".
   (N) (1) 2.5"C - XFMR "DM".
8. (N) (6) 2.5"C - FUTURE PV.
9. (N) (1) 2.5"C - FUTURE PV.
10. (N) (1) 2.5"C - XFMR "AM".
11. (N) (1) 2.5"C - XFMR "BM".
12. (N) (1) 2.5"C - XFMR "CM".
13. (N) (1) 2.5"C - XFMR "DM".
14. (N) (4) 4"C - (FUTURE MU BLDG).
15. (N) (1) 4"C - PANEL 'E'.
16. (N) (1) 2"C - FUTURE PV COMMUNICATIONS.
17. (N) (4) 4"C - SPARE POWER.
18. (N) (1) 4"C - PANEL 'L61'
    (N) (2) 4"C - (E) PANEL 'DP2'
19. (N) (2) 2.5"C - SPARE
20. (1) (2) 2.5"C - FUTURE EV
21. (N) (2) 2.5"C - FUTURE PV
22. (N) (2) 4"C - SPARE
23. (N) (1) 2.5"C - XFMR 'AM'
    (N) (1) 2.5"C - XFMR 'BM'
    (N) (1) 2.5"C - XFMR 'CM'
    (N) (3) 2.5"C - FUTURE PV
24. (N) (1) 2.5"C - XFMR 'AM'
    (N) (1) 2.5"C - XFMR 'BM'
    (N) (2) 2.5"C - FUTURE PV
25. (N) (4) 2.5"C - FUTURE PV

PULLBOX SCHEDULE:

- E1 - NEW 4'-6"x8'-6" ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 2/E5.4.
- E2 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 4/E5.4.
- E3 - NEW B3048 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'. SEE DETAIL 6/E5.4.
- C - NEW B101 COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'. SEE DETAIL 5/E5.4.



ELECTRICAL SWITCHGEAR DIMENSIONS

2 / E1.1 SCALE: 1/8"=1'-0"

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No.	Description	Date
A	ADDENDUM 1	11/24/2021
C	ADDENDUM 3	12/22/2021

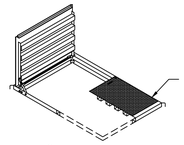
MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/01/2021

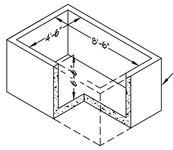
SHEET

ELECTRICAL SITE PLAN

DATE 12/22/2021
JOB # 2021005.02
SHEET # AD3-E1.1



TORSION SPRING ASSISTED ACCESS COVER INCIDENTAL H-20TRAFFIC OR PEDESTRIAN LOADING, GALVANIZED STEEL



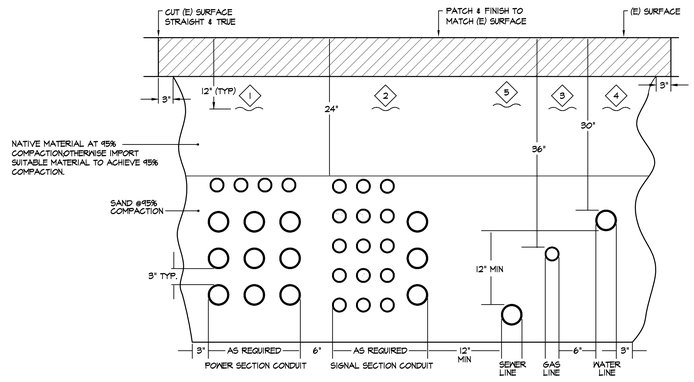
JENSEN PRECAST 4686-U OR EQUAL

NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.
6. PROVIDE BASE WITH DRAIN. PROVIDE DRAIN ROCK.

2 4'6" x 8'6" ELECTRICAL VAULT

E5.4 NOT TO SCALE



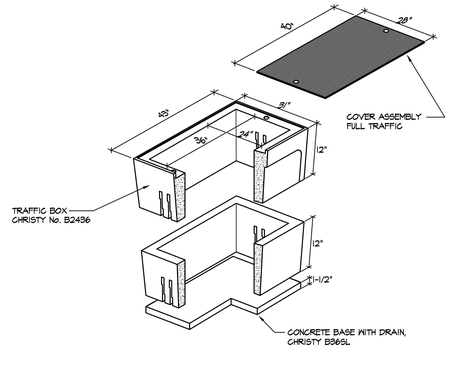
1. WARNING TAPE MARKED "POWER"
2. WARNING TAPE MARKED "SIGNAL"
3. WARNING TAPE MARKED "GAS"
4. WARNING TAPE MARKED "WATER"
5. WARNING TAPE MARKED "SEWER"

NOTES:

1. UNDERGROUND CONDUITS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
2. MINIMUM SPACING BETWEEN CONDUITS IS 3".
3. SEE SITE/FLOOR PLANS AND SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
4. ALL UNDERGROUND CONDUITS TO BE IN CONFORMANCE WITH DETAIL 1/E5.
5. REFER TO ARCHITECTURAL DRAWING FOR ADDITIONAL REQUIREMENT.

3 TYPICAL JOINT TRENCH & DUCT BANK DETAIL

E5.4 NOT TO SCALE

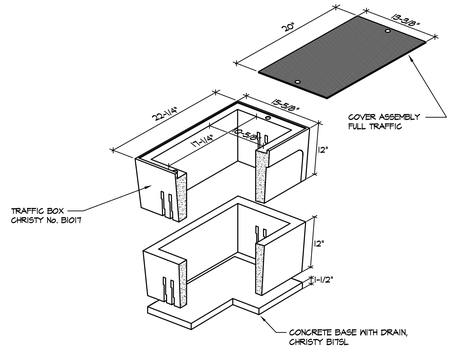


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. CONTRACTOR SHALL PROVIDE PULL BOX EXTENSION AS REQUIRED. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.
6. PROVIDE BASE WITH DRAIN. PROVIDE DRAIN ROCK.

4 B2436 ELECTRICAL VAULT

E5.4 NOT TO SCALE (FULL TRAFFIC COVER)

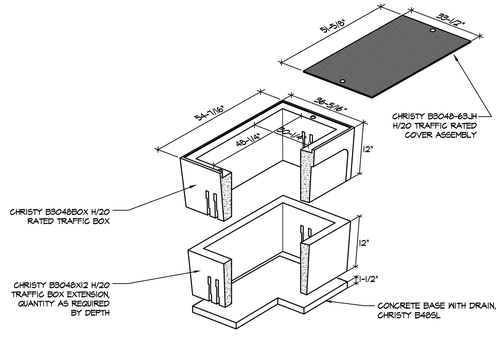


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. CONTRACTOR SHALL PROVIDE PULL BOX EXTENSION AS REQUIRED. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.
6. PROVIDE BASE WITH DRAIN. PROVIDE DRAIN ROCK.

5 B1017 ELECTRICAL VAULT

E5.4 NOT TO SCALE (FULL TRAFFIC COVER)



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6 30" X 48" TRAFFIC BOX DETAIL

E5.4 NOT TO SCALE (FULL TRAFFIC COVER)

aedis architects
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387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT

GEORGE HALL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
MARK STERN
E16890
Exp. 06/30/23
ELECTRICAL
STATE OF CALIFORNIA

American Consulting Engineers Electrical, Inc.
1990 The Alameda, Suite 200
San Jose, CA 95126
408/236-2316
Fax: 408/236-2314
JOB # DC21030.00

STAMP

STATE

DSA FILE NUMBER 41-26

APPL # 01-119523

REVISIONS

No.	Description	Date
1	ADDENDUM 1	11/24/2021
2	ADDENDUM 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/21/2021
BACKCHECK	10/01/2021

SHEET

ELECTRICAL DETAILS

DATE 12/22/2021

JOB # 2021005.02

SHEET # AD3-E5.4

aedis
architects

December 22, 2021

Aedis Architects
387 S. First St., Suite 300
San Jose, CA 95113

Subject: Laurel Elementary School HVAC Replacement
San Mateo - Foster City School District
Aedis Project No. 2021005.03
DSA Application #01-119551

ADDENDUM NO. 3

CHANGES AND/OR CLARIFICATIONS OF THE DRAWINGS AND SPECIFICATIONS ARE AS FOLLOWS:

GENERAL

ITEM NO. 3.1: HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT

Add: The report in its entirety per HVAC And Power Upgrade Project Hazardous Materials Survey Report Laurel Elementary School

ITEM NO. 3.2: DSA FORM 103-19 LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS

Add: The DSA form in its entirety per DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC

ITEM NO. 3.3: REFERENCE PLAN

Add: Utility survey for reference only, per attached Laurel Campus Utility Survey

SPECIFICATIONS

ITEM NO. 3.4: TABLE OF CONTENTS:

Add: 02 80 00 HAZARDOUS MATERIALS ABATEMENT
Add: 07 62 00 SHEET METAL FLASHING AND TRIM
Add: 32 17 23 PAVEMENT MARKINGS

ITEM NO. 3.1: SECTION 01 56 39 TEMPORARY TREE AND PLANT PROTECTION

Add: Part 3.1 paragraph E to read: "Refer to report *Evaluation Of Construction Effects On Three Trees At The Laurel Elementary School 316 36th Ave, San Mateo, CA 94403* for additional comments and recommendations to be implemented."

Add: Report: *Evaluation Of Construction Effects On Three Trees At The Laurel Elementary School 316 36th Ave, San Mateo, Ca 94403*

ITEM NO. 3.5: SECTION 02 80 00 HAZARDOUS MATERIALS ABATEMENT

Add: The specification in its entirety per attached 02 80 00 Hazardous Materials Abatement

ITEM NO. 3.6: SECTION 07 31 13 ASPHALT SHINGLES

Add: Paragraph 3.10 to read: "Provide water leak test at roof areas where cutting and patching occurs, including flashings, with hose spray test in front of District personnel. Spray flashing in both directions for no less than five (5) minutes and confirm there is no leaking."

ITEM NO. 3.7: SECTION 07 62 00 SHEET METAL FLASHING AND TRIM

Add: The specification in its entirety per attached 07 62 00 Sheet Metal Flashing and Trim

ITEM NO. 3.8: SECTION 09 65 13 RESILIENT BASE AND ACCESSORIES:

Revise: Paragraph 2.1H to read: "Colors: Selected from manufacturer's full range to match existing."

ITEM NO. 3.9: SECTION 32 17 23 PAVEMENT MARKINGS

Add: The specification in its entirety per attached 32 17 23 Pavement Markings

DRAWINGS

ARCHITECTURAL

ITEM NO. 3.10: DRAWING SHEET A1.02 – SITE PLAN

Add: Site Plan Keynotes #18 #19 and associated tags in plan per attached AD3-A1.02.
Add: Existing striping on asphalt & playground pavement in plan per attached AD3-A1.02.
Revise: Electrical trench routing per attached AD3-A1.02.
Revise: Site Plan Keynote #17 per attached AD3-A1.02.
Revise: Existing chain-link fence graphic in plan per attached AD3-A1.02.

ITEM NO. 3.11: DRAWING SHEET A2.01 – DEMOLITION FLOOR PLANS – BLDGS B & C

Revise: Demolition Floor Plan Keynote #1 per attached AD3-A2.01.

Revise: Demo and prep for drywell locations per attached AD3-A2.01.

ITEM NO. 3.12: DRAWING SHEET A2.02 – DEMOLITION FLOOR PLANS – BLDG A

Revise: Demolition Floor Plan Keynote #1 per attached AD3-A2.02.
Revise: Demo and prep for drywell locations per attached AD3-A2.02.

ITEM NO. 3.13: DRAWING SHEET A3.01 – NEW FLOOR PLANS – BLDGS B & C

Add: General Sheet Note #H per attached AD3-A3.01.
Add: New Floor Plan Keynotes #5 & #6 and associated tags per attached AD3-A3.01.
Revise: Drywell at locations per attached AD3-A3.01.
Revise: Framing dimensions per attached AD3-A3.01.

ITEM NO. 3.14: DRAWING SHEET A3.02 – NEW FLOOR PLAN – BLDG. A

Revise: General Sheet Note #J per attached AD3-A3.02.
Revise: Drywell at locations per attached AD3-A3.02.
Remove: New Floor Plan Keynote #4 per attached AD3-A3.02.
Add: New Floor Plan Keynotes #14 & #15 and associated tags in floor plan per attached AD3-A3.02.
Revise: Framing dimensions per attached AD3-A3.02.

ITEM NO. 3.15: DRAWING SHEET A8.10 – EXTERIOR DETAILS

Revise: Detail 2/A8.10 Typical Chain link Gate (Single) per attached AD3-A8.10A.
Revise: Detail 6/A8.10 Concrete Patch per attached AD3-A8.10A.
Revise: Detail 10/A8.10 Shingle Side Flashing per attached AD3-A8.10B.
Revise: Detail 11/A8.10 Shingle Lower Flashing per attached AD3-A8.10B.

ITEM NO. 3.16: DRAWING SHEET A9.10 – INTERIOR ELEVATIONS & DETAILS

Revise: In typical elevations 9/A9.10 and 10/A9.10 revise finish tag VWC-1 to GB-1
Revise: Detail 16/A9.10 Mech Enclosure Clearances, Typ. per attached AD3-A9.10.

ITEM NO. 3.17: DRAWING SHEET A11.01 – FINISH SCHEDULE, OPENING SCHEDULE, LEGENDS, & DETAILS

Remove: In Finish Schedule, remove VWC-1 from Wall Finish at all rooms
Revise: In Finish Legend, revise GB-1 from “GYPSUM BOARD” to “GYPSUM BOARD, PAINTED”

STRUCTURAL

ITEM NO. 3.18: DRAWING SHEET S8.01 – FRAMING DETAILS AND NAILING SCHEDULE

Remove: Vertical nailing requirement in detail 7 per attached AD3-S8.01

MECHANICAL

ITEM NO. 3.19: DRAWING SHEET MP0.02 – SCHEDULES – MECHANICAL & PLUMBING

Revise: Classroom split system heat pump schedule note 7 per attached AD3-MP0.02

ITEM NO. 3.20: DRAWING SHEET MP2.03 – FLOOR PLAN – NEW – BLDG B, C, & TYPICAL CLASSROOM – MECHANICAL & PLUMBING

Clarification: Condensate pipe revisions and associated notes moved to new Sheet AD3-P2.03

Remove: Keynotes #9, #10 & #24 per attached AD3-MP2.03

Revise: Drywell locations per attached AD3-MP2.03

Revise: Keynote #11 per attached AD3-MP2.03. Intent is damper and actuator are concealed inside the opening and covered with grilles similar to picture below.

Add: Keynote #30 and associated tag per attached AD3-MP2.03. Intent is to provide a duct collar at enclosure penetration similar to the picture below.

ITEM NO. 3.21: DRAWING SHEET MP2.04 – FLOOR PLAN – NEW – BLDG A – MECHANICAL & PLUMBING

Clarification: Condensate pipe revisions and associated notes moved to new Sheet AD3-P2.04
Remove: Keynotes #3, #4, #7 & #10 per attached AD3-MP2.04
Revise: Keynote #5 per attached AD3-MP2.04
Revise: Drywell locations per attached AD3-MP2.04

ITEM NO. 3.22: DRAWING SHEET P2.03 – FLOOR PLAN – NEW – BLDG B & C CONDENSATE DRAINS - PLUMBING

Add: New sheet in its entirety per Sheet AD3-P2.03

ITEM NO. 3.23: DRAWING SHEET P2.04 – FLOOR PLAN – NEW – BLDG A CONDENSATE DRAINS - PLUMBING

Add: New sheet in its entirety per attached AD3-P2.04

ITEM NO. 3.24: DRAWING SHEET MP6.01 – DETAILS – MECHANICAL & PLUMBING

Revise: Details 5/MP6.01 & 14/MP6.01 per attached AD3-MP6.01

ELECTRICAL

ITEM NO. 3.25: DRAWING SHEET E0.1 – Electrical Cover Sheet

Revise: Wiring & Conduit Run Symbols per attached AD3-E0.1

ITEM NO. 3.26: DRAWING SHEET E1.1 Electrical Site Plan

Revise: General Note #2 per attached AD3-E1.1.
Revise: Sheet Note #4, #12, #16 and #17 per attached AD3-E1.1.
Revise: Layout at PG&E pole on site plan per attached AD3-E1.1.
Revise: PG&E primary conduit routing at enlarged site plan per attached AD3-E1.1.
Revise: Layout and electrical distribution at Multipurpose building on site plan per attached AD3-E1.1.
Revise: Underground conduit routing linetype on the site for clarity per attached AD3-E1.1.

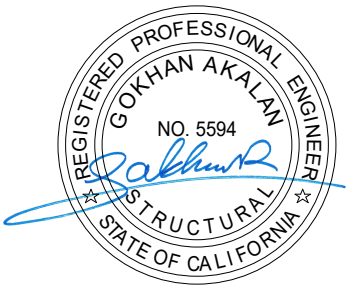
ITEM NO. 3.27: DRAWING SHEET E4.2 New Single Line Diagram

Revise: Single Line diagram and cable schedule tag #9 per attached AD3-E4.2.

ITEM NO. 3.28: DRAWING SHEET E5.4 Electrical Details

Revise: Detail 2/E5.4 Note #1 per attached AD3-E5.4.
Add: Detail 2/E5.4 Note #5 per attached AD3-E5.4.

Aedis Architects
Thang Do, Principal



Structural, BASE Design
Gokhan Akalan

Electrical, American Consulting Engineers Electrical
Sammy Fernandez

Mechanical, Cypress Engineering Group
Metin Serttunc

Division of the State Architect

Attachments:

General:
HVAC And Power Upgrade Project Hazardous Materials Survey Report Laurel Elementary School (46 pages)
DSA Form 103-19 Listing Of Structural Tests & Special Inspections, 2019 CBC (17 pages)
Laurel Campus Utility Survey (1 page)

Specifications:
01 56 39 Temporary Tree and Plant Protection: Evaluation Of Construction Effects On Three Trees At THE LAUREL ELEMENTARY SCHOOL 316 36TH AVE, SAN MATEO, CA 94403 (12 pages)
02 80 00 Hazardous Materials Abatement (42 Pages)
07 62 00 Sheet Metal Flashing and Trim (11 Pages)
32 17 23 Pavement Markings (2 Pages)

Drawing:
ARCHITECTURAL:
SHEET AD3-A1.02
SHEET AD3-A2.01
SHEET AD3-A2.02
SHEET AD3-A3.01
SHEET AD3-A3.02
SHEET AD3-A8.10A
SHEET AD3-A8.10B
SHEET AD3-A9.10
STRUCTURAL:
SHEET AD3-S8.01
MECHANICAL:
SHEET AD3-MP0.02
SHEET AD3-MP2.03
SHEET AD3-MP2.04
SHEET AD3-P2.03
SHEET AD3-2.04
SHEET AD3-MP6.01
ELECTRICAL:
SHEET AD3-E0.1
SHEET AD3-E1.1
SHEET AD3-E4.2
SHEET AD3-E5.4

ZNAP FLY ENVIRONMENTAL TESTING

HVAC and Power Upgrade Project

HAZARDOUS MATERIALS SURVEY REPORT

Laurel Elementary School

For

SAN MATEO-FOSTER CITY SCHOOL DISTRICT
LIVE · LEAD · LEARN

419 Mason Street Suite 109 | Vacaville CA 95688 | 707.999.5234 Email: erica@znapfly.com

Table of Contents

Cover Letter

Wednesday, September 1, 2021

Kevin Sanders
San Mateo Foster City School District
1170 Chess Drive
Foster City, California 94404

SUBJECT: **HVAC and Power Upgrades Project - Hazardous Materials Survey Report**

Dear Mr. Sanders,

At the request of the San Mateo Foster City School District, Znap Fly provided an asbestos and lead survey of suspect building construction materials at Laurel Elementary School located at 316 36th Avenue in San Mateo, California as part of the San Mateo Foster City School District (SMFCSD).

Onsite testing was performed on June 30 and August 3, 2021, by Ms. Erica Sattar.

This report is intended as an informational resource for the San Mateo Foster City School District and includes sample/test results, conclusions and recommendations regarding hazardous materials based upon information obtained from samples and tests collected at specific locations, review of information/drawings provided to us, and professional judgment.

Shall you have any questions or concerns regarding this document, following review, please contact us at 707-999-5234.

With Gratitude,

Erica Sattar, CAC, CDPH
Principal Consultant / Director of Environmental
Znap Fly

Description of Buildings Surveyed

The buildings surveyed at Laurel Elementary School are stucco exterior with metal framed windows and metal column for reinforcement. Interior finishes that are anticipated to be impacted by project work are acoustic ceiling panels, plaster soffit, sheetrock on walls with acoustic wall tiles, carpet, cove base and sealants. Floor tile was also sampled in areas outside the scope of work at the request of SMFCSD.

Survey Methodology: Sampling & Analytical

All onsite testing was performed at 7-sites throughout the San Mateo Foster City School District (SMFCSD), with XRF lead testing completed on June 30, 2021 and bulk samples collected on August 3, 2021, by Ms. Erica Sattar. The project was planned and overseen by Ms. Sattar and Mr. Christopher Smith. Both, Ms. Sattar and Mr. Smith, are Cal/OSHA Certified Asbestos Consultants (CACs) and CDPH Lead Consultants, with mold investigation and remediation training. The report was prepared by Ms. Sattar and reviewed by Mr. Smith.

Asbestos

All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. Znap Fly was not prevented and/or instructed by the owner/operator of SMFCSD as to what materials were to be sampled. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.
- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the demolition project being undertaken at each site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMSL Analytical, Inc. (EMSL) in San Leandro, California. EMSL is a laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" US EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Standard PLM analytical method has a limit of quantification of 1% asbestos. For materials with asbestos detected at trace levels or below 1% by standard PLM, the material must be considered to be above 1% (ACM) unless re-analyzed and found to be less than 1% by the PLM point count method (400 points minimum). Each sample of a homogeneous area material with trace result(s) must be re-analyzed by point count and found to be less than 1% in order to avoid assuming the material to be ACM according to EPA regulation. For this project, no materials were analyzed by point count methods.

Lead

Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%), as set forth in the Department of Housing and Urban Development (HUD) guidelines and California Department of Public Health (CDPH) regulations. Lead-Containing Paints (LCPs) are paints and coatings that contain detectable lead as defined by Cal/OSHA. Most paint and coatings on pre-1978 buildings contain some detectable lead subject to Cal/OSHA regulation. Therefore the exhaustive testing required to prove painted coatings do not contain lead is not practical or cost effective. Consequently, all paints and architectural coatings must be considered to contain some detectable levels of lead unless proven otherwise by laboratory analysis.

This survey included screening level LBP testing for the purpose of characterizing the general presence of lead in existing paints and coatings. As such, this survey included paint testing using a C series Vanta XRF direct read lead testing instrument. The results presented herein are representative of typical conditions but are not inclusive of all painted/coated surfaces present at the site. The results of this survey should assist with compliance to the California Occupational Safety and Health Administration (Cal/OSHA) lead construction standard and preliminary evaluation of potential construction waste streams. All painted/coated surfaces including untested surfaces, must be assumed to contain some detectable level of lead in the absence of representative paint chip analytical results demonstrating that lead levels are below analytical detection limits. This is because the XRF instrument, while providing a cost effective, non-destructive test method, the instrument is calibrated to detect LBP and cannot detect lead at the lowest levels regulated Cal/OSHA and Cal/EPA. Any detectable level of lead is subject to Cal/OSHA regulation.

Universal Wastes & Other Suspected Hazardous Materials

The building areas were visually surveyed for universal wastes and other hazardous materials. These universal wastes include fluorescent lighting fixtures manufactured prior to 1979 that have the potential to contain Polychlorinated Biphenyl (PCB) ballasts, mercury containing lighting tubes, and other components considered to be "universal wastes" upon disposal. "Universal wastes" include mercury-containing non-incandescent lamps, batteries, mercury thermostat switches and other hazardous wastes commonly found in building components and equipment. Other suspect hazardous materials include refrigerants, paints, and solvents.

Survey Results

Asbestos Containing Materials

Znap Fly collected a total of 51 bulk samples with 71 sample layers of suspect ACM analyzed by PLM analysis. All samples collected were reported "none detected" by laboratory analysis. The analytical laboratory results for sampled suspect ACMs are listed below and in the attached Analytical Laboratory Reports.

Assumed Asbestos-Containing Material

The following list of materials are assumed to contain asbestos, pending testing prior to construction to confirm asbestos content or prove no asbestos is present by laboratory analysis.

- Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
- Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
- Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet

Suspect Asbestos-Containing Materials Sampled with No Asbestos Reported

Materials listed below were sampled and analyzed by an accredited laboratory by PLM analysis reported "none detected" for asbestos. The following list are all materials sampled.

- Sheetrock with joint compound
- Plaster, rough at soffit
- Floor tile, 12" x 12" blue and beige with associated yellow mastics
- Cove base, 4" green with associated beige mastics
- Acoustic ceiling panel, 2' x 4' white with random pinhole pattern
- Acoustic ceiling tile, 12" x 12" tan peach with grey fibrous material
- Caulk/sealant at HVAC unit and window (interior and exterior)
- Carpet mastic

Refer to Attachment for a complete set of the laboratory results and sample locations.

Lead Containing Paints, Coatings and Materials

Znap Fly performed a total of 32 XRF lead tests from the interior and exterior building surfaces. The results of the XRF LBP screening survey are provided in the table shown below. A total of 11 XRF tests contained lead at LBP levels above the threshold 1.0 mg/cm^2 of the 32 total tests of painted surfaces tested. The roof was previously sampled, the report is attached, and results are included below.

The following is a brief summary of types of building components that tested above 1.0 mg/cm^2 and should be considered lead based paint (LBP) as determined by XRF. Samples submitted to the laboratory for analysis reported detectable lead, however reported laboratory levels are below lead based paint criteria. Refer to laboratory data attached for lead analysis results.

The tabulated data is not intended to be all inclusive and must be extrapolated to similar surfaces that were not tested. Lead content will vary according to painting histories involved. Generally on a building by building basis, component type and substrate are more reliable indicators.

	Component	Substrate	Condition	Result
Exterior	Window sill	Wood	Intact/good	1.765-2.39 (mg/cm2)
	Window casing	Wood	Intact/good	1.592-1.736 (mg/cm2)
	Roof collar	Metal	Intact/good	76,000 ppm
	Roof HVAC/mechanical equipment	Metal	Intact/good	4,700 ppm

General Interpretation of Lead-Containing Paint Findings Reported:

All painted components must be presumed to contain some detectable levels of lead regardless of non – detection by the XRF method unless exhaustively tested by paint chip analysis. Untested painted/coated components must be presumed to contain some lead at detectable levels. About 35% of the painted/glazed surfaces tested contained high levels of lead considered to be LBP and most of the remaining surfaces contained some detectable lead. In general, LBP was detected on interior window components (sill and casing), roof collars, and painted roof HVAC/mechanical equipment. The frequency of occurrence was typically low. The tested surfaces that reported low levels of detected lead must be considered lead-containing paints (LCP) and coatings in the absence of exhaustive testing by wet chemistry methods.

Paint Condition Findings:

The condition of paint at this site is generally in good/intact condition. Since even low levels of paint (e.g., just over 50 ppm) may exhibit hazardous waste characteristics, care must be taken to eliminate loose and peeling paint prior to general building demolition. Any loose, peeling or flaking paint should be removed and disposed of as lead hazardous waste.

Universal Wastes & Other Potential Hazardous Materials

Znap Fly visually inspected readily accessible areas of the building for other hazardous materials PCB lighting ballasts, Universal Wastes (such as mercury containing lighting tubes, thermostats, and batteries), and other suspect hazardous waste and contamination. No attempt to disassemble equipment or sample any additionally discovered suspect materials was included. Any suspect hazardous material must be presumed hazardous pending complete identification. For example, fluorescent lighting fixtures must be presumed to contain PCB ballasts pending removal and disassembly of each unit to determine ballast type and/or labeling in the absence of other explicit product specific information to the contrary.

Conclusions and Recommendations

Asbestos Containing Construction Materials

Prior to renovation/demolition construction activities, known or assumed ACMs that are likely to be disturbed by those activities must be removed and disposed of in accordance with all applicable regulations including federal National Emissions Standard for Hazardous Air Pollutants (NESHAPS) and Cal/OSHA regulations. A Cal-OSHA registered and State licensed, registered asbestos contractor (abatement/demolition/roofing) is required for removal of ACM prior to general demolition and renovation. For this project, mastic associated with tack board/white board/chalk board and acoustic wall tiles are assumed to contain asbestos and the mastic associated with roof field shingles contain asbestos. These materials are considered Category I non-friable asbestos containing materials.Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately. Assumed materials can be sampled on a rush turnaround time to prove a material does not contain asbestos. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Other Considerations and Rules

Where removal is unavoidable, the contractor's abatement sub-contractor should remove all friable RACM under class I removal requirements and dispose of waste as hazardous asbestos waste at a landfill permitted for asbestos hazardous waste disposal, this work is anticipated for this project at select locations; refer to project documents on-site. The contractor's abatement sub-contractor should also remove all category I & II non-friable ACM in a manner that does not produce friable ACM under Cal/OSHA Class I removal requirements and dispose of removed materials as non-hazardous asbestos waste at a landfill permitted for asbestos waste disposal.

The following additional requirements should be adhered to for any maintenance, renovation, or demolition projects requiring asbestos disturbance and/or removal:

- *All asbestos-containing wastes shall be manifested as either hazardous or non-hazardous based on asbestos content, friability, and actual waste stream classification.*
- *All asbestos removal should be overseen by a qualified independent third party, retained by the building owner or manager of the building to ensure proper removal, clean up, work area clearance, and review waste shipping and disposal documentation.*

Contractor should perform all work in compliance with contract documents and the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos.

Lead Containing Paints and Coatings

The painted components tested at the subject buildings typically had detectable levels of lead and should be considered LCP coated. LBP was detected on about 34% of the surfaces or components tested and consisted of interior window components (sill and casing), roof collars, and HVAC/mechanical painted components on roof. All paints and coatings should be considered LCP or coatings in the absence of exhaustive sampling and laboratory analysis. The disturbance of these components during demolition and renovation activities will require use of personnel trained in lead hazards for construction and will require compliance with applicable Cal/OSHA and Cal/EPA regulation. Any detectable level of lead is subject to Cal/OSHA regulation.

At present there is no state or federal regulation requiring mandatory lead removal or abatement prior to disturbance, demolition or renovation of structures with identified lead materials. However, prior to hot work on painted metal, the

paint either needs to be removed or supplied air respirators worn during welding or cutting operation. In addition, there are applicable lead specific Cal/OSHA worker protection requirements and Cal/EPA waste disposal requirements that do apply to lead-related construction activities and associated wastes:

- ***Cal/OSHA:*** The Cal/OSHA regulation, Title 8, CCR, Section 1532.1 Lead governs occupation exposure to lead. This regulation requires that any task that may potentially expose workers to any concentration of lead, be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to initiation of certain activities, referred to as "trigger tasks," that are believed to have the capability of creating an excessive lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels. Pertinent examples of trigger tasks are manual demolition, manual paint scraping and power tool removal, and hot work involving lead-containing coatings or materials. Cal/OSHA also has agency pre-start notification requirements and worker training and certification depending on exposure levels. Clearly these requirements will apply to demolition, patch and repair, paint removal, and surface preparation work at this site.
- ***Cal/EPA:*** Cal/EPA regulates disposal of lead hazardous waste (22 CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Waste). The Cal/EPA Department of Toxic Substance Control (DTSC) has issued guidance indicating that architectural debris with intact lead paint is normally anticipated to be handled as general construction waste. Since detected LCP was generally in intact/good condition and 66% of paint coatings tested had low to moderate lead content, it is unlikely that most of the demolition debris will be hazardous as a composite sample. However, all lead containing waste streams should be considered potentially lead hazardous pending waste testing. Further, all surface preparation and paint removal wastes must be considered hazardous wastes due to the likelihood of paint chip lead levels exceeding 1,000 total lead or 5 ppm soluble lead.

All construction activities impacting lead must be performed in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials. Selective and general demolition activities will involve disturbing lead and possibly creating lead hazardous wastes. These construction activities must be controlled to prevent uncontrolled release of lead contamination and for environmental protection.

The Contractor conducting building demolition and any selective demolition controls the means and methods used and therefore should be required by the contract document to ensure that the demolition processes are conducted in a manner that creates the minimum amount of hazardous waste and leaves the site free of lead contamination exceeding regulatory levels.

Universal Wastes and Other Known or Presumed Hazardous Materials

PCB Lighting Ballasts: Znap Fly's visual inspection indicated that fluorescent light fixtures may contain PCB ballasts are present in the building. However, as it is not practically feasible to check each ballast for labeling prior to renovation, Znap Fly recommends that all light fixtures be visually inspected by the Contractor upon removal to determine if they contain PCB's. Electronic ballasts and ballasts marked "No PCB's" or "PCB Free" should be considered non-hazardous and recycled or disposed of accordingly. However, ballasts that are unmarked must be considered PCB-containing and properly handled, collected, stored, transported and recycled or disposed of by an approved recycling or disposal facility in accordance with the requirements of 22 CCR, Section 67426.1 and the contract.

Universal Wastes: All potential and identified mercury-containing light tubes, high intensity lamps, and other universal wastes such as batteries should be removed and recycled or disposed of in accordance with the guidelines established by the California Department of Toxic Substance Control Universal Waste Rule, as stated in 22 CCR Sections 66261.9 and 66273.1 thru 66273.90.

Other Suspect Hazardous Materials: Coolant gasses in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Reclaimer for the removal and recycling of the gases.

Limitations

Znap Fly conducted this survey in support of the HVAC Power Upgrade Project for San Mateo Foster City School District. Rooms and areas surveyed were based on access to unoccupied classrooms within the work scope in DD 90% CD drawings provided by the District dated 5/28/2021. No excavation or subsurface investigation was conducted to discover buried insulated piping and/or asbestos cement pipes concealed below the surface or interstitial wall spaces. Cement pipe and insulated pipe is assumed below the surface and/or in interstitial wall spaces. No samples were collected in rooms not anticipated to be impacted by this project. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Closing

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for the San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available information and for verifying existing site conditions including location and extent of hazardous materials present at specific areas.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for the San Mateo Foster City School District by:

Erica Sattar, CAC, CDPH
Certified Asbestos Consultant #14-5250
CDPH Lead Sampling Technician #20425

Report reviewed for the San Mateo Foster City School District by:

Chris Smith, CAC, CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector Assessor/Project Designer #12430

Attachments

Laboratory Reports with Chain of Custody Record

Asbestos Sampling Plan

Suspect Asbestos Containing Materials Sample Table

Lead Sampling Plan

Lead Paint Testing and Sampling Table

Existing Roof Report with laboratory data

Znap Fly Personnel Certifications

CDPH Lead Hazard Evaluation Report

EMSL Analytical, Inc.

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http://www.EMSL.com / lasvegaslab@EMSL.com

EMSL Order:	312102432
Customer ID:	ZNAP75
Customer PO:	
Project ID:	

Attention:	Erica Sattar	**Phone:**	(707) 999-5234
	Znap Fly	**Fax:**	
	419 Mason Street	**Received Date:**	08/06/2021 9:15 AM
	Suite 109	**Analysis Date:**	08/06/2021
	Vacaville, CA 95688	**Collected Date:**	08/03/2021

Project: EN210601 / 7 School HVAC Project, Laurel Elementary / San Mateo Foster City School District

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A1-07a *312102432-0001* *Joint compound not present within sample.*	Room 7 - White Sheetrock With Joint Compound	White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
A-07 *312102432-0002* *Joint compound not present within sample.*	Room 7 - White Sheetrock With Joint Compound	White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
A-11 *312102432-0003* *Sheetrock not present within sample.*	Room 11 - White Sheetrock With Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A1-14 *312102432-0004* *Sheetrock not present within sample.*	Room 14 - White Sheetrock With Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A1-02-Sheetrock *312102432-0005*	Room 2 - White Sheetrock With Joint Compound	White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
A1-02-Joint Compound *312102432-0005A*	Room 2 - White Sheetrock With Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A1-04-Sheetrock *312102432-0006*	Room 4 - White Sheetrock With Joint Compound	White Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
A1-04-Joint Compound *312102432-0006A*	Room 4 - White Sheetrock With Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1-05 *312102432-0007* *Result includes inseparable skim coat and base coat.*	Room 5 - Layered With White Skim Coat And Inner Gray Plaster Wall Soffit	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1-07 *312102432-0008* *Result includes inseparable skim coat and base coat.*	Room 7 - Layered With White Skim Coat And Inner Gray Plaster Wall Soffit	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B1-11 *312102432-0009* *Result includes inseparable skim coat and base coat.*	Room 11 - Layered With White Skim Coat And Inner Gray Plaster Wall Soffit	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
B2-14 *312102432-0010*	Room 14 - Gray, More Like Cement Plaster Wall Appearance	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 312102432
Customer ID: ZNAP75
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
E1-04-Floor Tile 1 *312102432-0011*	Room 4 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-04-Floor Tile 2 *312102432-0011A*	Room 4 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-04-Mastic *312102432-0011B*	Room 4 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-02-Floor Tile 1 *312102432-0012*	Room 2 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-02-Floor Tile 2 *312102432-0012A*	Room 2 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-02-Mastic *312102432-0012B*	Room 2 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-14-Floor Tile 1 *312102432-0013*	Room 14 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-14-Floor Tile 2 *312102432-0013A*	Room 14 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-14-Mastic *312102432-0013B*	Room 14 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-11-Floor Tile 1 *312102432-0014*	Room 11 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-11-Floor Tile 2 *312102432-0014A*	Room 11 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-11-Mastic *312102432-0014B*	Room 11 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-07-Floor Tile 1 *312102432-0015*	Room 7 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-07-Floor Tile 2 *312102432-0015A*	Room 7 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-07-Mastic *312102432-0015B*	Room 7 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-05-Floor Tile 1 *312102432-0016*	Room 5 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-05-Floor Tile 2 *312102432-0016A*	Room 5 - Yellow Mastic Floor Tile, 12"x12" Blue/White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
E1-05-Mastic *312102432-0016B*	Room 5 - Yellow Mastic Floor Tile, 12"x12" Blue/White	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-04-Cove Base *312102432-0017*	Room 4 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 312102432
Customer ID: ZNAP75
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
F1-04-Mastic *312102432-0017A*	Room 4 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-02-Cove Base *312102432-0018*	Room 2 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-02-Mastic *312102432-0018A*	Room 2 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-14-Cove Base *312102432-0019*	Room 14 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-14-Mastic *312102432-0019A*	Room 14 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-11-Cove Base *312102432-0020*	Room 11 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-11-Mastic *312102432-0020A*	Room 11 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-07-Cove Base *312102432-0021*	Room 7 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-07-Mastic *312102432-0021A*	Room 7 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-05-Cove Base *312102432-0022*	Room 5 - Beige Mastic 4" Cove Base, Green	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
F1-05-Mastic *312102432-0022A*	Room 5 - Beige Mastic 4" Cove Base, Green	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
I1-04 *312102432-0023*	Room 4 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
I1-02 *312102432-0024*	Room 2 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
I1-14 *312102432-0025*	Room 14 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
I1-11 *312102432-0026*	Room 11 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
I1-07 *312102432-0027*	Room 7 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected

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Customer ID: ZNAP75
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
I1-05 *312102432-0028*	Room 5 - 2'x4x White Random Pinhole Pattern Acoustic Ceiling Panel	White Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
J1-02 *312102432-0029*	Room 2 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
J1-04 *312102432-0030*	Room 4 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
J1-14 *312102432-0031*	Room 14 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
J1-11 *312102432-0032*	Room 11 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
J1-07 *312102432-0033*	Room 7 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
J1-05 *312102432-0034*	Room 5 - 12"x12" Tan/Peach Tile With Gray Fibrous Acoustical Ceiling Tile	Peach Fibrous Homogeneous	65% Cellulose 10% Glass	25% Non-fibrous (Other)	None Detected
N1-05 *312102432-0035*	Room 5 - White With Paint, On HVAC Sealant	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N1-07 *312102432-0036*	Room 7 - White With Paint, On HVAC Sealant	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-04 *312102432-0037*	Room 4 - Gray, At Window Near HVAC Unit Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-14 *312102432-0038*	Room 14 - Gray, At Window Near HVAC Unit Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-11 *312102432-0039*	Room 11 - Gray, At Window Near HVAC Unit Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-07 *312102432-0040*	Room 7 - Gray, At Window Near HVAC Unit Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N2-05 *312102432-0041*	Room 5 - Gray, At Window Near HVAC Unit Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N3-02 *312102432-0042*	Room 2 - White, Gray Paint At Exterior Window Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N3-14 *312102432-0043*	Room 14 - White, Gray Paint At Exterior Window Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
N3-08 *312102432-0044*	Room 8 - White, Gray Paint At Exterior Window Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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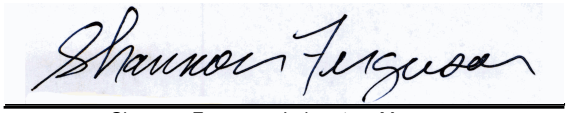
Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
N3-04 *312102432-0045*	Room 4 - White, Gray Paint At Exterior Window Sealant	Silver Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-04 *312102432-0046*	Room 4 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-02 *312102432-0047*	Room 2 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-14 *312102432-0048*	Room 14 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-11 *312102432-0049*	Room 11 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-07 *312102432-0050*	Room 7 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Q1-05 *312102432-0051*	Room 5 - Yellow Carpet Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Lilveth Escamilla (17)
Lori Grenier (36)
Peter Pulido (18)



Shannon Ferguson, Laboratory Manager
or Other Approved Signatory

Initial report from: 08/09/2021 11:42:10

OrderID: 312102432 312102432 T006959

Asbestos Bulk Sample Log

ZNAP FLY

Client:	San Mateo Foster City School District	**Sample Date:**	8/3/21
Project:	7 School HVAC project, Laurel Elementary	**Project #:**	EN210601
	[redacted]	**Collected By:**	Erica Sattar

BLDG	SAMPLE NO.		MATERIAL	DESCRIPTION	LOCATION
	ID	NO.	[redacted]		
L	A1	07a	Sheetrock with joint compound	White	Room 7
L	A1	07	Sheetrock with joint compound	White	Room 7
L	A1	11	Sheetrock with joint compound	White	Room 11
L	A1	14	Sheetrock with joint compound	White	Room 14
L	A1	02	Sheetrock with joint compound	White	Room 2
L	A1	04	Sheetrock with joint compound	White	Room 4
L	B1	05	Plaster wall soffit	Layered with white skim coat and inner gray	Room 5
L	B1	07	Plaster wall soffit	Layered with white skim coat and inner gray	Room 7
L	B1	11	Plaster wall soffit	Layered with white skim coat and inner gray	Room 11
L	B2	14	Plaster wall appearance	Gray, more like cement	Room 14
L	E1	04	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 4
L	E1	02	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 2
L	E1	14	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 14
L	E1	11	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 11
L	E1	07	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 7
L	E1	05	Floor tile, 12" x 12" blue/white	Yellow mastic	Room 5
L	F1	04	4" Cove base, green	Beige mastic	Room 4
L	F1	02	4" Cove base, green	Beige mastic	Room 2
L	F1	14	4" Cove base, green	Beige mastic	Room 14
L	F1	11	4" Cove base, green	Beige mastic	Room 11

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
Erica Sattar	8/5/21
FX	8/5/21 4pm

CHAIN OF CUSTODY:

Signatures	DATE&TIME
W/I	8-5-21 1:45PM
Lori Green	8-6-21 09/0

ZNAP FLY

№ 312102432

Asbestos Bulk Sample Log

Client:	San Mateo Foster City School District	**Sample Date**	8/3/21
Project:	7 School HVAC project, Laurel Elementary	**Project #:**	EN210601
		Collected By:	Erica Sattar

