TULSA PUBLIC SCHOOLS

EQUITY CHARACTER EXCELLENCE TEAM JOY

July 26, 2024

Addendum #002

Project: Tulsa Public Schools – Transition Academy at Grimes
Interior Renovation
Tulsa, Oklahoma

Owner: Tulsa Public Schools
From: Tulsa Public Schools
To: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated 07/23/2024 as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification. This Addendum consists of the below items including attachments.

Bid Packages

1. See attached bid documents.
2. The Bid Opening date has been rescheduled to **August 15, 2024, at 2:00pm**.
3. **Cancelled**: The Pre-Bid Walk scheduled for August 1, 2024, at 10:00am at Grimes Elementary located at 3212 E 56th Street, Tulsa, Oklahoma, 74105.
4. Site walks can be coordinated with Crossland.

Architectural

1. See attached drawings and specifications.

Mechanical / Plumbing

1. See attached drawings and specifications.

End of Addendum #002

PROJECT MANUAL

DIVISION 00 - INTRODUCTORY INFORMATION AND BIDDING DOCUMENTS

DIVISION 01 – 16 SPECIFICATIONS

TPS – Transition Academy at Grimes Elementary

TULSA PUBLIC SCHOOLS

Bid Package #1

Interior Renovation

7/25/22024

CROSSLAND CONSTRUCTION COMPANY, INC.

REQUEST FOR BIDS

TPS - Transition Academy at Grimes Academy

BID PACKAGE #1

Crossland Construction Company, hereinafter called the (CM) Construction Manager, will receive bids in care of Tulsa Public Schools at the Education Service Center at 2:00 PM on August 15, 2024, for Bid Package #1.

Bid Package #1 Includes the Following Trade Contracts.
Demolition, Door Assemblies Supply & Install, Aluminum Storefront, Finish Flooring, Gypsum Board Assemblies, Painting, Specialty Items, Window Treatments, Plumbing and Electrical.

The **bid shall be enclosed in a sealed envelope** plainly marked and addressed as follows:
The **name and address of the bidder** shall appear in the upper left-hand corner of the envelope.
The **Trade Contract Package number and description** you are bidding shall be written on the cover of the envelope.
The lower left-hand corner of the envelope shall be marked: **BID FOR: BID PACKAGE #1**
The envelope shall be addressed in the lower right-hand corner to:

Crossland Construction Company
Attention: Eric Lopp
Tulsa Public Schools
Education Service Center
3027 S New Haven Ave
Tulsa, OK. 74114

All sealed bids will be publicly opened, recorded, and studied for recommendations to the Owner. Bids received after the official stated time or more than ninety-six hours, excluding Saturdays, Sundays, and Holidays, before the official stated time set for the opening of bids, will not be accepted. No bids may be submitted, changed, or withdrawn after the time of the opening of the bids. Pursuant to Title 61 "Oklahoma Public Competitive Bidding Act".

Crossland Construction Co. & the owner reserves the right to reject any or all bids or to waive any formalities or irregularities in any bid, and to accept the bid or bids which seem most advantageous to the Owner.

Jobsite visits can be arranged through Shelley Almeida: salmeida@crossland.com

The Plans & Specifications are available at the following bid rooms: Dodge, Southwest, Bid News, iSOFT & ARC Document Solutions. They are also available via the following link:

https://crosslandconstruction.box.com/s/e8qavjh1ncxnx2x5a27u7qs38prajb5s

Attention to the following bid requirements:

- Complete, sign and include Attachments A, B, C, D, & E found at the end of this bid package document along with your bid form with your sealed bid.
- Cashier's check, certified check, or Surety Bid Bond for 5% of Base Bid required for all bids over $50,000.
- Performance, payment, and maintenance bonds will be required by the lowest responsible bidder for any bid over $50,000. These costs are to be included in your bid amount.

All questions shall be furnished in writing via email to:
Shelley Almeida salmeida@crossland.com and Eric Lopp elopp@crossland.com or at 918-712-1441.

Trade Package Summaries

TPS – Transition Academy
Bid Package #1

BID DATE: August 15, 2024, at 2:00 PM

Bid Location:
Tulsa Public Schools
Education Service Center
3027 S New Haven Ave
Tulsa, OK. 74114

The following Contract (Bid Group) Work Summaries describe the intended scopes of work to be included in each Bid Package quoted under the Crossland Construction Co., Inc. Construction Management Contract. Bids shall include all the requirements of the plans with specifications unless specifically indicated otherwise in this summary. This includes all layout and daily clean up involved with your work. It is the bidder's responsibility to review bidding requirements and forms to insure a complete, safe, and coordinated execution of the Work Package being quoted. Additionally, bidders shall include in their pricing applicable portions of related specification sections normally associated with the work to be performed whether specifically indicated by this Contract Work Summary or not. Should any bidder be unclear as to the scope of work required, he is instructed to contact the Construction Manager for resolution prior to bidding. In the absence of written instruction to the contrary, in matters of specification and/or scope of interpretation, bidders shall include the more costly and complete of the possible interpretations. Awarding of the Trade Contracts will be based on best qualified bid. A copy of the contract agreement to be issued to the lowest qualified trade contractor is available for review upon request.

The trade contractor who is awarded this work shall be responsible for attaining and paying for his own plans & specifications and shall include those costs in the bid amount.

Substitution requests must be submitted for review and consideration at least 10 days prior to the bid date. Substitution requests submitted after this time will not be accepted or considered.

How to submit and what to include in your sealed bid:

1. The Sealed Bid Envelope to be addressed and filled out as outlined on page 1.
2. Write in your bid amounts on the Bid Form
3. Include in your sealed envelope a bid bond, cashier's check, or certified check for 5% of your bid if over $50,000.
4. Include costs for payment and performance bonds in your bid amount if your total bids exceed $50,000.
5. Sign and complete all information and include attachments A, B, C, D, & E in your sealed envelope. Make sure you identify receipt of all addenda on attachment A.
6. Items #1 - #5 above to be included in your sealed bid and hand delivered to the location identified on page 1 before 2:00 PM on August 15, 2024.

TRADE CONTRACT
2A Demolition

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Remove all TV's, Monitors, Projector Screens, Clocks, Speakers, and all associated components from walls and ceilings.
2) Remove all abandoned conduit from walls and ceilings.
3) Remove all window blinds, roller shades, and components.
4) Remove all markerboards, chalkboards, tackboards, and chair rails.
5) Remove all floor covering, wall base & floor adhesives.
6) Remove tack/map rail from corridor walls.
7) Remove all existing floor vents throughout (capping by others).
8) Remove all existing surface mounted devices in classrooms.
9) Remove existing millwork & all associate components.
10) Remove lockers & concrete bases.
11) Remove select walls.
12) Include all saw-cuts & removal of walls for new/modified openings.
13) Trade contractor to include glue removal from all walls where markerboards, tackboards, and chalkboards are shown to be removed.
14) Remove millwork and sinks installed in millwork in rooms.
15) Remove sinks and toilets.
16) Remove drinking fountains.
17) Remove all remaining uni-vents.
18) Remove select doors and frames as noted.
19) Remove stage and stairs.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Include selective or entire demolition of the existing buildings and structures, inclusive of all contents shown to be demolished, including but not limited to; the structure as noted, foundations, masonry, all interior framing, sheetrock, ceilings, fire sprinklers and pipe, ductwork and HVAC devices, electrical, fixtures, conduit, glazing and storefront, doors, frames and hardware, toilet partitions, accessories, flooring, millwork and casework, kitchen equipment in accordance with the contract documents.

2) Trade Contractor is responsible for the disconnection of all Mechanical, Electrical, and Plumbing included within the demolition scope as a requirement to proceed with demolition. Contractor is to take care in avoiding disruption of service to existing facilities during normal business hours. Trade Contractor to coordinate with MEP subs to avoid disruption of respective systems.
3) Include demolition of existing structural steel and concrete slabs if shown on the contract document. Include steel joists, girts, beams, columns, decking, bracing, etc. as indicated. Structural members shown to remain in place shall be shored and supported as needed.
4) Remove any existing slabs including sawcut, paving (asphalt or concrete), and foundations. Infill existing foundation voids with dirt from the site to leave the areas smooth and free of debris. Trade contractor to provide a clean, straight line for all saw cutting.
5) Asbestos abatement, if necessary and, if an asbestos survey is available, will be the responsibility of this Trade Contract.
6) Trade Contractor is to properly dispose of demolished items per contract documents and local municipality requirements. Include all fees and/or permits required for proper waste removal. Provide plan of disposal, including dump locations.
7) Include door openings required to be cut into existing walls. Doors and frames by others. Support openings, as necessary. Trade contractor to provide clean, straight lines for all wall demo.
8) Trade Contractor shall provide, install, and remove all shoring and temporary supports if required for demolition. Include all associated with the delegated engineered design for the shoring and signed and sealed shop drawings.
9) This Trade Contract will be responsible for maintaining a weather-proof exterior for openings created by the demolition of this contract. Care is to be taken to prevent water and humidity damage to materials that are to remain.
10) Trade Contractor shall coordinate with Construction Manager and, other trades on all items to remain are properly protected, capped, temporarily supported, and/or removed prior to demolition.
11) All demolition and construction activities shall be coordinated with the Construction Manager and Owner. Contractor shall take necessary precautions to prevent damage to Owner’s occupied areas adjacent to areas of construction or occupied areas where various system connections or extensions are required.
12) Provide protection for all existing materials or items shown to remain, to salvage, to be re-used, or relocated during demolition. Disconnect or remove all items, load, and relocate to a location on site as provided by the Construction Manager. Repair of damaged items to remain will be the responsibility of this Trade Contract.
13) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
14) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
15) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
16) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor’s scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.

17) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
18) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
19) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
20) Coordination and phasing of work as required by Crossland Construction Co. Multiple mobilizations to be included as required.
21) Include all ADA requirements applicable to system(s) and project.
22) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
23) Include travel and mobilizations for field measuring.
24) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
25) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
26) Trade Contractor shall include a final clean of all materials installed by this contract.
27) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
28) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
29) Trade Contractor shall include any dewatering as necessary to perform scope of work.
30) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
31) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
32) Trade Contractor to include coordination of testing. Testing to be paid for by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
33) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax, ceiling demo, door removal and abatement.

TRADE CONTRACT
8A Door Assemblies – Supply & Install

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Furnish and install all doors & hardware.
2) All doors are to have accessible hardware.
3) Include new thresholds.
4) Include patch/Bondo of existing frames after installation of new doors.
5) Include prep and modification of existing frames to accommodate new doors.
6) This trade contractor to include demo of existing doors.
7) Undercut doors as required and/or as shown on plans.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Furnish and install all doors, frames, & hardware associated with the project aside from Aluminum doors & frames.
2) Furnish and install all doors including, but not limited to wood doors, FRP doors, hollow metal doors, steel doors, storm doors, & composite doors.
3) Furnish and install all frames including, but not limited to hollow metal, hollow metal windows, steel, storm, rated, & hollow metal cased openings.
4) Furnish and install all hardware as listed in the hardware schedule. Include all hinges, pivots, lock, and latch sets, push/pulls, exit devices, closers, overhead holders/stops, wall and floor stops/holders, flush bolts, gasketing, thresholds, protection plates, cylinders and keys, power supplies, electrified hardware, anchors, astragals, glazing stops, door silencers, and weather sealants.
5) Furnish and install all doors with construction cores to allow the building to be lockable during construction. Include final keying for all locks and cylinders to existing or new system.
6) Include pre-finishing of doors as specified.
7) This Trade Contractor to provide all electric devices and power supplies. Installation & wiring by others.
8) Provide all hardware for aluminum doors to be installed by the storefront & glazing Trade Contractor.
9) All materials to be shipped FOB jobsite. Materials to be unloaded and placed in a location as directed by the CM with dunnage included.
10) Creation of the submittal package shall include coordination between the architectural plan pages and the applicable schedules. Discrepancies between the two shall be provided to the CM in RFI format. Failure to do so will result in replacement of the material in question at no expense to the owner or CM.
11) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.

12) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
13) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
14) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by the project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
15) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
16) Coordination and phasing of work as required by Crossland Construction Co.
17) Include all ADA requirements applicable to system(s) and project.
18) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
19) Include travel and mobilizations for field measuring.
20) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
21) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
22) Trade Contractor shall include a final clean of all materials installed by this contract.
23) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
24) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
25) Trade Contractor shall include any dewatering as necessary to perform scope of work.
26) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
27) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
28) Trade Contractor to include coordination of testing. Testing to be paid by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
29) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax

TRADE CONTRACT

8C Aluminum Storefront

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Furnish and install aluminum storefront systems as noted on the door schedule.
2) Trade Contractor to include glass as noted at wood and FRP doors.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Provide all labor, material, and equipment to install all aluminum storefronts, windows, doors, glass & glazing, weather-striping, caulking, and flashings required for a complete, operational, and weather tight system.
2) Include all aluminum doors, hardware, silencers, glass, glass stops for aluminum doors, compression insulation, glass in wood doors and hollow metal frames.
3) Install all hardware for aluminum doors. Hardware is to be supplied by door trade contractor.
4) Provide construction core for use during construction. Final cores will be provided by the door hardware trade contract.
5) Include all colored glass.
6) Provide and install all automatic handicap door operators include low voltage wiring in this trade contract
7) Included all bathroom mirrors except the framed mirrors.
8) Provide and Install Aluminum Pre-finished sunshades to match storefront material.
9) Furnish and install all glass in wood doors, hollow metal doors, hollow metal frames.
10) Include all caulking for aluminum frames both inside and out.
11) Include all one-way mirrors.
12) All equipment, freighting, & permits required to deliver material to jobsite.
13) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
14) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
15) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
16) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor’s scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
17) All work shall be accomplished using accepted methods and procedures of the highest recognized

standards and shall be done in a neat and skillful manner, in accordance with applicable standards and codes and the requirements of the prime contract.

18) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
19) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
20) Coordination and phasing of work as required by Crossland Construction Co.
21) Include all ADA requirements applicable to system(s) and project.
22) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible to correct any material damaged or muddied.
23) Include travel and mobilizations for field measuring.
24) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
25) Trade Contractor to include daily cleanup of work. Temporary labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
26) Trade Contractor shall include a final clean of all materials installed by this contract.
27) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
28) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
29) Trade Contractor shall include any dewatering as necessary to perform scope of work.
30) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
31) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
32) Trade Contractor to include coordination of testing. Testing to be paid by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
33) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax

TRADE CONTRACT
9A Gypsum Assembly & Ceiling Systems

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Trade contract to include all floor plan keynotes and plan notes related to this trade contract scope of work of gypsum board walls (drywall), metal stud framing and ceilings.
2) Include skim coating of walls as noted, and at all locations where wall protection was removed.
3) Trade contract to coordinate with demo plans and include repair of adjacent walls as necessary where demo occurs.
4) All CMU walls are to be furred out per plans.
5) Install new gypsum ceilings in all multiple stall restrooms.
6) Supply and install 6' wall protection at all exposed gyp board corners. Include stainless-steel corner guards in the restrooms.
7) Include all backing and blocking for a complete project. This includes solid plywood sheets for all upper cabinets and interactive boards.
8) Patch and repair all holes in walls larger than a quarter.
9) Infill/repair exterior wall at all locations where HVAC units have been removed.
10) Include all water-resistant gyp/tile backer boards as shown.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Trade Contractor to provide all labor, material, and equipment to install all interior stud wall framing, exterior stud wall framing, structural studs, metal channel, ceiling framing, hat channel framing, batt insulation, gypsum board, high impact, moisture resistant, cement board gypsum board, exterior sheathing, air barriers, tape & bed, acoustical sealants, fasteners, suspension systems, gypsum board ceilings and acoustical ceilings as required for a complete and finished system.
2) Trade Contractor to include all layout for metal stud framing and bracing of metal stud walls as required.
3) Coordinate with other trades all openings from ductwork, piping, and cable trays. If not coordinated this Trade Contractor is responsible to modify framing accordingly. Cut gypsum board tightly around all penetrations unless trade contractors cut opening after walls have gypsum board installed.
4) Trade contractor to provide and install all fabric wrapped acoustical panels when applicable.
5) Provide and install any expansion joints in framing system. Include all expansion joint covers and assemblies to be installed in gypsum board walls and gypsum board or acoustical ceilings.

6) Include all drywall control joints and reveals.
7) Include all foamed in place insulation at all exterior wall crevices, between walls and metal decking and junctions between walls. Include top of CMU filler.
8) Trade Contractor to provide and install all insulation and sound insulation as required.
9) Trade contractor to include and install all fire treated wood blocking in correct locations for architectural woodwork, future TV's, mirrors, toilet partitions, marker boards, tack boards, smart boards, toilet accessories, exterior building signage, windows, chair rail, lockers, storage bins, fire extinguisher cabinets, water fountains, and overhead coiling doors.
10) Trade contract to provide and install all gypsum soffits and furr downs.
11) Provide all slide clips, studs, tracks, top track, metal trims, runners, channels, expansion tracks, fasteners, and welding shim studs as required to achieve straight, plumb walls.
12) Trade Contractor shall check and review all work in which this Trade Contractor's work attaches.
13) Treat all joints, nail heads, and other depressions in the surface of the wallboard, in accordance with the recommended manner, with a taped joint system by the gypsum wallboard manufacturer and as per the contract documents.
14) Furnish and install all wood blocking for roof systems and under parapet cap flashings, behind metal fascia's, plywood at parapets and, any other wood associated with the metal or roofing system.
15) Install all hollow metal frames in framed walls. (Frames to be provided by others).
16) Furnish and install access panels as necessary for, and, to adjust/offset framing as required for structure, mechanical, plumbing, and electrical systems as approved by Architect and Construction Manager.
17) Furnish and install plywood in any mechanical/data/electrical/IT rooms as shown.
18) Furnish and install fire resistant plywood on the back of the parapet walls.
19) Provide and install exterior gypsum sheathing under soffit panels and overhangs.
20) Fire rated and nonrated caulking at top and bottom of wall types as shown.
21) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
22) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
23) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
24) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
25) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
26) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by the project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
27) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.

28) Coordination and phasing of work as required by Crossland Construction Co.
29) Include all ADA requirements applicable to system(s) and project.
30) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
31) Include travel and mobilizations for field measuring.
32) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
33) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
34) Trade Contractor shall include a final clean of all materials installed by this contract.
35) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
36) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
37) Trade Contractor shall include any dewatering as necessary to perform scope of work.
38) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
39) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
40) Trade Contractor to include coordination of testing. Testing to be paid for by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
41) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax and door/frame supply

TRADE CONTRACT
9B Flooring & Wall Tile

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Skim coat & level all floors prior to new flooring installation. No change orders will be issued for added floor leveling and/or preparation.
2) Install duct board where existing floor grilles are removed. Infill opening with concrete; concrete to be flush with floor.
3) Patch and repair floor and wall base as necessary where demo occurred.
4) Infill recesses at old walk off mats. Infill to be level with adjacent floor, prepare for new flooring.
5) Include all flooring, and wall tile as shown on the finish schedule.
6) Trade Contractor to include all transition strips.
7) Include new rubber base throughout remodeled area.
8) Include walk off carpets.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

3) Trade Contractor to furnish and install all VCT, resilient flooring, rubber base, ceramic wall tile, ceramic floor tile, carpet and all miscellaneous work required for a complete and finished installation.
4) Trade Contractor shall provide all grout, base, and trim as required for a complete and finished ceramic tile system. If applicable, Trade Contractor shall provide all rock and glass tile, base, and trim as required for complete and finished ceramic tile systems.
5) Provide patterning in all applications as shown/indicated in contract documents.
6) Trade Contractor shall provide all resilient sheet flooring, resilient floor coverings, carpet floor covering, rubber base/tile, grates, and miscellaneous work required for a complete and finished system.
7) Furnish and install all carpet, sub floor filler, adhesive, edge strips, Schluter trim, transition strips, seaming cement, and miscellaneous as required for complete and finished systems.
8) Include all floor preparation; including floor filler, floor leveling compound, adhesive primer, trim, grout, sealants, solid surfacing thresholds, installation adhesives, trim, and miscellaneous materials required for complete and finished systems.
9) Include all epoxy grout, epoxy mortar bed, mortar bed, mortar bed bond coat, and miscellaneous for complete and finished systems.
10) Furnish and install all VCT, static dissipative tile, sub floor filler, adhesive, edge strips, seaming cement, and miscellaneous as required for complete and finished systems.
11) This trade contract to install rubber tread and risers at the stage stairs as indicated in the plans.
12) Provide all certified test reports, certifications, samples, shop drawings, and miscellaneous as required by

contract documents.

13) Include all rubber bases on casework, cabinets, and equipment where indicated.
14) This Trade Contractor shall pay for an independent firm to perform inspection and testing of substrates as defined in the specification.
15) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
16) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
17) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
18) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
19) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
20) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
21) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
22) Coordination and phasing of work as required by Crossland Construction Co.
23) Include all ADA requirements applicable to system(s) and project.
24) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
25) Include travel and mobilizations for field measuring.
26) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
27) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
28) Trade Contractor shall include a final clean of all materials installed by this contract.
29) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
30) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
31) Trade Contractor shall include any dewatering as necessary to perform scope of work.
32) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
33) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
34) Trade Contractor to include coordination of testing. Testing to be paid by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.

35) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax

TRADE CONTRACT
9C Painting

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Paint all walls in corridors, classrooms, restrooms & all other remodeled areas.
2) Patch/Bondo existing door frames; paint.
3) Include prep and paint of hollow metal doors as shown.
4) Paint gyp board restroom ceilings.
5) Restrooms to receive epoxy paint above tile.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Trade Contract to include all labor, material and equipment for all painting including but not limited to the painting of all gypsum board walls, gypsum board ceilings, block filler at CMU, deck and ceiling structure, exposed MEP, hollow metal doors and frames, pipe bollards, metal handrails and guardrails, exterior structure, canopies, and all exposed structure.
2) All exposed steel structure, non-acoustic decking, and ductwork to be painted at all exposed ceiling locations, unless noted otherwise; refer to reflected ceiling plan.
3) Provide and install all wallcovering for a complete system including any adhesives and trim.
4) Painting all non-prefinished wood doors and doors as shown.
5) Preparation of all doors, walls and ceilings as required providing a completed and acceptable finished product. Includes any scraping, cleaning, priming, bonding, and caulking as required to provide a complete and finished product.
6) Include all sealed concrete and epoxy paint as noted in the plans and specifications.
7) Include protection and cleanup of all floors and other adjacent materials from paint or overspray.
8) Trade Contractor shall provide all touch-up work prior to, and after, the painting is completed.
9) Trade Contractor shall remove or protect all electrical plates, hardware, light fixtures, escutcheons, and fittings prior to painting.
10) Trade Contractor shall caulk all hollow metal door and window frames to sheetrock for a smooth and finished transition.
11) Cover all HVAC return air grilles and fire sprinkler heads to protect from overspray.
12) Include all painting of steel pipes, bollards, exposed steel joist, and any misc. exposed steel.
13) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
14) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.

15) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
16) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
17) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
18) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by the project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
19) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
20) Coordination and phasing of work as required by Crossland Construction Co.
21) Include all ADA requirements applicable to system(s) and project.
22) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
23) Include travel and mobilizations for field measuring.
24) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
25) Trade Contractor to include daily cleanup of work. Temporary labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
26) Trade Contractor shall include a final clean of all materials installed by this contract.
27) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
28) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
29) Trade Contractor shall include any dewatering as necessary to perform scope of work.
30) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
31) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
32) Trade Contractor to include coordination of testing. Testing to be paid for by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
33) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax

TRADE CONTRACT
10A Specialties

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Supply and install all specialties listed on schedule.
2) Supply and install all toilet partitions
3) Supply and install electric hand dryers.
4) Include all FE/FEC's as shown.
5) Include mirrors in all restrooms.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Furnish and install all visual display surfaces, markerboards, tack boards, signage, exterior letters, plaques, lockers, fire extinguishers & cabinets, toilet partitions/compartments, urinal screens, doors, panels, toilet accessories, mop and broom holders, flag poles, and utility shelves as required for a complete and finished package.
2) Include all signage, plaques, metal letters, flat cut metal signage, laser cut acrylic signage, panel signs, vinyl die-cut lettering & graphics, dimensional characters, acrylic signs including all anchors and accessories.
3) Include toilet compartments, urinal screens, doors, panels, pilasters, brackets, overhead bracing, hardware, accessories, anchors, and fasteners.
4) Include all toilet, bath and laundry accessories including all mirrors, toilet tissue dispensers, paper towel dispensers (include towel dispensers in Kitchen/culinary also), grab bars, sanitary napkin dispensers, shower curtains, shower rods, folding shower seats, towel pins, towel hooks, coat hooks, toilet seat cover dispensers, waste receptacle trim, baby changing stations, mop and broom holders, utility shelves and all fasteners & anchors.
5) Furnish and install flagpoles, metal collars, flagpole sleeves and all components and accessories per the contract documents. Include pier drilling and necessary equipment to set flagpoles.
6) Include all lockers and benches including all base blocking, frames, doors, hardware, base steel, handles, latches, identification plates, sloping tops, filler panels, boxed end panels, clothes hooks, bench tops & pedestals. Include all fasteners and accessories for a complete and finished system.
7) Include all fire extinguishers, brackets, cabinets, hose valve cabinets, including all trims, glazing, hardware, locks & accessories. Include all tagging/inspections of fire extinguishers. Include coordination of determining what size recessed cabinet is to be installed in each location to properly fit each wall type.
8) Trade Contractor is responsible for all equipment, freighting, & permits required to deliver material to jobsite.
9) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in

accordance with applicable codes.

10) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
11) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
12) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
13) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
14) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
15) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
16) Coordination and phasing of work as required by Crossland Construction Co.
17) Include all ADA requirements applicable to system(s) and project.
18) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible to correct any material damaged or muddied.
19) Include travel and mobilizations for field measuring.
20) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
21) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
22) Trade Contractor shall include a final clean of all materials installed by this contract.
23) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
24) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
25) Trade Contractor shall include any dewatering as necessary to perform scope of work.
26) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
27) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
28) Trade Contractor to include coordination of testing. Testing to be paid by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
29) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax, wall protection, power for hand dryers by others and signage

TRADE CONTRACT
12A Window Treatments

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Furnish and install all manual roller shades as noted.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Trade Contractor shall include all labor, material, and equipment to furnish and install all roller window shades as shown in the contract documents.
2) Include all bead chains, rollers, fascia, fabric, hardware, closure panel, wall clips, side channels, and associated accessories for complete installation.
3) Include all roller window shades, brackets, fabrics, bottom bars, end caps and all components and accessories.
4) Include site visits as necessary for field dimensioning.
5) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
6) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
7) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
8) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor’s scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
9) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
10) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
11) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.

12) Coordination and phasing of work as required by Crossland Construction Co.
13) Include all ADA requirements applicable to system(s) and project.
14) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible for correcting any material damaged or muddied.
15) Include travel and mobilizations for field measuring.
16) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
17) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
18) Trade Contractor shall include a final clean of all materials installed by this contract.
19) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
20) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
21) Trade Contractor shall include any dewatering as necessary to perform scope of work.
22) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
23) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
24) Trade Contractor to include coordination of testing. Testing to be paid for by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
25) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales Tax

TRADE CONTRACT
22A Plumbing

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Furnish and install all fixtures as noted.
2) Modify existing water, waste, and vent piping to accommodate new fixture locations.
3) Connect new vent system to existing vent through roof.
4) Connect new sewer to existing as shown on plans.
5) Sleeve all piping through footings.
6) Include isolation valves for each restroom, coordinate with CM and TPS.
7) Include cleaning of lines from construction debris.
8) Include all items required for new washer/dryer location.
9) Include "Make Safe" of all plumbing items to be demoed.
10) Include disconnecting plumbing equipment to be removed by others.
11) Trade contractor to include coordination with demo contractor on all plumbing items to be removed.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) Trade Contractor to provide all labor, material and equipment to furnish and install all plumbing fixtures, plumbing specialties, water piping, water treatments, sanitary waste, vent piping, roof drainage piping, natural gas piping, water heaters, mechanical identification, recirculating pumps, grease interceptors, floor and roof drains, solids interceptors, piping, pipe expansion fittings and loops, supports, equipment, roof drain piping and underground piping to existing storm system, insulation, under-slab drainage required for complete, operational, and finished plumbing systems.
2) Trade Contractor to include all piping, fittings, sleeves, valves, escutcheons, expansion joints, framing systems, hanger shield inserts, pipe stands, pipe positioning systems, equipment supports, alignment guides, fasteners, hangers, supports and all associated structural steel and grout alignment guides for this scope of work.
3) Trade Contractor shall include all electric and fuel fired water heaters, drain pans, piping, regulators, expansion tanks, shock absorbers, venting, supports, anchors, burners, shut off valves and all components and accessories.
4) Trade Contractor to furnish and install all fixtures, water closets, urinals, lavatories, sinks, electrical water coolers, service sinks, mop basins, drinking fountains, showers, bathtubs, washer boxes, emergency eye wash stations, recirculating pumps, electric water coolers, water heaters, faucets, flushometers, toilet seats, protective shielding guards, fixture supports, emergency showers and all associated components

and accessories.

5) Trade Contractor shall include all design work associated for a complete, finished, and operational system. System to be designed to meet all local, state, and national codes as well as the requirements set forth in the contract documents.
6) Trade Contractor to include all condensate piping, meters, gages, thermometers, test plugs and thermowells.
7) Include all identification, equipment labels, warning signs, pipe labels, direction arrows, stencils, valve tags and warning tags.
8) Include all insulation including foam insulation, cellular glass, flexible elastomeric, mineral fiber, cements, adhesives, mastics, joint sealants, jackets, fabric reinforced mesh, field applied jackets, tapes, securements, and corner angles.
9) Include all domestic water piping and water pumps including all vacuum breakers, backflow preventers, valves, mixing valves, strainers, hose bibs, hydrants, drain valves, water hammer arrestors, trap seal primer valves and regulators. Include connection of site water piping to 5' beyond building perimeter (site water trade contractor pipes all site water to within 5' of building).
10) Include all sanitary waste and vent piping including all piping, fittings, gaskets, couplings, floor drains, sleeve flashings and vent caps.
11) Include all sump pumps, sump pump basins, covers and connectors.
12) Install systems, material, and equipment level and plumb, parallel, and perpendicular to other building systems.
13) Routing and concealing of all water, sanitary sewer, and storm sewer as required by the contract documents, for an aesthetically pleasing appearance.
14) Any re-work required by other Trades for a missed rough-in shall be the responsibility of this Trade Contractor.
15) Purging and disinfecting as required.
16) Include all acid neutralization tanks and associated piping and limestone chips.
17) Include costs for cutting and core drilling all elevated slab penetrations if not roughed in prior to pours.
18) Include all water, gas piping, flex connections and associated work with all kitchen equipment and utility distribution systems. Review all kitchen plans and specifications and perform all work outlined to be performed by plumber in addition to all other plans and specifications.
19) Settlement of trenches associated with this scope of work to be repaired by this trade contractor.
20) Include all excavation, suitable bedding material, backfilling, compaction, and final grading at disturbed area to within +/- one tenth of final specified grades.
21) Trade Contractor shall immediately remove all excess materials (spoils) from Work areas to a location designated by the Construction Manager. Any spoils damaged, overly wet, contaminated, or not suitable for backfill or fill will be this Trade Contractor's responsibility to remove to an offsite location. Trade Contractor shall be responsible for coordinating, spreading, and compacting materials (spoils) into finished work.
22) Include all site underground and building natural gas piping as well as all gas connections to equipment, valves, regulators, roof piping to HVAC equipment, meters, regulators, supports, unions, reducers, concrete bases and shut offs. Coordinate with ONG for location of site gas meter.
23) Include all foundation, elevator pit piping and under-slab drainage piping per plans.
24) Include installation of all kitchens and, or, culinary floor troughs and grates, furnish and install temporary plywood covers and associated piping as per the kitchen plans and specifications.
25) Include costs for cutting and core drilling all elevated slab penetrations if not roughed in prior to pours.
26) Include all water, gas piping, flex connections and associated work with all kitchen equipment and utility distribution systems. Review all kitchen plans and specifications and perform all work outlined to be

performed by plumber in addition to all other plans and specifications.

27) Include all Ansul fire system piping, water supply lines, reducers and associated fittings and components at kitchen hoods as identified in the kitchen plans / specifications.
28) Furnish and install food disposal systems, grease interceptors, internal air relief bypass, cleanouts, baffles, trap seals, gasketing and fittings.
29) Furnish and coordinate with other Trades all penetrations through grade beams and foundations.
30) Include access panels for all work under this scope where required.
31) Trade Contractor shall re-finish and touch-up all equipment installed as part of this work as required.
32) Work shall include caulking, fire caulking, and sealing of all penetrations made by the execution of the work provided by this Trade Contractor.
33) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
34) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
35) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list items to be included in addition to those which are covered in the plans and specifications.
36) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor’s scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
37) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
38) All work included in this trade contract shall be according to the project/progress schedule provided by the Construction Manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
39) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
40) Coordination and phasing of work as required by Crossland Construction Co.
41) Include all ADA requirements applicable to system(s) and project.
42) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible to correct any material damaged or muddied.
43) Include travel and mobilizations for field measuring.
44) Any damage, because of this Trade Contractor’s work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
45) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor’s expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
46) Trade Contractor shall include a final clean of all materials installed by this contract.
47) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
48) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
49) Trade Contractor shall include any dewatering as necessary to perform scope of work.

50) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
51) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
52) Trade Contractor to include coordination of testing. Testing to be paid for by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
53) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax

TRADE CONTRACT
26A Electrical System

Work including but not limited to the following:

Drawings and Specifications: See Attached List of Drawings/Specifications

Project Specific Inclusions: *Line items listed below are specific to this project and general in nature. All costs associated shall be included within the base bid for this trade contract. Scopes listed shall be priced in their entirety (inclusive of all labor, material, means of conveyance, supervision, and equipment) for a complete and finished system per the contract documents.*

1) Remove existing residential panelboard and replace it with a commercial panelboard.
2) Remove receptacles and data/telephone outlets from removed walls.
3) Include installation of special receptacles for new washer/dryer location.
4) Provide power receptacles for electric hand dryers, water coolers, and Bradley sinks.
5) Include new wall plates at all outlets and switches.
6) Include "Make Safe" of all electrical items to be demoed by others.
7) Include temp lighting at all locations where ceilings are removed.
8) Include receptacles as shown on millwork elevation drawings.
9) Trade contractor to include coordination with demo contractor on all electrical items to be removed.

General Trade Inclusions: *Line items listed below are typical or boilerplate in nature and shall be included in the base bid IF supported and required by the contract documents unless noted otherwise.*

1) This Trade Contract shall include all electrical distribution, equipment feeders, panels, switchgears, raceways, electrical rough-ins, underfloor raceways, cable trays, underground ducts & raceways, conduits, boxes, fittings, wire cables, fuses, switchboards, panelboards, contactors, motor starters, wiring devices, disconnects, motor starters, branch circuit wiring, building & site lighting, emergency generators, surge protection equipment, grounding, transient voltage suppression, transformers, transfer switches, low voltage cabling (not identified in separate Trade Contracts), control wiring, data conduit, electrical power monitoring & control, lighting control, temporary power & lighting, identification and all Work required to provide these systems complete, finished, and fully operational.
2) Include all site underground conduit/PVC for low voltage.
3) Include all camera poles, base plates, anchor bolts and leveling nuts. (Concrete bases by others)
4) Include wind turbine and all associated conduit, wiring, junction boxes, grounding system, panels, and components.
5) Include all electrical duct banks and all associated excavation, fill material, duct supports, spacer supports, tracer wires, warning tapes and backfilling. Include compaction of backfill material to meet structural guidelines. All spoils to be removed from site by this Trade Contractor.
6) Trade Contractor to include wiring and connections to all automatic flush valves including any additional wire necessary to make connection.
7) Provide and install all disconnects, motor starters, wiring and power to all mechanical equipment. (All variable frequency motor controllers required by HVAC Trade Contractor)

8) Include all low-voltage electrical power connections, conductors and cables, connectors and splices, sleeves, and sleeve seals.
9) Include all control voltage electrical power cables including all pathways, cable trays, backboards, plywood, UTP Cable, UTP Cable hardware, optical fiber cable & hardware, low-voltage control cable, conductors & identification. (Unless specifically included in another Trade Contract Scope)
10) All site underground electrical and communications conduits in "green spaces" (areas that are not beneath any roads, parking, or hardscapes) shall be installed to a depth of 36''.
11) Include all grounding and bonding for electrical systems including all conductors, connectors, and grounding electrodes.
12) Include all hangers and supports for electrical systems including all steel slotted support systems, raceway cable supports, conduit and cable support devices, support for conductors in vertical conduit, structural steel for fabricated supports and restraints, fasteners, inserts, bolts, and rods.
13) Include all raceway and boxes for electrical systems, metal conduit & tubing, nonmetallic conduit & tubing, metal wireways, nonmetallic wireways, surface raceways, boxes, enclosures, and cabinets, handholes and boxes for exterior underground wiring, sleeves for raceways and sleeve seals.
14) Include all cable trays for electrical systems including all fittings, covers, barrier strips, supports, connectors and warning signs.
15) Include all underfloor raceways, trenching, cover plates, supports, fittings, hardware, junction boxes and service fittings.
16) Including all underground ducts and raceways, conduits, duct accessories, concrete encased duct banks, handholes, pull boxes, utility holes, steel conduit, plastic utilities duct, pre-cast utility holes, knockout panels, and joint sealants.
17) Include all vibration and seismic controls including all isolation pads, channel support systems, restraint cables, hanger rod stiffeners, anchorage bushings and washers.
18) Include all identification for electrical systems including all warning tapes, labels, signs, instruction signs, labels, tags, floor marking tapes and cable ties.
19) Include all electrical power monitoring and control including all PC based workstations and software, communication network and interface modules and all components as per the contract documents.
20) Include all lighting control devices, time switches, photoelectric switches, indoor occupancy sensors, outdoor motion sensors, lighting contactors, emergency shunt relays, conductors, and cables.
21) Include all modular dimming controls and all associated components and accessories, conductors, and cables.
22) Include all network lighting controls, panels, relays, switches, interfaces, and clocks.
23) Include all low voltage transformers.
24) Include all switchboards, suppression devices, protective devices, instrumentation, and control power.
25) Include all panelboards and components.
26) Include all motor control centers, main lugs and OCPDs, full & reduced voltage magnetic controllers, VFCs, TVs, instrumentation, and auxiliary devices.
27) Include all rough-in for security system and card readers (wiring and devices by others)
28) Include all enclosed bus assemblies.
29) Include all wiring devices, receptacles, device plates, wall-box motion sensors, snap switch and wall box dimmers, fan speed controls, sensors, outlets, connector devices, cord and plug sets and floor service outlets.
30) Include lockable covers on all shunt trips.
31) Include all fuses, fuse adaptors and spare fuse cabinets.
32) Include all enclosed switches and circuit breakers, fusible switches, non-fusible switches, molded-case circuit breakers, molded case switches and enclosure.

33) Include all enclosed controllers, full voltage manual & magnetic, reduced voltage magnetic & solid state, multispeed controllers, and accessories.
34) Include all engine generators, cooling systems, controls, monitoring, load banks, outdoor enclosures, muffler silencers, air-intake filters, starting systems, overcurrent & fault protection, exciter & voltage regulators, vibration isolator devices.
35) Include all transfer switches, wiring, enclosures, and components.
36) Include all transient voltage suppression for low-voltage electrical power conduits including all suppressors, surge protection devices, panelboard suppressors and enclosures.
37) Include all conduit/raceway/cable tray(s) shown on the drawings including those for mounting: projectors, loudspeakers, touch panels.
38) Include all rough-in, conduits, raceways, pathways for all electronic safety and security systems.
39) Include all electrical connections, wiring, feeders, controls, raceways, rough ins, pull boxes, starters, overload protection, disconnects, coordination and all electrical work identified as being performed by this trade in the kitchen plans and specifications.
40) Include all smoke evacuation controls and power wiring.
41) Include all plywood backing required at data, and, or electrical rooms.
42) Include all floor boxes and specialty plates. Include all core drilling at elevated slabs as required.
43) Include all electrical wiring and connections for food service equipment as identified in the Kitchen plans and specifications.
44) Include all shunt trips, disconnects and breakers.
45) Include all power and electrical connections for all mechanical equipment, elevators, overhead doors, automatic doors, motorized window shades & drapery, monumental signs and any other electric powered equipment being installed by other trades.
46) Include all underground feeders and piping from transformer secondary termination cabinets and to building including all utility holes and pull boxes, trenching and backfilling with suitable material to within +/- ¼'' of the specified elevation.
47) Include any required shunt trip disconnects for kitchen hoods, elevators, or other equipment.
48) Electrical Trade Contractor shall provide and maintain temporary lighting, covers, and electricity throughout the new facility. Lamps not functioning properly are to be replaced immediately. Include removal of all temporary lighting as directed by CM.
49) Electrical Trade Contractor shall be responsible for all safety barricades and safety covers for electrical panels as required by OSHA, NEC, the Owner, and/or CM. All temporary panels/receptacles shall be "GFI" protected by this Contract.
50) Trade Contractor shall provide a temporary electric panel to two locations (in the main building as necessary for construction in all areas and one at the southeast parking lot for contractor trailers) and provide all maintenance of panels as required. Include all cost of getting power service to panels. Panels shall be large enough to accommodate construction activities.
51) Include all site underground conduits for communications and power including conduit, ducts, ducts accessories, duct banks, boxes, warning tapes and trace wire.
52) Include all building wires, cables, and associated connectors, splices, and terminations for wiring systems as required for complete, operational, and finished systems.
53) Include all raceways, fittings, boxes, enclosures, cable trays and cabinets for electrical systems, telephone/data conduit, audio visual, fire alarm, security, and all electrical and low voltage systems.
54) Include all unistrut rack mounting.
55) Include wiring of all access controls, overhead doors, and electric strikes.
56) Include all power & wiring for fire pump.
57) Provide oversized trim plates as required. Provide blank cover plates on all boxes not used.

58) Trade Contract to include pull strings in conduits that are for future use or cabled by other trades.
59) Trade Contractor shall be responsible for terminating all power at mechanical equipment, including equipment furnished by other trades. Test to verify equipment is wired correctly.
60) Furnish and install all steel supports as required for mounting the electrical equipment.
61) Work shall include caulking, fire caulking, fire stop, "link-seal," fire barrier, penetration seals, sealing, and waterproofing of all penetrations by the execution of the Work provided by this Trade Contractor.
62) Trade Contractor shall be responsible for coordinating, scheduling, delivery, receiving, unloading, storage, inventorying, placement, protection, and cleanup.
63) It shall be the responsibility of this Trade Contractor to obtain and pay all licenses, permits, fees, inspections, and certification required for the execution of this Work.
64) Trade Contractor shall set all boxes in walls to enable a flush mount to be made with a cover plate to the wall. It is the responsibility of this Trade Contractor to install all boxes to this, and the contract documents requirements. Any boxes not meeting these requirements will be corrected, with the cost to be met by this Trade Contractor.
65) Trade Contractor shall review all mechanical/plumbing schedules and provide all electrical work required for complete, finished, and operational systems.
66) Trade Contractor shall provide fireproofing around recessed fixtures installed in fire rated ceilings.
67) Trade Contractor shall secure all lay-in fixtures into the ceilings and install all additional wire hangars as required.
68) Include conduit, wiring, power, connections, transformers to site water feature lights, jets & pumps, power to fountains at ponds.
69) Furnish and install any/all access panels as required by this work.
70) Provide all labeling, nameplates, markings, identification, and signage as required for work provided by this Trade Contract.
71) Provide all supporting devices as required for work provided under this Trade Contract.
72) This Trade Contract shall be responsible for coring any/all penetrations required for execution of this Work. Include all coring, caulking, fire caulking, and sealing of all penetrations. Any penetrations required by the electrical in the concrete, and miscellaneous walls will be the Electrical Trade Contractors' responsibility. Any missed penetrations will be the responsibility of the Electrical Trade Contractor to correct to original conditions. Materials damaged while correcting penetrations will be the responsibility of the Electrical Contractor to repair to original condition.
73) Electrical Trade Contractor shall be responsible for all layout required for work provided under this Trade Contract including any necessary surveying.
74) Contractor shall provide a representative at all startups to assist as needed.
75) Trade Contractor shall not mark or damage walls, ceiling finishes, floors, or any other finishes. All repairs to damaged finishes due to failure to meet these requirements shall be corrected and paid by this Trade Contract.
76) Trade Contractor shall refinish, restore, and touchup damaged paint on equipment and materials to original condition.
77) This trade contractor to perform and provide the Construction Manager an inventory of light fixtures as they arrive on site as well as identify long lead time light fixtures and their status throughout the course of the project.
78) It is the responsibility of this Trade Contractor to maintain a clean and safe working environment in accordance with applicable codes.
79) This Trade Contract is intended to be all inclusive of labor and equipment required for the scope of work.
80) This Trade Contract includes all items of work covered by the specifications be they named, inferred, or normally performed by members of Trade Contractor's industry. For purposes of clarification, we may list

items to be included in addition to those which are covered in the plans and specifications.