BLDG	SAMPLE NO.		MATERIAL	DESCRIPTION	LOCATION
	ID	NO.			
L	F1	07	4" Cove base, green	Beige mastic	Room 7
L	F1	05	4" Cove base, green	Beige mastic	Room 5
L	I1	04	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 4
L	I1	02	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 2
L	I1	14	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 14
L	I1	11	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 11
L	I1	07	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 7
L	I1	05	Acoustic ceiling panel	2' x 4' white random pinhole pattern	Room 5
L	J1	02	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 2
L	J1	04	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 4
L	J1	14	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 14
L	J1	11	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 11
L	J1	07	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 7
L	J1	05	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 5
L	N1	05	Sealant	White with paint, on HVAC	Room 5
L	N1	07	Sealant	White with paint, on HVAC	Room 7
L	N2	04	Sealant	Gray, at window near HVAC unit	Room 4
L	N2	14	Sealant	Gray, at window near HVAC unit	Room 14
L	N2	11	Sealant	Gray, at window near HVAC unit	Room 11
L	N2	07	Sealant	Gray, at window near HVAC unit	Room 7

Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

CHAIN OF CUSTODY:

Signatures	DATE&TIME
[signature]	8/5/21
[signature] FX	8/5/21 4pm

CHAIN OF CUSTODY:

Signatures	DATE&TIME
[signature] W/I	8-5-21 1:45PM
[signature]	8-6-21 0915

ZNAP FLY

312102432

Asbestos Bulk Sample Log

Client:	San Mateo Foster City School District	**Sample Date:**	8/3/21
Project:	7 School HVAC project, Laurel Elementary	**Project #:**	EN210601
	[redacted]	**Collected By:**	Erica Sattar

BLDG	SAMPLE NO.		MATERIAL	DESCRIPTION	LOCATION
	ID	NO.	[redacted]		
L	N2	05	Sealant	Gray, at window near HVAC unit	Room 5
L	N3	02	Sealant	White, gray paint at exterior window	Room 2
L	N3	14	Sealant	White, gray paint at exterior window	Room 14
L	N3	08	Sealant	White, gray paint at exterior window	Room 8
L	N3	04	Sealant	White, gray paint at exterior window	Room 4
L	Q1	04	Carpet mastic	Yellow	Room 4
L	Q1	02	Carpet mastic	Yellow	Room 2
L	Q1	14	Carpet mastic	Yellow	Room 14
L	Q1	11	Carpet mastic	Yellow	Room 11
L	Q1	07	Carpet mastic	Yellow	Room 7
L	Q1	05	Carpet mastic	Yellow	Room 5
L					
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Analytical Method: PLM
72 hour TAT

PLEASE SEND BY EMAIL: erica@znapfly.com

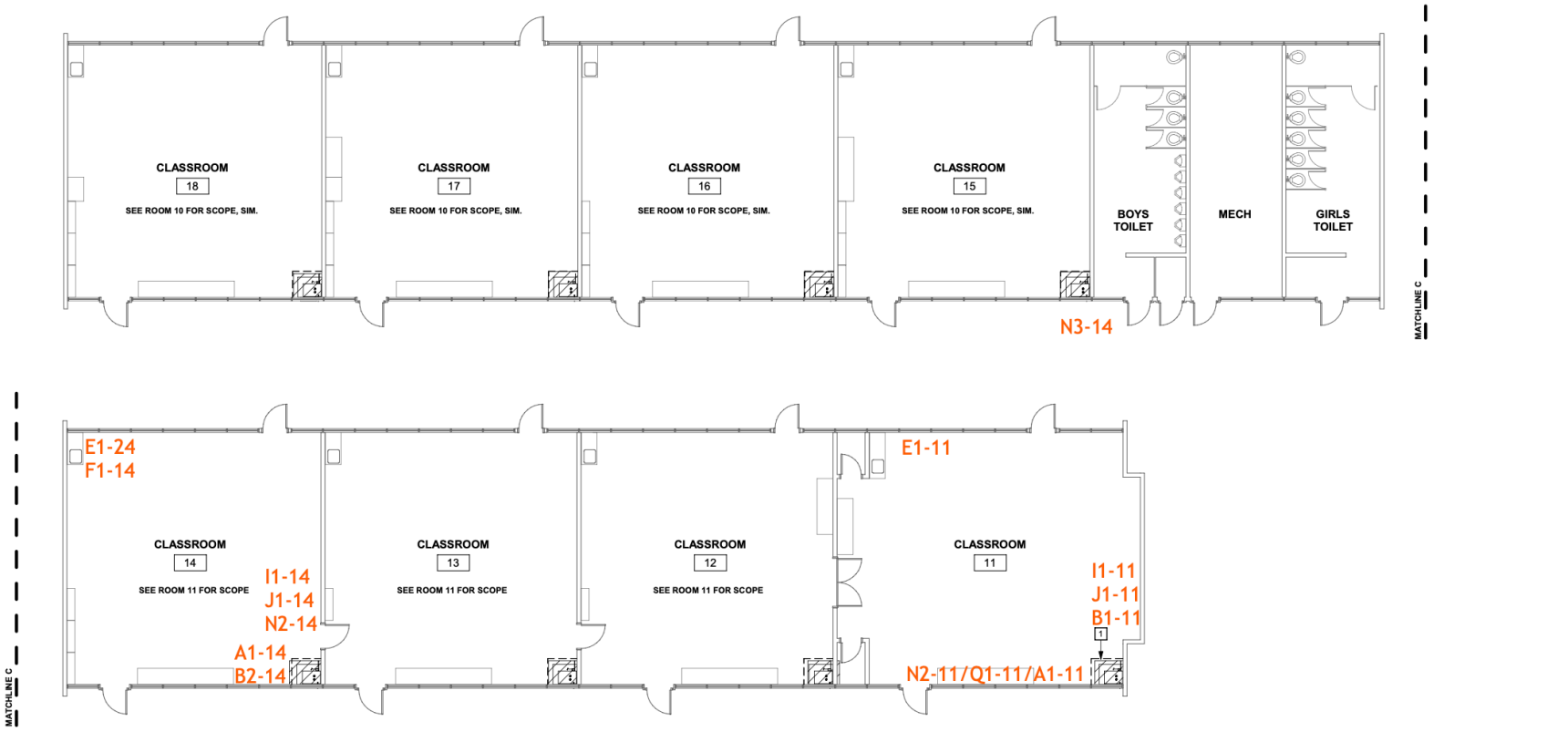
CHAIN OF CUSTODY:

Signatures	DATE&TIME
[signature]	8/5/21
[signature] FX	8/5/21 4pm

CHAIN OF CUSTODY:

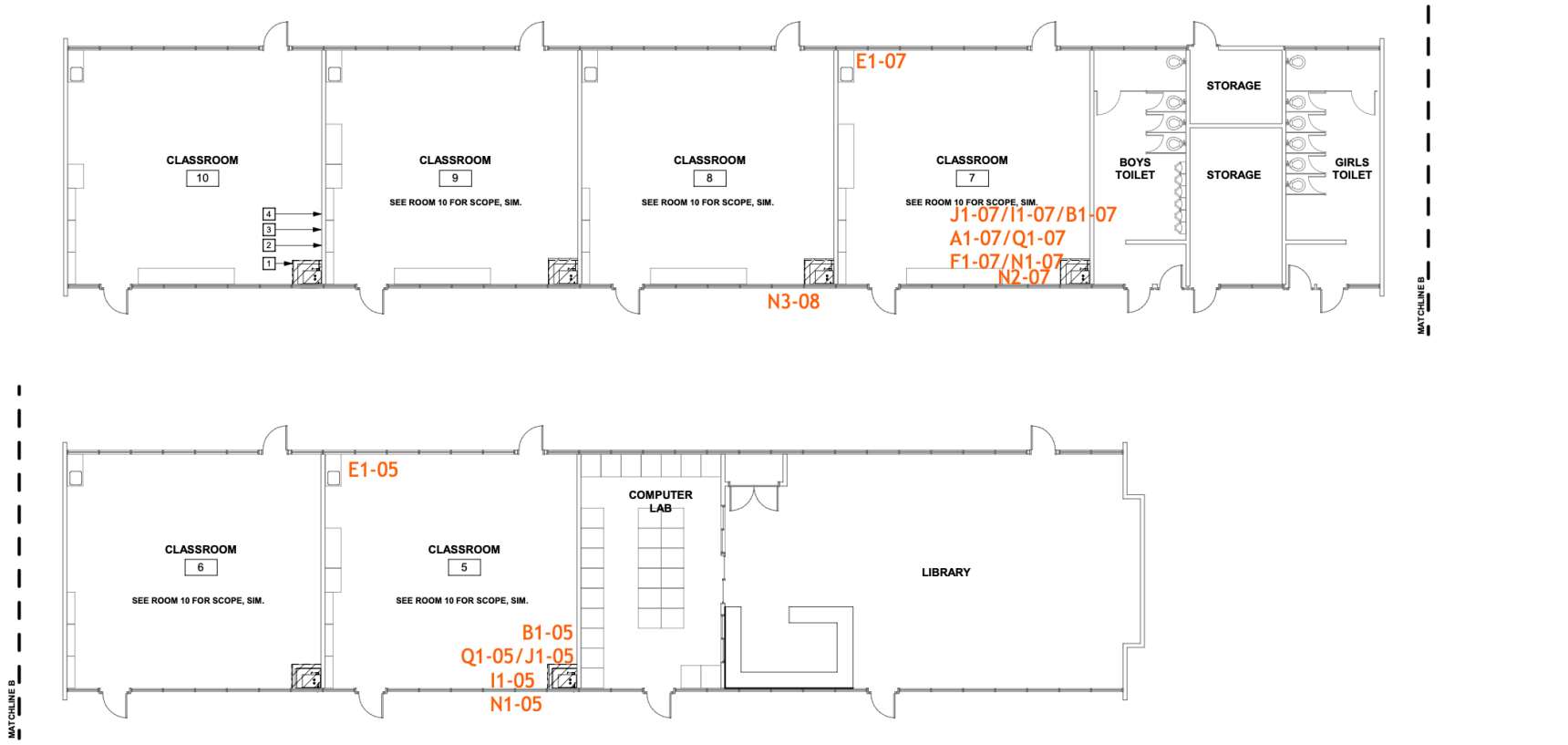
Signatures	DATE&TIME
[signature] WI	8-5-21 1:45pm
[signature]	8-6-21 0915

Asbestos Sampling Plan



1 DEMOLITION FLOOR PLAN - BLDG C
SCALE: 1/8" = 1'-0"

N



2 DEMOLITION FLOOR PLAN - BLDG B
SCALE: 1/8" = 1'-0"

N

Legend

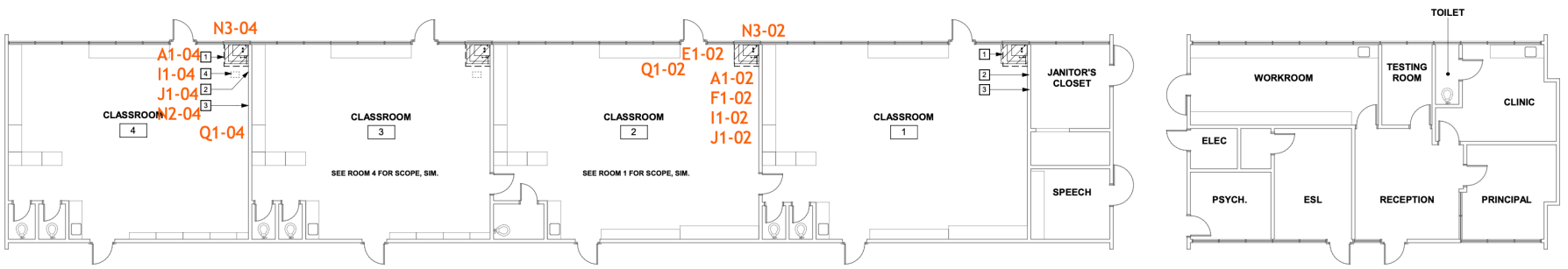
1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.

Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.

2. All materials sampled were noted as no asbestos detected, although mastic is assumed beneath white board/chalk board/ ACT. Roof samples are on attached report.

Project	HVAC and Power Upgrade Project Laurel Elementary School
ZF Project #	EN210601

Asbestos Sampling Plan



1 DEMOLITION FLOOR PLAN - BLDG A
SCALE: 1/8" = 1'-0"

N

Legend

1. Sample IDs were created using the homogenous material letter/number pattern with the room number. For ease on this map, the room numbers were not added above.

Example: A2-101 on lab data/coc is shown on map as A2 with a line to room 101.

2. All materials sampled were noted as no asbestos detected, although mastic is assumed beneath white board/chalk board/ ACT. Roof samples are on attached report.

Project	HVAC and Power Upgrade Project Laurel Elementary School
ZF Project #	EN210601

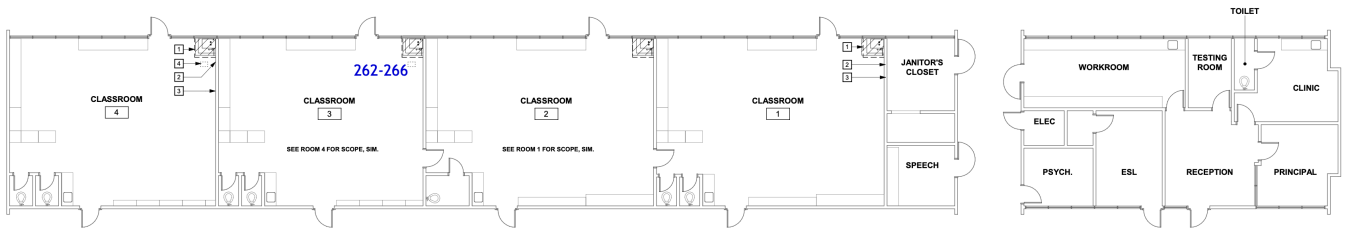
Suspect Asbestos Containing Materials Sample Table

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
A1	07a	Sheetrock with joint compound	White	Room 7	ND
A1	07	Sheetrock with joint compound	White	Room 7	ND
A1	11	Sheetrock with joint compound	White	Room 11	ND
A1	14	Sheetrock with joint compound	White	Room 14	ND
A1	02	Sheetrock with joint compound	White	Room 2	ND
A1	04	Sheetrock with joint compound	White	Room 4	ND
B1	05	Plaster wall soffit	Layered with white skim coat and inner gray	Room 5	ND
B1	07	Plaster wall soffit	Layered with white skim coat and inner gray	Room 7	ND
B1	11	Plaster wall soffit	Layered with white skim coat and inner gray	Room 11	ND
B2	14	Plaster wall appearance	Gray, more like cement	Room 14	ND
E1	04	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 4	ND
E1	02	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 2	ND
E1	14	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 14	ND
E1	11	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 11	ND
E1	07	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 7	ND
E1	05	Floor tile, 12″ x 12″ blue/white	Yellow mastic	Room 5	ND
F1	04	4″ Cove base, green	Beige mastic	Room 4	ND
F1	02	4″ Cove base, green	Beige mastic	Room 2	ND
F1	14	4″ Cove base, green	Beige mastic	Room 14	ND
F1	11	4″ Cove base, green	Beige mastic	Room 11	ND
F1	07	4″ Cove base, green	Beige mastic	Room 7	ND
F1	05	4″ Cove base, green	Beige mastic	Room 5	ND
I1	04	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 4	ND
I1	02	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 2	ND
I1	14	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 14	ND
I1	11	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 11	ND
I1	07	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 7	ND
I1	05	Acoustic ceiling panel	2′ x 4′ white random pinhole pattern	Room 5	ND
J1	02	Acoustical ceiling tile	12″ x 12″ tan/peach tile with gray fibrous	Room 2	ND
J1	04	Acoustical ceiling tile	12″ x 12″ tan/peach tile with gray fibrous	Room 4	ND
J1	14	Acoustical ceiling tile	12″ x 12″ tan/peach tile with gray fibrous	Room 14	ND
J1	11	Acoustical ceiling tile	12″ x 12″ tan/peach tile with gray fibrous	Room 11	ND

Sample ID		Material	Description	Sample Location	Results (% asbestos detected)
J1	07	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 7	ND
J1	05	Acoustical ceiling tile	12" x 12" tan/peach tile with gray fibrous	Room 5	ND
N1	05	Sealant	White with paint, on HVAC	Room 5	ND
N1	07	Sealant	White with paint, on HVAC	Room 7	ND
N2	04	Sealant	Gray, at window near HVAC unit	Room 4	ND
N2	14	Sealant	Gray, at window near HVAC unit	Room 14	ND
N2	11	Sealant	Gray, at window near HVAC unit	Room 11	ND
N2	07	Sealant	Gray, at window near HVAC unit	Room 7	ND
N2	05	Sealant	Gray, at window near HVAC unit	Room 5	ND
N3	02	Sealant	White, gray paint at exterior window	Room 2	ND
N3	14	Sealant	White, gray paint at exterior window	Room 14	ND
N3	08	Sealant	White, gray paint at exterior window	Room 8	ND
N3	04	Sealant	White, gray paint at exterior window	Room 4	ND
Q1	04	Carpet mastic	Yellow	Room 4	ND
Q1	02	Carpet mastic	Yellow	Room 2	ND
Q1	14	Carpet mastic	Yellow	Room 14	ND
Q1	11	Carpet mastic	Yellow	Room 11	ND
Q1	07	Carpet mastic	Yellow	Room 7	ND
Q1	05	Carpet mastic	Yellow	Room 5	ND
		***Roof shingle mastic**	**Below top layer**	**Roof**	**6%**

1. ND = No asbestos detected by laboratory analysis. "None Detected".
2. All reported asbestos is chrysotile unless noted otherwise.
3. *Material sampled in previous survey. Report and data is attached in this report.

Lead Sampling Plan



1 DEMOLITION FLOOR PLAN - BLDG A
SCALE: 1/8" = 1'-0"

Legend

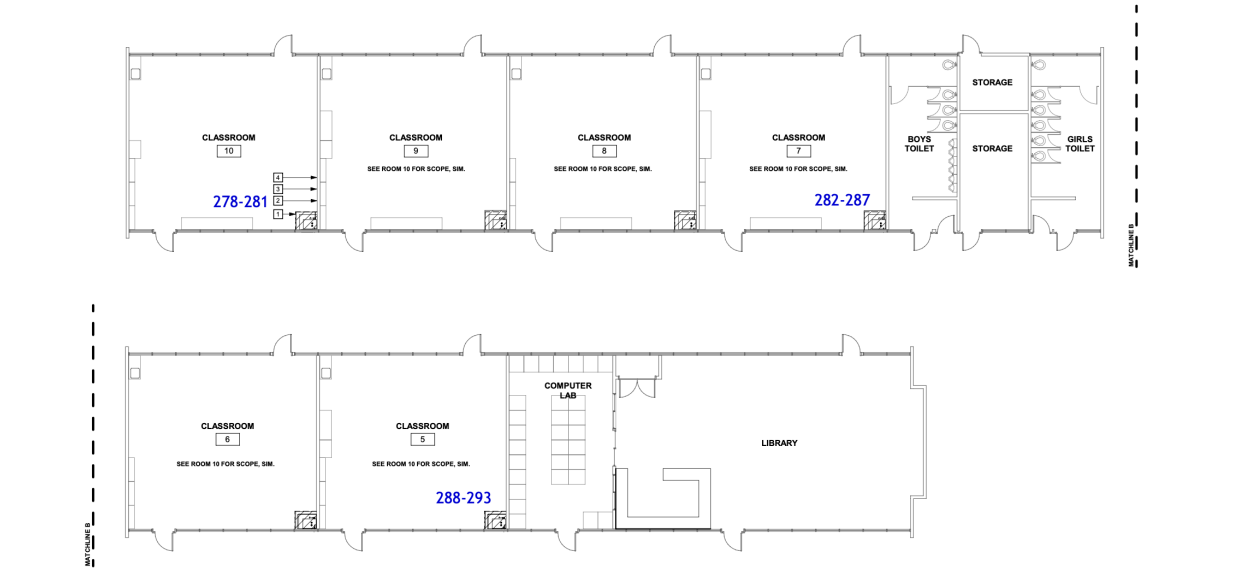
1. Refer to Lead Paint Testing and Sampling Table for results.
2. Lead-based painted (LBP) components were limited to window components (sill and casing), roof collars, roof HVAC/mechanical equipment.

Project	HVAC and Power Upgrade Project Laurel Elementary School
ZF Project #	EN210601

Lead Sampling Plan

1 DEMOLITION FLOOR PLAN - BLDG C
SCALE: 1/8" = 1'-0"

N



2 DEMOLITION FLOOR PLAN - BLDG B
SCALE: 1/8" = 1'-0"

N

Legend

1. Refer to Lead Paint Testing and Sampling Table for results.
2. Lead-based painted (LBP) components were limited to window components (sill and casing), roof collars, roof HVAC/mechanical equipment.

Project	HVAC and Power Upgrade Project Laurel Elementary School
ZF Project #	EN210601

Lead Paint Testing and Sampling Table

Test #	Room	Component	Substrate	Color	Condition	Lead Result (mg/cm2)
262	3	Wall	Sheetrock	Beige	Intact/good	0.154
263		**Window sill**	**Wood**	**Beige**	**Intact/good**	**2.29**
264		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.736**
265		Wall, lower	Wood	Beige	Intact/good	0
266		Wall, upper	ACT	Beige	Intact/good	0
267	17	Wall	Sheetrock	Beige	Intact/good	0.008
268		HVAC case	Metal	Beige	Intact/good	0
269		**Window sill**	**Wood**	**Beige**	**Intact/good**	**2.36**
270		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.633**
271		Wall, upper	ACT	Beige	Intact/good	0
272		Wall, lower	Wood	Beige	Intact/good	0
273	14	Wall, lower	Wood	Beige	Intact/good	0
274		Wall, upper	ACT	Beige	Intact/good	0
275		HVAC case	Metal	Beige	Intact/good	0
276		**Window sill**	**Wood**	**Beige**	**Intact/good**	**1.765**
277		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.592**
278	10	Wall	Sheetrock	Beige	Intact/good	0.081
279		Wall, upper	ACT	Beige	Intact/good	0
280		Wall, lower	Wood	Beige	Intact/good	0
281		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.661**
282	7	Wall	Sheetrock	Beige	Intact/good	0.075
283		Wall, lower	Wood	Beige	Intact/good	0
284		Wall, upper	ACT	Beige	Intact/good	0
285		HVAC case	Metal	Beige	Intact/good	0
286		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.597**
287		**Window sill**	**Wood**	**Beige**	**Intact/good**	**2.27**
288	**5**	**Window sill**	**Wood**	**Beige**	**Intact/good**	**2.39**
289		**Window casing**	**Wood**	**Beige**	**Intact/good**	**1.593**
290		Wall, upper	ACT	Beige	Intact/good	0
291		Wall, lower	Wood	Beige	Intact/good	0
292		Wall	Sheetrock	Beige	Intact/good	0.086
293		HVAC case	Metal	Beige	Intact/good	0
	Roof	***Roof collar**	**Metal**	**Silver with green paint**	**Intact/good**	**76,000 ppm**
		***Roof HVAC case**	**Metal**	**Multilayer, blue with green beneath**	**Intact/good**	**4,700 ppm**

NOTES

1. Bold represents component is considered lead based paint.
2. Lead-based paint (LBP) is defined as any painted surface with lead levels exceeding 5,000 parts per million (ppm), 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 percent by weight (wt%)
3. * Materials were sampled in a previous survey. Report and results are attached.

Znap Fly

January 11, 2019

San Mateo Foster City School District (SMFCSD)
1410 South Amphlett Blvd
San Mateo, California 94402

Attention: Alex Krystal

SUBJECT: Re-Roof Project - Asbestos and Lead Sample Results
Laurel Elementary School
316 36th Ave, San Mateo CA 94403

Dear Mr. Krystal,

At the request of Mr. Alex Krystal, Znap Fly provided a limited asbestos and lead survey of suspect roof materials throughout the roof areas scheduled for removal at Laurel Elementary School, 316 36th Avenue in San Mateo, California. Onsite testing was performed on January 3, 2019, by Mr. Chris Smith and Mrs. Erica Sattar. Mr Smith is a Cal/OSHA Certified Asbestos Consultant (CAC) and CDPH Lead Inspector/Risk Assessor and Project Designer. The project was planned and overseen by Mrs. Erica Sattar, a Cal/OSHA CAC and CDPH Sampling Technician. The report was prepared by Ms. Sattar and reviewed by Mr. Smith.

METHODOLOGY: SAMPLING & ANALYTICAL

Asbestos

Znap Fly collected a total of 21 samples with 41 sample layers of suspect materials to be impacted by renovation work. All bulk samples were collected using sampling guidelines established by the Environmental Protection Agency (EPA) and by generally following the methods described in Appendix K of title 8, CCR, Section 1529 of the California Code of Regulations for sample collection. The following summarizes the sampling procedures utilized.

- Visually identified suspect ACMs were categorized into homogeneous material areas. A homogeneous material is defined as being a surfacing material, thermal system insulation, or miscellaneous material which is uniform in color and texture.
- A sampling scheme was developed based upon the location and quantity of the various homogeneous materials.
- Trained and certified personnel using appropriate sampling tools and leak-tight containers collected bulk samples.

- Bulk sample collection tools were decontaminated after the collection of each bulk sample to prevent the spread of secondary contamination to subsequent bulk samples.
- Each bulk sample was labeled with a unique sample identification number and recorded on a bulk sample log.
- Bulk samples collected were submitted to a laboratory with a chain of custody record.

All material quantities reported herein are rough order of magnitude estimates and should not be used for bidding purposes without review of available record drawings and on-site field verification by the bidder. The information provided in this report should be used in conjunction with construction documents and the contractor's own field verification of the abatement scope of work including location and extent of removal required for the renovation/ demolition project being undertaken at the site. In the event, concealed suspect ACMs not previously identified are discovered, the contractor is obligated to stop and notify the owner immediately in compliance with applicable regulations.

Bulk samples of suspect materials were delivered to EMLab P&K (EM Lab) in South San Francisco, California. EM Lab is laboratory accredited under the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP) and the California Environmental Laboratory Accreditation Program (Cal-ELAP) for bulk asbestos sample analysis. The samples were submitted for analysis by Polarized Light Microscopy (PLM) utilizing dispersion staining techniques in accordance with the EPA's "Method for the Determination of Asbestos in Bulk Building Materials" U.S. EPA/600/R-93/116, dated July 1993 and adopted by the NVLAP as Test Method Code 18/A01.

Lead

This survey included screening level LBP testing and paint chip sampling for the purpose of characterizing the general presence of lead in existing paints and coatings at specific locations anticipated to be impacted by construction activities.

LBP is defined as any painted surface with lead levels exceeding 5,000 ppm, 1.0 milligrams per square centimeter (mg/cm^2) or greater than 0.5 % by weight, as set forth in the Department of Housing and Urban Development (HUD) guidelines and California Department of Health Services (DHS) regulations. Lead-Containing Paints (LCPs) are paints and coatings that contain detectable lead as defined by Cal/OSHA. Most paint and coatings on pre-1978 buildings contain some detectable lead subject to Cal/OSHA regulation. Therefore the exhaustive testing required to prove painted coatings do not contain lead is not practical or cost effective. Consequently, all paints and architectural coatings must be considered to contain some detectable levels of lead unless proven otherwise by laboratory analysis.

RESULTS

Asbestos

Znap Fly collected a total of 21 samples with 41 total layers of suspect ACM analyzed by PLM analysis. The analytical laboratory results for sampled suspect ACMs are listed below and in the attached Analytical Laboratory Reports.

Materials Sampled with Asbestos Reported:

- Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet.

Materials Sampled with No Asbestos Reported:

- Roof field, rolled roofing system at portico/covered walkways
- Sealants, white, with paint at collars
- Mastic, black at penetrations
- Sealant, white at exhaust unit with green paint
- Sealant, white, at rolled roofing perimeter
- Sealant, black at unit
- Paint, multilayers, blue with green beneath

Refer to Attachment for a complete set of the laboratory results and Figure for sample locations.

Lead

Analytical laboratory reports show lead based paint is present at roof collar and painted metal roof materials. For this limited testing, two bulk samples were collected from a roof collar with green paint and multilayered blue and green paint at metal roof components and submitted for laboratory analysis.

Component	Substrate	Color	Sample Location	Result (ppm)
Collar	**Metal**	**Silver with green paint**	**Building D**	**76,000**
Paint	**Metal**	**Multilayer, blue with green beneath**	**Building A**	**4,700**

Note: The above listing is not intended to be all inclusive and must be extrapolated to similar surfaces that were not tested. Colors are provided to assist in identification of specific surfaces tested but may not be a reliable indicator of lead content alone due to varied painting histories

involved. Generally on a building by building basis, component type and substrate are more reliable indicators. All paints must be considered to contain some lead subject to regulation.

Paint Condition Findings.

The painted building components at this site were generally in an intact condition. Prior to selective demolition, patching or repair, painting and other construction activities, visibly significant areas of loose, peeling or flaking paint should be removed and disposed of as lead hazardous waste, including all lead collars.

CONCLUSIONS AND RECOMMENDATIONS

Asbestos

Prior to renovation/demolition construction activities, known or assumed ACMs that are likely to be disturbed by those activities must be removed and disposed of in accordance with all applicable regulations including federal National Emissions Standard for Hazardous Air Pollutants (NESHAPS) and Cal/OSHA regulations. A Cal-OSHA registered and State licensed, registered asbestos contractor abatement/demolition/roofing) is required for removal of ACM prior to general demolition and renovation. For this project, the shingle roof system at each building roof are considered a non-friable Category I asbestos-containing material.

Other Considerations and Rules

Where removal is unavoidable, the contractor's abatement sub-contractor should remove all friable RACM under class I removal requirements and dispose of waste as hazardous asbestos waste at a landfill permitted for asbestos hazardous waste disposal, this work is anticipated for this project at select locations; refer to project documents on-site. The contractor's abatement sub-contractor should also remove all category I & II non-friable ACM in a manner that does not produce friable ACM under Cal/OSHA Class I removal requirements and dispose of removed materials as non-hazardous asbestos waste at a landfill permitted for asbestos waste disposal.

The following additional requirements should be adhered to for any maintenance, renovation, or demolition projects requiring asbestos disturbance and/or removal:

- *All asbestos-containing wastes shall be manifested as either hazardous or non-hazardous based on asbestos content, friability, and actual waste stream classification.*
- *All asbestos removal should be overseen by a qualified independent third party, retained by the building owner or manager of the building to ensure proper removal, clean up, work area clearance, and review waste shipping and disposal documentation.*

Contractor should perform all work in compliance with contract documents and the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos.

Lead

Paint was found to have levels of lead above the lead-based paint threshold. Roof collars and metal painted components at the roof should be considered to be a lead-based paint.

Component	Substrate	Color	Location	Total Quantity
Collar	**Metal**	**Silver with green paint**	**Building D**	**2 each**
Paint	**Metal**	**Multilayer, blue with green beneath**	**Roof pitch cover, building perimeter at Buildings A, B, C, D, Portable gutters**	**3,120 square feet**

The contractor should perform all work in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials.

At the present time, there is no state or federal regulation requiring mandatory lead removal or abatement prior to disturbance, demolition or renovation of structures with identified lead materials. However, prior to hot work on painted metal, the paint either needs to be removed or supplied air respirators worn during welding or cutting operation. In addition, there are applicable lead specific Cal/OSHA worker protection requirements and Cal/EPA waste disposal requirements that do apply to lead-related construction activities and associated wastes:

- **Cal/OSHA:** The Cal/OSHA regulation, Title 8, CCR, Section 1532.1 Lead governs occupation exposure to lead. This regulation requires that any task that may potentially expose workers to any concentration of lead, be monitored to determine workers eight-hour time weighted average (TWA) exposure to lead. Prior to initiation of certain activities, referred to as "trigger tasks", that are believed to have the capability of creating an excessive lead exposure, such workers must be properly fitted with respiratory protection and protective clothing until personal eight-hour TWA results reveal exposures within acceptable levels. Pertinent examples of trigger tasks are manual demolition, manual paint scraping and power tool removal, and hot work involving lead-containing coatings or materials. Cal/OSHA also has agency pre-start notification requirements and worker training and certification depending on exposure levels. Clearly these requirements will apply to demolition, patch and repair, paint removal, and surface preparation work at this site.
- **Cal/EPA**: Cal/EPA regulates disposal of lead hazardous waste (22 CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Waste). The

> Cal/EPA Department of Toxic Substance Control (DTSC) has issued guidance indicating that architectural debris with intact lead paint is normally anticipated to be handled as general construction waste. Since detected LBP was generally in fair to good condition and most paint coatings tested had low to moderate lead content, it is unlikely that most of the demolition debris will be hazardous as a composite sample. However, all lead containing waste streams should be considered potentially lead hazardous pending waste testing. Further, all surface preparation and paint removal wastes must be considered hazardous wastes due to the likelihood of paint chip lead levels exceeding 1,000 total lead or 5 ppm soluble lead.

All construction activities impacting lead must be performed in compliance with the most recent edition of all applicable Federal, State, and local regulations, standards, and codes governing abatement, transport, and disposal of lead containing/contaminated materials. Selective and general demolition activities will involve disturbing lead and possibly creating lead hazardous wastes. These construction activities must be controlled to prevent uncontrolled release of lead contamination and for environmental protection.

The Contractor conducting building renovation and selective demolition controls the means and methods used and therefore should be required by the contract document to ensure that the renovation and demolition processes are conducted in a manner that creates the minimum amount of hazardous waste and leaves the site free of lead contamination exceeding regulatory levels.

LIMITATIONS

Znap Fly conducted this survey in support of the Laurel Elementary School Re-Roofing Project located at 316 36th Avenue in San Mateo, California. Portable roofs with corrugated metal roofing systems were not a part of our survey, with the exception of the metal gutters.

CLOSING

Znap Fly performed the assessment in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

Conclusions and recommendations made regarding hazardous materials were based upon information obtained from samples and tests collected at specific locations, review of information provided to us, and professional judgment. Recommendations in this report were made based on conditions that Znap Fly reasonably infer to exist between sampling points.

This report is intended as an informational resource for San Mateo Foster City School District. Any contractor using this document assumes all responsibility for reviewing all available

information and for verifying existing site conditions including location and extent of hazardous materials present at specific areas.

Should any significant discrepancy between this report and existing conditions be discovered, the contractor shall notify the project manager, contracting officer, or inspector immediately.

If you have any questions or concerns regarding this document, please contact us at 707-999-5234.

With Gratitude,
Znap Fly

Report prepared for San Mateo Foster City School District by:

Erica Sattar, CAC, CDPH
Certified Asbestos Consultant #14-5250
CDPH Lead Sampling Technician #20425

Report reviewed for San Mateo Foster City School District by:

Chris Smith, CAC, CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector Assessor/Project Designer #12430

Attachments:
Laboratory Report with chain of custody record
Sample Location Diagram
Znap Fly Personnel Certifications

EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Total Samples Submitted:	21
Total Samples Analyzed:	21
Total Samples with Layer Asbestos Content > 1%:	1

Location: R1-01, Roof field, shingle with underlayment, Bldg C, center Lab ID-Version‡: 9786079-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-02, Roof field, shingle with underlayment, Bldg C, West Lab ID-Version‡: 9786080-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-03, Roof field, shingle with underlayment, Bldg C, East Lab ID-Version‡: 9786081-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Composite Non-Asbestos Content:	15% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-04, Roof field, shingle with underlayment, Bldg D, East Lab ID-Version‡: 9786082-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Location: R1-05, Roof field, shingle with underlayment, Bldg D, West

Lab ID-Version‡: 9786083-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Client: Znap Fly
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Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Location: R1-06, Roof field, shingle with underlayment, Bldg B, West Lab ID-Version‡: 9786084-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-07, Roof field, shingle with underlayment, Bldg B, center Lab ID-Version‡: 9786085-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-08, Roof field, shingle with underlayment, Bldg B, East Lab ID-Version‡: 9786086-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Roofing Mastic	6% Chrysotile
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-09, Roof field, shingle with underlayment, Bldg A, South Lab ID-Version‡: 9786087-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Location: R1-10, Roof field, shingle with underlayment, Bldg A, North Lab ID-Version‡: 9786088-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R1-11, Roof field, shingle with underlayment, Bldg A, center Lab ID-Version‡: 9786089-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Pebbles	ND
Black Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R2-01, Roof field core, rolled roofing, Bldg D, center Lab ID-Version‡: 9786090-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R2-02, Roof field core, rolled roofing, Bldg A, center Lab ID-Version‡: 9786091-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Location: R2-03, Roof field core, rolled roofing, Bldg A, center Lab ID-Version‡: 9786092-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R2-04, Roof field core, rolled roofing, Bldg B, center Lab ID-Version‡: 9786093-1

Sample Layers	Asbestos Content
Black Roofing Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R3-01, Sealants, white with green paint at collars, Bldg C, East Lab ID-Version‡: 9786094-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R4-01, Mastic, black at penetration, Bldg D, East Lab ID-Version‡: 9786095-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

ASBESTOS PLM REPORT

Location: R6-01, Sealant, white at exhaust unit with green paint, Bldg A, South Lab ID-Version‡: 9786097-1

Sample Layers	Asbestos Content
White Sealant with Paint	ND
Sample Composite Homogeneity:	Moderate

Location: R7-01, Sealant, white at rolled roofing perimeter, Bldg A, NW Lab ID-Version‡: 9786098-1

Sample Layers	Asbestos Content
White Sealant	ND
Sample Composite Homogeneity:	Moderate

Location: R8-01, Sealant, black at unit, Bldg B, West Lab ID-Version‡: 9786099-1

Sample Layers	Asbestos Content
Black Sealant	ND
Sample Composite Homogeneity:	Moderate

Location: P1-01, Paint, multilayers, top blue, green beneath Bldg B, center Lab ID-Version‡: 9786100-1

Sample Layers	Asbestos Content
Multicolored Paint	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Znap Fly
C/O: Erica Sattar
Re: EN180607-Laurel Elementary Roof; SMFCSD, 316 36th Avenue, San Mateo, CA

Date of Sampling: 01-03-2019
Date of Receipt: 01-07-2019
Date of Report: 01-09-2019

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	R5-01: Collar, silver with green paint, Bldg D, East	P1-01: Paint, multilayers, top blue, green beneath Bldg B, center
Comments (see below)	A	A
Lab ID-Version‡:	9786096-1	9786101-1
Analysis Date:	01/08/2019	01/08/2019
Sample type	Bulk sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	380 ppm	39 ppm
Sample size	0.0266 grams	0.2591 grams
§Total Lead Result	76000 ppm	4700 ppm

Comments: A) Secondary data review is delayed. The relative percent difference of the matrix duplicate pair was above control limits. The laboratory control sample and matrix blank were both within control limits and validated the batch.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Znap Fly

CHAIN OF CUSTODY-BULK

COMPANY CONTACT INFORMATION			
Contact:	Erica Sattar	Turnaround Time:	Standard - 2 day
Address:	419 Mason Street, Suite 108, Vacaville CA 95688	Analysis:	PLM & AA, as noted
Phone:	707.999.5234	Number of Samples:	22
Email:	info@znapfly.com	Sampled By:	E. Sattar/C. Smith on 01/03/18

PROJECT INFORMATION		
Project Number:	EN180607-Laurel Elementary Roof	**Notes:** **Please call with any questions; erica 916.799.8333**
Client:	SMFCSD	** - AA only * - AA after PLM analysis
Project Address:	316 36th Avenue, San Mateo CA	

	Sample ID	Material Sampled	Description of Material	Sample Location
	R1-01	Roof field, shingle w/ underlayment		Bldg C, Center
	02			C, West
	03			C, East
	04			D, East
	05			D, West
	06			B, West
	07			B, Center
	08			B, East
	09			A, South
	10			A, North
	11			A, Center
	R2-01	Roof field core, rolled roofing		D
	02			A
	03			A
	04			B
	R3-01	Sealants	White w/ green paint @ collars	C, East
	R4-01	Mastic	Black @ penetration	D, East
**	R5-01	Collar	silver w/ green paint	D, East
	R6-01	Sealant	White @ exhaust unit w/ green paint	A, South
	R7-01	Sealant	White @ rolled roofing perimeter	A, NW
	R8-01	Sealant	Black @ unit	B, West
*	P1-01	Paint	Multilayers - Top Blue, green beneath	B, Center

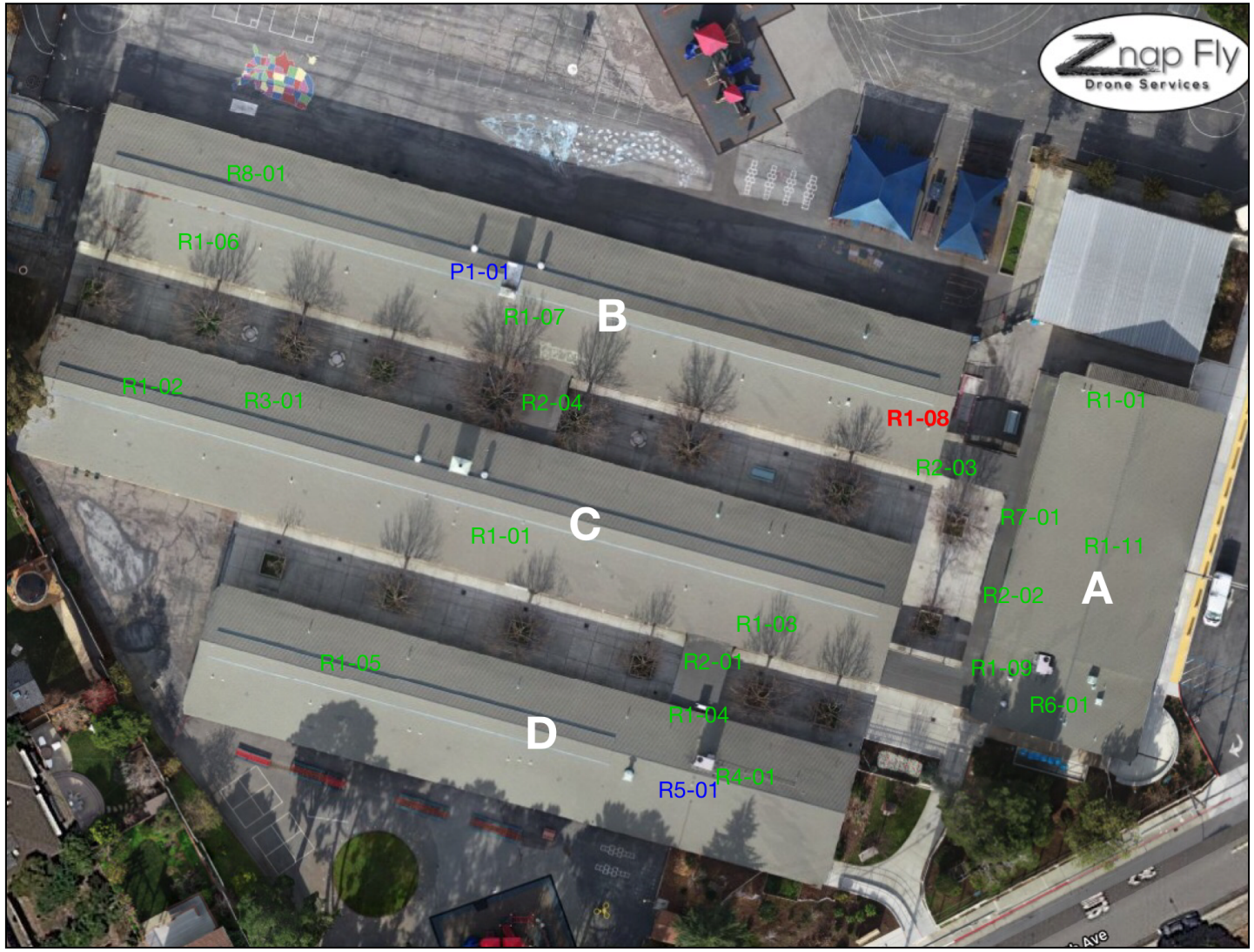
002071388

AA only

PLM → AA analysis

ES

Relinquished by:	Erica Sattar	**Date/Time:** 01/04/18 ES 1100
Received by:		**Date/Time:** 1/7/18 1000



Asbestos samples with reported asbestos
Asbestos samples with no asbestos detected
Lead bulk sample above LBP threshold

Sample Locations - Asbestos & Lead
SMFCSD, Laurel Elementary School Re-Roof Project

Znap Fly


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant
Christopher E Smith
Name
Certification No. 05-3823
Expires on 06/16/19
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Inspector/Assessor 05/22/2019
Project Monitor 05/22/2019
Christopher E. Smith
ID #: 12430


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant
Erica E Sattar
Name
Certification No. 14-5250
Expires on 02/11/20
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Sampling Technician 11/22/2018
Erica E. Sattar
ID #: 20425

Personnel Certifications


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Erica E Sattar
Name

Certification No. 14-5250

Expires on 02/11/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Erica Sattar	Lead Sampling Technician	LRC-00003791	11/22/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.


State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Christopher E Smith
Name

Certification No. 05-3823

Expires on 06/16/22

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Christopher Smith	Lead Inspector/Assessor	LRC-00006885	7/1/2021
	Lead Project Monitor	LRC-00006884	7/1/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

Project	HVAC and Power Upgrade Projects
ZF Project #	EN210601

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation June 30, 2021

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
316 36th Avenue	San Mateo	San Mateo	94403

Construction date (year) of structure	Type of structure		Children living in structure?	
unknown	☑ Multi-unit building	☑ School or daycare	☐ Yes	☑ No
	☐ Single family dwelling	☐ Other_____	☐ Don't Know	

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
San Mateo Foster City School District, Kevin Sanders	650-655-3331

Address [number, street, apartment (if applicable)]	City	State	Zip Code
1170 Chess Drive	Foster City	CA	94404

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

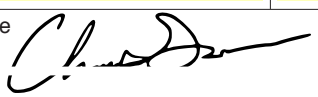
☐ No lead-based paint detected ☑ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other_____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Chris Smith	707-999-5234

Address [number, street, apartment (if applicable)]	City	State	Zip Code
419 Mason Street	Vacaville	CA	95688

CDPH certification number	Signature	Date
00006885/00006884		8/3/21

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Erica Sattar, 00003791

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2019 CBC

Application Number:	**School Name:**	**School District:**
01-119551	Laurel Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-16 15:26:46

2019 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2019 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic** – Indicates that a periodic special inspection is required **Test** – Indicates that a test is required	**GE** – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR** – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI –** Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI** – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2019 CBC

Application Number:	School Name:	School District:
01-119551	Laurel Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-16 15:26:46

Geotechnical Reports: Project does NOT have and does NOT require a geotechnical report

	1. GENERAL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	**See Notes**	**PI**	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

	2. SOIL COMPACTION AND FILL:	Table 1705A.6		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Compaction testing.	**Test**	**LOR***	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the Appendix listing exemptions for limitations.

	3. DRIVEN DEEP FOUNDATIONS (PILES):	Table 1705A.7

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		
☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	**Table 1705A.8**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**b.** Verify pier locations, diameters, plumbness and lengths.Record concrete or grout volumes.	**Continuous**	**PI**	Continuous inspection to be provided by project inspector. Refer to specific items identified in the Appendix listing exemptions for limitations.
☐	**c.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See Section 2 above).
☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

	6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
☐	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Concrete), 2019 CBC

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

Application Number:	**School Name:**	**School District:**
01-119551	Laurel Elementary School	San Mateo-Foster City School District
DSA File Number:	**Increment Number:**	**Date Created:**
41-26		2021-09-16 15:26:46

	7. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing:				
☑	**a.** Verify use of required design mix.	**Periodic**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☑	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-14 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.15;** ACI 318-14 Section 26.12.
Inspection:				
☑	**e.** Batch plant inspection: **Eliminated**	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or eliminated per **1705A.3.3.2.** (See Appendix for exemptions.)
☐	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

	8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 11.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-14 Section 26.13

	9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-14 Section 26.13.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.

	10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.19, Table 1705A.3 Item 7, 1908A.6, 1908A.7, 1908A.8, 1908A.9, 1908A.11, 1908A.12.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.5, 1908A.10.**

	11. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix for exemptions.)

	12. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Masonry), 2019 CBC

1705A.4; TMS 602-16, Tables 3 and 4.

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	13. STRUCTURAL MASONRY: 2000 psi			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing: (See Appendix for exemptions.)				
☑	**a.** Mill certificate indicatescompliance with requirements forreinforcement, anchors,ties, fasteners and metal accessories. See item 7b for identification, sampling and testing of reinforcing steel.	**Periodic**	**SI***	**2103A.4**; TMS 602-13 Article 1.5B.2 & 2.4. * To be performed by qualified LOR representative. Applicable testing by LOR. See IR 17-10.16 for unidentified reinforcing steel.
☑	**b.** Producer's certificate of compliance for masonry units, mortar and grout materials.	**Test**	**LOR**	**1705A.4, 2103A.2.1, 2103A.3, 2103A.5;** TMS 602-16 Articles 2.1, 2.2,2.6A and 2.6B, and Table 6 footnote 3.
☑	**c.** Test masonry (f'_m).	**Test**	**LOR**	**1705A.4. For Unit Strength: 2105A.3** (2114.6.1+); TMS 602-16 Articles 1.4B.2 ,1.5B.1 & 1.5B.2. **For Prism (required when f'_m > 2000 psi):2105A.2;** TMS 602-16 Articles 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.
☑	**d.** Verify proportions of siteprepared,premixed or preblended mortar and grout.	**Periodic**	**SI**	TMS 602-16 Table 3 Item 5, Table 4 Item 1a & 2d.
☑	**e.** Test core-drilled samples.	**Test**	**LOR**	**2105A.4**. (See Appendix for exemptions.)
Inspection: (See Appendix for exemptions.)				
☑	**f.** Inspect preparation of prisms.	**Continuous**	**SI**	TMS 602-16 Articles 1.4.B.3 & 1.4.B.4 & Table 4 Item 4.
☑	**g.** Verify size, location and condition of all dowels, construction supporting masonry, etc.	**Periodic**	**SI**	

☑	**h.** Verify size, grade and type of reinforcement and anchor bolts.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 1c.
☐	**i.** Welding of reinforcing steel.	TMS 602-16 Table 4 Item 3e. Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		
☑	**j.** Inspect placement of reinforcement and connectors.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 2c.
☑	**k.** Inspect placement of masonry units and construction of mortar joints.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3b.
☑	**l.** Verify preparation, construction and protection of masonry during cold weather (temperature below 40^{o} F) or hot weather (temperature above 90^{o} F).	**Periodic**	**SI***	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
☑	**m.** Inspect type, size and location of anchors and all other items to embedded in masonry including other details of anchorage of masonry to structural members,frames and other construction.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 3d.
☑	**n.** Inspect grout space prior to placement of grout.	**Continuous**	**SI**	TMS 602-16 Table 4 Item 2a.

	14. VENEER OR GLASS BLOCK PARTITIONS: 1705A.4.1; TMS 602-16 Tables 3 and 4.			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify proportions of siteprepared mortar and grout and/or verify certification of premixed mortar.	**Periodic**	**SI**	TMS 602-16 Table 3 Item 5 and Table 4 Items 1a & 2d.

☐	**b.** Inspect placement of units and construction of mortar joints.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3b.
☐	**c.** Inspect placement of reinforcement, connectors and anchors.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 2c.
☐	**d.** Inspect type, size and location of anchors and all other items to be embedded in masonry including details of anchorage of masonry to structural members, frames and other construction.	**Periodic**	**SI**	TMS 602-16 Table 4 Item 3d.
☐	**e.** Verify preparation, construction and protection of masonry during cold weather (temperature below 40^{o} F) or hot weather (above 90^{o} F).	**Periodic**	**SI***	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
☐	**f.** Test veneer bond strength	**Test**	**LOR**	**1410.2.1;** TMS 402 Article 12.3.2.4. **(Field constructed mock-up laboratory tested in accordance with ASTM C482).**

	15. POST-INSTALLED ANCHORS IN MASONRY:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of postinstalled anchors	**See Notes**	**SI***	**1617A.1.19, 1705A.4, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic);** ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix for exemptions.)
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1705A.4, 1910A.5.** (See Appendix for exemptions.)

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (Masonry), 2019 CBC

1705A.4; TMS 602-16, Tables 3 and 4.

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	16. OTHER MASONRY:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

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Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests **/** special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☑	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
☑	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment **-** see item 7 for "Welding") given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
☑	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

☑	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
☑	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.
☑	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	Welding:
☐	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☑	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).
☑	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).

☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 located in the Steel/Aluminum category).
☑	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2019 CBC

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Name of Architect or Engineer in general responsible charge:
Name of Structural Engineer (When structural design has been delegated):
Signature of Architect or Structural Engineer: Date: 9/16/2021

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119551 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/05/2021

DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

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DSA File Number:	**Increment Number:**	**Date Created:**
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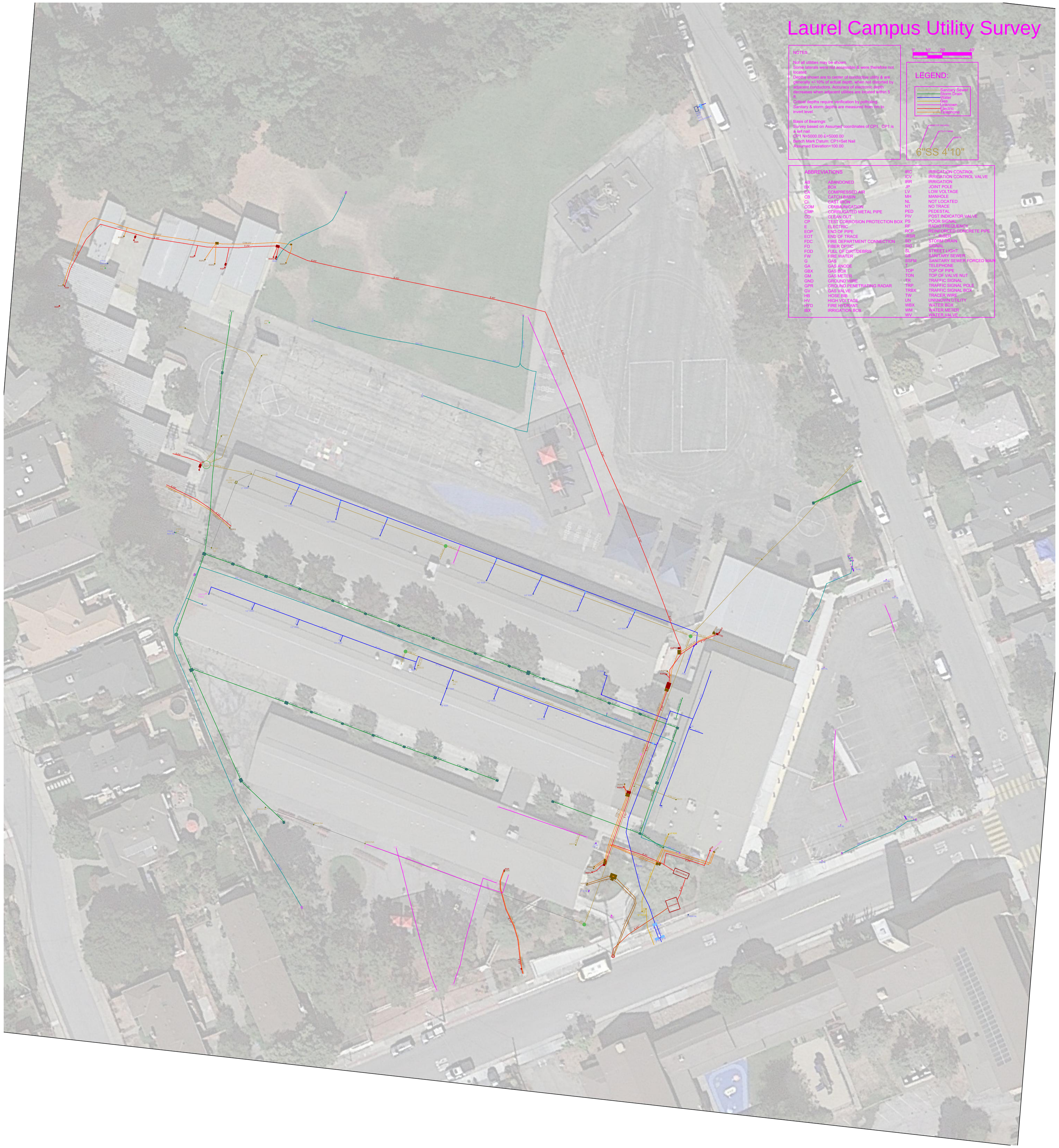
1. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
2. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
3. Masonry Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292


Laurel Campus Utility Survey
NOTES:
Not all utilities may be shown.
Some laterals were not accessible & were therefore not located.
Depths shown are to center of conductive utility & are generally +/-10% of actual depth, when not distorted by adjacent conductors. Accuracy of electronic depth decreases when adjacent utilities are located within 5 ft.
Critical depths require verification by potholing.
Sanitary & storm depths are measured from rim to invert level.
Basis of Bearings:
Survey based on Assumed coordinates of CP1. CP1 is a set nail.
CP1 N=5000.00 E=5000.00
Bench Mark Datum: CP1=Set Nail
Assumed Elevation=100.00
0' 10' 20' 40'
LEGEND:
Sanitary Sewer
Storm Drain
Water
Gas
Unknown
Electric
Telephone
DIAMETER (INCHES)
UTILITY NAME
DEPTH
6"SS 4'10"
ABBREVIATIONS
AB ABANDONED
BX BOX
CA COMPRESSED AIR
CB CATCH BASIN
CI CAST IRON
COM COMMUNICATION
CMP CORRUGATED METAL PIPE
CO CLEAN OUT
CP TEST CORROSION PROTECTION BOX
E ELECTRIC
EOP END OF PIPE
EOT END OF TRACE
FDC FIRE DEPARTMENT CONNECTION
FO FIBER OPTIC
FOD FULL OF DIRT/DEBRIS
FW FIRE WATER
G GAS
GA GAS ANODE
GBX GAS BOX
GM GAS METER
GND GROUND WIRE
GPR GROUND PENETRATING RADAR
GV GAS VALVE
HB HOSE BIB
HV HIGH VOLTAGE
HYD FIRE HYDRANT
IBX IRRIGATION BOX
IRC IRRIGATION CONTROL
ICV IRRIGATION CONTROL VALVE
IRR IRRIGATION
JP JOINT POLE
LV LOW VOLTAGE
MH MANHOLE
NL NOT LOCATED
NT NO TRACE
PED PEDESTAL
PIV POST INDICATOR VALVE
PS POOR SIGNAL
RF RADIO FREQUENCY
RCP REINFORCED CONCRETE PIPE
-RSR " " - RISER
SD STORM DRAIN
SIG SIGNAL
SL STREET LIGHT
SS SANITARY SEWER
SSFM SANITARY SEWER FORCED MAIN
T TELEPHONE
TOP TOP OF PIPE
TON TOP OF VALVE NUT
TR TRAFFIC SIGNAL
TRP TRAFFIC SIGNAL POLE
TRBX TRAFFIC SIGNAL BOX
TW TRACER WIRE
UN UNKNOWN UTILITY
WBX WATER BOX
WM WATER METER
WV WATER VALVE

Dennis Yniguez
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Board Certified Master Arborist
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EVALUATION OF CONSTRUCTION EFFECTS ON THREE TREES AT THE LAUREL ELEMENTARY SCHOOL 316 36TH AVE, SAN MATEO, CA 94403

Laurel
Elementary School

FOR

MARK SHERRILL—PROJECT MANAGER
SAN MATEO-FOSTER CITY SCHOOL DISTRICT
1410 SOUTH AMPHLETT BOULEVARD
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BY

DENNIS YNIGUEZ, REGISTERED CONSULTING ARBORIST
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DECEMBER 17, 2021

CONTENTS

EXECUTIVE SUMMARY

Installation of electrical upgrades at Laurel Elementary School will require excavation of trenches for installation of high-voltage electrical conduits.

This report includes specifications for ensuring that trench excavation will take place at proper distances from an established Monterey pine without significant detriment to the tree's health or stability. Two small trees will be removed to accommodate a new underground electrical conduit.

BACKGROUND AND ASSIGNMENT

On November 18, 2021, I was contacted by Mark Sherrill, a Project Manager for the San Mateo-Foster City School District. Mr. Sherrill informed me that the District is preparing plans to install robust electrical upgrades to accommodate new air conditioning equipment at three elementary schools in San Mateo.

Installation of higher-voltage electrical equipment will require considerable trenching for installation of underground conduits between utility power sources and sizable new electrical boxes.

I was asked to schedule a time to meet with Mr. Sherrill at each of the three elementary schools to discuss proposed locations for new trench excavations and to consider how best to avoid significant damage to established trees.

I was not retained to do a formal tree risk assessment. My assignment did not include the use of invasive diagnostic techniques to examine or test any trees for structural integrity.

OBSERVATIONS AND DISCUSSION

On November 29, 2021, an associate and I met with Mark Sherrill at the Laurel Elementary School site to examine, measure, and photograph trees adjacent to proposed trench locations, and to recommend measures for avoiding damage to nearby trees, if possible, when conduit trenches are excavated.

Table 1. Relevant Trees at Laurel Elementary School				
Tree Number	Species	*Tree Diameter (inches)	Location	Comments
1	Coast Redwood *(Sequoia sempervirens)*	4.5	Inside the metal fence that parallels the sidewalk on the west side of Hacienda Street	This small tree *will likely be removed* when the electrical equipment is installed.
2	California Buckeye *(Aesculus californica)*	2, 4	Inside the metal fence that parallels the sidewalk on the west side of Hacienda Street	This small tree *will likely be removed* when the electrical equipment is installed.
3	Monterey Pine *(Pinus radiata)*	35	Inside the metal fence that parallels the sidewalk on the west side of Hacienda Street	The nearest edge of the conduit trench must not be closer than 15-20 feet from the trunk. Deep and sustained irrigation of this pine should be done once each month beginning after trench excavation ceases until October of 2022.
Note: Tree roots over ½ inch in diameter must be cut with a sharp tool such as a handsaw, reciprocating saw, loppers, or hand pruners. Roots that are cleanly cut will be significantly more resistant to decay. * Tree Diameters are described as DBH (Diameter Breast Height), a forestry term to indicate measurements of tree diameter at 54” above ground.				

RECOMMENDATIONS FOR TREE PROTECTION

A Tree Protection Zone (TPZ) has been delineated in Exhibit 1, included in this report. The TPZ would prevent soil compaction or damage to the trunk of the established Monterey pine.

Protective Tree Fencing

The TPZ would be demarcated by placing fixed, upright fence sections onto the soil and surface roots (as illustrated in Exhibit 1), in lieu of driving five-foot steel

survey stakes into the root-permeated soil. Fencing would remain in place before and during construction to prevent soil compaction or damage to the trunk of the protected Monterey pine.

Two outward-facing weatherproof signs at least 11" X 17" in size must be affixed to the TPZ fence with the following language:

TREE PROTECTION ZONE
Do Not Move this Fence

No parking or storing of vehicles, construction trailers, equipment, machinery, chemicals, excavated soil, or construction materials of any kind shall be permitted within the defined Tree Protection Zone.

Supplementary Irrigation

Monterey pines can be susceptible to attack by bark beetles if they become stressed by drought. Root severance can also decrease the efficiency of water absorption at least until new roots grow to replace lost roots.

To avoid drought-stress from diminished water availability, I recommend that the Monterey pine be deeply irrigated in the area between the dripline and the trunk once each month from April through October. Irrigation can be done by hand or with a soaker hose or sprinkler.

At least 100 gallons can be applied each time, or enough to soak the soil to a depth of six or eight inches. Monterey pines benefit greatly from supplementary deep irrigation. Monthly irrigation will *not* increase the likelihood of root rot or other problems that sometimes develop from chronically oversaturated soil.

CONCLUSION

Tree protection measures set forth in this report include the use of protective tree fencing before and throughout construction, proper root pruning, proper storage of materials, avoidance of soil compaction, and supplementary irrigation.

Respectfully submitted,

Dennis Yniguez
Registered Consulting Arborist (ASCA No. 362)
Board Certified Master Arborist (ISA WE-0130)

1. Laurel Elementary School at 316 36th Avenue, San Mateo, California. Three trees are growing near the area where a trench will be excavated for installation of an electrical conduit.

2. Tree 1 is a small, staked coast redwood *(Sequoia sempervirens)* with a 4.5” trunk diameter. Tree 2 is a small California buckeye *(Aesculus californica)* with two trunks (2” and 4” diameters). *These two trees will likely be removed* when the electrical equipment is installed. Tree 3 is a 35” diameter Monterey pine *(Pinus radiata)* that will be retained. Excavation for a conduit should be no closer than 15-20 feet from this tree. The tree should receive additional irrigation during the first year after construction is completed.

3. [November 29, 2021] Tree 1 is a small, staked coast redwood *(Sequoia sempervirens)* with a 4.5" diameter, as measured at 54" above grade. Tree 2 is a small California buckeye *(Aesculus californica)* with two trunks (2" and 4" diameters).

4. [November 29, 2021] Tree 3 is a healthy Monterey pine. The brown needles evident throughout the crown are being shed naturally by leaf senescence. Excavation for an electrical conduit must be no closer than 15-20 feet from the trunk, and roots must be cleanly severed. The tree should receive additional irrigation during the first year after construction is completed.

5. This Monterey pine has extensive surface roots. Superficial irrigation, typical of a school sports field, often encourages roots to proliferate on or near the ground surface. Excavation for an electrical conduit must be no closer than 15-20 feet from the trunk, and roots must be cleanly severed. The tree should receive additional irrigation during the first year after construction is completed.

QUALIFICATIONS, ASSUMPTIONS, AND LIMITING CONDITIONS

Any legal description provided to the consultant is assumed to be correct. Any titles or ownership of properties are assumed to be valid and marketable. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

All property is presumed to be in conformance with applicable codes, ordinances, statutes, or other regulations.

Care has been taken to obtain information from reliable sources. However, the consultant cannot be responsible for the accuracy of information provided by others.

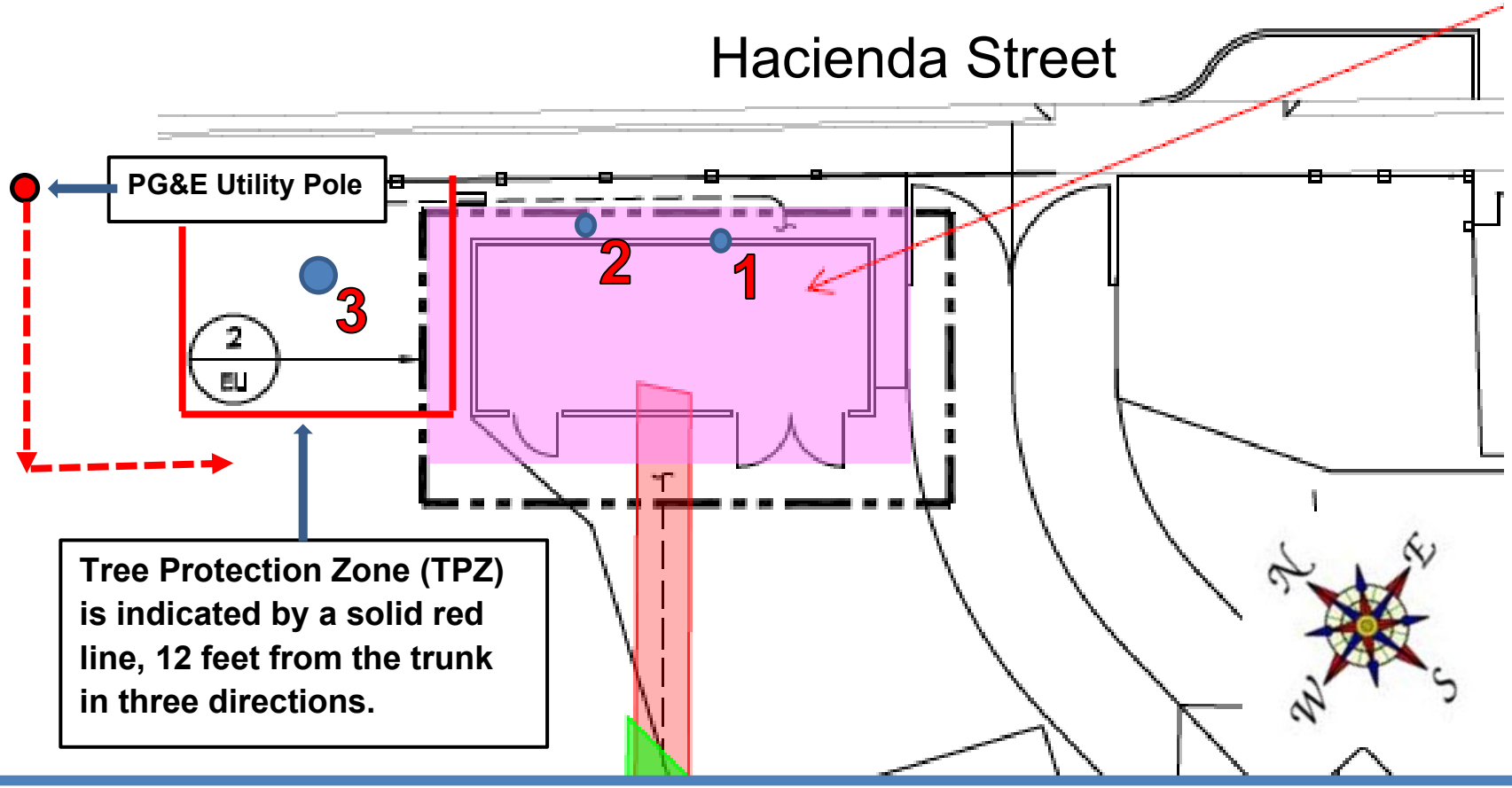
The consultant shall not be required to give testimony or to attend meetings, hearings, conferences, mediations, arbitrations, or trials by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

This report represents the opinion of the consultant, and the consultant's fee is not contingent upon making any recommendation.

Sketches, drawings, and photographs in this report are intended for use as visual aids, are not necessarily to scale, and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is only for coordination and ease of reference. Inclusion of said information with any drawings or other documents does not constitute a representation by Dennis Yniguez or Tree Decisions as to the sufficiency or accuracy of said information.

Unless otherwise expressed: a) this report covers only the examined items and their condition at the time of inspection; and b) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that structural problems or deficiencies of plants or property may not arise in the future.

Laurel Elementary School



The placement of the three trees on this site plan was approximated from photographs. The recommended minimum distance of the electrical conduit trench from each tree *is set forth in Table 1* of this report. The smaller trees (Tree No. 1 and Tree No. 2) will be removed.

An existing PG&E utility pole will serve as a primary riser for the new electrical installation. A trench (red dashed arrow) will be excavated from the utility pole into the grassy sports field, perpendicular to the sidewalk, maintaining a minimum distance of 15-20 feet from the trunk of Tree No. 3.

Specification

This Hazardous Material Abatement & Related Construction Specification 02 80 00 was prepared for San Mateo Foster City School District in support of the HVAC and Power Upgrade Project for the following schools:

School Name	Address
Abbott Middle School	600 36th Avenue, San Mateo, CA 94403
Borel Middle School	425 Barenson Avenue, San Mateo, CA 94403
College Park	715 Indian Avenue, San Mateo, CA 94402
Laurel Elementary	316 36th Avenue, San Mateo, CA 94403
Meadow Heights	2619 Dolores Street, San Mateo, CA 94403
North Shoreview	1301 Cypress Avenue, San Mateo, CA 94401
George Hall	130 San Miguel Way, San Mateo, CA 94403

Prepared for:

San Mateo Foster City School District
1170 Chess Drive
Foster City, CA 94404

Prepared by:

ZNAP FLY
419 Mason Street
Vacaville, CA 95688

SECTION 02 80 00

HAZARDOUS MATERIAL ABATEMENT & RELATED CONSTRUCTION

PART 1. GENERAL

1.1 SCOPE

A. The work of this section includes removal, clean up and disposal of the below listed hazardous materials prior to the general building and structure renovation and/or demolition work of the project. These work scope items are generally described as follows for the buildings and structures indicated. Contractor is to review all demolition/construction project plans and field verify location and extent of hazardous materials-related work.

1. **Asbestos-Containing Materials – Remove all:**

a. Abbott Middle School

1. Plaster, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 5 square feet may be impacted at each work location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location

b. Borel Middle School

1. Window putty at window HVAC unit, 2% asbestos, Category II ACM, approximately 2 square feet limited to Room 34
2. Mastic Associate with tack board/white board/chalkboard, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
4. Roof mastic, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work location

c. College Park Elementary School

1. Texture coat associated with sheetrock above acoustical ceiling panel, < 1 - 2% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Regulated Asbestos Containing Material (RACM), approximately 5 square feet may be impacted at each work location, however may not be impacted with the given scope of work
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
3. Roof shingle & roof mastics, assumed asbestos, located throughout the roof system, non-friable Category I ACM, approximately 5 square feet may be impacted at each work location

d. George Hall Elementary School

1. Stucco, < 1% asbestos (assumed to be >1% unless proven otherwise by point count analysis), Category II ACM, approximately 2 square feet may be impacted at each work location, however this material may not be impacted by scheduled work
2. Floor tile beneath existing tile and/or carpet, 2% asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
4. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, however this material may not be impacted by scheduled work

e. Laurel Elementary School

1. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location
2. Mastic associated with acoustic wall tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location
3. Roof field shingle mastic (below the top layer), 6% asbestos, located throughout the roof system, non-friable Category I ACM, found at one sample location and assumed throughout homogenous roofing system of Buildings A, B, C, D, approximately 41,150 square feet

f. Meadow Heights Elementary School

1. Floor tile, tan tile beneath existing flooring, 5% asbestos, with residual mastic (insufficient material to analyze) Category I non-friable ACM, approximately 5 square feet to be impacted at each work area location
2. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work area location
3. Roof shingles, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location
4. Roof mastics, assumed asbestos, Category I ACM, approximately 1 square feet may be impacted at each work area location

g. North Shoreview Montessori School

1. Joint compound associated with sheetrock wall system, joint compound = 2% asbestos, sheetrock = no asbestos detected, Regulated Asbestos Containing Material (RACM) - friable asbestos containing material, approximately 15 square feet may be impacted at each work location, refer to project drawings
2. Residual floor tile mastic, found in one of seven samples collected at Room 18, 3% asbestos approximately 8 square feet at each work location may be impacted, refer to project drawings
3. Stucco, <1% asbestos assumed >1% asbestos without point count analysis, Category II non-friable asbestos containing material, quantity impacted is dependent on the scope of work, refer to project drawings
4. Mastic associated with tack board/white board/chalk board, assumed asbestos, Category I ACM, approximately 6 square feet at each work location, may not be impacted.
5. Mastic associated with acoustic ceiling tiles, assumed asbestos, Category I ACM, approximately 5 square feet may be impacted at each work location, although material may not be impacted by scope of work
6. Roof field, shingle with associated mastic (assumed asbestos, this material may be sampled during construction if impacted to prove no asbestos by laboratory analysis, non-friable Category I ACM, quantity impacted is dependent on the scope of work, refer to project drawings

2. **Lead-Based Paint (LBP).** Remove loose and peeling LBP where occurs on lead-based components including:
   - **a. Abbott Middle School**
     1. Exterior plexiglas windows/window covers (wall panels)
     2. Exterior metal window frames
     3. Exterior wood window trims
     4. Window panels (windows/window covers)
   - **b. Borel Middle School**
     1. Exterior wood window frames
   - **c. George Hall Elementary School**
     1. Interior wood window sills
     2. Interior wood wall trim
     3. Exterior metal collars
     4. Exterior metal equipment
   - **d. Laurel Elementary School**
     1. Exterior wood window sills
     2. Exterior wood window casings
     3. Exterior metal roof collars
     4. Exterior metal roof HVAC/mechanical equipment
   - **e. Meadow Heights Elementary School**
     1. Interior wood window sills
     2. Exterior wood wall trim
   - **f. North Shoreview Montessori School**
     1. Interior wood lower walls
     2. Exterior metal window trims
     3. Exterior metal wall trims

3. Presumed Polychlorinated Biphenyl (PCB) lighting ballasts. Remove presumed PCB items, verify PCB content by labeling or manufacturing information and dispose of as PCB items unless proven non-PCB and/or labeled 'PCB FREE'. Recycle non-PCB components to extent possible.
4. Universal Waste including lighting tubes and exterior non-incandescent lighting. Remove and properly recycle.
5. Chlorofluorocarbons (CFCs) coolant gases in air conditioning units must be properly extracted and recycled prior to unit removal and disposal by a qualified hazardous materials disposal contractor using EPA certified Refrigerant Re-claimer for the removal and recycling of the CFC gases.

B. The Contractor's work scope includes all removal, waste testing, and disposal or recycling costs associated with removed materials and removal operations for this project.

C. Subsurface concrete piping shall be presumed to be asbestos cement (Transite®).

D. The Contractor shall make any necessary arrangements for temporary water and power necessary to conduct the work of this project. Power and water are available on site but will require Contractor to make any necessary temporary connections. Coordinate schedule and phasing with architectural.

E. Contractor shall review the demolition/construction project plans, reports, related documents identified herein, and shall visit the site during the scheduled bid walk and field verify the location and extent of hazardous materials removal work prior to submitting bid.

F. The Contractor's work scope includes all removal, waste testing, and disposal and/or recycling of removed and demolished materials. The Contractor is responsible for all costs associated with removed hazardous materials and removal/demolition operations during abatement, disposal, and testing for waste stream during renovation and demolition work.

1. Removed friable asbestos, including but not limited to texture coat and doing compound associated with sheetrock/wallboard and mechanically removed floor tile and flooring mastic, is to be disposed of as hazardous asbestos waste. Non-friable asbestos materials removed in a non-friable state shall be disposed of as a non-hazardous asbestos waste at an asbestos permitted landfill.
2. Lead debris resulting from removal of loose LBP prior to demolition shall be disposed of as lead hazardous waste.
3. PCB ballasts are to be disposed of as hazardous PCB wastes at a Class I landfill or permitted PCB incineration facility.
4. All remaining hazardous materials wastes, including lighting tubes & lamps, batteries, refrigerants/coolants, and other universal wastes are to be recycled by a permitted facility or disposed of as hazardous wastes as it pertains to this project.

G. The Contractor's work scope also includes removal of loose LBP and all required lead-related protective measures for Cal/OSHA, CDPH, and Cal/EPA compliance associated with renovation/demolition of the buildings and associated structures or other components on this site.

H. The Contractors shall be responsible for all agency permits, notices, and fees required to conduct the abatement and demolition and shall be responsible for all costs of removal, demolition, waste characterization and profiling, and disposal associated with abatement and demolition.

1.2. RELATED DOCUMENTS / WORK IN OTHER SECTIONS

A. HVAC and Power Upgrade Project, Hazardous Materials Survey Reports, prepared for each school by Znap Fly.

B. Project Drawings.

C. All other sections of the specifications.

1.3. REFERENCES

A. General: Codes, regulations, and references to hazardous materials abatement work include, but are not limited to the most current versions of the following:
   1. California Code of Regulations (CCR):
      a. Title 8, Article 2.5 Registration Asbestos-Related Work
      b. Title 8, Section 1529 Construction Safety Orders, Asbestos Regulations
      c. Title 8, Section 1531 Construction Safety Orders, Respiratory Protection
      d. Title 8, Section 1532.1 Construction Safety Orders, Lead in Construction
      e. Title 17, Div. 1, Ch. 8 Accreditation, Certification and Work Practices for Lead-Based Paint and Lead Hazards
      f. Title 22, Div. 4.5 Environmental Health Standards for Management of Hazardous Waste
      g. Title 22, Div. 4.5, Ch 23 Universal Waste Rule
   2. Bay Area Air Quality Management District (BAAQMD):
      a. Regulation 11 Hazardous pollutants Rule 2 Asbestos Demolition, Renovation and Manufacturing
   3. Other Local Regulations
      a. California Health and Safety Code 25249-25249.13
      b. California Health and Safety Code 25915-25919.7

1.4. DEFINITIONS

A. Definitions specific to Work of this Section.
   1. Abatement – Procedures to control airborne contaminate and other releases from hazardous material-containing building materials. Includes removal, repair, encapsulation, and enclosure.
   2. Airlock – A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.

3. Air Monitoring – The processing of measuring the air contaminants such as asbestos or lead for measured volume of air collected over the specific period of time being monitored.
4. Air Sampling Professional – The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an abatement project.
5. Amended Water – A water to which a surfactant has been added.
6. Asbestos – The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
7. Asbestos Containing Construction Material (ACCM) – Any construction material with asbestos content of 0.1 percent or greater by weight.
8. Asbestos Containing Material (ACM) – Any material which contains over one percent asbestos as determined by current EPA bulk sample analysis method.
9. Asbestos Fibers – This expression refers to asbestos fibers longer than five micrometers with an aspect ratio of 3:1 or larger under phase contrast microscopy (PCM) analytical procedures.
10. Authorized Visitor – Any Owner Representative, Consultant or Agent and any representative of a regulatory of other agency having jurisdiction over the project.
11. Certified Supervisor – An individual who is capable of identifying asbestos or lead hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. In addition, the Certified Supervisor is responsible for conducting and approving all required inspections as specified. Also known as the "Competent Person."
12. Class I Asbestos Removal – Class I Asbestos work means activities involving the removal of thermal system insulation (TSI) and surfacing ACM.
13. Class II Asbestos Work – Class II Asbestos Work means activities associated with removal of any asbestos containing material that is not a Class I surfacing material or thermal system insulation.
14. Clean Room – An uncontaminated area or room that is a part of the Worker decontamination enclosure with provisions for storage of Workers' street clothes and protective equipment.
15. Critical Barrier – A unit of temporary construction of air-tight and impermeable barrier which provides the only separation between a contained asbestos Work Area and an adjacent, potentially occupied area.
16. Decontamination Enclosure System – A series of connected rooms, with air-tight doorways between any two adjacent rooms, for the

decontamination of Workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.

17. Differential Pressure Equipment – A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated area from adjacent uncontaminated areas. Also referred to as HEPA Exhaust Units or Negative Pressure Units (NPUs).
18. Encapsulant (sealant) – A liquid material which can be applied to asbestos-containing material or surface and which controls the possible release of asbestos fiber from the material or surface by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant), or by locking down invisible fibers (lockdown encapsulant).
19. Fluorescent Light Ballast (FLB) – A device that electrically controls fluorescent light fixtures. Most existing FLBs include a capacitor containing 0.1 kilograms or less of dielectric fluid that may contain PCBs. Ballasts manufactured prior to 1979 may contain PCB capacitors. More recently, electronic ballasts have come into use that do not have dielectric fluids or PCBs. Ballasts with PCB capacitors also contain asphalt potting compounds which are likely to contain PCBs.
20. Hazardous Materials – Hazardous materials include, but are not limited to: asbestos containing materials, lead and lead-based paint, mercury, PCB, coolant gases, universal wastes, solvents, fuels and other chemical products or wastes.
21. HEPA Filter – A high-efficiency particulate absolute (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
22. HEPA Vacuum Equipment – Vacuuming equipment with a HEPA (UL 586 labeled) filter system.
23. Lead-Based Paint (LBP) – Lead-Containing Paint (LCP) that is at least 5,000 ppm, 0.5% lead by weight, or 1.0 milligrams of lead per square centimeter of surface area (as measured by XRF lead analyzer). Note: any untested paints or coatings must be presumed to be LBP.
24. Lead Hazardous Waste – Lead-based paint waste or other debris that has been classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. A hazardous waste is any substance(s) listed in Article 11 Section 66699 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC). The STLC for lead is 5.0 parts per million (ppm) and the TTLC for lead is 1,000 ppm lead. If either of these values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristic

Leaching Procedure (TCLP) in accordance with 40 CFR 261 and possibly other tests prior to disposal as a hazardous waste. Waste testing for proper disposal is the responsibility of the Contractor.

25. Negative Pressure Enclosure (NPE) – An enclosed or contained area of any configuration constructed of polyethylene sheeting with a minimum of four (4) air changes per hour and a negative pressure of -0.022 inches of water as compared to surrounding areas outside the enclosure. NPE must be maintained until post abatement sampling.
26. Non-Friable Asbestos Material – Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
27. Non-hazardous Asbestos Waste – Wastes which are non-friable and/or are below one percent asbestos by weight as determined by objective testing. These wastes require OSHA Asbestos Hazard warning labels and disposal at landfills that accept such asbestos wastes.
28. Observation Service – Environmental Consultant hired to conduct compliance observation and air monitoring services on behalf of the Owner. Sometimes referred to as the Owner's Observation Service.
29. Owner – The San Mateo Foster City School District and any of its designated representatives for this project.
30. Owner's Representative – Representative(s) the District (Owner) has assigned to manage, oversee, and inspect this project. This may include an architectural and/or construction management consultant hired by the Owner to oversee the project.
31. Polychlorinated Biphenyl (PCB) – PCB's are any chemical substances consisting of the biphenyl molecule chlorinated to varying degrees or any combination of such molecules. PCBs have had a wide variety of uses in the past including dielectric fluids in capacitors. PCBs are clear to yellow oily substances which are toxic to the liver and reproductive system. PCBs are also suspect human carcinogens.
32. PCB Ballast – An FLB that is known or suspected to contain PCBs. All FLBs must be considered PCB ballasts unless they are:
    a. Labeled or marked "No PCB" by the manufacturer.
    b. Manufactured in 1979 or later as indicated and verified on a date stamp or code, located on the ballast.
    c. Labeled as "Electronic Ballasts" by the manufacturer.
    d. General Electric HDF Ballasts manufactured from 1977 to 1978 and which have a "W" added to their catalogue number on the label of the ballast.
33. Removal – Procedures necessary to remove hazardous materials such as, but not limited to, asbestos or lead from designated areas and to

dispose of these materials at an acceptable properly permitted waste disposal site.

34. Surfactant – A chemical wetting agent added to water to improve penetration.
35. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, & Mercury & other batteries (often used in building alarms and emergency systems), and other items.
36. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
37. Waste Generator Label – Waste Generator label shall include the Generator's Name, ID Number, Address, and Waste Manifest Number.
38. Wet Cleaning – The process of eliminating asbestos or lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water or water/ detergent solution, and by afterwards disposing of these cleaning tools and materials as contaminated waste.
39. Work Area – Designated rooms, spaces, or areas of the project in which hazardous material removal actions are to be undertaken or which may become contaminated as a result of such removal actions during the process and prior to final clean-up and decontamination. A contained Work Area is a Work Area that has been sealed and equipped with a Decontamination Enclosure System. Also referred to as a "Regulated Area."
40. Worker Decontamination Enclosure System (Worker Decon) – That portion of a Decontamination Enclosure System designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

1.5. SUBMITTALS

A. General:
   1. Requirements are as set forth in the General Conditions documents (001 000 to 019 9999) that are prepared by aedis architects for items required to be submitted under this section.
   2. Submittals that are incomplete, disorganized, unreadable, or not project specific will be rejected.