81) The Trade Contractor acknowledges and agrees that any recapitulation of the work to be performed shall be for the sole and exclusive purpose of clarifying the status of those items which are included in the Trade Contractor's scope of work. Items not specifically mentioned but are normally performed by members of the Trade's industry are included as part of the Trade Contractor's Scope of Work.
82) All work shall be accomplished using accepted methods and procedures of the highest recognized standards and shall be done in a neat and professional manner, in accordance with applicable standards and codes and the requirements of the prime contract.
83) All work included in this trade contract shall be according to the project/progress schedule provided by the construction manager. This includes day and night work as required by project schedule. If the Subcontractor falls behind schedule in the submittal portion or the installation portion of this Subcontract through no fault of the Contractor or the Owner, the Subcontractor shall work overtime or perform shift work at no extra cost to Contractor as necessary to maintain the project schedule.
84) Trade Contractor shall understand when their scope of work is to be put in place and include all weather protective means as required.
85) Coordination and phasing of work as required by Crossland Construction Co.
86) Include all ADA requirements applicable to system(s) and project.
87) Furnish, receive, offload, store, stage, inventory, and protect all materials from weather damage and/or mud. The Trade Contractor shall be responsible to correct any material damaged or muddied.
88) Include travel and mobilizations for field measuring.
89) Any damage, because of this Trade Contractor's work to adjacent existing structures, finishes, equipment or other tangible aspect of the project and repair, thereof, will be the responsibility of this Trade Contractor.
90) Trade Contractor to include daily cleanup of work. Temp labor will be provided at the Trade Contractor's expense if failure to provide daily cleanup is evident, but not before written notice to correct is given to Trade Contractor by Crossland Construction.
91) Trade Contractor shall include a final clean of all materials installed by this contract.
92) This Trade Contractor shall clean and repair any damages, due to work provided in this contract, to the streets or adjacent areas.
93) Trade Contractor is responsible for any track out created by employees, subcontractors, or vendors of said Trade Contractor.
94) Trade Contractor shall include any dewatering as necessary to perform scope of work.
95) Trade Contractor to include a minimum 40-hr work week. This shall mean work, put in place, by the Trade Contractor and not inclusive of travel time.
96) Trade Contractor to include all permits applicable to scope of work, including IDP, as required by the contract documents, or, as required by authorities having jurisdiction inclusive of any fees.
97) Trade Contractor to include coordination of testing. Testing to be paid by others, however, costs of a re-test due to failure of the Trade Contractor, shall be paid by the Trade Contractor.
98) Trade Contractor to include all applicable submittals and submittal requirements as identified and required by the contract documents including, but not limited to, mockups, samples, product data, shop drawings, calculations, certifications, delegated design, engineering, stamps, warranties etc.

Exclusions: Sales tax, fire alarm and low voltage

BID PACKAGE GENERAL CONDITIONS

Each Trade Contract shall INCLUDE the following list of Work items/directives in the scope and cost of the Trade Contract

1) SUBMITTALS:

A. All submittals must be submitted to the CM within 21 calendar days of the execution of the Contract, or the receipt of a notice to proceed or within a faster time frame as identified or negotiated.
B. Resubmittals must be resubmitted within 10 calendar days of the date of submittal return. Fines in the amount $500.00 per calendar day for submittals not meeting the requirements will be charged to this Contract. Exceptions must be in writing from CM.
C. Trade Contractor shall submit insurance certificate, bonds, schedule of values, and fully executed Contract Agreement within 10 days of award of Contract.
D. All shop drawings, submittals, samples, as-builts, test certifications, and owners' manuals as required by the Contract Documents.
E. Trade Contractor to submit all "final closeout documents" & "letters of conformance" before final payment or reduction in retainage will be made.
F. Bonds (see Contract Security/Bonds section of Bid Package) will be required. Cost of bonds to be identified on Bid Form.

2) CONSTRUCTION:

A. The Contract Documents are complementary. What is called for by anyone shall be binding as if called for by all. If there is a conflict in the Contract Documents, the following order of precedence shall govern:
    1. Agreement
    2. Bid Package/Trade Contract Scope
    3. Supplementary Conditions
    4. General Conditions
    5. Specifications
    6. Drawings
    7. Geotechnical Report

B. Trade Contractor shall include all parts, components, work, and material required to provide complete, operational, and finished systems in the bid. Any minor Work not specifically mentioned but obviously necessary and considered normal construction practice for the proper completion of the Work, shall be considered as being part of, and included in, the Trade Contract.
C. The Trade Contractor shall perform all Work called for in the Trade Contract including the furnishing of all equipment, materials, labor, tools, and supervision necessary for the performance of all things necessary for the Work. All Work shall be accomplished in a Workman-like manner with the understanding that the Owner, at its option, furnish any such labor, materials, equipment, or supplies, as it deems necessary or desirable within the limits of the Contract Documents.
D. Each Trade Contractor shall attend weekly progress meetings with involved Trade Contractors, subcontractors, Construction Manager, & the Owner.
E. Storage required by the Trade Contractor shall be in areas designated by the Construction Manager, storage of materials shall be in trailers, roll offs, or areas outside of the building areas. Areas inside of the building shall not be used for storage. All materials stored on the ground must be stored on dunnage.

F. Coordination & Phasing of work as required by Construction Manager. Provide all coordination required for completion of this work with other trades. Coordination must be done in a timely and professional matter. All costs associated with lack of coordination on the part of this Contractor will be charged to this Contract.
G. Trade Contractor shall provide all layout, staking, grades, and elevations as required by this Contract. Initial building layout will be by the Construction Manager. Daily construction layout, elevations, and layout required by this Trade Contractor shall be included in his Trade Contract.
H. Trade Contractor shall include all misc. equipment required for permits, freight, receiving, unloading, and installation of the Work furnished in this Trade Contract.
I. Trade Contractor shall comply with all directions, requirements, and provide all information as required by the Storm Water Prevention Plan Permit (SWPPP).
J. Trade Contractor shall final clean all material supplied or installed under this Contract.
K. Trade Contractor shall provide all drinking water required by Trade Contractor's employees or Subcontractor's employees.
L. Any temp electric, fax, & phones required by the Trade Contractor's employees and Trade Contractor's subcontractors.
M. Trade Contractor shall include all offsets as required to coordinate with other trades.
N. Trade Contractor shall provide protection of stored materials and finished work. Provide protection necessary to prevent damage to existing improvements, existing vegetation, trees, asphalt, EIFS, utilities, fences, buildings, adjoining properties, and Owner's property. All costs associated with surroundings damaged during the work of this Contract will be the responsibility of this Contract.
O. Trade Contractor shall include any costs & coordination associated with permits, fees, or licenses (as required by your work), and as required to provide complete, operational, & acceptable finished Work.
P. Trade Contractor shall include all general conditions, overhead, profit, and insurance.
Q. Trade Contractor is responsible for receiving, offloading, inventory, storing, staging, installation, and connection of all materials or equipment furnished by the Owner that is included in the Work specified in the Trade Contractor Specification Sections (sections identified in Trade Contract's Scope of Work).
R. Trade Contractor shall provide any cold weather protection required by the Work provided under this Trade Contract.
S. Trade Contractor shall conduct site operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct roads, walks, or other areas of work unless approved by Construction Manager.

3) SAFETY REQUIREMENTS & SITE POLICIES:

A. By bidding this Trade Contract, Contractor agrees to comply with CCC Safety Requirements & Site Policies for all employees, subcontractors, and subcontractors' employees. Failure to adhere to jobsite regulations shall result in fines against this Trade Contractors' Contract or termination of the Contract. Fines for violations will be $500.00 per daily incident. Fines shall be given to a charity of the Owner's choice. Trade Contractor to orientate each employee and subcontractor to these requirements. Each subcontractor shall complete the requirements acknowledgement form (see inclusions).
B. Trade Contractor shall delegate a competent onsite safety officer. This person shall inspect the site daily for safety issues.
C. Permission shall be obtained from the Construction Manager prior to taking any vehicle into the building. Only company vehicles shall be allowed on the construction site; all others shall use the employee parking lot designated on the construction site. The company's name and/or shall be visible from a distance of 25' away.
D. It is the policy of the Owner that no smoking will be permitted in the building once the roof and sidewalls are installed. The fine for smoking in the building shall be $50 per infraction. All fines will be paid by the

Contractor to the Owner's designated charity. All Trade Contractor and subcontractors' employees shall abide by this policy. Smoking will be permitted in designated areas only.

E. Confine vehicle parking and all vehicle deliveries to only those areas designated by the Construction Manager.
F. Trade Contractor shall confine operations to the areas contained within the property lines as shown on the drawings.
G. Trade Contractor shall provide traffic control as required, in accordance with U.S. Department of Transportation "Manual of Uniform Traffic Control Devices" and the state highway department requirements and/or municipality or other jurisdictional body or the Construction Manager.
H. Trade Contractor shall provide all materials and/or equipment required to provide a safe work-zone. Safety must meet all OSHA requirements and Crossland Construction Co. safety policies, including hardhats, safety fencing, handrails, and misc. required to comply with OSHA & Crossland safety policies. No exceptions will be made or given. CM will correct items not meeting requirements and any costs associated with this correction will be charged to this Contract.
I. Trade Contractor shall verify with all local utilities all utility locations and terminations shown on the drawings. Utility locates as required.
J. Trade Contractor to comply with all directions, requirements, and provide all information as required by the Storm Water Prevention Plan. All requirements of Erosion & Sedimentation Control shall be adhered to.
K. All the rules shall apply as well as the jobsite specific rules. See Attachment "B" for jobsite specific requirements & policies.
L. Trade Contractor and all tiers of subcontractors shall conduct weekly safety meetings on the jobsite. Attendees and minutes of the weekly safety meetings are to be documented.

4) CLEANUP & HOUSEKEEPING:

A. Trade Contractor shall include daily cleanup, removal of all trash, debris, and excess materials to dumpster.
B. Trade Contractor shall clean waste & mud from streets/roads during the work completed in this Trade Contract. Streets shall be thoroughly cleaned and/or swept daily or more frequently as required by Construction Manager.
C. In the event the Construction Manager or the Owner feels the project housekeeping and cleanup is not satisfactory, upon written notice, the Construction Manager will provide the necessary cleanup, and all related costs will be at the expense of the Trade Contractor(s).

5) PROJECT SCHEDULE:

A. The Trade Contractor shall attend scheduling meetings as required by the Construction Manager and coordination conferences as required by the Construction Manager. These meetings will establish communication, coordination, and cooperation for scheduling. The Trade Contractor shall utilize the Construction schedule for the work as prepared by the Construction Manager. The schedule shall be related to the entire project and shall establish critical dates for performance of this Trade Contract, which affects performance of other Work.
B. The Trade Contractor shall schedule their forces for a minimum forty (40) hour work week. Should the updated schedule show the Trade Contractor to be behind schedule, the Trade Contractor shall devise a plan for recovery of lost time within 96 hours and submit to the Construction Manager said plan. Once the Construction Manager approves the plan, the Trade Contractor shall institute it immediately. The Trade Contractor shall bear all costs and expenses related to recovery from the Trade Contractor's delay including costs to other Contractors on the project site.
C. Trade Contractor shall include all overtime as required to comply with the Project Schedule.

6) TAXES:

A. This is a Tax-Exempt project, and a tax-exempt form will be given to successful low bidders.

7) DAILY REPORTS:

A. Each Trade Contractor shall file daily with the Construction Manager a daily field report, giving the Trade Contractor's and Subcontractor's name, foreman or superintendent's name, number of workers, and a brief scope of Work for all tiers.
B. Trade Contractor's superintendent is to checkout with the Construction Manager when demobilizing and leaving the project on either a temporary or permanent basis.

8) PROJECT CLOSEOUT:

A. The Owner reserves the right to take possession and use any completed or partially completed portion of the project, providing it does not interfere with the Contractor's Work. Possession or use of the project shall not be considered final acceptance, nor shall such occupancy relieve the Trade Contractor or Subcontractors of liability to perform any Work that has not been completed at the time of occupancy.
B. Prior to completion of the Work under this Contract, partial occupancy by the Owner and separate Contractors will be necessary for installation of equipment.
C. Cooperation in segregation of construction activities is required and is agreed to by the Trade Contractor.
D. Trade Contractor to submit all "final closeout documents" & "letters of conformance" before final payment or reduction in retainage will be made.

9) WEATHER:

A. Weather delays shall be as defined by contract documents.

10) EROSION/SEDIMENTATION CONTROL / SWPPP:

A. Provide dewatering, silt fence, & erosion control for all Work (including excavations, spoils, trenches, and stockpiles) provided by this Trade Contract as required by construction documents & SWPPP.
B. This Contract to comply with all directions, requirements, and provide all information as required by the Storm Water Prevention Plan.
C. Any cost associated with rectifying damaged surroundings due to negligence by this Trade Contractor, will be the sole responsibility of this Trade Contractor.
D. Any cost associated with rectifying damages to the wetland's areas due to negligence by this Trade Contractor will be the sole responsibility of this Trade Contractor.

11) DAMAGES:

A. If the Trade Contractor refuses, neglects, or fails to complete the Work within the time stated at each Phase in the Trade Contract Schedule, then the Trade Contractor and the Trade Contractor's surety, if any, shall be liable for and shall pay the Construction Manager, not as a penalty but as liquidated damages, the sum of two-hundred fifty dollars ($2500.00) for each calendar day that the Trade Contractor is in default after the time stipulated in the Trade Contract Schedule for completing the Work of each Phase until the Work is Substantially Complete. The Construction Manager may withhold from payments due the Trade

Contractor, such amounts as may be assessed as liquidated damages. Upon Substantial and Final Completion of the Work, the Construction Manger may adjust the Contract Sum by the amount of the assessed liquidated damages.

12) UNIT PRICES:

A. For CM/Owner information, provide all Unit Prices.
B. The unit prices shall include all labor, material (including waste), tools, equipment, general conditions, overhead, profit, bond, and inclusions/exclusions per the base Contract.
C. The contractor shall be paid for actual measured quantity of work multiplied times the unit price. Waste factors shall be included in the unit price.
D. **NOTE**: The request for this information does not change unclassified excavation specified in base bid.

13) CHANGES:

A. Contractor's markup, overhead, and profit on change orders are not to exceed ten percent (10%) combined or as dictated in the contract documents.
B. Subcontractor must submit any changes in cost to adjust the Contract amount by use of written Change Order. Neither the CM nor the Owner will accept any adjustments from the Trade Contractor, except for those submitted as a written Change Order Request with a cost breakdown. Change orders are not to be billed until an official Change Order is issued by CM.
C. Trade Contractor to adhere to all CM accounting requirements.

14) CONTRACT SECURITY/BONDS:

A. For Subcontracts at or above $50,000.00, the Trade Contractor shall furnish the following surety bonds, (with sufficient sureties to be approved by the Owner), when the contract is awarded:

1. Performance Bond - 100% of Contract
2. Statutory Bond - 100% of Contract
3. Guarantee/Warranty Bonds - 100% of Contract – As required by CM

B. If required - Warranty Bonds shall guarantee against and shall remedy any defect due to faulty materials or workmanship and shall pay for any damages to other work resulting therefrom, which may appear from within a period of one year from the date of completion as evidence by the date of the final acceptance of the project.

15) BID SECURITY TO BE FURNISHED BY EACH BIDDER WITH THEIR BID:

A. Bids for Trade contracts over $50,000.00, must be accompanied by a certified or cashier's check or a bid bond in an amount equal to five (5%) of the total amount of the bid as guarantee that, if awarded the contract, the bidder will execute the contract and furnish bonds and insurance as required in the General and Supplemental conditions. The successful bidder's check or bid bond will be retained until he has entered a satisfactory contract and has furnished bonds and insurance. The Owner reserves the right to hold the bid security of the three lowest bidders until the successful bidder has entered a contract and has furnished the required bonds and insurance.
B. No bid security is required if bid is $50,000.00 or less. Should the successful bidder fail to enter into a contract and furnish the required bonds and insurance within twenty (20) days after the contract has been awarded, then the successful bidder shall forfeit to the Owner the cost of republication of notice to bidders,

all actual expenses incurred by reason of bidder's default and the difference between the low bid of the bidder to whom the contract is subsequently awarded.

C. The amount of said forfeiture shall not exceed the total amount deposited as security and shall be forfeited to the Owner as liquidated damages and not as penalty. Negligence on the part of Bidder in preparing or submitting the bid confers no right for the withdrawal of the bid after it has been opened and shall not constitute a defense to or excuse from the requirements of this provision.

16) PAYMENT:

A. Trade Contractor shall bill the CM by the 20th of each month. Payment for the billing will be made by the 30th of the following month. (i.e., Billing on February 25 will be paid by March 30).
B. Trade Contractor shall submit a schedule of values with the signed Trade Contract Agreement. CM will approve the schedule of values before the first billing by Trade Contractor.
C. Trade Contractor shall submit a Request for Payment on AIA forms.
D. As-built drawings & owner's manuals are to be a line item on the schedule of values.
E. The Owner/CM will hold five percent (5%) retainage throughout the Project. Upon completion of the Work provided by this Trade Contractor, the Work will be reviewed by the CM, Architect and Owner for conformance with the Contract Documents. Once accepted by the CM, Architect and Owner the Trade Contractor may submit a pay requisition for release for retainage.
F. Trade Contractor shall submit statement that the Work provided by the Trade Contractor is complete.
G. Trade Contractor shall submit all as-built drawings, owners' manuals, and extra materials before submitting final payment.

17) DEFINITIONS:

A. The term "Owner" shall mean Tulsa Public Schools and/or the person or entity identified as such and is referred to throughout the Contract Documents as if singular in number.
B. The "Construction Manager" shall mean Crossland Construction Company, Inc. and/or the Construction Manager's employee or representative with authorization to act on behalf of the Construction Manager.
C. The term "Architect/Engineer," "Architect", and/or "Engineer" shall mean the consulting "Architect" and/or consulting "Engineer" who prepared the Contract Documents for the Project and whose name and address appears on the Project Documents.
D. The term "Trade Contractor" shall mean the person, persons, partnership, company, firm, or corporation entering the Contract for the performance of the Work required by it, and the legal representative of said party, or agent appointed to act for said party in the performance of the Work.
E. The term "Contract" shall mean collectively, the Agreement, Bid Package, General Conditions, Special Conditions, Supplementary Conditions, Specifications, Drawings, and the Addenda issued prior to execution of the Agreement, or other documents listed in the Agreement and modifications issued after execution of the Agreement.
F. The term "Subcontractor" shall mean a person or entity that has a direct Contract or an assigned Contract with a Contractor to perform any of the Work at the site. The term Subcontractor means a Subcontractor or a Subcontractor's authorized representative.
G. The term "Work" shall mean the entire completed construction of the various separately identifiable parts thereof required to be furnished under the Contract Documents.
H. The term "Change Order" shall refer to the only document that can change the requirements of the Contract. Verbal instructions, notes, memos, RFI responses, and other communication not in the form of a change order cannot change the Contract.
I. The term "Substantial Completion" is the stage in the progress of the work or designated portion thereof that is sufficiently complete in accordance with the Contract Documents so the Owner can utilize the Work

for its intended use.

J. The term "Nonconforming Work" shall mean portions of the Work that do not comply with the Contract Documents and reference standards.
K. The term "As Required" shall mean Work or an item of work that shall be executed/completed by the Trade Contractor as directed by the Owner, Architect, Engineer, Authorities having Jurisdiction, or the Construction Manager and/or work that is required by the Contract Documents to provide complete, operational, and finished Work.
L. The term "Complete" shall mean all Work included in the Contract Documents, and/or to provide Work finished and ready for fully loaded operation.
M. The term "Provide" shall mean furnishing materials, installing materials, and any other Work required to furnish complete and finished systems as described.

CROSSLAND
CONSTRUCTION COMPANY, INC.

BID FORM

(Include Attachments: A, B, C, D & E, bid form and your bid bond in your sealed envelope)

Company Name: _____

Estimator Name: _____

Estimator Phone: _____

Estimator E-Mail: _____

Trade Contract 2A – Selective Demolition

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……... $_____

Trade Contract 8A – Door Assemblies – Supply & Installation

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 8C – Aluminum Storefront Doors

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 9A – Gypsum Assemblies & Ceiling System

Base Bid (Excludes payment / performance bond)…….…….…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 9B – Flooring & Wall Tile

Base Bid (Excludes payment / performance bond)…….…….…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 9C – Painting

Base Bid (Excludes payment / performance bond)…….…….…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 10A - Specialties

Base Bid (Excludes payment / performance bond)…….…….…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 12A –Window Treatments

Base Bid (Excludes payment / performance bond)…….…….…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 22A – Plumbing

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract 26A – Electrical

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

Trade Contract – Combination Pricing

List Trade Contracts in Combination Pricing.…….……_____

Base Bid (Excludes payment / performance bond)…….……..…….. $_____

Payment / Performance Bond Rate (If base bid is over $50,000) %_____……..……$_____

Total Bid (Add base bid and payment / performance bond amounts) ……...$_____

*****Note: Please be advised that for Combination Pricing to be considered, applicable individual Trade Contracts MUST be filled out as well. Failure to do so will deem the bidders Combination Pricing non-responsive. The intent of Combination Pricing is to capture discounts through the award of multiple packages*****

****The Following Attachments A, B, C, D, & E are to be included in your Sealed Bid Envelope****

Trade Contract Attachment "A"

Addendum/Addenda Acknowledgment

The Bidder hereby agrees to commence work under this Contract on a date to be specified in a written "Notice to Proceed" by Crossland Construction Co. and to fully complete the Project within the time specified.

The Owner (Tulsa Public Schools) and/or Crossland Construction Co. reserve the right to reject any or all bids or to waive any formalities or irregularities in any bid, and to accept the bid or bids which seem most advantageous to the Owner.

In the event a Contract is awarded to the successful Bidder, it shall be executed within ten (10) days. The Bidder shall return with his executed Contract all Performance Payment Bonds, Statutory Bonds, Warranty Bonds, and Insurance Provisions as required by the Supplementary Conditions and the Trade Contract's scope of work.

If the successful Bidder fails or refuses to enter into a Contract as required by the Owner or fails to provide the required bonds and insurance to the Owner, within the time limited, said Bidder shall forfeit to the Owner the difference between the low bid of said defaulting bidder and the amount of the bid of the Bidder to whom the Contract is subsequently awarded and the cost, if any, of republication of notice to bidders and all actual expense incurred by reason Bidder's default. The amount of said forfeiture shall not exceed the total amount deposited as security and shall be forfeited to the Owner as liquidated damages and not as a penalty. Negligence on the part of Bidder in preparing or submitting the bid confers no right for the withdrawal of the bid after it has been opened and shall not constitute a defense to or excuse from the requirements of this Provision.

BIDDER ACKNOWLEDGES ADDENDUM/ADDENDA: _____ thru _____

BIDDER ACKNOWLEDGES ATTACHMENTS "A" THRU "E":_____

Attachments:

Attachment "A" – Addendum/Addenda Acknowledgment
Attachment "B" - The Affidavit of Non-Discrimination & Non-Segregation
Attachment "C" – Safety Requirements & Jobsite Policies
Attachment "D" - List of Drawings/Specifications
Attachment "E" – Insurance Minimum Requirements

Oklahoma License #_____

Respectfully Submitted by, Affix Seal

_____
Bidding Firm Corporation, Partnership, etc.

_____ _____
Signature Printed Name and Title

TRADE CONTRACT ATTACHMENT "B"

AFFIDAVIT OF NONDISCRIMINATION, NON-SEGREGATED FACILITIES

ANTI-COLLUSION AND BUSINESS RELATIONSHIPS

STATE OF_____

COUNTY OF_____

The undersigned of lawful age, being first duly sworn upon oath, deposes and states that I am the duly authorized agent of the bidder submitting the attached bid and am authorized by said Bidder to execute the within affidavit.

I further swear that if said Bidder is successful on this project, it will not discriminate against anyone in employment or employment practice because of race, color, religion, sex, or national origin. The undersigned further states that said Bidder will comply with all federal, state laws, and execute orders concerning the subject of nondiscrimination.

The undersigned further states that said Bidder does not and will not maintain or provide for its employees any segregated facilities as defined in the instructions to perform their services at any location under its control, where segregated facilities are maintained. The Bidder further agrees that a violation of this certification is a breach of the equal opportunity clause of this bid and any contract awarded pursuant thereto. Said Bidder further agrees that (except where it has obtained identical certification from proposed subcontractors for specific time periods), it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding Ten Thousand ($10,000.00) which are not exempt from the provisions of the equal opportunity laws, and that said Bidder will retain such certifications in its files.

The undersigned further states that said Bidder has not been a party to any collusion among Bidders in restraint of freedom of competition by agreement to bid at a faxed price or to refrain from building; or with any state official or employees as to quantity, quality or price in discussions between Bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; and the Bidder/Contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or any other entity) any money or other thing of value, either directly or indirectly, in the procuring of the award of a contract pursuant to this bid.

The undersigned further states that any partnerships, joint ventures, or other business relationships that are now in effect, or existed within one (1) year prior to this statement, with the Architect, Engineer or other party to this project; or any such business relationships between any officer or director of the Bidder and any officer or director of the Architectural Engineering firm or other party to the project are described as follows:

_____

_____

_____

NAME OF BIDDER:_____

By:_____

Subscribed and sworn to before me on this_____day of_____, 20____.

_____

Notary Public

My Commission Expires: _____

TRADE CONTRACT ATTACHMENT "C"

Safety Requirements & Site Policies

1. Workers shall report unsafe conditions to their supervisors immediately. No worker shall be required or knowingly be permitted to work in an unsafe place, unless for the purpose of correcting the hazard and then only after all safety precautions have been implemented.
2. Safe work habits are mandatory. Report any unsafe conditions or performances to Construction Manager. Follow all Crossland safety rules and procedures. Crossland's safety manual is posted in office.
3. Suitable clothing for construction shall be always worn on the construction site. Proper Leather Hard Soled Shoes, and appropriate safety equipment shall be always worn. Shirts with sleeves (at least t-shirt length) and full-length pants shall be required. Polyester or similar material is not allowed; shorts, tennis shoes, and tank tops also shall not be worn on site.
4. All employees on site shall wear hard hats that meet the requirements of ANSI Z89.1-1997 always outside the area designated as Trailer Row. Hard hats shall be worn in such a manner that the hat brim is always positioned in front. Hard hats may be worn backwards at the discretion of the Construction Manager. This includes all equipment operators, vehicle and truck drivers of contractors and material suppliers delivering to the site. Hard hats are always required on project. No exceptions. Hard hats will not be furnished by Crossland.
5. Protect and respect others work.
6. Lunch trash is to be deposited in trash cans. No exceptions.
7. Keep your work areas clean. Sweep areas at end of each day.
8. No urinating in or around buildings. Anyone caught doing so, will be removed permanently from the project.
9. Concealed weapons will not be allowed on site. Anyone having such will be permanently removed from project.
10. No removal of excess materials or scraps from project.
11. Posted speed limit shall be always adhered to: 10 mph on designated haul roads, 5 mph inside the building, on the building pad, trailer row, and other areas not designated at 10 mph. 20 mph may be permitted for site/civil work away from the pad areas and away from other trades at the discretion of the Construction Manager.
12. Seatbelts shall be always worn in vehicles including heavy equipment. All heavy equipment shall have rollover protection and seatbelts.
13. No one shall ride in a vehicle or mobile equipment unless they are on a seat. Exceptions: Scissor and boom lifts. Riding in the back of pick-up trucks shall not be allowed.
14. All heavy equipment including: cranes, forklifts, etc. shall have a reverse signal/back-up alarm audible above surrounding background noise.
15. No catering services shall be permitted on site.
16. Excavation work shall be performed in accordance with 29 CFR 1926 Subpart P.

    A. Flagging and/or suitable warning devices will be required around all trench and excavation work at least three (3) feet (this distance can be exceeded if site specific required) from the edge of the excavation.

    B. A safe means of access and egress shall be provided from excavations

regardless of their depth at intervals that provide no more than 25 feet of lateral travel.

C. A competent person shall always be present while excavation work is performed.

17. Persons working on any aerial lift shall be tied off, always, to a platform tie-off point or a similar safety device securely attached to the structure of the lift.
18. In the building, all lifts shall be propane or electrically powered with non-marking tires. Gasoline or diesel-powered lifts shall not be used in the building. Any costs associated with cleanup of floors due to damages caused by lifts will be charged to the Trade Contractor. Any changes to this requirement, is at the discretion of the Construction Manager.
19. All propane tanks shall be stored in a tank farm; (including empty tanks).
20. A fire watch shall be stationed to provide coverage for each welding, cutting, and other hot work operations. A fire watch may cover multiple operations with a 100-foot radius of them. In order for a fire watch to cover multiple operations, they shall have a clear line of sight to each operation and an unobstructed pathway to each operation. Fire watches shall have no collateral duties.
21. Ladders shall reach three feet above the landing for safe access. All ladders shall be positioned on a stable surface and secured to prevent displacement. All ladders shall be fiberglass. Step ladders and extension ladders are not acceptable as stairs. Each contractor is responsible for providing stairs into the building for their employees. Damaged ladders shall be removed immediately from the jobsite.
22. All electrical power tools and/or equipment shall be plugged into a ground fault circuit protection (GFCI). At the source of electrical power. All frayed and/or damaged electrical cords shall be removed from service and repaired. Cords shall not be tied into knots.
23. Only UL-approved metal fuel cans with flame arresters and self-closing pour spouts shall be allowed on sight.
    Fuel cans shall not be stored inside the building, or inside trailers. Cans shall be brought inside the building only to fuel equipment, and then must be removed immediately.
24. All chemical materials used shall have a Material Safety Data Sheet (MSDS) filed with Construction Manager and posted in an area where work is being performed.
25. Electrical Panels shall not be accessed by anyone. Only those authorized by Construction Manager shall have access to the electrical panels.
26. Flag, barricade, or sign areas to keep employees from exposures to potentially hazardous work conditions.
27. All underground electrical utilities shall be located prior to any excavation work occurring. The electrical contractor shall be notified to assist with this location. As-built drawings and electronic location shall be used to locate all underground electrical utilities. Contractors working around overhead electrical lines shall ensure that all equipment, materials, and personnel are at least 10 feet from the overhead lines.
28. As described in each Contractor's Safety Program work permits shall be utilized for those work activities that specifically require them. (Examples are confined space, electrical hot work, welding, painting, work where underground utilities are present, etc.).
29. All employees shall OBEY all posted safety signs.
30. Clean up and housekeeping shall be top priority. This project shall be always kept clean and orderly. The work area SHALL be cleaned on a continuous basis; no debris or trash will be permitted. Dumpsters shall not be backed up to any location of the building. They shall be maintained at a minimum distance of 50 feet from the building.
31. Glass containers of any kind shall not be brought onto the construction site.
32. Each fuel storage tank brought onto the construction site shall be provided with its own secondary containment unit. The use of earthen dikes shall not be allowed. All fuel tanks shall be grounded in accordance with NFPA requirements.

33. Concrete trucks shall have all concrete chutes removed, with top cute in the raised and locked position while traveling on the jobsite.
34. Storage required by the Contractor shall be in areas designated by the Owner. All materials on the construction site shall be stored/staged on dunnage.
35. No one will be allowed to move a trailer or any other device for living on site.
36. It is a policy of the Owner that no smoking will be permitted in the building once the roof and sidewalls are installed. The fine for smoking in the building shall be $50 per infraction. All fines will be paid by the Contractor to the Owner's designated charity. All Contractor and Subcontractor employees shall abide by this policy.
37. There will be no smoking/tobacco products, eating or drinking (except for water) when the roof of the building is installed. There will also be no smoking/tobacco products, eating, or drinking (except for water) on the finished floors. Smoking will be permitted in designated areas only.
38. Confine vehicle parking and all vehicle deliveries to only those areas designated by the Construction Manager.
39. No parking in the construction area. Designated parking areas only.
40. Only company vehicles shall be allowed on the construction site; all others shall use the employee parking lot designated on the construction site.
41. Permission shall be obtained from Construction Manager prior to taking any vehicle into the building.
42. All employees shall conduct themselves in a worker like manner at all times. Any other personnel, horseplay or disruptive activities of any kind shall result in immediate dismissal/removal from the job site.

I hereby attest by my signature that I have read and understand these Safety Requirements and Site Policies, and I will abide by them. I also understand that they may be jobsite specific amended or modified at any time at the discretion of Crossland Construction.

Respectfully Submitted by, Affix Seal

_____

Bidding Firm Corporation, Partnership, etc.

_____ _____

Signature Printed Name and Title

TRADE CONTRACT
ATTACHMENT "D"

Trade Contract
Drawing/Specification Package

I hereby attest by my signature that I have read and understand the drawings, as listed below, for their intended use. I also understand that they may be jobsite specific amended or modified at any time at the discretion of Crossland Construction, but not without prior written notification to the Trade Contractor.

PROJECT NAME: **TPS Transition Academy at Grimes**

- **Drawings:** 7/24/24 and may be amended via addendum/addenda

Drawing Number	Description	Date Issued
A001	GENERAL NOTES & OVERALL FLOOR PLAN	7/23/2024
AD101	ENLARGED DEMO PLAN	7/23/2024
AD102	ENLARGED DEMO PLAN	7/23/2024
AD103	ENLARGED DEMO PLAN	7/23/2024
P001	PLUMBING GENERAL NOTES AND SCHEDULES	7/23/2024
A101	PARTIAL FLOOR PLAN	7/23/2024
A102	PARTIAL FLOOR PLAN	7/23/2024
A103	PARTIAL FLOOR PLAN	7/23/2024
A104	ENLARGED OFFICE & RESTROOM PLANS	7/23/2024
A401	MILLWORK ELEVATIONS	7/23/2024
A601	FINISH & SPECIALTIES SCHEDULES	7/23/2024
A611	DOOR SCHEDULES AND FRAMES & DOOR TYPES	7/23/2024
A612	SIGNAGE TYPES	7/23/2024
PD101	PLUMBING DEMO PLAN	7/23/2024
P101	PLUMBING PLAN	7/23/2024
P102	ENLARGED PLUMBING PLANS	7/23/2024
P103	ENLARGED PLUMBING PLANS	7/23/2024
P104	ENLARGED PLUMBING PLANS	7/23/2024
E001	ELECTRICAL GENERAL NOTES AND SCHEDULE	7/23/2024
ED101	ELECTRICAL DEMOLITION PLAN	7/23/2024
E101	OVERALL ELECTRICAL PLAN	7/23/2024
E201	EAST ENLARGED ELECTRICAL PLAN	7/23/2024
E202	WEST ENLARGED ELECTRICAL PLAN	7/23/2024
E301	ELECTRICAL DETAILS	7/23/2024
E302	ELECTRICAL DETAILS	7/23/2024
E401	ELECTRICAL PANEL DETAILS	7/23/2024

Specifications: Dated 7/11/24 and may be amended via addendum/addenda.

Spec Number	Description	Date Issued
220400	PLUMBING	7/11/24
260400	ELECTRICAL SYSTEMS	7/11/24
260450	ELECTRICAL DEMOLITION	7/11/24

TRADE CONTRACT ATTACHMENT "E"

Insurance Minimum Requirements

EXHIBIT 9.2.2.1

Insurance Minimum Requirements

The Subcontractor shall purchase and maintain insurance of the following types of coverage and limits of liability.

1. Commercial General Liability (CGL) with limits of insurance not less than $1,000,000 each occurrence, $1,000,000 Personal and Advertising Injury, $2,000.000 General Aggregate, $2,000,000 Products/Completed Operations Aggregate.

a. If the CGL coverage contains a General Aggregate Limit, such General Aggregate shall apply separately to each project.
b. CGL coverage shall be written on ISO Occurrence for CG 00 01 04 13 or a substitute form providing equivalent coverage and shall cover liability arising from premises, operations, independent contractors, products-completed operations, and personal advertising injury.
c. General Contractor, Owner and all other parties required of the General Contractor, shall be included as Additional Insureds. The endorsement shall include that any person or organization that Subcontractor is required to add as an Additional Insured under the Subcontract Documents shall be included as an Additional Insured (CG 20 38 04 13 or its equivalent). Coverage must include both ONGOING Operations and COMPLETED Operations (CG 20 10 04 13 and CG 20 37 04 13 or equivalent as permitted by law). Vicarious forms of additional insured endorsements will not be accepted. It shall apply as Primary and non-contributing Insurance before any other insurance or self-insurance, including any deductible maintained by or provided to the Additional Insured.
d. Subcontractor shall maintain CGL coverage for itself and all Additional Insureds for the duration of the project and maintain Completed Operations coverage for itself and each Additional Insured for at least 2 years after the completion of the Work.
e. Provide Stop Gap Coverage, if applicable, for the following states: North Dakota, Ohio, Washington, West Virginia, or Wyoming.
f. Coverage shall include:
    1. Contractual liability coverage sufficient to meet the requirements of the Subcontract Documents (including defense costs and attorneys' fees assumed under the contract, which shall be payable in addition to the limit of liability).
    2. No separation of insured exclusion.
    3. The following exclusions are absolutely prohibited and shall not be included in Subcontractor's policy if applicable to the work.
    4. No damage to Work performed by Subcontractor exclusion (CG 22 94 or similar).
    5. No exclusion for subsidence, which is specifically prohibited for any work involving excavation, soil stabilization, earth retention, concrete, structural steel, landscaping, waterproofing, fire protection, and plumbing.
    6. No "residential" exclusion that would void or restrict coverage due to the nature of the Work.
    7. No EFIS exclusion. If Subcontractor's scope of work involves the building's exterior finish, there shall be no EIFS exclusion on the CGL policy unless the Subcontractor maintains a Pollution Liability policy that provides coverage for the resultant damage of the EIFS work.

2. **Automobile Liability**
    a. Business Auto Liability with limits of at least $1,000,000 combined single limit.
    b. Business Auto coverage must include coverage for liability arising out of all owned, leased, hired and non-owned automobiles.
    c. General Contractor, Owner and all other parties required of the General Contractor, shall be included as Primary and Non-Contributory Additional Insureds on the auto policy.
    d. If hauling of hazardous waste is part of the Scope, Automobile Liability Insurance with a $1,000,000 combined single limit per occurrence for bodily injury and property damage applicable to all hazardous waste hauling vehicles and include MCS 90 endorsement and the ISO Form CA 9948 (Pollution Liability Broadened Coverage for Business Automobile).

3. **Commercial Umbrella**
    a. Commercial Umbrella/Excess Liability Insurance for bodily injury and property damage liability must sit over Subcontractor's primary Employers' Liability, Commercial General Liability and Commercial Automobile Liability.
    b. Umbrella limits must be at least $1,000,000.
    c. All coverages and terms required under the Commercial General Liability, Automobile Liability and Employers' Liability must be included on the Excess/Umbrella Liability policy.
    d. Higher limits may be required by Contractor or Owner on a project-by-project basis.
    e. Umbrella coverage for such Additional Insureds shall apply as primary before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the Additional Insured other than CGL, Auto Liability and Employers' Liability coverages maintained by the Subcontractor.

4. **Workers' Compensation and Employers' Liability**
    a. Workers' Compensation Insurance and Employers' Liability Insurance (including occupational disease) to cover statutory benefits and limits under the Workers' Compensation laws of any applicable jurisdiction in which the scope is to be performed.
    b. Employers' Liability Insurance limits of at least $500,000 each accident,
        i. $500,000 each employee, and $500,000 disease policy limit.
    c. Where applicable, U.S. Longshore and Harbor Workers Compensation Act Endorsement shall be attached to the policy.
    d. Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.
    e. Maintain monopolistic coverage, if applicable, for the following states: North Dakota, Ohio, Washington, West Virginia, or Wyoming.

5. **Builder's Risk**
    a. Upon written request of the Subcontractor, the Contractor shall provide the Subcontractor with a copy of the Builder's Risk policy of insurance or any other property or equipment insurance in force for the Project and procured by the Owner or Contractor.
    b. If the Owner or Contractor has not purchased Builder's Risk Insurance satisfactory to the Subcontractor, the Subcontractor may procure such insurance as will protect the interests of the Subcontractor, its subcontractors, and their subcontractors in the Subcontract Work.
    c. If not covered under the Builder's Risk policy of insurance or any other property or equipment insurance required by the Subcontract documents, the Subcontractor shall procure and maintain at the Subcontractor's own

d. expense, property, and equipment insurance for the Subcontract Work including portions of the Subcontract Work stored off the site or in transit, when such portions of the subcontract Work are to be included in an application for payment under Article 8.

6. Installation Floater

a. If required by Contractor or not covered by the Builders Risk Insurance, Subcontractor shall obtain an Installation Floater to cover that portion of the Work to be constructed, installed, altered, or repaired by Subcontractor. Contractor, Owner, or other parties, as required by the Subcontract Documents, shall be listed as loss payees.

7. Professional Liability

a. Subcontractor and all sub-subcontractors and Designers providing Professional Services shall provide and maintain Professional Liability Insurance coverage. The policy coverage shall be effective (retroactively, if applicable) from the date of commencement of all professional activities in connection with the scope.
b. Professional Services always include, but are not limited to: design, architecture, engineering, testing, surveying or design/build services, temporary engineering, engineered excavations and shoring systems, post-tension supply, structured steel, specialized millwork that is performance specified, roofing or waterproofing systems, curtainwall, mechanical fire protection systems, electrical, and fire alarm systems.
c. Both Subcontractor and listed sub-subcontractors shall have proof of Professional Liability Insurance coverage in the amount of $1,000,000 per claim with a maximum deductible of $25,000 to be paid by Subcontractor.
d. The Subcontractor shall, upon request of Contractor, furnish a copy of its Professional Liability policy. The Professional Liability policies shall be continued in effect for the applicable statute of repose for the state where the project is located.

8. Pollution Liability

a. This Section is applicable to Subcontractor, and any sub-subcontractor of any tier that is providing work related to environmental services, building enclosure systems, plumbing, heating, ventilation, air conditioning, drywall, insulation, building foundations or any work which includes Microbial Matter, Mold, Fungi or Bacteria and any work which will involve the use ofhazardous materials. Subcontractor and all applicable sub-subcontractors must provide and maintain a separate Pollution Liability Insurance policy including coverage for, but not limited to, claims arising out of all hazardous material and hazardous waste remediation, storage, transportation, clean-up, and disposal. Pollution Liability policies must include contractual liability coverage aligned with indemnification obligation of the Subcontract Documents.
b. The policy limits shall be in the amount of $1,000,000 with maximum deductible of $25,000 to be paid by the Subcontractor.
c. Pollution Liability Insurance policy shall name Contractor and all other parties as required under the Subcontract Documents as Additional Insureds.
d. The Subcontractor and sub-subcontractors shall maintain Pollution Liability coverage for a minimum of 2 years after the completion of the Work, or such longer period as required by the Subcontract Documents. Should mold coverage be required and provided by a claims-made form, such coverage shall be maintained annually for 2 years following completion, or such longer period as required by the Subcontract Documents.

9. Equipment Floater

a. Subcontractor shall maintain, at its sole cost and expense, insurance to protect its own equipment, tools, and materials against risk of loss with sufficient limits to cover the value of all of the equipment, tools and materials Subcontractor may use in performance of the Subcontract Work.
b. Subcontractor is solely responsible for any deductibles, self-insured retentions or uninsured losses for any reason arising out of Subcontractor's obligations in this Section. Coverage shall include equipment leased/borrowed/rented by Subcontractor.

Waiver of Subrogation

Subcontractor waives all rights against the Contractor, Owner and Architect and their agents, officers, directors and employees for recovery of damages to the extent these damages are covered by Commercial General Liability, Commercial Umbrella Liability, Business Auto Liability, Builder's risk, or Workers' Compensation and Employers' Liability insurance maintained per requirement stated above and to the fullest extent allowed by law.

Number of Policies

Commercial General Liability Insurance and other liability insurance may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy.

Cancellation, Renewal and Modification

The Subcontractor shall maintain in effect, all insurance coverage required under this Agreement at the Subcontractor's sole expense and with insurance companies acceptable to the Contractor. To the extent commercially available, the policies shall contain a provision that coverage will not be cancelled or not renewed until at least thirty (30) days prior written notice has been given to the Contractor. If not commercially available, Subcontractor shall be responsible for providing Contractor with notice.

Continuation of Coverage

Unless otherwise outlined herein, the Subcontractor shall continue to carry Completed Operations Liability Insurance for at least two (2) years after either ninety (90) days following Substantial completion of the Work, or final payment to the Contractor, whichever is earlier. The Subcontractor shall furnish the Contractor evidence of such insurance at final payment, and one year from final payment.

Special Provisions

All policies shall be written through companies duly entered and authorized to transact that class of insurance in the state in which the project is located. The Insurance Companies must have an A.M. Best rating of A- or better in the most recent Best's Key Rating Guide.

Approval, disapproval, or failure to act by the Contractor regarding any insurance supplied by the Subcontractor shall not relieve the Subcontractor of full responsibility or liability for damages and accidents. Neither shall the bankruptcy, insolvency, or denial of liability by the insurance company exonerate the Subcontractor from liability.

Contractor shall make no special payments for any insurance that the Subcontractor may be required to carry; all are included in the contract price and in the contract unit prices.

The Subcontractor shall require all sub-subcontractors to procure and maintain all insurance as set forth in this contract.

Requirements in the Prime Contract and other Contract Documents are also the responsibility of the Subcontractor and in addition to these requirements. It is the responsibility of the Subcontractor to know what is required of Subcontractor.

SECTION 01250
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 012100 - Allowances, for cash allowances affecting this section.

B. Section 012200 - Unit Prices, for additional unit price requirements.

C. Section 012300 - Alternates, for product alternatives affecting this section.

D. Section 013000 - Administrative Requirements: Submittal procedures, coordination.

E. Section 016000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

F. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Restrictions on emissions of indoor substitute products.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
      a. Unavailability.
      b. Regulatory changes.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
      a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.04 REFERENCE STANDARDS

A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage) Current Edition.

B. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase) Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.
   6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B. A Substitution Request for specified installer constitutes a representation that the submitter:

1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
   1. Note explicitly any non-compliant characteristics.

D. Where "basis of design" or named products are specified, alternate equivalent manufacturers and materials may be proposed provided they are of equal quality and appearance to that specified, in the opinion of the Architect. Contractor shall provide an item-by-item and side-by-side comparison of proposed substitutions. Include all deviations and / or differences between proposed product and specified product. Include side-by-side images to indicate differences in appearance. Substitution forms without this information or incomplete proposals will be returned without review. Contractor to coordinate alternate substrate and backing requirements that may be required and compatibility with other adjacent materials and systems.

E. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. No specific form is required. Contractor's Substitution Request documentation must include the following:
      a. Project Information:
         1) Official project name and number, and any additional required identifiers established in Contract Documents.
         2) Owner's, Architect's, and Contractor's names.
         3) Additional information as required to facilitate review.
      b. Substitution Request Information:
         1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
         2) Indication of whether the substitution is for cause or convenience.
         3) Issue date.
         4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
         5) Description of Substitution.
         6) Reason why the specified item cannot be provided.
         7) Differences between proposed substitution and specified item.
         8) Description of how proposed substitution affects other parts of work.
      c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
         1) Physical characteristics.
         2) In-service performance.
         3) Expected durability.
         4) Visual effect.
         5) Sustainable design features.
         6) Warranties.
         7) Other salient features and requirements.
         8) Include, as appropriate or requested, the following types of documentation:
            (a) Product Data:
            (b) Samples.
            (c) Certificates, test, reports or similar qualification data.
            (d) Drawings, when required to show impact on adjacent construction elements.
            (e) Photos or images.
            (f) Provide clear, legible, high resolution electronic documents.
               (1) Blurry, distorted, or miss-aligned text or images, or low-quality scans of printed materials will not be reviewed.
      d. Impact of Substitution:
         1) Savings to Owner for accepting substitution.

2) Change to Contract Time due to accepting substitution.

F. Limit each request to a single proposed substitution item.
   1. Submit an electronic document, combining the request form with supporting data into single document.

G. Substitutions will not be considered when acceptance will require revisions to Contract Documents.

H. Substitution requests that do not follow all specified procedures or contain all specified requirements and information will be returned without review.
   1. All substitution requests must be reviewed by owner/architect.
   2. Vendor correspondence or solicitation to engineers or architect's consultants does not constitute a substitution request.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Owner/Architect will consider requests for substitutions only within 30 days after date of Agreement.

B. Submit request for Substitution for Cause immediately upon discovery of need for substitution, but not later than 15 days prior to time required for review and approval by Owner/Architect, in order to stay on approved project schedule.

C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 15 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
   1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
   2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
   3. Bear the costs engendered by proposed substitution of:
      a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
      b. Other construction by Owner.
      c. Other unanticipated project considerations.

D. Substitutions will not be considered under one or more of the following circumstances:
   1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
   2. Without a separate written request.
   3. When acceptance will require revisions to Contract Documents.

3.04 RESOLUTION

A. Owner/Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Owner/Architect will notify Contractor in writing of decision to accept or reject request.
   1. Owner/Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 ACCEPTANCE

A. Accepted substitutions change the work of the Project.

3.06 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

B. Include completed Substitution Request Forms as part of the Project record.

END OF SECTION 012500

SECTION 01600
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Sustainable design-related product requirements.

C. Re-use of existing products.

D. Transportation, handling, storage and protection.

E. Product option requirements.

F. Substitution limitations.

G. Procedures for Owner-supplied products.

H. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Lists of products to be removed from existing building.

B. Section 011000 - Summary: Identification of Owner-supplied products.

C. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

D. Section 014000 - Quality Requirements: Product quality monitoring.

E. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.

F. Section 017419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 REFERENCE STANDARDS

A. C2C (DIR) - C2C Certified Products Registry; Cradle to Cradle Products Innovation Institute Current Edition.

B. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers 2017, v1.2.

C. CAN/CSA Z809 - Sustainable Forest Management 2016 (Reaffirmed 2021).

D. EN 15804 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products 2014.

E. GreenScreen (LIST) - GreenScreen for Safer Chemicals List Translator; Clean Production Action Current Edition.

F. GreenScreen (METH) - GreenScreen for Safer Chemicals Method v1.2; Clean Production Action Current Edition.

G. ISO 14044 - Environmental Management - Life Cycle Assessment - Requirements and Guidelines 2006, with Amendment (2020).

H. ISO 21930 - Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services 2017.

I. NSF 332 - Sustainability Assessment for Resilient Floor Coverings 2015.

1.04 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.05 QUALITY ASSURANCE

A. GreenScreen Chemical Hazard Analysis: Ingredients of 100 parts-per-million or greater evaluated using GreenScreen (METH).
   1. Good: GreenScreen (LIST) evaluation to identify Benchmark 1 hazards; a Health Product Declaration includes this information.
   2. Better: GreenScreen Full Assessment.
   3. Best: GreenScreen Full Assessment by GreenScreen Licensed Profiler.
   4. Acceptable Evidence: GreenScreen report.

B. Health Product Declarations (HPD): Complete, published declaration with full disclosure of known hazards, prepared using one of the HPDC (HPD-OLT) online tools.

C. Rapidly Renewable Materials: Made from agricultural products that are typically harvested within a 10-year or shorter cycle.

D. Reused Products: Materials and equipment previously used in this or other construction, salvaged and refurbished as specified.
   1. Wood fabricated from timber abandoned in transit after harvesting is considered reused, not recycled.
   2. Acceptable Evidence: Information about the origin or source, from Contractor or supplier.

E. Sustainably Harvested Wood: Solid wood, wood chips, and wood fiber certified or labeled by an organization accredited by one of the following:
   1. The Forest Stewardship Council, The Principles for Natural Forest Management; for Canada visit http://www.fsccanada.org, for the USA visit http://www.fscus.org.
   2. Acceptable Evidence: Copies of invoices bearing the certifying organization's certification numbers.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
   1. See Section 011000 for list of items required to be salvaged for reuse and relocation.
      a. Refer to additional information on drawings.
   2. If reuse of other existing materials or equipment is desired, submit substitution request.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. See Section 014000 - Quality Requirements, for additional source quality control requirements.

C. Use of products having any of the following characteristics is not permitted:
   1. Made using or containing CFC's or HCFC's.

2. Made of wood from newly cut old growth timber.
3. Containing lead, cadmium, or asbestos.

D. Where other criteria are met, Contractor shall give preference to products that:
1. If used on interior, have lower emissions, as defined in Section 016116.
2. If wet-applied, have lower VOC content, as defined in Section 016116.
3. Are extracted, harvested, and/or manufactured closer to the location of the project.
4. Have longer documented life span under normal use.
5. Result in less construction waste. See Section 017419
6. Are made of vegetable materials that are rapidly renewable.
7. Are made of recycled materials.
8. If made of wood, are made of sustainably harvested wood, wood chips, or wood fiber.
9. If bio-based, other than wood, are or are made of Sustainable Agriculture Network certified products.
10. Are Cradle-to-Cradle Certified.
11. Have a published Environmental Product Declaration (EPD).
12. Have a published Health Product Declaration (HPD).
13. Have a published GreenScreen Chemical Hazard Analysis.
14. Have a published Manufacturer's Inventory of Chemical Content.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver and place in location as directed; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 012500 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. See Section 011000 - Summary for identification of Owner-supplied products.

B. Owner's Responsibilities:
1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
2. Arrange and pay for product delivery to site.
3. On delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:
1. Review Owner reviewed shop drawings, product data, and samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Provide protection of stored materials and products against theft, casualty, or deterioration.

B. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 017419.

1. Structural Loading Limitations: Handle and store products and materials so as not to exceed static and dynamic load-bearing capacities of project floor and roof areas.

C. Store and protect products in accordance with manufacturers' instructions.

D. Store with seals and labels intact and legible.

E. Arrange storage of materials and products to allow for visual inspection for the purpose of determination of quantities, amounts, and unit counts.

F. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

G. For exterior storage of fabricated products, place on sloped supports above ground.

H. Provide off-site storage and protection when site does not permit on-site storage or protection.

I. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

J. Comply with manufacturer's warranty conditions, if any.

K. Do not store products directly on the ground.

L. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

M. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

N. Prevent contact with material that may cause corrosion, discoloration, or staining.

O. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

P. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION 016000

SECTION 02 4100 SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

A. Section 00 3100 - Available Project Information: Existing building survey conducted by Owner; information about known hazardous materials.

B. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

D. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

E. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:
   1. Areas for temporary construction and field offices.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

2 PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 2323 - Fill.

3 PART 3 EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.
   4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   5. Do not close or obstruct roadways or sidewalks without permit.
   6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.

D. Do not begin removal until built elements to be salvaged or relocated have been removed.

E. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

G. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

3.02 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, and Electrical): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.

4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

3.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete foundation walls.

D. Concrete reinforcement.

E. Joint devices associated with concrete work.

F. Miscellaneous concrete elements, including equipment pads, light pole bases, flagpole bases, thrust blocks, and manholes.

G. Concrete curing.

1.02 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 1997).

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 1996.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 1989 (Reapproved 1997).

E. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1991.

F. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988.

G. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International; 1992 (Reapproved 1997).

H. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1999.

I. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement; 1997.

J. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

K. ASTM C 33 - Standard Specification for Concrete Aggregates; 1997.

L. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 1996.

M. ASTM C 94 - Standard Specification for Ready-Mixed Concrete; 1998.

N. ASTM C 150 - Standard Specification for Portland Cement; 1997a.

O. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 1997a.

P. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 1994a.

Q. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 1997.

R. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 1998a.

S. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete; 1998.

T. ASTM C 881 - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 1990.

U. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1991.

V. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 1997.

W. ASTM D 994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 1994.

X. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 1983 (reapproved 1991).

Y. ASTM E 1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996.

Z. COE CRD-C 513 - COE Specifications for Rubber Waterstops; Corps of Engineers; 1974.

AA ASTM F710

1.03 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Reinforcing Drawings, including placement drawings and bar schedules showing all shapes, sizes, and dimensions

C. Concrete Mix Designs, including historical performance reports prepared by an Independent Testing Laboratory.

D. Product Data: Submit manufacturers' data on manufactured products.

E. Samples: Submit two, 6 inch long samples of waterstops and construction joint devices.

F. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction for concrete accessories.

G. Project Record Documents: Accurately record actual locations of embedded utilities and

components that will be concealed from view upon completion of concrete work.

H. Record Documents: Accurately record actual locations of each truckload of material that was tested.

1.04 QUALITY ASSURANCE

A. Pre-Construction Meeting: The concrete foreman and/or the concrete subcontractor is to attend a weekly construction progress meeting prior to the commencement of any concrete work, and review of the concrete requirements is to be an agenda item.

B. Perform work of this section in accordance with ACI 301 and ACI 318.
   1. Maintain one copy of each document on site.

C. All concrete provided is to be tested in accordance with the guidelines of Section 1400.

D. Acquire cement from same source and aggregate from same source for entire project.

E. Follow recommendations of ACI 305R when concreting during hot weather.

F. Follow recommendations of ACI 306R when concreting during cold weather.

G. Notify Architect, Structural Engineer and Owner's Representative 24-hours in advance of any concrete placement. The Architect, or it's consultants, must examine conditions prior to any concrete placement.

PART 2 PRODUCTS

2.01 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide a stain-free and "true" final appearance.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420), unless indicated otherwise on drawings.
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Welded Steel Wire Fabric: ASTM A 185, plain type.
   1. Mesh Size and Wire Gage: As indicated on drawings.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel, galvanized, or plastic components for placement within 1-1/2 inches of weathering surfaces.

2.03 UNDERSLAB STRATA

A. Sand Fill Under sidewalks: 2" +/- 0.5". ASTM C33.

B. Capillary Break below Floor Slab(s) on grade: minimum 4" thick layer of 3/4" gap graded stone (no fines). Bottom of rock layer to be equal to or higher than the outside grade. Provide varmint resistive weeps to exterior grade.

2.04 CONCRETE MATERIALS

A. Cement: ASTM C 150, Type I - Normal Portland type.

B. Fine and Coarse Aggregates: ASTM C 33.

D. Water: Clean and not detrimental to concrete.

2.05 ADMIXTURES

A. Air Entrainment Admixture: ASTM C 260. Use in all exterior concrete. Refer to Concrete / Structural Notes on the drawings.

B. All admixtures are to be approved by the Architect and Engineer before using. These must be included in the Concrete Mix designs submitted for approval.

2.06 CONCRETE ACCESSORIES

A. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent concrete intrusion during placement.

B. Bonding Agent: ASTM C 1059, Type II acrylic non-redispersable type.

C. Epoxy Bonding System: ASTM C 881, type as required by project conditions.

D. Vapor Barrier: Extremely low permeance 15 mil vapor barrier, with all laps a minimum of 6" and taped continuously with tape recommended by manufacturer. Acceptable products:
1. Stego Wrap (15 mil) Vapor Barrier by STEGO INDUSTRIES LLC, San Juan Capistrano, CA. (877) 464-7834 www.stegoindustries.com
2. W.R. Meadows® premoulded membrane with Plasmatic Core.
3. Vaporguard® by Reef® Industries
4. Equal pre-approved products. See Section 01600.

E. Non-Shrink Grout: ASTM C 1107; premixed compound consisting of aggregate, cement, water reducing and plasticizing agents.
1. Minimum Compressive Strength at 28 Days: 7,000 psi.

F. Curing: Chemical Curing Compounds will not be permitted on surfaces to receive surface applied waterproofing compounds or adhesive applied floor finishes, including tile and carpet. Use water sprinklers with edge dams and curing cover to maintain wet surface for not less than seven (7) days then reduce to a damp surface for three additional days. Failure to maintain the required curing enviroment may result in rejection of work. Curing compounds may be used on exterior slabs only.

G. Moisture-Retaining Cover: ASTM C 171; white curing paper or white burlap-polyethylene sheet.

H. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent. EXTERIOR CONCRETE ONLY.

2.07 JOINT DEVICES AND MATERIALS

A. Waterstops: Rubber type, COE CRD-C 513. Provide joint materials manufactured by Greenstreak or equal.

B. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, 1/2 inch thick and full depth of slab less 1/2 inch.

C. Construction Joint Devices: Integral galvanized steel or extruded plastic, 3.5 inch thick, or as shown on the drawings, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge (must be removed prior to next pour). Site-built joint device in combination with tooled edges as detailed are acceptable.

D. Smooth Dowels: to be size and type as shown on drawings.

E. Sealant and Primer: As specified in Section 07900.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Normal Weight Concrete:
1. Compressive Strength, when tested in accordance with ASTM C 39 at 28 days: As indicated on drawings. If not noted, allow for 4,000psi in bid, but confirm required strength during the submittal process.
2. Water-Cement Ratio: Maximum 40 percent by weight.
3. Total Air Content: 5 percent, per ASTM C 173 -- Exterior exposed concrete only.
4. Maximum Slump: 4 inches.
5. Maximum Aggregate Size: .75 inch.
6. Use accelerating admixtures in cold weather only when approved by Architect. Use of admixtures will not relax cold weather placement requirements.
7. The Use of calcium chloride shall not be allowed.
8. Use set retarding admixtures during hot weather when approved by Architect.
9. Use superplasticizer for pumped placements when approved by the Architect.

2.09 MIXING

A. Transit Mixers: Comply with ASTM C 94.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Earth forms are permitted for continuous and spot footings only.

B. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301. All forms shall conform to the shape, lines, and dimensions of members as shown on drawings, and shall be substantially free from surface defects. All concrete shall be formed, except flat areas to be finished, unless shown or noted otherwise on the drawings. Construct forms sufficiently tight to prevent leakage of water.

C. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over-stressing by construction loads.

D. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

E. Align joints and make watertight. Keep form joints to a minimum.

F. Obtain approval before framing openings in structural members which are not indicated on the Drawings.

G. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placement of reinforcing steel, anchoring devices and embedded items.

H. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

I. Provide formed openings where required for items to be embedded in passing through concrete work.

J. Locate and set in place items which will be cast directly into concrete.

K. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

L. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

M. Loosen forms carefully. do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

N. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

O. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

P. For floor slabs on grade, first place a 4" layer of 3/4" Class A (no fines) rock, thoroughly consolidated with a plate compactor.

Q. For sidewalks on grade, first place a 2" leveling course of well consolidated (plate compactor) sand.

R. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

3.03 INSTALLING REINFORCEMENT

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice, ACI 318.

B. Locate reinforcing splices not indicated on drawings, at point of minimum stress. Review location of splices with Architect/Engineer.

C. Contractor shall include in his base bid the in-place cost of one (1) ton of reinforcing steel in addition to all other steel shown on the drawings or called for in the specifications.

D. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

E. Place, support and secure reinforcement against displacement. Do not deviate from required position. Accommodate placement of formed openings.

F. Install wire fabric in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Notify Architect, Structural Engineer and Owner's Representative not less than 24 hours prior to commencement of placement operations.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. Concrete shall be conveyed from mixer to the place of final deposit by methods which will prevent segregation or loss of materials. Chutes shall be metal and have maximum slope of 4 to 12. Chutes greater than 20 feet long are not permitted.

F. The concreting shall be carried on at such a rate that concrete is plastic at all times and flows readily into spaces between bars. Concrete temperature shall be 60-80 degrees Fahrenheit. No concrete that is partially hardened or has been contaminated by foreign materials shall be deposited, nor shall re-tempered concrete be used.

G. Separate slabs on grade from vertical surfaces with joint filler.

H. Each batch shall begin at a bulkhead, edge form, or into the edge of the previously placed concrete to avoid stone pockets and segregation.

I. Do not interrupt successive placement; do not permit cold joints to occur. If there is a delay in casting, the concrete placed after the delay shall be thoroughly spaded and consolidated at the edge of that previously place.

J. Bring concrete to the correct level with a straight edge and strike off. Use floats to smooth the surface, leaving the concrete free of humps or hollows.

K. Place concrete continuously between predetermined expansion, control, and construction joints.

L. Place floor slabs in joint pattern indicated on drawings.

M. Type and use of vibrator shall be in conformance with ACI 309, "Recommended Practice for Consolidation of Concrete", lower frequency vibrators may be used with "flowing" concrete. Vibrators shall be inserted in accordance with manufacturer's instructions.

N. Screed slabs on grade level, maintaining surface flatness of maximum of 1/8" in 10 ft.

O. Minimum of two (2) hours are required between placing columns and floors.

P. Install joint devices in accordance with manufacturer's instructions.

Q. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

R. Saw cut joints within 12 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

3.05 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Steel trowel surfaces that will receive carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
   2. Steel trowel surfaces that will be left exposed.
   3. After concrete has been properly placed, struck off, and darbied or bullfloated, it shall not be worked until ready for floating. Lapse time between darbying and power floating may vary from 2 to 8 hours depending on weather conditions, concrete temperature, and concrete mixture. Power floating shall begin when the water sheen has disappeared, and/or mix has stiffened sufficiently that the weight of a man standing on it leaves only a slight imprint on the surface. If two power floating operations are necessary to bring surface to desired state, concrete shall be allowed to stiffen or become harder before beginning second floating operation.
   4. Both power and hand troweling shall be required. Begin power troweling as soon as little or no cement paste clings to blades. Continue troweling until surface is dense, smooth, and free of all minor blemishes, such as trowel marks.
   5. Final hand troweling shall be required to remove slight imperfections left by troweling machines and to bring surface to a dense, smooth polished finish. continue hand troweling until a ringing sound is heard as the trowel passes over surface.
   6. Steps and platforms receive a light broom finish following sufficient troweling to seal the surface and remove all minor blemishes, such as trowel marks.
   7. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.06 CONTROL JOINTS

A. Control joints shall be located as shown on drawings or per approved alternative layout.

B. Saw cut joints within 12 hours after placing. Use 3/16 inch thick blade.

C. Perform sawing of control joints with approved mechanical saw in satisfactory working condition, adequately powered to cut rapidly to the depth and width shown on drawings. Saws shall be water cooled and have suitable guides to insure straight line cutting.

D. Begin sawing as soon as the concrete hardens sufficiently to prevent undue raveling of the edges. Succeeding joints shall be sawed consecutively from beginning to end of the days pour and sawed soon enough to prevent uncontrolled cracking.

E. Remove residue by flushing with water and cleaning with air jet prior to placing joint filler.

3.07 CURING AND PROTECTION

A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than 7 days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:
   1. Start initial curing as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than seven (7) days by water ponding, water-saturated sand, water-fog spray, or saturated burlap. Where curing compound is used, apply at the rate of 400 square feet per gallon in accordance with recommendations of the manufacturer and shall not be used on any surface against which additional concrete or other cementitious finishing materials are to be bonded.
   2. Begin final curing after initial curing but before surface is dry.
      a. Moisture-retaining cover: Seal in place with waterproof tape or adhesive. Do Not Use Paper products.
      b. Curing compound (DO NOT USE on floors requiring Para-Seal): Use on exterior concrete ONLY. Apply in two coats at right angles, using application rate recommended by manufacturer.

3.08 JOINT SEALANTS

A. Paving: Vulkem 202 or Sonneborn "Sonometric 2"
B. Sidewalks: Soft joints, Pecora Synthacalk GC9.

C. Interior Floor Slabs:
   1. Exposed: Slabs subject to motorized vehicular traffic; semi-flexible epoxy "Masterfill" CJ or as approved by the Architect. Joints shall be refilled if cracking of sealant occurs.
   2. Exposed slabs not subjected to vehicular traffic: "Pecora" Synthacalk GC9 or as approved by the Architect.
   3. Slabs beneath floor finishes: Hard filler "Floorstone" or as approved by the Architect.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01400.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to Architect for review and approval prior to commencement of concrete operations.

D. Compressive Strength Tests: ASTM C 39. For each test, mold and cure four concrete test cylinders. Obtain test samples for every 25 cu yd or less of each class of concrete placed.

E. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

F. Perform one slump test for each set of test cylinders taken.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect, Owner's Representative, and General Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by the Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

END OF SECTION

SECTION 05400

LIGHTGAUGE METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Load Bearing Formed Steel Stud Framing.

B. Non-Bearing Formed Steel Stud Framing on Exterior Wall.

C. Formed Steel Joist Framing and Bridging.

D. Any other lightgauge framing system noted on the structural Contract Drawings.

1.02 RELATED SECTIONS

A. Section 09260 – Gypsum Board Assemblies.

1.03 REFERENCES

A. American Iron and Steel Institute (AISI):

1. Specification for the Design of Cold Formed Steel Structural Members.

B. American National Standards Institute (ANSI):

1. ANSI Z49.1, Safety in Welding and Cutting.

C. American Society of Testing and Materials (ASTM):

1. ASTM A653, Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Coated (Galvannealed) by the Hot-Dip Process.

2. ASTM C645, Standard Specification for Non-Load Bearing (Transverse and Axial) Steel Studs, Runners (Track) and Rigid Furring (Hat) Channels.

3. ASTM C754, Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.

4. ASTM C955, Standard Specification for Load Bearing Steel Studs, Runners (Track) and Bracing and Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.

D. American Welding Society (AWS):

1. AWS D1.3, Structural Welding Code – Sheet Steel.

E. Steel Structures Painting Council (SSPC):

1. Painting Manual.

1.04 SUBMITTALS

A. Shop Drawings:

1. Indicate component details; bearing; anchorage; type, size, and location of connections; and accessories or items required of related work.

2. Indicate stud and ceiling joist layout and sizes.

3. Describe method for securing studs to tracks and for screwed, bolted, or welded framing connections.

B. Section Properties: Submit section properties, material strengths and ASTM specification compliance verification for each size member, strap or brace of each gauge used.

C. Connections: Submit manufacturer's data for each type of manufactured connection, screw, or fastener verifying conformance with Contract Drawings.

1.05 QUALITY ASSURANCE

A. Manufacturing Standard: All lightgauge framing shall be equivalent to Dietrich Industries, Inc. published standards and installation recommendations, which will be used as a quality standard reference in the event the Contractor furnishes materials in which the submitted manufacturer does not have a published installation manual.

PART 2 PRODUCTS

2.01 MATERIALS

A. Lightgauge Steel Framing: Provide Dietrich Industries Inc. lightgauge structural framing system; including studs, joists, track, bridging and bracing members shown, scheduled, and as required for a complete installation.

B. Steel studs, joists, track, clips, stiffeners, fasteners, and accessories shall be of the type, size, gauge, and spacing indicated on the Contract Drawings. Or if not indicated, as recommended by the manufacturer for the design loads and applications indicated.

C. All studs, joists, track, clips, stiffeners, and accessories shall be formed from hot dipped galvanized steel corresponding to the requirements of ASTM A653, with a G60 coating unless noted otherwise on Contract Drawings, and a minimum yield strength of 33 ksi (33,000 psi) with the exception that 16 gauge and heavier studs and joists shall have a minimum yield strength of 50 ksi (50,000 psi).

D. Touch-up primer for galvanized surfaces shall conform to SSPC Paint 20 T ype I Inorganic.

E. Substitutions: All proposed material or connection substitutions will require review and approval of Engineer. Engineer will be compensated at Contractor's cost, $95/hour with a minimum $285 fee. This compensation will be on a per submittal basis. The following information will be provided in each Submittal:

1. Structural Calculations:

   a. Submit structural calculations prepared by the manufacturer. Calculation shall bear the seal of an engineer registered in the state in which the project is located.
   b. Calculations shall include a comparative analysis between the specified and proposed members, connections, or systems, demonstrating equal or better strength and performance.
   c. Manufacturer's allowable span vs. load tables.

2. Section Properties: Submit section properties, material strengths and ASTM specifications for substitutions.

3. Connections: Submit manufacturer's data for each type of manufactured connection, screw, or fastener proposed.

F. Any substitutions must be approved in writing by the Engineer.

2.02 FABRICATION

A. Do not begin fabrication of work prior to receiving approval of shop drawings and calculations. Fabricate per manufacturer's current printed instructions.

B. Shop Fabrication: Fabricate items in shop to greatest extent possible so as to minimize field assembly of units at project site. Clearly mark units for assembly and coordinated installation.

C. Framing components shall be cut squarely or at an angle to fit squarely against abutting members. Member shall be held firmly in position until properly fastened.

PART 3 EXECUTION

3. 01 INSTALLATION

A. General: Install all metal framing systems, steel studs and accessories in accordance with Contract Drawings and manufacturer's current printed instructions.

B. Securely anchor track to floor and overhead structure or members. Abutting pieces of track shall be securely anchored to a common structural element, or they shall be butt welded or spliced together.

C. Attachments of exterior metal framing components shall be as indicated or if not indicated, as recommended by the manufacturer for the design loads and applications indicated. Dissimilar structural components shall be attached by welding, screw attachment, or bolting. Wire tying of framing components in structural applications shall not be permitted.

D. Allow for structural movement where indicated by providing connections designed specifically for that purpose; including vertical slide clips or deep leg deflection tracks. For studs attached to the bottom of structure, allow space between studs and top deep leg deflection track and brace wall as indicated or as recommended by the manufacturer.

E. Splices in load bearing studs, joists or rafters shall not be permitted. Axially loaded studs shall have full bearing against inside track web, prior to stud and track attachment.

F. At a minimum, 20 gauge studs shall be used adjacent to all interior door frames, and at walls to receive ceramic tile finish.

G. Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to manufacturer's Load Table criteria or written recommendations. Gypsum wallboard shall not be considered as bridging.

H. Provide web stiffeners at all points of applied concentrated loads and at all reaction points.

I. Joist bridging shall be provided according to manufacturer's Joist Load Tables criteria or written recommendations.

J. All structural joist and studs shall have a minimum of 10 inches of unpunched steel at bearing or support points.

K. Touch-up field welds and damaged galvanized surfaces with primer.

3. 02 METAL STUD MAXIMUM SPAN SCHEDULES

A. The following schedules are based on Dietrich Industry, Inc. span tables and are given as a schedule of minimum stud sizes which will be accepted. In the table below, for studs 2-1/2"-25 gauge through 6"-20 gauge the maximum heights listed are for Drywall Studs. For 8"-20 gauge studs and 2 1/2" 18 gauge through 8"-14 gauge studs, the maximum heights listed are for CSJ studs. The most stringent requirements shall govern in conflicts between the schedule and manufacturer's metal stud maximum span table submittals.

B. INTERIOR METAL STUDS NON LOAD BEARING WITH GYPSUM BOARD AND BRACING ON BOTH SIDES MAXIMUM DEFLECTION OF 1/240 WITH 5 P.S.F. AIR PRESSURE.

STUD SIZE	GAUGE	MAXIMUM HEIGHT at 16" oc	MAXIMUM HEIGHT at 12" oc
2-1/2"	25	10'-1"	11'-1"
3-5/8"	25	13'-4"	14'-8"
4"	25	14'-6"	15'-10"
2-1/2"	22	11'-7"	12'-8"
3-5/8"	22	15'-6"	17'-0"
4"	22	16'-8"	18'-4"
6"	22	23'-0"	25'-3"
2-1/2"	20	12'-3"	13'-6"
3-5/8"	20	16'-6"	18'-1"
4"	20	17'-9"	19'-7"
6"	20	24'-6"	27'-1"
8"	20	32'-10"	36'-2"
2-1/2"	18	14'-4"	15'-10"
3-1/2"	18	18'-7"	20'-6"
3-5/8"	18	19'-1"	21'-0"
6"	18	28'-4"	31'-2"
8"	18	35'-9"	39'-4"
2-1/2"	16	15'-5"	16'-11"
3-1/2"	16	19'-11"	21'-11"
3-5/8"	16	20'-6"	22'-6"
6"	16	30'-5"	33'-6"
8"	16	38'-4"	42'-3"
2-1/2"	14	16'-5"	18'-1"
3-1/2"	14	21'-4"	23'-5"
3-5/8"	14	21'-11"	24'-1"
6"	14	32'-7"	35'-11"
8"	14	41'-2"	45'-3"

NOTE: Interior walls as described above are not to be exposed to exterior wind loads and shall not be installed until building is enclosed.

C. 20 gauge or heavier studs shall be used adjacent to all interior door frames, and at walls to receive ceramic tile finish.

D. Exterior metal studs shall be of size, gauge, and type shown on the structural drawings.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.01 DESCRIPTION

A. Includes wood framing and blocking, as well as, concealed wood backing for wall mounted items.

1.02 REFERENCES

A. AFPA – American Forest and Paper Association

B. FS TT-W-571 – Wood Preservation: Treating Practices

C. PS 1 – Construction and Industrial Plywood.

D. PS 20 – American Softwood Lumber Standard.

1.03 DELIVERY AND STORAGE

A. Materials shall be delivered to the site in undamaged condition, stored off ground in fully covered, well-ventilated areas, and protected from extreme changes in temperature and humidity.

PART 2 PRODUCTS

2.01 GENERAL LUMBER

A. Comply with PS 20 and applicable grading rules of inspection in accordance with AFPA Grading Rules.

B. Provide seasoned lumber with 19 percent moisture content at time of dressing and shipment, for sizes 2" or less in thickness.

C. Provide lumber with 15 percent moisture content at time of dressing and shipment, for sizes 2" or less in thickness.

2.02 PANELS

A. For types of concealed applications indicated below, provide wood panel products complying with PS 1 where applicable, and with "APA Performance Standard and Policies for Structural Use Panels" (Form E445) for requirements indicated.

B. For following types of applications where exposure durability classification or span rating is not given, provide EXPOSURE 1 and rating required to suit support spacing indicated.

C. Plywood Backing for Electrical and Telephone Equipment: APA C-D PLUGGED INT with exterior glue, fire-retardant treated, 1/2" thick except as otherwise indicated.

PART 3 EXECUTION

3.01 INSTALLATION:

A. ROUGH CARPENTRY

1. Install rough carpentry work to comply with recommendations of American Plywood Association (APA), unless otherwise indicated. For sheathing, underlayment and other products not covered in above standards, comply with recommendations of manufacturer of product involved for use intended. Set carpentry work to required levels and lines, with members plumb and true and cut to fit.

B. ATTACHMENTS

1. Securely attach carpentry work to substrates and supporting members using fasteners of size that will not penetrate members where opposite side will be exposed to view or receive finish materials. Install fasteners without splitting wood; fasten panel products to allow for expansion at joints unless otherwise indicated.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Solid surfacing window sills

B. Wood Moldings

C. Hardware and attachment accessories.

1.02 RELATED SECTIONS

A. Section 06100 – Rough Carpentry

B. Section 06400 – Architectural Woodwork

C. Section 09901 – Paints and Coatings – Existing Schools

1.03 REFERENCES

A. AWI/AWMAC (QSI) – Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2003

1.04 SUBMITTALS

A. See Section 01300 – administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details accessories, to a minimum scale of 1-1/2 inch to 1 ft.

C. Samples:
   1. Solid Surface Material: Two 3” x 3” min. of each color specified. One sample 6-inch length showing the edge detail.
   2. Wood Moldings: two 18-inch long samples of each shape as specified in the wood type.

1.05 QUALITY ASSURANCE

A. Protect work in accordance with AWI Architectural Woodwork quality Standards illustrated Custom Grade.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Protect work from moisture damage

1.07 PROJECT CONDITIONS

A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

PART 2 PRODUCTS

2.01 SOLID SURFACING SILL MATERIAL

A. Polyester/acrylic type with integral coloring
   1. Surface finish" Polished
   2. Color: As indicated on the drawings.
   3. Thickness ½" and edging as indicated on drawing. If not on drawing, provide options for approval.

2.02 LUMBER MATERIALS

A. Lumber
   1. Red oak species plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
   2. Wood species to match existing wood species in renovation projects. Verify species with architect prior to fabrication.

2.03 ADHESIVE

A. Adhesive: Type recommended by AWI to suit application.

2.04 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work

3.02 INSTALLATION

A. Set and secure materials and components in place, plumb and level.

3.03 SCHEDULE

A. Interior:
   1. Window Sills: solid surfacing.
   2. Moldings and Miscellaneous Trim: Verify with drawings; prepare for stain finish.

END OF SECTION

SECTION 06400

ARCHITECTURAL

WOODWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes special fabricated cabinet units, countertops, cabinet hardware, prefinished surfaces, and preparation for installing utilities.
B. Related Sections:
   1. Section 06100 – Rough Carpentry.
   2. Section 06200 – Finish Carpentry.
   3. Divisions 15 and 16 – Mechanical and Electrical: Rough-in and connection.

1.2 REFERENCES

A. ANSI A135.4 – Basic Hardboard.
B. ANSI A208.1 – Mat Formed Wood Particleboard.
C. AWI (Architectural Woodwork Institute) – Quality Standards.
D. BHMA A156.9 – Cabinet Hardware.
E. FS MMM-A-130 – Adhesive, Contact.
F. NEMA (National Electric Manufacturers Association) LD3 – High Pressure Decorative Laminates.
G. PS 1 – Construction and Industrial Plywood.
H. PS 20 – American Softwood Lumber Standard.
I. WIC (Woodwork Institute of California) – Manual of Millwork.
J. APA (American Plywood Association).

1.3 SUBMITTALS FOR REVIEW

A. Section 01300 – Administrative Requirements: Procedures for submittals.
B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.
C. Product Data: Provide data for hardware accessories and edging.
D. Samples: Submit two: 1 1/2 x 2 1/2 inch size samples, illustrating each cabinet finish; 2 inch long size samples, illustrating each edging strip.
E. Samples: Submit two samples of drawer pulls, hinges and closures, illustrating hardware finish.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with AWI Premium Quality.
B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum three (3) years of experience.

1.5 MOCKUP

A. Arrange meeting with Owner/TPS where units will be examined to ascertain quality and conformity to AWI standards. These units shall establish a minimum standard of quality for this work.
B. Mockup may be used as part of the Work.

1.6 DELIVERY, STORAGE AND PROTECTION

A. Delivery: Materials shall be delivered to the site by the casework fabricator in undamaged dry condition.

B. Protection: Protect units by covering completed work with 4-mil polyethylene film protective enclosure, applied in a manner which will allow easy removal and without damage to woodwork or adjoining work. Architectural woodwork contractor shall remove cover immediately before date of substantial completion.

PART 2 PRODUCTS

2.1 MATERIALS

A. **Laminate Materials**:
1. High Pressure Laminate (HPL): AWI 0.045 inch (1.1 mm) General Purpose quality; color, pattern and surface texture as scheduled.
2. Melamine: General Purpose quality; color, pattern and surface texture as scheduled.
3. Manufacturers:
   a. Formica.
   b. Wilsonart.
4. **Premium laminate for reception desk and library circulation desk. Standard laminate at all other millwork.**

B. **Epoxy Resin**: Chemical and abrasion resistant, durable top of 1 inch thick cast material of epoxy resins and inert products.

C. **Wood MDF board**: PS 1; AWI standard, of grade to suit application; thickness as noted below by application.

D. **Hardboard**: Pressed wood fiber with resin binder, standard grade, 1/4 inch (6 mm) thick, smooth on one side, located as noted below by application.

E. **Hardwood Plywood**: PS 51; graded in accordance with AWI core materials of lumber, type of glue recommended for application; face veneer and cuts as noted below by application.

F. **Backs**:
1. Exposed finished backs shall be 3/4 inch thick with HPL on inside surface.
2. Unexposed backs shall be **1/2 inch** thick MDF board core with melamine laminate on inside surface for upper and lower cabinets. Use 3/4 inch thick on full height cabinets.

G. **Ends**: Finished ends shall be 3/4 inch thick with melamine laminate on inside surface. Exposed edges to be banded with PVC.

H. **Partitions**: Partitions shall be 3/4 inch thick with melamine laminate on inside surface.

I. **Bottoms and Bases**:
1. Bottoms shall be 3/4 inch thick MDF board core. Interior surfaced with melamine laminate and exposed surfaced with HPL on the top side.
2. Base, storage and shelving units shall have a separate framed and reinforced base attached to the bottom of the cabinets forming a 4 inch high base that shall be recessed 2 inches in the front (unless noted otherwise on the drawings).

J. **Shelves**:

1. All shelves shall be **1 inch thick** MDF board core.
2. Interior shelves shall be surfaced with white melamine laminate surface on two sides. All sides to be banded with white melamine laminate.
3. Exposed shelves shall be surfaced with HPL on two sides with PVC edge banding.
4. **Adjustable shelf edges shall be banded with 3mm PVC on front and back edges and with white melamine on both side edges.**
5. All adjustable shelves to be on metal shelf pegs inserted into shop drilled holes at 2 inches on center vertically.

K. **Countertops**:

1. HPL covered countertops shall be **2 layers of 5/8" MDF** with plastic laminate surface on one side. Backsplashes as indicated on drawings, laminate to match countertop w/ 3mm PVC banding on tops and ends to match plastic laminate. Include end curb where top abuts end wall. **Countertops at wet areas are to use moisture resistant MDF.**
2. Face edge of countertops shall be banded with 3mm PVC (hot mill glued) to match plastic laminate tops. Colors to match plastic laminate color shall be selected by TPS.

L. **Drawers**:

1. Drawer fronts shall be 3/4 inch thick with HPL exterior surface and white melamine interior surface.
2. Exposed edges to be banded with 3mm PVC (hot mill glued), color to match plastic laminate.
3. **Drawer boxes shall be 5/8" MDF board core surfaced with white melamine laminate.**

M. **Doors**:

1. Doors shall be 3/4 inch thick with HPL exterior surface and white melamine interior surface.
2. Exposed edges shall be banded with 3mm PVC (hot mill glued).

N. **Hardware**:

1. Adjustable shelf hardware shall be as specified above.
2. Pulls: Drawer and Door pulls shall be 4 inch "U" shaped, wire loop type pull with brushed nickel satin finish.
3. Hinges: Hinges shall be Blum concealed type, 125 degree opening. Provide four (4) hinges on full-height doors.
4. Drawer slides: Drawer slides shall be side-mount Repon type, full extension, metal ball bearing, 100 lb.
5. Locks: Disc tumbler cam locks. **All locks in individual rooms to be keyed alike.**

O. **Accessories**:

1. Adhesive: Type recommended by laminate manufacturer to suite application.
2. Counter tops, Ends, and Partition Edging: Semi-rigid PVC Vinyl Edge Trim; 3mm thickness; extruded convex shaped; smooth finish; of width to match component thickness/height; color to match adjacent surface.
3. Door and Drawer Edging: PVC Vinyl Edge; 3mm inch thick; smooth finish; of width to match component thickness; color to match adjacent surface.
4. Fasteners: Size and type to suite application.
5. Wire ways: Provide 3 inch diameter plastic wire ways at 48" o.c. at work surfaces; color shall be black.

P. **Finish Wood**: Shall be as identified on drawings.

Q. **Epoxy Resin Sinks**:
1. All sinks indicated in epoxy resin countertops shall be constructed of similar epoxy resin material and shall be “lipped” in design.
2. All sinks in Handicap Sink Units and Prep Rooms shall be ADA compliant with minimum inside dimensions of 25” (side-to-side) x 15” (front-to-back) x 5” (deep).
3. All sinks in Pods and Teacher Stations shall have a minimum inside dimension of 8” (side-to-side) x 12” (front-to-back) x 6” (deep).

R. **Epoxy Resin Countertops**:
1. Epoxy resin countertops to be 1 inch thick, cast flat, with a uniform non-glare black matte finish. Backsplashes of heights as indicated on drawings, butt- jointed and cemented to top. Include end curb where tops abut end walls.

S. **Solid Surface Countertops**:
1. Solid surface countertops to be 1/2 inch nominal thickness. Backsplashes of heights as indicated on drawings, butt-jointed and cemented to top. Include end curb where tops abut end walls.
2. Tensile Strength = 3,400 psi
3. Hardness (Barcol Impressor) = 60
4. Fungi and Bacterial Resistant
5. Boiling Water and High Temperature Resistant
6. Methacrylate-based adhesive for chemically bonding seams
7. Form joint seams between solid surfacing components so joints are inconspicuous in appearance and without voids.
8. Manufacturer:
   a. Corian, Price Group C
   b. Wilsonart Quartz

T. **Window Sills**:
1. Solid surface window sills to be 1/2 inch nominal thickness, butt-jointed and cemented to top, with 1” apron beneath.
2. Tensile Strength = 3,400 psi
3. Hardness (Barcol Impressor) = 60
4. Fungi and Bacterial Resistant
5. Boiling Water and High Temperature Resistant
6. Methacrylate-based adhesive for chemically bonding seams
7. Form joint seams between solid surfacing components so joints are inconspicuous in appearance and without void.
8. Manufacturer: Corian

2.2 FABRICATION

A. Shop assemble casework in one unit easily handled and to permit passage through building openings.
B. Fit shelves, doors and exposed edges to be banded with PVC trim.
C. Cap exposed plastic laminate finish edges with material of same finish and pattern.
D. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.
E. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
F. Glue and fasten backsplash with screws to countertop at a minimum of 12 inches on center.
G. Millwork contractor to provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal cut edges.
H. Millwork shall be custom fabricated as identified on drawings. Manufacturer's standard millwork may only be substituted if it matches the sizes, configurations and styles indicated on drawings. Any substitutions shall be approved by TPS prior to bidding. If not approved prior to bidding, contractor shall not be allowed to substitute during fabrication.

2.3 FINISH FOR MILLWORK

A. General: The entire finish of millwork is work of this section.
B. Shop Finishing: To the greatest extent possible, finish millwork at shop or factory. Defer only final touch-up, cleaning and polishing for time after delivery and installation.
C. Preparations for Finishing: Comply with AWI Quality Standards for sanding, filling countersunk fasteners, back priming and similar preparations for finishing of architectural woodwork as applicable to each unit of work.
D. Transparent Finish:
    1. AWI Finish System #3.
    2. Grade: Premium.
    3. Open Grain Woods: Filled finish.
E. Exterior surfaces of finish wood on millwork shall have the following finish system.
    1. A first sealer coat shall be applied, thoroughly dried, sanded and dusted.
    2. A second sealer coat shall be applied and thoroughly dried.
    3. A double coat of chemical resistant synthetic varnish shall then be applied and thoroughly dried, providing a semi-gloss finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Coordinate unit models, quantities and delivery dates with Architect prior to start of work.

3.2 INSTALLATION

A. Installation shall be performed by personnel trained in the installation of architectural woodwork.
B. Set and secure casework in place rigid, plumb and level.
C. Use #10 truss head screws to secure casework to walls.
D. Use purpose designed fixture attachments at concealed locations for wall mounted components.
E. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units and countertops.
F. Secure cabinet and counter bases to floor using appropriate angles and anchorages.
G. Use purpose designed color matching sealant at all countertop and backsplash joints at laminate clad countertops.
H. Install a clear silicon sealant at joint between wall and top of backsplash at laminate clad countertops.
I. Provide and install wire management grommets in work surfaces where indicated on drawings. Where grommet are not shown in work surfaces on drawings, provide grommets at 48” o.c. and verify exact locations with owner.

3.3 ADJUSTING

A. Adjust work before delivery. Test work to be delivered for rigidity and ability to support loads.
B. Adjust moving or operating parts to function smoothly and correctly.

3.4 CLEANING

A. Clean casework, counters, shelves, hardware, fittings and fixtures.
B. Protect millwork to ensure that work will be without damage or deterioration at the time of delivery and acceptance.

END OF SECTION

SECTION 06 8200
FIBERGLASS REINFORCED PLASTIC PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fiberglass reinforced polyester panel system for adhesive mounting.

B. Moldings, adhesive, and joint sealants.

1.02 REFERENCES

A. ASTM D 256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2005a.

B. ASTM D 570 - Standard Test Method for Water Absorption of Plastics; 1998.

C. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics; 2003.

D. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer; 2003.

E. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials; 2003.

F. ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 2000.

G. ASTM D 2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor; 1995 (Reapproved 2001).

H. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.