B. Pre-Start Submittal-Part A; Submit and obtain approval prior to starting on-site set-up for asbestos removal work. Submit the following:

1. Licensing and Registration for Contractor or Subcontractor responsible for removal of hazardous materials. Submit copies of current and valid:
   a. The Contractor's license and Contractor's asbestos certificate issued by the California State Contractor's Licensing Board (CSLB);
   b. Registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with CCR, Title 8, Article 2.5 of the California Administrative Code and C-22 Asbestos Abatement Contractor in accordance with CCR, Title 16, Div 8, Article 3.
2. Notifications, Communications, and Postings.
   a. Submit copies of notifications to appropriate government agencies where required, including the following:

      Division of Occupational Safety and Health
      1065 East Hillsdale Blvd., Suite 110
      Foster City, California 94404
      (650) 573– 3812
      Email: DOSHFC@dir.ca.gov
      Notifications shall be in accordance with the Title 8 CCR Section 341.9 for asbestos and Section 1532.1 for lead.

      Bay Area Air Quality Management District (BAAQMD)
      Attn: Asbestos Section
      375 Beale Street, Suite 600
      San Francisco, California 94105
      (415) 749-4900
      Notifications shall be in accordance with the Regulation 11 Rule 2 for Asbestos.
   b. Copies of Government agency correspondence shall be included in the submittals.
3. Respiratory Protection Plan: Submit a written standard operating procedure governing selection, fit-testing, and use of respirators for asbestos and lead removal.
4. Detailed Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of these specifications. The detailed work plan shall include, at a minimum, the following information:
   a. Procedures: Job-specific procedures proposed for completing the scope of work outlined herein including: means of Work Area containment including barriers and other protective measures for

removal at each location; means for provision of decontamination units; removal methods to be employed;

b. Detailed schedule with calendar dates showing all phases of work. Where scheduled start dates have not been confirmed, provide the number of consecutive work days to complete each phase of work.

5. Plan for personnel air monitoring required by law by the Contractor for Worker protection. The Plan shall include, but not be limited to the following:
   a. Personnel Air Monitoring conducted in strict accordance with 8 CCR 1529. Include calibration data for the secondary standard to be used for air sampling pump calibration on-site. This data must be within six (6) months of the projected completion of this project.
   b. Name, address and accreditation and/or certification of laboratory selected by the contractor to analyze personal air samples for workers.
6. Hazardous Waste Transporter. Submit name, address and EPA# for each transporter to be used.
7. Waste Disposal Sites: Submit name location, class, and EPA# for each waste disposal site to be used for asbestos, lead, PCB, and other hazardous wastes for this project.
8. Method of disposal (i.e., landfill or incineration) for PCB ballasts and PCB contaminated materials shall be indicated. List transporter and disposal site(s) and their respective EPA ID number(s).
9. Method of on-site storage and shipping for packaging to keep lighting tubes and lamps intact from removal until their delivery to a recycling facility.
10. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for all items listed under Part 2 - Products. Product data shall include manufacturing product data, specifications, samples and application instructions, material safety data sheet (MSDS), and other pertinent information as necessary.

C. Pre-Start Submittal-Part B; Submit and obtain approval prior to any asbestos and/or lead removal work. Submit the following:
   1. Personnel Qualifications: Personnel documents required per this section shall be organized by individual employee and include the following information:
      a. Personnel Training (asbestos)
         1. Competent Person/Supervisor: Submit a copy of current AHERA asbestos training certificates for the Contractor's

Competent Person and Quality Control Person documenting successful completion of a training course in asbestos abatement project supervision offered by a Cal/OSHA accredited educational institution. Designate by name, the person who will act as the Certified Supervisor/Competent Person and Qualified Person for the project.

2. Workers: Submit a copy of the current asbestos training certificates for the Contractor's asbestos abatement workers documenting successful completion of a training course in asbestos abatement for workers offered by an EPA accredited education institution.
3. For lead abatement or removal work, supervisors and workers shall have appropriate training and CDPH certification documentation. For lead related demolition work, comply with CAL/OSHA training and certification requirements as applicable and submit documentation.

b. Medical Examination: Submit proof that personnel who will be performing asbestos-related work, lead related work, or otherwise wearing respirators shall have had medical examinations within the last 12 months in conformance with Title 8 CCR; Section 1529 asbestos, and furnish the results of each exam in the form of the physician's written opinion or approval with regard to worker fitness to wear a respirator and perform asbestos and lead work as applicable.

c. Respirator fit tests: Submit proof that personnel who will be entering asbestos Work Areas have had a qualitative respiratory fit test performed within 12 months from the scheduled completion date of the project.

2. HEPA Filtration Certifications:

a. Provide third party test certificates for al Differential Pressure Equipment and HEPA Vacuums to be used on this project. Such certificates shall document that each item of equipment has been tested on-site prior to start-up and that the results have demonstrated that each HEPA equipment assembly meets the efficiency requirement for HEPA filtration as an installed system or unit of equipment.

b. All HEPA filtration testing must be conducted by challenging the installed filter system with 0.3 micrometer diameter particles using a dioctyl-phthalate (DOP) particle generator and appropriate aerosol measurement test equipment designed for this purpose. Alternate test methods may be accepted if certified to be equivalent. Test certificate stickers shall be placed on each machine tested and a copy of the testing certification shall be

submitted. The test result, date and time of testing, testing firm, and signature of qualified test technician shall be included on each certification along with equipment identification information.

D. Daily & Other Progress Submittals: Submit the following within 24 hours following the completion of each Work Shift. The Contractor shall submit the following information to the Observation Service.

1. A complete asbestos worker/employee roster for each work shift prior to the commencement of each shift.
2. Work Area entry/exit logs completed for each Work Area and each Work Shift.
3. Worker exposure ("OSHA") sample results for asbestos including eight (8) hour Time Weighted Average (TWA) sampling and 30-minute excursion limit sampling. Sample results must indicate the person sampled, description of work activity, start and stop times, liters per minute, total volume and laboratory result expressed as an eight-hour TWA or excursion limit sample.
4. Waste Manifests:
    a. Each time hazardous waste (asbestos, lead, PCB, etc) is picked up from the site the Contractor is responsible for preparing an accurate hazardous waste manifest, presenting the manifest to the Owner's Representative for review and signature, and submitting the generator and DTSC copies to the Owner's Representative.
    b. Each time a non-hazardous asbestos waste is shipped, the Contractor shall submit the non-hazardous shipping manifests to the Owner's Representative for review and signature and provide the Owner's Representative a signed copy.
    c. All asbestos and other hazardous material waste manifests are to be reviewed and signed by an Owner Representative.
    d. All materials shipped for recycling (lighting tubes, mercury, etc.) shall be accompanied by a manifest prepared by the Contractor, review and signed by the Owner's Representative. A copy of the signed manifest shall be provided to the Owner Representative.
    e. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-generator to the Owner's Representative.
5. Land Disposal Restrictions: Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR) signed by the co-

generator to the San Mateo Foster City School District's Construction Supervisor.

6. Special Reports: (Submit to the Owner's Observation Service within 24 hours of occurrence.)
   a. The Contractor shall complete a report of unusual events when an event of unusual significance occurs at the site including loss of negative pressure, power failures, breeches in containment, etc. This report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective action taken, and action taken to prevent a reoccurrence.
   b. The Contractor shall submit a detailed accident report in the event of an accident or injury at the site. This report shall include the date and time of the injured, persons involved, cause of injury, detailed description of loss or injury, response actions taken and action taken to prevent a reoccurrence.

E. Close-Out Submittals:
   1. Within 10 days of completion of all hazardous material removal work, submit to the Owner's Observation Service:
      a. One copy of all outstanding daily submittals;
      b. One copy of each hazardous waste manifest and one copy of each non-hazardous asbestos waste manifest;
      c. One copy of Work Area entry/exit logs completed for each Work Area and each Work Shift.

1.6. CERTIFICATIONS

A. Inspection Certifications (Asbestos)
   1. Pre-Abatement Visual Inspection Forms and Final Visual Inspection and Post Abatement Certification Forms will be provided at the pre-construction start up meeting by the Observation Service.
   2. Pre-Abatement Visual Inspection: Upon inspection and approval of each Work Area by the Contractor's Certified Supervisor, a Pre-Visual Inspection Form shall be signed and submitted to the Observation Service for review and approval. The approved inspection form shall be considered notice to proceed with abatement operations within the Work Area.
   3. Final Visual Inspection and Post Abatement Certification: Upon completion of asbestos abatement and before encapsulation in each Work Area, the Contractor's Certified Supervisor shall thoroughly inspect the Work Area for completeness of work. The Contractor's Competent Person shall sign and submit a completed Final Visual Inspection and

Post Abatement Certification Form for review and approval by the Observation Service. The approved inspection form shall be considered notice to proceed with encapsulation.

1.7. POSTINGS

A. Before the commencement of any asbestos related work at the site, Cal/OSHA warning signs in and around the Work Area to comply with Cal/OSHA regulations.

B. Copies of the Contractor's SCLB license, Cal/OSHA registration certificate, temporary job-site notifications, pre-start LBP notifications to Cal/OSHA, local agency notifications, emergency exit diagram, emergency phone numbers, Cal/OSHA poster on worker's rights, and worker's compensation poster shall be posted proximate to the entrance to each Work Area.

C. The Contractor shall have at least one copy of the Contract Documents including project plans and specifications, and a current copy of 8 CCR 1529 & 1532.1.

PART 2. PRODUCTS

2.1. GENERAL

A. Submit manufacturer's product data for all items to be used including the items listed below.

B. All materials to be used on the project shall be new in original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Used materials will not be permitted.

2.2. PROTECTIVE COVERING (PLASTIC SHEETING)

A. For standard containment and critical barrier usage: Fire Retardant Polyethylene sheets six (6) mil and four (4) mil in sizes to minimize frequency of joints, approved and listed by the State Fire Marshall per Section 13121 and/or 13144.1 of the California Health and Safety Code.

2.3. TAPE, ADHESIVE, SEALANTS

A. Duct tape two inches or wider, or equivalent, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheets to finished

or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

B. Spray adhesives for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.4. PROTECTIVE PACKAGING

A. Appropriately labeled six (6) mil sealable polyethylene bags as a minimum.

B. Appropriately labeled, impermeable drum containers with sealable lids.

C. Bilingual labels (English and Spanish) on waste packages, contaminated material packages and other containers shall be in accordance with applicable Cal/EPA and Cal/OSHA standards.

2.5 WARNING LABELS AND SIGNS

A. All warning signs and labels must meet all applicable regulatory requirements for wording, size of lettering, and use of language, pictographs, and graphics to effectively convey the warning. Additional requirements apply for hazardous waste containers and shipments for transportation to disposal sites.

B. Lead Caution Signs must include phrase "**WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING**" in minimum two-inch high letters. These shall be posted at each approach to each lead paint stabilization/surface preparation and manual demolition Work Area.

C. Cal/OSHA Lead Warning Posters: "**DANGER, LEAD WORK AREA, MAY DAMAGE FERTILITY OR THE UNBORN CHILD, CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM, DO NOT EAT, DRINK OR SMOKE IN THIS AREA**" shall be posted at the entrance to each LBP stabilization/surface preparation and manual demolition Work Area.

D. Asbestos Warning signs for Regulated Areas must contain the following wording:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY

E. Labels for packaging and containers containing ACM waste must contain the following wording:

DANGER
CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2.6. SURFACTANT

A. Surfactant, or wetting agent, for amending water will be 50 percent polyethylene ether and 50 percent polyethylene ester, or equivalent, at a concentration of one ounce per five gallons of water.

2.7. VENTILATION EQUIPMENT

A. Provide differential pressure equipment in areas as shown on Contractor's work plans. High-efficiency particulate absolute (HEPA) filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the work area. Differential pressure within the work area shall be maintained at negative 0.022 inches of water during abatement.

B. Provide air filtration equipment with HEPA filtration system to cleanse air of particulate matter during abatement. Replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the work area to maintain fiber levels within the protection factors of workers' respirators.

2.8. PERSONAL PROTECTIVE EQUIPMENT

A. Personal Protective Equipment shall comply with the requirements of 29 CFR 1910, Subpart 1 and 8CCR 1514, 1515, 1516, and 1517.

B. Work clothes shall consist of impervious disposable, full-body coveralls, head covers, boots, rubber gloves, and work boots (or sneakers). Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn when required by applicable safety regulations and shall conform to ANSI 87.1 and 89.1.

D. Provide Authorized Visitors with suitable protection clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.9. RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors' personally-issued and marked, clean and sanitized respiratory equipment approved by NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this specification. Selection of respirators shall be made according to the guidance of 8 CCR 1529 and 1532.1.

B. The minimum respiratory protection required for this project is a half mask respirator as long as the airborne levels do not exceed one tenth of the applicable PEL established by regulation.

PART 3. EXECUTION

3.1. PROJECT PROCEDURES

A. Prior to the start of on-site work, the Contractor shall hold an on-site start-up safety meeting for all of contractor and facility employees that addresses at least the following issues specific for the project.
   1. Safety and health hazards;
   2. Procedures and work practices;
   3. Respiratory protection and instruction; and
   4. Special conditions and/or work requirements.

B. Worker Protection Procedures
   1. Provide Authorized Visitors with suitable protective clothing, respirators, headgear, eye protection, and footwear whenever they are required to enter the Work Area. All provided equipment shall be new or in good working condition and clean, sanitized, and inspected by a competent person since last use.
   2. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the clean-change rooms and put on a respirator and clean protective clothing before entering the Work Area.
   3. Workers shall, each time they leave the Work Area, remove gross contamination from protective clothing before leaving the Work Area, proceed to the Equipment Room or decontamination area and remove protective clothing except respirators; still wearing the respirator, proceed to the showers or wash area, clean the outside of the respirator

with soap and water while showering; remove the respirator, and thoroughly shampoo and wash themselves.

4. Following washing and/or showering and drying off, each Worker shall proceed directly to the clean change room/area and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the Work Area from the clean change room, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
5. Contaminated work footwear shall be stored in the Decontamination Area when not in use in the Work Area. Upon completion of abatement, dispose of footwear as contaminated waste.
6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Wash Room or the Work Area.
7. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
8. Workers and Authorized Visitors with beards shall not enter the Work Area unless equipped with respirators approved for use with beards.

3.2. COORDINATION REQUIREMENTS

A. Coordinate with the Observation Service and Owner's Representative the locations of the Worker Decontamination Unit, waste load out, staging areas, and emergency egress exits.

B. Coordinate timing of waste bag-out and waste shipping activities with the Owner's Representative and Observation Service. All asbestos and hazardous waste manifests shall be signed by the owner or designated owners's representative. The Contractor shall be aware that these activities may need to take place during times when it is most convenient to the facility.

C. Coordinate and provide to the Observation Service the required number of GFCI protected energized 110 Volt AC power outlets needed inside and outside each Work Area. These outlets shall be solely dedicated for the use of the Owner's Observation Service.

3.3. PREPARATION

A. General Preparation Requirements for All Interior Work Areas. Not each area will require abatement of all materials. Each school differs. Refer to project plans/ drawings.

1. Prior to Work Area set up and preparation, remove all movable objects that will not disturb existing ACM or asbestos contaminated materials in the process.
2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
3. Clean and decontaminate all accessible areas above ceiling prior to hazardous material remediation, demolition, and other construction activities.
4. Install a Decontamination Enclosure System or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.
5. Seal off all other accesses to the Work Area with hard barriers and polyethylene sheeting sealed with tape.
6. Install Differential Pressure Equipment for all Class I and Class II Asbestos Removal Operations in accordance with the requirements herein. Establish a negative pressure of -0.022 inches water or greater inside the Work Area containment with respect to the outside and non-involved building areas.
7. Install an adequate number of HEPA Units to obtain the required negative pressure continuously and achieve at least four (4) complete air changes per hour inside the containment.
8. Conduct any required non-ACM selective demolition including demolition to reveal concealed ACM prior to starting ACM removal work to ensure such areas are prepared with additional critical barriers to ensure negative pressure can be maintained at a negative (-) 0.022 inches or better during asbestos removal.
9. Pre-clean fixed objects and surfaces within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers. Protective barriers will consist of plastic sheeting and plywood as appropriate.
10. Seal all remaining openings, including but limited to ducts, grills, diffusers, and any other penetrations of the Work Areas, with two (2) layers of six (6) mil polyethylene sheeting sealed with tape.
11. Seal all joints of conduit, junction boxes, and ductwork with duct tape and plastic sheeting. Cover and protect during abatement.

12. Install Viewing Ports of size, quantity, and location to meet local AQMD/ APCD requirements. Where no requirements are specified, install an adequate number of windows to view the entire removal Work Areas as feasible.
13. Establish and maintain emergency and fire exits from each Work Area.

B. Decontamination Enclosure System (General)
1. Construct or establish Decontamination Enclosure System or area contiguous to the work area for proper decontamination of worker as they exit a Regulated Area or containment system.
2. Provide separate designated areas or chambers for: removal of contaminated clothing prior to exiting the contaminated area; for washing or showering (as appropriate); and for donning clean protective clothing and equipment prior to re-entry. The decontamination system shall comply with applicable regulation taking into account the Cal/ OSHA asbestos removal work class as well as site conditions.
3. In the event that the Decontamination Enclosure System is not contiguous with the Work Area, there must be at least an established area for removing and properly disposing of contaminated clothing and equipment, minimum amenities for washing hands, respirator and face, to allow exiting the work areas prior to going to a remote decontamination enclosure on site. Under these conditions, double suit procedures are required.

C. Mini Containments
1. The use of mini-containments shall be permitted only if entire removal can be completely contained by the enclosure or as needed to isolate the HVAC, Plumbing, Electrical or other system as part of localized preparatory activities.
2. Mini-containments shall shall be constructed with rigid framing and shall have a minimum of one layer of 6 mil polyethylene sheeting sealed with tape.
3. The mini-containment enclosure shall have a decontamination enclosure system in accordance with the requirements herein or as approved by the Observation Service.
4. The The mini-containment enclosure shall be placed under negative pressure for the duration of work in the containment until final air clearance is obtained.

D. Maintenance of Enclosure Systems
1. Ensure that all barriers intact and are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

2. Visually inspect enclosures at the beginning of each work period and periodically throughout each shift. Inspection shall include, but not be limited to, the protective critical barriers and the worker Decon unit barriers, warning signage, and Work Area barriers or barricades.
3. Use smoke test methods to evaluate effectiveness of barriers prior to implementing asbestos removal and when directed by the Observation Service.
4. Ensure all negative pressure containment enclosures for regulated asbestos-containing material removal meet all BAAQMD requirements at all times from start up through completion and post abatement sampling.

E. Asbestos, lead, and hazardous material removal work shall not commence until:
1. Submittals as required herein have been reviewed and approved in writing by the Observation Service;
2. Arrangements have been made for secure temporary storage of asbestos wastes and other hazardous wastes on-site and for disposal of such wastes at an acceptable permitted disposal sites;
3. Work Areas and Decontamination Enclosure Systems (or equivalent) have been installed and approved and all parts of the building or facility required to remain in use are effectively segregated and isolated;
4. Tools, equipment, and secure material waste receptors are on hand;
5. Arrangements have been made for buildings' and Work Area security during removal operations including periods when no work is in progress such as off hours, weekends, and holidays; and
6. Differential pressure systems, as required for interior asbestos removal, are installed, operating, and recording properly.

3.4. CLASS I & II ASBESTOS REMOVAL OPERATIONS

A. General Requirements. Not each area will require abatement of all materials. Each school differs. Refer to project plans/drawings.
1. Class I Asbestos Work is defined as removal of ACM that is a surfacing material or thermal system insulation. Class II Asbestos Work is defined as the removal of ACM that is not a surfacing material or thermal system insulation.
2. The Class I Asbestos Work of this project includes but is not limited to removal of: non-friable ACM and PACM if made friable by removal process.
3. The Class II Asbestos Work means activities involving removal of ACM which is not thermal system insulation or surfacing materials. For this project materials include, but is not limited to removal of the following

materials: wallboard, floor tile, roofing and siding shingles, and construction mastics.

B. Class I & II Asbestos Work Preparation Requirements

1. All interior work shall be conducted within negative pressure containments with contiguous decontamination units for worker enter & exit.
2. Negative pressure shall be maintained at -0.025 inches of differential pressure (water column) or higher compared to the exterior pressure.
3. All negative pressure exhaust units shall be HEPA filtered and exhausted to the building exterior. All HEPA exhaust units shall be DOP (or equivalent) tested on-site and certified to meet HEPA efficiency standards.
4. Interior walls and other non-movable objects shall be covered with at least one layer of four (4) mil plastic sheeting. Wall covering may be reduced to 4' splash guards in Work Areas where glove bags or "cut, wrap, and remove" methods are the sole method used for pipe and fitting insulation removal.
5. Floor areas shall be covered with two (2) layers of six (6) mil plastic sheeting unless glove bags and/or cut, wrap and remove methods for pipe insulation are used. Where glove bags and cut & wrap methods are used, six (6) mil plastic drop sheets extending at least 5 feet on each side of pipe at minimum are required.

C. General Removal Procedures

1. Spray asbestos materials with amended water, using only spray equipment capable of dispensing a fine mist application. Apply amended water sufficiently to wet material surfaces without causing excess dripping or pooling. Spray materials and Work Area repeatedly during work process to control airborne fiber levels.
2. Place asbestos waste in clear asbestos-labeled plastic bags or lined drums. Plastic bags must be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Clean external surfaces of containers thoroughly prior to setting down on a clean plastic drop cloth.
3. Move waste containers to washroom or wash area, wet clean each container thoroughly, and move to holding area pending removal to uncontaminated areas.
4. After completion of removal work, equipment surfaces from which asbestos has been removed shall be wet cleaned and/or wet sponged by an equivalent method to remove all visible material and residue. During this work, the surfaces being cleaned shall be kept damp. Do not allow water to pond at any time.

5. Clean all surfaces of the Work Area including remaining sheeting by use of damp cleaning and/or HEPA filtered vacuum.
6. Proceed with final decontamination of the Work Area.

D. Glove bag Technique
1. Removal of Class I and II asbestos-containing materials from piping may be accomplished using approved glove bag techniques in specified areas. In all cases, removal shall be conducted in secondary negative pressure containment or mini-containment.
2. After installation of glove bag, smoke test the glove bag to verify that it is air tight.
3. Thoroughly wet material to be removed with amended water before and during the removal process.
4. Thoroughly wash the inside of the bag, the piping surfaces and the tools upon completion.
5. Encapsulate all surfaces inside the glove bag including the piping and ends of exposed coating material.
6. Evacuate bag with an approved HEPA vacuum; tie off waste area; remove tools from bag; remove bag from pipe, folding inward the sides of the bag; then twist and tape the open end, the wand opening, and the vacuum opening.
7. Place glove bag directly into another six (6) mil sealable labeled plastic waste bag or other appropriate waste container. Seal the outer bag using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape. Seal container with duct tape.

E. Modified Cut, Wrap, and Remove Technique
1. Removal of pipe insulation may be accomplished using approved Modified Cut, Wrap, and Removal Techniques where piping is to be demolished or abandoned in place unless otherwise noted.
2. Verify the piping being removed scheduled for removal or abandonment in place prior to proceeding.
3. Verify pipe lines have be isolated and drained prior to cutting pipe(s).
4. Use glove bag technique to remove insulation at location of pipe to be cut. Wrap pipe including all insulation being removed with two layers of six (6) mil polyethylene sheeting secured with duct tape.
5. Cut the pipe and remove wrapped pipe with ACM insulation for disposal.

F. Floor Tile Removal
1. Remove wall base, cabinets, and any other components and materials as necessary to expose and access all resilient floor tiles for removal.

2. Thoroughly wet floor tiles with amended water but do not let water pool or pond.
3. Remove tile by prying with scrapers or spud bars taking care to minimize breakage.
4. Place removed tiles in appropriately labeled impervious bags or containers and seal.
5. Do not subject floor tiles to any sanding, grinding, cutting, abrading activities likely to create friable ACM.

G. Flooring Mastics Removal
1. Remove all overlaying non-asbestos carpet and other materials concealing the flooring mastics.
2. Remove all asbestos and/or asbestos mastic contaminated floor tiles prior to initiating mastic removal in the Work Area.
3. Remove all flooring mastics using a suitable mastic solvent along with manual scraping and/or mechanical removal methods as necessary for complete removal.
4. Where removal solvents are used, clean up slurry as the mastic is removed and place in properly labeled containers for disposal as a hazardous waste.
5. As an alternative to solvent removal, use bead blast systems for removal is acceptable if permitted by the AQMD and any required variance or waiver is obtained in advance by the Contractor. Likewise, removal by high pressure water systems is allowable if water is fully contained and removal is complete. All floor mastic removal operations must be conducted as a Class I removal operations unless removal is limited to manual scraping methods.
6. Regardless of removal method used, all three dimensional mastic residues must be removed and extent of removal must sufficient to allow for recycling of concrete foundations and decks.

H. Mastic behind chalkboard/ACT
1. Removal of non-friable shall be conducted using wet methods using hand
scrapers and cutting tools to remove the ACM mastic from the non-ACM substrate materials.
2. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
3. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

I. Texture coat, wallboard (sheetrock) and joint tape compound

1. Mist the gypsum board/joint tape compound/texture continuously with amended.
   water during removal.
2. Remove gypsum board in larger sections or pieces where possible. Use pry bars, utility knives, claw hammers and other appropriate tools to loosen and remove wallboard from framing. Remove all wallboard fasteners.
3. Place removed gypsum board/joint tape compound/texture in impervious containers with asbestos warning labels as it is removed. Wall insulation shall be placed in same bags as asbestos contaminated.
4. Complete Work Area clean-up including: all remaining nails; framing; electrical junction boxes, outlets, wiring, and conduit; plumbing fixtures, piping, and hanger, and all other surfaces in the work area.

J. Window Glazing/putty
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable sealants and caulking to be removed.
   2. Removal of non-friable shall be conducted using wet methods using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

K. Exterior Stucco wall
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable stucco to be removed.
   2. Removal of non-friable shall be conducted using wet methods using manual demolition.
   3. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
   4. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the Owner or Owner's representative.

L. Roofing Materials (shingles and mastic)
   1. Establish a regulated area with barrier tape, asbestos warning signs, and decontamination area surrounding the non-friable roofing mastic or penetration mastic to be removed.

2. Removal of non-friable roofing shall be conducted using wet methods and appropriate cutting tools. Remove roofing in small sections and place in waste bags or containers.
3. If a chute is used to remove ACM roofing waste from the roof, it must be totally enclosed and air tight to and including the bin it is connected to.
4. Removal of roofing flashing and sealants shall be conducted using hand scrapers and cutting tools to remove the ACM mastic/sealant from the non-ACM substrate materials.
5. Bag debris as it is removed, HEPA vacuum and wet wipe substrate to remain.
6. Dispose of non-friable ACM as non-hazardous asbestos waste and transport to waste disposal site with a non-hazardous asbestos manifest signed by the State or State's representative.

M. Cutting, Tapping, Demolition of Asbestos Cement (AC) Piping
1. Carefully machine excavate to exposed AC pipe as necessary. Once exposed, hand excavate areas where cuts, breaks or taps are to be made to prevent pipe breakage.
2. Establish a regulated Work Area surrounding the location of pipe cutting and/or modification. At minimum, use barrier tape and signage.
3. Place plastic sheeting under the area to be cut or altered to catch any resulting chips or dust debris.
4. The methods and procedures used to cut or modify pipe shall not cause the pipe to shatter, crumble, be pulverized or release airborne asbestos dust.
5. Keep the AC pipe wet at all times during cutting or tapping work.
6. Use only industry recommended practices for cutting, splicing and tapping AC pipe. At minimum:
    a. Cutting is to be by special carbide tipped blade cutters that are frame adjustable to the circumference of the pipe and that have self –tracking rollers or "snap cutters" that operate with cutting wheels on a chain wrapper around the pipe barrel.
    b. Machining, if necessary, shall be conducted wet using manual field lathe or manual rasp.
    c. Tapping, whether under pressure or on non-pressured lines, shall be conducted wet and include provisions for internal pipe cleaning by flushing, purging or other means to prevent asbestos dust and chips from entering the drinking water system.
    d. Do not blow out with compressed air or dry sweep. Do not vacuum dust and debris without a HEPA filtered vacuum.
    e. All cutting, machining, tapping procedures must be conducted wet and all resulting AC pipe dust and debris must be cleaned up and disposed of as asbestos contaminated waste.

f. Piping sections to be demolished shall be carefully cut into manageable sections, wrapped and sealed and plastic sheeting, and carefully placed in a lined asbestos waste disposal bin.

g. All intact AC pipe waste and debris shall be disposed of as non-hazardous asbestos waste under a non-hazardous asbestos manifest at a permitted asbestos landfill.

3.5. FINAL ASBESTOS DECONTAMINATION AND TESTING

A. Previous Work: During completion of the interior asbestos removal and visible debris clean up work specified, the first cleaning of all exposed equipment and building surfaces should be completed. Likewise for exterior Work Areas, all visible debris and removed materials must be bagged up for disposal.

B. Clean all surfaces within the Work Area by wet wiping and HEPA vacuuming.

C. Clean any remaining materials and debris exposed by the plastic barrier removal. Final independent layer of polyethylene sheeting and all isolation barriers, vents, grilles, diffusers, etc., shall remain in place.

D. At the completion of this cleaning phase, the Work Area shall be free of all unnecessary equipment/materials and waste containers.

E. The Contractor's Competent Person/Supervisor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, and dust.

F. The Contractor's Competent Person/Supervisor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor shall submit a completed and signed Final Visual Certification Form along with a request for a final visual inspection by the Observation Service once the Competent Person/Supervisor concludes that the area is acceptable for final visual inspection.

G. After final visual inspection of the Work Area shall be conducted by the Observation Service. The standard for visual acceptance shall be no visible dust, debris or three dimensional suspect ACM residues within the Work Area. After written notification to proceed from the Observation Service, encapsulate all surfaces within the Work Area.

H. For interior work areas, the Observation Service will conduct post abatement air testing to evaluate the final acceptability of the Work Area for release to unprotected personnel and the environment. Each interior containment will be evaluated by collection and analysis of a minimum of three and up to five (5)

phase contract microscopy (PCM) air samples collected by the Observation Services and analyzed in accordance with NIOSH Method 7400 or equivalent. The standard for acceptance shall be that each sample result for the containment shall be less than 0.010 fibers per cubic centimeter of air (f/cc). The Contractor shall allow for up to 24 hours for collection of post abatement air samples to allow Work Area and encapsulants drying and up to another 24 hours for air test results.

I. The Contractor shall re-clean and re-encapsulate all surfaces within any Work Area Containment that fails post abatement air testing at no additional cost to the Owner. Likewise, the Contractor is responsible for all costs associated with failed visual inspections including additional cleaning and inspection. All costs associated with failed inspections shall be borne by the Contractor.

J. After written notification from the Observation Service in the form of a fully completed Final Visual Inspection/Post Abatement Certification Form accepting decontamination of the Work Area as acceptable, proceed with removal of critical barriers.

K. For exterior non-friable ACM removals such as sealants, mastics, Transite® pipe and/or similar materials, following abatement inspection will consist of a visual inspection by the Observation Service. If all ACM materials have been removed and the Work Area is free of visible ACM material, dust and debris, the removal will be considered complete.

3.6. LOOSE LEAD-BASED PAINT SURFACE PREPARATION

A. Prepare the exterior Work Area with plastic flooring and another plastic drop sheet, place lead caution tape demarkation around removal area.

B. Wet the surfaces with loose LBP by misting lightly with water.

C. Wet scrape loose LBP until remaining paint is intact.

D. Clean up removed LBP chips, debris and dust using HEPA vacuuming and wet wiping. Containerize all lead waste including vacuum bags for disposal as hazardous lead waste. Label and place container into secure storage pending waste characterization testing and disposal.

E. Clean up plastic sheeting and place in separate lead related waste bags or drums along with protective clothing and related potentially contaminated materials.

F. Conduct final clean up and all necessary waste profiling, evaluation, and testing of lead-related waste as specified herein.

3.7. LEAD WASTE CLEAN UP AND WASTE EVALUATION

A. Clean up paint chips and debris using wet cleaning methods and HEPA vacuuming. All surfaces shall be free of all visible paint chips, dust and debris. Place all paint chips in a labeled waste bag or container.

B. Place all contaminated cleaning materials, disposal personal protective equipment (PPE) and contaminated plastic in separate waste bags. The Contractor shall assume all lead-related waste is RCRA hazardous waste and shall conduct required waste testing as necessary for disposal at a permitted waste disposal site.

C. All waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. All testing of demolition waste wastes is the responsibility of the Contractor. The Contractor shall be responsible for segregating suspect lead hazardous waste based on potential for exhibiting hazardous waste characteristics. Lead-related wastes are to be segregated into the below listed categories at a minimum.
   1. Category I: LBP paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes.
   2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials should be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous subject to testing.

D. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a California hazardous waste.

E. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes.

3.8. LEAD- RELATED DEMOLITION

A. General: All painted or coated surfaces are known or presumed to contain lead subject to worker protection and environmental regulations. Refer to related documents identified herein for additional information including components with LBP requiring agency notification.

B. Conduct selective as well as general building and structural demolition in a manner that does not result in site contamination above background levels.
   1. Remove any loose, peeling, or flaking paint before demolition in accordance with this section.
   2. Clean up any demolition-related lead wastes including any resulting paint chips and debris.
   3. Do not let any wetting agents or water enter soil or storm drain.

C. The Contractor shall evaluate each demolition debris waste stream and ensure proper disposal of all generated wastes. All waste profiling and testing required by the disposal site is the responsibility of the Contractor.

3.9. FLUORESCENT LIGHTING & BALLASTS

A. Remove fluorescent lighting tubes from fixtures in and on buildings to be renovation/demolished, in accordance with project documents.
   1. Carefully place all tubes in storage or shipping containers so the risk of breakage is minimized.
   2. Place containerized light tubes in a safe and secure storage area pending shipping to the recycler or reuse.

B. Remove presumed PCB ballasts from all fluorescent lighting fixtures presumed PCB transformers in buildings to be renovation/demolished.
   1. Any ballast not marked "PCB Free" or "No PCB" shall be lab packed with adsorbent in a waste drum for disposal as hazardous PCB ballast waste.
   2. Ballasts that are clearly marked "PCB Free" shall be set aside for verification inspection by the Observation Service. All ballasts verified to be PCB free may be disposed of as ordinary construction waste or recycled.
   3. Ensure PCB ballast drum is properly labeled for PCB wastes and shipping.
   4. Any electrical transformer that cannot be determined to be PCB free by labeling, date of manufacture, or manufacturer's information shall be disposed of as a PCB item.

3.10. UNIVERSAL WASTES AND OTHER HAZARDOUS WASTES

A. Refrigerators, air conditioners, and other equipment with refrigerant or coolant gases shall be assumed to contain chlorofluorocarbon (CFC) gases and shall have those gases removed by appropriately certified mechanics or technicians and recycled according to state and federal regulation.

B. Carefully segregate waste by type and lab pack for disposal in impervious labeled waste containers.

C. Dispose of or recycle each type of waste in accordance with applicable regulation at permitted facilities. Maintain all shipping and disposal record and provide copies to Owner's Representative and the Observation Service.

3.11. PACKAGING & LABELING

A. All asbestos wastes shall be adequately wetted prior to packaging.

B. Place asbestos waste in six (6) mil labeled asbestos waste bags or approved equivalent containers.

C. Goose neck and seal each bag and place in a second clean-labeled bag, drum or impervious container.

D. Decontaminate waste bags and containers prior to removing from regulated or contained area.

E. Label all asbestos waste bags or containers with OSHA warning label: "DANGER CONTAINS ASBESTOS FIBERS MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. DO NOT BREATHE DUST. AVOID CREATING DUST" and other information as required by regulation.

F. All other hazardous lead, PCB, and universal wastes shall be properly labeled and containerized in leak tight containers.

3.12. WASTE DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous asbestos wastes including name, address, EPA ID number, and telephone number of transporter.

B. Waste Disposal Site(s): Submit for approval the name, class, address, EPA ID number, and telephone number of waste disposal site(s) to be utilized for:
   1. Disposal of non-hazardous non-friable asbestos wastes;
   2. Disposal of hazardous lead, PCB, and Mercury wastes; and
   3. Disposal of any other universal wastes.

C. Waste Manifest: Submit for approval at the Pre-construction meeting a filled out Waste Manifest form. For Waste Manifest purposes, the Generator is the facility of the subject work.

1. Obtain necessary information including generator EPA number for this purpose from the Owner or Owner's Representative prior to start up of any abatement or demolition.
2. After removal and packaging waste for shipment, provide a copy of the Waste Manifest to the Observation Service for each required shipment.
3. Use the uniform hazardous waste manifest for hazardous wastes including lead, PCBs, universal wastes and other hazardous wastes. Include a properly completed Land Disposal Restriction Notice and Certification form with each manifest submitted for signature by the generator (Owner).
4. Use a non-hazardous wastes manifest for disposal of non-friable asbestos wastes.

D. Each hazardous waste manifest and each non-hazardous asbestos waste manifest shall be prepared for the Owner or Owner's Representative's review and approval prior to shipment.

E. The sealed hazardous waste containers shall be delivered to the Contractor's pre-designated, approved hazardous waste treatment and waste disposal site for burial in accordance with applicable state and federal regulations. Likewise, non-hazardous asbestos waste shall be delivered under manifest to a permitted asbestos waste disposal site.

F. Notify the Owner's facility representative 48 hours in advance of the time when hazardous waste materials of all types and non-hazardous asbestos wastes are to be removed and transported from the site to allow for manifest review and approval.

G. The Contractor shall be responsible for safe handling and transportation of all hazardous waste generated by this Contract to the designated Hazardous Waste Site and shall hold the Owner and the Owner's agents and consultants harmless for claims, damages, losses, and expenses against the Owner, including attorney's fees arising out of our resulting from asbestos and hazardous materials spills on the site or en route to the disposal site.

3.13. AIR MONITORING

A. Area Air Monitoring
1. Throughout the asbestos removal process, area air monitoring may be conducted by the Observation Service to ensure work is done in conformance with the fiber concentration limits of these specifications. Likewise, lead removal work areas may be visually inspected and/or monitored during removal.

2. If results of area air monitoring outside the Work Area are in excess of 0.010 f/cc for asbestos or 50 micrograms per cubic meter of airborne lead per cubic meter of air for lead, the Contractor shall make changes in work procedures to assure compliance with minimum standards. At a minimum, the Contractor shall stop all work and implement additional remedial controls and conduct decontamination as necessary in response to exceeding these limits.
3. Unsatisfactory asbestos results are fiber counts in excess of 0.010 fibers/ cc by PCM Method NIOSH 7400 determined as a TWA outside the Work Area by general air monitoring. All results greater than 0.010 fibers/cc shall be subject to further laboratory analysis by the TEM method at the Contractor's sole expense.

B. The Contractor shall submit a written report to the Owner's Observation Service of the Contractor's personnel exposure monitoring within 48 hours of sample collection. The Contractor shall take all necessary control and protective measures to ensure airborne contaminate levels based on personnel air monitoring results do not exceed the levels recommended for the type of respiratory gear in use.

C. Interior Asbestos Post Abatement Air Sampling. The Owner's Observation Service, upon receipt of the post abatement certification from the Contractor, will take a minimum of one (1,200-2,800) liter air sample(s) "post abatement tests" upon completion of each Work Area. For the purpose of this work, adequate decontamination shall be defined as an air sample showing less than 70 structures/cc by TEM AHERA.

D. Lead Post Abatement Inspections. All LBP Work Areas will be cleared by visual inspection by the San Mateo Foster City School District Observation Service.

3.14. CLOSE-OUT

A. All submittal and punch list items must be complete and provided to the Observation Service. These include daily work-force rosters, work area sign-in/ out sheets, and waste test data and waste manifests.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

PROJECT NAME: _____
PROJECT ADDRESS: _____
CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PERSON.

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have completed an asbestos-training course of not less than 3 days. I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

1) Physical characteristics of asbestos; 2) Health hazards associated with asbestos; 3:) Respiratory protection; 4) Use of personal protective equipment; 5) Pressure Differential Systems; 6) Work practices including hands-on or on-the-job training; 7) Personal decontamination procedures; and 8) Air monitoring, personal, and area.

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Printed Name: _____
Signature: _____ Date: _____
Social Security No.: _____
Witness: _____

EMPLOYEE DAILY ROSTER

DATE: _____PROJECT NO. _____

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SOCIAL SECURITY #	START TIME	STOP TIME

WORK AREA ENTRY / EXIT LOG

DATE:_____PROJECT NO._____

PROJECT TITLE: _____

BUILDING NAME: _____

LOCATION OF WORK AREA: _____

DESCRIPTION OF WORK: _____

IMPORTANT NOTE: ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

PERSON'S NAME (PRINT)	SIGNATURE	SOCIAL SECURITY #	TIME IN/OUT	TIME IN/OUT

DAILY MANOMETER REPORT

PROJECT TITLE: _____

CONTRACTOR: _____

COMPETENT PERSON: _____

LOCATION OF WORK AREA: _____

START TIME: START DATE: STOP TIME: STOP DATE:

_____
_____
_____
_____
_____
_____
_____
_____

(CONTRACTOR TO ATTACH A COPY OF THE NEGATIVE PRESSURE RECORDING HERETO AND COMPLETE THIS FORM FOR EACH WORK AREA ON A DAILY BASIS).

I hereby declare the above data is true and correct.

COMPETENT PERSON'S SIGNATURE: _____ DATE: _____

PRE-ABATEMENT VISUAL INSPECTION FORM

CLIENT NAME: _____

PROJECT NAME: _____
BUILDING NAME _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found it to be prepared in accordance with the project specifications. This inspection included the verification that Primary Barriers have been installed and are sealed, specified number of layers of polyethylene sheeting has been installed properly, Decontamination Enclosure System(s) is fully functional, HEPA units are operational, negative air pressure is >0.02 inches of water, manometer unit recording properly, HVAC and electrical systems have been locked and tagged out, there is adequate power and lighting, and all electric sources are supplied from GFIs outside the Work Area.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

OWNER'S CONSULTANT hereby certifies that he has conducted a pre-abatement visual inspection of the referenced Work Area and verifies that the Contractor has prepared the Work Area in accordance with the Specifications and is ready to start abatement operations.

Name:_____ Inspection Date: _____

Signature:_____ Certification No. _____

FINAL VISUAL INSPECTION/CLEARANCE CERTIFICATION FORM

CLIENT NAME: _____
PROJECT NAME: _____
BUILDING NAME: _____
LOCATION OF WORK AREA: _____
OWNER REF. NUMBER:_____ PROJECT NO: _____

VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found no dust, debris or residue. This inspection included all surfaces including pipes, beams, ledges, walls, ceiling, floor, Decontamination Unit, sheet plastic, etc.

Name: _____ Inspection Date: _____Signature: _____
Certification No._____

OWNER'S CONSULTANT hereby certifies that he has performed the final visual inspection of the referenced Work Area and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

Name:_____ Inspection Date: _____
Signature:_____ Certification No._____

CLEARANCE AIR SAMPLING

Pre-Abatement/Background fiber levels: _____

OWNER'S CONSULTANT hereby certifies that the results of air samples collected and analyzed in this work area meet the clearance criteria indicated below:

PCM samples at or below _____ fibers/cc.
TEM samples at or below _____ structures/mm^2.

Circle One: Aggressive Non-Aggressive

Other criteria:
Name:_____ Inspection Date: _____
Signature:_____ Certification No.: _____
Reviewer:_____ CAC Cert. No.: _____

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Formed roof-drainage sheet metal fabrications.
2. Formed low-slope roof sheet metal fabrications.
3. Formed steep-slope roof sheet metal fabrications.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct a conference at Project Site.

1. Review construction schedule. Verify availability of materials, installer’s personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
3. Review requirements for insurance and certificates if applicable.
4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each of the following, including manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of roof-penetration flashing.
8. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
9. Include details of special conditions.
10. Include details of connections to adjoining work.
11. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Special warranty.

1.8 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA “Architectural Sheet Metal Manual” and NRCA “Roofing and Waterproofing Manual” unless more stringent requirements are indicated or specified.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing, trim materials, and fabrications during transportation and handling.

C. Unload, store and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting and surface damage.

D. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting or other surface damage.

E. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Coordinate with work of other Sections for watertight installation at interface with other materials and systems.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and

Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that to not allow water infiltration to building interior.

E. Provide materials that are compatible with one another under conditions or service and application required, as demonstrated by testing and field experience.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 (Z275) coating designation; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat and mill phosphatized for field painting or with manufacturer's standard clear acrylic coating on both sides.

C. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

H. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated and with interlocking counterflashing on exterior face, of same metal as reglet.

1. Source Limitations: Obtain reglets from single source from single manufacturer.
2. Material: Galvanized steel, 0.022 inch (0.56 mm) thick.
3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
4. Accessories:

    a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
    b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.

5. Finish: With manufacturer's standard color coating.

I. Metal Accessories: Provide sheet metal clips, cleats, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

G. Do not use graphite pencils to mark metal surfaces.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof and Roof-to-Wall Transition Expansion-Joint Cover: Fabricate from the following materials:

1. Galvanized Steel: 0.034 inch (0.86 mm) thick.

B. Base Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

2.7 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

B. Valley Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.

C. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

D. Counterflashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

E. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.

F. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch (0.71 mm) thick.
2. Lead: 4 lb (1.8 kg).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lap joints not less than 2 inches (50 mm).

B. Install slip sheet, wrinkle free, directly on substrate before installing sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lapp joints not less than 4 inches (100 mm).

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds or sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.

4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches (300 mm) o.c.
6. Space individual cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.

1) Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pretin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pretinning where pretinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

3.4 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless steel draw band and tighten.

C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
2. Extend counterflashing 4 inches (100 mm) over base flashing.
3. Lap counterflashing joints minimum of 4 inches (100 mm).
4. Secure in waterproof manner by means of interlocking folded seam or blind rivets and sealant unless otherwise indicated.

D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.5 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.
2. Painted markings applied to concrete surfaces.

1.3 ACTION SUBMITTALS

A. Product Data: Include technical data and tested physical and performance properties.

1. Pavement-marking paint, acrylic.

B. Shop Drawings:

1. Indicate areas to be re-striped.

C. Samples: For each exposed product and for each color and texture specified; on rigid backing, 8 inches (200 mm) square.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F (12.8 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

PART 2 - PRODUCTS

2.1 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint, Acrylic: Acrylic, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952F, Type II, with drying time of less than three minutes.

1. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Sweep and clean surface to eliminate loose material and dust.

C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

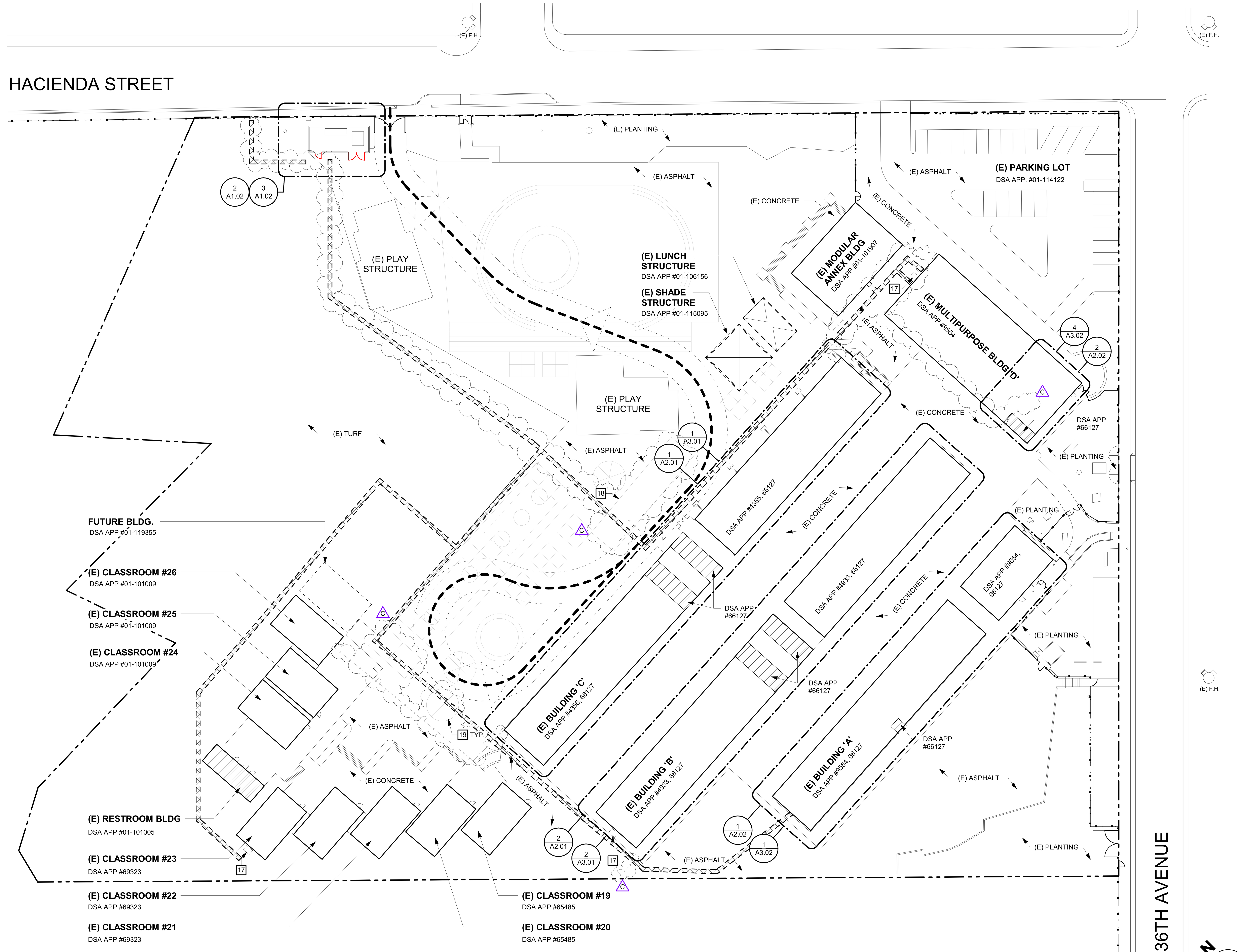
1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.3 PROTECTING AND CLEANING

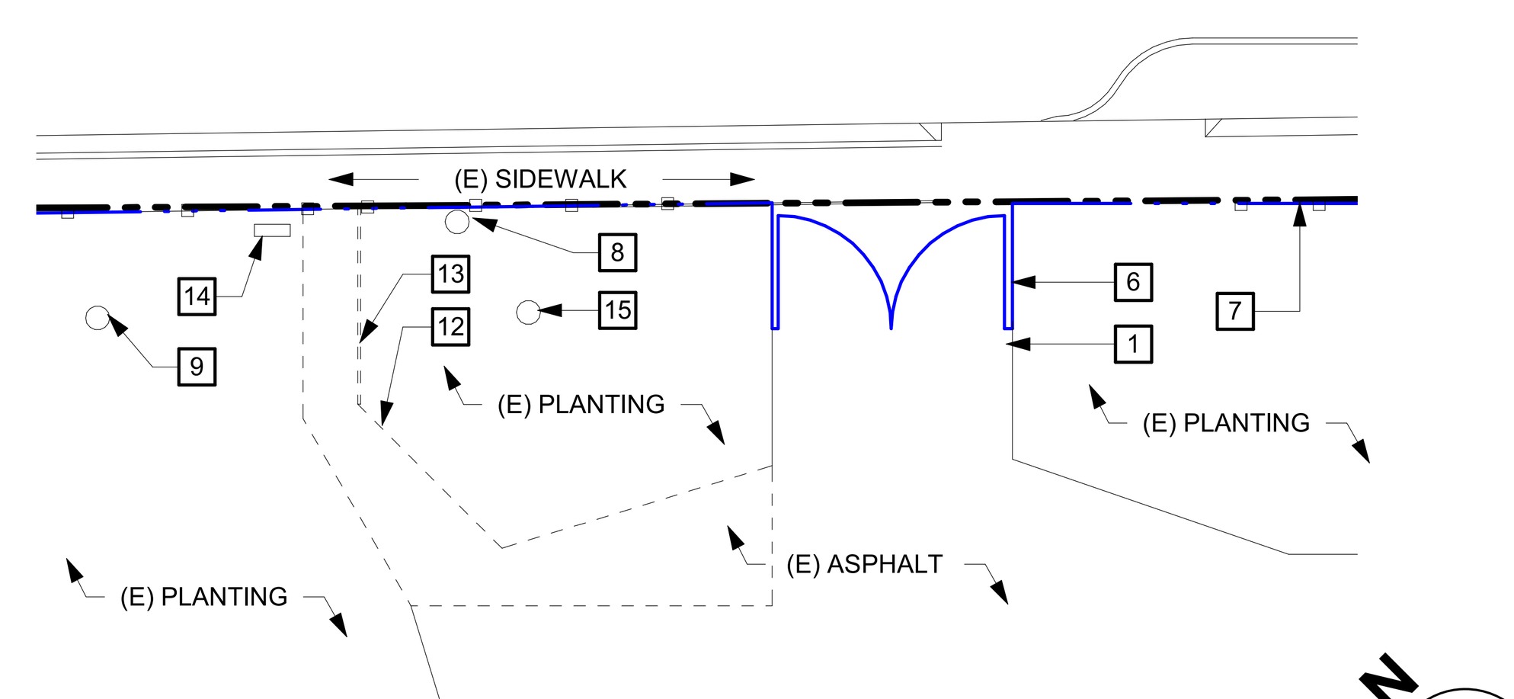
A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

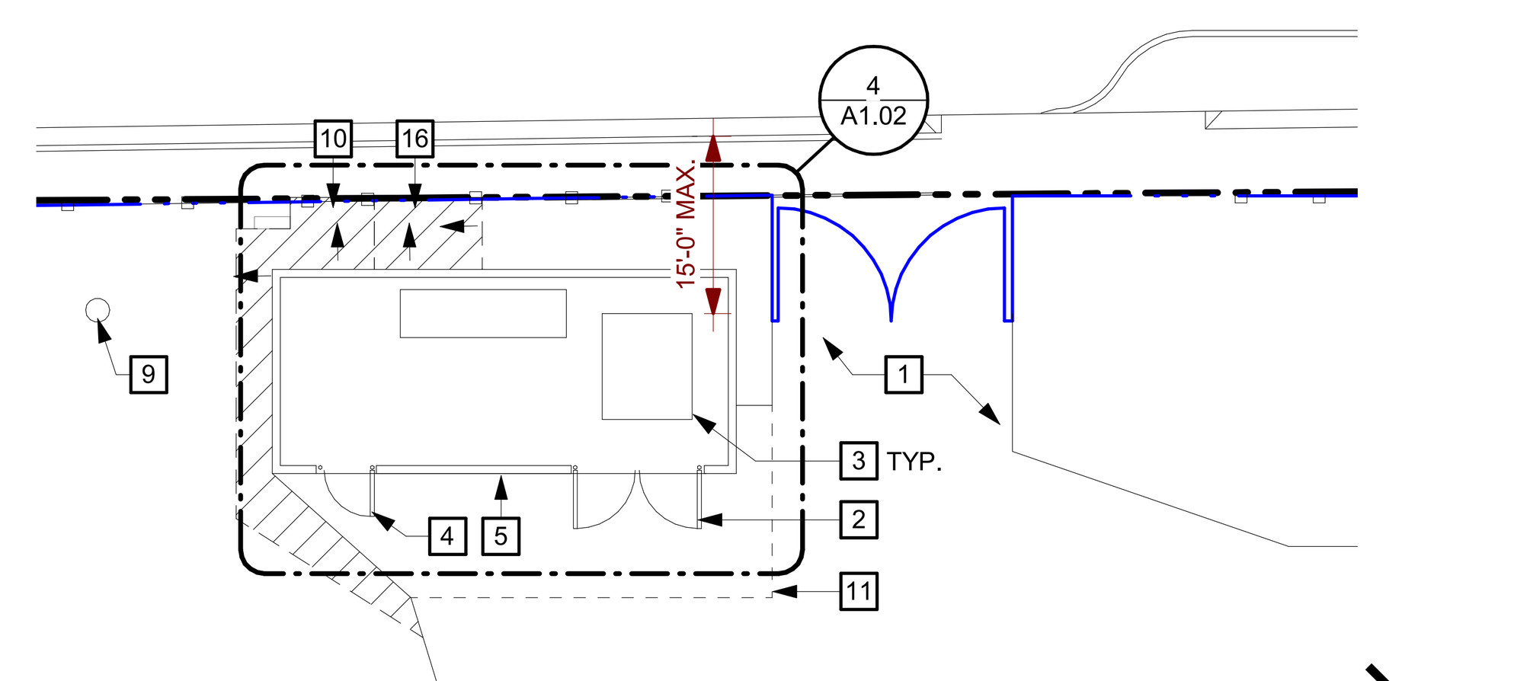
END OF SECTION 321723



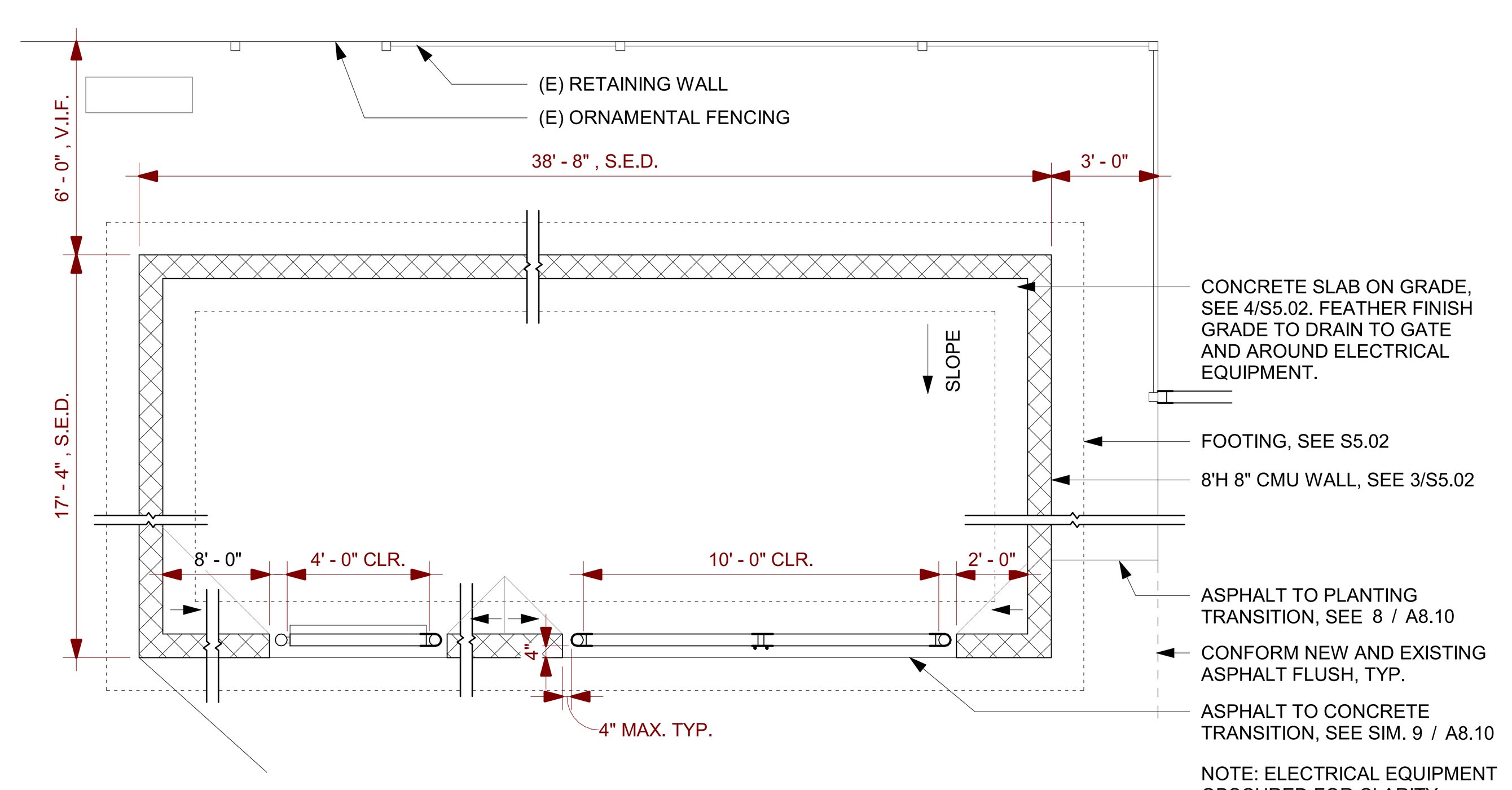
1 NEW SITE PLAN
SCALE: 1/32" = 1'-0"



2 ENLARGED DEMOLITION SITE PLAN
SCALE: 1/16" = 1'-0"



3 ENLARGED NEW SITE PLAN
SCALE: 1/16" = 1'-0"



4 ELECTRICAL ENCLOSURE ENLARGED LAYOUT
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

A BUILDINGS ARE UNSPRINKLERED, TYPE V-B CONSTRUCTION UNLESS OTHERWISE NOTED.

B NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

C CONTRACTOR SHALL MAINTAIN FIRE LANE ACCESS THROUGOUT PROJECT

D DO NOT INTERRUPT EXISTING UTILITY SERVICES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AND COORDINATED WITH THE OWNER.

E PROTECT EXISTING & NEW STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, TREES AND SHRUBS FROM DAMAGE DURING CONSTRUCTION.

F REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR EXTENT OF ELECTRICAL AND MECHANICAL WORK.

G ALL EXISTING FINISHES OR MATERIALS DAMAGED OR DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL STATE, INCLUDING BUT NOT LIMITED TO REINSTALLING OR REPLACING EXISTING CHAINLINK FENCING AS REQUIRED AND RESTRIPING PAVING IN KIND. S.E.D. FOR TRENCH ROUTING. SEE ARCHITECTURAL SITE PLAN FOR STRIPING AT EXISTING PAVING

SITE PLAN KEYNOTES

1 (E) ASPHALT TO REMAIN.
2 10'W DOUBLE GATE, SEE DETAIL 3/A8.10.
3 ELECTRICAL EQUIPMENT, S.E.D.
4 4'W GATE, SEE DETAIL 2/A8.10.
5 CMU ENCLOSURE, S.E.D. AND S.S.D.
6 (E) GATE TO REMAIN.
7 (E) ORNAMENTAL FENCING TO REMAIN.
8 (E) TREE TO BE REMOVED. REMOVE STUMP TO 6" BELOW GRADE.
9 (E) TREE TO REMAIN.
10 INFILL NATIVE SOIL. PROVIDE COVERAGE AT FOUNDATION PER 3/S5.02. CONFORM FLUSH AT ASPHALT PAVING AND PROPERTY LINE.
11 INFILL ASPHALT, CONFORMING TO ADJACENT. SEE 9/A8.10.
12 REMOVE (E) ASPHALT PAVING.
13 REMOVE (E) RETAINING WALL, CHAINLINK FENCING, AND FOOTINGS.
14 (E) EQUIPMENT TO REMAIN.
15 RELOCATE (E) TREE TO ALTERNATE LOCATION ON CAMPUS. COORDINATE FINAL LOCATION WITH DISTRICT.
16 AT (E) RETAINING WALL TO REMAIN, CONFORM TO ADJACENT GRADING.
17 TRANSFORMER, S.E.D.
18 (E) ARTWORK TO REMAIN. RESTRIPE IN KIND. DISTRICT TO PROVIDE ARTWORK
19 STRIPING TO REMAIN.

C

GRAPHIC KEY

EXISTING TOILET ROOMS.
EXISTING CONSTRUCTION TO REMAIN
EXISTING COVERED STRUCTURE
TRENCH FOR ELECTRICAL WORK, S.E.D. , 8/S5.01 & DETAILS ON SHEET A8.10
ASSUMED PROPERTY LINE
(E) CHAINLINK FENCE
(N) CHAINLINK FENCE
(E) ORNAMENTAL FENCE
(E) FIRE DEPARTMENT ACCESS
FIRE DEPARTMENT ACCESS IS 20'-0" WIDE AND RATED FOR 96,000 LBS.
(E) F.H. EXISTING FIRE HYDRANT

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PROJECT
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP
LICENSED ARCHITECT STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119551

REVISIONS

No.	Description	Date
A	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

SHEET
SITE PLAN

DATE 12/22/2021
JOB # 2021005.03
SHEET # AD3-A1.02

12/20/2021 9:35:56 PM
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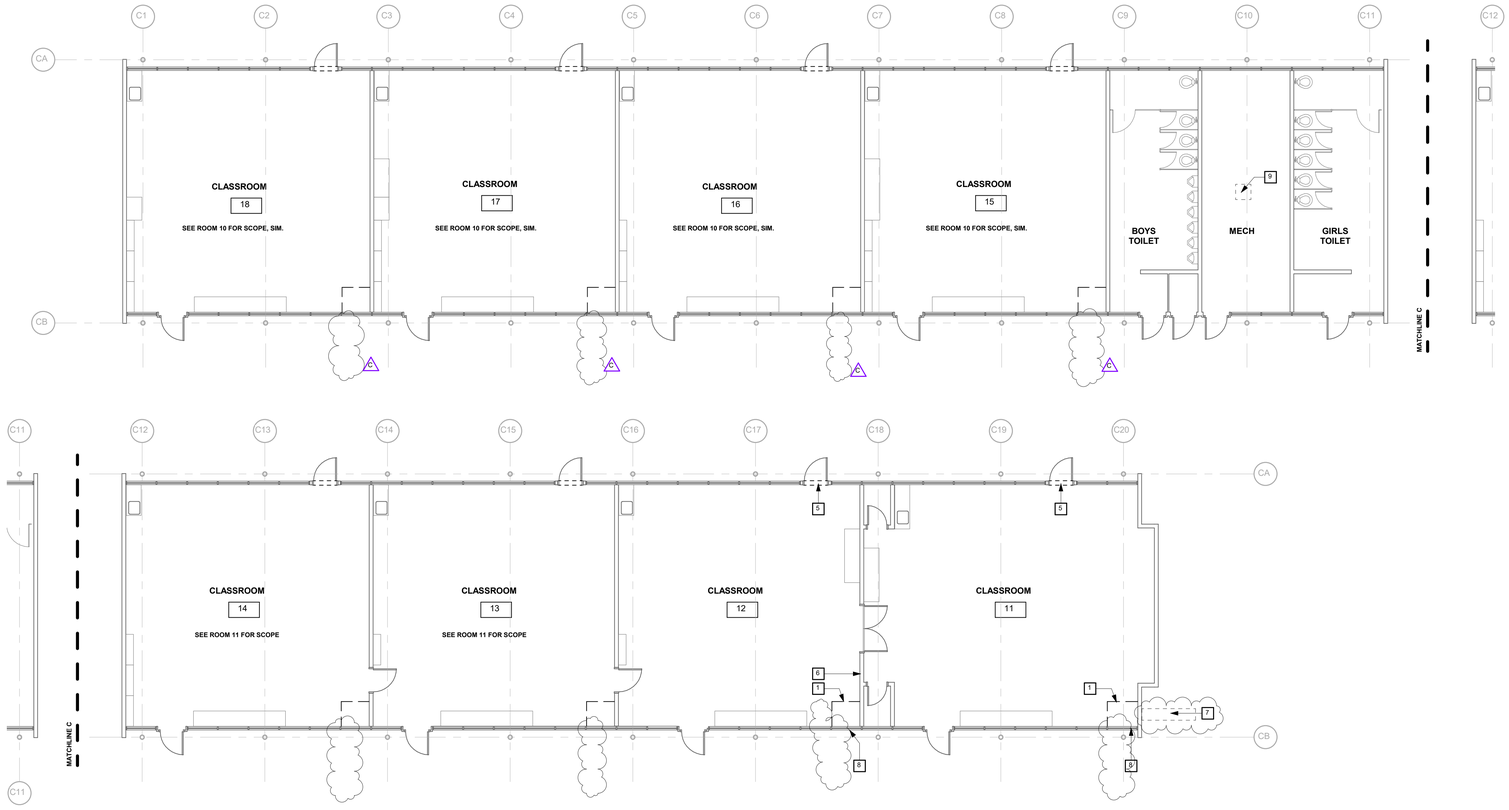
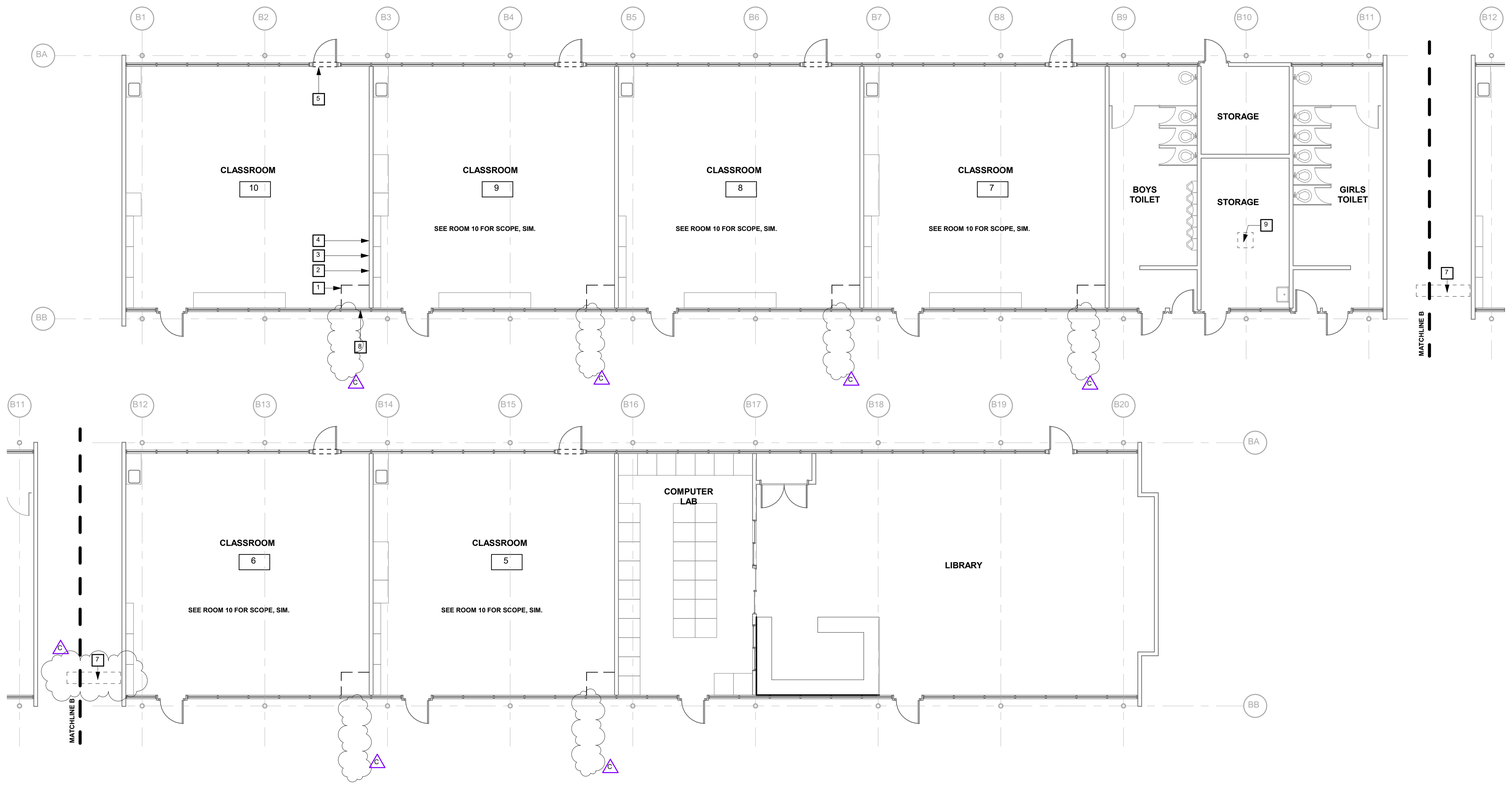


1 DEMOLITION FLOOR PLAN - BLDG C
SCALE: 1/8" = 1'-0"



2 DEMOLITION FLOOR PLAN - BLDG B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXTENT OF MECHANICAL AND ELECTRICAL DEMOLITION WORK.

C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.

D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.

E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.

F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.

G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.

H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA

I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

J REFER TO "HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT." CONTRACTOR TO ABATE AREAS AFFECTED BY SCOPE OF WORK. REMOVE AND DISPOSE OF MATERIALS PER REPORT RECOMMENDATIONS.

DEMOLITION FLOOR PLAN KEYNOTES

1 REMOVE (E) MECHANICAL UNIT AND METAL ENCLOSURE, S.M.D. REMOVE A.C.T., A.C.T. GRID, AND SOFFIT AS REQUIRED FOR CONSTRUCTION ACCESS.
2 SHORTEN (E) RACEWAY SURROUNDING THREE SIDES OF (E) WHITEBOARD. COORDINATE LENGTH TIGHT TO NEW ENCLOSURE, SEE NEW FLOOR PLANS.
3 REMOVE (E) 4' X 16' WHITEBOARD AND TURN OVER TO DISTRICT
4 RELOCATE (E) DATA OUTLET, COORDINATED TO RECONFIGURED WIREMOLD. LOCATE A.F.F. 15" MIN. TO 48" MAX.
5 REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D
6 REMOVE (E) TACK PANEL AND TURN OVER TO DISTRICT
7 REMOVE PAVING AND PREP FOR NEW WORK, S.M.D.
8 REMOVE (E) FILLER PANEL FOR FUTURE AIR IN-TAKE AT MECHANICAL ENCLOSURE
9 REMOVE PARTIAL GYP. BD CEILING FOR FUTURE EXHAUST FAN, S.M.D.

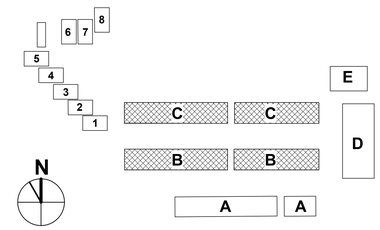
GRAPHIC KEY

EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

EXISTING ENCLOSURE TO BE DEMOLISHED

BUILDING KEY



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PROJECT

LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT — STATE OF CALIFORNIA — 12/16/21

STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
A	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

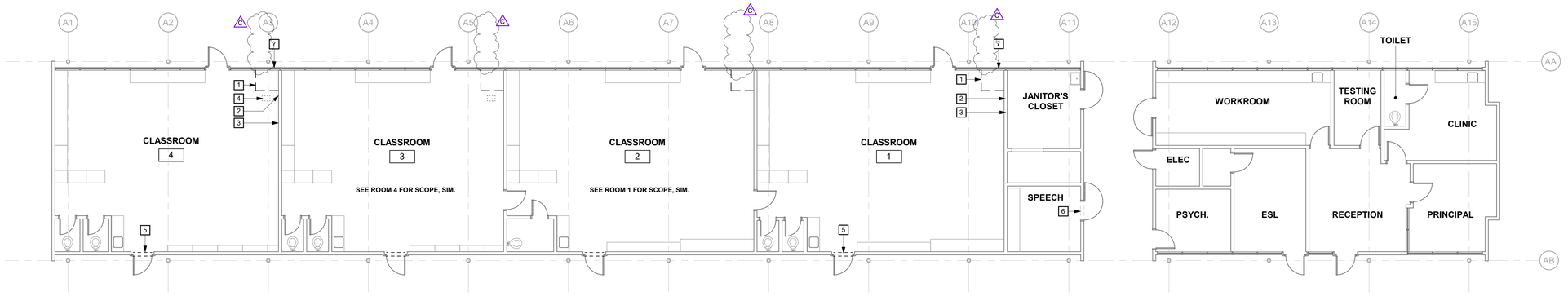
SHEET

DEMOLITION FLOOR PLANS - BLDG B & C

DATE 12/22/2021

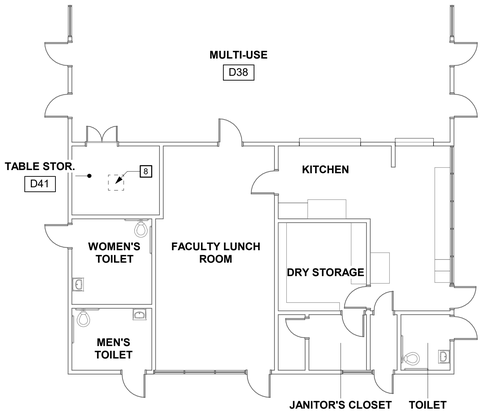
JOB # 2021005.03

SHEET # AD3-A2.01



1 DEMOLITION FLOOR PLAN - BLDG A

SCALE: 1/8" = 1'-0"



2 DEMOLITION PARTIAL FLOOR PLAN - BLDG D

SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXTENT OF MECHANICAL AND ELECTRICAL DEMOLITION WORK.

C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.

D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.

E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.

F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.

G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.

H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA

I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

J REFER TO "HVAC AND POWER UPGRADE PROJECT HAZARDOUS MATERIALS SURVEY REPORT." CONTRACTOR TO ABATE AREAS AFFECTED BY SCOPE OF WORK. REMOVE AND DISPOSE OF MATERIALS PER REPORT RECOMMENDATIONS.

DEMOLITION FLOOR PLAN KEYNOTES

1 REMOVE (E) MECHANICAL UNIT AND METAL ENCLOSURE, S.M.D. REMOVE A.C.T., A.C.T. GRID, AND SOFFIT AS REQUIRED FOR CONSTRUCTION ACCESS. C

2 RECONFIGURE (E) RACEWAY. COORDINATE LENGTH TIGHT TO NEW ENCLOSURE, SEE NEW FLOOR PLANS.

3 REMOVE (E) TACK PANEL AND TURN OVER TO DISTRICT

4 (E) CEILING MOUNTED MOTION DETECTOR TO BE REMOVED AND REINSTALLED IN PLACE, AS REQUIRED TO FACILITATE CONSTRUCTION. REPLACE CEILING TILE.

5 REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D

6 PREP FOR NEW WORK, S.M.D.

7 REMOVE (E) FILLER PANEL FOR FUTURE AIR IN-TAKE AT MECHANICAL ENCLOSURE

8 REMOVE PARTIAL GYP. BD CEILING FOR FUTURE EXHAUST FAN, S.M.D.

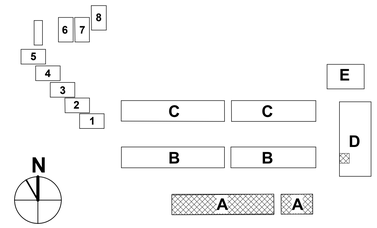
GRAPHIC KEY

EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

EXISTING ENCLOSURE TO BE DEMOLISHED

BUILDING KEY



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PROJECT

LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
A	Addendum 1	11/24/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

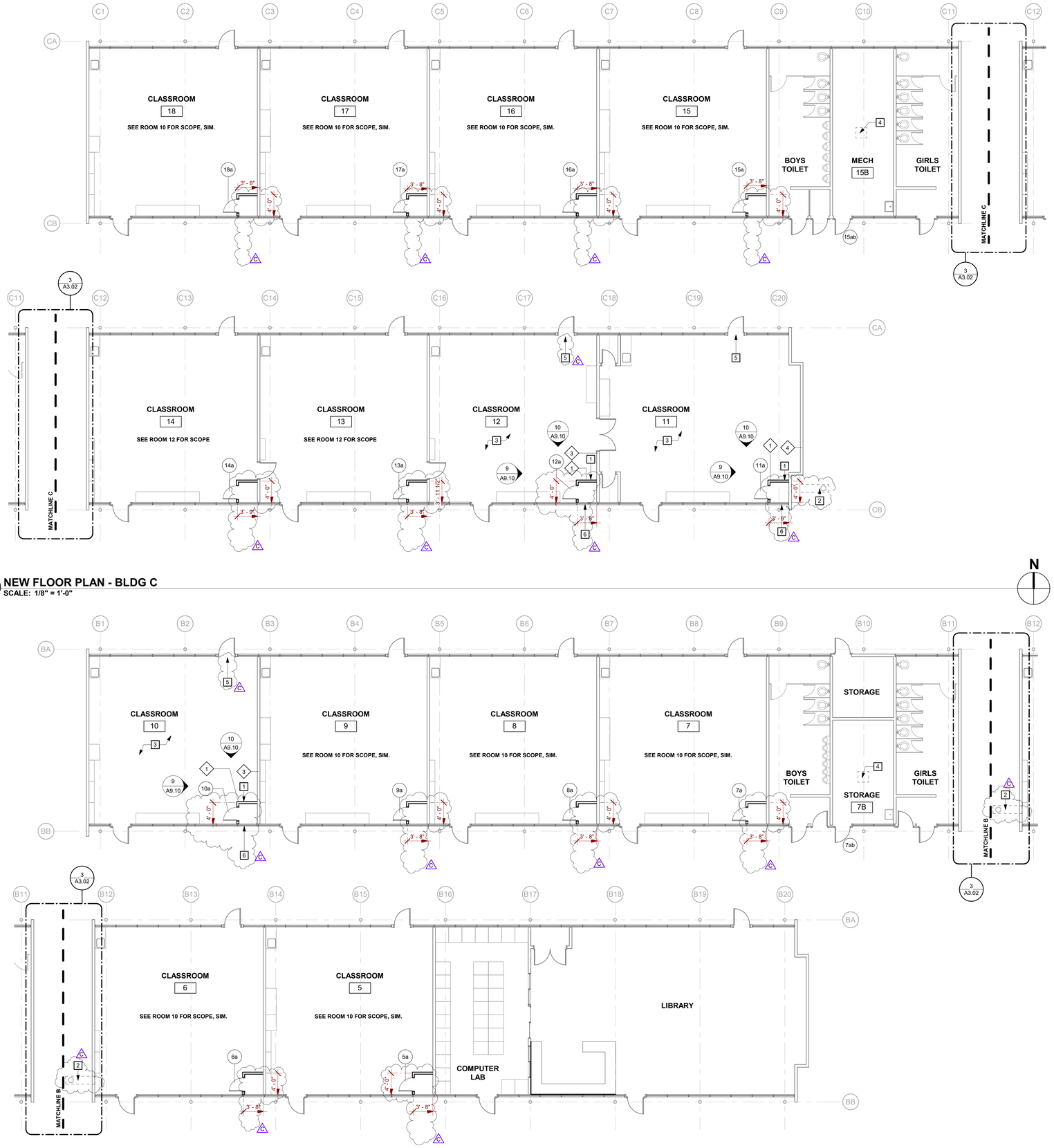
SHEET

DEMOLITION FLOOR PLAN - BLDG A

DATE 12/22/2021

JOB # 2021005.03

SHEET # AD3-A2.02



1 **NEW FLOOR PLAN - BLDG C**
SCALE: 1/8" = 1'-0"

2 **NEW FLOOR PLAN - BLDG B**
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXTENT OF MECHANICAL AND ELECTRICAL WORK.

C DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

D REMOVE AND REPLACE (E) WALL BASE AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

E RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

F PATCH AND PAINT WALL AT REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.

G SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING BUT NOT LIMITED TO WALL FINISHES, WINDOWS, CURTAIN RAILS, AND DUCTWORK.

H AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK.

NEW FLOOR PLAN KEYNOTES

1 FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES. V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10

2 PATCH PAVING AT DRY WELL. SEE 6/A8.10 AND S.M.D.

3 REFER TO 2/A3.02 FOR TYPICAL REFLECTED CEILING PLAN. REMOVE AND REINSTALL (E) ACOUSTICAL CEILING TILES ABOVE AS REQUIRED FOR CONSTRUCTION ACCESS INCLUDING BUT NOT LIMITED TO ELECTRICAL ROUTING, MECHANICAL DUCTWORK ANCHORAGE. BLOCKING FOR ROOFTOP PLATFORMS. DO NOT ALTER SUSPENDED A.C.T. GRID.

4 PATCH AND PAINT GYP. BD. CEILING ADJACENT EXHAUST FAN. S.M.D.

5 DAMPER @ (E) WINDOW FRAME. S.M.D. CONT. CAULKING AT INTERIOR AND EXTERIOR OF MOTORIZED RELIEF DAMPER.

6 CONT. CAULKING AT INTERIOR AND EXTERIOR OF LOUVER.

GRAPHIC KEY

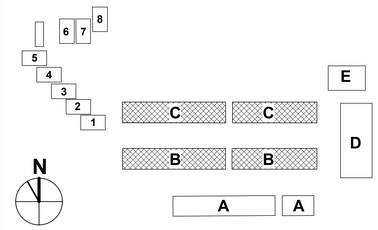
WALL TYPES:

EXISTING NONRATED WALL TO REMAIN.