1.03 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Maintenance Instructions.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: Marlite; 202 Harger Street, Dover, OH 44622. ASD. Tel: (330) 343-6621. Fax: (330) 343-7296. Email: info@marlite.com www.marlite.com

B. Substitutions: See Section 01600 - Product Requirements.

2.02 PANEL SYSTEM

A. Panels: Marlite FRP Panels; fiberglass reinforced polyester, USDA approved for incidental food contact.
   1. Surface Burning Characteristics: Flame spread index of 20 or less, smoke developed index of 330 or less, when tested in accordance with ASTM E 84 (Class A/I).
   2. Surface Texture: Symmetrix, Sani-coat.
   3. Color: As selected from manufacturer's standard selection.
   4. Thickness: 3/32 inch, nominal.
   5. Width: 48 inches.
   6. Height: 96 inches.
   7. Flexural Strength: 10,000 psi, when tested in accordance with ASTM D 790.
   8. Flexural Modulus: 3,100 psi, when tested in accordance with ASTM D 790.
   9. Tensile Strength: 7,000 psi, when tested in accordance with ASTM D 638.
   10. Tensile Modulus: 1,600,000 psi, when tested in accordance with ASTM D 638.
   11. Barcol Hardness: 35, when tested in accordance with ASTM D 2583.
   12. Impact Resistance: 7.2 ft-lb/in, when tested in accordance with ASTM D 256, Izod method.
   13. Coefficient of Thermal Expansion: 0.0000157 in/in/degree F, measured in accordance with ASTM D 696.
   14. Water Absorption: 0.72 percent, when tested in accordance with ASTM D 570.
   15. Specific Gravity: 1.8, when tested in accordance with ASTM D 792.

B. Panel Trim: Extruded PVC, in manufacturer's standard colors.
   1. Outside corners, inside corners, edge trim, and division molding.

C. Sealant: Marlite Silicone Sealant; gunnable silicone rubber; clear.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify CJC Architects of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Take panels out of cartons and allow to acclimatize to room conditions for at least 48 hours prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Clean surfaces thoroughly prior to installation.

D. Protect existing surfaces from damage due to installation.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use the adhesives recommended by the panel manufacturer unless prohibited by local regulations; obtain manufacturer's approval of alternative adhesives.

C. Install continuous bead of silicone sealant in each joint and trim groove and between trim and adjacent construction, maintaining 1/8 inch expansion space.

D. Avoid contamination of panel faces with adhesives, solvents, or cleaners; clean as necessary and replace if not possible to repair to original condition.

E. Protect installed products until completion of project.

F. Touch-up, repair or replace damaged products after Substantial Completion.

END OF SECTION

SECTION 07840
FIRESTOPPING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Section, apply to work specified in this section.

1.02 DEFINITIONS

A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or construction joints between, fire rated wall and floor assemblies.

1.03 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

Only tested firestop systems shall be used in specific locations as follows:

A. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

B. Gaps between the top of walls and ceilings or roof assemblies.

C. Expansion joints in walls and floors.

D. Openings and penetrations in fire-rated partitions or walls containing fire doors.

E. Openings around structural members which penetrate floors or walls.

1.04 REFERENCES

A. Test Requirements: ASTM E 814, "Standard Method of Fire Tests of Through Penetration Fire Stops"

B. Test Requirements: UL 1479, “Fire Tests of Through-Penetration Firestops”

C. Test Requirements: UL 2079, “Tests for Resistance of Building Joint Systems”

D. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments

E. Inspection Requirements: ASTM E 2174, “Standard Practice for On-site Inspection of Installed Fire Stops.”

F. All major building codes: IBC and IFC

1.05 QUALITY ASSURANCE

A. A manufacturer's direct representative (not distributor or agent) to be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection

and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

B. Firestop System installation must meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.

C. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

D. For those firestop applications that exist for which no UL tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment drawings must follow requirements set forth by the International Firestop Council.

1.06 SUBMITTALS

A. Submit Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Section 1300.

B. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment must include both project name and contractor’s name who will install firestop system as described in drawing.

C. Submit material safety data sheets provided with product delivered to job-site.

1.07 INSTALLER QUALIFICATIONS

A. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install manufacture’s products per specified requirements. A manufacturer’s willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

PART 2 PRODUCTS

2.01 FIRESTOPPING, GENERAL

A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.

B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

C. Firestopping Materials are either “cast-in-place” (integral with concrete placement) or “post installed.” Provide cast-in-place firestop devices prior to concrete placement.

2.02 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with through penetration firestop systems (XHEZ), joint systems (XHBN), and perimeter firestop systems (XHDG) listed in Volume II of the UL Fire Resistance Directory; provide products of the following manufacturers as identified below:

1. Hilti, Inc., Tulsa, Oklahoma
   800-879-8000/www.us.hilti.com

2. Other manufacturer’s meeting the requirements of this section are acceptable.

2.03 MATERIALS

A. Use only firestop products that have been UL 1479, ASTM E 814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

B. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E 814 which is equal to the time rating of construction being penetrated.

C. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction being penetrated.

PART 3 EXECUTION

3.01 PREPARATION

A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

1. Verify penetrations are properly sized and in suitable condition for application of materials.

2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.

3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.

4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

5. Do not proceed until unsatisfactory conditions have been corrected.

3.02 COORDINATION

A. Coordinate location and proper selection of cast-in-place Firestop Devices with trade responsible for the work. Ensure device is installed before placement of concrete.

B. Responsible trades to provide adequate spacing of field run pipes to allow for installation of cast-in-place firestop devices without interferences.

3.03 INSTALLATION

A. Regulatory Requirements: Install firestop materials in accordance with UL Fire Resistance Directory.

B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration and construction joint materials.

1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.

2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.

3. Protect materials from damage on surfaces subjected to traffic.

3.04 FIELD QUALITY CONTROL

A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by applicable code authorities.

C. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.

3.05 ADJUSTING AND CLEANING

A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION

SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparing substrate surfaces.

B. Sealant and joint backing for joints in the superstructure.

1.02 REFERENCES

A. ASTM C790 - Use of Latex Sealing Compounds.

B. ASTM C1193-00 Standard Guide for Use of Joint Sealants

C. ASTM C834 - Latex Sealing Compounds.

D. ASTM C920 - Elastomeric Joint Sealants.

E. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.

F. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).

G. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.03 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color and availability.

C. Manufacturer’s Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.04 QUALITY ASSURANCE

Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 SEALANTS

A. Silicone Sealant (Type S): One part, air curing, non-sagging, non-staining, non-bleeding, self leveling

B. Acrylic Emulsion Sealant: One part, non-sagging, mildew-resistant, paintable.

C. Fire Retardant Sealant: Shall resist the spread of fire, smoke and other gases, sealant shall meet or exceed the fire-rating of the construction in which the joint occurs.

D. Other sealants as required.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer’s instructions.

C. Perform preparation in accordance with manufacturer’s instructions.

D. Protect elements surrounding the work of this section from damage or disfiguration.

3.03 INSTALLATION

A. Install sealant in accordance with manufacturer’s instructions.

B. Measure joint dimensions and size materials to achieve 2:1 width/depth ratios.

C. Install joint backing to achieve a neck dimension no greater than ½ of the joint width.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tooling joints not required. Sealant shall be self-leveling compound.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

END OF SECTION

SECTION 08200

WOOD DOORS

PART 1 GENERAL

1.01 DESCRIPTION

A. Standards for manufacturing, machining, and installation of wood doors.

1.02 RELATED SECTIONS

A. Section 06200 - Finish Carpentry
B. Section 08100 - Hollow Metal Doors & Frames
C. Section 08710 - Door Hardware
D. Section 08800 - Glass & Glazing

1.03 QUALITY ASSURANCE

A. Provide doors meeting or exceeding the minimum standards as set forth by the following organizations unless standards are modified or exceeded by this specification.

1. WDMA IS 1A-Window and Door Manufacturers Association.
2. Architectural Woodwork Institute (AWI), Section 1300 and 1500
3. National Electrical Manufacturers Association (NEMA).
4. National Fire Protection Association (NFPA).

B. All doors shall be the product of the same manufacturer to insure uniformity of quality and appearance throughout the project.

C. Fire doors shall bear labels approved by Underwriters Laboratories, Inc or Intertek Testing (WHI). Any discrepancies between the architectural drawings and the procedures and limitations as set forth by the testing agencies shall be brought to the architect's attention.

D. Provide each fire rated door with a label permanently attached to either the hinge stile or to the top rail, showing testing agency approval for classification scheduled.

E. The top of each door shall bear a label from the manufacturer indicating the door construction, face veneer species, cut and grade. If the doors are factory finished the label shall also have the finishing information.

F. The Door Manufacturer shall provide a letter, signed by an authorized company representative, to the Architect stating that the doors have been manufactured in compliance with this specification.

1.04 SUBMITTAL

A. Shop Drawings: Submit schedules and elevations indicating door sizes, construction, swing, label, undercut, and applicable hardware locations. Dimensions and detail openings for glass lites, louvers, and grilles.

B. Samples: Doors are to be factory finished, manufacturer shall submit veneer samples of specified veneer with their standard finish colors at architect's request, or a color sample from the architect will be sent to the manufacturer for duplication. Samples are to be submitted representing the color selected on veneer typical of grain patterns and coloration for the specified species and cut.

C. Product Information: Submit manufacturer's product description showing compliance with specifications, along with finishing instructions, installation instructions, and any general recommendations manufacturer may have for the care and maintenance of each door type.

1.05 DELIVERY, STORAGE & HANDLING

A. No doors shall be delivered to the building until weatherproof storage space is available. Store doors in a space having controlled temperature and humidity range between 30 and 60 percent. Stack doors flat and off the floor, supported to prevent warpage. Protect doors from damage and direct exposure to sunlight.

B. Do not walk or place other material on top of stacked doors. Do not drag doors across one another.

C. Contractor shall use all means necessary to protect doors from damage prior to, during, and after installation. All damaged doors shall be repaired or replaced by the contractor at no cost to the owner.

D. Doors shall be palletized at factory in stacks of no more than 30 doors per pallet. Door edges shall be protected with heavy corner guards.

1.06 WARRANTY

A. All work in this Section shall be warranted by a **FULL DOOR WARRANTY** (from the date of installation) against defect in materials and workmanship, including the following:

1. Delamination in any degree.
2. Warp or twist of ¼" or more in any 3'0" x 7'0" section of a door.
3. Telegraphing of any part of core assembly through face to cause surface variation of 1/100" or more in a 3" span.
4. Any defect which may, in any way, impair or affect performance of the door for the purpose which it is intended. Replacement under this warranty shall include hanging, installation of hardware, and finishing.

B. Periods of warranty after date or installation:

1. Interior solid core and mineral core Life of original installation.
2. Exterior solid core - 1 year.

C. Doors must be stored, finished, hung and maintained per manufacturers recommendations set forth in their Full Door Warranty.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Listed manufacturers are believed to conform to the criteria stated for material quality standards, function and appearance. Manufacturers are still subject to meeting the requirements for 5-ply hot-pressed (cold-pressed will not be accepted) door construction procedures and warranties set forth in this specification.

1. Algoma Hardwoods, Inc.
2. Eggers Hardwood Products Corporation
3. Oshkosh Architectural Door Company
4. Strek•O Doors LLC

2.02 MATERIAL & COMPONENTS

A. Flush Interior Doors: Shall be 1 ¾" thick, with a solid particleboard core. Face veneer shall be custom grade or better. Provide a minimum of ½" thick edge strips of to match face veneer.

B. Flush Fire Rated Doors: Shall be 1 ¾" thick, with a solid core of incombustible material approved by a nationally recognized testing agency. Face veneer shall be custom grade or better. Provide a minimum of ½" thick edge strips to match face veneer.

D. Species: Plain sliced red oak.

C. Finish: Doors shall have factory finish. On site finishing will not be accepted.

PART 3 EXECUTION

3.01 FABRICATION

A. Fabricate all wood doors in strict accordance with the referenced standards specified herein.

3.02 MACHINING & FITTING

A. All wood doors shall be machined by the manufacturer for cutouts, hinges, locks and all hardware requiring routing and mortising. Any required rabbeting to properly hang doors will be performed by the manufacturer prior to finishing. Doors shall be sized to allow 1/8" clearance at top and each side, and ¾" at bottom (unless specified otherwise.) Factory drilling of pilot holes is not required except for "B" & "C" label fire doors at mortise hinge locations.

3.03 INSTALLATION OF HARDWARE

A. Contractor shall install hardware according to approved hardware schedule for proper locations.
B. Install with full-threaded wood screws furnished by hardware manufacturer.
C. Drill proper size pilot hole for all screws. (Full mortise hinges require 5/32" pilot holes.)
D. Securely anchor hardware in correct position and alignment.
E. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.

3.04 INSTALLATION OF DOORS

A. Fire rated doors shall be installed in accordance with the requirements of the labeling agency and NFPA #80 and #101.

B. Doors shall be installed plumb and square.

END OF SECTION

SECTION 08255
FRP FLUSH DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiberglass reinforced polyester (FRP) flush doors with aluminum frames.

1.2 RELATED SECTIONS

A. Section 08100 – Steel Doors & Frames

B. Section 08710 - Door Hardware

C. Section 08715 – Finish Hardware Schedule

1.3 REFERENCES

A. AAMA 1503-98 - Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.

B. ANSI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings.

C. ASTM B 117 - Operating Salt Spray (Fog) Apparatus.

D. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.

E. ASTM B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

F. ASTM D 256 - Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

G. ASTM D 543 - Evaluating the Resistance of Plastics to Chemical Reagents.

H. ASTM D 570 - Water Absorption of Plastics.

I. ASTM D 638 - Tensile Properties of Plastics.

J. ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

K. ASTM D 1308 - Effect of Household Chemicals on Clear and Pigmented Organic Finishes.

L. ASTM D 1621 - Compressive Properties of Rigid Cellular Plastics.

M. ASTM D 1623 - Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.

N. ASTM D 2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.

O. ASTM D 2583 - Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

P. ASTM D 5420 – Impact Resistance of Flat Rigid Plastic Specimens by Means of a Falling Weight.

Q. ASTM D 6670-01 - Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products.

R. ASTM E 84 - Surface Burning Characteristics of Building Materials.

S. ASTM E 90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

T. ASTM E 283 - Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

U. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

V. ASTM E 331 - Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

W. ASTM F 476 - Security of Swinging Door Assemblies.

X. ASTM F 1642-04 – Standard Test Method for Glazing Systems Subject to Air blast Loading.

Y. NWWDA T.M. 7-90 – Cycle Slam Test Method

Z. SFBC PA 201 - Impact Test Procedures.

AA. SFBC PA 203 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

AB. SFBC 3603.2 (b)(5) - Forced Entry Resistance Test.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.

B. Air Infiltration: For a single door 3’-0” x 7’-0”, test specimen shall be tested in accordance with ASTM E 283 at pressure differential of 6.24 psf. Door shall not exceed 0.90 cfm per linear foot of perimeter crack.

C. Water Resistance: For a single door 3’-0” x 7’-0”, test specimen shall be tested in accordance with ASTM E 331 at pressure differential of 7.50 psf. Door shall not have water leakage.

D. Indoor air quality testing per ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.

E. Hurricane Test Standards, Single Door with Single-Point Latching:
1. Uniform Static Load, ASTM E 330: Plus or minus 75 pounds per square foot.
2. Forced Entry Test, 300 Pound Load Applied, SFBC 3603.2 (b)(5): Passed.
3. Cyclic Load Test, SFBC PA 203: Plus or minus 53 pounds per square foot.
4. Large Missile Impact Test, SFBC PA 201: Passed.

F. Blast Test, Doors and Frames, ASTM F 1642-04, 6 psi / 41 psi-msec: Minimal Hazard.

G. Swinging Door Cycle Test, Doors and Frames, ANSI A250.4: Minimum of 25,000,000 cycles.

H. Cycle Slam Test Method, NWWDA T.M. 7-90: Minimum 5,000,000 Cycles.

I. Swinging Security Door Assembly, Doors and Frames, ASTM F 476: Grade 40.

J. Salt Spray, Exterior Doors and Frames, ASTM B 117: Minimum of 500 hours.

K. Sound Transmission, Exterior Doors, STC, ASTM E 90: Minimum of 25.

L. Thermal Transmission, Exterior Doors, U-Value, AAMA 1503-98: Maximum of 0.29 BTU/hr x sf x degrees F. Minimum of 55 CRF value.

M. Surface Burning Characteristics, FRP Doors and Panels, ASTM E 84:
1. Flame Spread: Maximum of 200, Class C.
2. Smoke Developed: Maximum of 450, Class C.

N. Surface Burning Characteristics, Class A Option On Interior Faces of FRP Exterior Panels and Both Faces of FRP Interior Panels, ASTM E 84:
1. Flame Spread: Maximum of 25.
2. Smoke Developed: Maximum of 450.

O. Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 256: 15.0 foot-pounds per inch of notch.

P. Tensile Strength, FRP Doors and Panels, Nominal Value, ASTM D 638: 14,000 psi.

Q. Flexural Strength, FRP Doors and Panels, Nominal Value, ASTM D 790: 21,000 psi.

R. Water Absorption, FRP Doors and Panels, Nominal Value, ASTM D 570: 0.20 percent after 24 hours.

S. Indentation Hardness, FRP Doors and Panels, Nominal Value, ASTM D 2583: 55.

T. Gardner Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 5420: 120 in-lb.

U. Abrasion Resistance, Face Sheet, Taber Abrasion Test, 25 Cycles at 1,000 Gram Weight with CS-17 Wheel: Maximum of 0.029 average weight loss percentage.

V. Stain Resistance, ASTM D 1308: Face sheet unaffected after exposure to red cabbage, tea, and tomato acid. Stain removed easily with mild abrasive or FRP cleaner when exposed to crayon and crankcase oil.

W. Chemical Resistance, ASTM D 543. Excellent rating.
1. Acetic acid, Concentrated.
2. Ammonium Hydroxide, Concentrated.
3. Citric Acid, 10%.
4. Formaldehyde.
5. Hydrochloric Acid, 10%
6. Sodium hypochlorite, 4 to 6 percent solution.

X. Compressive Strength, Foam Core, Nominal Value, ASTM D 1621: 79.9 psi.

Y. Compressive Modulus, Foam Core, Nominal Value, ASTM D 1621: 370 psi.

Z. Tensile Adhesion, Foam Core, Nominal Value, ASTM D 1623: 45.3 psi.

AA. Thermal and Humid Aging, Foam Core, Nominal Value, 158 Degrees F and 100 Percent Humidity for 14 Days, ASTM D 2126: Minus 5.14 percent volume change.

1.5 SUBMITTALS

A. Comply with Section 01300 for Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.

C. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.

D. Samples:
   1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, and finish.
   2. Color: Submit manufacturer's samples of standard colors of doors and frames.

E. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.

F. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.

G. Maintenance Manual: Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.

H. Warranty: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years successful experience.
   2. Door and frame components from same manufacturer.
   3. Evidence of a compliant documented quality management system.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying opening door mark and manufacturer.

B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.

C. Handling: Protect materials and finish from damage during handling and installation.

1.8 WARRANTY

A. Warrant doors, frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.

B. Warranty Period: Ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Special-Lite, Inc., PO Box 6, Decatur, Michigan 49045. Toll Free (800) 821-6531. Phone (269) 423-7068. Fax (800) 423-7610. Web Site www.special-lite.com. E-Mail info@special-lite.com.

2.2 FRP FLUSH DOORS

A. Model: SL-17 Flush Doors with SpecLite3 fiberglass reinforced polyester (FRP) face sheets.

B. Door Opening Size: As indicated on the Drawings.

C. Construction:
1. Door Thickness: 1-3/4 inches.
2. Stiles and Rails: Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes, minimum of 2-5/16-inch depth.
3. Corners: Mitered.
4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom integral to standard tubular shaped stiles and rails reinforced to accept hardware as specified.
5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
7. Rail caps or other face sheet capture methods are not acceptable.
8. Extrude top and bottom rail legs for interlocking continuous weather bar.
9. Meeting Stiles: Pile brush weatherseals. Extrude meeting stile to include integral pocket to accept pile brush weatherseals.
10. Bottom of Door: Install bottom weather bar with nylon brush weatherstripping into extruded interlocking edge of bottom rail.
11. Glue: Use of glue to bond sheet to core or extrusions is not acceptable.

D. Face Sheet:
1. Material: SpecLite3 FRP, 0.120-inch thickness, finish color throughout.
2. Protective coating: Abuse-resistant engineered surface. Provide FRP with SpecLite3 protective coating, or equal.
3. Texture: Pebble.
4. Color: To be selected by Architect from manufacturer’s standard colors.
5. Adhesion: The use of glue to bond face sheet to foam core is prohibited.

E. Core:
1. Material: Poured-in-place polyurethane foam.
2. Density: Minimum of 5 pounds per cubic foot.
3. R-Value: Minimum of 9.

F. Cutouts:
1. Manufacture doors with cutouts for required vision lites, louvers, and panels.
2. Factory install vision lites, louvers, and panels.

G. Hardware:
1. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
2. Factory install hardware.

2.3 MATERIALS

A. Aluminum Members:
1. Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes: ASTM B 221.
2. Sheet and Plate: ASTM B 209.
3. Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.

B. Components: Door and frame components from same manufacturer.

C. Fasteners:
1. Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.

2. Compatibility: Compatible with items to be fastened.
3. Exposed Fasteners: Screws with finish matching items to be fastened.

2.4 FABRICATION

A. Sizes and Profiles: Required sizes for door and frame units, and profile requirements shall be as indicated on the Drawings.

B. Coordination of Fabrication: Field measure before fabrication and show recorded measurements on shop drawings.

C. Assembly:
1. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
2. Remove burrs from cut edges.

D. Welding: Welding of doors or frames is not acceptable.

E. Fit:
1. Maintain continuity of line and accurate relation of planes and angles.
2. Secure attachments and support at mechanical joints with hairline fit at contacting members.

2.5 HARDWARE

A. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.

B. Hardware Schedule: As specified in Section 08715.

2.6 VISION LITES

A. Factory Glazing: As indicated on Construction Drawings.

2.7 ALUMINUM FINISHES

A. Anodized Finish: Class I finish, 0.7 mils thick.

1. Clear Anodized.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Ensure openings are plumb, level, square, and in tolerance.

3.3 INSTALLATION

A. Install doors in accordance with manufacturer's instructions.

B. Install doors plumb, level, square, true to line, and without warp or rack.

C. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.

D. Install exterior doors to be weathertight in closed position.

E. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.

F. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

3.4 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.5 CLEANING

A. Clean doors promptly after installation in accordance with manufacturer's instructions.

B. Do not use harsh cleaning materials or methods that would damage finish.

3.6 PROTECTION

A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 08710

DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The General Conditions of the Contract, including Supplementary Conditions and Division 1, General Requirements, apply to work of this Section. B. Hardware for hollow metal doors.

C. Hardware for Wood Doors.

D. Hardware for fire-rated doors.

E. Hardware for Fiberglass Reinforced Plastic Doors (Section 08342).

F. Electrically operated and controlled hardware rough-in. Hardware to be Owner provided.

G. Lock cylinders for doors for which hardware is specified in other sections.

H. Thresholds.

I. Weather stripping, seals and door gaskets.

1.02 REFERENCES

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 1998.

B. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association; 1999.

C. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures; National Fire Protection Association; 1997.

D. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition. **1.03**

SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:

1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts, electrical characteristics and connection requirements.

C. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention and adjustment.

D. Project Record Documents: Record actual locations of installed cylinders and their master key code.

E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

F. Keys: Coordinate with existing system and deliver with identifying tags to Owner's designated representative ONLY by security shipment direct from hardware supplier.

G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Tulsa Public Schools's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Single-Source: All door hardware is to be furnished by the same vendor.

B. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.05 PRE-INSTALLATION MEETING

A. Convene one week prior to commencing work of this section. The Architect and the Owner's Representative is to be notified of date, time, and location of said meeting at least one (1) week ahead of the meeting and be given the opportunity to attend same.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.07 COORDINATION

A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

B. Furnish templates for door and frame preparation.

C. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

D. Coordinate Tulsa Public Schools keying requirements during the course of the Work.

1.08 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

1.09 MAINTENANCE PRODUCTS

A. Provide special wrenches and tools applicable to each different or special hardware component.

B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hinges:

1. Stanley CB1900 and CB1901 or equal.

B. Continuous Hinges

1. Pemko CFM 83 HD

C. Lock and Latch Sets:

1. Contractor is to install construction cylinders, and the hardware consultant is to install final cylinders after significant completion is achieved and turn the keys over to TPS. Cylinders will need to be coordinated with the existing keying system at each school. Each architect will need to contact Raul Chairez at Tulsa Public Schools, 918-629-7156 or chairra@tulsachools.org to obtain the name of the manufacturer of the existing hardware.
2. Corbin/Russwin: Classroom doors -- ML2065, dull chrome or stainless steel, or equal (see section 01600 for pre-approval requirements). D. Push/Pulls:

1. Rockwood pulls with type 1HD mounting, or equal. E.

Mortise Locks:

1. Corbin / Russwin ML2042 series, or pre-approved equal (See Section 01600). F.

Card Reader Entrance:

1. Locknetics CR90-CT500CR-ATR-PS (no substitutions).
2. Von Duprin E99L x 994L (Active Leaf only).
3. Von Duprin EPT-2. G. Exit Devices:

1. Von Duprin, Inc.

(a) Exterior Entrance Doors:

(i) Active --------Von Duprin 99NL.
(ii) Inactive------Von Duprin 99DT.
(iii) Key removable Mullion---Von duprin KR4954

(b) "Cross Corridor" Double Egress doors:

(i) Von Duprin 9947EO-F Concealed rod, less the bottom rods.

(c) "Cross Corridor" - Uni-direction:

(i) Von Duprin 9947-F less bottom rods X994L (Do not use removable mullions in this application).

(d) Provide interchangeable core cylinders for exit devices and mullions. H. Closers:

1. All closers to be parallel arm operation.
2. All closer cylinders shall be non-sized. I. Hold-Opens -- Electromagnetic:

1. All "Cross Corridor" Doors to have Electro-magnetic Hold-Opens, furnished and installed by the Fire alarm system supplier. All schools - 350#. J. Gasketing:

1. Utilize screw-on mounting. Adhesive type installation shall not be acceptable. (a) Pemko Manufacturing.
2. Zero International.

2.02 GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS

A. Provide products that comply with the following:

1. Applicable provisions of Federal, State, and local codes.
2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
3. Applicable provisions of NFPA 101, Life Safety Code.
4. Fire-Rated Doors: NFPA 80.
5. All Hardware on Fire-Rated Doors: Listed and classified by UL as suitable for the purpose specified and indicated.
6. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

B. Finishes: Identified in schedule at end of section.

2.03 KEYING

A. Door Locks: Grand master keyed.

1. For remodel or limited expansion projects, key to existing keying system as directed by Program Manager or Owner.
2. For new construction or extensive remodel projects, key as directed by Program Manager or Owner. Seldom used keyways are to be utilized, such as Corbin L1, L2, or L3 series, or Russwin H Series.

B. Supply keys in the following quantities:

1. 6 master keys (New Key Systems Only).
2. 6 grand master keys (New Key Systems Only.
3. 6 construction keys, or more as required by Contractor, at no additional cost to Owner.
4. 2 change keys for each lock.

C. ALL KEYS SHALL HAVE THE ROOM NUMBER and MASTER DESIGNATION STAMPED INTO THE KEY.

2.04 KEY CABINET (NEW CONSTRUCTION ONLY)

A. Cabinet Construction: Sheet steel construction, piano hinged door with key type lock ; Model 1205 with index pocket on door as manufactured by Lund. (New Buildings Only)

B. Cabinet Size: Size for project keys plus 10 percent growth. For large projects and where approved by the Owner multiple cabinets may be utilized.

C. Horizontal metal strips for key hook labeling with clear plastic strip cover over labels. All labeling to be completed by the Contractor.

D. Finish: Baked enamel, Gray color.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.02 INSTALLATION

A. All door hardware is to be installed by the Vendor.

B. Install wood blocking backup for all wall stops and electro-magnetic hold-opens.

C. All closers to be "through bolted" to the doors, whatever the closer element may be. If the arm attaches to the door, it is to be "through bolted." If the body of the closer attaches to the door, it is to be "through-bolted."

D. Install hardware in accordance with manufacturer's instructions and applicable codes.

E. Use templates provided by hardware item manufacturer.

F. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.

G. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:

H. Provide rough-in for Card Reader Entrance(s) at locations identified on the Plans. Installation to include all necessary 110v power supply points, conduit to door frame and provisions for striker installation. Contractor shall coordinate with Program Manager or Owner for intended system to be utilized.

3.03 FIELD QUALITY CONTROL

A. Provide an Architectural Hardware Consultant (AHC) to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified. Installer/AHC is to contact Mr. Raul Chairez with Tulsa Public Schools to be present during installation.

3.04 ADJUSTING

A. Adjust work under provisions of Section 01700.

B. Adjust hardware for smooth operation.

3.05 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01700.

B. Do not permit adjacent work to damage hardware or finish.

3.06 SCHEDULE

A. See Finish Hardware Schedule in the next section.

END OF SECTION

SECTION 08715

Finish Hardware Schedule

Keying Instructions – (No Substitution)
Key All Locks To The Existing Corbin Russwin Restricted Keyway System. Provide Temporary Construction Master Keyed Cores (CT6R) For All Exterior Doors, And Lock-Up Rooms As Required. Provide Disposable Plastic Temporary Cores (CT6D) For All Other Locks. Provide Twenty Construction Keys. Provide Permanent 8000 Series Cores, Keyed As Required, For Final Installation After Project Completion. Provide complete bitting schedule.

Hinges – (Or Equal Acceptable)
Pemko Continuous CFM 83 HD1 – Exterior Hollow Metal and all doors on Early Childhood
Pemko Continuous KDFM 83 HD1 – All Aluminum Storefront
Continuous Hinges By Door Supplier – All FRP Doors
PBB 4B81 HD Hinges – Interior Multi Use Restrooms, Cross Corridor, Stairs, Interior Doors Equipped With Exit Devices, Doors Over 3'0" Wide
PBB BB81 Std Hinges – Balance of Interior Doors

Exit Devices – (**No Substitution)**
Von Duprin 99 series US28 finish (313AN @ Storefront) with Corbin Russwin 6 pin restricted keyway interchangeable core cylinders at keyed functions & mullions. 99NL-OP - Keyed Entry (only one keyed per bank of doors)
99EO - Inactive Entry Pairs, Exit Only Doors
99L-F W/ 03 Lever – Fire Rated
99L-F-2 W/03 – Fire Rated Classrooms, Libraries, and Gyms etc.
9947EO-F – Cross Corridor Fire Rated Double Egress
9947L-F W/03 Lever – Cross Corridor Fire Rated Standard Pair
330 Dummy Bar at Full Glass Non Latching Doors

Removable Mullions – (**No Substitution)**
Von Duprin Keyed Removable KR4954 or KR9954. KR4854 with 6111 electric strike At card access doors. (Card access system by others)

Locks – (**No Substitution)**
Corbin Russwin mortise with 6 pin restricted keyway interchangeable core cylinders, LWA design interior, LWM design exterior, 630 finish.
ML2052 Corridor Office Doors
ML2057 Mech, Elect, Janitor, Non Classroom Storage (M30 Half Trim At Exterior W/ Flush or Vandal Resistant Pull)
ML2055 Offices, Classroom Storage
ML2065 w/M19N "Secure Indicator Display" & Thumb turn inside Classrooms – All Classrooms
ML2022 Adjoining Classrooms
ML2030 M19V Single Toilets
DL4000 series deadlocks function as required
Double Mechanical Closets have double doors, shall be rated 20 minute. All single closets non rated doors.

Flush Bolts - (Or Equal Acceptable)

Ives FB458B US26D finish manual flush bolt (use top bolt only where security is not an issue) provide long top rod as required
Ives FB51T US32D finish top self-latching flush (use at non fire rated wood or hollow metal doors to ensure locking at most applications) provide long top rod as required
Ives FB52T US32D finish top self-latching flush (use at fire rated hollow metal doors) provide long top rod as required
Ives FB62T US32D finish top self-latching flush (use at fire rated wood doors) provide long top rod as required.

Closers – (**No Substitution)**
LCN 4041 series AL finish (DKB finish at Aluminum Storefront)
All closers to be parallel arm application, except regular arm application may be used at in swinging doors to non-student areas such as Mech, Elect, Janitor, etc. Where wall stop cannot be used, use "Spring Cush" application. Use "EDA" or "Spring Cush" At exterior doors. At Aluminum Storefront provide drop plates, shoe supports, and spacers as required. Install all closers with "TBSRT" thru bolt application.
None required on furnace closets.

Automatic Operators – (**No Substitution)**
LCN 4642 AL finish (DKB finish at Aluminum Storefront) with 8310 series hardwired actuators & bollards as required.

Door Pulls – (Or Equal Acceptable)
Rockwood BF158 W/ Type 1XHD (3/8" thru bolt) mounting US32D finish (US10B finish at Aluminum Storefront) use at entry doors w/ exit devices
Integral Flush Pulls at FRP Doors (except Elementary & Early Childhood, use BF158)
Rockwood 111 x 70C US32D finish at other push/pull applications – restrooms etc. with 70E (Doors W/ no lite) or 70C (W/ lite) push plates.
Rockwood 94L US32D finish flush pull
Ives VR910NL & VR910DT US32D finish vandal resistant exit device trim (do not use on elementary or early childhood)

Kickplates – (Or Equal Acceptable)
Rockwood K1050 series US32D finish at wood or hollow metal doors, 2" less than door width X 10" high standard or 30" high at kitchen (provide 3" less than door width at doors with finger guards)

Overhead Stops – (Or Equal Acceptable)
Glynn Johnson 90 series W/ Friction Hold Open at doors where standard wall or floor stop cannot be used.

Door Stops – (Or Equal Acceptable)
Rockwood 406 US32D finish wall mount where possible
Rockwood 442 US26D finish floor mount if required
Rockwood 491S US26D finish floor stop & holder at classroom doors

Magnetic Holders - (Or Equal Acceptable)
Rixson 993 with optional release button (300 lb holding force) controlled by fire alarm system (by others) coordinate

Thresholds - (Or Equal Acceptable)

National Guard 425 saddle typical public access doors National Guard 883S W/bumper Mech, Elec, etc.

Weather Seal - (Or Equal Acceptable)
Pemko S88D gasketing @ exterior & fire doors, and @ sound doors in addition to heavy surface seals
National Guard 200SA sweep @ doors with saddle threshold (use DKB finish at aluminum storefront), not required @ FRP doors
National Guard 5100S mullion seal @ removable mullions at exterior, fire, and sound doors (use 5100N at doors with bronze finish mullions)
National Guard – 16A overhead drip @ doors with no overhead protection (use DKB finish at aluminum storefront) provide 4" longer than door width

Finger Guards – No Substitution
National Guard 2248A (DKB at Aluminum Storefront) custom length full height at all doors on Early Childhood and Kindergarten Classrooms

END OF SECTION

SECTION 09261

GYPSUM BOARD / FIBERGLASS REINFORCED

PANEL ASSEMBLY SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drywall Grid Systems

B. Metal channel ceiling framing

C. Acoustic insulation

D. Gypsum Board

E. Fiberglass Reinforced Panels (FRP)

F. Joint treatment and accessories

1.02 REFERENCES

A. ASTM C 36 - Standard Specification for Gypsum Wallboard; 1997.

B. ASTM C 475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 1994.

C. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 1998.

D. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 1997.

E. ASTM C 835, ASTM A 366, ASTM A 653 – Grid System

F. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 1998.

G. ASTM C 1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases; 1998.

H. GA-201 - Using Gypsum Board for Walls & Ceilings; Gypsum Association; 1990.

I. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 1996.

J. GA-600 - Fire Resistance Design Manual; Gypsum Association; 1997.

1.03 SUBMITTALS

A. Provide sample FRP with product literature. Recommend adhesive.

B. Product Data: Provide data on metal framing.

1.04 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire rated assemblies as indicated on drawings.

B. All finishes shall conform to the applicable Flame Spread Classification (rating of 25-75) in all corridors.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gypsum Board – Type X in Corridors and Stairwells:

1. G-P Gypsum Corp.
2. National Gypsum Co.
3. United States Gypsum Co.
4. Substitutions: Not permitted.

B. Grid System:

1. Armstrong Co.
2. United States Gypsum Co.
3. Chicago Metallic Co.

C. Fiberglass Reinforced Panels:

1. Sequentia, Inc., as distributed by A & D Supply, Tulsa Oklahoma
2. NUDO Products, Inc., as distributed by Sooner Ceilings – (918) 744-6260.

2.02 METAL FRAMING MATERIALS

A. Load bearing Framing System Components: ASTM C 645; galvanized sheet steel, size and gage to comply with ASTM C 754 at spacing indicated; maximum deflection L/240 at 5 psf.

1. Grid System: 1 ½" flange, Heavy duty Metal Grid Suspended Tee System
2. Ceiling Channels: C shaped.

B. Ceiling Hangers: ASTM C 754.

2.03 GYPSUM BOARD MATERIALS

A. Fire Rated Gypsum Wallboard: ASTM C 36; Type X, UL or WH rated; sizes to minimize joints in place; ends square cut.

1. Thickness: 5/8 inch.
2. Edges: Tapered.

2.04 FIBERGLASS REINFORCED PANELS/LINER PANEL

A. Structoglas® #77136 – 1200 Fire Retardant Panel, Class A, textured on one side, color: white, thickness: .09", Size: 4 x 8 panel by Sequentia.

B. Fiberlite – LPF9-8-FRP Liner Panel, Class A, thickness: .09", size: 4 x 8, textured by NUDO Products, Inc.

C. Other manufacturer's to match Structoglas® #77136 and Class A Fire Rating for corridors.

2.05 ACCESSORIES

A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, un-faced. Thickness: 3 1/2 inch, as noted on plan.

B. Corner Beads: Galvanized steel.

C. Trim: ASTM C 840; Bead type as detailed.

D. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.

1. Ready-mixed vinyl-based joint compound.

E. Screws: ASTM C 1002; self-drilling type; cadmium-plated for exterior locations.

F. Adhesive: Henry #117. Follow manufacturer's recommendation as some adhesives may not be compatible.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Comply with ASTM C 754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.

1. Level ceiling system to a tolerance of 1/1200.
2. Install bracing as required at exterior locations to resist wind uplift.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

3.04 GYPSUM BOARD INSTALLATION

A. Comply with ASTM C 840. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Fire-Rated: Install gypsum board vertically, with edges and ends occurring over firm bearing.

C. Installation on Metal Framing: Use screws for attachment of all gypsum board.

3.05 INSTALLATION OF FIBERGLASS REINFORCED PANELS

A. Preparation: Ceiling must be flat, clean, dry and free of all dirt, dust or grease. When applying panels over foam insulation, an approved thermal barrier system must be used. Consult owner.

B. Adhesive: Wall liner should be installed with 100% adhesive coverage (recommended method). Fasteners are used in conjunction with adhesive in certain applications, where needed (high moisture, uneven substrate, high abuse or large panels on ceiling).

C. Expansion: Leave not less than ¼" gap at ceiling and floor, 1/8" gap between wall panels for normal expansion and contraction. Allow not less than 1/8" gap around pipes, electrical fittings and other projections. Fill gaps with flexible, silicone-based caulking to complete moisture seal.

D. Fastener Positioning: Install fasteners not farther than 8" apart around outside edges and 12" apart on intermediate 16" centers. Stagger fasteners on opposing panel edges. Outside fasteners should be approximately 1" from panel edge.

E. Sealing and Caulking: Caulk all corner seams, ceiling and base junctures, and fastener holes.

F. Moldings and Trim: All exposed panel edges shall be finished with appropriate Structoglas® one-piece or two-piece non-staining vinyl extruded moldings.

END OF SECTION

SECTION 09310

PORCELAIN / CERAMIC / QUARRY TILE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Tile

B. Reference Standards:
   1. ANSI A108.5 – Porcelain Tile installed in Dry-Set Portland Portland_Cement Mortar or Latex P. C. Mortar.
   2. TCA 137.1 – Recommended Standard Specifications for Porcelain Tile.
   3. Tile Council of America (TCA) – Handbook for Porcelain Tile Installation.

1.02 SAMPLES

A. Submit sample panel of each type, color, and pattern of tile required. Provide full size samples for each type of trim and accessory.

B. Submit sample of grout.

1.03 ENVIRONMENTAL CONDITIONS

A. Provide sufficient heat and ventilation in areas where work of this Section is being preformed to allow tile to set properly. Take precautionary measures necessary to ensure that excessive temperature changes do not occur. Maintain installation area at 50 F or above.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Tile: Dal-Tile, American Olean, or Equivelant

B. Grout: Hydroment - dry tile grout fortified with 425 multi-purpose acrylic latex Admixture.

C. Substitutions: In accordance with Section 01600

2.02 MATERIALS

A. Wall Tile: Sizes as indicated. Trim pieces as needed: inside corners coved, outside corners bull nosed.

B. See drawings for specific products.

2.03 COMPONENTS

A. Setting Bed and Bond Coat: Thinset consisting of Ultra or Multi-Flex Latex-Portland cement mortar.

B. Leveling Coat: Cementitious mortar with latex additive for water resistance.

C. Grout: Unsanded type with Acrylic Latex Grout Additive; color selected by Architect.

D. Water: Clean, fresh and free of deleterious substances.

2.04 MIXING

A. Mix and proportion cementitious materials for site made leveling coats, bond coats, and grout as recommended by the TCA Handbook for Porcelain Tile Installation.

B. Mix and proportion pre-mix setting bed, bond coat, and grout materials in accordance with manufacturers' recommendations.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine surfaces to receive tile. Ensure surfaces are level, with maximum surface variation of ¼-inch in 10-feet, clean and well cured. Do not commence until surface conditions are within tolerances required for proper installation.

B. Prior to installing floor tile ensure surfaces slope to drains. Where ceramic tile meets thicker material apply leveling coat to make finished surfaces match, extend transition 4-feet.

3.02 INSTALLATION

A. Installation Standards:
   1. Install wall tile in accordance with Tile Council of America Method #W243 and #W202.

B. Place tile in accordance with pattern indicated. Carefully plan tile layouts. Ensure pattern is uninterrupted from one wall and/or floor surface to the next.

C. Neatly cut tile around fixtures. Accurately form corners, base, intersections and returns.

D. Ensure tile joints are uniform in width, subject to normal variance in tolerance allowed in tile size. Ensure joints are watertight, without voids, cracks, excess mortar or grout.

E. Install coved internal wall angles and bull nosed external angles.

F. Sound tile after setting. Remove and replace hollow sounding units.

G. Keep expansion/contraction joints free of mortar or grout

H. Allow tile to set for a minimum of 48 hours prior to grouting.

I. Completed installation to be free of broken, damaged and faulty tile.

3.03 EXTRA STOCK

A. Deliver to Owner 5 square feet of each tile and color used; include with closeout submittals.

END OF SECTION

SECTION 09511

SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Suspended metal grid ceiling system.
B. Acoustical units.

1.02 REFERENCES
A. ASTM C 635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 1997.
B. ASTM C 636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 1996.
C. ASTM E 580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Moderate Seismic Restraint; 1996.
D. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.03 SUBMITTALS
A. See Section 01300 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on suspension system components.
C. Samples: Submit two samples 6 x 6 inch in size illustrating material and finish of acoustical units.
D. Samples: Submit two samples each, 12 inches long, of suspension system main runner.

1.04 QUALITY ASSURANCE
A. Installer shall be a company specializing in the installation of suspended acoustical ceilings with a minimum of three years documented experience.

1.05 ENVIRONMENTAL REQUIREMENTS
A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.06 PROJECT CONDITIONS
A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
B. Install acoustical units after interior wet work is dry.

1.07 EXTRA MATERIALS
A. See Section 01600 - Product Requirements, for additional provisions.
B. Provide 5 percent of total acoustical unit area of each type of acoustical unit for Tulsa Public Schools' use in maintenance of project.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS
A. Manufacturers:
   1. Armstrong World Industries, Inc or CertainTeed
      a. Classrooms, Halls, Offices & Cafeterias: 2' x 4' Armstrong #1729 Humiguard Plus-Fine fissured with BioBlock paint on face and back of panels; 2 x 4 CertainTeed HHF-197, High Humidity, Fine-fissured with BioShield paint on face and back of panel. Color: White
      b. Gymnasiums and designated high abuse areas: 2' x 4' Armstrong #860 Armatuff or #862 where plans indicate fire rated is required; 2 x 4 CertainTeed PSB-197 (Fire-rated). Color: White
      c. Libraries: 2' x 2' Armstrong #1910 Humiguard-Plus, Ultima/very fine texture with BioBlock paint on face and back of panels; 2 x 2 CertainTeed #1222-OVT-1-Symphony NRC-.65 - .70 x 5/8”. Color: White.
      d. Kitchens, Restrooms & Classroom Toilet Rooms: 2' x 4' Armstrong #605 Ceramaguard with BioBlock/BioShield & Humiguard-Max; 2 x 4 or CertainTeed Vinylrock 1140-CRF-1 (Fire-rated) or 1100-CRF-1 (Non-perforated) BioBlock/BioShield & Humiguard. Color: White

2. Substitutions: As approved by owner.

B. Acoustical Panels: ASTM E 1264 Type III, Painted mineral fiber, conforming to the following:
   1. Size: 24 x 24 inches, or 24 x 48 inches.
   2. Thickness: 5/8 inches.
   3. Composition: Wet felted.
   4. Density: 1.0 lb/cu ft.
   5. NRC Range: 0.55 to 0.65.
   6. Edge: Square.
   7. Surface Color: White.
   8. Surface Pattern: Non-directional fissured.

2.02 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Armstrong World Industries, Inc.
   2. Chicago Metallic Corp.
   3. CertainTeed
   4. Substitutions: See Section 01600 - Product Requirements.

B. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.
   1. Profile: Tee; 15/16 wide face.
   2. Construction: Double web, Hot dipped galvanized.
   3. Finish: white over galvanized substrate.

C. Match Acoustical Tile Manufacturer with same grid manufacturer to obtain 15-year warranty. 15/16” Grid System. Color: White.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

C. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C 636, ASTM E 580, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C Locate system on room axis according to reflected ceiling plan.

D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

E. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

I. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

J. Do not eccentrically load system or induce rotation of runners.

K. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

L. Form expansion joints as detailed. Form to accommodate plus or minus 1 inch movement. Maintain visual closure.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.
B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
C. Fit border trim neatly against abutting surfaces.
D. Install units after above-ceiling work is complete.
E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
F. Cutting Acoustical Units:
    1. Cut to fit irregular grid and perimeter edge trim.
    2. Make field cut edges of same profile as factory edges.
    3. Double cut and field paint exposed reveal edges.
G. Install hold-down clips on panels within 20 ft of an exterior door.

3.04 ERECTION TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.05 SCHEDULE

A. See Room Finish Schedule.

END OF SECTION

SECTION 09650

RESILIENT BASE & FLOORING TRANSITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient base.

B. Flooring transition.

1.02 REFERENCES

A. ASTM F 1861 - Standard Specification for Resilient Wall Base; 1998.

B. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 1998.

1.03 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Verification Samples: Submit two samples, 12-inch long in size illustrating color and pattern for each wall base and transition product and color specified.

D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning and stripping.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Johnsonite, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.05 QUALITY ASSURANCE

A. Single-Source Responsibility for Flooring: Obtain each type, color and pattern of flooring from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

1.06 PROJECT CONDITIONS

A. Sequence wall base work to ensure that wall base is not installed until installation of ALL millwork that abuts base material is complete and approved.

B. Install resilient products after other finishing operations, including painting, have been completed.

C. Maintain ambient temperatures within range recommended by Johnsonite, but not less than 65 deg F (18 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products during the following time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

D. Maintain the ambient relative humidity between 40% and 60% during installation.

E. Until Substantial Completion, maintain ambient temperatures within range recommended by Johnsonite, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

F. Do not install resilient wall base until they are at the same temperature as the space where they are to be installed.

1.01 EXTRA MATERIALS

A. See Section 01600 - Product Requirements, for additional provisions.

B. Provide: 50 lineal feet of each color of base or transition specified.

1.02 WARRANTY

A. Provide manufacturer's standard performance guarantees or warranties that extend beyond a one year period.

PART 2 PRODUCTS

2.01 MATERIALS

A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
1. Height: 4 inch.
2. Thickness: 0.125 inch thick.
3. Finish: Satin.
4. Length: 4 foot sections.
5. Job formed corners using heat.
6. Color: as indicated on drawings.
7. Manufacturers:
   (a) Johnsonite.
   (b) Substitutions: none.
8. Flexibility: ASTM F 137 - Will not crack, break, or show any signs of fatigue when bent around a 1/4" (6.4 mm) diameter cylinder.

B. Flooring Transition:
1. Install a flooring transition strips between all material type changes, even if the same height, as recommended by flooring manufacturer for both edges and transitions of flooring materials specified.
2. Provide transitions of clear anodized aluminum.
3. Provide vertical lip on transitions of maximum 1/4 inch (6 mm).
4. Provide bevel change in level between 1/4 and 1/2 inch (6 and 13 mm) with a slope no greater than 1:2.

2.02 ACCESSORIES

1. Primers & Adhesives: as recommended by wall base and transition strip manufacturer. Tape shall not be accepted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are smooth and flat within tolerances specified in Section 03300.

B. Verify that surfaces are dust-free, and free of substances which would impair bonding of adhesive materials surfaces.

3.02 PREPARATION

A. Wall Base and adhesives must be site conditioned at room temperature for a minimum of 48 hours prior to, during, and after installation. Room temperature must be maintained between 65deg and 85deg F (18deg and 30degC) with

HVAC system operating. A minimum temperature of 55deg F (13degC) must be maintained afterwards.

1. The ambient relative humidity should be between 40% and 60%.

2. All walls must be clean, smooth, flat and dry. The surface must be free of all dust, loose particles, solvents, paint, grease, oil, wax, alkali, sealing/curing compounds, old adhesive, and any other foreign material, which could affect installation. Remove existing adhesive mechanically – do not use chemical adhesive removers or solvents.

3. Fill all depressions, cracks, and other surface irregularities with a good quality patching compound.

3.03 INSTALLATION

A. Wall Base:
   1. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
   2. Miter internal corners. At external corners, use job formed units. At exposed ends, use job formed units.
   3. Job-formed corners:
      a. Outside corners: Form by bending without producing discoloration (whitening) at bends.
      b. Inside corners: Butt one piece to corner then scribe next piece to fit.
   4. Install base on solid backing. Bond tightly to wall and floor surfaces.
   5. Scribe and fit to door frames and other interruptions.
   6. Fill voids along the top edge of base at masonry walls with caulk.
   7. Avoid excess adhesive in corners.
   8. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
   9. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates. Tape shall not be allowed.
   10. Do not stretch resilient base during installation.

B. Transition Strips:
   1. Provide transitions where flooring termination is higher than the adjacent finished flooring and at transitions between different flooring materials.
   2. When required, locate transitions under door centerline.
   3. Transitions are not required at doorways where thresholds are provided.
   4. Secure transitions with either adhesive or anchors as recommended by the manufacturer.
   5. Prepare and apply adhesives in accordance with manufacturer's printed directions.

3.04 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean base and transition strip products in accordance with manufacturer's instructions.

END OF SECTION

SECTION 096516

Resilient Homogenous Vinyl Sheet Flooring

PART 1 - GENERAL

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. Resilient Homogeneous Vinyl Sheet Flooring.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.

C. Product Schedule: For resilient products. Use same designations indicated on Drawings.

1.4 QUALITY ASSURANCE

A. Installation Qualification: Contractors for floor covering installation should be experienced in managing commercial flooring projects and provide professional installers, qualified to install the various flooring materials specified. An installer is “qualified” if trained by Tarkett or a certified INSTALL (International Standards & Training Alliance) resilient floor covering installer.

B. Mockups: Provide resilient products with mockups specified in other Sections.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Tarkett, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.6 PROJECT CONDITIONS

A. Install resilient products after other finishing operations, including painting, have been completed.

B. Maintain ambient temperatures within range recommended by Tarkett, but not less than 65 deg F (18 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products during the following time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

C. Maintain the ambient relative humidity between 40% and 60% during installation.

D. Until Substantial Completion, maintain ambient temperatures within range recommended by Tarkett, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

PART 2 - PRODUCTS

2.1 RESILIENT SHEET FLOORING

Manufacturer:
Tarkett, Inc. Phone: (800) 899-8916
30000 Aurora Rd. (440) 543-8916
Solon, Ohio 44139
Web: www.tarkettna.com
E-mail: info@johnsonite.com

2.2 IQ HOMOGENOUS VINYL SHEET FLOORING WITH PUR

A. Basis-of-Design Product: Subject to compliance with requirements, provide Johnsonite, a Tarkett Company; **iQ Granit**, **iQ Optima** or **iQ Natural**.

B. Sheet Standard: ASTM F1913, Standard Specification for Vinyl Sheet Floor Covering Without Backing.

C. Thickness/Wearlayer: 0.080 inch

D. For size specify: 6 ft. 6 inches

E. Colors and Patterns: **As selected by Owner/Architect from full range of industry colors**.

F. Test data:
   1. Flexibilty (ASTM F137): Passes
   2. Chemical Resistance (ASTM F925): Passes
   3. Static Load Limit (ASTM F 970): Passes 250 psi
   4. Resistance to Heat (ASTM F1514): $\Delta E \leq 8$
   5. Resistance to Light (ASTM F1515): $\Delta E \leq 8$
   6. Residual Indentation (ASTM F1914): Passes
   7. Static Coefficient of Friction (ASTM D 2047): ≥ 0.5 SCOF
   8. Flamability (ASTM E648, Critical Radiant Flux): Class 1 (≥ 0.45 W/cm^2)
   9. Limited Commercial Warranty: 10 years

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.

B. Adhesives: As recommended by Tarkett to meet site conditions
   1. Tarkett 925 Resilient Flooring Adhesive
   2. Tarkett 975 Two-Part Urethane Adhesive
   3. Tarkett 901 SpraySmart Adhesive
   4. Tarkett RollSmart Adhesive
   5. Cold Weld Liquid

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to Tarkett written instructions to ensure proper adhesion of Resilient Flooring.
   1. Prepare concrete substrates in accordance with ASTM F 710.
      a. Concrete floors must be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitence, mold, mildew, and other foreign materials that may affect dissipation rate of moisture from the concrete, discoloration or adhesive bonding.
      b. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
      c. Perform moisture testing as recommended by manufacturer. Proceed with installation only after substrates have been tested and meet the minimum requirements from the manufacturer in accordance with ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride or ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
      d. A pH test for alkalinity must be conducted on the concrete floor prior to installation with results between 7 and 9. If the test results are not within the acceptable range, then installation must not proceed until the problem has been corrected.

2. Wood subfloors must have a minimum 18" (45.7 cm) of cross-ventilated space beneath the bottom of the joist.
    a. The floor must be rigid, free of movement.
    b. Single wood and tongue and groove subfloors should be covered with ¼" (6.4 mm) or ½" (12.7 mm) APA approved underlayment plywood.
        1) Use ¼" (6.4 mm) thick underlayment panels for boards with a face width of 3" (76 mm) or less.
        2) Use ½" (12.7 mm) thick underlayment panels for boards with a face width wider than 3" (76 mm).
    c. Do not install over OSB (Oriented Strand Board), particle board, chipboard, lauan or composite type underlayments.

B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement-based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Floor covering shall not be installed over expansion joints.

D. Do not install resilient products until they are same temperature as the space where they are to be installed.
1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT SHEET FLOORING INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient sheet flooring.

B. Resilient Sheet Flooring:
1. Install with Tarkett adhesive specified for the site conditions and follow adhesive label for proper use.
2. Install rolls in sequential order following roll numbers on the labels.
3. Reverse non-pattern sheets as referenced in the Tarkett Installation Instructions.
4. Roll the flooring in both directions using a 100 pound three-section roller.
5. Vinyl sheet flooring must be welded.
   Note: It is recommended to heat weld seams to provide a more sterile and watertight seam.
6. Tarkett Resilient Sheet Flooring may be flash coved.
    a. Use Johnsonite CFS-00-A Cove Filler Strip.
    b. Net fit flooring material into the appropriate Johnsonite cove cap.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:
1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.

3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
   1. No traffic for 24 hours after installation.
   2. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.

D. Wait 72 hours after installation before performing initial cleaning.

E. A regular maintenance program must be started after the initial cleaning.

END OF SECTION

SECTION 096519

Resilient Tile Flooring

PART 1 - GENERAL 1.01 SUMMARY

A. Section Includes:
   1. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

B. Related Documents
   1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

C. Related Sections:
   1. Other Division 9 sections for floor finishes related to this section but not the work of this section
   2. Division 3 Concrete; not the work of this section
   3. Division 6 Wood and Plastics; not the work of this section
   4. Division 7 Thermal and Moisture Protection; not the work of this section

1.02 REFERENCES

A. Armstrong Flooring Technical Manuals
   1. Armstrong Flooring Guaranteed Installation Systems manual, F-5061
   2. Armstrong Flooring Maintenance Recommendations and Procedures, manual, F8663.

B. ASTM International:
   1. ASTM E 648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
   2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
   3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
   4. ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring
   5. ASTM F 1700 Standard Specification for Solid Vinyl Tile
   6. ASTM F 1861 Standard Specification for Resilient Wall Base
   7. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
   8. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes C. National Fire Protection Association (NFPA):
   1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
   2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials

D. Standards Council of Canada
   1. CAN/ULC-S102.2 Standard Test Method for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.

B. Administrative Requirements

1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.
2. Pre-installation Testing: Conduct pre-installation testing as follows: [Specify testing (i.e. moisture tests, bond test, pH test, etc).]

C. Test Installations/ Mock-ups: Install at the project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing. Obtain Owner's and Consultant's acceptance of finish color, texture and pattern, and workmanship standards.
   1. Mock-Up Size: [Specify mock-up size].
   2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
   3. Incorporation: Mock-up may be incorporated into the final construction with Owner's approval.

D. Sequencing and Scheduling
   1. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.
   2. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.04 SUBMITTALS

A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions (latest edition of Armstrong Flooring Guaranteed Installation Systems manual, F-5061. for flooring and accessories.

B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.

C. Submit Safety Data Sheets (SDS) available for flooring product, adhesives, patching/leveling compounds, floor finishes and cleaning agents.

D. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests. E. Closeout Submittals: Submit the following:
   1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
   2. Warranty: Warranty documents specified herein

1.05 QUALITY ASSURANCE

A. Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.

B. Select an installer who is competent in the installation of Armstrong resilient solid vinyl tile flooring.
   1. Engage installers certified as Armstrong Commercial Flooring Certified Installers
   2. Confirm installer's certification by requesting their credentials

C. Fire Performance Characteristics: Provide resilient tile flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency acceptable to authorities having jurisdiction:

1. ASTM E 648 (NFPA 253) Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I
2. ASTM E 662 (NFPA 258) (Smoke Generation) Maximum Specific Optical Density of 450 or less
3. CAN/ULC-S102.2 – Flame Spread Rating and Smoke Developed – Results as tested

1.06 DELIVERY, STORAGE AND HANDLING

A. Comply with Division 1 Product Requirements Sections

B. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.

D. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.07 PROJECT CONDITIONS

A. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65ºF (18ºC) and a maximum temperature of [100ºF (38ºC)][85ºF (29ºC)] for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55ºF (13ºC) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to the Armstrong Flooring Guaranteed Installations Systems manual, F5061 for a complete guide on project conditions.

1.08 LIMITED WARRANTY

A. Resilient Flooring: Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.
B. Limited Warranty Period: 20 years for Natural Creations with Diamond 10 Technology.
C. The Limited Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.
D. For the Limited Warranty to be valid, this product is required to be installed using the appropriate Armstrong Flooring Guaranteed Installation System. Product installed not using the specific instructions from the Guaranteed Installation System will void the warranty.

1.09 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Quantity: Furnish quantity of flooring units equal to 10% of amount installed.
2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

PART 2 - PRODUCTS 2.01 MANUFACTURER

A. Resilient tile flooring, wall base, adhesives and accessories:

1. Armstrong Flooring Inc., 2500 Columbia Avenue, Lancaster, PA 17604, www.armstrongflooring.com/commercial
2. Manufacturer must have a headquarters in the United States of America

2.02 RESILIENT TILE FLOORING MATERIALS

A. Provide NATURAL CREATIONS® with Diamond 10™ Technology: Luxury Solid Vinyl Tile Flooring manufactured by Armstrong Flooring Inc.

1. Description: A layered construction consisting of a tough, clear, rigid vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a diamond infused UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.
2. Reference specification - ASTM F 1700, “Standard Specification for Solid Vinyl Tile", Class III, Type B – Embossed Surface. Meets requirements for size, squareness, thickness, thickness of wear layer, residual indentation, resistance to chemicals, resistance to light and resistance to heat.
3. Pattern and Color: Refer to finish schedule and plans.
4. Size: Refer to plans and finish schedule.
5. Wear layer thickness: 0.020 (0.5 mm)
6. Thickness: 1/8"/0.125 in. (3.2mm)

2.03 PRODUCT SUBSTITUTION

A. Substitutions: No substitutions permitted.

2.04 ADHESIVES

A. Provide Armstrong S-288 Flooring Adhesive] [S-240 Epoxy Adhesive] under the flooring and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

B. [For Tile High-Moisture Installation Warranty, Full Spread: Provide Armstrong S-543 Commercial Sheet Flooring and LVT Adhesive for field areas and S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer].

C. [For Spray Adhesive High-Moisture Installation Warranty, Full Spread: Provide Armstrong Flooring Flip™ Spray Adhesive for field areas and S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer].

2.05 ACCESSORIES

A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Armstrong S-184 Fast-Setting Cement-Based Patch and Underlayment][S-194 Cement-Based Patch, Underlayment and Embossing Leveler / S195 Underlayment Additive].

B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.

C. Provide transition/reducing strips tapered to meet abutting materials.

D. Provide threshold of thickness and width as shown on the drawings.

E. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available. F. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlaptype metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 - EXECUTION 3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).
B. Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.
C. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
D. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
E. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
F. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

A. Subfloor Preparation: Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Armstrong S-184 Fast-Setting Cement-Based Patch and Underlayment][S-194 CementBased Patch, Underlayment and Embossing Leveler / S-195 Underlayment Additive] as recommended by the flooring manufacturer. Refer to Armstrong Flooring Guaranteed Installation Systems manual, F-5061 and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

B. Subfloor Cleaning: The surface shall be free of dust, solvents, varnish, paint, wax, oil, grease, sealers, release agents, curing compounds, residual adhesive, adhesive removers and other foreign materials that might affect the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents. Spray paints, permanent markers and other indelible ink markers must not be used to write on the back of the flooring material or used to mark the concrete slab as they could bleed through, telegraphing up to the surface and permanently staining the flooring material. If these contaminants are present on the substrate they must be mechanically removed prior to the installation of the flooring material. Refer to the Armstrong Flooring Guaranteed Installation Systems manual, F-5061 and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

C. When using S-288 Adhesive, perform subfloor moisture testing in accordance with [ASTM F 2170, “Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *insitu* Probes”] [ASTM F 1869,“Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride”] and Bond Tests as described in publication F-5061, "Armstrong Flooring Guaranteed Installation System," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. [Internal relative humidity of the concrete shall not exceed 90%.][MVER shall not exceed 5 lbs./1000 sq. ft./24 hrs.] On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained

D. [When using S-543 Adhesive, perform subfloor moisture testing in accordance with [ASTM F 2170, “Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *insitu* Probes”] [ASTM F 1869,“Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride”] and Bond Tests as described in publication F-5061, "Armstrong Flooring Guaranteed Installation System," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. [Internal relative humidity of the concrete shall not exceed 90%.] [MVER shall not exceed 7 lbs. /1000 sq. ft. /24 hrs.] On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained].

E. [When using Armstrong Flooring Flip™ Spray Adhesive, perform subfloor moisture testing in accordance with ASTM F 2170, “Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *in-situ* Probes” and Bond Tests as described in publication F-5061, "Armstrong Flooring Guaranteed Installation System," manual to determine if surfaces are

dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Internal relative humidity of the concrete shall not exceed 93%. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained].

F. Concrete pH Testing: Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained.

G. Wood subfloors: Armstrong resilient floors are recommended on suspended wood subfloors with a 1/4" underlayment (see product installation systems for exceptions) and a minimum of 18" of well-ventilated air space below. Armstrong Flooring does not recommend installing resilient flooring on wood subfloors applied directly over concrete or on sleeper-construction subfloors. Loading requirements for subfloors are normally set by various building codes on both local and national levels. Trade associations such as APA–The Engineered Wood Association provide structural guidelines for meeting various code requirements. Subfloor panels are commonly marked with span ratings showing the maximum center-to-center spacing in inches of supports over which the panels should be placed.

    1. Refer to the Armstrong Flooring Guaranteed Installation Systems manual, F-5061 and ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use under Resilient Flooring for additional information.

H. Wood subfloors - Surface Cleaning: Make subfloor free from dust, dirt, grease, and all foreign materials.

    1. Check panels for sources of discoloration such as contamination from paint, varnish, stain overspray or spills, plumbing sealers, asphalt, heater fuel, markers or potential staining agents such as wood or bark not visible on the surface, edge sealers, logo markings, printed nail patterns and synthetic patches.
    2. Remove old adhesive.
    3. Cover adhesive, oil or wax residue with an appropriate underlayment. If the residue is tacky, place a layer of felt or polyethylene sheeting over it to prevent a cracking sound when walking on the floor.
    4. Remove all paint, varnish, oil and wax from all subfloors. Many buildings constructed before 1978 contain lead-based paint, which can pose a health hazard if not handled properly. State and federal regulations govern activities that disturb lead-based painted surfaces and may also require notice to building occupants. **Do not remove or sand lead-based paint without consulting a qualified lead professional for guidance on lead-based paint testing and safety precautions.** Armstrong Flooring does not recommend the use of solvents to remove paint, varnish, oil, wax or old adhesive residues because the solvents can remain in the subfloor and negatively affect the new installation. Whenever sanding, be certain the work site is well ventilated and avoid breathing dust. If high dust levels are anticipated, use appropriate National Institute for Occupational Safety and Health (NIOSH) designated dust respirator. All power sanding tools must be equipped with dust collectors. Avoid contact with skin or eyes. Wear gloves, eye protection and longsleeve, loose fitting clothes
    5. For additional information on the installation and preparation of wood and boardtype underlayments see the current edition of ASTM F1482, “Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.”
    6. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring.

3.04 INSTALLATION OF FLOORING

A. Install flooring in strict accordance with the latest edition of Armstrong Flooring Guaranteed Installation Systems manual, F-5061. Failure to comply may result in voiding the manufacturer's warranty listed in Section 1.08.

B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.

C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.

D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and builtin furniture and cabinets.

E. Roll with a 100-pound (45.36 kilogram) roller in the field areas. Refer to specific rolling instructions of the flooring manufacturer

F. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.05 INSTALLATION OF ACCESSORIES

A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.

B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.

C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

D. Apply [butt-type] [overlap] metal edge strips where shown on the drawings, [before] [after] flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.06 CLEANING

A. Perform initial and on-going maintenance according to the latest edition of Armstrong Flooring Maintenance Recommendations and Procedures manual, F-8663.

3.07 PROTECTION

A. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings. (See Finishing The Job in the latest edition of Armstrong Flooring Guaranteed Installation Systems manual, F5061.)

END OF SECTION

SECTION 09900

PAINTS AND COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints, stains, varnishes, and other coatings.

1.02 REFERENCES

A. Painting and Decorating Contractors of America–P.D.C.A. Type 1 Manual.

B. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Re-approved 1997).

1.03 DEFINITIONS

A. P.D.C.A. standards and interpretations.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on all finishing products.

C. Verification samples: submit a minimum of (3) three painted 6" x 10" (+/-) "pull down" samples, illustrating selected colors and textures for each color and system selected. Each sample to be identified on the backside with project ID and project color number. One set of samples will be returned to the CM, to remain at the job site for reference.

D. Submit sealer and stain finishes on material on which that particular finish is to be used.

E. Manufacturer's instructions: Indicated special surface preparation procedures.

F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

G. MSDS for each product to be utilized.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with minimum three (3) years experience.

B. Job Foreman: Company shall have a job foreman who speaks English on the job site during normal working hours (with a minimum of 5 years experience).

1.06 REGULATORY REQUIREMENTS

A. Comply with safety recommendations of MSDS for each product utilized.

B. Conform to applicable code for flame and smoke rating requirements for products and finishes.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit, in ventilated area, and as required by manufacturer's instructions.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

1.09 EXTRA MATERIALS

A. See Section 01600 - Product Requirements, for additional provisions.

B. Supply 1 gallon of each color; store where directed.

C. Label each container with color in addition to the manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Paints: Pittsburgh Paint Co.

B. Transparent Finishes: Pittsburgh Paint Co.

C. Stains: Pittsburgh Paint Co.

D. Primer Sealers: Pittsburgh Paint Co.

E. Substitutions: See Section 01600 - Product Requirements.

2.02 MATERIALS

A. Provide best of their respective kinds, delivered to job in original unopened containers, plainly marked with manufacturer's name, name of product and color. A schedule of colors will be prepared by TPS upon receipt of all paint samples and other items required for color selections.

1. Materials: PPG, SHERWIN-WILLIAMS, KELLY MOORE, BENJAMIN MOORE, and PORTER. Submit product information for equal material to TPS for approval prior to color selections.

2.03 PAINT SYSTEMS – EXTERIOR

A. Paint WE-OP-3A - WOOD, Opaque, 3 coats

1. One coat of PPG 17-941 Seal Grip Interior/Exterior Alkyd Universal Wood Primer
2. Two coats of PPG 78 Line Sun-Proof Exterior 100% Acrylics Semi-Gloss Enamel

B. Paint WE-OP-3L - WOOD, Opaque, 3 coats

1. One coat of PPG 6-609 Speedhide Exterior Latex Wood Primer.
2. Two coats of PPG 78 Line Sun-Proof Exterior 100% Acrylics Semi-Gloss Enamel

C. Paint CE-OP-3L - CONCRETE/MASONRY, Opaque, 3 coats

1. One coat of PPG 6-7 Speedhide Interior/Exterior Latex Block filler
2. Two coats of PPG 78 Line Sun-Proof Exterior 100% Acrylics Semi-Gloss Enamel

D. Paint GE-OP-3L - GYPSUM BOARD AND PLASTER, Opaque, 3 coats

1. One coat of PPG 17-921 Seal Grip Interior/Exterior Universal Acrylic Primer
2. Two coats of PPG 78 Line Sun-Proof Exterior 100% Acrylics Semi-Gloss Enamel

E. Paint ME-OP-3A - FERROUS METALS, Unprimed, 3 coats

1. One coat of PPG 6-208 Speedhide Interior/Exterior Rust Inhibitive Metal Primer
2. Two coats of PPG 90-474 Pitt-Tech DTM Acrylic Satin Enamel

F. Paint MgE-OP-3L - GALVANIZED METALS, 3 coats

1. One coat of PPG 90-712 Pitt-Tech DTM Acrylic Metal Primer
2. Two coats of PPG 90-474 Pitt-Tech DTM Acrylic Satin Enamel

G. Paint MaE-OP-3A - ALUMINUM and COPPER, Unprimed, 3 coats

1. One coat of PPG 97-687 Polyclutch Wash Primer
2. Two coats of PPG 90-474 Pitt-Tech DTM Acrylic Satin Enamel

H. Paint E-PAV - PAVEMENT MARKING PAINT

1. Two coats of Richards 3007 Lead Free Yellow Latex Traffic Coating

2.04 PAINT SYSTEMS - INTERIOR:

A. Paint WI-OP-3A - WOOD, Opaque, 3 coats

1. One coat of PPG 17-956 Seal Grip Interior Alkyd Wood Primer/Under coater

B. Paint WI-OP-3L - WOOD, Opaque, 3 coats

1. One coat of PPG 6-2 Speedhide Interior Latex Wood Primer
2. Two coats of PPG 6-500 Speedhide Interior Latex Semi-Gloss

C. Paint WI-TR-V - WOOD, Transparent, Varnish, No Stain

1. Three coats of PPG 43886 Clear Polyurethane Satin Varnish (Sand between each coat)

D. Paint WI-TR-VS - WOOD, Transparent, Varnish and Stain

1. One coat of PPG 44500 Oil Wiping Stain
2. Three coats of PPG 43886 Clear Polyurethane Satin Varnish (Sand between each coat)

E. Paint CI-OP-3L - CONCRETE / MASONRY, Opaque, 3 coats

1. One coat of PPG 6-7 Speedhide Interior/Exterior Latex Block filler
2. Two coats of PPG 6-500 Speedhide Interior Latex Semi-Gloss

F. Paint MI-OP-3A - FERROUS METALS, Unprimed, 3 coats

1. One coat of PPG 6-208 Speedhide Interior/Exterior Rust Inhibitive Alkyd Metal Primer
2. Two coats of PPG 6-1110 Speedhide Interior Alkyd Semi-gloss Enamel

G. Paint MI-OP-2A - FERROUS METALS, Primed, 2 coats

1. Touch up if needed with PPG 6-208 Speedhide Interior/Exterior Rust Inhibitive Alkyd Metal Primer
2. Two coats of PPG 6-1110 Speedhide Interior Alkyd Semi-Gloss Enamel

H. Paint MgI-OP-3A - GALVANIZED METALS, 3 coats

1. One coat of PPG 6-209 Speedhide White Galvanized Metal Primer
2. Two coats of PPG 6-1110 Speedhide Interior Alkyd Semi-Gloss Enamel

I. Paint Mai-OP-3A - ALUMINUM, Unprimed, 3 coats

1. One coat of PPG 97-687 Polyclutch Wash Primer
2. Two coats of PPG 6-1110 Speedhide Interior Alkyd Semi-Gloss Enamel

J. Paint GI-OP-3L - GYPSUM BOARD AND PLASTER, 3 coats

1. One coat of PPG 6-2 Speedhide Interior Latex Primer.
2. Halls and other rooms: Three coats of PPG 6-500 Speedhide Interior Latex Eggshell
3. Classrooms: Two coats of PPG 6-411 Speedhide Interior Latex Eggshell

K. Paint GI-OP-2E - GYPSUM BOARD AND PLASTER, Water Born Epoxy (Toilets, Kitchen, Drinking Fountains)

1. One coat of PPG 17-921 Seal-Grip Interior/Exterior Acrylic Latex Primer/Sealer
2. Two coats of PPG 16-510 Pitt-Glaze Precatalyzed WM Semi-Gloss Epoxy

L. Existing Lockers – Wash with Peso. Sand to achieve a smooth surface free of all nicks and scratches by sanding to a featheredge.

1. Two coats of PPG 95-8000 Pitt-Thane Ultra Urethane Enamel

2.05

2.06 SURFACES NOT TO BE PAINTED:

A. Surfaces permanently concealed from view, unless noted to receive finish.

B. Materials or equipment with a complete factory applied finish unless otherwise noted.

C. Finish hardware unless specifically noted otherwise or previously painted.

D. Non-ferrous metals unless specifically noted otherwise or previously painted.

E. Plumbing fixtures.

F. Lighting Fixtures.

2.07 ACCESSORY MATERIALS

A. Accessory Materials: Linseed oil, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.

B. Patching Material: Latex filler – Gyp Board and Block

1. Plaster Walls

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Notify Architect of any incompatibilities of specified finish on substrates, including existing finishes.

E. Contractor shall measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

1. Plaster and Gypsum Wallboard: 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.
4. Exterior Wood: 15 percent, measured in accordance with ASTM D 4442.

3.02 PREPARATION

A. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

C. Marks: Seal with shellac those which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

F. Gypsum Board Surfaces to be Painted: Clean thoroughly all wallboard surfaces to be painted. Sand smooth all rough surfaces. Fill minor defects with filler compound. Spot prime defects after repair.

G. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

H. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

I. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

J. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

K. Interior Wood Items to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes

and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

L. Interior Wood Items to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

M. Exterior Wood to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied. Back prime concealed surfaces before installation.

N. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied. Prime concealed surfaces.

O. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

P. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

Q. Plaster Walls:

3.03 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Apply finishes at manufacturer's recommended spreading rate to provide total dry film of not less than 5 mils.

C. Apply material without reduction except as specifically required by label direction; reduction shall be the minimum permitted.

D. Provide uniform color and finish; the number of coats specified being a minimum, provide any additional coats to produce work satisfactory to TPS.

E. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

F. Apply each coat to uniform appearance.

G. Sand wood surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

J. Fire hose cabinets, air registers and grilles, flanges around ceiling fixtures, exposed electrical panel boards, primed hardware, etc., shall be painted to match adjacent surfaces unless factory finished such as aluminum registers and grilles.

K. Where paint finish is specified on CMU, take special care to assure that every pore or irregularity of CMU texture is solidly and uniformly filled with block filler, adding extra coats to coarse textured units as necessary to provide a finish acceptable to TPS. Apply textured coating to uniform finish.

L. Where Epoxy finish is specified on CMU, take special care to assure that every pore or irregularity of CMU texture is solidly and uniformly filled with block filler, adding extra coats to coarse textured units as necessary to provide an easily washable finish acceptable to TPS and local Health Department.

M. Apply material without reduction except as specifically required by label direction; reduction shall be the minimum permitted.

3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Paint shop-primed equipment, unless indicated otherwise.

B. Paint rooftop equipment furnished with or without factory finish only as indicated on the drawings.

C. Paint piping, equipment, conduits, vents, etc., on roof as indicated on the drawings. Identification labels will be provided by Mechanical Contractor.

D. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 CLEANING

A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. On completion of work, carefully clean all glass, hardware, factory finished surfaces, etc., and remove all misplaced paint and stain spots or spills and leave in a condition acceptable to TPS.

C. Provide trash dumpster on site for debris collection as contractor may not use TPS dumpster.

TECHNICAL INFORMATION

General Requirements:

1. Owner shall provide the contractor with one location at each site to store supplies.
2. Contractor shall remove debris from the site daily. School shall be ready to be used each and every day that school is in session. Contractor shall clear all paint supplies from the classrooms.
3. **Minimum Preparations** are listed below for pricing unit cost items:
   a. Doors varnished – wash, sand and apply two coats of polyurethane with staining agent.
   b. Doors painted – wash, sand and apply one coat of rust inhibitive primer and two coats of alkyd enamel. New Doors to receive one coat of XIM primer and two coats of alkyd enamel.

c. Single or double jambs – wash, sand and apply one coat of rust inhibitive primer and two coats of alkyd enamel.
d. Single doorjamb and transom – wash, sand and apply one coat of rust inhibitive primer and apply two coats of alkyd enamel
e. Single doorjamb, transom, and sidelight – wash, sand, and apply one coat of rust inhibitive primer and apply two coats of alkyd enamel
f. Single doorjamb, transom and double sidelights – wash, sand, and apply one coat of rust inhibitive primer and apply two coats of alkyd enamel
g. Painted base, moldings and chair rail – wash, sand and apply two coats of alkyd enamel
h. Wall-mounted handrail – varnish or alkyd enamel as required
i. Radiators – clean and spray with alkyd enamel
j. Freestanding spindled handrail (stairwell, etc.) –
k. Toilet Partitions – same procedure and finish as lockers
l. Accent Stripe – Acrylic latex
m. Open bookcases, varnished (repaint) – same procedure and finish as doors
n. Open bookcases, varnished (new) – same procedure and finish as doors
o. Open wood bookcases, epoxy – wash, sand and apply one coat of XIM and one coat of water-borne epoxy
p. Cabinets with doors, (all ext. & int. of doors only) – one coat of XIM Product and one coat of water-borne epoxy
q. Cabinets with doors, epoxy (ext. & int. of doors only) – wash, sand and prime with XIM Product and apply one coat of water-borne epoxy
r. Gyp walls, latex – using two coats of acrylic semi-gloss. New walls shall be primed and receive 3 coats of semi-gloss.
s. Gyp walls, epoxy – All restrooms. One coat of P. V. A. Prime and one coat of water-borne epoxy
t. Block walls, latex – two coats of acrylic latex semi-gloss.
u. Existing block walls, epoxy – solvent base, apply one coat of P. P. G. grip and seal, and one coat of water-borne epoxy
v. Lockers, face side only – wash exterior surfaces and remove paint from numbered plates; power sand to feather edge, chipped paints, and scratches; apply one coat of primer using P. P. G. Multi-prime #97-680; apply one finish coat of P. P. G. Pitthane #95-8600 and two coats of alkyd enamel; mask and protect all numbering plates and protection plates on lockers.
w. Acoustical lay-in ceilings and grid – apply one coat of P. P. G. Grip & Seal
x. Existing metal cabinets – apply same finish as lockers
y. HVAC and Uni-vent Units and Grilles – Paint using same procedure as for lockers.
z. Exterior Waterproofing: Brick, Stucco, Block- Use Siloxane by Coronado Paint. Do not apply in temperatures above 90 Degrees. Apply per manufacturers recommendations.
aa. Polymix: Prepare wall and apply paint per Manufacturer recommendations
bb. Glazed Tile Epoxy:
    1. Power sand to dull glazed tile. 2. Prime tile using XIM,
    3. Apply tow coats of P. P. G. Polyurethane epoxy gloss #95-1 series
cc. Glazed Tile Multi-Color:
    1. Power sand to dull surfaces, 2. Apply one coat of XIM, 3. Prime with acrylic latex to match background of multi-color, 4. Apply multi-color such as Poly-mix or equal per manufacturer's specifications, 5. Apply one coat of Non-ambering polyurethane

dd. Sealant: Polyurethane sealant Vulkem 116 or equal. Do not apply to damp or contaminated surfaces. Clean all smears with Xylol or Toluol before sealant cures. Color: Match the adjacent material. Bronze, Buff or Almond. Owner to approve color.

ee. Poured quartz floor: Manufacturer Benjamin Moore or equal. Prepare floor and apply per manufacturers directions. Color to be determined by Owner.

ff. Painted Urethane Floor: Manufacturer: Benjamin Moore or equal. Prepare floor and apply paint per manufacturers recommendations.

END OF SECTION

SECTION 10100

VISUAL DISPLAY BOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Porcelain enamel markerboards.

B. Tackboards and tack strips.

C. Visual display board accessories.

1.02 REFERENCES

A. The General Conditions of the Contract, including Supplementary Conditions and Division 1 General Requirements apply to the Work of this Section as fully as if written completely herein.

B. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 1996.

C. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 1996.

D. GREENGUARD Environmental Institute: GREENGUARD Children and Schools Indoor Air Quality Certified

1.03 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data for products specified. Include Material Safety Data Sheets, when applicable.

C. Shop Drawings: Provide shop drawings for each type of visual display board specified.

D. Selection Samples: For items without a specified color, submit set of color chips displaying manufacturer's full range of colors and finishes.

E. Verification Samples: Submit samples not less than 6 inches square and framed on two adjacent sides, to illustrate materials, finish, color, and texture of each type of visual display board required.

F. Maintenance Data: Provide data on cleaning requirements, stain removal, and recommended maintenance precautions.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's instructions for handling and storage of units.

1.05 FIELD CONDITIONS

A. Field measure prior to preparation of shop drawings and fabrication, to ensure proper fit.

B. Do not begin installation of visual display boards until environmental conditions approximate normal occupied conditions.

1.06 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Submit manufacturer's "Life of the Building" warranty, stating that under normal usage and maintenance, and when installed in accordance with manufacturer's instructions and

recommendations, porcelain enamel steel chalkboards and markerboards are guaranteed for the life of the building.

1. Warranty shall cover replacement of defective boards but not the cost of removal or reinstallation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers include:

1. Claridge Products and Equipment, Inc.; Harrison, Arkansas 72602-0910. ASD. Tel: (870) 743-2200. Fax: (870) 743 1908. Email: claridge@claridgeproducts.com. Website: www.claridgeproducts.com
2. Nelson Adams Division of A. Lawer Corporation / Greensteel
3. Alliance Manufacturing
4. Platinum Visual Systems

B. Substitutions: See Section 01600 - Product Requirements.

2.02 MARKERBOARD MATERIALS

A. Steel Face Sheets: 0.0239 inch (24 gage) commercial quality steel, fired with porcelain enamel, using the DuPont process.

1. Face sheets with high-fired brittle ground and finish coats are not acceptable.
2. Fire porcelain enamel finish at approximately 1000 degrees F, or lowest possible temperature there under to reduce steel and porcelain stresses and achieve superior enamel bond and hardness.

B. Core Material: 7/16 inch Duracore; no added urea-formaldehyde resins

C. Backing Material: 0.002 inch aluminum foil.

D. Metal Trim and Accessories: ASTM B 221 (ASTM B 221M) aluminum alloy.

E. Laminations: Hot-type neoprene contact adhesive applied to both surfaces automatically.

1. Each substrate shall have minimum 80 percent covering with 1.5-2.0 dry mils of adhesive.
2. Panel components shall have uniform pressure applied mechanically over entire area.
3. Laminations shall be made by manufacturer of face sheet.

F. Adhesive: As recommended by manufacturer for project conditions.

2.03 PORCELAIN ENAMEL MARKERBOARDS

A. Markerboards: Claridge "LCS" markerboards Series 1. **Grades PK-12**

1. Metal Trim and Accessories: Series 1 heavy gage aluminum extrusions.
   a. Finish: Etched and anodized satin finish.
   b. Trim Style: 5/8-inch, mitered corners
   c. All marker boards shall be mounted at a height shown on the drawings.
   d. Marker trough: Full length standard continuous solid type, with ribbed section and injection molded end closures.
   e. Map rail: Standard continuous rail with cork insert and end stops, length as shown on drawings, and as follows:
      i. Height: 1 in.
      ii. Map hooks: 10 hooks per classroom.
      iii. Roller brackets: 4 brackets per classroom.
      iv. Flag holders: 2 holders per classroom.
2. Size: As indicated on drawings.
3. Color: White.

2.04 TACKBOARDS AND TACK STRIPS

A. Tackboards: Configuration as indicated on drawings, including those integrated with chalkboards and marker boards.
   1. Metal Trim and Accessories: Series 1 heavy gage aluminum extrusions; etched and anodized satin finish.
   2. Size: As indicated on drawings.
   3. Tackboard Surfacing: Claridge (or approved manufacturer) Cork composed of ¼" thick self-healing, burlap backed cork laminated on a ¼-inch hardboard backing.
      a. Color: As selected by Architect from manufacturer's standards.

2.05 FABRICATION

A. Laminate facing sheet and backing sheet to core material under pressure, using manufacturer's recommended adhesive.

B. Provide factory-assembled visual display boards, except where sizes demand partial field assembly.

C. Assemble units in one piece without joints, wherever possible. Where required dimensions exceed maximum panel size available, provide 2 or more pieces of equal length, as indicated on approved shop drawings. Assemble to verify fit at factory, then disassemble for delivery and final assembly at project site.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrates are properly prepared to receive visual display boards and that all necessary backing is in place. Do not begin installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Comply with manufacturer's installation instructions.

B. Where visual display boards must be partly assembled at project site, use factory-supplied H-bar to maintain proper alignment.

C. Install visual display boards level and plumb, keeping perimeter trim aligned in accordance with manufacturer's recommendations.

3.03 ADJUSTING AND CLEANING

A. Verify that all accessories are installed as required for each unit.

B. Upon completion of installation, clean surfaces and trim in accordance with manufacturer's recommendations, leaving all materials ready for use.

END OF SECTION

SECTION 102113.19
PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Solid plastic (HDPE) partitions.

1.2 RELATED SECTIONS

A. Section 055000 - Metal Fabrications: Concealed steel support members.

B. Section 061100 - Wood Framing: Concealed wood framing and blocking for compartment support.

C. Section 102800 – Toilet, Bath and Laundry Accessories.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM D 1735 - Standard Practice for Testing Water Resistance of Coatings Using Water Fog Apparatus.
3. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100 percent Relative Humidity.

B. National Fire Protection Association: NFPA 286 - Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

C. United States Green Building Council (USGBC): LEED Green Building Rating System.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Literature indicating typical panel, pilaster, door, hardware and fastening.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Installation methods.

C. Shop Drawings:
1. Dimensioned plans indicating layout of toilet compartments.
2. Dimensioned elevations indicating heights of doors, pilasters, separation partitions, and other components; indicate locations and sizes of openings in compartment separation partitions for toilet and bath accessories to be installed in partitions; indicate floor and ceiling clearances.
3. Details indicating anchoring components (bolt layouts) and methods for project conditions; indicate components required for installation, but not supplied by toilet compartment manufacturer.

D. Selection Samples: For each finish product specified, one complete set of color selection guides representing manufacturer's full range of available colors, textures and patterns.

E. Verification Samples: For each finish product specified, two samples representing actual product, color, texture and pattern.

F. LEED Green Building Rating System: Submit manufacturer's documentation of recycled content, in accordance with LEED credit calculations.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.

B. Store products indoors in manufacturer's or fabricator's original containers and packaging, with labels clearly identifying product name and manufacturer. Protect from damage.

C. Lay cartons flat, with adequate support to ensure flatness and to prevent damage to pre-finished surfaces.

D. Do not store where ambient temperature exceeds 120 degrees F (49 degrees C).

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Do not deliver materials or begin installation until building is enclosed, with complete protection from outside weather, and building temperature maintained at a minimum of 60 degrees F (15.6 degrees C).

1.7 WARRANTY

A. Manufacturer's Standard Warranty: For solid plastic HDPE material against breakage, corrosion, and delamination for 25 years.

1.8 COORDINATION

A. Coordinate Work with placement of support framing and anchors in walls and ceilings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: ASI Accurate Partitions, 160 Tower Drive, Burr Ridge, IL 60527, Tel: 708-442-6800, Email: info@asi-accuratepartitions.com, Web: http://www.asi-accuratepartitions.com.
   1. Other Acceptable Manufacturer: ASI Global Partitions, Eastanollee, GA, Tel: 706-827-2700; Web: www.asi-globalpartitions.com.
   2. No other manufacturer will be accepted.

B. Substitutions: Not permitted.

2.2 COMPARTMENTS AND SCREENS

A. Toilet Compartments: Floor anchored/overhead braced solid plastic panels.
   1. Compartment Depth and Width: As scheduled and indicated on Drawings.
   2. Door Width: As scheduled and indicated on the Drawings.

3. Height Above Floor: 14 inches (356 mm).
4. Door/Panel Height: 55 inches (1397 mm).
5. Pre-K Restrooms Door/Panel Height: 42 inches
6. Pre-K Restrooms Height Above Floor: 12 inches
7. Pilaster Height: 82 inches (2083 mm).

B. Privacy and Urinal Screens: Wall hung.
1. Screen Panel Size: 24 inches wide by 42 inches high.
2. Urinal screens shall have pilasters at ends for stabilization.

2.3 SOLID PLASTIC TOILET COMPARTMENTS

A. Doors, Panels, Screens, and Pilasters: Single sheet solid, homogenous HDPE plastic material manufactured from waterproof, non-absorbent, high-density polyethylene resins; mark-resistant self-lubricating surface; edges finished smooth.
1. Material: Solid, homogenous HDPE; 1 inch (25 mm) thick.
2. NFPA 286 Compliant HDPE
3. Edges: 1/4 inch (6 mm) radius machined edges.
4. Heat Sink: Aluminum heat sink, to dissipate heat from incendiary devices used by vandals, attached to bottom of doors and panels.

B. Finish: Hammered-textured homogenous color throughout material.
1. Color: 9511 Metallic Silver

C. Door Hardware: Cam-Action Piano Hinge
1. Hinge: Continuous cam action stainless steel piano hinge. Holds door in a partially open or closed position when at rest.
2. Latch: Stainless Steel Indicator Latch
3. Strike and Keeper: Stainless Steel No Sight Line Strike.
4. Coat Hook and Bumper: Non-ferrous, chrome-plated, with black rubber tip for door stop.
5. Fastening Hardware: Manufacturer's standard, stainless steel, theft-resistant barrel nuts and shoulder screws.
6. Door Pulls: Stainless Steel. Standard on ADA and Ambulatory compartments. Two per ADA door.