WALL TYPE. REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

STUD WALL

BUILDING KEY



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DSA FILE NUMBER 41-26

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MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

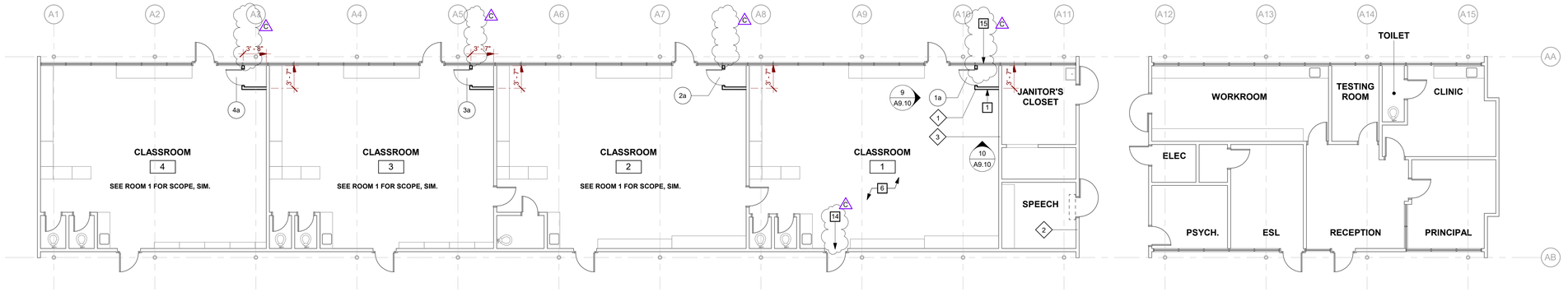
SHEET

NEW FLOOR PLANS - BLDGS B & C

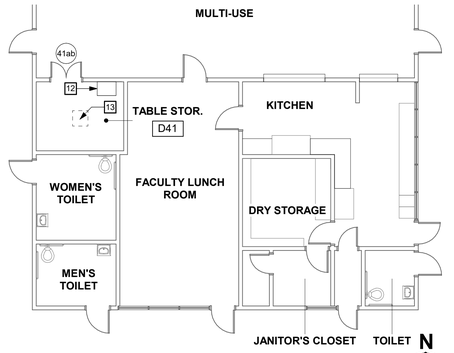
DATE 12/22/2021

JOB # 2021005.03

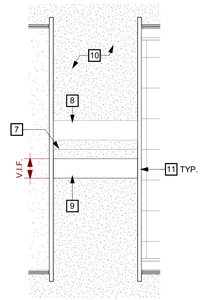
SHEET # AD3-A3.01



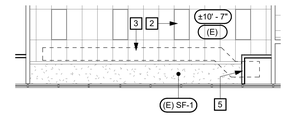
1 NEW FLOOR PLAN - BLDG A
SCALE: 1/8" = 1'-0"



4 NEW PARTIAL FLOOR PLAN - BLDG D
SCALE: 1/8" = 1'-0"



3 NEW REFLECTED CEILING PLAN - TYP. EXT. WALKWAY
SCALE: 1/8" = 1'-0"



2 TYPICAL NEW REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A	ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW PLANS.
B	REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXTENT OF MECHANICAL AND ELECTRICAL WORK.
C	DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.
D	REMOVE AND REPLACE (E) WALL BASE AS REQUIRED FOR NEW CONSTRUCTION. PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.
E	RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.
F	PATCH AND PAINT WALL AT REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.
G	SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING BUT NOT LIMITED TO WALL FINISHES, WINDOWS, CURTAIN RAILS, AND DUCTWORK.
H	REFER TO FINISH SCHEDULE ON SHEET A11.01 FOR CEILING FINISHES NOT SHOWN.
I	PROVIDE NEW CEILING TILE MATCHING ADJACENT TILES WHERE EXISTING LIGHTS, SPEAKERS OR OTHER EQUIPMENT WERE REMOVED.
J	AT INTERIOR AND EXTERIOR PAINT ALL NEW EXPOSED CONDUITS, PIPES, HANGERS AND ATTACHMENTS, AND DUCTWORK.

NEW FLOOR PLAN KEYNOTES

1	FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES. V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10
2	(E) LIGHT FIXTURE
3	EXPOSED DUCTWORK, S.M.D. OBSCURED FOR CLARITY.
4	NOT USED
5	REPLACE PERIMETER TRIM AND PROVIDE NEW CEILING TILE ADJACENT. REPLACE FREE AND FIXED ENDS IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10.
6	REFER TO 2/A3.02 FOR TYPICAL REFLECTED CEILING PLAN. REMOVE AND REINSTALL (E) ACOUSTICAL CEILING TILES ABOVE AS REQUIRED FOR CONSTRUCTION ACCESS INCLUDING BUT NOT LIMITED TO ELECTRICAL ROUTING, MECHANICAL DUCTWORK ANCHORAGE, BLOCKING FOR ROOFTOP PLATFORMS. DO NOT ALTER SUSPENDED A.C.T. GRID.
7	(E) RIDGE
8	(E) PAINTED SHEET METAL CONDUIT ENCLOSURE TO REMAIN.
9	PAINTED 18 GA. SHEET METAL CONDUIT ENCLOSURE. SEE DETAIL 20/A8.10 AND S.E.D.
10	(E) CEMENT PLASTER FINISH.
11	S.E.D. FOR CONDUIT PENETRATION DETAIL.
12	ELECTRICAL EQUIPMENT S.E.D.
13	PATCH AND PAINT GYP. BD. CEILING ADJACENT EXHAUST FAN. S.M.D.
14	DAMPER @ (E) WINDOW FRAME. S.M.D. CONT. CAULKING AT INTERIOR AND EXTERIOR OF MOTORIZED RELIEF DAMPER.
15	CONT. CAULKING AT INTERIOR AND EXTERIOR LOUVER.

GRAPHIC KEY

WALL TYPES:

EXISTING NONRATED WALL TO REMAIN.

WALL TYPE. REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

STUD WALL

2'-0" x 4'-0" A.C.T. CEILING SYSTEM

SUSPENDED CEILING GRID

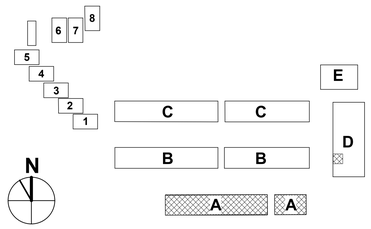
DIRECTION OF MAIN RUNNER

INSTALL CEILING GRID STARTING AT THE CENTER OF EACH ROOM AND WORK TO EXTERIOR WALLS. U.O.N.

CEMENT PLASTER SOFFIT

GYPSUM SOFFIT

BUILDING KEY



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PROJECT

LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT — STATE OF CALIFORNIA — 12/06/21

STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
1	Addendum 1	11/24/2021
C	Addendum 3	12/16/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

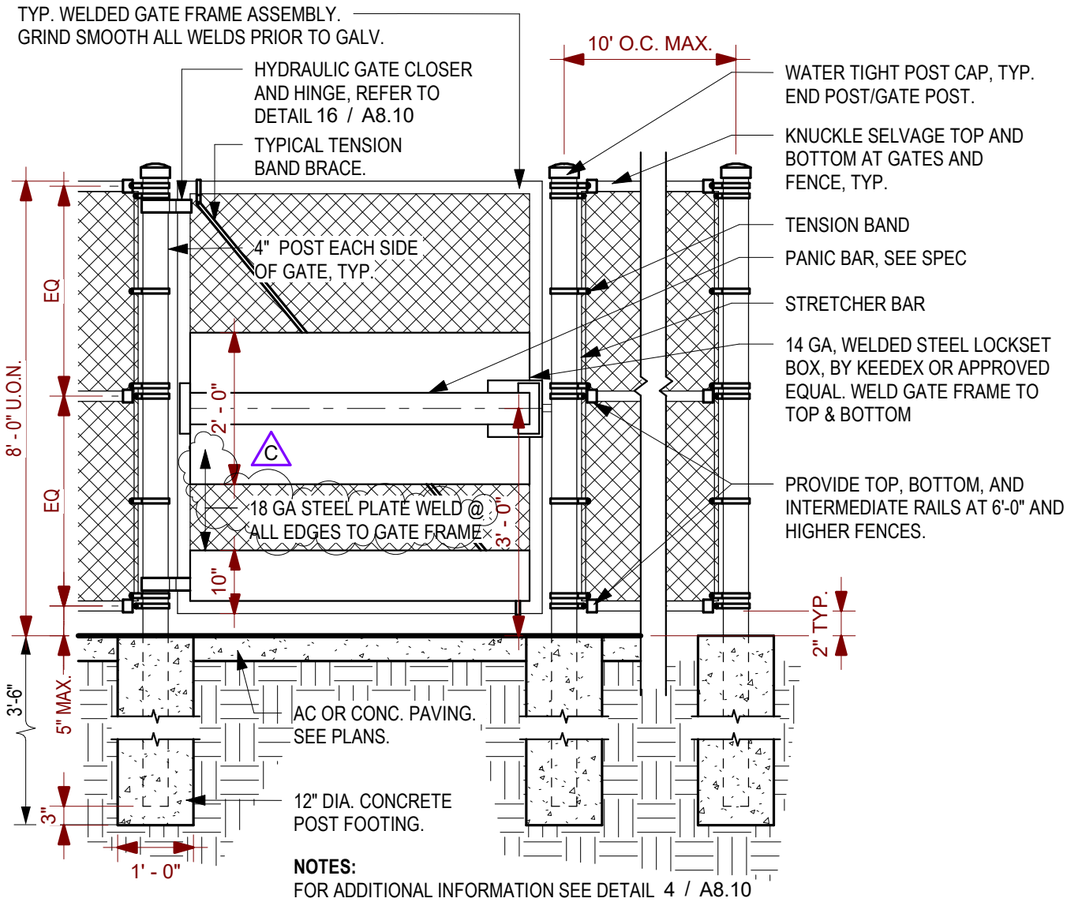
SHEET

NEW FLOOR PLAN - BLDG A & TYPICAL NEW REFLECTED CEILING PLAN

DATE 12/06/2021

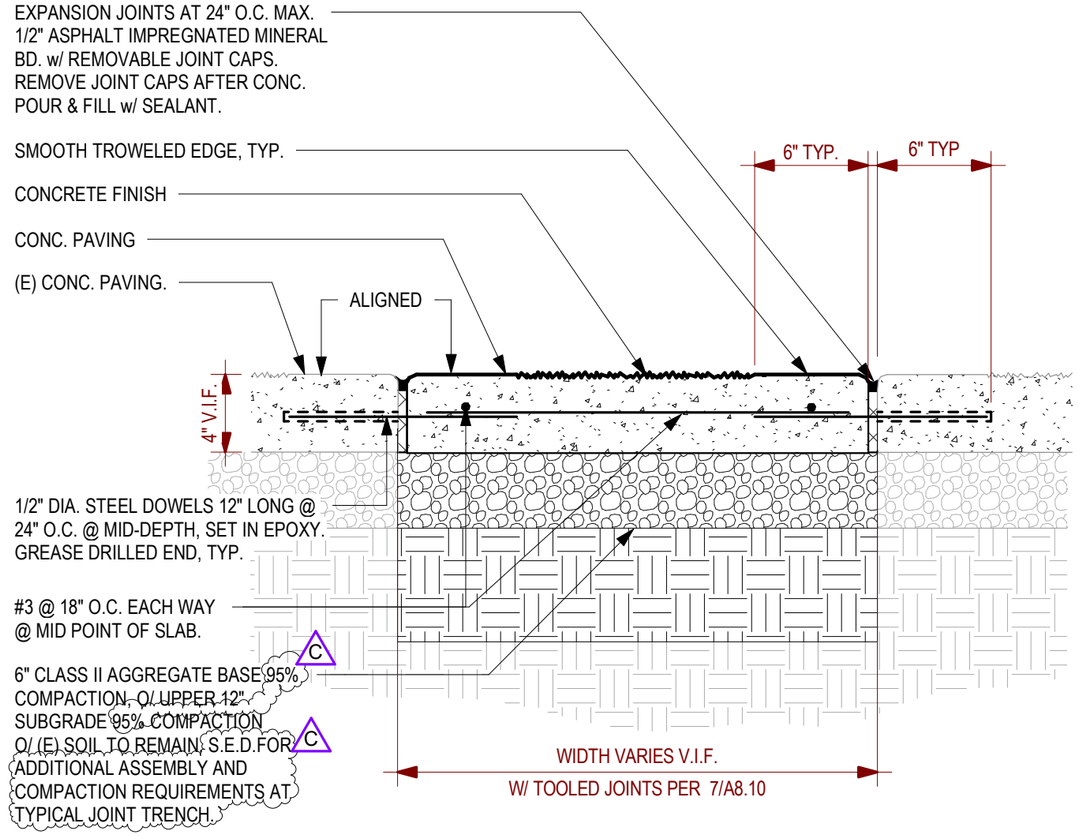
JOB # 2021005.03

SHEET # AD3-A3.02



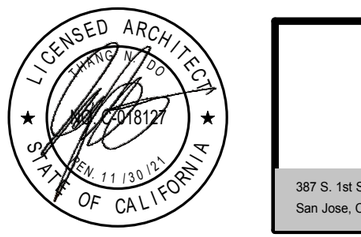
2 TYPICAL CHAINLINK GATE (SINGLE, EGRESS)

SCALE: 1/2" = 1'-0"



6 CONCRETE PATCH

SCALE: 1 1/2" = 1'-0"



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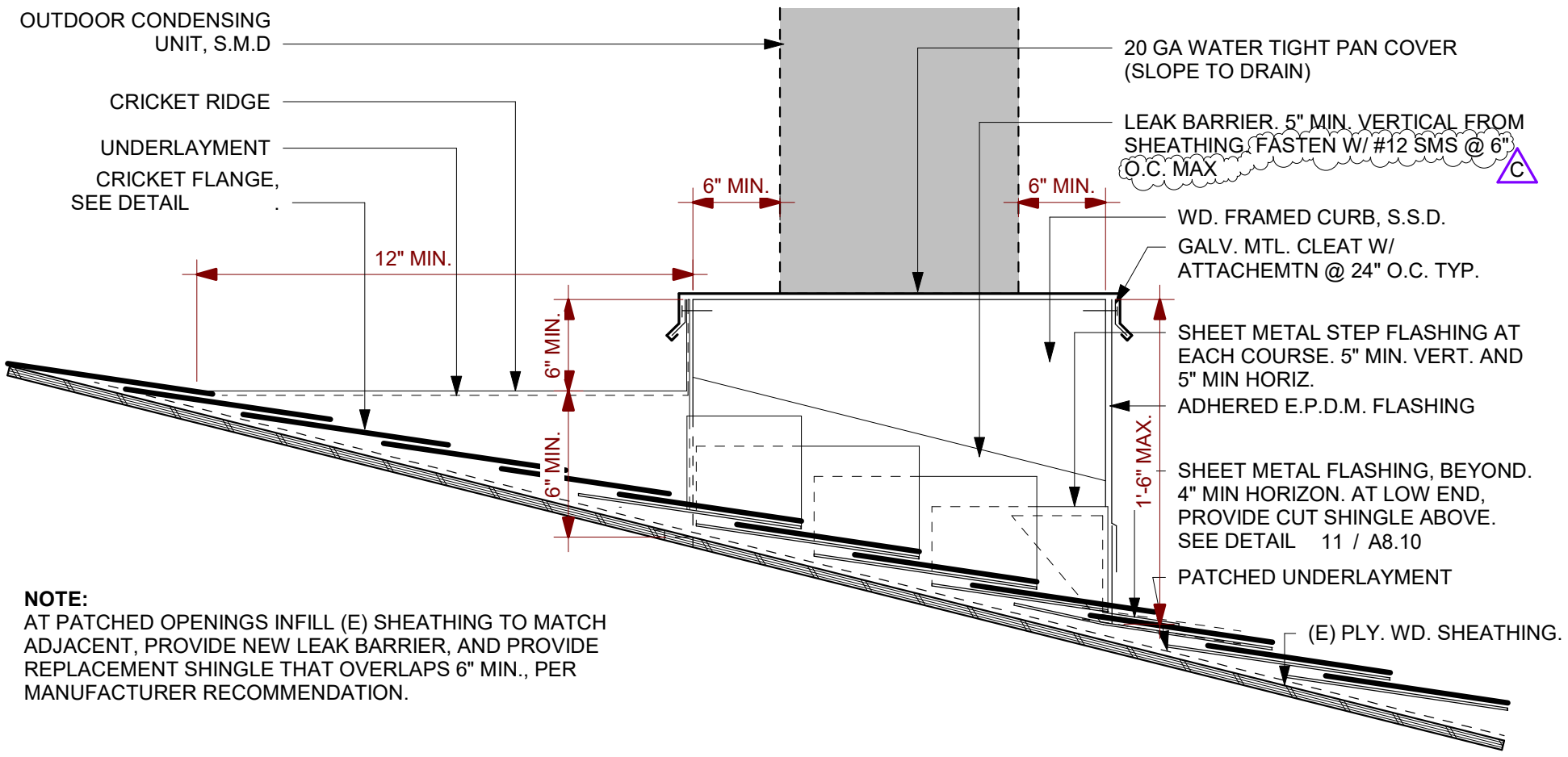
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

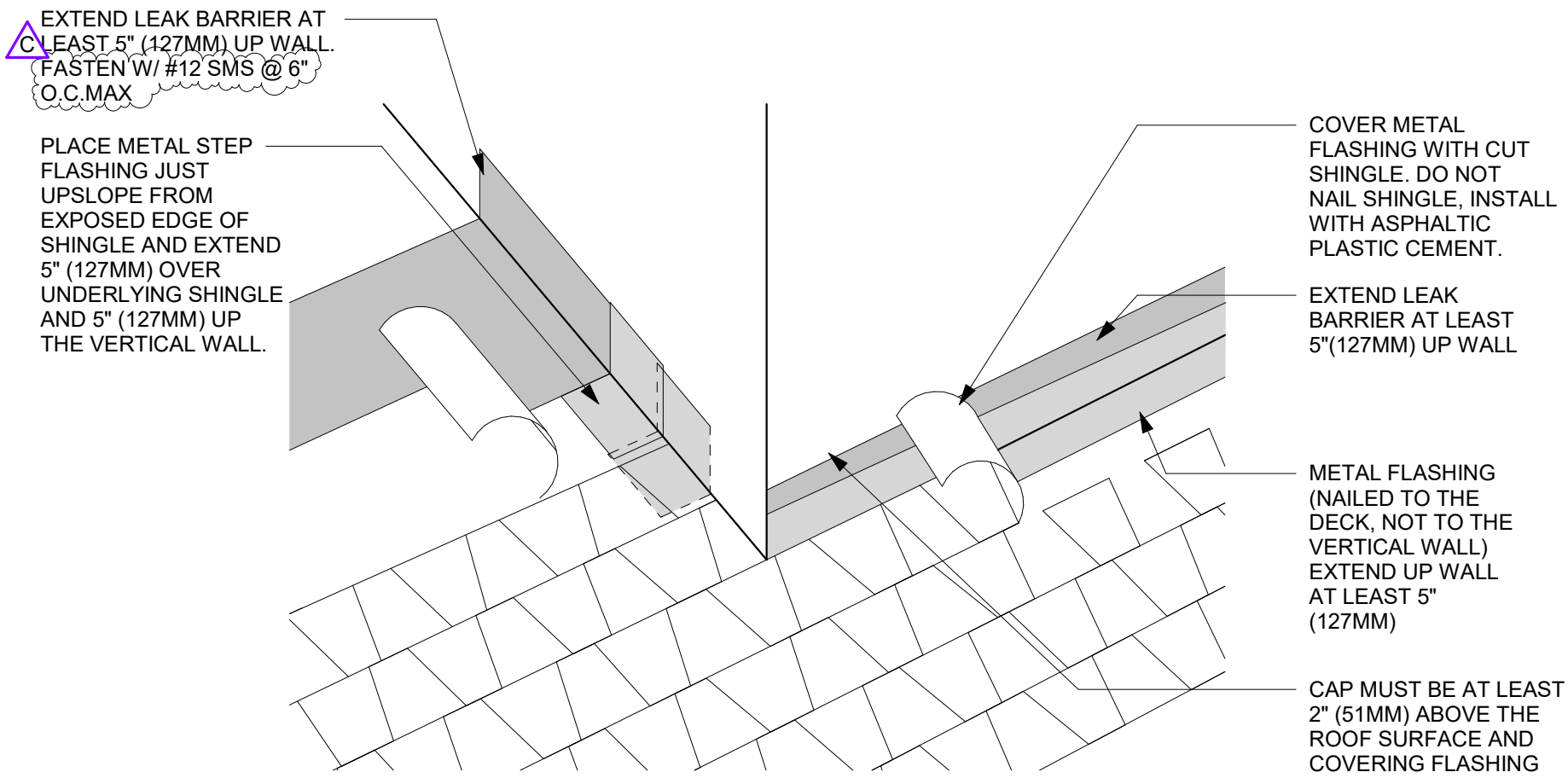
FILE NO.: 41-26	SHEET
APPL NO.: 01-119551	**AD3-A8.10A**
JOB NO. 2021005.03	
DATE 12/22/2021	



NOTE:
AT PATCHED OPENINGS INFILL (E) SHEATHING TO MATCH ADJACENT, PROVIDE NEW LEAK BARRIER, AND PROVIDE REPLACEMENT SHINGLE THAT OVERLAPS 6" MIN., PER MANUFACTURER RECOMMENDATION.

10 SHINGLE SIDE FLASHING

SCALE: 1 1/2" = 1'-0"



11 SHINGLE LOWER FLASHING

SCALE: 1" = 1'-0"

LICENSED ARCHITECT
THANG N. DO
No. C018127
EXP. 11/30/21
STATE OF CALIFORNIA

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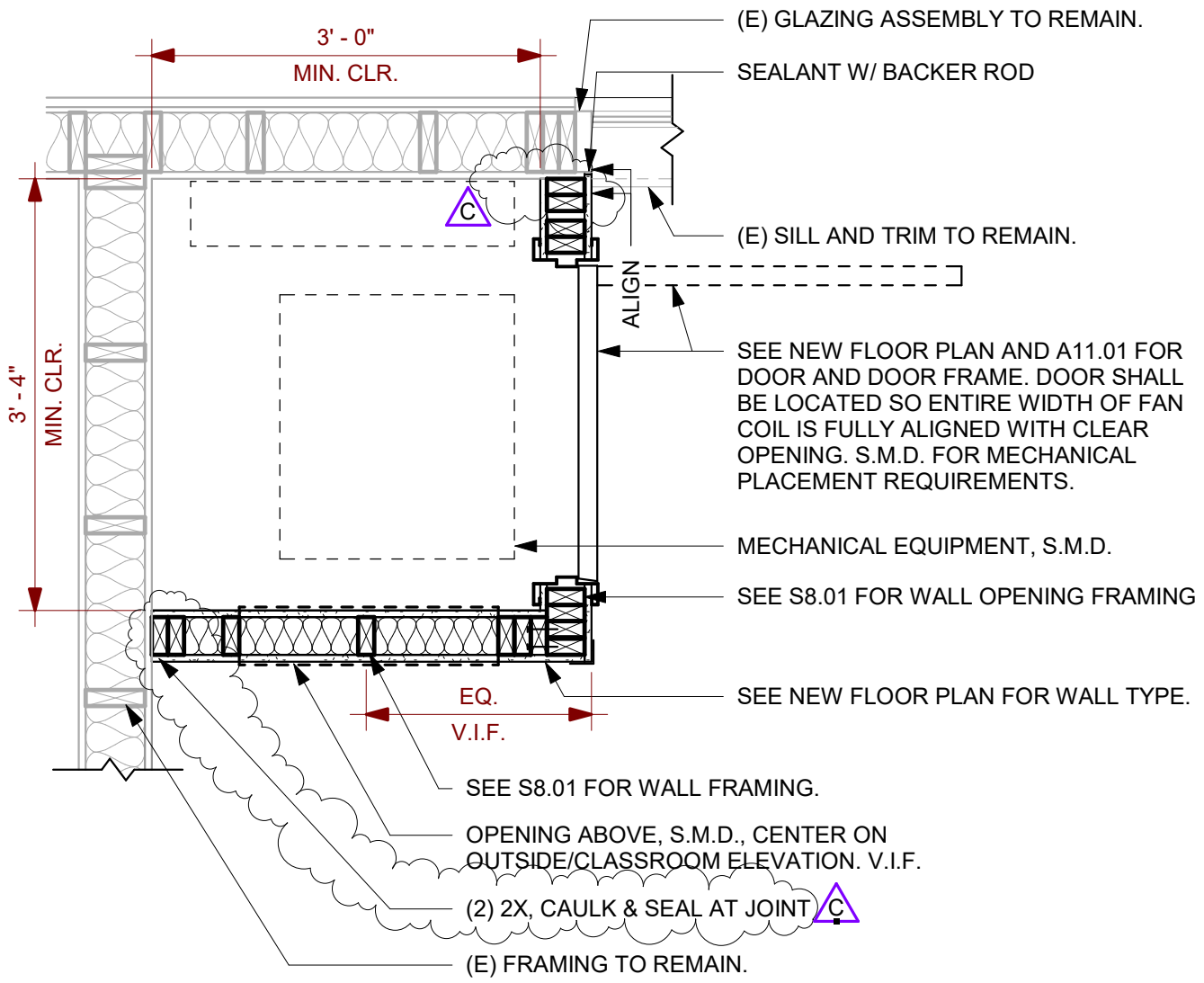
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119551
JOB NO.	2021005.03
DATE	12/22/2021

SHEET
AD3-A8.10B



NOTE: NOT ALL MECHANICAL ELEMENTS SHOWN. S.M.D. FOR MORE INFORMATION.

16 MECH. ENCLOSURE CLEARANCES, TYP.

SCALE: 3/4" = 1'-0"

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LAUEL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.:	41-26
APPL NO.:	01-119551
JOB NO.	2021005.03
DATE	12/22/2021

SHEET

AD1-A9.10

FASTENING SCHEDULE

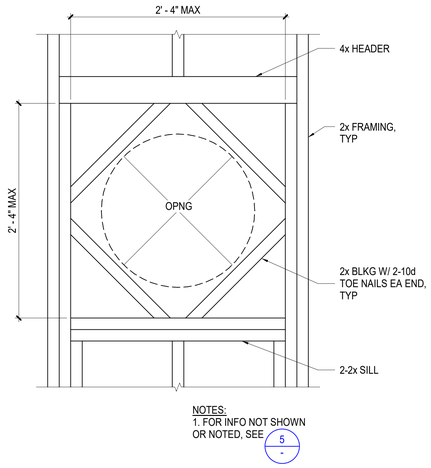
DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2 1/2" × 0.131") 2-3" × 0.131" nails 2-3" 14 gage staples	Each end, toenail
	2-16 d common (3 1/2" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3 1/2" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust)	3-16d common (3 1/2" x 0.163") 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint)	Per Table 2308.7.3.1, CBC 2019	Face nail
5. Collar tie to rafter	3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10 common (3" × 0.148"); or 3-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3"14 gage staples, 7/16" crown; or	End nail
	3-10d common (3 1/2" × 0.148"); or 4-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail
WALL		
8. Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or	12" o.c. face nail
	3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3 1/2" × 0.162"); or	16" o.c. each edge, face nail
	16d box (3 1/2" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toenail
12. Top plate to top plate	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8-16d common (3 1/2" × 0.162"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2"x0.163"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3 1/2 " × 0.162"); or 3-16d box (3 1/2" × 0.135"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown; or	Toenail
	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128")	Face nail
20. 1" × 8" and wider sheathing to each bearing	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128")	Face nail

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

12 NAILING SCHEDULE

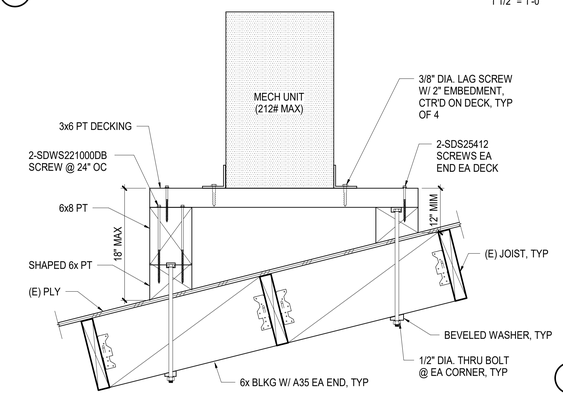
NTS



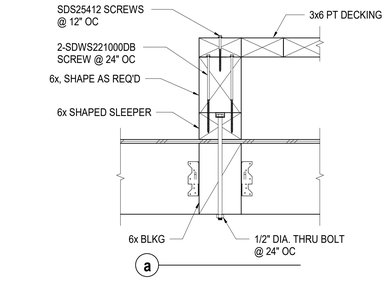
NOTES:
1. FOR INFO NOT SHOWN OR NOTED, SEE 5

9 FRAMING DETAIL AT ROUND OPENING

1 1/2" = 1'-0"

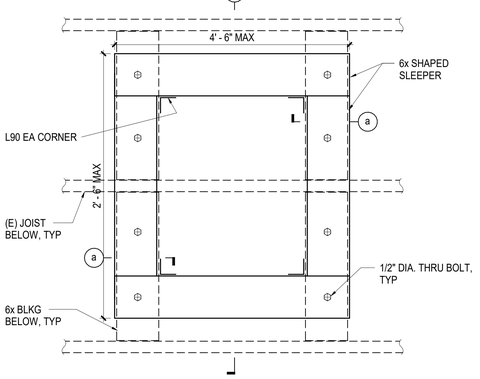


b



a

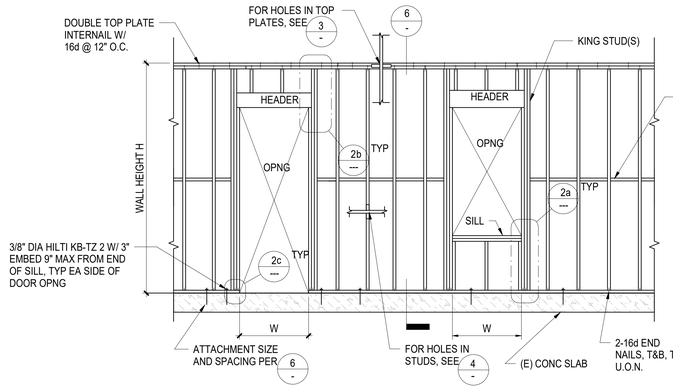
b



PLAN VIEW

11 MECH UNIT PLATFORM FRAMING DETAIL

1 1/2" = 1'-0"



NON-BEARING WALL STUD SCHEDULE		
WALL HEIGHT	STUD SIZE	SPACING
H < 13'-0"	2x4	16"

b

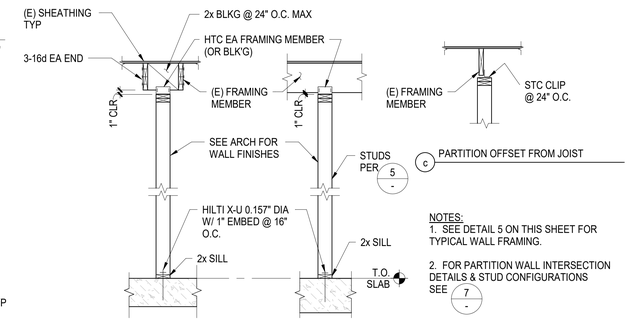
NON-BEARING WALL SCHEDULE AT OPENINGS				
OPENING WIDTH	KING STUD(S)	HEADER DEPTH	BEARING STUD(S)	SILL
W< 4'-6"	2x	4x	1-2x	2-2x

a

NOTE:
STUD, SILL, AND HEADER WIDTHS TO MATCH WALL FRAMING SIZE.

5 TYPICAL INTERIOR NON-BEARING WALL FRAMING

NTS



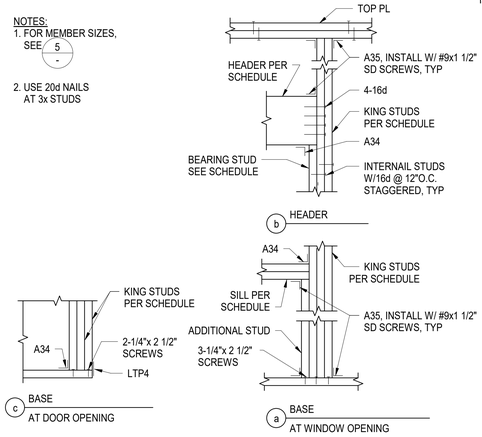
a PARTITION PARALLEL TO JOIST

b PARTITION PERPENDICULAR TO JOIST

c PARTITION OFFSET FROM JOIST

NOTES:
1. SEE DETAIL 5 ON THIS SHEET FOR TYPICAL WALL FRAMING.
2. FOR PARTITION WALL INTERSECTION DETAILS & STUD CONFIGURATIONS SEE 7

NOTES:
1. FOR MEMBER SIZES, SEE 5
2. USE 20d NAILS AT 3x STUDS

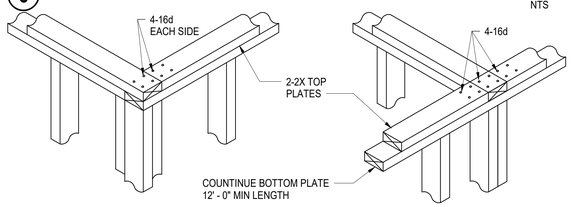


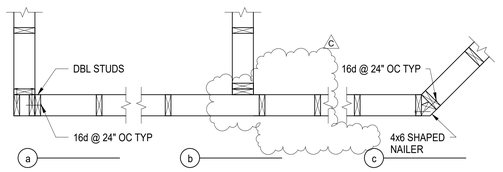
c BASE AT DOOR OPENING

a BASE AT WINDOW OPENING

6 NON-BEARING WALL PARTITION

NTS





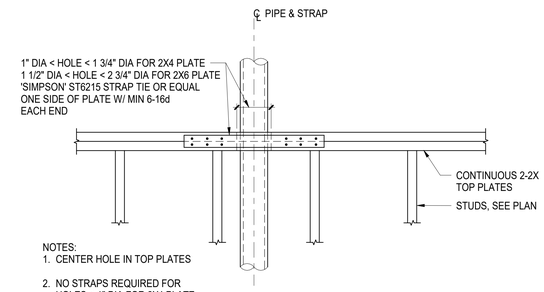
a b c

7 WALL INTERSECTIONS

NTS

2 WALL OPENING

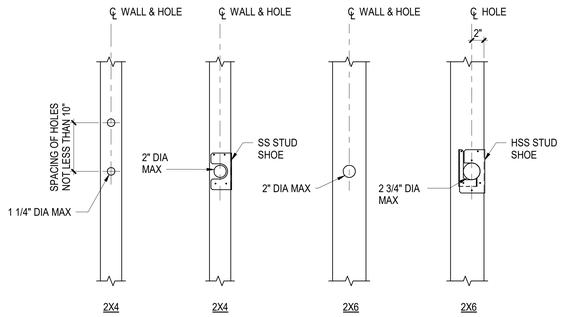
NTS



NOTES:
1. CENTER HOLE IN TOP PLATES
2. NO STRAPS REQUIRED FOR HOLES < 1" DIA FOR 2X4 PLATE HOLES < 1 1/2" DIA FOR 2X6 PLATE

3 TOP PLATE PENETRATIONS

NTS



4 PENETRATIONS IN STUDS

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PROJECT

NORTH SHOREVIEW ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

BASE DESIGN
582 MARKET ST. STE. 1402
SAN FRANCISCO, CA 94104
Office:(415) 466-2997
www.BASEdesigninc.com

STAMP

REGISTERED PROFESSIONAL ENGINEER GOKHAN AKALAN NO. 5594 STRUCTURAL STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119526

REVISIONS

No.	Description	Date
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/24/2021
BACKCHECK	

SHEET

FRAMING DETAILS AND NAILING SCHEDULE

DATE 12/22/2021

JOB # 2021005.05

SHEET # AD3-S8.01

		-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
	61	1150	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7
		-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
	61	1150	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7
		-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1
	61	1150	450	3/8"	3/4"	-	-	208/1	2.6	15	164	1/MP6.01	2, 3, 4, 5, 6, 7
		-	-	3/8"	3/4"	17.5	10	208 / 1	34	50	212	3/MP6.01	1

AMBIENT

5. PROVIDE WITH MERV-13 FILTERS WITH FILTER ACCESS PANEL.
6. ~~FAN COIL SHALL BE ADJUSTED TO OPERATE AT CONSTANT SPEED AT INDICATED CFM.~~
7. PROVIDE CONDENSATE PUMP, LITTLE GIANT VCMX-20ULS WITH OVERFLOW PROTECTION, OR APPROVED EQUAL. C

SPLIT SYSTEM HEAT PUMPS SCHEDULE

OLING	HEATING	AIRFLOW CFM	ESP IN. W.G.	REFRIGERANT PIPING		SEER	HSPF	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
L MBH	TOTAL MBH			LIQUID	GAS			V / PH	MCA	MOCP			
				1/4"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

CEG JOB NO: 21035

CYPRESS Engineering Group

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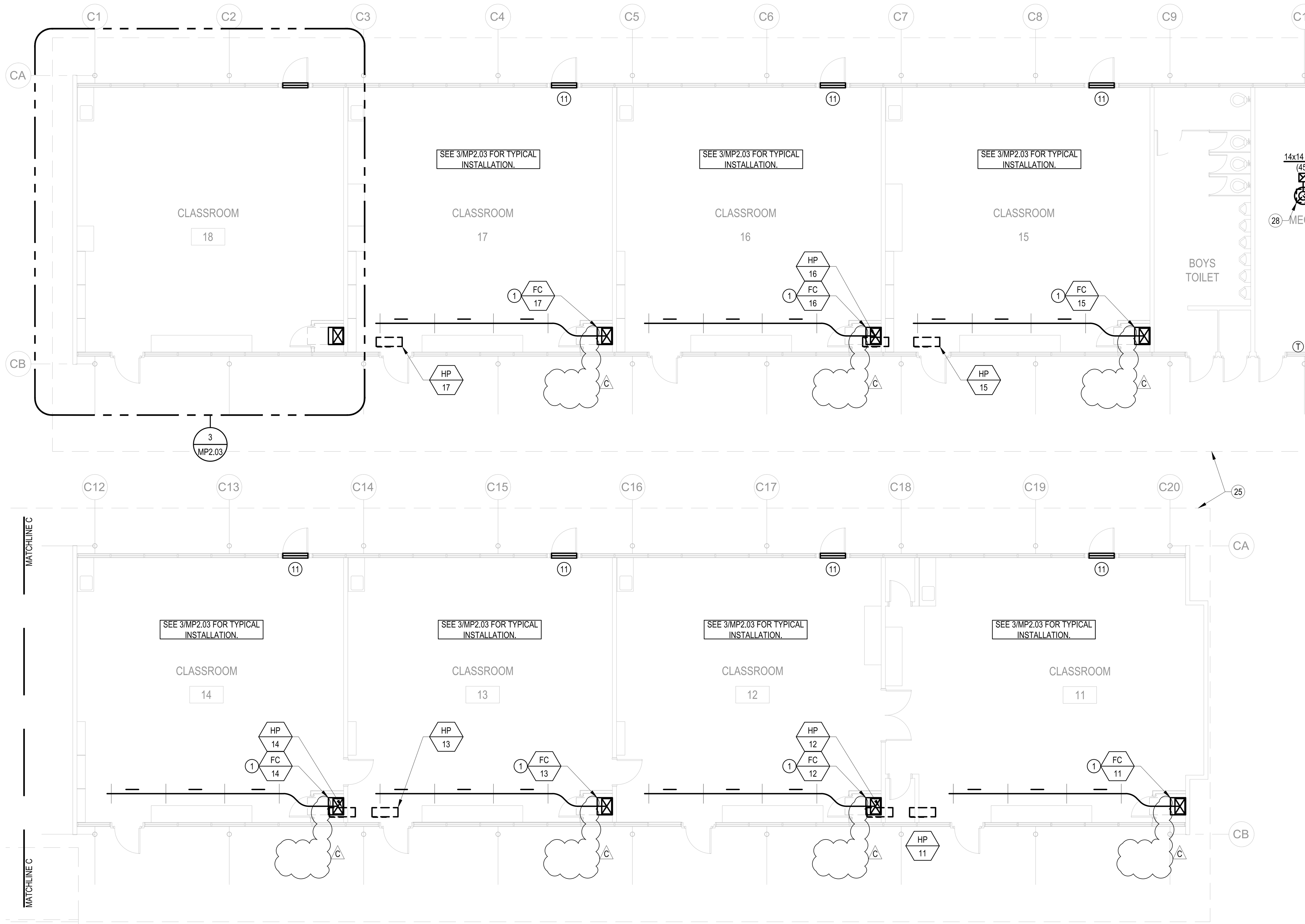
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

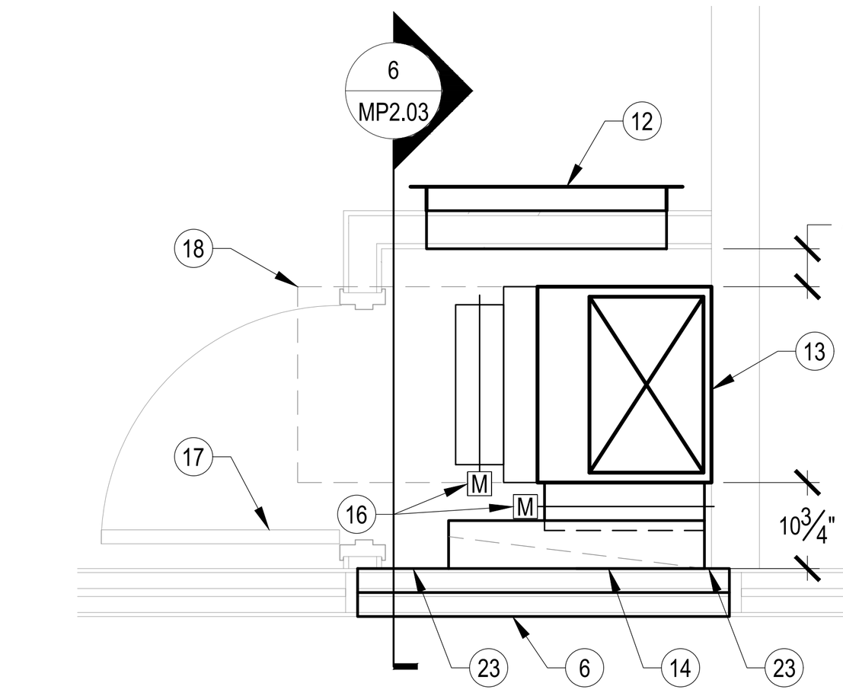
SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET	
APPL NO.: 01-119551	REF. SHEET MP0.02	
JOB NO. 2021005.03	AD3-MP0.02	
DATE 12/22/2021		