D. Mounting Brackets: Stainless steel continuous bracket with theft resistant barrel nuts and shoulder screws.

E. Pilaster Shoes: Overhead braced. Type 304 Stainless Steel, No. 4 satin finish. EZ Stall shoe shall be of a one piece design and integral to the mounting system and formed from 304 stainless steel 3 inch (76 mm) high with a No. 4 satin finish. Pilaster shoes are anchored to the pilaster with No. 10 stainless steel, vandal-resistant screws.

F. Headrail: manufacturer's standard anodized aluminum rail with anti-grip profile.

G. Pilaster Anchors, Floor Anchored/Overhead Braced:
1. EZ Stall shoe system. 1/4 by 2 inch (6 by 51 mm) steel screws attach Easy Stall shoe to floor.
2. Pilaster to be inserted into shoe and secured after height adjusted. Leveling adjustment to be concealed by pilaster shoe.
3. Height/leveling adjustment to be made via machine thread bolts inserted into factory installed threaded insert in bottom of pilaster.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Inspect and prepare substrates using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions. Clean surfaces thoroughly prior to installation.

B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
   1. Verify dimensions of areas to receive compartments.
   2. Verify locations of built-in framing, anchorage, bracing, and plumbing fixtures.

3.2 INSTALLATION

A. Install in accordance with approved shop drawings and manufacturer's instructions.

B. Fasten components to adjacent materials and to other components using purpose-designed fastening devices.

C. Adjust pilaster anchors for substrate variations; conceal anchors with pilaster shoes.

D. Equip each compartment door with hinges and door latch.

E. Install door strike keeper on pilasters in alignment with door latch.

F. Equip each compartment door with one coat hook and bumper.

G. Installation Tolerances:
   1. Maximum variations from plumb or level: 1/8 inch (3 mm).
   2. Clearance between wall surface and panels or pilasters: 1-1/4 inch (32 mm) maximum.

3.3 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors.

B. Adjust adjacent components for consistency of line or plane.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. Remove factory protective coverings and clean finish surfaces in accordance with manufacturer's instructions before substantial completion.

END OF SECTION

SECTION 10260

WALL PROTECTION

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Wall Protection Systems:
      a. Rigid Protective Wallcoverings.
   2. Corner Guards
      a. High Impact Surface Mounted

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)
B. National Building Code of Canada (NBC)
C. National Fire Protection Association (NFPA)
D. Society of Automotive Engineers (SAE)
E. Underwriters Laboratory (UL)
F. Underwriters Laboratory of Canada (ULC)
G. Uniform Building Code (UBC)

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:
   1. Fire Performance Characteristics: Comply with ASTM E 84 for the fire performance characteristics indicated below. Identify components with markings from testing and inspection organization.
      a. Flame Spread: 25 or less.
      b. Smoke Developed: 450 or less.
   2. Impact Strength: Provide Rigid Vinyl Sheet that has an Impact Strength of 30.4 ft-lbs/ inch of thickness as tested in accordance with the procedures specified in ASTM D-256-90b, Impact Resistance of Plastics.
   3. Chemical and Stain Resistance: Provide rigid vinyl sheet that show resistance to stain when tested in accordance with applicable provisions of ASTM D-543.
   4. GREENGUARD Certified: Provide GREENGUARD Certified material. Profiles shall meet the requirements of GREENGUARD Certification Standards for Low-Emitting Products and GREENGUARD Product Emission Standard for Children & Schools.
   5. Fungal and Bacterial Resistance: Provide rigid vinyl that does not support fungal or bacterial growth as tested in accordance with ASTM G-21 and ASTM G-22.
   6. Color Consistency: Provide components matched in accordance with SAE J-1545 - (Delta E) with a color difference no greater than 1.0 units using CIE Lab, CIE CMC, CIE LCh, Hunter Lab or similar color space scale systems.

1.04 SUBMITTALS

A. Product Data: Manufacturer's printed product data for each type of item specified.

B. Detail Drawings: Mounting details with the appropriate adhesives for specific project substrates for each type of item specified.

C. Samples:
   1. Rigid Vinyl Sheet: two 8-inch (203mm) square, of each type and color indicated. Shall also provide texture sample.

2. High Impact Corner Guard: two 8-inch (203mm) long, in full size profiles of each type and color indicated. Shall also provide texture sample.

D. Manufacturer's Installation Instruction: Printed installation instructions for each type specified.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in unopened factory packaging to the jobsite
B. Inspect materials at delivery to assure that specified products have been received.
C. Store in original packaging in a climate controlled location away from direct sunlight.

1.06 PROJECT CONDITIONS

A. Environmental Requirements: Products must be installed in an interior climate controlled environment.

1.07 WARRANTY

A. Standard Limited Lifetime Warranty against material and manufacturing defects.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Acceptable manufacturers are identified on the drawings in the Room Finish Schedule.

2.02 RIGID VINYL SHEET

A. Rigid Vinyl Sheet shall be manufactured from chemical and stain resistant polyvinyl chloride with the addition of impact modifiers. No plasticizers shall be added (plasticizers may aid in bacterial growth).

B. Thickness:
1. 0.040-inch = 3/64-inch (1mm)
2. 0.060-inch = 1/16-inch (1.5mm)

C. Accessories:
1. Top Cap: brushed aluminum J mold
2. Vertical Divider Bar: extruded PVC
3. Inside Corner: extruded PVC
4. Outside Corner: extruded PVC
5. Color Matched Caulk

D. Finishes
1. Color as indicated on the drawings.
2. Surface texture shall be selected by the architect from the manufacturer’s standard selection.
3. Accessories: shall be of a color matching the Sheet.

2.03 CORNER GUARD SYSTEM

A. High Impact Surface Mounted corner guard.
1. Profile: 3-inch (76mm) x 3-inch (76mm), 90 degree

2. Height: shall be of manufacturer's standard height options. See drawings for approximate height.

B. Materials
1. Vinyl: Snap on cover of .080-inch (2mm) thickness shall be extruded from chemical and stain resistant polyvinyl chloride with the addition of impact modifiers. No plasticizers shall be added (plasticizers may aid in bacterial growth).
2. Aluminum: Continuous aluminum retainer of .070-inch (1.8mm) thickness shall be fabricated from 6063-T5 aluminum, with a mill finish.

C. Components
1. Top caps and bottom caps shall be made of injection molded thermoplastics.
2. Fasteners: All mounting system accessories appropriate for substrates indicated on the drawings shall be provided.
3. Optional flexible top caps shall be made of injection molded flexible PVC.

D. Finishes
1. Vinyl Covers:
a. Color: as indicated on the drawing.
b. Surface texture shall be selected by the architect from the manufacturer's standard selection.
2. Molded Components: Top caps and bottom caps shall be of a color and texture matching the corner guards.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions in which the items will be installed.
1. Complete all finishing operations, including painting, before beginning installation of the materials.

B. Wall surface shall be dry and free from dirt, grease and loose paint.

3.02 PREPARATION

A. General: Prior to installation, clean substrate to remove dust, debris and loose particles.

3.03 INSTALLATION

A. General: Locate the rigid vinyl sheet as indicated on the approved detail drawing for the appropriate substrate and in compliance with the manufacturer's installation instructions.
1. Install wall surface protection units plumb, level, and true to line without distortions.
2. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished work.
3. Install aluminum retainers, mounting brackets, and other accessories in strict accordance with the manufacturer's instructions.
4. Where splices occur in horizontal runs of over 20 feet (6 m), splice aluminum retainer and plastic cover at same locations along the run.

B. Installation of Rigid Vinyl Sheet
1. Adhere to substrate with a nonflammable, high strength, water-dispersed contact adhesive, with very little odor approved by the manufacturer.

C. Installation of High Impact Surface Mount Corner Guard:
   1. Position the aluminum retainer against the wall, allowing 5/16-inch (8mm) from the bottom of the aluminum to the top of the cove base or baseboard for the bottom cap.
   2. Aluminum Retainer Installation: follow manufacturer installation instructions for the substrate.
   3. Top and Bottom Cap Installation: follow manufacturer installation instructions for the substrate.
   4. Position the vinyl cover on the aluminum retainer to check the fit. Adjust the top cap on the aluminum retainer to obtain a tight fit with the vinyl cover.

3.04 CLEANING

A. At completion of the installation, clean surfaces in accordance with the clean-up and maintenance instructions.

END OF SECTION

SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cabinet-type toilet accessories.
   1. Traditional Collection.

B. Toilet accessories.

C. Grab bars.

1.2 RELATED SECTIONS

A. Section 092000 – Plaster and Gypsum Board

B. Section 093000 - Tiling

C. Section 102113.19 – Plastic Toilet Compartments.

1.3 REFERENCES

A. Americans with Disabilities Act Accessibility Guidelines (ADA).

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's product data for products specified, indicating selected options and accessories.

C. Shop Drawings:
   1. Plans: Locate each specified unit in project.
   2. Elevations: Indicate mounting height of each product.
   3. Details: Indicate anchoring and fastening details, required locations and types of anchors and reinforcement, and materials required for installation of specified products.

D. LEED Requirements: Provide products required by this section with attributes that contribute to the project sustainability goals:
   1. MR Credit 4.1 - Recycled Content (post-consumer).
   2. MR Credit 4.2 - Recycled Content (post-industrial).

E. Verification Samples: Two sample chips of each specified color and finish.

F. Quality Assurance Submittals:
   1. Manufacturer's printed installation instructions for each specified product.
   2. Documentation of Manufacturer's Qualifications, specified in 1.5 of this Section.

G. Closeout Submittals: Warranty, issued and executed by manufacturer, and countersigned by Contractor.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum five years documented experience producing products specified.

B. Source Limitations: To the greatest extent possible products shall be provided by a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ship products in manufacturer's standard protective packaging with vinyl coating on exposed surfaces.

B. Storage and Protection: Store products in manufacturer's protective packaging until installation.

1.7 SEQUENCING

A. Supply locations, dimensions, and other pertinent details to installing Contractor for coordination of blocking, support and recess size and locations required for accessory installation.

B. Supplier / Installer Responsibility, as noted on each product.
1. CFCI equals Contractor Furnished, Contractor Installed.
2. OFCI equals Owner Furnished, Contractor Installed.

1.8 WARRANTY

A. Manufacturer's standard warranty against defects in product workmanship and materials.

B. Manufacturer's 15-year warranty against silver spoilage of mirrors.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: American Specialties, Inc.; 441 Saw Mill River Road, Yonkers NY 10701-4913. ASD. Tel: (914) 476-9000. Fax: (914) 476-0688. Email: infoatamericanspecialties.com. Web: http://www.americanspecialties.com.

B. Substitutions: See Section 01600 - Product Requirements.

2.2 CABINET-TYPE TOILET ACCESSORIES (TRADITIONAL COLLECTION)

A. Basic Construction Requirements:
1. Doors: 22 ga stainless steel, double pan construction, with 1/4 in (6 mm) thick structural fiberboard core.
2. Cabinets: 22 ga stainless steel, formed perimeter trim with 1/4 in (6 mm) return to wall four sides; joints welded, sight-exposed welds finished to match sheet finish.
3. Hinges: Stainless steel piano hinge, 3/16 in (4.8 mm) dia barrel, full length of cabinet; hinge leaves spot-welded to door and cabinet body.
4. Locks: Tumbler locks, keyed like other toilet accessories, with two keys for each lock.
5. Cabinet and Door Finish: Satin finish.

B. Hand Dryers: (CFCI): Bobrick B-7128, surface mounted, sensor operated; Color: Stainless Steel H13-19/32" x W13-25/32" x D4"

C. Paper Towel Dispenser: San Jamar #T1100, 8" W x 8" Dia. Roll Towel Dispenser; Color: TBK Black H16 ½" x W12-15/16" x D9¼".

D. Waste Receptacles: Traditional Collection by ASI. (CFCI)
1. Circular Counter Top Waste Chute: Model 1000. Provides waste deposit access to receptacle (not furnished) placed directly below chute. Made of 16 ga stainless steel, rolled flange and exposed surfaces have Satin finish.
2. Freestanding Waste Receptacle with Top: Model 0810 Stainless Steel. Capacity: 14.3 Gal.

2.3 TOILET ACCESSORIES

A. Basic Construction Requirements:
1. Doors: 22 ga satin stainless steel, formed hems at sight-exposed edges.
2. Cabinets: 22 ga satin stainless, formed hems at sight-exposed edges; joints welded.
3. Hinges: Stainless steel piano hinge, 3/16 in (4.8 mm) dia barrel, full length of cabinet; hinge leaves spot-welded to door and cabinet body.
4. Locks: Tumbler locks, keyed alike other toilet accessories, two keys for each lock.

B. Custodial Accessories: As manufactured by ASI. (CFCI)
1. Shelf with Utility Hooks and Mop Strip: Constructed of type 304 satin finish stainless steel. Shelf is 8 in (200 mm) deep with 3/4 in (19 mm) return for rigidity. Mop holders are riveted to strip and rubber cam is ribbed for grasping. 14-1/2 in (370 mm) high.
a. Model 1308-4: 4 mop holders/5 utility hooks, 44 in (1120 mm) long.

C. Feminine Hygiene Disposals: As manufactured by ASI. (CFCI)
1. End Stall / Surface Mounted Sanitary Disposal: Model 0473-1A. Self-closing doors mounted to cabinet w/heavy duty full length piano hinge.
2. Recessed Sanitary Disposal: Model 0473-A. Self-closing doors mounted to cabinet w/heavy duty full length piano hinge.
3. Partition Mounted Dual Access Sanitary Disposal: Model 0472-1. Serves two compartments mounted in partitions. Receptacle removable from 1 side for servicing, locks to back of cabinet with stainless clips. Self-closing doors on each side mounted to cabinet w/heavy duty full length piano hinge.

D. Mirrors: As manufactured by ASI. (CFCI)
1. Channel Frame Mirror: Model 0620. 1/2 in x 1/2 in x 1/2 in (13 mm x 13 mm x 13 mm) 20 ga type 304 satin stainless channel, one piece roll formed member; installed on two wall brackets, held secure by theft resistant screw.

E. Shower Curtain Rods: As manufactured by ASI. (CFCI)
1. Shower Curtain Hook: Model 1200-SHU. Stainless steel hook for rods 1 in (25 mm) and 1-1/4 in (32 mm) dia.
2. Vinyl Shower Curtain: Model 1200-V. Flame resistant, anti-bacterial, 8 ga vinyl fabric. Curtain shall be 6 in (150 mm) wider than opening up to 48 in (1220 mm) and 12 in (305 mm) wider than openings exceeding 48 in (1220 mm). Sizes and colors as scheduled or indicated on Drawings.
3. Extra Heavy-Duty Shower Curtain Rod: Model 1204. Flanges 3 in (75 mm) dia, 20 ga type 304 satin stainless. 1-1/4 in (32 mm) dia rod, 18 ga type 304 satin stainless tubing. Available in lengths up to 96 in (2440 mm).

F. Shower Seats: As manufactured by ASI. (CFCI)
1. Compact Folding Seat: Model 8203. Seat shall be 5/16 in (8 mm) thick, one piece, solid phenolic, ivory color. Frame, support legs, flanges and bracket shall be type 304 satin finished stainless steel. Provide a self-locking mechanism. Seat measures 18 in (460 mm) wide and projects 16 in (405 mm) from wall.

G. Soap Dispensers: OFCI

H. Toilet Seat Cover Dispensers: As manufactured by ASI. (CFCI)

1. Surface Mounted Toilet Seat Cover Dispenser: Model 0477-SM. Door has tumbler lock, dispenses 250 single or half-fold seat covers.

I. Toilet Tissue Dispenser: San Jamar #R4000, 9" JBT Junior Roll Twin Tissue Dispenser; Color: TBK Black H12" x W19" x D5¼".

2.4 GRAB BARS

A. Grab Bars: (CFCI)
1. Size: Straight grab bar, lengths 36 inches, 42 inches and 18 inches.
2. Covers: Snap over flange to conceal screws; type 304 stainless steel, 22 ga, 3-3/16 in (81 mm) dia.
3. Concealed Mounting Flanges: 3-1/8 in (79 mm) O.D. dia with two screw holes and three locking dimples; 1/8 in (3 mm) thick, type 304 stainless steel.
4. Series: 3800 Series by ASI (or approved equal); 1-1/2 in (38 mm) dia handrail with snap-on flange covers.
a. Product: Model 3800.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect and prepare substrates using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.
1. Verify reinforcement and anchoring devices are correct type and are located in accordance with shop drawings.

B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 INSTALLATION

A. Install toilet accessories plumb and level in accordance with shop Drawings and manufacturer's printed installation instructions.

B. Locate toilet accessories at heights and locations required for compliance with local accessibility regulations and the Americans with Disabilities Act.

3.3 CLEANING

A. Remove manufacturer's protective vinyl coating from sight-exposed surfaces 24 hours before final inspection.

B. Clean surfaces in accordance with manufacturer's recommendations.

3.4 PROTECTION OF INSTALLED PRODUCTS

A. Protect products from damage caused by subsequent construction activities.

B. Field repair of damaged product finishes is prohibited; replace products having damaged finishes caused by subsequent construction activities.

END OF SECTION

SECTION 10430

INTERIOR SIGNAGE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SCOPE

A. Furnish all material, labor and engineering services necessary to fabricate and install signage.

1.3 REFERENCES

A. Signs and their installation shall comply with applicable provisions of the latest edition of the following standards and with requirements of authorities having jurisdiction:
   1. ADAAG – Americans with Disabilities Act Accessibility Guidelines; US Architectural and Transportation Barriers Compliance Board.
   2. International Code Council/American National Standards Institute A117.1-Standard on Accessible and Usable Buildings Facilities.
   3. National Fire Protection Association 101 Life Safety Code.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be installed, including operation and maintenance data.

C. Shop Drawings: Shop Drawings shall be complete with installation details.
   1. Show details that indicate sizes, lettering, graphics, and construction details of each type of sign.
   2. Show features of components, including but not limited to edge conditions, profiles, accessories, finishes, and textures.
   3. Show layout, profiles, sign mounting types, heights, anchorage methods, and attachment devices.

D. Sample of two sign types for verification of materials, color, pattern, overall quality, and for adherence to drawings and requirements indicated.

1.5 QUALITY ASSURANCE

A. Manufacturer specializing in manufacturing the products specified in this section with minimum five years experience. Obtain signs from one source and a single manufacturer.

B. Installer Qualifications: Minimum two years documented experience in work of this Section.

C. Mock-Up: Provide a mock-up for evaluation of material, workmanship.
   1. Construct areas designated by Architect.
   2. Do not proceed with remaining work until material, details and workmanship are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.
   4. As approved by Architect, mockup may be incorporated into finished work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's recommendations for delivery, storage and handling.

B. Materials shall be delivered to the location in unopened, labeled factory containers. Upon delivery, materials shall e inspected for damage. Deficient materials shall not be used.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Provide manufacturer's warranty against defects in materials or workmanship for minimum 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Interior signage shall equal to Innerface (1-800-445-4796), Signature System, and shall match or equal that shown on the drawings and the specification here within.

B. Alternate manufacturers meeting these specifications are acceptable.

2.2 SIGN STANDARDS

A. Typography
   1. Type style: see drawings. Copy shall be a true, clean, accurate reproduction of typeface(s) specified. Upper and lower case or all caps shall be as indicated in Sign Type drawings and Signage Schedule. Letter spacing to be normal and interline spacing shall be set by manufacturer.
   2. Arrows, symbols and logo art: To be provided in style, sizes, colors and spacing as shown in drawings and shall meet code requirements.
   3. Grade II Braille utilizing perfectly round, clear insertion beads.

B. Color and Finishes
   1. Colors, patterns and artwork: see drawings.
   2. Message Background: see drawings.
   3. Finishes shall meet current Federal ADA and all State and local requirements.

2.3 SIGNS

A. Architectural Signage System
   1. The signage shall incorporate a decorative laminate face with applied graphics including all tactile requirements in adherence to ADA specifications.
   2. All signs, including work station and room ID's, overheads and flag mounts, directionals and directories shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.
   3. Safe Room signage shall conform to requirements identified on drawings.

B. General
   1. All text shall be Helvetica font. Heights as indicated on drawings.
   2. Title 24 Braille: Braille dots shall be half hemispherical domed and protruding a minimum 0.025".

C. Materials and Construction

1. Sign face shall be 0.035” (nominal) standard grade, high pressure surface laminate. A painted sign face shall not be acceptable.
2. The sign shall incorporate balanced construction with a core sandwiched between laminates to prevent warping. An acrylic substrate shall not be acceptable. Laminate on the sign face only shall not be acceptable.
3. Tactile lettering shall be precision machined, raised 1/32", matte PETG and subsurface colored for scratch resistance.
4. Sign and backer edge shall be treated with a hot wax seal moisture integrity.
5. Signage with replaceable inserts shall accommodate an 8-½” wide insert printed on standard width paper and shall not have an end cap enclosing the insert. Replacement of the insert shall not require any mechanism and shall be easily replaced.
6. Insert components shall have a .080 thickness non-glare acrylic window and shall be inlaid flush to sign face for a smooth, seamless appearance.
7. The signage shall include module options allowing for inserts, notice holders, occupancy sliders, marker, magnetic, and cork in boards. All modules shall be flush to sign face for a smooth, seamless appearance.
8. The laminates (front and back) shall be precision machined together to a 90-degree angle. Edges shall be smooth, void of chips, burrs, sharp edges and marks.
9. The signage shall utilize an acrylic sphere for Grade II Braille inserted directly into a scratch resistant, high pressure laminate sign face. Braille dots are to be pressure fit in high tolerance drilled holes.
10. Text, graphics, border and Braille shall be raised from background.
11. The signage shall utilize a pressure activated adhesive. The adhesive shall be nonhazardous and shall allow for flexing and deflection of the adhered components due to changes in temperature and moisture without bond failure.
12 All signs shall be provided with appropriate mounting hardware. Hardware shall be finished and architectural in appearance and suitable for the mounting surface.
13. Some signs may be installed on glass. A blank backer is required to be placed on the opposite side of the glass to cover tape and adhesive. The backer shall match the sign in size and shape.

D. Printed Inserts
1. The signage contractor shall provide and install all signage inserts as required on drawings.
2. Manufacturer shall provide a template containing layout, font, color, artwork and trim lines to allow Owner to produce inserts on laser or ink jet printer. The template shall be in an Acrobat or Word format (.pdf).

PART 3 EXECUTION

3.1 SITE VISITS

A. Site visits – 3 site visits shall be required by the sign contractor.
1. Prior to submission of bid for site assessment and evaluation.
2. Post award for the purposes of meeting with Owners and project manager.
3. Final walk-through and punchlist.

B. Programming – sign contractor shall perform all wayfinding & programming. Programming shall include location plan, message schedule, and/or plots, fire/evacuation maps and insert graphics. All programming materials shall be submitted for approval.

3.2 CODE COMPLIANCE

A. It shall be the responsibility of the successful bidder to meet any and all local, state, and federal code requirements in fabricating and installing signs.

3.3 DELIVERY, STORAGE, PROTECTION

A. Package to prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary. Store products in a dry, indoor location.

3.4 EXAMINATION

A. Installer shall examine signs for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

B. Inspect conditions of substrate and other conditions which may affect installation of signage.

C. Do not begin installation until substrates are within manufacturer's specified tolerances and have been prepared in accordance with manufacturer's instructions.

D. If substrate preparation is the responsibility of another installer, do not proceed with installation. Notify Architect of unsatisfactory preparation immediately.

E. Commencement of work is deemed as acceptance of installation conditions.

3.5 INSTALLATION

A. General: Installation locations shall be in accordance with ADA specifications. Locate signs where indicated using mounting methods in compliance with manufacturer's written instructions per required method.

1. The signage contractor shall coordinate installation schedules with the Owner and/or Construction Manager.
2. Installation shall be performed by manufacturer's personnel trained and certified in manufacturer's methods and procedures.
3. The signage contractor shall submit a CAD generated location plan noting the location of all signage and cross referenced to message schedule or plots for architect's approval.
4. Install in accordance with manufacturer's printed installation instructions, and in proper relationship with adjacent work.
5. Installer to conduct a pre-installation to verify copy and sign location. Each location shall be noted using a low tack vinyl reproduction of actual sign. Full scale renderings of directories and directionals shall also be provided. Any location discrepancy or message issues shall be submitted to Architect for review.
6. Signs shall be level, plumb, and at heights indicated with sign surfaces free from defects.
7. Upon completion of the work, signage contractor shall remove unused or discarded materials, containers and debris from site.
8. Protect installed products until completion of project.

3.6 SCHEDULES

A. Refer to Room Finish Schedules & Drawings for signage locations and designations.

3.7 STANDARDS MANUAL

A. Manufacturer shall provide a comprehensive Standards Manual in both a paper and PDF format. The manual shall include all graphic standards, sign type descriptions, renderings showing color, pattern and finish, engineering drawings, location plans, plots, artwork, insert templates, mounting detail, and reorder information.

END OF SECTION

SECTION 10520

FIRE CABINETS AND EXTINGUISHERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire Extinguishers

B. Fire Cabinets

C. Accessories

1.02 REFERENCES

A. NFPA 10-Portable Fire Extinguishers

1.03 QUALITY ASSURANCE

A. Conform to NFPA 10 requirements for portable fire extinguishers.

B. Provide fire extinguishers and accessories by a single manufacturer.

C. Conform to UBC 43-6 (ASTM E814-83) for fire resistive wall performance where necessary.

1.04 SUBMITTALS

A. Submit brochure and product data in compliance with Section 01300.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Provided their products meet the requirements of the specifications.

1. J.L. Industries
2. Larsen's Manufacturing Co.

2.02 FIRE EXTINGUISHERS

A. Multi-purpose Dry Chemical Type: UL-rated, 4A-80B:C, MP10, 10 lb nominal capacity, in enameled steel container.

B. Wet Chemical Type: UL-rated, 2A:K, WC 2 ½, 2.5 gallon capacity, in stainless steel container.

B. Fire Extinguishers shall be provided with “Inspection Tag” indicating date of fire extinguisher inspection. Tag shall be attached to fire extinguisher and readily visible.

2.03 MOUNTING BRACKETS

A. Provide manufacturer's standard mounting bracket for specified fire extinguisher. Mounting bracket shall be designed to prevent accidental discharge of extinguisher.

2.04 FIRE CABINET

A. Fire Cabinet shall be semi-recessed and shall be sized to accommodate a 10 lb nominal capacity fire extinguisher.

B. Cabinets for multi-purpose extinguishers shall be equal to: Larsen's, Architectural Series Fire Extinguisher Cabinet with Full Glass Door (clear acrylic), Model 2409-6R, 2 ½" projection

C. Cabinets for wet chemical extinguishers shall be equal to: Larsen's Architectural Series Fire Extinguisher Cabinet with Full Glass Door (clear acrylic), Model 2712-RL, 2 ½" projection.

D. Square edge trim shall be provided.

E. Box, trim and door material shall be steel with white baked enamel finish.

F. Provide red lettering decal on glass door.

G. Cabinet handle shall be recessed.

2.05 SCHEDULE

A. Provide Wet Chemical Type extinguishers in kitchen locations.

B. Provide Multi-purpose Dry Chemical Type extinguishers in all other locations.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.

1. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

2. Install fire extinguisher bracket inside cabinet if not installed from factory.

END OF SECTION

SECTION 12492

MANUAL ROLLER SHADES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Manual roller shades

1.02 REFERENCES

A. ASTM International (ASTM):
   1. ASTM E 21 - Standard Test Method for Elevated Temperature Tension Tests of Metallic Materials.
   2. ASTM E 22 - Recommended Practice for Conducting Long Time High Temperature Tension Test of Metallic Materials.
   3. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
   4. ASTM G 22 - Standard Practice for Determining Resistance of Plastics to Bacteria.

B. National Fire Protection Association (NFPA):
   1. NFPA 70 - National Electrical Code.
   2. NFPA 701 - Fire Tests for Flame-Resistant Textiles and Films.

C. Underwriters Laboratories Inc. (UL).

1.03 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Latest edition of Manufacturer's literature including:
   1. Performance data and installation procedures meeting the requirements herein. Including installation details, styles, material descriptions, profiles, features, finishes and operating instructions.
      a. Preparation instructions and recommendations.
      b. Storage and handling requirements and recommendations.
      c. Mounting details and Installation methods.

C. Maintenance Data: Submit instructions and precautions for cleaning and maintenance, operating hardware, and controls as applicable.

D. Manufacturer’s Material Safety Data Sheet (MSDS) for each product being used.

E. Submit working hand sample or mockup shade (mockup shade may be used as a final shade if approved).

F. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, product details and finishes, installation details, operational clearances, wiring diagrams if applicable, and relationship to adjacent work.

G. Window Treatment Schedule: Submit a schedule with same room designations indicated on the Drawings; including but not limited to opening sizes and key to typical mounting details.

H. Samples:
   1. Submit two 4” x 6” samples of shade fabric material indicating color.

2. Submit two 4” x 6” samples of the fascia material indicating color.

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Engaged in manufacturing of products of similar type to that specified, with a minimum of 10 years successful experience.

B. Installer Qualifications: Minimum 2 years successful experience installing similar products.

C. Single Source Requirements: To the greatest extent possible, provide products specified in this section from a single manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

A. Product to be delivered in manufacturer’s original packaging.

B. Products to be handled and stored to prevent damage to materials, finishes and operating mechanisms. Store in a clean, dry area, laid flat to prevent sagging and twisting of packaging.

1.06 PROJECT CONDITIONS, COORDINATION AND SEQUENCING

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
   1. Building shall be enclosed; windows, frames and sills shall be installed and glazed.
   2. Wet work shall be complete and dry.
   3. Ceilings, window pockets, electrical and mechanical work above window covering shall be complete.

1.07 WARRANTY

A. Minimum 5 year.

PART 2 - PRODUCTS

2.01 MANUFACTURER AND PRODUCT DESCRIPTION

A. InPro
   1. Clickeze
   2. Arid solar screen fabric
   3. Fabric Color: Charcoal/Sable

B. Springs Window Fashions (SWF) Contract
   1. Shading Systems
   2. Double-Take T300
   3. Fabric Color: Grey/Bronze

C. Springs Window Fashions (SWF) Contract
   1. Shading Systems
   2. Crosshatch R R300
   3. Fabric Color: Grey/Bronze

D. Substitution Request: Not permitted

2.02 MANUAL ROLLER SHADES

A. Product: manual roller shade

1. **Shade fabric** shall be flame retardant, fade and stain resistant, anti-static, anti-microbial.
   a. Passes NFPA 701-1999 FR
   b. Passes ASTM-G21 and G22
   c. Shades with railroaded fabric will have heat-welded seams.
   d. Fabric Style: 3% Openness
   e. Shading Coefficient with single ¼" clear glass: 0.65-0.68
   f. All shades within a room shall be from the same dye lot
2. **Roller tube** shall be extruded aluminum engineered with a channel to accept fabric spline. The tube size will be determined by the manufacturer based on window size and fabric selection.
3. **Clutch** system shall be made of glass-reinforced, polyester thermopolymer (PBT) for wear resistance, smooth operation and corrosion resistance. The clutch is comprised of multi-banded, steel springs that lock the shade in any position when operating the control loop. The clutch mechanism is bi-directional and never requires adjustment or lubrication.
4. **Control loop** shall be a #10 stainless steel bead chain. Bead stops attached to the chain protect the shade from over rotation. Bead stop shall be placed so that no more than the hembar shows below fascia when shade is fully rolled up.
   a. Length of chain shall be from mechanism to 48-inches above finished floor.
5. **Idler** end shall be made of high strength, glass-reinforced, polyester thermopolymer (PBT) for wear resistance, smooth operation and corrosion resistance.
6. **Lift assist system** shall be a heavy-duty torsion spring located inside the roller tube. The mechanism reduces the pull force allowing easy lifting of larger shades.
7. **Spline system** shall consist of a PVC spline heat-welded to the shade fabric and inserted into a channel on the roller tube. The spline system allows for adjustability on-site and ease in changing fabric panels in the field.
8. **Hem bar** shall be an aluminum extrusion enclosed in a fabric hem pocket with heat-welded seams and ends. Optional fabric wrapped hem bar.
9. **Battens** shall be enclosed in a heat-welded pocket providing additional stabilizing on large shades. Batten placement will be determined by the manufacturer based on window size and fabric selection.
10. **Installation brackets** shall be .125" thick steel and can accommodate overhead, side and face mounting. Optional dual shade brackets shall hold two shades in one bracket assembly. Coupled shades shall be connected with a linking bracket mechanism.
11. **Mounting:**
    a. Typically outside mounted.
    b. Measure so a run of fascias are butting next to each other with no gaps and out to wall on ends.
    c. Control loop shall typically be on the right side of the window unless access does not meet accessibility codes.

2.03 ACCESSORIES

A. **Fascia panel** shall be 4.25" or 7.625” dual shade snap-on design and made of 062” thick extruded 6063 T-5 aluminum alloy

1. Finish: either a powder-coated finish to match window mullion that is bronze or a clear anodized finish for window mullions of a color other than bronze, see drawings for specific colors.
2. Brackets shall be universal and shall be clear anodized finish.

B. **End Caps.** Same finish as fascia shall be placed on all fasciae with exposed ends.

C. **Locking Chain Guide.** User to identify each location per window due to odd situations.

2.04 FABRICATION

A. Fabricate shades to hang flat without buckling or distortion.

PART 3 – EXECUTION

3.01 PREPARATION

A. Installer shall be responsible for inspection of jobsite, approval of mounting surfaces, blocking for shade brackets or pocket assemblies, suspended acoustical or gypsum ceiling for recessed shades, verification of field measurements and installation conditions. Installation shall commence when satisfactory conditions are met.

B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.02 INSTALLATION

A. Install window treatments in accordance with manufacturer's instructions including the following.
1. Install with adequate clearance to permit smooth operation of the shades throughout entire operational range.
2. Adjust and balance window coverings to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.03 CLEANING AND PROTECTION

A. Clean surfaces after installation in accordance with manufacturer's written instructions. Do not use cleaning methods involving heat, bleach, abrasives, or solvents.

B. Protect installed products until completion of project. Repair damaged or improperly installed before Substantial Completion.

END OF SECTION

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SECTION 220400 PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Work Included: Provide plumbing where shown on the Drawings, as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:
   1. Domestic hot and cold water piping system.
   2. Drain, waste, and vent systems.
   3. Plumbing fixtures and trim as shown on the Drawings.

B. Related Work: Documents affecting Work of this Section include, but are not necessarily limited to: General Conditions, Supplementary, and Sections in Division 1 of these Specifications.

C. Drawings: The mechanical drawings show the general arrangement of piping, equipment, and appurtenances and shall be followed as closely as actual building construction, site conditions, and the work of other trades will permit. The mechanical work shall conform to the requirements shown on all of the drawings. General and structural drawings shall take precedence over mechanical drawings. Because of the small scale of the mechanical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. The contractor shall investigate the structural and finish conditions affecting the work and shall arrange his work accordingly.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Codes and Regulations:
   1. In addition to complying with the specified requirements, comply with pertinent regulations of governmental agencies having jurisdiction, all applicable laws, codes, and ordinances including those of the state, county and city.
   2. The Work shall also comply with all applicable requirements of the National Fire Protection Association, International Building, Plumbing and Mechanical Codes, and all locally accepted amendments to these codes.
   3. In the event of conflict between or among specified requirements and pertinent regulations, the more stringent requirement will govern.
   4. Non-compliance: Should the contractor perform any work that does not comply with the requirements of the applicable building codes, state laws, local

ordinances, industry standards, and utility company regulations, he shall bear all costs arising in correcting the deficiencies.

C. Install all utility connections to water, sewer, and gas per requirements of Governing Agencies. Pay all fees and permits for inspection and certification for the execution of this Work.
   1. Temporary Utility Service: All required utility services such as gas, water, storm and sanitary shall be obtained and paid for by the contractor under the section of the specifications for which they are required. The general contractor shall be responsible for utilities used during construction.

D. Certificate of Final Inspection: Under each applicable section of the specifications, the contractor shall, upon completion of the work under that section, furnish a certificate of final inspection from the department having jurisdiction.

1.3 EXAMINATION OF SITE:

A. Visit the site, inspect the existing Conditions and check the Drawings and Specifications so as to be fully informed of the requirements for completion of the Work.

B. Lack of such information shall not justify a request for extra compensation to the contract price.

1.4 MATERIAL AND EQUIPMENT:

A. All materials and equipment shall be new, those of the same type shall be by the same Manufacturer, and shall be of the best quality and design and free from defects.

B. A Manufacturer's nameplate affixed in a conspicuous place will be required on each major component of equipment stating Manufacturer's name, address and catalog number.

C. Manufacturer's name and model numbers used herein and on the Drawings establish type and quality required. Equal products may be considered if submitted in writing to the Engineer/Architect for approval 10 days prior to bid date. The Contractor shall be responsible for assuring the items and equipment substituted for those shown on the Drawings will physically fit in the space allocated.

D. Delivery and Storage: Equipment and materials shall be delivered to the site and stored in original containers, suitably sheltered from the elements, but readily accessible for inspection until installed. All items subject to moisture damage (such as controls) shall be stored in dry, conditioned spaces.

E. Protection: Equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury. Damage or defects developing before acceptance of the work shall be made good at the contractor's expense.

F. Dimensions: It shall be the responsibility of the contractor to insure that items to be furnished fit the space available. He shall make necessary field measurements to ascertain space requirements, including those for connections, and shall furnish and install sizes and shapes of equipment so that the final installation shall suit the true intent and meanings of the drawings and specifications.

G. Manufacturer's Directions: Shall be followed completely in delivery, storage, protection and installation of all equipment and materials. The contractor shall promptly give notice in writing of any conflict between any requirement of the Contract Documents and the manufacturer's directions and shall obtain written instructions before proceeding with the work. Should the contractor perform any work that does not comply with the manufacturer's directions or such written instructions, he shall bear all costs arising in correcting the deficiencies.

1.5 SUBMITTALS:

A. Comply with pertinent provisions of Division 1.

B. Product Data: After the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's Specifications, catalog cuts, and other data needed to prove compliance with the specified requirements.
3. Shop Drawings and other data as required to indicate method of installing and attaching equipment, except where such details are fully shown on the Drawings.
4. All sheets of the submittal shall have the job name stamped or permanently written neatly on them and shall be assembled in an indexed brochure. The descriptive material shall be arranged in the brochure in the same order as found in the specifications. Each brochure shall be submitted in a hardback, 3-ring binder. The leading sheet of the descriptive material for each item shall be full size, of heavy paper, with a numbered outside tab, and an index sheet showing the location in the brochure.
5. Manufacturer's regular catalog sheets will not be acceptable under these requirements unless they indicate completely all of the specification requirements. Where drawings cover several sizes or types of construction, they shall clearly indicate the size or type of construction to be used on the project. In cases where several sizes of the same type of equipment are required to be furnished, the submittal shall include a schedule identifying each piece of equipment, complete with all capacity information needed to compare every submittal item with its respective specified item. Special features shall be listed on a separate typewritten sheet.
6. Brochures shall contain a certification by the Contractor that the equipment or materials are suitable for conditions shown and specified; that the equipment or

materials are believed to be in conformity with the plans and specifications, except as may be specifically described; be signed by the Contractor. Brochures received not in conformity with these requirements will be returned for required action.

7. Finding "APPROVED" or "APPROVED AS NOTED" shall not eliminate responsibility for compliance with the plans and specifications, unless specific attention has been called, in writing, to the proposed deviations at the time of transmittal of the brochures and such deviations have been found acceptable, nor shall it eliminate the responsibility for freedom from errors of any sort in the data submitted. Discovery of such deviations at or after installation shall be cause for immediate replacement at no additional cost to the Owner.
8. No material or equipment so governed shall be ordered until found acceptable by the Architect/Engineer/Owner.

C. Sterilization Certificate: Upon completion of water line sterilization, deliver to the Architect two copies of an acceptable "Certificate of Performance" for that activity.

D. Record Drawings:
1. Comply with pertinent provisions of Division 1.
    a. Record Drawings- The contractor shall furnish to the owner CAD record drawings consisting of three (3) sets of 11” x 17” prints (To be bound in O&M Manuals), one (1) full size set of prints and one (1) disk, showing the piping and ductwork for the HVAC and plumbing systems. Piping sizes, rerouting, etc., for both under floor and above ceiling piping shall be shown. Also, provide a blue-line of the site plan, clearly marked, to indicate any and all changes in sanitary sewer, storm sewer, domestic cold water and natural gas piping to the building. In addition to these drawings, a complete set of approved ductwork shop drawings and temperature control shop drawings shall be included in this set of drawings.
        1) CAD Record drawings shall incorporate all change and field orders. (No separate or supplemental drawings).
        2) All equipment schedules to be revised to reflect installed manufacturer model numbers and capabilities.

2. Include a copy of the Record Drawings in each copy of the operation and maintenance manual as described below. (Original document shall be reproducible paper.)

E. Manuals: Upon completion of the Work of this Section, deliver to the Architect two copies of an operation and maintenance manual compiled in accordance with the provisions of Division 1 of these Specifications. Include within each manual:
1. Copy of the approved record documents for this portion of the Work.
2. Copies of all warranties and guarantees.
3. Description of equipment control and seasonal operation, including schedule of required maintenance.

1.6 INSPECTION:

A. Make written notice to the Architect adequately in advance of each of the following stages of construction:
   1. In the underground Condition prior to placing concrete floor slab, when all associated Work is in place.
   2. When all rough-in is complete, but not covered.
   3. At completion of the Work of this Section.

B. When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice of such non-compliance, remove the non-complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the Owner.

1.7 PRODUCT HANDLING:

A. Comply with pertinent provisions of Division 1.

1.8 CLEANING, TESTING AND PLACING IN SERVICE:

A. Immediately prior to final inspection, the Contractor shall make a final cleanup of dirt and refuse resulting from his Work and shall assist in keeping the premises clean at all times.

B. Immediately prior to final inspection, the Contractor shall clean all material and equipment installed under this Contract. Dirt, dust, plaster, stains and foreign matter shall be removed from all surfaces. Damaged finishes shall be touched up and restored to their original Condition.

C. Mechanism of all equipment shall be checked, adjusted and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required to produce the intended performance.

1.9 ADJUSTMENT AND INSTRUCTION:

A. Energize all systems, equipment and fixtures and check for proper operation.

B. The Contractor's service personnel shall instruct the Owner's Representative in the proper operation of all systems.

1.10 GUARANTEE:

A. The Contractor guarantees all Work against any defects due to faulty workmanship or material and that all raceways, ducts, and piping are free from foreign material, obstructions, holes, or breaks of any nature.

B. Upon written notice from the Architect or Owner, the Contractor shall promptly remedy without cost to the Owner any defects occurring within a period of one (1) year from the date of final acceptance.

1.11 WARRANTY:

A. The Contractor shall properly execute in the Owner's name all Manufacturer's standard warranty certificates applying to equipment installed on the project and shall deliver said certificates to the Architect at completion of the job. All warranty cards shall also be properly executed and delivered to the supplier or Manufacturer's records. Standard warranties for equipment shall not be less than one (1) year.

PART 2 - PRODUCTS

2.1 PIPE SCHEDULE:

A. Drain, Waste, and Vent System:
   1. For sanitary Work below the floor and outside underground:
      a. Provide service weight cast iron pipe and fittings or Schedule 40 PVC or ABS DWV pipe if allowed by local codes.
      b. Soil lines 5'-0" or more away from the structures may be Schedule 40 PVC.
   2. Above ground:
      a. Provide service weight cast iron pipe and fittings with No-Hub joints. Schedule 40 PVC or ABS DWV pipe may be used in lieu of cast iron if allowed by local codes. All above ground rain water piping shall be cast iron and insulated.

B. Water System (domestic piping):
   1. Above ground, provide Type "L" copper with sweated connections.
   2. Below grade, provide Type "K" copper with sil-fossed connections. Schedule 40 PVC may be used for water service, if allowed by local codes.

C. Gas Piping:
   1. Underground piping equal to Republic X-Tru-Coat plastic coated black steel pipe with protective wrap over joints.
      a. Piping 2" and smaller: Threaded fittings.
      b. Piping 2-1/2" and larger: Welding fittings.
   2. Above ground piping shall be black steel.
   3. Gas service piping up to the building shall be continuous plastic pipe meeting ASTM D2513 and D2517.

2.2 MATERIALS:

A. Cast Iron Soil Pipe and Fittings:
1. Provide service weight cast iron conforming to ASTM A74 and CISPI 30l, or provide hubless type per above standards. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and be listed by NSF International.

B. Galvanized:
1. Provide standard weight complying with ASTM A53 and A120 for above ground piping. (Galvanized not allowed underground or under slab floors.)

C. Copper Pipe:
1. Provide copper pipe conforming to ASTM B42 and B302. (Type "M" copper not allowed underground or under slab floors.)

D. Copper Tube:
1. Provide copper tube conforming to ASTM B75, B88, and B251. (Type "M" copper not allowed underground or under slab.)

E. Polyvinyl Chloride Pipe:
1. Provide PVC pipe conforming to ASTM D2665 for waste, vent, and drainage pipe above and underground within 5'-0" of the building.
2. Provide PVC pipe conforming to ASTM D2265 for building sewer pipe.
3. Provide PVC pipe conforming to ASTM D1785 for water service pipe.

F. Unions:
1. For copper lines, provide copper unions.
2. For connections in iron pipe lines:
   a. 2" and smaller provide ground joint brass-to-iron fittings.
   b. 2-1/2" and larger provide standard cast iron with flanged ends and gaskets.

G. Lead:
1. Provide new pig lead complying with ASTM B29.

2.3 VALVES:

A. All valves of the same type shall be by the same Manufacturer.

B. Gate Valves: Provide solid wedge disc, rising stem, 200# WOG; non-rising stem valves may be used only where there is insufficient clearance. Sweat joint valves shall be used on all copper pipes.
1. 2" and smaller, rising stem: Provide Hammond #IB-640, bronze, screwed, B-62 bronze body and stem, mallable iron handwheel.
2. 2" and smaller, non-rising stem: Provide Hammond IB-645, bronze, screwed, B-62 bronze body and stem, mallable iron handwheel.