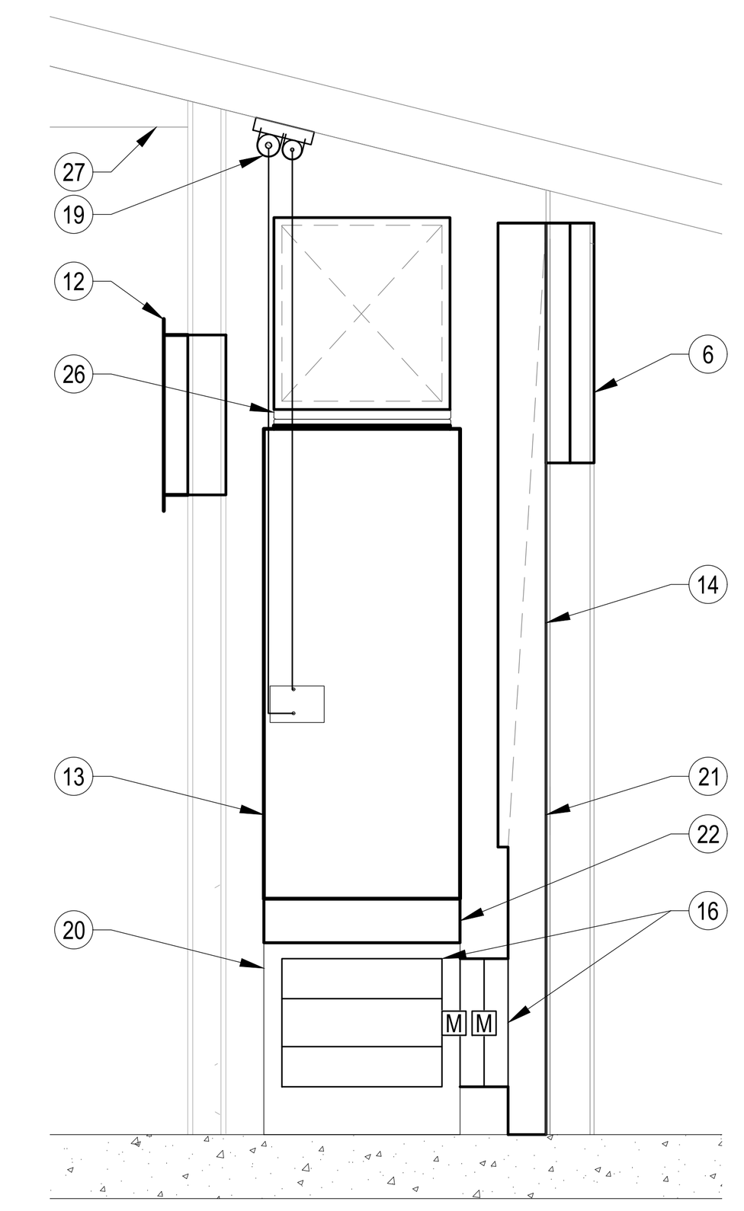


1 MP2.03 PARTIAL FLOOR PLAN - BLDG C - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

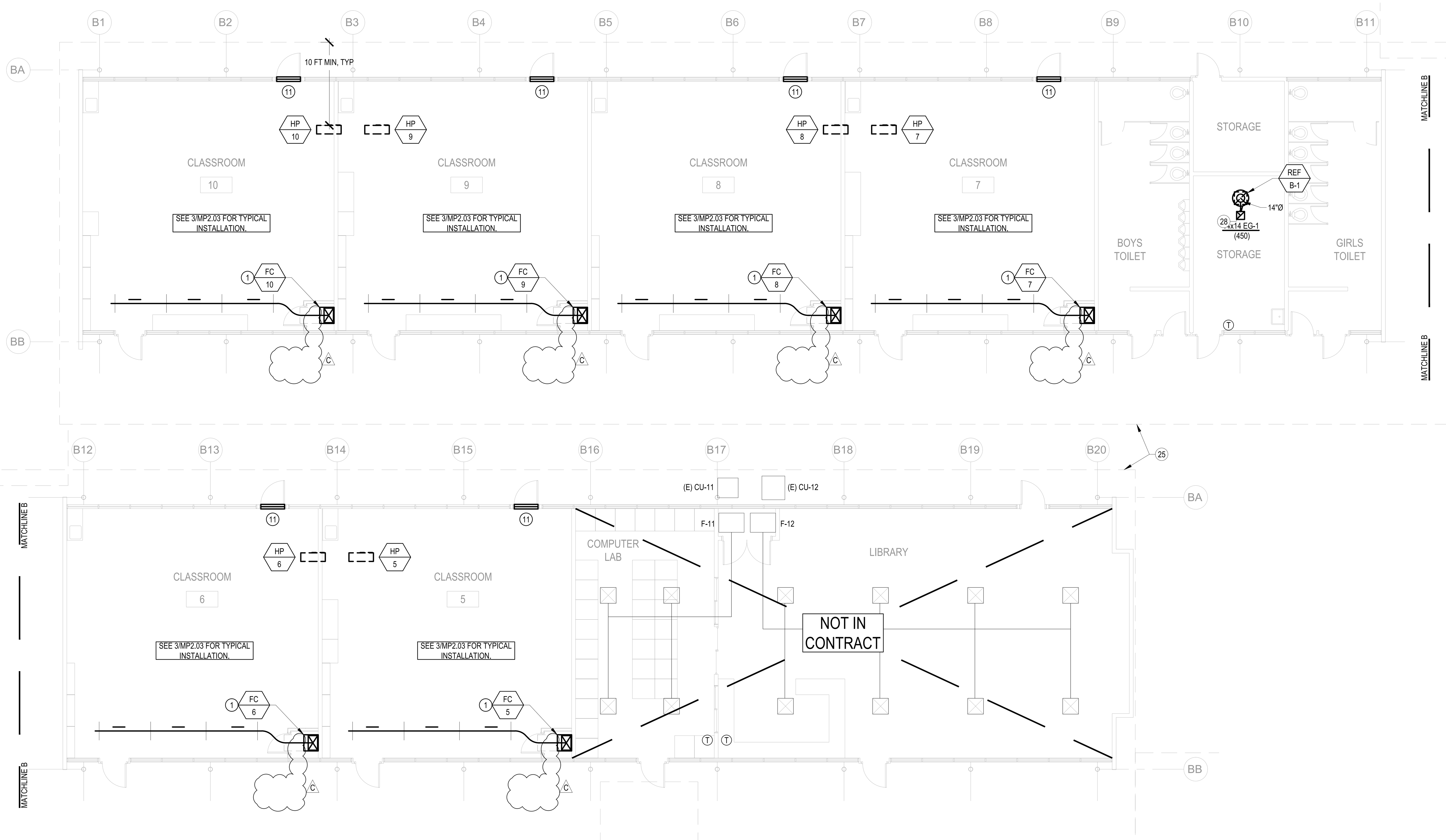
NORTH



5 MP2.03 FLOOR PLAN - ENCLOSURE
SCALE: NONE

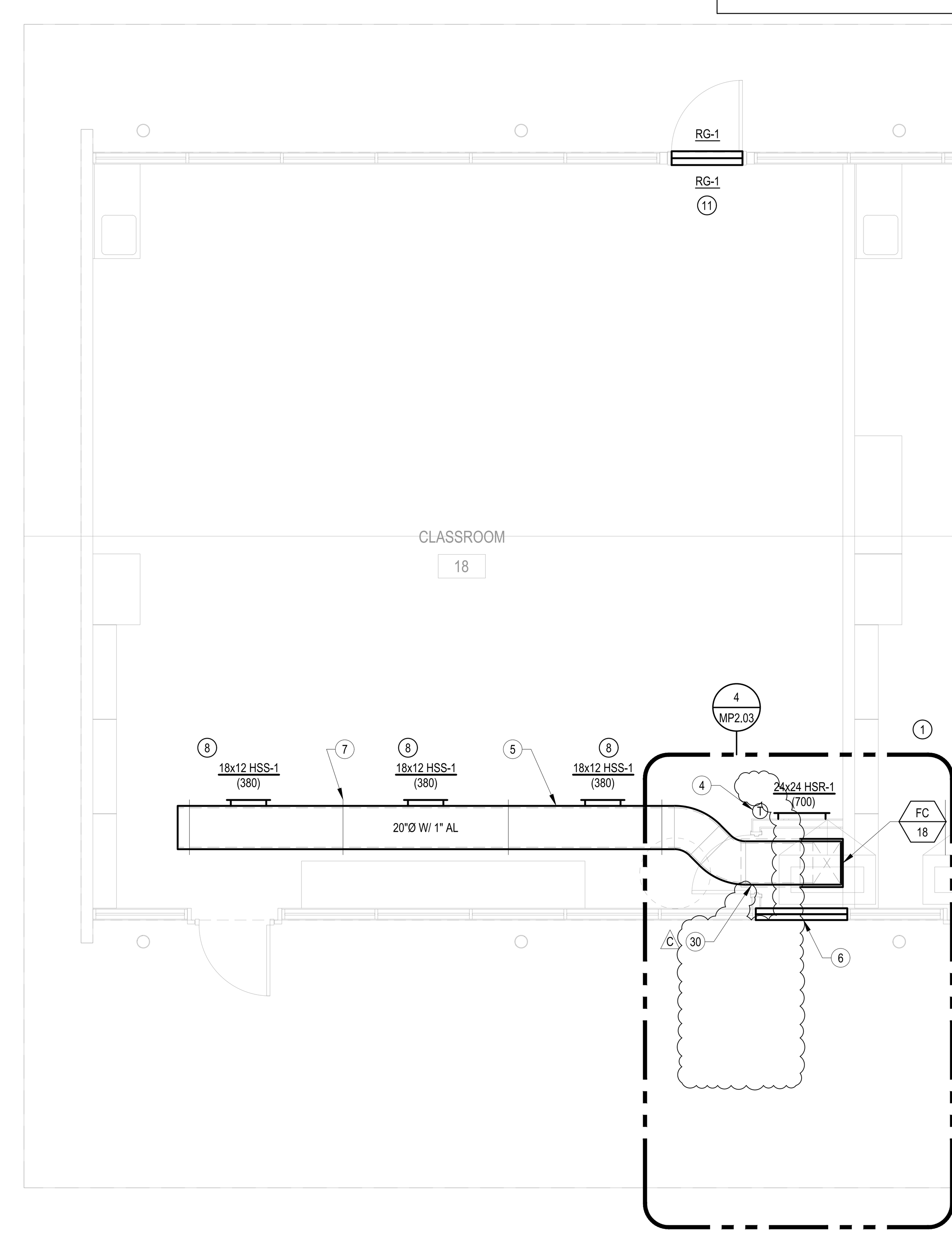


6 MP2.03 SECTION - ENCLOSURE
SCALE: NONE

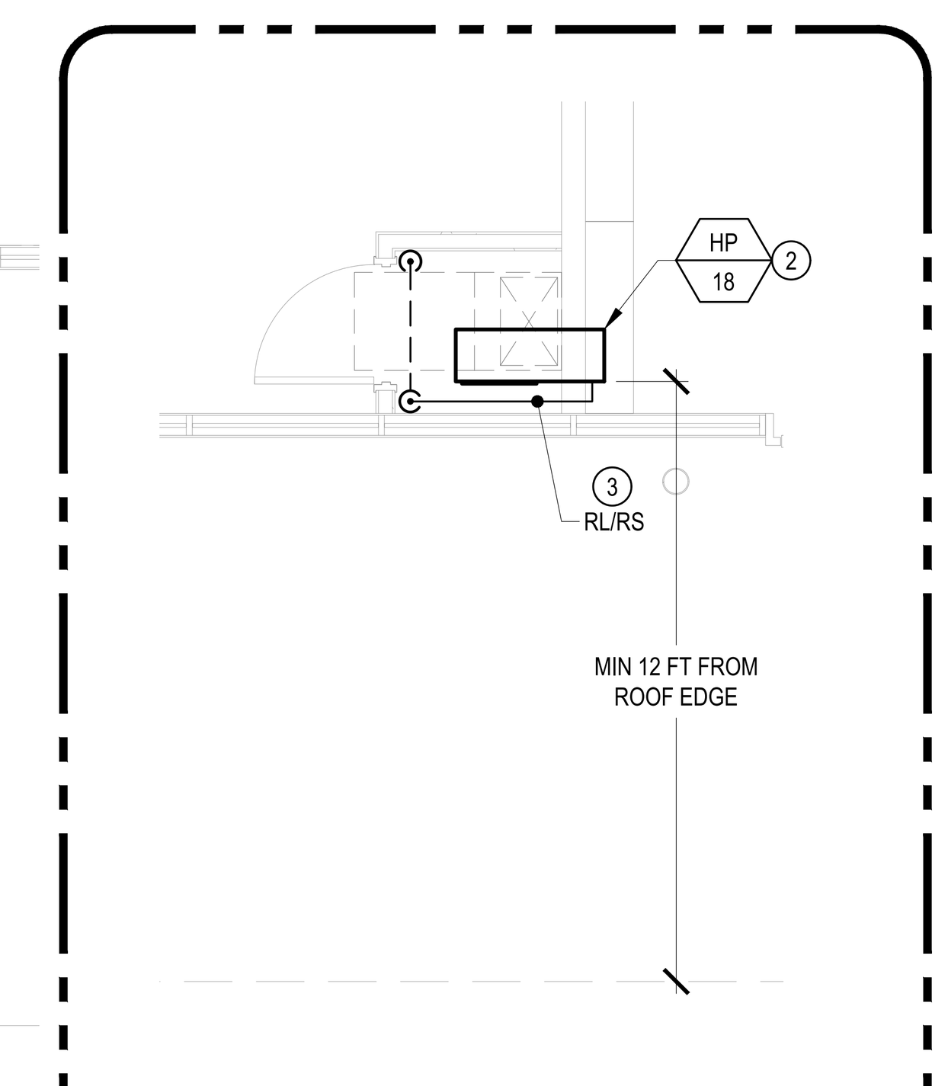


2 MP2.03 PARTIAL FLOOR PLAN - BLDG B - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

NORTH

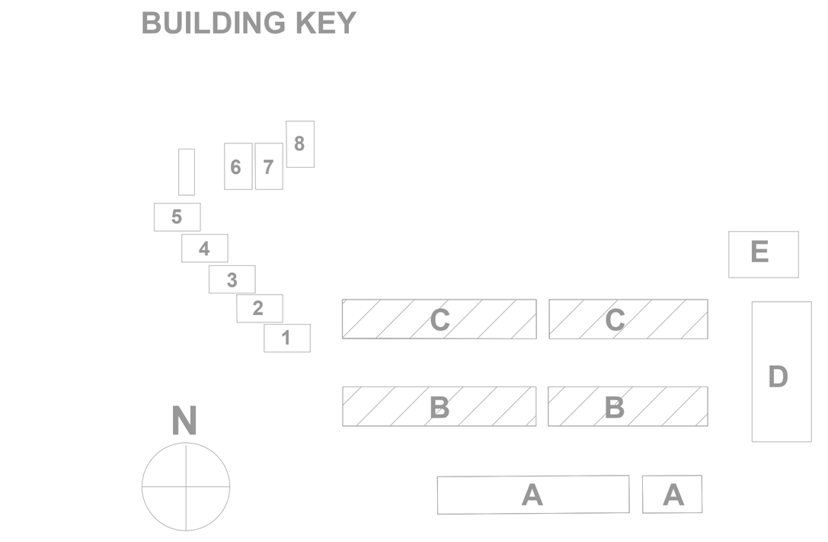


3 MP2.03 ENLARGED PLAN - TYPICAL CLASSROOM
SCALE: 1/4" = 1'-0"



4 MP2.03 PARTIAL ROOF PLAN
SCALE: 1/4" = 1'-0"

BUILDING KEY



GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS NOT SHOWN ON THIS PLAN. SEE MP2.01.
4. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS TO MATCH ADJACENT.
5. PAINT CONDENSATE PIPING AT EXTERIOR OF BUILDING TO MATCH ADJACENT.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.

(#) NEW SHEET NOTES

1. INSTALL FAN COIL, TYP. SEE 5/MP2.03 AND 6/MP2.03 FOR TYPICAL FAN COIL INSTALLATION. SEE 1/MP6.01 FOR TYPICAL FAN COIL MOUNTING.
2. INSTALL HEAT PUMP ON ROOF, MIN 10 FT AWAY FROM EDGE OF ROOF, TYP. SEE FLOOR PLANS ON MP2.03 AND MP2.04 FOR ACTUAL LOCATION OF EACH UNIT.
3. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, TYP. MINIMIZE EXPOSED PIPING ON ROOF. PENETRATE ROOF WITHIN 36" OF HEAT PUMP. RUN PIPE CONCEALED ABOVE T-BAR CEILING TO FAN COIL ENCLOSURE. PENETRATE FAN COIL ENCLOSURE WALL ABOVE CEILING. ENSURE REFRIGERANT PIPING DOES NOT BLOCK FILTER ACCESS, SEE 7/MP6.01 FOR PIPE SUPPORT ON ROOF AND 11/MP6.01 FOR PIPE SUPPORT BELOW ROOF.
4. INSTALL THERMOSTAT ON WALL AND WIRE TO FAN COIL, TYP.
5. INSTALL SUPPLY DUCT EXPOSED, TOP OF DUCT ELEV AT 9'-2" AFF.
6. INSTALL APPROXIMATELY 46"x35" RUSKIN L375 OUTSIDE AIR LOUVER WITH BIRDSCREEN. LOUVER TO FILL ENTIRE (E) WINDOW PANEL. VERIFY EXACT DIMENSIONS IN FIELD, SEE 10/MP6.01 FOR MOUNTING .
7. INSTALL DUCT SUPPORT, TYP. SEE DETAIL 5/MP6.01.
8. INSTALL FACE OPERABLE KEY EXTRACTOR FOR ALL SUPPLY REGISTERS, SEE 12/MP6.01, TYP.
9. NOT USED.
10. NOT USED. (C)
11. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 46"x35". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL. VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING. MINIMIZE EXPOSED CABLE. PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES.
12. RETURN REGISTER W/ GRILLE SILENCER.
13. FAN COIL. SEE PLANS FOR LOCATION.
14. 6"x32" OUTSIDE AIR DUCT DOWN TO MIXING PLENUM.
15. NOT USED
16. 20"X16" MOTORIZED DAMPER (LOW VOLTAGE).
17. 30" FULL HEIGHT DOOR, SEE ARCHITECTS DRAWINGS.
18. CLEARANCE REQUIRED FOR FILTER REPLACEMENT.
19. REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, SEE 11/MP6.01 FOR PIPE SUPPORT.
20. MIXING PLENUM BELOW FAN COIL.
21. DUCT TRANSITION TO ALLOW DAMPER CONNECTION.
22. FILTER BOX THAT CAN FIT 4" OR 2" FILTER.
23. PORTIONS OF OA LOUVER EXTENDING BEYOND EITHER SIDE OF THE 32"x6" OA DUCT TO BE COVERED W/ SHEET METAL.
24. NOT USED. (C)
25. (E) ROOF OUTLINE, TYP.
26. FLEX DUCT AT CONNECTION TO UNIT.
27. CEILING, SEE ARCHITECTS DRAWINGS.
28. INSTALL ROOFTOP EXHAUST FAN ON PITCHED ROOF CURB. ENSURE EXHAUST FAN IS A MINIMUM OF 10 FT AWAY FROM ANY OUTSIDE AIR INTAKES.
29. INSTALL THERMOSTAT ON INTERIOR WALL AND WIRE TO EXHAUST FAN EXHAUST FANS, TYP.
30. PROVIDE DUCT COLLAR TO CONCEAL DUCT OPENING AT ENCLOSURE. (C)

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PROJECT
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No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119551

REVISIONS

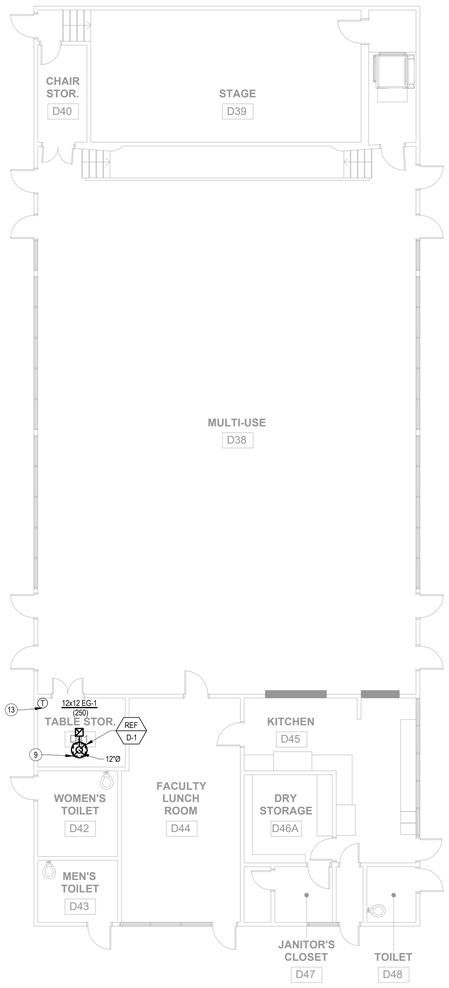
No.	Description	Date
A	Addendum 1	11/19/2021
C	Addendum 3	12/22/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

SHEET
FLOOR PLAN - NEW - BLDG B, C & TYPICAL CLASSROOM - MECHANICAL & PLUMBING

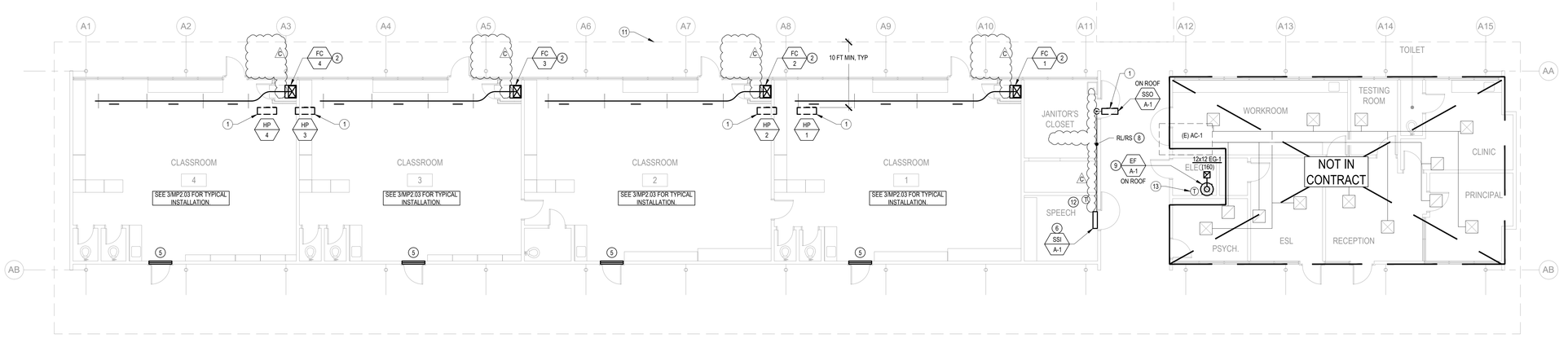
DATE 12/22/2021
JOB # 2021005.03
SHEET # AD3-MP2.03



2 MP2.04 FLOOR PLAN - MULTIPURPOSE BLDG - NEW - MECHANICAL & PLUMBING

SCALE: 1/8" = 1'-0"

NORTH

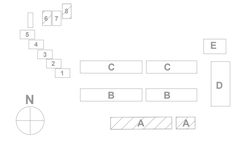


1 MP2.04 FLOOR PLAN - BLDG A - NEW - MECHANICAL & PLUMBING

SCALE: 1/8" = 1'-0"

NORTH

BUILDING KEY



GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS NOT SHOWN ON THIS PLAN. SEE MP2.02.
4. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS TO MATCH ADJACENT.
5. PAINT CONDENSATE PIPING AT EXTERIOR OF BUILDING TO MATCH ADJACENT.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.

(#) NEW SHEET NOTES

1. INSTALL HEAT PUMP ON ROOF, MIN 10 FT FROM EDGE OF ROOF, TYP.
2. INSTALL FAN COIL, TYP. SEE 5/MP2.03 AND 6/MP2.03 FOR TYPICAL FAN COIL INSTALLATION. SEE 1/MP6.01 FOR TYPICAL FAN COIL MOUNTING.
3. NOT USED. C
4. NOT USED. C
5. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED TO BOTH SIDES OF RELIEF OPENING. DAMPER WITH ACTUATOR TO MATCH (E) FRAME APPROXIMATELY 44"x32". ENSURE DAMPER AND ACTUATOR FIT WITHIN RELIEF OPENING. RETURN GRILLE TO FILL ENTIRE (E) WINDOW PANEL. VERIFY EXACT DIMENSIONS IN FIELD. RUN LOW VOLTAGE PLENUM RATED CABLE ABOVE CEILING. MINIMIZE EXPOSED CABLE. PAINT EXPOSED CABLE TO MATCH ADJACENT FINISHES.
6. INSTALL FAN COIL ABOVE DOOR. COORDINATE EXACT HEIGHT WITH DISTRICT.
7. NOT USED. C
8. INSTALL REFRIGERANT PIPING FROM HEAT PUMP ON ROOF TO FAN COIL. RUN PIPING ALONG SAME ROUTE AS CONDENSATE PIPING.
9. INSTALL ROOFTOP EXHAUST FAN ON PITCHED ROOF CURB. ENSURE EXHAUST FAN IS A MINIMUM OF 10 FT AWAY FROM ANY OUTSIDE AIR INTAKES.
10. NOT USED. C
11. (E) ROOF OUTLINE, TYP.
12. INSTALL THERMOSTAT ON INTERIOR WALL AND WIRE TO FAN COIL SSI-A-1.
13. INSTALL THERMOSTAT ON INTERIOR WALL AND WIRE TO EXHAUST FAN EXHAUST FANS, TYP.

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PROJECT

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METIN SERT UNAL
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STATE OF CALIFORNIA

STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
A	Addendum 1	11/19/2021
C	Addendum 3	12/16/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

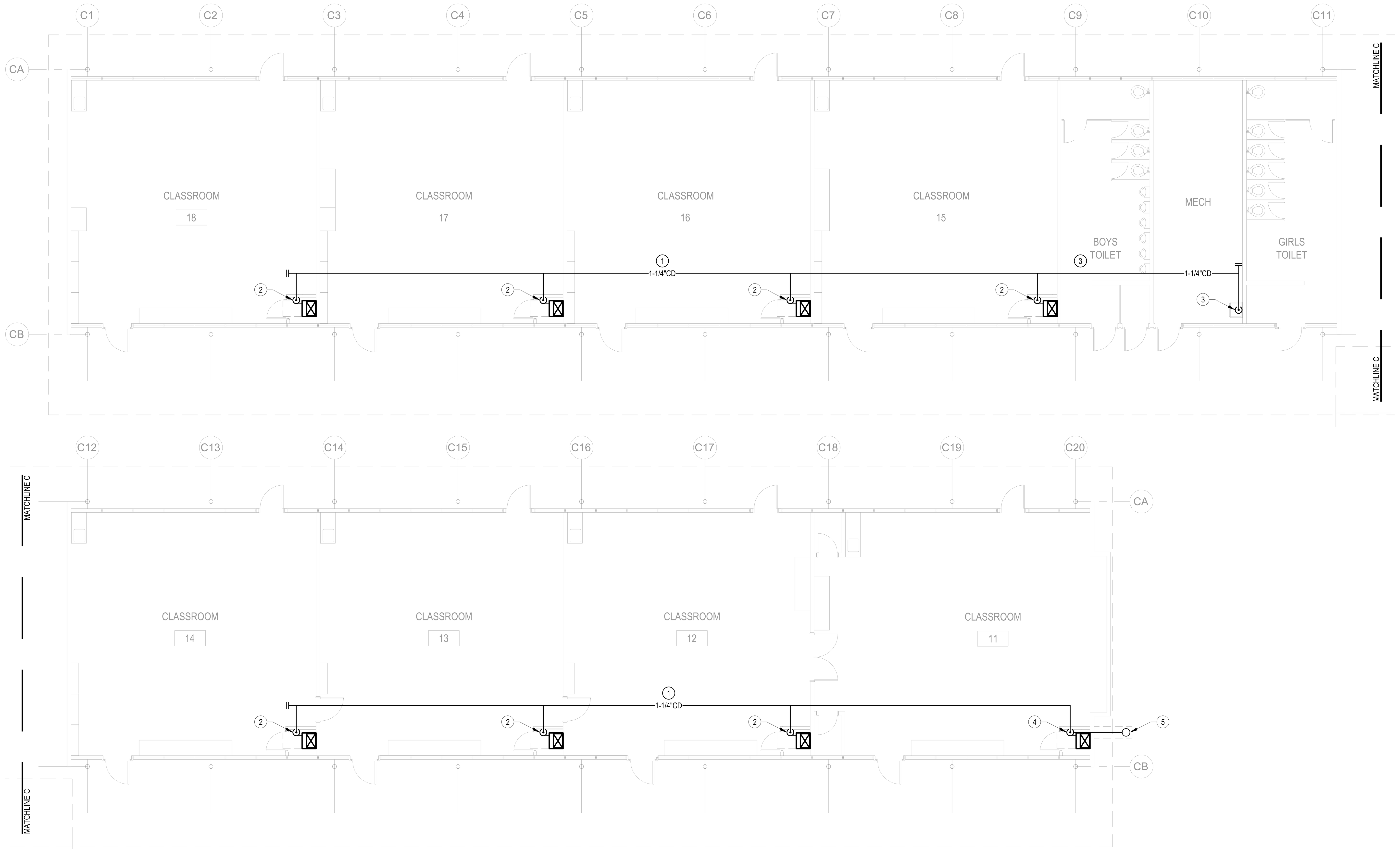
SHEET

FLOOR PLAN - NEW - BLDG A - MECHANICAL & PLUMBING

DATE 12/22/2021

JOB # 2021005.03

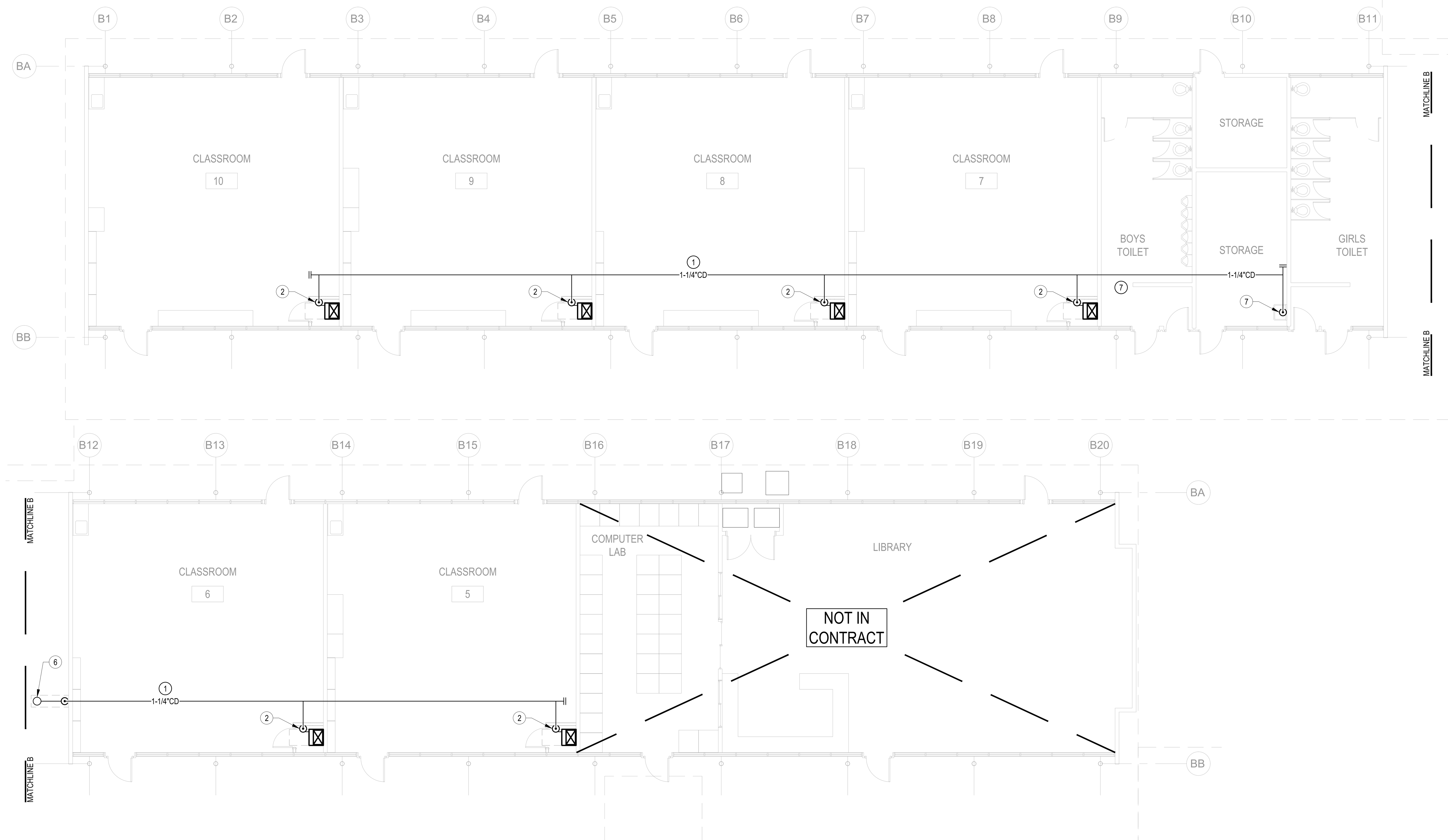
SHEET # AD3-MP2.04



PARTIAL FLOOR PLAN - BLDG C - NEW - PLUMBING

1 P2.03

SCALE: 1/8" = 1'-0"



PARTIAL FLOOR PLAN - BLDG B - NEW - PLUMBING

2 P2.03

SCALE: 1/8" = 1'-0"

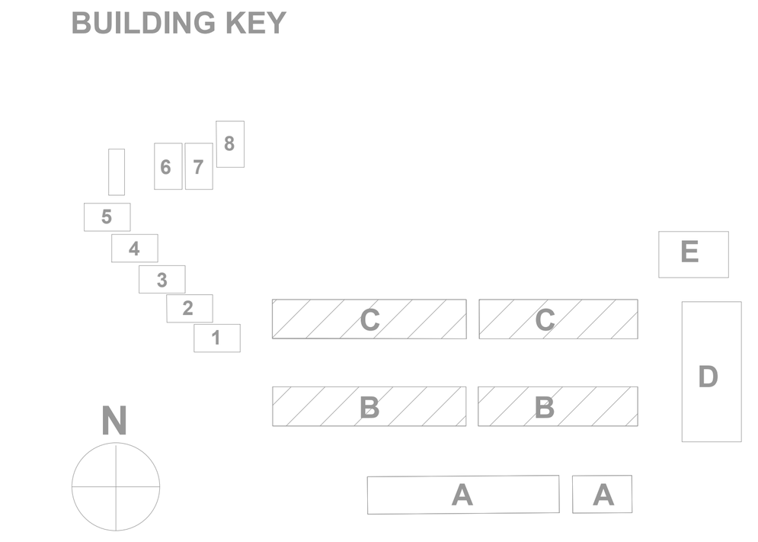
ADDENDUM 3 NOTES

1. THIS SHEET COVERS CONDENSATE DRAINS FOR BUILDINGS B AND C AND SUPERCEDES CONDENSATE DRAINS SHOWN FOR BUILDINGS B AND C IN BID DOCUMENTS AND ADDENDUMS 1 AND 2.

(#) NEW SHEET NOTES

1. CONDENSATE DRAIN PIPE ABOVE ACT. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
2. CD FROM FAN COIL. SEE 9/MP6.01 FOR CONNECTION TO UNIT. INSTALL CONDENSATE PUMP AT LEFT SIDE OF UNIT. ENSURE PUMP AND PIPE DO NOT BLOCK FILTER ACCESS. PUMP CD UP TO ENCLOSURE CEILING AND CONNECT TO CD HEADER ABOVE ACT.
3. RUN CD PIPE EXPOSED IN BOYS RESTROOM CEILING, PARALLEL TO (E) ELECTRICAL CONDUITS, THROUGH TO MECHANICAL ROOM. SUPPORT FROM NEW UNISTRUT. CONNECT TO TAILPIECE OF SINK IN MECHANICAL ROOM.
4. CD FROM FAN COIL. SEE 9/MP6.01 FOR CONNECTION TO UNIT. DROP PIPE AT LEFT SIDE OF UNIT. ENSURE PIPE DOES NOT BLOCK FILTER ACCESS. COMBINE WITH CD HEADER. RUN PIPE ALONG LEFT ENCLOSURE WALL AND PENETRATE BACK OF ENCLOSURE. ROUTE TO CD DRYWELL.
5. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE. SEE DETAIL 14/MP6.01 FOR CD DRYWELL.
6. DROP CD PIPE AT EXTERIOR WALL AND ROUTE TO CD DRYWELL. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE. SEE DETAIL 14/MP6.01 FOR CD DRYWELL.
7. RUN CD PIPE EXPOSED IN BOYS RESTROOM CEILING, PARALLEL TO (E) ELECTRICAL CONDUITS, THROUGH TO STORAGE ROOM. SUPPORT FROM NEW UNISTRUT. CONNECT TO TAILPIECE OF SINK IN STORAGE ROOM.

BUILDING KEY



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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

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CEG JOB NO. 21035

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STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
C	Addendum 3	12/16/2021

MILESTONES

DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

SHEET

FLOOR PLAN - NEW - BLDG B & C - CONDENSATE DRAINS - PLUMBING

DATE 12/22/2021 1

JOB # 2021005.03

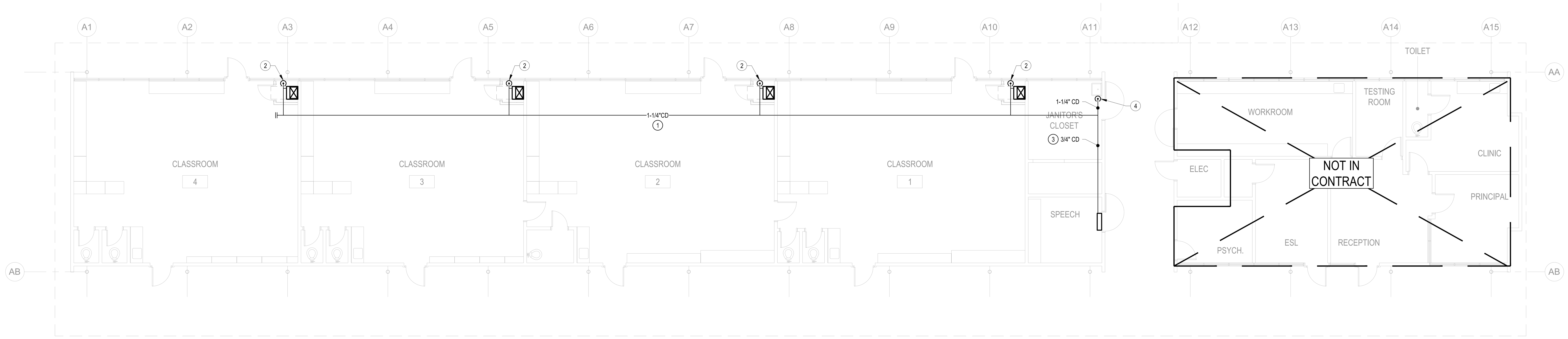
SHEET # AD3-P2.03

ADDENDUM 3 NOTES

1. THIS SHEET COVERS CONDENSATE DRAINS FOR BUILDING A AND SUPERCEDES CONDENSATE DRAINS SHOWN FOR BUILDING A IN BID DOCUMENTS AND ADDENDUMS 1 AND 2.

(#) NEW SHEET NOTES

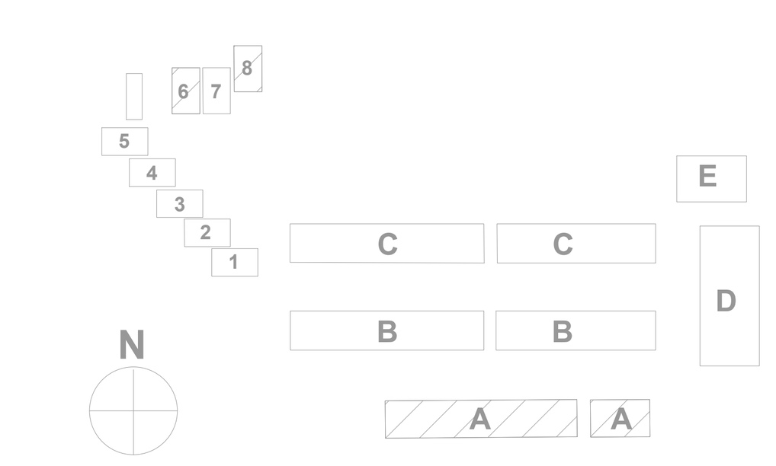
1. CONDENSATE DRAIN PIPE ABOVE ACT. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.
2. CD FROM FAN COIL. SEE 9/MP6.01 FOR CONNECTION TO UNIT. INSTALL CONDENSATE PUMP AT LEFT SIDE OF UNIT. ENSURE PUMP AND PIPE DO NOT BLOCK FILTER ACCESS. PUMP CD UP TO ENCLOSURE CEILING AND CONNECT TO CD HEADER ABOVE ACT.
3. PUMP CONDENSATE FROM FAN COIL TO (E) SINK IN JANITOR'S CLOSET. RUN PIPE TIGHT TO CEILING. SEE 9/MP6.01 FOR CONNECTION TO UNIT.
4. CONNECT CD PIPE TO SINK TAILPIECE IN JANITOR'S CLOSET.



1 P2.04 FLOOR PLAN - BLDG A - NEW - PLUMBING
SCALE: 1/8" = 1'-0"

NORTH

BUILDING KEY



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C	Addendum 3	12/16/2021

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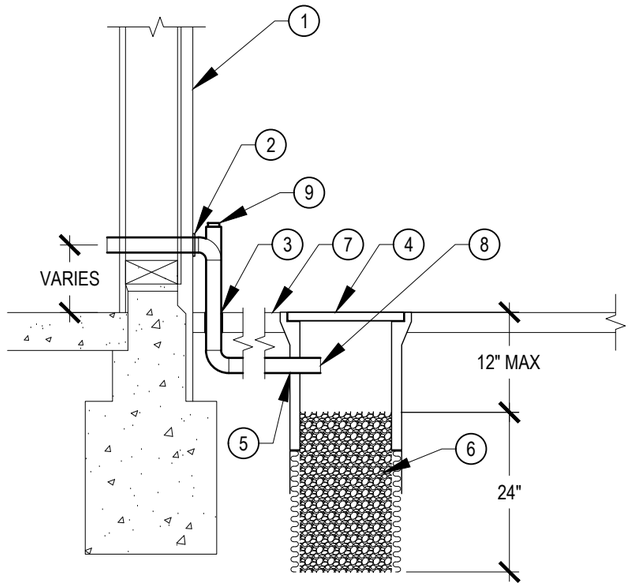
DD	
90% CD	
DSA SUB	05/28/2021
BACKCHECK	10/06/2021

SHEET

FLOOR PLAN - NEW - BLDG A - CONDENSATE DRAINS - PLUMBING

DATE 12/22/2021
JOB # 2021005.03
SHEET # AD3-P2.04



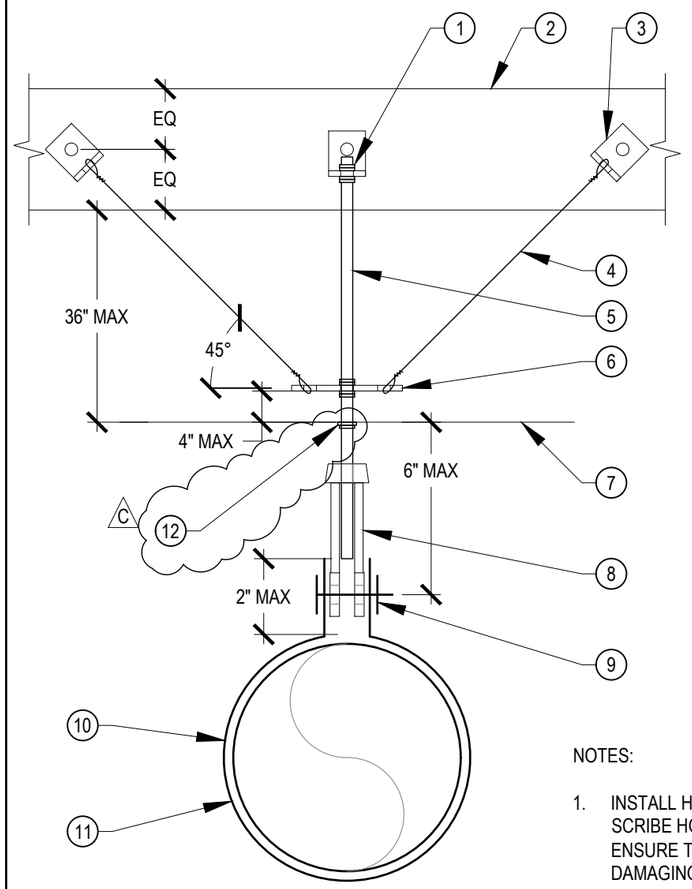
DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. SEAL PENETRATION WATERTIGHT. PROVIDE ESCUTCHEON AT EXTERIOR.
3. DROP PIPE BELOW GRADE.
4. CHRISTY F22 CURB VALVE BOX WITH ADS SNAP ADAPTER AND 18" ADS EXTENSION. WITH F08R REINFORCED CONCRETE LID. FLUSH WITH GRADE.
5. CORE DRILL BOX FOR PIPE TO PASS THROUGH.
6. FILL WITH WASHED PEA GRAVEL.
7. GRADE. UNLESS DRYWELL IS IN LANDSCAPE AREA, SEE A8.10 FOR PATCHING.
8. SPILL WITH 1" AIR GAP.
9. CLEANOUT.

NOTES:

1. BRACE PIPE ON VERTICAL RUNS.

14 CONDENSATE DRYWELL N.T.S.



DETAIL NOTES:

1. PROVIDE DOUBLE NUT AT FITTINGS, TYP AT ROD.
2. (E) FRAMING.
3. UNISTRUT P1026 W/ 3/8" THRU BOLT, TYP.
4. 12 GA WIRE W/ (3) TIGHT TURNS WITHIN 3", TYP. 4 WAYS.
5. 3/8"Ø HANGER ROD.
6. UNISTRUT P1925.
7. (E) T-BAR CEILING.
8. GRINNELL FORGED STEEL CLEVIS END.
9. 3/8"Ø THRU BOLT W/ LOCKWASHER AND NUT.
10. DUCT. MAX WEIGHT OF DUCT = 10 LB/FT. SEE PLANS FOR SIZES AND LOCATIONS.
11. 1" x 16 GAUGE CONTINUOUS COLLAR DRAWN TIGHT AROUND DUCT.
12. WASHER AND NUT. C

NOTES:

1. INSTALL HANGER ROD AT EDGE OF T-BAR CEILING TILE. SCRIBE HOLE TIGHT TO ROD. DO NOT OVERCUT. ENSURE T-BAR CEILING CAN BE REPLACED WITHOUT DAMAGING THE CEILING TILE.
2. HANGER ROD & WIRE BRACING ASSEMBLY SPACING 10 FT OC MAX.

5 ROUND DUCT HANGER N.T.S.

C

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LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

FILE NO.: 41-26	SHEET: REF. SHEET MP6.01
APPL NO.: 01-119551	
JOB NO. 2021005.03	AD3-MP6.01
DATE 12/22/2021	

SYMBOL LIST:

(1 / B1) PLAN, DETAIL OR SECTION DESIGNATION.

201 ROOM NUMBER.

(1) SHEET REFERENCE SYMBOL - SEE ASSOCIATED NOTE ON SAME SHEET.

(3) FEEDER SCHEDULE SYMBOL.

(GH / 1) MECHANICAL EQUIPMENT TAG.

(A) INDICATES FIXTURE TYPE

LUMINAIRE SYMBOLS

LUMINAIRE - SEE SCHEDULE.

LUMINAIRE - SEE SCHEDULE.

LUMINAIRE - SEE SCHEDULE.

LUMINAIRE - SEE SCHEDULE.

POLE MOUNTED LUMINAIRE - SEE SCHEDULE.

POLE MOUNTED LUMINAIRE - SEE SCHEDULE.

LUMINAIRE - SEE SCHEDULE.

LUMINAIRE - SEE SCHEDULE.

LUMINAIRE WALL MOUNTED-SEE SCHEDULE.

EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST

EM EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST

EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST

EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST

EMERGENCY LUMINAIRE WALL MOUNTED- PROVIDE EM. BATTERY BALLAST

EXIT LIGHT SINGLE FACE - SEE SCHEDULE.

EXIT LIGHT SINGLE FACE (WITH ARROW)- SEE SCHEDULE.

EXIT LIGHT (DOUBLE FACED WITH ARROW)- SEE SCHEDULE.

EMERGENCY BATTERY PACK EXIT LIGHT INSTALL AS DIRECTED.

TYPICAL LUMINAIRE NOMENCLATURE

3a — INDICATES SWITCHING DESIGNATION
└ INDICATES CIRCUIT NUMBER

SWITCH SYMBOLS

$ SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX UON.

$a SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX,
a = CIRCUIT CONTROLLED.

$3 THREE WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.

$4 FOUR WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.

$ MOTOR RATED SWITCH

LVS[a] WALL MOUNTED LOW VOLTAGE "DATALINE SWITCH +48" FROM TOP OF BOX, UON,
a = CIRCUIT CONTROLLED

LIGHTING OCCUPANCY SENSOR

MOTION DETECTOR POWER PACK

ONE CIRCUIT WALL SWITCH WITH BUILT IN OCCUPANCY SENSOR. CONNECT SWITCHING TO LIGHTING FIXTURES AS REQUIRED. MOUNT AT +48"AFF TO THE TOP OF THE SWITCH BOX, UON.

RECEPTACLE SYMBOLS

CONVENIENCE RECEPTACLE - DUPLEX AT + 18" AFF
AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.

GFCI CONVENIENCE RECEPTACLE - DUPLEX AT +18" AFF
AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.

RECEPTACLE - DOUBLE DUPLEX AT + 18" AFF
AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.

SINGLE RECEPTACLE - NEMA 5-20R UON, AT + 18" AFF
AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.

SINGLE RECEPTACLE - NEMA L21 - 208 VOLT, THREE PHASE,
5 WIRE, AT + 18" AFF UON AND NOT LESS THAN 15" FROM
BOTTOM OF BOX U.O.N.

DOUBLE DUPLEX RECEPTACLE WITH (1) CONTROLLED DUPLEX
AND (1) UNCONTROLLED DUPLEX, AT +18" AFF
AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.

3-CHANNEL SURFACE RACEWAY, INSTALL AT +36" AFF UON, RACEWAY
SHALL BE WIREMOLD #5500.

FLOOR BOX WITH (2) DUPLEX RECEPTACLES AND DATA
OUTLETS. QUANTITY OF DATA OUTLETS AS INDICATED ON THE
FLOOR PLANS.

POWER DISTRIBUTION SYMBOLS

PANELBOARD - SURFACE OR FLUSH MOUNTED.

LCP LIGHTING CONTROL CABINET.

EM EMERGENCY POWER INVERTER.

JUNCTION BOX - CEILING OR WALL MOUNTED, SIZE PER CEC,
TAPE AND TAG WIRES.

MAIN SWITCHBOARD OR DISTRIBUTION PANEL.

M MOTOR

30 RATING AS INDICATED.

60 UNFUSED DISCONNECT SWITCH - RATING AS INDICATED.

100 FUSED DISCONNECT SWITCH - SIZE FUSES PER MOTOR
MANUFACTURER'S RECOMMENDATIONS. RATING AS INDICATED.

II MAGNETIC STARTER - NEMA SIZE INDICATED.

T TRANSFORMER - SEE SINGLE LINE FOR REQUIREMENTS.

GROUND ROD.

P IN-GRADE ELECTRICAL PULL BOX WITH TRAFFIC RATED LID.

L IN-GRADE LIGHTING PULL BOX WITH TRAFFIC RATED LID.

C IN-GRADE COMMUNICATION PULL BOX WITH TRAFFIC RATED LID.

EV1 SINGLE EV CHARGER FOR BUS

EV2 DOUBLE EV CHARGER FOR CAR

POWER DISTRIBUTION SINGLE LINE SYMBOLS

DRAW-OUT CIRCUIT BREAKER.

CIRCUIT BREAKER.

FUSED SWITCH.

M "PS1E" METER W/ CURRENT TRANSFORMER.

TRANSFORMER.

NORMALLY OPENED, AUXILIARY CONTACT.

NORMALLY CLOSED, AUXILIARY CONTACT.

AUTOMATIC TRANSFER SWITCH.

EMERGENCY GENERATOR.

WIRING & CONDUIT RUN SYMBOLS

CONDUIT - CONCEALED IN WALLS OR CEILING.

CONDUIT - EXPOSED.

CONDUIT - UNDERGROUND OR BELOW FLOOR

EXISTING CONDUIT, CABLES OR DEVICE

CONDUIT - HOME RUN TO PANEL, TERMINAL CABINET, ETC. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. CROSSHATCHES WITH "#10" INDICATES WIRE SIZE OTHER THAN #12'S.

FLEX CONDUIT WITH CONNECTION.

CONDUIT - STUB UP.

CONDUIT - STUB DOWN.

CONDUIT EMERGENCY SYSTEM.

E CAPPED CONDUIT.

CONDUIT CONTINUATION.

WATTSTOPPER DIGITAL LIGHTING MANAGEMENT CONTROLS

LCP WATTSTOPPER LMCP24

LMRC 101 WATTSTOPPER LMRC-101

LMRC 211 WATTSTOPPER LMRC-211

LMRC 212 WATTSTOPPER LMRC-212

LMRC 213 WATTSTOPPER LMRC-213

WATTSTOPPER LMDC-100, CEILING MOUNT

D101 WATTSTOPPER LMDM-101, + 48" AFF TO TOP OF THE BOX, UON.

WATTSTOPPER LMLS-500, CEILING/WALL MOUNT

$101 WATTSTOPPER LMSM-101, + 48" AFF TO TOP OF THE BOX, UON.

$102 WATTSTOPPER LMSM-102, + 48" AFF TO TOP OF THE BOX, UON.

COMMUNICATIONS SYMBOLS

19" FLOOR MOUNTED DATA RACK.

DATA/TEL STATION AT +18" AFF UON WITH (1) DATA OUTLET. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.

(2) DATA/TEL STATION AT +18" AFF UON WITH (2) DATA OUTLETS. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.

WAP (2) DATA OUTLETS FOR WIRELESS ACCESS POINT EQUIPMENT TO BE MOUNTED IN CEILING CHASE.

SPKR INTERIOR SPEAKER WALL MOUNTED AT + 8'-0" AFF UON. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM

SPKR CEILING MOUNTED SPEAKER. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM

SPKR FLUSH MOUNTED EXTERIOR SPEAKER AT +8'-0" AFF UON. CONNECT EXTERIOR SPEAKER PER THE PA/CLOCK RISER DIAGRAM.

COMBINATION FLUSH MOUNTED CLOCK/SPEAKER DEVICE AT +8'-0" AFF UON. CONNECT CLOCK/SPEAKER PER THE PA/CLOCK RISER DIAGRAM. PROVIDE 3/4"C TO ACCESSIBLE CEILING.

HDMI DEVICE. CONNECT PER A 4 11/16" EXTRA DEEP BOX WITH A 2 GANG RING THROUGH 1 1/4"C TO CEILING.

FIRE ALARM SYMBOLS

FACP FIRE ALARM CONTROL PANEL.

RPS REMOTE POWER SUPPLY.

AMP EVAC SPEAKER AMPLIFIER.

FATC FIRE ALARM TERMINAL CABINET.

ANN REMOTE FIRE ALARM ANNUNCIATOR.

SMOKE DETECTOR

PULL STATION

HORN STROBE

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BEANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTIONS 1617A.1.18 THROUGH 1617A1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLE HAVING A FLEIXBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHIGH IS HEAVIER THAN 400 OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LINSITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A1.25 AND 1617A1.26.

THE METHOD OF SHOWING BRAGING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., SMACNA OR OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEM. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E).

MP☐ MD☐ PP☐ E☒ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) #

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE LICENSED BY THE STATE OF CALIFORNIA C-10 AND SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELLED FOR THE APPLICATION.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY THIS CONTRACT WORK.
3. PRIOR TO SUBMITTING A BID THE CONTRACTOR SHALL VISIT THE SITE, REVIEW THE EXISTING CONDITIONS AND ALLOW FOR LABOR, MATERIAL AND COORDINATION THAT IS NECESSARY TO PROVIDE A COMPLETE INSTALLATION OF EACH SYSTEM. THE CONTRACTOR SHALL OBTAIN AND BE FAMILIAR WITH ALL OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE ACCURATE "AS-BUILT" DRAWINGS. "AS-BUILT" DRAWINGS SHALL SHOW ACTUAL CHANGES TO ORIGINAL ELECTRICAL DRAWING, SHOW LOCATIONS OF PULL BOXES, CONDUIT RUNS AND WIRING CHANGES. THE CONTRACTOR SHALL PROVIDE ONE (1) HARDCOPY SET OF DOCUMENT DRAWINGS AND ONE (1) SET OF DOCUMENT DRAWINGS IN ELECTRONIC CAD FILE THAT REPRESENTS THE ACTUAL "AS-BUILTS". CAD FILES SHALL BE AUTOCAD 2000 FORMAT.
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
7. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED 'CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS' NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK. THE CONTRACTOR SHALL CONTACT 'UNDERGROUND SERVICES ALERT' FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF UNDERGROUND WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS. ALL EXTERIOR CONDUITS SHALL BE "RSG" UNLESS OTHERWISE NOTED ON DRAWINGS.
11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM, TWO (2) #12'S WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR "ROUGH" ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
12. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID CONFLICTS.
13. SEE ARCHITECTURAL DOCUMENTS FOR EXACT PLACEMENT OF LIGHTING FIXTURES AND DEVICES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF CEILING TYPES FROM ARCHITECTURAL DOCUMENTS AND PROVIDE AND INSTALL ALL REQUIRED FIXTURE MOUNTING HARDWARE. PROVIDE AND INSTALL U.L. LISTED FIRE STOP ENCLOSURES FOR ALL RECESSED FIXTURES IN FIRE RATED CEILINGS.
14. THE CONTRACTOR SHALL PROVIDE IN EVERY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.
15. POWER FEEDERS MAY NOT BE SHOWN ON THE DRAWINGS, REFER TO THE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER INFORMATION. ALL DRAWINGS ARE DIAGRAMMATIC INDICATING LOCATION OR POSITION OF EQUIPMENT. FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION OF ANY WORK.
16. MANUFACTURER'S RECOMMENDATIONS FOR CONDUCTOR SIZING, CIRCUIT BREAKER OR FUSE PROTECTION OF ELECTRICALLY OPERATED EQUIPMENT MAY DIFFER FROM THOSE INDICATED ON DRAWINGS. CONTRACTOR SHALL CONFIRM RATINGS PRIOR TO ORDERING EQUIPMENT. PROVIDE ELECTRICAL PROTECTION TO EQUIPMENT IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND PER NATIONAL ELECTRICAL CODE REQUIREMENTS.
17. CONTRACTOR SHALL REVIEW EQUIPMENT REQUIREMENTS OF OTHER TRADES AND PROVIDE POWER CIRCUITS AND CONNECTIONS TO ELECTRICALLY OPERATED EQUIPMENT.
18. EFFECTIVELY BOND ELECTRICAL CABINETS, ENCLOSURES AND CONDUIT RACEWAYS TO CODE APPROVED GROUND AS PART OF THE CONTINUOUS GROUNDING SYSTEM.
19. MEASURE THE 3-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 208/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 208/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS. TRANSFORMER TAP SETTING MAY REQUIRE CHANGING.
20. MEASURE THE 1-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 240/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 240/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS.
21. DO NOT SUBSTITUTE SPECIFIED MATERIAL OR EQUIPMENT WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER OR HIS REPRESENTATIVE.
22. IDENTIFY ALL ABOVE CEILING JUNCTION BOXES COVERS WITH PANEL AND CIRCUITS IN LEGIBLE PRINT USING BLACK INDELIBLE INK. ABOVE CEILING JUNCTION BOXES SHALL ALSO BE LABELED AT THE REAR INTERIOR BOX WITH AN INDELIBLE BLACK MARKER.
23. LABEL ALL WALL AND/OR WIREMOLD MOUNTED OUTLET DEVICES WITH PANEL CIRCUIT IDENTIFICATION WITH BOLD TYPE-PRINTED LABELING. BLACK LETTERING ON WHITE BACKGROUND PREFERRED.
24. DERATE CONDUCTORS IN RACEWAYS IN ACCORDANCE WITH NEC CODE REQUIREMENTS. PANEL FEEDERS TO WIREMOLDS CAN ENTER AT VARIOUS LOCATIONS TO LIMIT CONDUCTOR CIRCUITS PER WIREMOLD CAPACITIES.

DRAWING INDEX

ABBREVIATIONS

A	AMPERE
ABV	ABOVE
AF	AMP FRAME OR AMP FUSE
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CD	CANDELAS
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CTR	CENTER
(D)	DEMOLISH
DET	DETAIL
DIM	DIMENSION
DISTR	DISTRIBUTION
DWG	DRAWING
(E)	EXISTING
EM	EMERGENCY
EQPT	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
(F)	FUTURE
FIN	FINISH
FL	FLOOR
G , GND	GROUND
HGT	HEIGHT
HP	HORSEPOWER
IC	INTERCOM
IDF	INTERMEDIATE DISTRIBUTION FRAME
JB	JUNCTION BOX
KAIC	KILOAMPERE INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
MCM	THOUSAND CIRCULAR MILS
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MH	MANHOLE
MTD	MOUNTED
MTG	MOUNTING
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NUMBER/ NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
P	POLE CIRCUIT BREAKER
PA	PUBLIC ADDRESS
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
(R)	EXISTING TO BE RELOCATED
REQD	REQUIRED
REQT	REQUIREMENT(S)
RM	ROOM
RSC	RIGID STEEL CONDUIT
SHT	SHEET
SW	SWITCH
SWBD	SWITCHBOARD
TC	TERMINAL CABINET
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER

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PROJECT

LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER JAMES STERNARD FIX E16890 Exp. 06/30/23 ELECTRICAL STATE OF CALIFORNIA

American Consulting Engineers Electrical, Inc.
1990 The Alameda, Suite 200 408/236-2316
San Jose, CA 95126 Fax: 408/236-2314
JOB # DCI1030.00

STAMP

STATE

DSA FILE NUMBER 41-26

APPL # 01-119551

REVISIONS

No.	Description	Date
1	ADDENDUM 1	11/24/2021
3	ADDENDUM 3	12/22/2021

MILESTONES

DD

90% CD

DSA SUB 05/28/2021

BACKCHECK

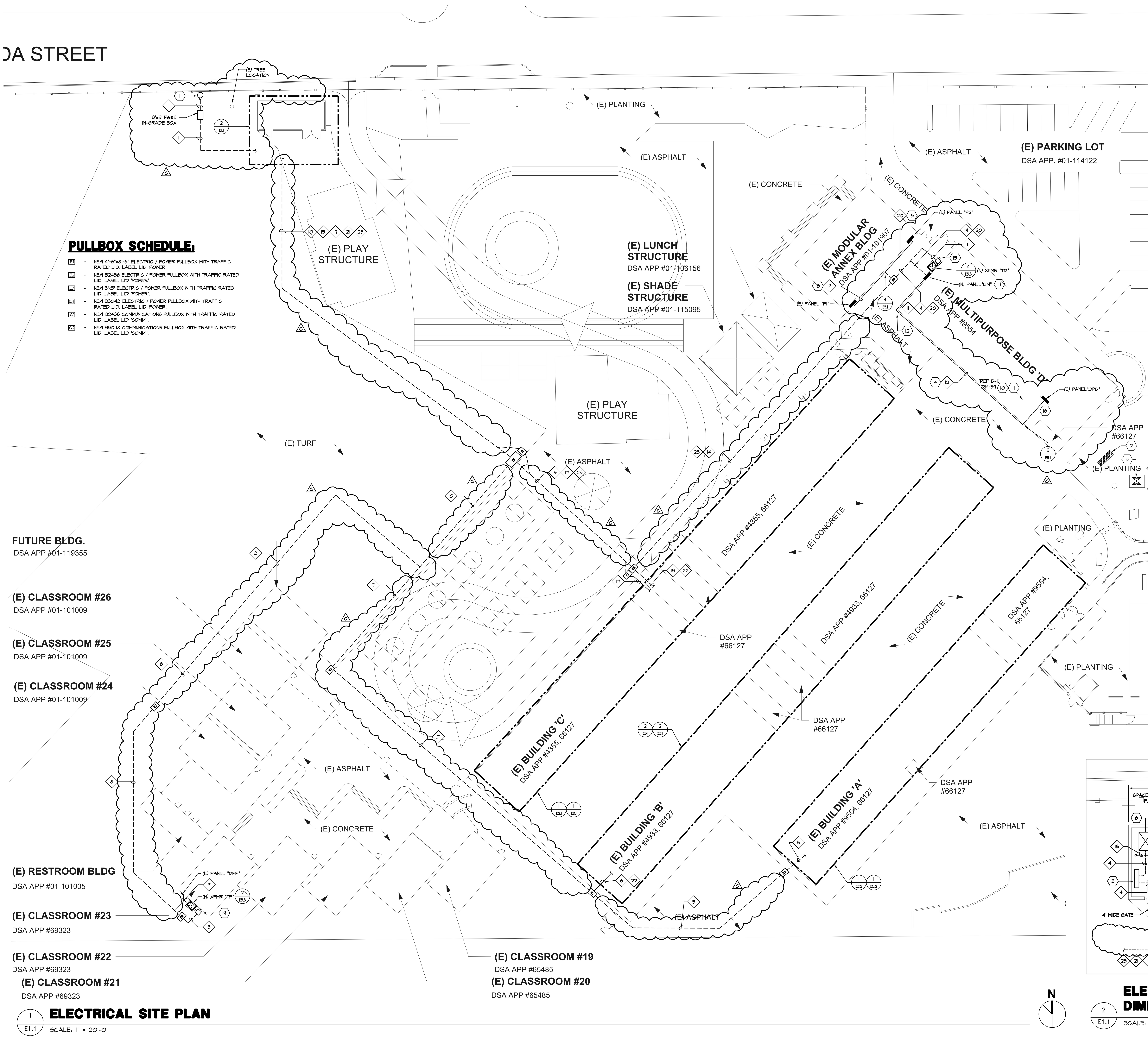
SHEET

ELECTRICAL COVER SHEET

DATE 12/22/2021

JOB # 2021005.03

SHEET # AD3-E0.1



PULLBOX SCHEDULE:

- E1 - NEW 4'-6"x8'-6" ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
- E2 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
- E3 - NEW 3'x5' ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
- E4 - NEW B3048 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.
- C1 - NEW B2436 COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'.
- C2 - NEW B3048 COMMUNICATIONS PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'COMM.'.

1 E1.1 **ELECTRICAL SITE PLAN**
SCALE: 1" = 20'-0"

GENERAL NOTES:

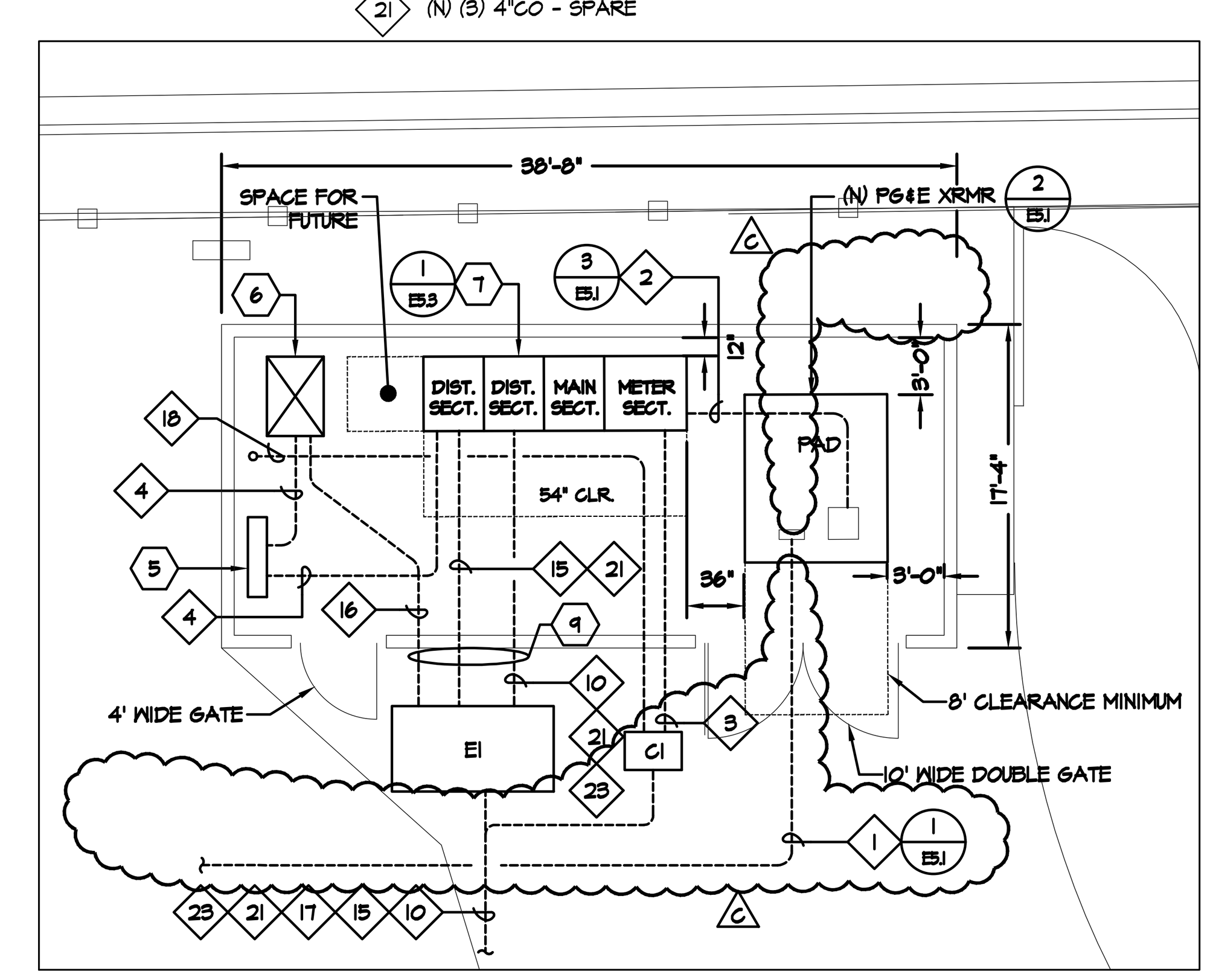
1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE UNDERGROUND CONDUITS AND CABLING.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS, WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. INSTALL PG&E PRIMARY TRENCH PER 1/ E5.1.
5. INSTALL PG&E SECONDARY TRENCH PER 3/ E5.1.
6. PG&E TRANSFORMER PAD SHALL BE PER 2/ E5.1.
7. ALL ON SITE TRENCH SHALL BE INSTALLED PER 3/ E5.4.
8. SEE DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
9. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER CABLE AND CONDUIT REQUIREMENTS.
10. THE CONTRACTOR SHALL MANDREL THROUGH THE ENTIRE PG&E CONDUIT SYSTEM. COORDINATE WITH PG&E FOR ADDITIONAL REQUIREMENTS AND PROCEDURES.

SHEET NOTES:

1. EXISTING PG&E UTILITY POLE WITH NEW PG&E PRIMARY RISER.
2. EXISTING 1600A MAIN SWITCHBOARD TO BE DEMOLISHED. DEMOLISH EXISTING SWITCHBOARD PAD AND PATCH SURFACE TO MATCH EXISTING.
3. EXISTING PG&E TRANSFORMER TO BE REMOVED BY PG&E. DEMOLISH EXISTING TRANSFORMER PAD AND PATCH SURFACE TO MATCH EXISTING.
4. CONDUITS ROUTED EXPOSED ON EXTERIOR. PROVIDE PULL CAN AS REQUIRED TO ROUTE.
5. FUTURE PV DISCONNECT SWITCH.
6. FUTURE PV DISTRIBUTION PANEL.
7. NEW 2000A MAIN SWITCHBOARD.
8. NEW IN-GRADE ELECTRICAL PULL BOX. LABEL LID "ELECTRICAL".
9. REFER TO DETAIL 5/E5.4, FOR CONDUIT TRENCH BELOW FOUNDATION.
10. PROVIDE NEMA-3R, 120V MOTOR RATED SWITCH FOR ROOFTOP EXHAUST FAN.
11. ROUTE 120V CIRCUIT TO THE PANEL AND CIRCUIT INDICATED. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
12. PROVIDE LB CONDUITS AND TRANSITION CONDUITS AROUND CORNER.
13. NEW SIGNAL PULL BOX LABEL LID "SIGNAL".
14. EXISTING SIGNAL PULL BOX STUB NEW CONDUIT INTO EXISTING BOX AS REQUIRED.
15. NEW 400A-3P, 480V UNFUSED DISCONNECT SWITCH.
16. EXISTING PANEL "DPD" IS LOCATED IN THE EXISTING STORAGE ROOM IN BUILDING "D".
17. NEW PANEL "DM". PANEL TO BE SURFACE MOUNTED ON THE EXTERIOR OF BUILDING.
18. CONDUIT ROUTED EXPOSED ON THE EXTERIOR OF THE MODULAR ANNEX BUILDING.
19. NEW 200A-3P, 480V UNFUSED DISCONNECT SWITCH.

CONDUIT SCHEDULE:

1. (N) (1) 4"C - PG&E PRIMARY.
2. (N) (7) 5"C - PG&E SECONDARY.
3. (N) (1) 1"C - PG&E COMMUNICATIONS.
4. (N) (2) 3"C - FUTURE PV DISTRIBUTION PANEL.
5. (N) 2.5"C - XFMR "TA".
(N) (1) 2.5"C - FUTURE PV.
6. (N) (2) 2.5"C - XFMR "TB".
7. (N) (2) 2.5"C - XFMR "TB".
(N) 2.5"C - XFMR "TA".
(N) (2) 2.5"C - FUTURE PV.
8. (N) (2) 2.5"C - XFMR "TP".
9. (N) (1) 4"C - PANEL "DPP".
10. (N) 2.5"C - XFMR "TA".
(N) (2) 2.5"C - XFMR "TB".
(N) (2) 2.5"C - XFMR "TP".
(N) (2) 2.5"C - FUTURE PV.
11. (N) (2) 2.5"C - XFMR "TD".
12. (N) (2) 2"C - (E) PANEL "DPD".
13. (N) (2) 2.5"C - XFMR "TC".
14. (N) (2) 2.5"C - XFMR "TD".
(N) (2) 2.5"C - FUTURE PV.
15. (N) (2) 2.5"C - XFMR "TD".
(N) (2) 2.5"C - XFMR "TC".
(N) (3) 2.5"C - FUTURE PV.
16. (N) (7) 2.5"C - FUTURE PV.
17. (N) (1) 1"C - PG&E COMMUNICATIONS.
(N) 2"C - FUTURE PV COMMUNICATIONS.
18. (N) 2"C - FUTURE PV COMMUNICATIONS.
19. (N) (1) 1½"C - PANEL "P1"
20. (N) (1) 1½"C - PANEL "P2"
21. (N) (3) 4"CO - SPARE
22. (N) (1) 2.5"C - FUTURE PV
23. (N) (1) 2"C - FUTURE EM



2 E1.1 **ELECTRICAL SWITCHGEAR DIMENSIONS**
SCALE: 1/8"=1'-0"

N

aedis architects
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PROJECT
LAUREL ELEMENTARY SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER SAMMY S. FERNANDEZ E16890 Exp. 06/30/23 ELECTRICAL STATE OF CALIFORNIA

American Consulting Engineers Electrical, Inc.
1590 The Alameda, Suite 200
San Jose, CA 95126
JOB # EK21030.00
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STATE
DSA FILE NUMBER 41-26
APPL # 01-119551

REVISIONS

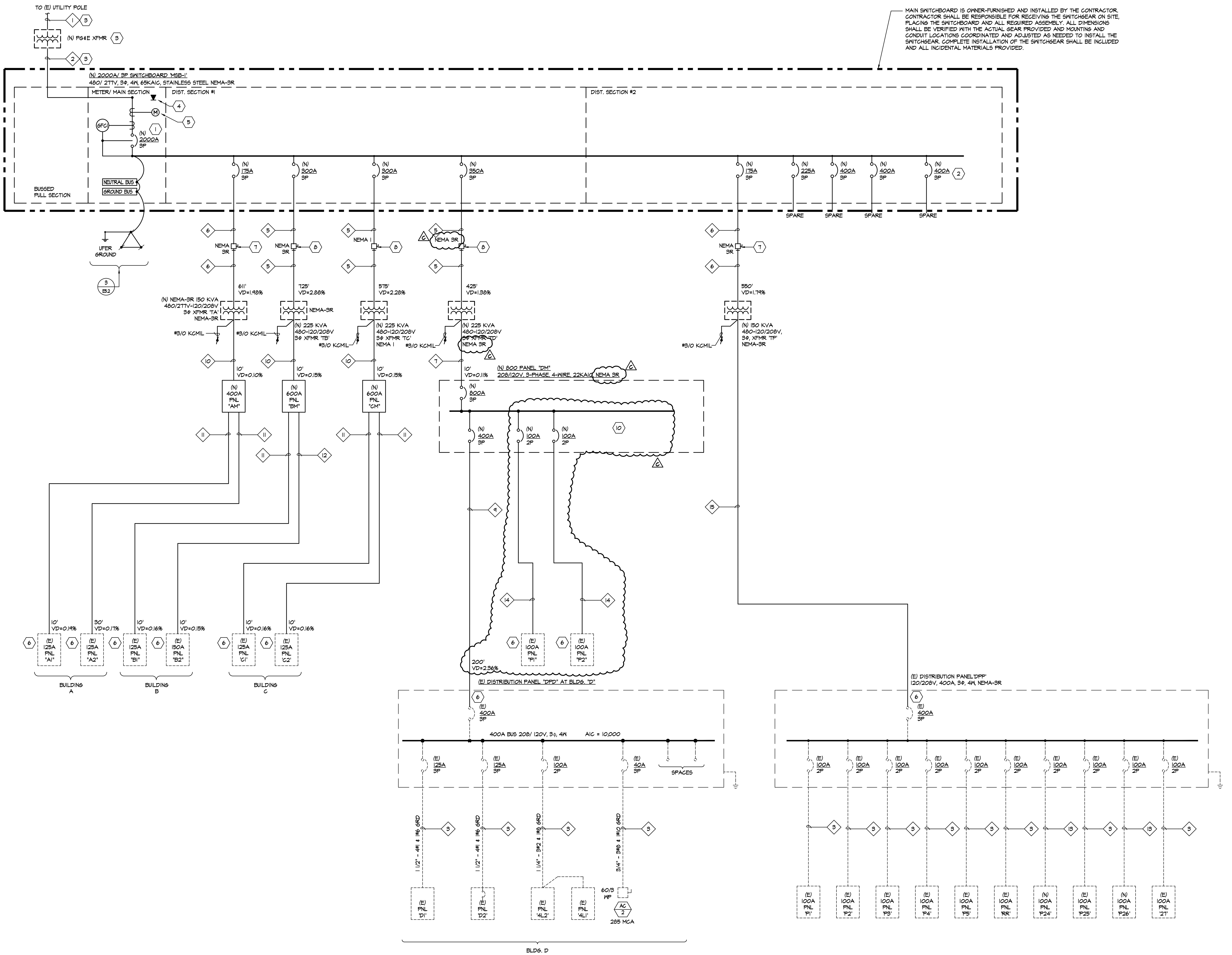
No.	Description	Date
A	ADDENDUM 1	11/24/2021
C	ADDENDUM 3	12/22/2021

MILESTONES
DD
90% CD
DSA SUB 05/28/2021
BACKCHECK

SHEET
ELECTRICAL SITE PLAN

DATE 12/22/2021
JOB # 2021005.03
SHEET # AD3-E1.1

MAIN SWITCHBOARD IS OWNER-FURNISHED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING THE SWITCHGEAR ON SITE, PLACING THE SWITCHBOARD AND ALL REQUIRED ASSEMBLY. ALL DIMENSIONS SHALL BE VERIFIED WITH THE ACTUAL GEAR PROVIDED AND MOUNTING AND CONDUIT LOCATIONS COORDINATED AND ADJUSTED AS NEEDED TO INSTALL THE SWITCHGEAR. COMPLETE INSTALLATION OF THE SWITCHGEAR SHALL BE INCLUDED AND ALL INCIDENTAL MATERIALS PROVIDED.



1 E4.2 NEW SINGLE LINE DIAGRAM

NOT TO SCALE

GENERAL NOTES:

1. SEE DETAIL 2/E3.2 FOR GROUNDING AT SWITCHBOARD ENCLOSURE REQUIREMENTS.
2. SEE DETAIL 3/E3.2 FOR MAIN SWITCHBOARD GROUNDING REQUIREMENTS.
3. SEE DETAIL 5/E3.2 FOR TRANSFORMER GROUNDING REQUIREMENTS.
4. ALL TRANSFORMERS SHALL BE CLASS 155 INSULATION - COMPLETELY ENCLOSED EXCEPT FOR VENTILATION.
5. SEE ENLARGED SWITCHGEAR PLAN FOR ADDITIONAL REQUIREMENTS.
6. THE CONTRACTOR SHALL OBTAIN THE PG&E SUBSTRUCTURE PACKAGE PRIOR TO ANY RELATED WORK. THE CONTRACTOR SHALL COORDINATE ALL PG&E INSTALLATION REQUIREMENTS WITH PG&E GREENBOOK AND PG&E SUBSTRUCTURE PACKAGE.
7. SEE THE ENLARGED SITE DEMO SITE PLAN AND DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
8. PROVIDE THE REQUIRED ARC FLASH HAZARD WARNING LABEL TO MEET THE REQUIREMENTS OF CEC 110.16. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
9. PROVIDE MAINTENANCE SWITCH FOR ARC ENERGY REDUCTION TO MEET THE REQUIREMENTS OF CEC 240.87.

SHEET NOTES:

1 MAIN BREAKER SHALL BE GFCI PER NEC.

2 PV BREAKER TO BE INSTALLED AT THE FURTHEST POINT ON THE BUS BAR.

3 INSTALL PER PG&E AND PG&E GREENBOOK REQUIREMENTS.

4 PROVIDE TWO DEDICATED TELEPHONE LINES FROM THE MAIN SWITCHBOARD TO THE TELEPHONE MPOE PER PG&E REQUIREMENTS. MOUNT TELEPHONE OUTLETS INSIDE METER SECTION FOR THE MAIN SWITCHBOARD BEHIND THE SWITCHBOARDS DOORS. MOUNT IN NEMA-3R JUNCTION BOX.

5 PROVIDE PG&E METER PER PG&E REQUIREMENTS.

6 COORDINATE THE DISCONNECT AND REMOVAL OF THE EXISTING FEEDERS WITH THE PROJECT SCHEDULE AFTER REMOVAL OF EXISTING FEEDERS AND CONDUITS. CONTRACTOR SHALL RECONNECT PANEL WITH NEW FEEDERS AND CONDUIT AS SHOWN.

7 PROVIDE 200A-3P DISCONNECT SWITCH FOR TRANSFORMER.

8 PROVIDE 400A-3P DISCONNECT SWITCH FOR TRANSFORMER.

9 PROVIDE SPACE FOR FUTURE CIRCUIT BREAKERS.

10 PROVIDE SPACE FOR MINIMUM (5) 3 POLE CIRCUIT BREAKERS.

CABLE SCHEDULE:

1 (N) (1) 4"C - PG&E PRIMARY.

2 (N) (7) 5"C - PG&E SECONDARY.

3 (E) FEEDER TO REMAIN.

4 (N) 4"C - (N) 4#600 + (1) #1/0 GND.

5 (N) 2 SETS - (N) 2.5"C - (N) 3#250 + 1#2 GND.

6 (N) 2 ½"C - (N) 3#300 + (1) #4 GND.

7 (N) (2) SETS - (N) 4"C - (N) 4#600 + 1#3/0 GND.

8 (N) 2"C - (N) 3#1 + 1#6 GND.

9 (N) 2 SETS - (N) 2"C - (N) 4#3/0 + 1#3 GND. (C)

10 (N) 2 SETS - (N) 3"C - (N) 4#350 + 1#2/0 GND.

11 (N) 1 ½"C - (N) 4#1 + 1#6 GND.

12 (N) 2"C - (N) 4#1/0 + 1#6 GND.

13 (N) 2"C - (N) 4#3/0 + 1#6 GND.

14 (N) 1 1/2"C - (N) 3#1 + 1#6 GND.

15 (N) 4"C - (N) 4#600 + 1#3/0 GND.

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NEW SINGLE LINE DIAGRAM

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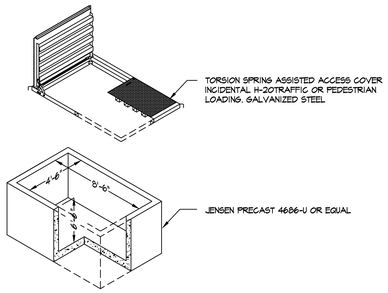
SHEET # AD3-E4.2

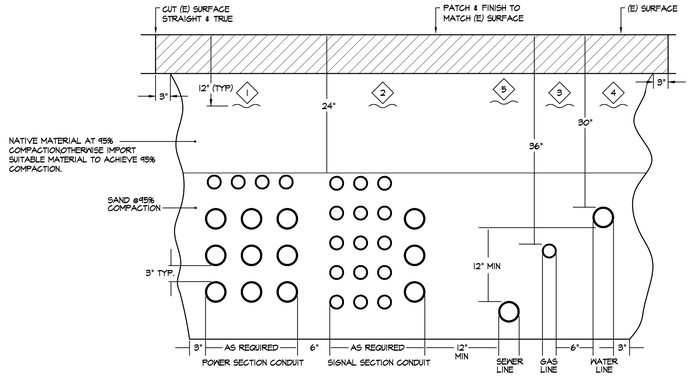


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.

1 4'6" x 8'6" ELECTRICAL VAULT

E5.4 NOT TO SCALE



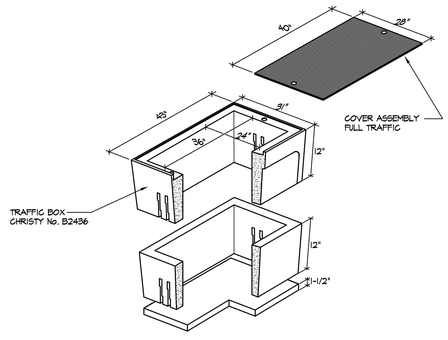
1. WARNING TAPE MARKED "POWER"
2. WARNING TAPE MARKED "SIGNAL"
3. WARNING TAPE MARKED "GAS"
4. WARNING TAPE MARKED "WATER"
5. WARNING TAPE MARKED "SEWER"

NOTES:

1. UNDERGROUND CONDUITS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
2. MINIMUM SPACING BETWEEN CONDUITS IS 3".
3. SEE SITE/FLOOR PLANS AND SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
4. ALL UNDERGROUND SLEEVES TO BE IN CONFORMANCE WITH DETAIL 1/E5.4
5. REFER TO ARCHITECTURAL DRAWING FOR ADDITIONAL REQUIREMENT.

2 TYPICAL JOINT TRENCH & DUCT BANK DETAIL

E5.4 NOT TO SCALE



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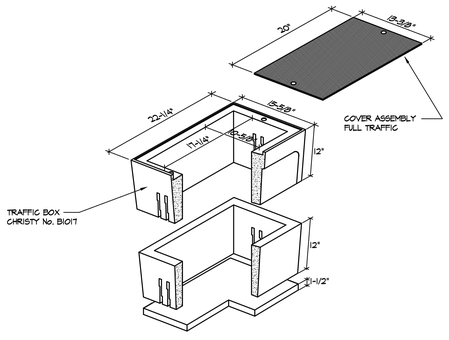
3 B2436 ELECTRICAL VAULT

E5.4 NOT TO SCALE (FULL TRAFFIC COVER)



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4 B1017 ELECTRICAL VAULT

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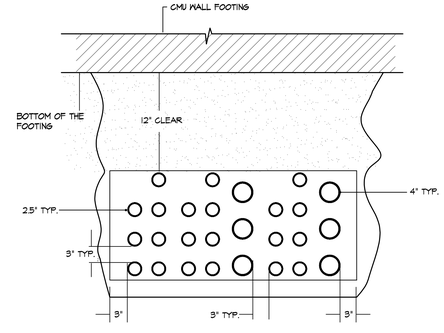

5 TRENCH BELOW THE WALL FOOTING AT SWITCHGEAR ELECTRICAL ENCLOSURE

E5.4 SCALE: NOT TO SCALE

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