3. 2-1/2" and larger: Provide Hammond #IR-1140, IBBM, flanged, non-rising stem.

C. Globe Valves: Provide replaceable composition disc suitable for 200°F water.
1. 2" and smaller: Provide Hammond #IB-413T, bronze, screwed, mallable iron hand wheel.
2. 2-1/2" and larger: Provide Hammond #IR-116, iron body, flanged, 200# WOG.

D. Ball Valves: Provide large port ball of chrome plated, bronze or stainless steel construction, screwed ends, quarter turn operation, lever or C-handle operator. Valve shall be rated for 150 psi steam, 600 psi WOG. Valve shall have blow out proof stem and adjustable packing nut.
1. 2" and smaller: Hammond #8501 Series or approved equal.

E. Check Valves:
1. 2" and smaller: Provide Hammond #IB-940, bronze, screwed, Y-pattern, 200# WOG, swing check type.
2. 2-1/2" and larger:Provide Hammond #IR-1124, IBBM, flanged, 200# WOG.

F. Plumbing Fixture Service Valves:
1. 1/2" angle valve with wheel handle stop, 1/2" I.P.S. female inlet, 3/8" tube compression fitting outlet, 3/8" chrome plated flexible riser and chrome plated escutcheon plate. Chicago Faucet #1015 or equal.

2.4 FLASHING:

A. Where pipes of this Section pass through the roof, flash with Semco, #1100-4 seamless 4 lb. flashing, with steel reinforced "Vari-Pitch" boot and cast iron counterflashing sleeve or equal method approved by the Architect.

2.5 PIPE HANGERS:

A. Water Piping:
1. Provide Fee and Mason #212 split ring hangers with supporting rods.
2. Copper plated hangers or hangers with dielectric isolators to be installed for copper pipe.

B. Soil and Waste Piping:
1. Provide Fee and Mason #212 adjustable ring hangers with supporting rods.
2. Use Fee and Mason #241 riser clamps at each floor and as required.

2.6 CLEANOUTS:

A. Exterior:

1. Provide Wade W-6030-Z, or Smith #4253 with XH cast iron top in concrete areas.

B. Floors:
1. Provide Wade W-6030-1 or Smith #4023 with round nickle bronze top in finished room floors.
2. Provide Wade W-6030-Z or Smith #4223 with round cast iron top in unfinished room floors.
3. Provide "flush-with-floor" type cleanouts, with adjustable watertight covers and integral anchoring flange with clamping collar where waterproofing membrane is used.

C. Finished Walls:
1. Provide Wade W-8460-R6 or Smith #4532 with round chrome plate or stainless steel access plate and screw.

D. Provide cleanout plugs of extra heavy bronze.

2.7 ACCESS BOXES:

A. Walls:
1. Provide Wade W-8480-ST or Smith #4730 with polished chrome plate face in tile walls.
2. Provide Wade W-8490-AKL, Smith #4760-AKL or #4765-AKL with bonderized prime-coated steel face and with Allen locks in walls of other finished rooms.

B. Ceilings:
1. Provide Acorn DW Series bonderized prime-coated steel face with Allen lock.

2.8 TRAPS:

A. For lavatories and sinks, except service sinks, provide chrome plated cast brass traps with brass nuts. Provide deep seal traps where required and/or shown on the Drawings.

B. For handicap lavatories, provide off-set tailpiece ahead of P-trap.

2.9 WATER HAMMER ARRESTORS:

A. Provide Smith #5000 series or Precision Plumbing Products, Inc. stainless steel.

2.10 INSULATION:

A. Insulate hot water, cold water, and condensate piping with ½" thick glass fiber preformed pipe insulation with factory applied all purpose glass fiber reinforced flame retardant kraft paper and aluminum foil self sealing lap.

B. Elbows and fittings to be insulated with factory preformed PVC jacketed insulation material to match thickness of pipe insulation.

C. Valve bodies shall be insulated with Armstrong Armaflex type “FR” or equal insulation with vapor barrier. Factory preformed insulation enclosures may be substituted for field applied insulation.

D. Insulated waste traps receiving cooling coil condensate and piping for a minimum of 10 feet after trap with ½ inch Armstrong Armaflex type “FR” or equal insulation with vapor barrier.

E. Where shown on the Drawings or required by governmental agencies having jurisdiction, at lavatories for handicapped persons provide TRUEBRO Inc. Handi Lav-Guard model #102W and #105W white finish insulation on hot water supply, cold water supply, tailpiece, and trap.

2.11 FIXTURES AND EQUIPMENT:

A. Provide plumbing fixture, trim, (exposed trim to be chrome plated) and equipment as shown on the "Plumbing Fixture Schedule" in the Drawings. China fixture shall be of the best grade vitreous ware without pit holes and blemishes. The Architect reserves the right to reject any pieces which, in his opinion, are faulty.
   1. For the purpose of identification only one Manufacturer's model numbers are used throughout the schedule shown on the Drawings.
   2. Approved Manufacturers: American Standard, Crane, Kohler, or Eljer.

B. Non-Freeze Hose Bibbs (FPHB):
   1. Provide 3/4" non-freeze type of cast bronze construction with lock shield cap and loose key operator to suit wall size.
   2. Hose bibb to have integral backflow preventer, pressure relief valve and vacuum breaker.
   3. Approved equal by Wade (W-8620), Zurn or Woodford.

C. Cover Plates (Escutcheons):
   1. Provide chrome plated brass equal to Beaton Corbin Company style 2-BC for copper tube and 13-BC for standard pipe.

D. Floor Drains:
   1. Provide floor drains where indicated on the Drawings complete with deep seal P-trap as listed below for various floor conditions:
      a. Linoleum or asphalt tile floor - Wade W-1100-STD-1 with nickle bronze raised lip strainer.
      b. Quarry tile or Terrazzo floor - Wade W-1100-G-1 with nickle bronze square strainer.
      c. General - Wade W-1100 with type B nickle bronze strainer:
         1) 2" drain to have 5" strainer;
         2) 3" drain to have 6" strainer;

3) 4" drain to have 8" strainer.

d. Heavy duty - Wade W-1200-13-5 with 12" diameter secured coated iron grate.

e. Manufacturers - Zurn, Wade, or J.R. Smith.

2.12 INSULATION:

A. Insulate hot water, cold water, rain leader, condensate, and refrigerant suction lines with 1/2" thick IMCOA Polyolefin Insulation or Armstrong Armaflex type "FR" with vapor barrier.

B. Also see requirements specified for "Handicap Fixture Insulation."

2.13 SLEEVES:

A. Where pipes pass through concrete, masonry, or stud walls, or pass through ceilings, provide 20-gauge galvanized sheet metal sleeve large enough to allow for free movement of the pipes with expansion.

2.14 OTHER MATERIALS:

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS:

A. Examine the areas and Conditions under which Work of this Section will be performed. Correct Conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory Conditions are corrected.

3.2 PLUMBING SYSTEM LAYOUT:

A. Lay out the plumbing system in careful coordination with the Drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system.

B. Follow the general layout shown on the Drawings in all cases except where other Work may interfere.

C. Lay out pipes to fall within partition, wall, or roof cavities, and do not require furring other than as shown on the Drawings. Do not install domestic water lines in exterior walls without proper considerations of required insulation and routing.

D. Slots, Chases, Openings, and Recesses: Through floors, walls, ceilings, and roofs as specified in new structure will be provided by the various trades in their respective materials, but the trade requiring them shall see that they are properly located and shall do any cutting and patching caused by the neglect to do so. No cuts shall be made into any structural element, beam or column, without written approval. Opening in existing structures will be provided by the trade requiring same.

E. Locations: Of pipes, ducts, switches, panels, equipment, fixtures, etc., shall be adjusted to accommodate the work to interferences anticipated and encountered. The contractor shall determine the exact route and location of each pipe, duct and electrical raceway prior to fabrication.
   1. Right-of-Way: Lines which pitch shall have the right-of-way over those which do not pitch. For example, plumbing drains shall normally have right-of-way. Lines whose elevations cannot be changed shall have the right-of-way over lines whose elevations can be changed.
   2. Offsets, transitions and changes in direction in pipes and ducts shall be made as required to maintain proper head room and pitch of sloping lines whether or not indicated on the drawings. The contractor shall furnish and install all traps and sanitary vents, etc., as required to effect these offsets, transitions and changes in direction.

3.3 TRENCHING AND BACKFILLING:

A. Perform trenching and backfilling associated with the Work of this Section in strict accordance with the provisions of Division 2 of these Specifications.

B. Cut bottom of trenches to grade. Make trenches 12" wider than the greatest dimension of the pipe.

C. Bedding and Backfilling:
   1. Install piping promptly after trenching. Keep trenches open as short a time as practicable.
   2. Under the building, install pipes on a 6" bed of damp sand. Backfill to bottom of slab with damp sand.
   3. Outside the building, install underground piping on a 6" bed of damp sand. Backfill to within 12" of finish grade with damp sand. Backfill remainder with native soil.
   4. Do not backfill until installation has been approved and Project Record Documents have been properly annotated.
   5. Provide bare copper trace wire 6 inches above all buried plastic pipe.
   6. Provide continuous plastic banner labeled CAUTION-GAS PIPING 12 inches above all buried gas piping.

3.4 INSTALLATION OF PIPING AND EQUIPMENT, GENERAL:

A. General:

1. Proceed as rapidly as the building construction will permit. Install piping parallel and perpendicular to building walls and partitions.
2. Thoroughly clean items before installation. Cap pipe openings to exclude dirt until fixtures are installed and final connections have been made.
3. Cut pipe accurately, and work into place without springing or forcing, properly clearing windows, doors, and other openings. Excessive cutting or other weakening of the building will not be permitted.
4. Show no tool marks or threads on the exposed plated, polished, or enameled connections from fixtures. Tape all finished surfaces to prevent damage during construction.
5. Make changes in directions with fittings; make changes in main size with eccentric reducing fittings. Unless otherwise noted, install water supply and return piping with straight side of eccentric fittings at top of the pipe.
6. Run horizontal sanitary piping at a uniform grade of 1/4" per ft., unless otherwise noted. Branch connections and changes in direction to be made with 45 degree "Y" fittings or long sweep ells.
7. Run horizontal water piping with an adequate pitch upward in direction of flow to allow complete drainage.
8. Install vent connections on all fixtures, traps, and equipment connected to the soil and waste system and extend not less than 3'-6" above floor before turning horizontal. Extend vent through roof minimum 1'-0" above roof or adjacent wall within 18" of roof penetration.
9. Provide sufficient swing joint, ball joints, expansion loops, and devices necessary for a flexible piping system, whether or not shown on the Drawings. Make branch connections with offsets to provide for pipe movement.
10. Support piping independently at pumps, and similar locations, so that weight of pipe will not be supported by the equipment.
11. Pipe drain lines from drip pans, air vents, relief valves and similar locations, to spill over an open sight drain, floor drain, or other acceptable discharge point, and terminate with a plain end, unthreaded pipe 2" above the drain.
12. Securely bolt all equipment, isolators, hangers, and similar items in place.
13. Support each item independently from other pipes. Do not use wire for hanging or strapping pipes.
14. Provide complete dielectric isolators between ferrous and non-ferrous metals.
15. Provide union and shut-off valves suitably located to facilitate maintenance and removal of equipment and apparatus.
16. Provide shut-off gas valve and union at each piece of gas fired equipment and service penetration through exterior wall and roof.
17. Valves, strainers, check valves, and fittings shall be full size of the line they serve unless noted otherwise.
18. Make change in pipe size noted on the plans after last fitting of larger pipe. When supply pipes are larger than equipment tappings, reduce size immediately prior to entry.

B. Equipment Access:

1. Install piping, equipment, and accessories to permit access for maintenance. Reroute pipe and/or relocate items as necessary to provide such access, and without additional cost to the Owner.
2. Provide access doors where valves, motors, or equipment requiring access for maintenance are located in walls or chases or above ceilings. Coordinate location of access doors with other trades as required.

3.5 PIPE JOINTS:

A. Copper Tubing:
1. Cut square, remove burrs, and clean inside of female fitting to a bright finish.
   a. Apply solder flux with brush to tubing.
   b. Remove internal parts of solder-end valves prior to soldering.
2. Provide dielectric unions at points of connection of copper tubing to ferrous piping and equipment.
3. For joining copper tubing, use:
   a. Water piping 3" and smaller : 95-5 solder.
   b. Water piping larger than 3" : "Sil-fos" brazing.
   c. Underground : "Sil-fos" brazing.

B. Screwed Piping:
1. Deburr cuts.
   a. Do not ream exceeded internal diameter of the pipe.
   b. Thread to requirements of ANSI B2.1.
2. Use teflon tape on male thread prior to joining other services.
3. Use litharge and glycerin on joint prior to cleaning for air and oil piping.

C. Plastic Piping:
1. Mechanical joints shall be made with an Elastomeric thread seal on male thread. Joint shall be clean and free of dirt and made in accordance with Manufacturer's instructions. (DWV piping to conform to ASTM D3212.)
2. Solvent Cementing:
   a. Clean joint surfaces free of dirt and moisture.
   b. Prime joint with colored primer past extend of joint.
   c. Apply cement to all joint surfaces and make joint while cement is still wet.
   d. Use Solvent Cement for particular pipe material and make joint in accordance with Manufacturer's instructions.
3. Threaded joints shall be made in using lubricant or tape approved for pipe material applied to male thread. Threads of joints shall conform to ANSI B2.1 and shall be clean of dirt immediately prior to making joint.

D. Welded Piping:
1. Welded pipe to be joined in accordance with American Welding Society Code using butt-welded single V beveled 45 degrees to within 1/16" of inside wall. Use welding fittings for changes of direction and intersection of lines.

E. Leaky Joints:
1. Remake with new material.
2. Remove leaking section and/or fitting as directed.
3. Do not use thread cement or sealant to tighten joint.

3.6 PIPE SUPPORTS:

A. Support suspended piping with clevis or trapeze hangers and rods.

B. Space hangers and support for horizontal steel pipes according to the following schedule:

Pipe Size		Maximum Spacing on Centers
1-1/4" and smaller	:	8'-0"
1-1/2" to 3"	:	10'-0"
4" to 5"	:	14'-0"

C. Space hangers and supports for horizontal copper tubing according to the following schedule:

Tube Size		Maximum Spacing on Centers
1" and smaller	:	6'-0"
1-1/2"	:	7'-0"
2"	:	8'-0"
2-1/2"	:	9'-0"
3" and larger	:	10'-0"

D. Space hangers and supports for horizontal cast iron soil pipe 5'-0" on center.

E. Space hangers and supports for horizontal PVC and ABS plastic pipe 4'-0" on center.

F. Provide sway bracing on hangers longer than 18".

G. Support vertical piping with riser clamps secured to the piping and resting on the building structure. Provide at each floor unless otherwise noted.

H. Provide insulation continuous through hangers and rollers. Protect insulation by galvanized steel shields.

I. Arrange pipe supports to prevent excessive deflection, and to avoid excessive bending stress.

J. Support piping from inserts or anchors in concrete slabs. Provide the inserts under this Section and arrange for the placing under Section 03300 of these Specifications. Use expansions inserts only where approved by the Architect.

K. Hubless Piping:
1. Provide hangers on the piping at each side of, and within 6" of, hubless pipe coupling so the coupling will bear no weight.

2. Do not provide hangers on couplings.
3. Provide hangers adequate to maintain alignment and to prevent sagging of the pipe.
4. Make adequate provisions to prevent shearing and twisting of the pipe and the joint.

3.7 SLEEVES AND OPENINGS:

A. Provide sleeves for each pipe passing through walls, partitions, floors, roofs, and ceilings.
   1. Set pipe sleeves in place before concrete is poured.
   2. For uninsulated pipe, provide sleeves two pipe sizes larger than the pipe passing through, or provide a minimum of 1/2" clearance between inside and outside of the pipe.
   3. For insulated pipe, provide sleeves of adequate size to accommodate the full thickness of pipe covering, with clearance of packing and caulking.

B. Caulk the space between sleeve and pipe or pipe covering, using a noncombustible, permanently plastic, waterproof, non-staining compound which leaves a smooth finished appearance, or pack with noncombustible cotton, rope, or fiberglass to within 1/2" of both wall faces, and provide the waterproof compound described above.

C. Finish and Escutcheons:
   1. Smooth any rough edges around sleeves with plaster or spackling compound.
   2. Provide 1" wide chrome or nickle plated escutcheons in all pipes exposed to view where passing through walls, floors, partitions, ceilings, and similar locations.
      a. Size the escutcheons to fit pipe and covering.
      b. Hold escutcheons in place with set screw.

3.8 CLEANOUTS:

A. Accessible cleanouts shall be installed in all horizontal waste lines at no greater than 100 ft. intervals and at the base of all vertical stacks.

B. Secure the Architect's approval of locations for cleanouts in finished areas prior to installation.

C. Provide cleanouts of same nominal size as the pipes they serve; except where cleanouts are required in pipes 4" and larger, provide 4" cleanouts.

D. Make cleanouts accessible. After pressure tests are made and approved, thoroughly graphite the cleanout threads.

3.9 VALVES:

A. Provide valves in water, air, and gas systems. Locate and arrange so as to give complete regulation of apparatus, equipment, and fixtures.

B. Provide valves in at least the following locations:
1. In branches and/or headers of water piping serving a group of fixtures.
2. On both sides of apparatus and equipment.
3. For shutoff of risers and branch mains.
4. For flushing and sterilizing the system.
5. Where shown on the Drawings.

C. Locate valves for easy accessibility and maintenance.

3.10 WATER HAMMER ARRESTORS:

A. Provide water hammer arrestors on hot water lines and cold water lines.
1. Install in upright position at all quick closing valves, solenoids, isolated plumbing fixtures, and supply headers at plumbing fixture groups.
2. Locate and size as specified or as shown on the Drawings and, where not shown, locate in accordance with Plumbing and Drainage Institute Standard WH-201.
3. Install water hammer arrestors behind access panels.

B. Where fixtures are not protected by water hammer arrestors, provide air compression chambers equal to twelve (12) pipe diameters, 18" minimum on all water supply connections.

3.11 BACKFLOW PREVENTION:

A. Protect plumbing fixtures, faucets with hose connections, yard hydrants, lawn irrigation, and other equipment having plumbing connection, against possible back-siphonage.

3.12 PLUMBING FIXTURE INSTALLATION:

A. Installation:
1. Set fixtures level and in proper alignment with respect to walls and floors, and with fixtures equally spaced.
2. Provide supplies in proper alignment with fixtures and with each other.
3. Provide flush valves in alignment with the fixture, without vertical or horizontal offsets.
4. Install all fixture supports before wall finish is applied.

B. Grout wall and floor mounted fixtures watertight where the fixtures are in contact with walls and floors.

C. Caulk deck-mounted trim at the time of assembly, including fixture and casework mountings. Caulk self-rimming sinks installed in casework.

D. All fixtures shall be cleaned before setting and the installation shall be left ready for use.

3.13 DISINFECTION OF WATER SYSTEMS:

A. Sterilize domestic hot and cold water systems to meet Health Department requirements.
1. Prior to treatment, flush the system of all dirt and foreign matter.
2. Fill system with water treated with 50 ppm of chlorine. Leave treated water in the systems for 24 hours.
3. Open all valves and faucets several times during flushing and treatment filling to insure full circulation.
4. Test the chlorine content at the end of treatment period and if chlorine content is greater than 10 ppm, flush the system. If chlorine content is found to be less than 10 ppm, repeat the sterilization process. Take samples from several points in the system.
5. After sterilization, flush the system with clean water until the chlorine is less than 0.1 ppm.

B. After final flushing, obtain Health Department Certificate of Approval on samples of water taken from the systems. (Use a testing agency approved by the Health Department.) Test shall show negative for coli-aerosene organisms.

C. If analysis results are not satisfactory, repeat the disinfection procedures and retest until specified standards are achieved.

3.14 OTHER TESTING AND ADJUSTING:

A. Provide personnel and equipment, and arrange for and pay the costs of, all required tests and inspections required by governmental agencies having jurisdiction.

B. Test the following systems at the pressures listed:
1. Gas piping: Test under 30 psi air pressure.
2. Domestic water: Test under 130 psi hydrostatic pressure.
3. Soil and waste:
   a. Above ground test with 12 ft. water head;
   b. Underground test with 8 ft. water head.

C. Where tests show materials or workmanship to be deficient, replace or repair as necessary, and repeat the tests until the specified standards are achieved.

D. Adjust the piping systems to optimum standards of operation.

END OF SECTION

TULSA

PUBLIC SCHOOLS

260400
Electrical Systems

SECTION 260400 - ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Work Included: Provide Design, Engineering and Construction Documents incorporating the Owner's Guidelines and Specifications defined herein, with proper installation of materials, assemblies and equipment including, but not limited to:
   1. Basic Materials and Methods.
   2. Control-Voltage Electrical Power Cables
   3. Low-Voltage Electrical Power Conductors and Cables.
   4. Grounding and Bonding.
   5. Hangers and Supports.
   6. Raceways and Boxes.
   7. Panelboards.
   8. Wiring Devices.
   9. Other items and services required to complete the systems.

B. Drawings:
   1. These Design Guidelines and Specifications are accompanied by floor plans of the building showing the general location of the work. Exact locations shall be subject to the approval of the Owner who reserves the right to make any reasonable changes in locations indicated, prior to rough-in, without cost to the Owner. While the general run of feeders, branches, and conduits are indicated on the Drawings, it is not intended that the exact routing of circuits or locations of conduits be determined by Conceptual Drawings. Detailed arrangements of all Work shall be subject to the Owner's approval.

C. Related Work:
   1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

D. Temporary Power:
   1. Arrange, provide and pay for the costs of installing temporary power to the site in accordance with the requirements of Division 1.

1.2 QUALITY ASSURANCE:

A. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Codes and Ordinances:
   1. The installation shall comply with requirements of all applicable laws, codes and ordinances including those of the state, county and city.

2. NFPA 70 - 2014.
3. NFPA 72 – 2015 (including FM Directives)
4. NFPA 101 – 2014.
5. Where these Drawings, Design Guidelines and Specifications show more stringent requirements than required codes, the more stringent shall prevail.
6. The Work shall comply with current standards of the serving utility companies.

C. Permits, Fees and Licenses:
1. The Contractor shall obtain and pay for all permits, fees and licenses, for Work required under these Specifications.

D. Utility Company Fees:
1. Coordination of existing utilities and easements including fees associated with the project shall be included in the Work.

E. Without additional cost to the Owner, provide such other labor and materials as are required to complete the Work of this Section in accordance with the requirements of governmental agencies having jurisdiction, regardless of whether such materials and associated labor are called for elsewhere in these Contract Documents.

1.3 EXAMINATION OF SITE:

A. Visit the site, inspect the existing conditions and check the Drawings and Specifications to be fully informed of the requirements for completion of the Work.

B. Lack of such examination shall not justify a request for extra compensation to the Contract price.

1.4 MATERIAL AND EQUIPMENT:

1.5 SUBMITTALS:

A. SHOP DRAWINGS AND SUBMITTAL DATA
1. Process shop drawings and submittal data to ensure that the proposed materials, equipment and devices conform to the requirements of the Contract Documents, and that there are no omissions or duplications. Provide layouts, fabrication information and data for systems, materials, equipment and devices proposed for the project.
a. Shop drawings shall be drawn on a scale not less than ¼ inch equals 1 foot showing actual dimensions. Shop drawings shall include, but not be limited to:
1) Switchboards
2) Distribution Panelboards
2. Submittal data (manufacturer's catalog data) shall include Manufacturer's Specifications, product literature and other data needed to demonstrate compliance with the specified requirements, but not be limited to the following:

a. Equipment: Switchboards, Panelboards, Transformers, Disconnect Switches, Enclosed Controller, Circuit Breakers, Fuses, etc.
b. Materials: conduit, conductors, connectors, supports, etc.
c. Lighting Fixtures and Lamps.
d. Wiring Devices.
e. Lighting Control Devices – Sensors, Dimming, etc.
f. Low-Voltage Data outlet devices and Cabling systems.
g. Low-Voltage Clock and Intercom System – (Existing).
h. Security and Camera Systems – (Existing)
i. Addressable Fire Alarm System – (Existing).

3. Manufacturer's recommended installation procedure which, when approved by the Owner, will become the basis for accepting or rejecting actual installation procedures used on the work.
4. The submittal data shall not consist of manufacturer's catalogs or cut sheets that contain no indication of the exact item offered. The submission on individual items shall designate the exact item offered.
5. Do not submit detailed quantitative listings of materials, equipment and devices. It is the Contractor's responsibility to provide proper sizes and quantities to conform to Contract Documents.
6. Assemble submittals on related items procured from a single manufacturer in brochures or other suitable package form, rather than submitting a multiplicity of loose sheets.
7. The Contractor shall submit shop drawings whenever equipment proposed varies in physical size and arrangement from that indicated thus causing rearrangement of equipment space, where tight spaces require extreme coordination between this work and other work, where called for elsewhere in these Specifications and where specifically requested by the Owner. Shop drawings shall be prepared at a scale of not less than ¼ inch equals 1 foot.

B. SUBSTITUTIONS

1. Where a single manufacturer is mentioned by trade name or manufacturer's name, it has been done to establish a standard rather than to discriminate against an equal product made by another manufacturer.
2. Where multiple manufacturers are listed in the Owner’s drawings and/or specification, none other than those manufacturers will be accepted.
3. Substitute manufacturers will be considered prior to bid only. The substitute manufacturer shall submit a complete copy of the appropriate technical specification section minimum ten (10) business days prior to bid with each sub-paragraph noted with the comment, "compliance", "deviation" or "alternate". In the case of non-primary, vendor-supplied items, the name of the sub-vendor supplying said item, including model number, shall be indicated.
4. By noting the term "compliance" or "C", it shall be understood that the manufacturer is in full compliance with the item specified and will provide exactly the same with no deviations.
5. By noting the term "deviation" or "D", it shall be understood that the manufacturer prefers to provide a different component in lieu of that specified. Manufacturer shall indicate all deviations.
6. It shall be understood that space allocations have been made on the basis of present and known future requirements and the dimensions of items of equipment or

devices of a particular manufacturer whether indicated or not. If any item of equipment or device is offered in substitution which differs substantially in dimension or configuration from that indicated on the Drawings or specifications, provide as part of the submittal ¼ inch equals 1-foot scaled drawings showing that the substitute can be installed in the space available without interfering with other portions of the work or with access for operations and maintenance in the completed project.

7. Where substitute equipment or devices requiring different arrangement or connections from that indicated is accepted by the Owner, install the equipment or devices to operate properly and in harmony with the intent of the Contract Documents, making all incidental changes in piping, ductwork or wiring resulting from the equipment or device selection without any additional cost to the Owner. The Contractor shall pay all additional costs incurred by other portions of the work in connection with the substituted equipment or device.
8. The Owner reserves the right to call for samples of any item of material, equipment or device offered in substitution, together with a sample of the specific item when, in their opinion, the quality of the item and/or the appearance is involved, and it is deemed that an evaluation of the item may be better made by visual inspection.
9. When any request for a substitution of material, equipment or device is submitted and rejected, the item named in the Contract Documents shall be furnished. Repetitive submittal of substitutions for the same item will not be considered.

C. Samples:
1. When requested by the Owner, promptly provide samples of items scheduled to be exposed in the final structure.
2. When specifically, so requested by the Contractor and approved by the Owner, approved samples will be returned to the Contractor for installation on the Work.

D. Record Drawings:
1. Comply with pertinent provisions of Division 1.
2. Include a copy of the Record Drawings in each copy of the operation and maintenance manual described below.

E. Manual:
1. Upon completion of this portion of the Work, and as a Condition of its acceptance, deliver the operation and maintenance manual to the Owner complied in accordance with the provisions of Division 1 of these specifications. Include within each manual.
   a. Copy of the approved Record Documents for this portion of the Work.
   b. Copy of each circuit directories.
   c. Copy of each warranty and guaranty.

1.6 GUARANTEE:

A. The Contractor guarantees all Work against any defects due to faulty workmanship or material and that all raceways, ducts and piping are free from foreign material, obstructions, holes or breaks of any nature.

B. Upon written notice from the Owner or Owner, the Contractor shall promptly remedy without cost to the Owner any defects occurring within a period of one (1) year from the date of final acceptance.

1.7 WARRANTY:

A. The Contractor shall properly execute in the Owner's name all Manufacturers' standard warranty certificates applying to equipment installed on the project and shall deliver said certificates to the Owner at completion of the job. All warranty cards shall also be properly executed and delivered to the supplier or Manufacturer's representative for Manufacturer's records. Standard warranties for equipment shall be not less than one (1) year.

PART 2 - PRODUCTS

2.1 BASIC ELECTRICAL MATERIALS AND METHODS:

A. Provide only materials that are new and of the type and quality specified. Where Underwriter's Laboratories, Inc. have established standards for such materials, provide only materials bearing the UL label.

B. Materials and equipment shall be new, of the same type and manufacturer, of the best quality and design, free from defects and meet the requirements of UL and NFPA where standards are established for those items and assemblies.

C. Manufacturer's nameplate affixed in a conspicuous place will be required on each major component of equipment stating Manufacturer's name, address and catalog number.

D. Manufacturer's name and model number used herein and, on the Drawings, establish type and quality required. Equal products may be considered if submitted in writing to the Owner's Representative for approval 10 (ten) days prior to bid date. The Contractor shall be responsible for assuring the items and equipment substituted for those shown on the Drawings will physically fit in the space allocated.

E. Fire stopping material shall be 3M Fire Seal Caulking, or approved substitution.

F. Terminals and enclosures shall be marked for 75° C operation or conductor size shall be increased as required at no cost to the Owner.

G. Steel Pipe Wall Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends. Comply with NECA 1.

H. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work and roof manufacturer's requirements.

I. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

J. Provide sleeves and chases where conduits pass through rated floors and walls, fire stopped in accordance with UL Listed assembly.

K. When boring, cutting or drilling structural wood or wall members, drill only in locations as approved by the Owner.

L. Immediately prior to final inspection, the Contractor shall make a final cleanup of dirt and refuse resulting from his Work and shall assist in keeping the premises clean at all times.

M. Immediately prior to final inspection, the Contractor shall clean all material and equipment installed under this Contract. Dirt, dust, plaster, stains and foreign matter shall be removed from all surfaces. Damaged finishes shall be touched up and restored to their original Condition.

N. Mechanism of all equipment shall be checked, adjusted and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required to produce the intended performance.

O. Service voltage and color codes for 480Y/277V: Phase A - Brown, Phase B - Orange, Phase C – Yellow, Neutral – White, and Ground - Green.

P. Service voltage and color codes for 208/120V: Phase A - Black, Phase B - Red, Phase C – Blue, Neutral – White, and Ground - Green.

2.2 CONTROL-VOLTAGE ELECTRICAL POWER CABLES

A. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits, Classes 1, 2, and 3 control cables.

B. Related Requirements:
1. Section 270528 "Pathways for Communications Systems" for cabling used for voice and data circuits.

C. Performance Requirements:
1. Flame Travel and Smoke Density in Plenums: As determined by testing identical products according to NFPA 262, by a qualified testing agency. Identify products for installation in plenums with appropriate markings of applicable testing agency.
2. Flame Travel and Smoke Density for Riser Cables in Non-Plenum Building Spaces: As determined by testing identical products according to UL 1666.
3. Flame Travel and Smoke Density for Cables in Non-Riser Applications and Non-Plenum Building Spaces: As determined by testing identical products according to UL 1685.

D. RS-485 Plenum-Rated Cable: NFPA 70, Type CMP.
   1. Paired, one pair, No. 22 AWG, stranded (7x30) tinned-copper conductors.
   2. Fluorinated ethylene propylene insulation.
   3. Unshielded.
   4. Fluorinated ethylene propylene jacket.
   5. Flame Resistance: Comply with NFPA 262.

E. Low-Voltage Plenum-Rated, Paired Control Cable: NFPA 70, Type CMP.
   1. Multi-pair, twisted, No. 16 AWG, stranded (19x29) tinned-copper conductors.
   2. PVC insulation.
   3. Unshielded.
   4. PVC jacket.
   5. Flame Resistance: Comply with NFPA 262.

F. Control-Circuit Conductors
   1. Class 1 Control Circuits: Stranded copper, Type THHN/THWN-2, complying with UL 83 in raceway.
   2. Class 2 Control Circuits: Stranded copper, Type THHN/THWN-2, complying with UL 83 in raceway.
   3. Class 3 Remote-Control and Signal Circuits: Stranded copper, Type THHN/THWN-2, complying with UL 83 in raceway.
   4. Class 2 Control Circuits and Class 3 Remote-Control and Signal Circuits That Supply Critical Circuits: Circuit Integrity (CI) cable.
      a. Smoke control signaling and control circuits.
      b. Life Safety control systems listed in NFPA 72.

G. Cable will be considered defective if it does not pass tests and inspections.

2.3 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS

A. Related Requirements:

   1. Section 260400 "Control-Voltage Electrical Power Cables" for control systems communications cables and Classes 1, 2, and 3 control cables.
   2. Section 270400 "Communications Horizontal Cabling" for cabling used for voice and data circuits.

B. Copper Building Wire: Flexible, insulated and uninsulated, drawn copper current-carrying conductor complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors with an overall insulation layer or jacket, or both, rated 600 V or less.

C. Basis-of-Design Product: Subject to compliance with requirements, provide Southwire Company or comparable product by one of the following:
   1. Alpha Wire Company.
   2. Cerro Wire LLC.
   3. Encore Wire Corporation.
   4. General Cable Technologies Corporation.
   5. Southwire Company.

D. Service Entrance Conductors:
   1. For line voltages, provide 600 V THHN insulated copper wire with UL Label, listing, and color coded for voltage.

E. Conductors:
   1. For line voltages, provide 600 V insulated copper wire and cable, with UL Label, listing, and color coded for voltage.
   2. Use type THHN/THWN color coded for voltage at interior, type THHN/THWN-2 for exterior.
   3. For wire No. 10 and smaller, provide solid wire: for wire larger than No. 10, provide stranded wire.
   4. Conductors No. 8 and larger, provide insulating bushings or insulating sleeves.
   5. Use only copper wires and cables.

F. No. 12 AWG THHN conductors and larger for all branch circuits, protected by 20-amp circuit breakers. Where so indicated on the Drawings, by actual load, or by the N.E.C., use larger wires to limit voltage drops:
   1. Increase wire sizes to next largest AWG size for:
      a. 120-volt circuits exceeding 150 feet in circuit length.
      b. 208-volt circuits exceeding 200 feet in circuit length.
   2. Wire and conduit sizes shall be increased for the above conditions whether shown on the Drawings or not.

G. Use identified (white) neutrals and colored-coded phase wires for all branch circuit wiring.

H. Make splices electrically and mechanically secure with pressure-type. Push-in connectors shall not be allowed.
   1. For wires size 10 AWG and smaller, provide NSI twist-on connectors.
   2. For wires size 8 AWG and larger, provide NSI Polaris insulated connectors.

I. Tape all joints with rubber tape 1-1/2 times the thickness of the conductor insulation, then cover with the friction tape or the vinyl-plastic electrical tape specified above.

2.4 GROUNDING AND BONDING ELECTRICAL SYSTEMS:

A. Submittals:
   1. Product Data: For each type of product.
   2. Product Schedule: Indicate type, use, location, and termination locations.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Burndy; Part of Hubbell Electrical Systems.
   2. ERICO International Corporation.
   3. TE Connectivity Ltd.
   4. ILSCO.
   5. O-Z/Gedney; a brand of Emerson Industrial Automation.

C. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

D. Bare Copper Conductors:
1. Stranded Conductors: ASTM B 8.
2. Tinned Conductors: ASTM B 33.
3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
5. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

E. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

F. Connectors: Listed and labeled by an NRTL as complying with NFPA 70, acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected. Comply with UL 467.
1. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
2. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
3. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
4. Cable-to-Cable Connectors: Compression type, copper or electroplated tinned copper, C and H shaped.
5. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.
6. Conduit Hubs: Mechanical type, terminal with threaded hub.
7. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
8. Lay-in Lug Connector: Mechanical type, copper rated for direct burial terminal with set screw.
9. Service Post Connectors: Mechanical type, bronze alloy terminal, in short- and long-stud lengths, capable of single and double conductor connections.
10. Straps: Solid copper, cast-bronze clamp. Rated for 600 A.
11. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
12. Water Pipe Clamps: Tin-plated aluminum or Silicon Bronze. Mechanical type, two pieces with zinc-plated bolts.

2.5 HANGERS AND SUPPORTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
1. Material: Pre-galvanized steel.
2. Channel Width: 1-5/8 inches.

3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
4. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

E. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened Portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. B-line, an Eaton business.
   b. Empire Tool and Manufacturing Co., Inc.
   c. Hilti, Inc.
   d. MKT Fastening, LLC.
2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
4. Toggle Bolts: All-steel springhead type.
5. Hanger Rods: Threaded steel.

F. Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

G. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter. Wire-ties and zip-ties shall not be an acceptable means of support to structure(s).

H. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

I. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

J. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.

4. To Existing Concrete: Expansion anchor fasteners.
5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
6. To Light Steel: Sheet metal screws.
7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

K. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

L. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2.6 RACEWAYS AND BOXES

A. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use. Conduit Fittings for Hazardous (Classified) Locations: UL 1203.

B. Raceways and Fittings:
1. Steel Electrical Intermediate Metal Conduit (IMC) - UL 1242 and UL Category Control Number DYBY: Exterior - Zinc coated; Interior - Zinc with organic top coated. Fittings: Steel, compression coupling.
2. Steel Electrical Metal Tubing (EMT) and Elbows: UL 797 and UL Category Control Number FJMX: Exterior - Zinc coated; Interior - Zinc with organic top coated. Fittings: Steel, compression coupling.
3. Aluminum Electrical Metal Tubing (EMT) and Elbows: UL 797A and UL Category Control Number FJMX: Exterior - Zinc coated; Interior - Zinc with organic top coated. Fittings: Steel, compression coupling.
4. Flexible Metal Conduit (FMC): Steel. UL 1 and UL Category Control Number DXUZ. Fitting: UL 514B and UL Category Control Number ILNR.
5. Liquidtight Flexible Metal Conduit (LFMC): Steel. UL 360 and UL Category Control Number DXHR. UL 514B and UL Category Control Number DXAS.
6. Schedule 40 Rigid PVC Conduit (PVC-40) and Fittings: UL 651 and UL Category Control Number DZYR. For use with maximum 90 deg C wire.
7. Minimum raceway size: 3/4” raceway for power circuits and 1” raceways for low-voltage communication cable raceways.

C. Surface mounted raceways: Wiremold or Owner approved equal, steel 500 or 700 Series with matching surface mount box and mounting accessories. Color as directed by Owner. EMT conduit is not an allowable method for surface raceways. Submit to Owner prior to installation.

D. Surface mounted raceways on existing walls: 3/4” EMT maximum. Provide 1/2” EMT raceways for thermostat, HVAC sensors and control circuits anchored to wall system by approved method.

E. Boxes, Enclosures and Cabinets:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Crouse-Hinds, an Eaton business.
b. Hubbell Incorporated.
c. RACO; Hubbell.
d. Thomas & Betts Corporation; A Member of the ABB Group.
e. Wiremold / Legrand.
2. General Requirements for Boxes, Enclosures, and Cabinets: Comply with NFPA 70 for intended location and use. UL 514A and UL CCN QCIT.
3. Wireways and Auxiliary Gutters:
a. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system. Manufacturer's standard enamel finish.
b. Wireway Covers: Hinged, Screw-cover and Flanged-gasketed as indicated in drawings.
4. Metallic Outlet, Device Boxes, Rings, Covers and Conduit Bodies:
a. Description: 4" square outlet box having pryout openings, knockouts, threaded entries, or hubs in either the sides of the back, or both, for entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting outlet box cover, but without provisions for mounting wiring device directly to box.
b. Material: Sheet steel and Cast metal.
c. Sheet Metal Depth: 2-1/8" deep minimum to accommodate 1” knockout.
d. Cast-Metal Depth: 2.4 inch deep.
e. Luminaire Outlet Boxes and Covers: Nonadjustable, listed and labeled for attachment of luminaire weighing 50 lb.
f. Paddle Fan and Large Luminaire Outlet Boxes and Covers: Nonadjustable, designed for attachment of paddle fan weighing up to 70 lb.
g. Conduit Bodies: Means for providing access to interior of conduit or tubing system through one or more removable covers at junction or terminal point.
5. Metallic Floor Boxes and Floor Box Covers: RFB4 series with (4) independent compartments, stamped steel, and shallow steel for concrete 2 7/16" depths accepting 3/4" and 1" conduit.
a. Coverplates shall be scrub-proof with carpet in-lay and easy open handle. Activate all compartments with specified and approved wiring devices.
6. Nonmetallic Outlet, Conduit Bodies and Device Boxes: UL 514C and UL CCN QCMZ.

F. Termination Boxes: UL 1773 and UL Category Control Number XCKT.
1. Description: Enclosure for termination base consisting of lengths of bus bars, terminal strips, or terminal blocks with provision for wire connectors to accommodate incoming or outgoing conductors or both.
2. Listed and labeled for installation on line or load side of service equipment.

G. Cabinets, Cutout Boxes, Junction Boxes and Pull Boxes: UL 50 and 50E.
   1. Sheet Metal Cabinets:
      a. Description: Enclosure provided with frame, mat, or trim in which swinging door or doors are or can be hung. UL Category Control Number CYIV.
   2. Sheet Metal Cutout Boxes:
      a. Description: Enclosure that has swinging doors or covers secured directly to and telescoping with walls of enclosure.
   3. Sheet Metal, Cast-Metal, and Polymeric Junction and Pull Boxes:
      a. Description: Box with a blank cover that serves the purpose of joining different runs of raceway or cable. UL Category Control Number BGUZ.

H. Cover Plates for Devices Boxes: UL 514D and UL Category Control Numbers QCIT and QCMZ.
   1. Wallplate-Securing Screws: Metal with head color to match wallplate finish.
   2. Cover Plates for Device Boxes:
      a. Damp and Wet Locations: Listed, labeled, and marked for location and use. Provide gaskets and accessories necessary for compliance with listing.
      b. Metallic Wallplate Material: 0.032-inch-thick Type 302/304 non-magnetic stainless steel with brushed finish. Coordinate with Owner.
      c. Nonmetallic Wallplate Material: 0.060 inch thick high-impact thermoplastic (nylon) with smooth finish and color matching wiring device.
      d. Color: As indicated on architectural drawings or selected by Owner/Architect.
   3. Hoods for Outlet Boxes:
      a. Reference Standards:
         1) UL 514D and UL Category Control Numbers QCIT and QCMZ.
         2) Receptacle, hood, cover plate, gaskets, and seals comply with UL 498 Supplement SA when mated with box or enclosure complying with UL 514A, UL 514C, or UL 50E.
      b. Mounts to box using fasteners different from wiring device.
   4. provide galvanized code-gauge sheet steel units with screwed-on covers, of size and shape required to accommodate wires without crowding, and to suit the location. Mark with permanent ink circuit designations on cover plate. If box is to be painted provide permanent ink marking on inside of box cover.
   5. For exterior pull boxes, provide fiberglass quazite box with sealed lid identified “ELECTRICAL” at size required to accommodate wires at 40% fill.
   6. Provide sleeves and chases where conduits pass through floors and walls, fire-stopped in accordance with NEC Article 300.21.
   7. For switches and receptacles, provide standard ganged switch boxes with plastic or stainless-steel covers as required by Architect; except for exposed Work, provide pressed steel boxes with galvanized or cadmium plated steel covers.
      a. For telephone/communication outlets, provide 4" square boxes with single device cover. Route conduit to accessible ceiling cavity with end bushings and nylon pullstring.

I. Junction boxes may not be installed back-to-back in walls and partitions. Consult with Owner for proper separation of boxes (typically, 12" in non-rated walls, 24" in rated walls).

J. Securely and rigidly support boxes to super structure throughout the Work.

2.7 PANELBOARDS:

A. Panelboards and Retrofit Panelboards: Comply with NEMA PB 1 and NFPA 70.

B. Eaton - Cutler-Hammer Type "Pow-R-Line" or approved equal. Commercial Grade.

C. Retrofit panelboards shall be Cutler-Hammer Pow-R-Line or equal. Commercial.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers or Plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

E. Enclosures: Flush and Surface-mounted, dead-front cabinets as indicated in drawings.
1. Indoor Dry and Clean Locations: NEM 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R:
3. Wash-Down Areas: NEMA 250, Type 4X S.S.
4. Kitchen Areas: NEMA 250, Type 1 with seal for Stainless Steel front cover.
5. Cabinets, flush or surface mounted as indicated. Top and/or Bottom Entry.
6. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
7. Gutters: Same gage and finish of panel enclosure; integral with body.
8. Directory Card: Inside panelboard door, mounted in metal frame with transparent cover.
9. Doors shall be as required, accurately fitted with catch-lock and two (2) keys. All front keys alike.

F. Panel boards shall be rated for the voltage, 3 phase, 4 wire, solid neutral, UL 489 and rated 250 or 600 volts.

G. Incoming Mains Location: Convertible between top and bottom and terminate in cable lugs or main circuit breaker.

H. Conductor Connectors: Suitable for use with conductor material and sizes.
1. Material: Phase, Neutral and Ground Bus shall be hard drawn copper of 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
3. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device where indicated on drawings.
5. Sub-feed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device where indicated on drawings.

I. Future Devices: Panelboards shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

J. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.

K. Surge Suppression: Comply with UL 1449 SPD for the following Types indicated on drawings and specified in "Surge Protection for Electrical Power Circuits":
   1. Type 1 for service equipment where the device is ahead of the service disconnect. Factory installed as an integral part of panelboard in segregated compartment.
   2. Type 2 for panelboards on the load side of the service disconnect. Provide SPD mounted in rated enclosure, exterior of panelboard.

L. DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES (OCPDs):

M. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
   1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
   2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
   3. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
   4. GFCI Circuit Breakers: Single- thru three-pole configurations with Class A ground-fault protection (6-mA trip).
   5. MCCB Features and Accessories:
      a. Standard frame sizes, trip ratings, and number of poles.
      b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
      c. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
      d. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
      e. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in "on" or "off" position.
      f. Handle Clamp: Loose attachment, for holding circuit-breaker handle in "on" or "off" position.

N. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.

O. Circuit Directory: Directory card inside panelboard door, mounted in transparent card holder. Provide name and phone number of installing company.

P. Provision for Future Devices: Equipment with mounting brackets, bus connections, and necessary appurtenances for the OCPD ampere ratings indicated for future installation of devices.

Q. Tandem and mini-circuit breakers shall NOT be used. Multipole breakers shall have common trip.

2.8 WIRING DEVICES:

A. UL Listed and labeled as defined in NFPA 70.

B. Color of wiring devices shall match existing facility devices or per Owner's requirements. Color of isolated ground receptacles to be orange. Coordinate with Architect/Owner for final color of all devices.

C. Duplex Convenience Receptacles: 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

D. Industrial Heavy Duty, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement SD, and FS W-C-596.

E. Twist-Locking Receptacles: Twist-Lock, Single Convenience Receptacles: 125 V, 20 A; comply with NEMA WD 1, NEMA WD 6 Configuration Heavy-duty, NEMA 5-20R, and UL 498.

F. GFCI Receptacles: 125 V, 20 A, straight blade, 20 A feed-through type. Comply with NEMA WD 1, Heavy-duty NEMA 5-20R, UL CCN KCXX, UL 498, UL 943 Class A, and FS W-C-596.
   1. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.
   2. Self-testing technology with indicators including disconnecting power if damaged.
   3. Receptacles shall be side wired feed-thru, Hubbell No. GFST20 or equal.

G. Tamper-Resistant Duplex Straight-Blade Receptacle: 125 V, 20 A: Comply with NFPA 70, Heavy-duty NEMA 5-20R, UL CCN RTRT and UL 498, and FS W-C-596.

H. Tamper-Resistant Duplex Straight-Blade Receptacle with USB Outlet to Power Class 2 Equipment: 125 V, 20 A: Comply with NFPA 70, Heavy-duty NEMA 5-20R, UL CCN RTRT and UL 498, and FS W-C-596.

I. Duplex Straight-Blade Receptacle with Type 3 Surge Protective Device: 125 V, 20 A: Comply with color BLUE per NEMA WD 1, heavy-duty. Configuration NEMA 5-20R, UL 498, and FS W-C-596.

J. Toggle Switches: Comply with NEMA WD 1, UL 20, and FS W-S-896. Commercial-industrial type, 20 amp, 120/277 V AC, from the following:
   1. Single Pole:
      a. Cooper; AH1221.
      b. Hubbell; HBL1221.
      c. Leviton; 1221-2.
      d. Pass & Seymour; CSB20AC1.
   2. Two Pole:
      a. Cooper; AH1222.
      b. Hubbell; HBL1222.
      c. Leviton; 1222-2.
      d. Pass & Seymour; CSB20AC2.

3. Three Way:
   a. Cooper; AH1223.
   b. Hubbell; HBL1223.
   c. Leviton; 1223-2.
   d. Pass & Seymour; CSB20AC3.
4. Four Way:
   a. Cooper; AH1224.
   b. Hubbell; HBL1224.
   c. Leviton; 1224-2.
   d. Pass & Seymour; CSB20AC4.

K. Cover plates for flush mounted receptacles and switches:
1. Mechanical, utility, kitchen and Exterior: provide 0.040" stainless steel cover plates in all areas and all devices.
2. Office and classroom areas: Provide 0.040" stainless steel cover plates. Plastic cover plates matching the wiring devices specified for millwork.
3. Where wiring devices are grouped, set in gangs with one cover plate.
4. Where wiring devices are noted to be weatherproof, provide cast cover, gasketed & hinged, while-in-use rated and lockable cover.
5. Use jumbo size plates, 302 stainless steel for outlets installed in masonry walls or as specified by Owner and existing facility standard installation.

L. Manual motor starter: Square D "Class 2510" for 120V, 1ph motors.

2.9 SURGE PROTECTION FOR ELECTRICAL POWER CIRCUITS

A. General SPD Requirements:
1. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Comply with NFPA 70.
3. Comply with UL 1449.
4. MCOV of the SPD shall be the nominal system voltage.

B. PANELBOARD SUPPRESSORS
1. Type 2 for panelboards on the load side of the service disconnect.
2. Include LED indicator lights for power and protection status.
3. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

A. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 200 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

B. Protection modes and UL 1449 VPR for grounded wye circuits with 480Y/277 V, three-phase, four-wire circuits shall not exceed the following:
1. Line to Neutral: 1200 V for 480Y/277 V.
2. Line to Ground: 1200 V for 480Y/277 V.
3. Line to Line: 2000 V for 480Y/277 V.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
   1. Line to Neutral: 700 V for 208Y/120 V.
   2. Line to Ground: 1200 V for 208Y/120 V.
   3. Line to Line: 1000 V for 208Y/120 V.

D. Protection modes and UL 1449 VPR for 240/120 V, single-phase, three-wire circuits shall not exceed the following:
   1. Line to Neutral: 700 V.
   2. Line to Ground: 700 V.
   3. Neutral to Ground: 700 V.
   4. Line to Line: 1200 V.

E. SCCR: Equal or exceed 200 kA.

F. Inominal Rating: 20 kA.

G. ENCLOSURES
   1. Indoor Enclosures: NEMA 250, Type 1.
   2. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 ELECTRICAL SITE COORDINATION AND PREPARATION

A. Examine the areas and the Conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of this work. Do not proceed until unsatisfactory conditions are corrected.

B. Coordinate with local utility company temporary and permanent power requirements for the project. Provide a request for all utilities to be located and marked at project site prior to the start of Work. Prepare site easements for saw-cutting, trenching and backfill. Coordinate power outages with Owner and utility company 10-days prior to outage.

C. Coordination with Division Trades:
   1. Coordinate as necessary with other trades to assure proper and adequate provision in this Work of those trades for interface with the Work of this Section.
   2. Coordinate the installation of electrical items with the schedule for Work of other trades to prevent unnecessary delays in the total Work.
   3. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, provide required supports and wiring to clear the encroachment.
   4. Provide 110-volt temperature control, control transformers in enclosures and interlock wiring. Coordinate all requirements with mechanical contractor prior to rough-in and installation.
   5. Provide weatherproof ground-fault receptacles within 25’-0” of devices and equipment to be readily-accessible for maintenance.

D. Coordinate arrangement, mounting and support of electrical equipment:
   1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
   2. Provide for ease of disconnecting the equipment with minimum interference to other equipment installations.
   3. Allow right-of-way for piping and conduit installed at required slope.
   4. Connecting raceways, cables, wireways, cable trays and busways to be clear of obstructions and allow working clearances of other equipment.

E. Where outlets are not specifically located on the Drawings, locate as determined in the field by the Architect. Where outlets are installed without such specific direction, relocate as directed by the Architect and at no additional cost to the Owner.

F. The Electrical Drawings are diagrammatic but are required to be followed as closely as actual construction and Work of other trades will permit. Where deviations are required to conform with actual construction and the Work of other trades, make such deviations without additional cost to the Owner.

3.2 INSTALLATION OF CONTROL-VOLTAGE ELECTRICAL POWER CABLES

A. Comply with requirements in Section 260400 "Raceways and Boxes for Electrical Systems" for raceway selection and installation requirements for boxes, conduits, and wireways as supplemented or modified in this Section.
   1. Outlet boxes shall be no smaller than 2 inches wide, 3 inches high, and 2-1/2 inches deep.
   2. Outlet boxes for optical-fiber cables shall be no smaller than 4 inches square by 2-1/8 inches deep with extension ring sized to bring edge of ring to within 1/8 inch of the finished wall surface.
   3. Flexible metal conduit shall not be used.

B. Comply with TIA-569-C for pull-box sizing and length of conduit and number of bends between pull points.

C. Install manufactured conduit sweeps and long-radius elbows if possible.

D. Raceway Installation in Equipment Rooms:
   1. Position conduit ends adjacent to a corner on backboard if a single piece of plywood is installed, or in the corner of the room if multiple sheets of plywood are installed around perimeter walls of the room.
   2. Secure conduits to backboard if entering the room from overhead.
   3. Extend conduits 3 inches above finished floor.
   4. Install metal conduits with grounding bushings and connect with grounding conductor to grounding system.

E. General Requirements for Cabling:
   1. Comply with TIA-568-C Series of standards and BICSI ITSIMM, Ch. 5, "Copper Structured Cabling Systems".
   2. Cables may not be spliced.

3. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
4. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIMM, Ch. 5, "Copper Structured Cabling Systems." Install lacing bars and distribution spools.
5. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
6. Support: Do not allow cables to lay on removable ceiling tiles.
7. Secure: Fasten securely in place with hardware specifically designed and installed to not damage cables.

F. Installation of Control-Circuit Conductors:
1. Install wiring in raceways. Comply with requirements specified in Section 260400 "Raceways and Boxes for Electrical Systems."

G. Open-Cable Installation:
1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend copper cable not in a wireway or pathway a minimum of 8 inches above ceilings by cable supports not more than 30 inches apart.
3. Cable shall not be run through or on structural members or in contact with pipes, ducts, or other potentially damaging items. Do not run cables between structural members and corrugated panels.

H. Installation of Cable Routed Exposed under Raised Floors:
1. Install plenum-rated cable only.
2. Install cabling after the flooring system has been installed in raised floor areas.
3. Below each feed point, neatly coil a minimum of 72 inches of cable in a coil not less than 12 inches in diameter.

I. Minimum Control-Circuit Conductor Sizes:
1. Class 1 remote-control and signal circuits; No 14 AWG.
2. Class 2 low-energy, remote-control, and signal circuits; No. 16 AWG.
3. Class 3 low-energy, remote-control, alarm, and signal circuits; No 12 AWG.

J. Identification: Identify data and communications system components, wiring, and cabling according to TIA-606-A; label printers shall use label stocks, laminating adhesives, and inks complying with UL 969.

3.3 INSTALLATION OF LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS

A. Conductor Material Applications:
1. Feeders: Copper for feeders smaller than No. 250 MCM; copper or aluminum for feeders No. 250 MCM and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger. Adjust raceway sizes accordingly where use of aluminum material is allowed.

2. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
3. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

B. Conductor Insulation and Multiconductor Cable Applications and Wiring Methods:
1. Service Entrance: Type THHN/THWN-2, single conductors in raceway.
2. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
3. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN/THWN-2, single conductors in raceway.
4. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway.
5. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.
6. Branch Circuits Concealed in Millwork and Wall Partitions: Metal-clad cable, Type MC.
7. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

C. Installation of Conductors and Cables:
1. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
2. Complete raceway installation between conductor and cable termination points according to Section 260400 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
3. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
4. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
5. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.
6. Support cables according to Section 260400 "Hangers and Supports for Electrical Systems."

D. Connections:
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
2. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

E. Identification: Identify and color-code conductors and cables according to NFPA 70. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.

F. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

G. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260400 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

H. Other Requirements:
1. Conductors No. 4 and larger, provide insulating bushings or insulating sleeves.
2. Provide barriers in boxes where different voltages and conductor insulation exist.
3. Install control wiring for equipment or as required by other Division Trade Work.
4. Tape all joints with rubber tape 1-1/2 times the thickness of the conductor insulation, then cover with a minimum of two half-lapped layers of Scotch Brand No. 33 vinyl-plastic electrical tape.
5. Provide expansion fittings in conduits which are non-continuous and exposed to the weather.

I. Wire Sizes:
1. Increase wire sizes and raceway to next largest AWG size for: (Size shown of 60% load, increase as required for larger loading)
a. 120 volt circuits exceeding 150 feet in circuit length.
b. 208 volt circuits exceeding 250 feet in circuit length.
2. Wire sizes shall be increased for the above conditions whether indicated on the Drawings.

J. Use identified (white) neutrals and colored-coded phase wires for all branch circuit wiring.
1. Make splices electrically and mechanically secure with pressure-type ILSCO Snapblock connectors, or LSI lugs to make splices electrically and mechanically secure. Soldering is not permitted for grounding equipment.
a. For wires size 6 AWG and smaller, provide "Scotch-lock" connectors.
2. For wires size 4 AWG and larger, provide Burndy "Versitaps" and heavy-duty connectors, or T&B "lock-tite" connectors.

3.4 INSTALLATION OF GROUNDING SYSTEMS

A. Coordinate existing conditions and wiring configurations to assure proper grounding systems are installed per NEC Art. 250. Where existing system grounding means are not known or clearly identifiable, contact Owner to provide as-built documents prior to start of Work.

B. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

C. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.
1. Bury at least 24 inches below grade.

D. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

F. Grounding at The Service: Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

G. Comply with IEEE C2 grounding requirements.

H. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

I. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

J. Equipment Grounding: Install insulated equipment grounding conductors with all feeders and branch circuits.

K. Water Heater, Heat-Tracing, and Anti-frost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

L. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

M. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

N. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except were routed through short lengths of conduit.
1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

O. Grounding and Bonding for Piping:
1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

P. Perform tests and inspections as listed in “Testing and Inspections”.

Q. Report measured ground resistances that exceed the following values:
1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
5. Substations and Pad-Mounted Equipment: 5 ohms.
6. Manhole Grounds: 10 ohms.

R. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

3.5 HANGERS AND SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70 utilizing listed beam clamps and supports. Tie-wires shall not be an acceptable method of securing raceways.

C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

F. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb .

G. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
   1. To Wood: Fasten with lag screws or through bolts.
   2. To New Concrete: Bolt to concrete inserts.
   3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
   4. To Existing Concrete: Expansion anchor fasteners.
   5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
   6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
   7. To Light Steel: Sheet metal screws.
   8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

H. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

I. Concrete Bases:
   1. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
   2. Use 3000-psi , 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements as specified by equipment manufacturer.
   3. Anchor equipment to concrete base:
      a. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
      b. Install anchor bolts to elevations required for proper attachment to supported equipment.

c. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.6 RACEWAYS AND BOXES INSTALLATION

A. Selection of Raceways: Unless more stringent requirements are specified in Contract Documents or manufacturers' written instructions, comply with NFPA 70 for selection of raceways. Consult Architect for resolution of conflicting requirements.

B. Outdoors:
1. Exposed and Subject to Physical Damage: RMC.
2. Exposed and Not Subject to Physical Damage: IMC.
3. Concealed Aboveground: EMT.
4. Direct Buried: PVC-40.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

C. Indoors:
1. Hazardous Classified Locations: RMC.
2. Exposed and Subject to Physical Damage: IMC.
3. Exposed and Not Subject to Physical Damage: EMT.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Damp or Wet Locations: IMC.
6. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC.

D. Raceway Fittings: Select fittings in accordance with NEMA FB 2.10 guidelines.
1. RMC and IMC: Provide threaded type fittings unless otherwise indicated.

E. Installation of Raceways:
1. Unless more stringent requirements are specified in Contract Documents or manufacturers' written instructions, comply with NFPA 70 for installation of raceways. Consult Architect for resolution of conflicting requirements.
2. Comply with requirements in Section 260400 "Hangers and Supports for Electrical Systems" for hangers and supports.
3. Install raceways square to the enclosure and terminate at enclosures without hubs with locknuts on both sides of enclosure wall. Install locknuts hand tight, plus one-quarter turn more.
4. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4” and insulated throat metal bushings on 1-1/2” and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
6. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
7. Support conduit within 12” of enclosures to which attached.
8. MC Cable or FMC is allowed in limited uses: Lighting whips, interior partition walls, and millwork. MC Cable is NOT allowed for homerun branch circuits.

9. Adjust raceway sizes required for derating and ambient temperatures.
10. Provide necessary sleeves and chases where conduits pass through floors and walls, and provide other necessary openings and spaces, arranging to prevent unnecessary cutting.
11. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal interior of raceways at the following points:
    a. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
    b. Where an underground service raceway enters a building or structure.
    c. Conduit extending from interior to exterior of building.
12. Do not install conduits within 2" of the bottom side of a metal deck roof.
13. Keep raceways at least 6" away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
14. Install pull wires in empty raceways. Provide polypropylene or monofilament plastic line with not less than 200 lb tensile strength.
15. Do not install aluminum raceways or fittings in contact with concrete or earth.

F. Underground conduit installations where open trenching occurs and accessible to public, shall require barriers and warning tape per OSHA guidelines.

G. Where conduit or wiring is exposed, run parallel to, or at right angles with, lines of the building.
1. Make bends with standard conduit elbows or conduit bent to not less than the same radius.
2. Make bends free from dents and flattening.
3. Where outlets and devices are installed exposed on masonry walls, contractor shall route conduit up to highest point on wall to junction box serving the device vertically.

H. Where conduits pierce the roof, provide 24-gauge galvanized iron roof jacks and flashing collar brazed onto the conduits and covering the top of the roof jacks. Any brazing shall occur prior to installation of conductors.

I. When boring, cutting or drilling structural wood or wall members, drill only in locations as approved by the Architect.

J. Installation of Boxes and Enclosures:
1. Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures.
2. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
3. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box, whether installed indoors or outdoors.
4. Locate boxes so that cover or plate will not span different building finishes.
5. Support boxes in recessed ceilings independent of ceiling tiles and ceiling grid.
6. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for purpose.

7. Fasten junction and pull boxes to, or support from, building structure. Do not support boxes by conduits.
8. Do not install aluminum boxes, enclosures, or fittings in contact with concrete or earth.

3.7 PANELBOARD INSTALLATION

A. Comply with NECA 1.

B. Install panelboards and accessories according to NECA 407.

C. Mount top of trim 90 inches above finished floor where top-most operating handle is not higher than 79 inches above finished floor unless otherwise indicated.

D. Mount panelboard cabinet plumb and rigid without distortion of box.

E. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

F. Install overcurrent protective devices and controllers not already factory installed.
1. Set field-adjustable, circuit-breaker trip ranges.

G. Provide breakers with ground-fault protection of equipment for listed areas:
1. Kitchens.
2. Garages.
3. Bathrooms and Locker Rooms.
4. Exterior equipment not supplied with integral ground-fault protection.
5. Mechanical and Janitorial closets for equipment not supplied with integral ground-fault protection.
6. Locations where equipment is located within 6’-0” of water source or listed wet locations.

H. Make grounding connections and bond neutral for service entrance and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.

I. Install filler plates in unused spaces.

J. Stub three 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or floor below slab not on grade.

K. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

L. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with OSHA and NFPA 70E.

M. Panelboard Nameplates: Label each switchboard compartment with a nameplate.

N. Device Nameplates: Label each disconnecting and overcurrent protective device and each meter and control device mounted in compartment doors with a nameplate.

O. Test and Inspections: Section 260400 "Testing and Inspections."
1. Panelboards will be considered defective if they do not pass tests and inspections.

3.8 INSTALLATION OF WIRING DEVICES

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:
1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:
1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:
a. Cut back and pigtail, or replace all damaged conductors.
b. Straighten conductors that remain and remove corrosion and foreign matter.

3.9 INSTALLATION OF SURGE PROTECTION FOR ELECTRICAL POWER CIRCUITS

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

F. Test and Inspections: Section 260400 "Testing and Inspections."

G. Prepare test and inspection reports.

H. Train Owner's maintenance personnel to operate and maintain SPDs.

3.10 INSTALLATION OF POWER EQUIPMENT

A. FLOOR-MOUNTED EQUIPMENT CONCRETE PAD: Install switchboards, transformers and enclosed controllers on concrete bases, 4-inch nominal thickness. Comply with requirements for concrete base specified in Section 033000 "Cast-in-Place Concrete."
   1. Install conduits entering under the vertical section where the conductors will terminate. Install with couplings flush with the concrete base. Extend 2 inches above concrete base after equipment is anchored in place.
   2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
   3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
   4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   5. Install anchor bolts to elevations required for proper attachment to supported equipment.

B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, straps and brackets, and temporary blocking of moving parts from enclosures and components.

C. Provide power and control wiring for HVAC, switchboards, panelboards, motor starters and safety switches as shown on the Drawings.

D. Connections to miscellaneous building equipment:
   1. Wire to, and connect to, all items of building equipment not specifically described but to which line-voltage electrical power is required.
   2. Coordinate as necessary with other trades and suppliers to verify types, numbers and locations of equipment.
   3. Make final connections to all kitchen equipment per manufacturer's instructions.
   4. Mark each pull-box/junction box with a permanent ink marker the panel designation and circuit number contained.

E. Mounting Heights:
   1. Install light switch at 48 inches to center of device above finished floor. Unless otherwise noted.
   2. Install convenience receptacle at 18 inches to center of device above finished floor. Unless otherwise noted.

3. Install convenience receptacle at 4 inches to center of device, above back splash of counter top. Unless otherwise noted.
4. Install telephone jack rough in at 18 inches to center of device above finished floor. Unless otherwise noted.
5. Install telephone jack for side-reach wall telephone, to position top of telephone at 54 inches to center of device, above finished floor. Unless otherwise noted.

3.11 MATERIAL AND EQUIPMENT

A. All materials and equipment shall be new, of the same type and manufacture, and shall be of the best quality and design and free from defects.

B. A Manufacturer's nameplate affixed in a conspicuous place will be required on each major component of equipment stating Manufacturer's name, address and catalog number.

3.12 MISCELLANEOUS ITEMS

A. The Contractor shall provide all miscellaneous items that would normally be required for proper installation of all electrical systems specified herein.

B. Completed wiring systems shall be free from short circuits. After completion, this Division 26 shall perform tests for insulation resistance in accordance with the requirements of the National Electrical Code.

C. Complete temperature control wiring rough-in is the responsibility of this Division 26. Coordinate with Division 23 to provide all locations for rough-in box and conduit requirements. Temperature control wiring shall be installed in conduit as specified by Division 23. Final terminations shall be by Division 23 unless system is 110 volts or greater.

D. Provide all disconnects and safety switches for mechanical and plumbing equipment. Where safety switches serve equipment with multiple motors, switches shall be fused according to the nameplate of the equipment, or the breaker serving the equipment shall be "HACR" type.

3.13 CUTTING AND PATCHING

A. The Electrical Contractor shall be responsible for cutting all floors, walls, partitions, ceilings or other construction required for proper installation of his Work. No cutting shall be done without prior approval of the Architect and all cutting shall be performed as directed by the Architect. Compacting of soil shall be provided in accordance to Division 2 Work. Concrete and Asphalt Work shall be provided in accordance to Division 2 Work.

B. The Electrical Contractor shall provide and install fire-safing material in penetrations through fire rated walls, floors, and ceilings in accordance with local codes.

3.14 CLEANING AND PLACING IN SERVICE

A. Immediately prior to final inspection, the Contractor shall make a final cleanup of dirt and refuse resulting from his Work and shall assist in keeping the premises clean at all times.

B. Immediately prior to final inspection, the Contractor shall clean all material and equipment installed under this Contract. Dirt, dust, plaster, stains and foreign matter shall be removed from all surfaces. Damaged finishes shall be touched up and restored to their original Condition.

C. Mechanism of all equipment shall be checked, adjusted and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required to produce the intended performance.

3.15 ADJUSTMENT AND INSTRUCTION

A. Energize all systems, equipment, and fixtures and check for proper operation. Check electrical feeders for proper phasing and balance loads between phases.

B. Position adjustable light fixtures to meet approval of Architect.

3.16 TESTING AND INSPECTION:

A. Provide personnel and equipment, make required tests, and secure approvals from the Owner and governmental agencies having jurisdiction.

B. Make written notice to the Owner adequately in advance of each of the following stages of construction:
1. Underground electrical system installation is complete, but not covered.
2. Rough-in installation of electrical systems are complete, but not covered.
3. At final completion of the Work of this Section 260400.

C. When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice of such non-compliance, remove the non-complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the Owner.

D. Provide personnel and equipment to perform the following tests and inspections with the assistance of a factory-authorized service representative:
1. Acceptance Testing:
   a. Test insulation resistance for each distribution bus, component, connecting supply, feeder, and control circuit. Open control and metering circuits within the enclosure and remove neutral connection to surge protection and other electronic devices prior to insulation test. Reconnect after test.
   b. Test continuity of each circuit. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Values shall not deviate more than 50 percent of lowest value tested.

c. Test ground-fault protection for service equipment per NFPA 70.
d. Use suitable test instrument to measure resistance to ground system. Test in accordance with test instrument manufacturer's specified fall-of potential method.

2. Tests and Inspections:
a. Perform each visual, accessible bolted electrical connection, mechanical inspection and electrical test for component type stated in NETA Acceptance Testing Specification including Tables. Certify compliance with test parameters.
b. Correct malfunctioning units on-site where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
c. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
d. Prior to energizing motors, verify voltages are within plus or minus 10 percent of nameplate rated voltages at motor.
e. Test each connected motor for proper phase rotation.

E. In the Owner’s Presence:
1. Test all parts of the electrical system and prove that all such items provided under this Section function electrically in the required manner.
2. Measure voltages between phases and between phase wires and neutrals, and report these voltages to the Owner.
3. Immediately submit to the Owner a report of maximum and minimum voltages, and a copy of the recording volt-meter chart.

F. Adjust and set all time clocks in accordance with Owner's instructions.

G. When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice of such non-compliance, remove the non-complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the Owner.

3.17 PROJECT COMPLETION:

A. Upon completion of the Work of this Section, thoroughly clean all exposed portions of the electrical installation, removing all traces of soil, labels, grease, oil, and other foreign material, and using only the type cleaner recommended by the Manufacturer of the item being cleaned.

B. Thoroughly indoctrinate the Owner's operation and maintenance personnel in the contents of the operations and maintenance manual required to be submitted under Article 1.05 of this Section of these Specifications.

END OF SECTION 260400

SECTION 260450 - ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Section 024100 – Minor Demolition for Remodeling.

C. Refer to drawings outlining the scope of work and general conditions and requirements in addition to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of the building electrical distribution system as well as portions of the building telecommunications and data systems, fire alarm systems and security systems. In addition, associated controls, electrical wiring, specialty system interfaces, and other building infrastructure is affected by this work.
2. Patching and repairs to adjacent surfaces and adjoining spaces not specifically included in the demo drawings but affected by the removal of systems and or sub-systems related to or served by systems serving affected areas.
3. Contractor shall provide Temporary Electrical Service and lighting for all trades during course of demolition and construction.
4. Maintain existing fire alarm system in service to include Fire Alarm pull station at all exit egress stairwells and corridors and magnetic door releases for separation of smoke compartments. All smoke detection will be covered during daytime working hours and uncovered by completion of work shift.
5. This section does not include the demolition of asbestos or other hazardous materials identified during the process of demolition of the building and building systems. The Contractor shall notify the Architect and Owner when suspicious materials are identified which might be hazardous and request the Owner to test the identified materials and remove materials if found to be hazardous before the Contractor continues with demolition of the building.

1.3 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

A. **The Owner has exclusive rights to all salvage and shall be asked prior to removal of any salvage item.** Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1. The Owner’s representative shall identify in addition to those items noted on the drawings, any other equipment or materials which he has interest in retaining or salvaging.
2. The Contractor shall review and coordinate with the Owner to identify materials to be salvaged and the location that salvaged materials are to be moved for Owner’s storage.

1.5 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.

B. Inventory of items to be removed and salvaged.

C. Inventory of items to be removed by Owner.

D. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.

E. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."

1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations. Provide temporary electrical services to adjacent areas that might be affected per Owner's directive.

B. Owner assumes no responsibility for actual condition of buildings to be selectively demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
2. Asbestos will be selectively removed by Owner before start of Work.

C. Storage or sale of removed items or materials on-site will not be permitted.

1.8 SCHEDULING

A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

1.9 WARRANTY

A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in Section 01700.

B. Include required temporary equipment to maintain existing electrical power to facility with complete coordination with the Owner's representative for time of work and outages scheduled without disruption to daily operations.

C. Include required temporary materials and equipment to maintain existing fire protection system within area of remodel and construction. Notify Owner and coordinate with Owner's safety personnel times during the work when areas of the existing building are not fully protected by the building fire protection system. A fire watch shall be provided during all hours of building occupancy (24 hours per day, 7 days per week) whenever fire protection system is not fully operational within area of demolition and remodel.

D. Include required temporary materials and equipment to maintain active portions of the building infrastructure systems that must stay in operation during demolition and remodel work to serve adjacent spaces. All temporary work shall be suitable for continued operation even if the proposed remodel work is not completed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Survey existing conditions and correlate with requirements indicated to determine extent of demolition.

B. Coordinate with owner to determine which security system devices such as; cameras, key pads, etc to remove for reuse in remodel phase of contract.

C. Verify that abandoned wiring and equipment serve only abandoned facilities and remove all abandoned wiring from the floor.

D. Demolition Drawings are based on casual non-destructive field observation. Report discrepancies to Owner before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

F. Verify that building systems serving the area of demolition have been disconnected, terminated, and capped to prevent damage to the building or harm to personnel.

G. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

H. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.

I. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.

J. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 BUILDING INFRASTRUCTURE SYSTEMS

A. Maintain existing building infrastructure systems indicated to remain in service and protect them against damage during selective demolition operations.

1. Do not interrupt existing building systems serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions, as acceptable to Owner and to governing authorities.

2. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.

B. Building Systems Requirements: Locate, identify, disconnect, and seal or cap off indicated building infrastructure systems services serving building to be selectively demolished.

1. Owner will arrange to shut off indicated building systems when requested by Contractor.
2. Where building systems are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
3. Remove existing branch systems noted to be demolished back to the active main remaining in service. Cap, valve, or plug and seal, or terminate the remaining portion of pipe or conduit after bypassing.

3.3 PREPARATION

A. Disconnect all electrical systems in walls, floors, and ceilings scheduled for removal. Verify that removal of systems will not impact adjacent areas that are to remain in use.

B. Maintain existing fire alarm system in operation until new system components and devices have been installed and approved by local authorities having jurisdiction.

C. Maintain existing systems serving areas adjacent to area of demolition so as to not affect Owner operations.

D. In the event that it becomes necessary to interrupt electrical systems serving areas adjacent to demolition area, contractor shall notify owner not less than 72 hours prior to shutdown.

E. Provide temporary services during interruptions to existing utilities or building infrastructure, as acceptable to Owner and to governing authorities.

F. Contractor shall inform Owner prior to bid of required upgrading of existing fire alarm system to accept new work and provide line item bid for work.

3.4 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Provide temporary lighting and GFI protected power, during demolition and remodel phases of contract. Utilize existing to be relocated normal power, panelboard feeders for temporary power panels.

B. Verify that removal of branch circuit conductor feeders will not disrupt services in adjacent spaces prior to taking offline for removal. Coordinate any required shutdown with Owner a minimum of 72 hours in advance of shutdown and do not proceed without written acknowledgement from owner. Provide temporary services during shutdown per Owner’s direction.

C. Ensure complete removal of all abandoned conduit and conductors in area of demolition. Remove abandoned conduit, except abandoned conduit above all ceiling finishes within the demo area. Cut conduit flush with walls and floors indicated to remain, and patch surfaces.

D. Remove abandoned wiring to junction box in ceiling and terminate in areas of partial demolition. Tag and identify all circuits that are abandoned in panels that are to remain that are in adjacent areas not specifically covered in these documents or scheduled for demolition. Provide new temporary panel schedule for affected electrical panels indicating all spare circuits.

E. Identify and tag all circuits that are fed from or to adjacent floors or spaces, indicating from where they are fed or where they feed.

F. Repair adjacent construction and finishes damaged during demolition and extension work.

G. Remove completely all abandoned Lighting in all areas of demolition. Identify capacity of existing system feeders and all spare circuits in panels that are to remain.

H. Identify on record drawings the locations of existing panelboard feeders, locations of panelboards in adjacent areas that serve demolition area, and circuits and or locations served by equipment in the demolition area.

I. Provide written report to the Owner, Architect, and Engineer of Record detailing all above required identification requirements.

3.5 DEMOLITION AND EXTENSION OF EXISTING FIRE ALARM, AND SECURITY SYTEMS

A. Do not interrupt existing building fire alarm system serving areas adjacent to demolition area without Owners written approval. Maintain existing fire alarm system devices in service and on floors where work is being done to include maintaining fire alarm manual pull stations at all exit egress stairwells and corridors. Coordinate any interruptions in service with Owner and Authorities Having Jurisdiction a minimum of 72 hours in advance of required shutdown. All smoke detection will be covered during daytime working hours and uncovered by completion of work shift.

B. Verify that removal of branch circuit conductor feeders will not disrupt services in adjacent spaces prior to taking offline for removal.

C. Identify on record drawings all locations of existing fire alarm distribution points, control panels, annuciators, and devices to remain in operation throughout construction.

D. Identify on record drawings the location of all security cameras removed and there model #’s and note what type of cabling is used to interconnect camera system.

E. Provide written report to the Owner, Architect, and Engineer of Record detailing all above required identification requirements.

3.6 DEMOLITION AND EXTENSION OF EXISTING TELECOMMUNICATION DISTRIBUTION SYTEMS

A. Schedule removal of existing MDF closet low-voltage systems with TPS Representative Tim Youngblood prior to Work. Removal shall be done prior to the HVAC systems being turned "OFF". Removal of the existing systems shall be provided by the contractor. Equipment shall be de-commissioned per TPS Standards, removed from service, packaged and returned to Owner in working order.

B. Identify and tag all telecommunications feeders feeding this floor for future use in remodel phase of contract. Identify capacity and number of circuits available for use in remodel phase of contract.

C. Identify all telecommunication feeders that pass-through demolition area that may or may not require relocation during remodel phase of contract. Identify type and style of distribution cable for coordination during remodel phase of project.

D. Identify all telecommunication lines that emanate from areas to be demolished that provide communication to other adjoining floors or spaces.

E. Remove to junction box in ceiling and terminate all abandoned Data, and Telephone, wiring in all areas of demolition.

F. Identify on record drawings all locations of existing telecommunications lines that have been terminated but remain active and those that pass through, stop at, or start in areas of demolition. Identify where Fiber Optic Cable distribution systems pass through areas of demolition and where distribution points are located for future reuse during remodel phase of contract.

G. Provide written report to the Owner, Architect, and Engineer of Record detailing all above required identification requirements.

END OF SECTION 260450

INDEX OF DRAWINGS

TRANSITION ACADEMY AT GRIMES

3212 E 56TH STREET

TULSA PUBLIC SCHOOLS

Tulsa, Oklahoma 74105

TULSA PUBLIC SCHOOLS

TRANSITION ACADEMY AT GRIMES

3212 E 56TH STREET

TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE

TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE

COVER SHEET

DATE: 07/23/2024

SHEET NO.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES.
2. CONTRACTORS ARE RESPONSIBLE FOR REVIEWING ALL DRAWINGS, SPECIFICATIONS, AND EXISTING CONDITIONS TO BID AND COMPLETE PROJECT. KEYNOTES ARE TYPICAL FOR ALL SIMILAR LOCATIONS AS KEYNOTES ARE SOMETIMES INADVERTENTLY NOT SHOWN ON ALL DRAWINGS.
3. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY TO PERFORM WORK IDENTIFIED ON PLANS, UNLESS SPECIFICALLY NOTED OTHERWISE.
4. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED BLOCKING FOR SECURE INSTALLATION OF SURFACE MOUNTED EQUIPMENT, FIXTURES, CASEWORK, ETC. ALL BLOCKING SHALL BE FIRE RETARDENT.
5. EMERGENCY MEANS OF EGRESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. ALL DIMENSIONS ARE TO THE FACE OF FINISHED WALLS OR TO THE CENTER-LINE OF WALLS, UNLESS SPECIFICALLY NOTED OTHERWISE. IF ADDITIONAL DIMENSIONS ARE REQUIRED, COORDINATE WITH ARCHITECT. DIMENSIONS SHALL NOT BE DETERMINED BY SCALING DRAWINGS.
7. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL CONSTRUCTION DEBRIS.
8. CONTRACTOR SHALL PROVIDE NECESSARY TEMPORARY BRACING FOR OPENINGS AND WALLS AS NEEDED FOR DEMOLITION.
9. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE DESIGN OF TEMPORARY SHORING OF EXISTING ROOF AND MASONRY WALLS DURING THE WALL DEMOLITION AND NEW LINTEL CONSTRUCTION.

   DURING WELDING OR ANY OTHER CONSTRUCTION ACTIVITY THAT GENERATES SPARKS OR INTENSE HEAT, THE CONTRACTOR SHALL PROVIDE ADEQUATE FIRE PROTECTION TO THE EXISTING STRUCTURE AND CONTENTS.
   AS A MINIMUM:
   -REMOVE COMBUSTIBLE MATERIALS FROM AREAS OF WELDING AND SPARKS.
   -PROVIDE FIREPROOF BLANKETS AND SHIELDS TO CONTAIN SPARKS WHERE COMBUSTIBLE MATERIAL CAN NOT BE REMOVED.
   -PROVIDE A FIRE SAFETY OBSERVER WITH A FIRE EXTINGUISHER DURING WELDING OPERATIONS.

DEMOLITION GENERAL NOTES

A. DASHED LINES INDICATE INTENT OF REMOVAL AND DEMOLITION OF WALLS, DOORS, FIXTURES, AND OTHER ITEMS AS MARKED & NOTED.

B. CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND EXISTING CONDITIONS.

C. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ADJACENT ASSEMBLIES AND SYSTEMS THROUGHOUT CONSTRUCTION. ANY DAMAGE TO SURROUNDING AREAS SHALL BE BROUGHT BACK TO THE ORIGINAL CONDITION OR MATCH THE ADJACENT AREA AT NO ADDITIONAL COST TO THE OWNER.

D. CONTRACTOR SHALL KEEP A SAFE AND PROTECTED MEANS OF EGRESS AT ALL TIMES DURING CONSTRUCTION.

E. REFERENCE THE ARCHITECTURAL DRAWINGS FOR ALL NEW CONSTRUCTION. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL DEMOLITION REQUIRED TO COMPLETE THE INTENT OF THE NEW DESIGN.

F. THE DEMOLITION ITEMS KEYNOTED ARE NOT A COMPREHENSIVE LIST OF ALL ITEMS TO BE REMOVED. THEY ARE STRICTLY TO PROVIDE THE CONTRACTOR WITH A GENERAL OVERVIEW OF THE MAJOR ITEMS TO BE REMOVED AND THEIR LOCATIONS. THE CONTRACTOR SHALL REVIEW ALL DETAILS AND SCHEDULES AND SHALL PROVIDE DEMOLITION OF OTHER ITEMS REQUIRED TO COMPLETE THE PROJECT.

G. ALL FIXTURES, EQUIPMENT, CASEWORK, WIRING DEVICES, ETC. ON ITEMS THAT ARE IDENTIFIED TO BE REMOVED SHALL BE REMOVED WITH THAT ITEM, UNLESS SPECIFICALLY NOTED OTHERWISE.

H. ALL FIXTURES, EQUIPMENT, CASEWORK, WIRING DEVICES, ETC. ON ITEMS THAT ARE IDENTIFIED TO BE REMOVED SHALL BE REMOVED AND ANY DAMAGE TO WALLS, FLOORS, CEILINGS, ETC. AS A RESULT OF THE REMOVAL SHALL BE REPAIRED AS NECESSARY TO MATCH ADJACENT AREAS AT NO ADDITIONAL COST TO THE OWNER.

J. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL ITEMS REMOVED AS PART OF THE PROJECT AND THAT ARE NOT NOTED TO BE RELOCATED OR RETURNED TO OWNER.

K. CONTRACTOR SHALL SWEEP / RAKE SITE AT THE END OF EACH DAY TO LIMIT THE AMOUNT OF DEBRIS LITTERING THE SITE.

FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE GIVEN TO FACE OF FINISH, UNLESS OTHERWISE NOTED. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS OF EXISTING AND NEW CONSTRUCTION.

B. ANY DISCREPANCIES BETWEEN DIMENSIONS IN THE FIELD AND ON THE DRAWINGS SHALL BE REPORTED TO THE ARCHITECT AND/OR OWNER FOR DIRECTION PRIOR TO PROCEEDING WITH CONSTRUCTION. WRITTEN DIMENSIONS GOVERN. ***DO NOT SCALE DRAWINGS.***

C. ALL WALLS EXTENDING TO THE BOTTOM SIDE OF THE CONCRETE SLAB/STRUCTURE ABOVE SHALL HAVE A DEEP LEG, SLIP TRACK AT TOP OF WALL TO ACCOMMODATE 1/2" OF MOVEMENT. FIRE-RATED WALLS SHALL HAVE "FIRE-TRAK" TOP TRACK OR OTHER U.L. APPROVED SLIP TRACK DETAIL.

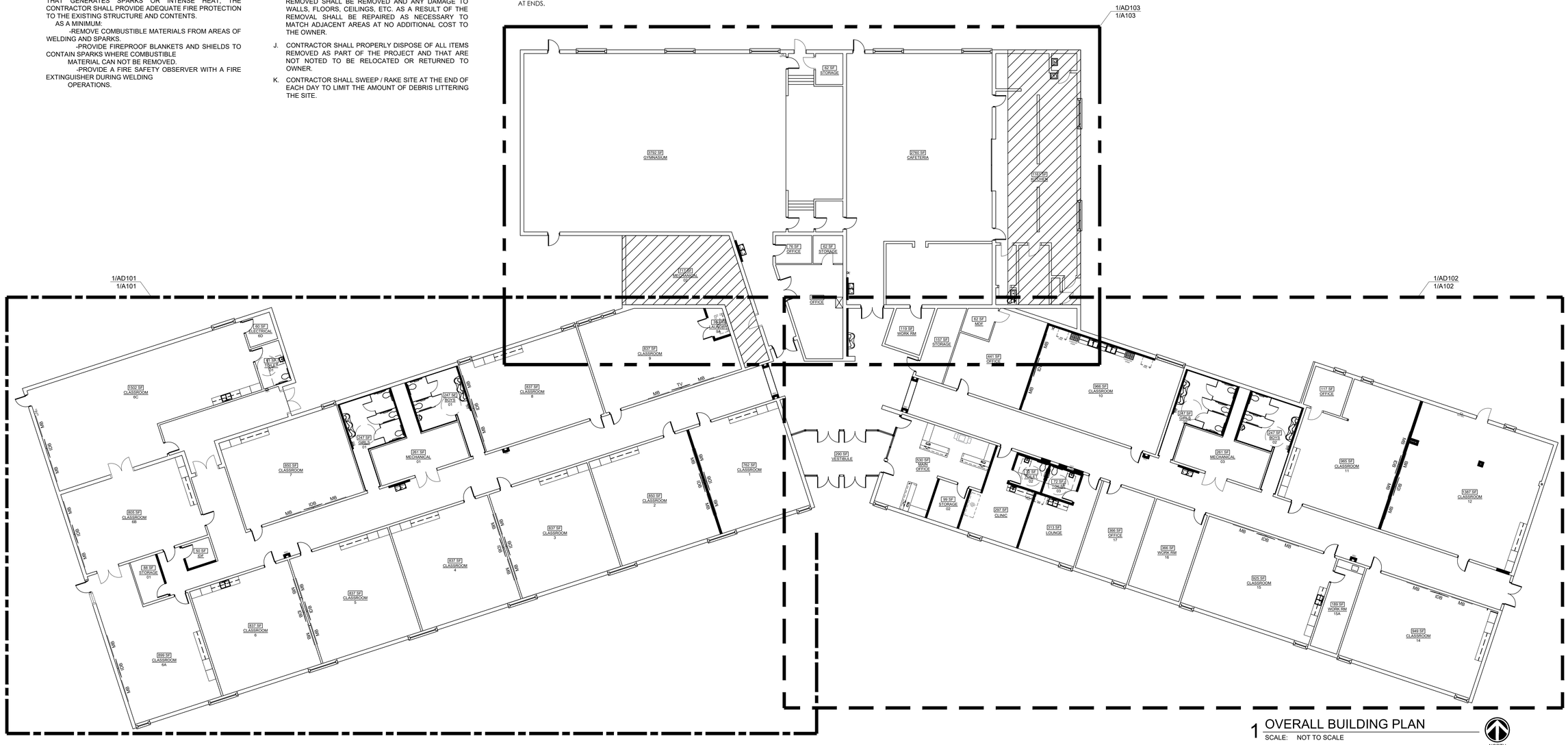
D. ALL PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE SEALED WITH U.L. APPROVED SEALANT JOINT MEETING THE FIRE RATING REQUIREMENT FOR THE WALL. REFER TO SPECIFICATIONS

E. ALL WOOD BLOCKING TO BE FIRE RETARDANT. CONTRACTOR TO COORDINATE LOCATION OF ALL WOOD BLOCKING REQUIRED FOR NEW OR EXISTING CASEWORK, EQUIPMENT, HANDRAILS, ETC.

F. ALL DOORS TO BE LOCATED SO THAT OUTSIDE OF FRAME IS 4" FROM ADJACENT WALL OR CENTERED BETWEEN WALLS UNLESS OTHERWISE NOTED.

G. IN AREAS WITH MILLWORK, THE MILLWORK MUST BE INSTALLED BEFORE THE RUBBER FLOOR BASE IS INSTALLED. MILLWORK IS TO BE INSTALLED ON TOP OF FLOOR COVERING. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FLOOR COVERING & FLOOR BASE AND INSTALL BASE AROUND MILLWORK.

H. PROVIDE L4X3 1/2X¼ STEEL LINTELS AT ALL NEW OPENINGS IN MASONRY WALLS. LINTELS TO EXTEND 5" PAST OPENING AT ENDS.



1 OVERALL BUILDING PLAN
SCALE: NOT TO SCALE

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
OVERALL FLOOR PLAN

DATE: 07/23/2024

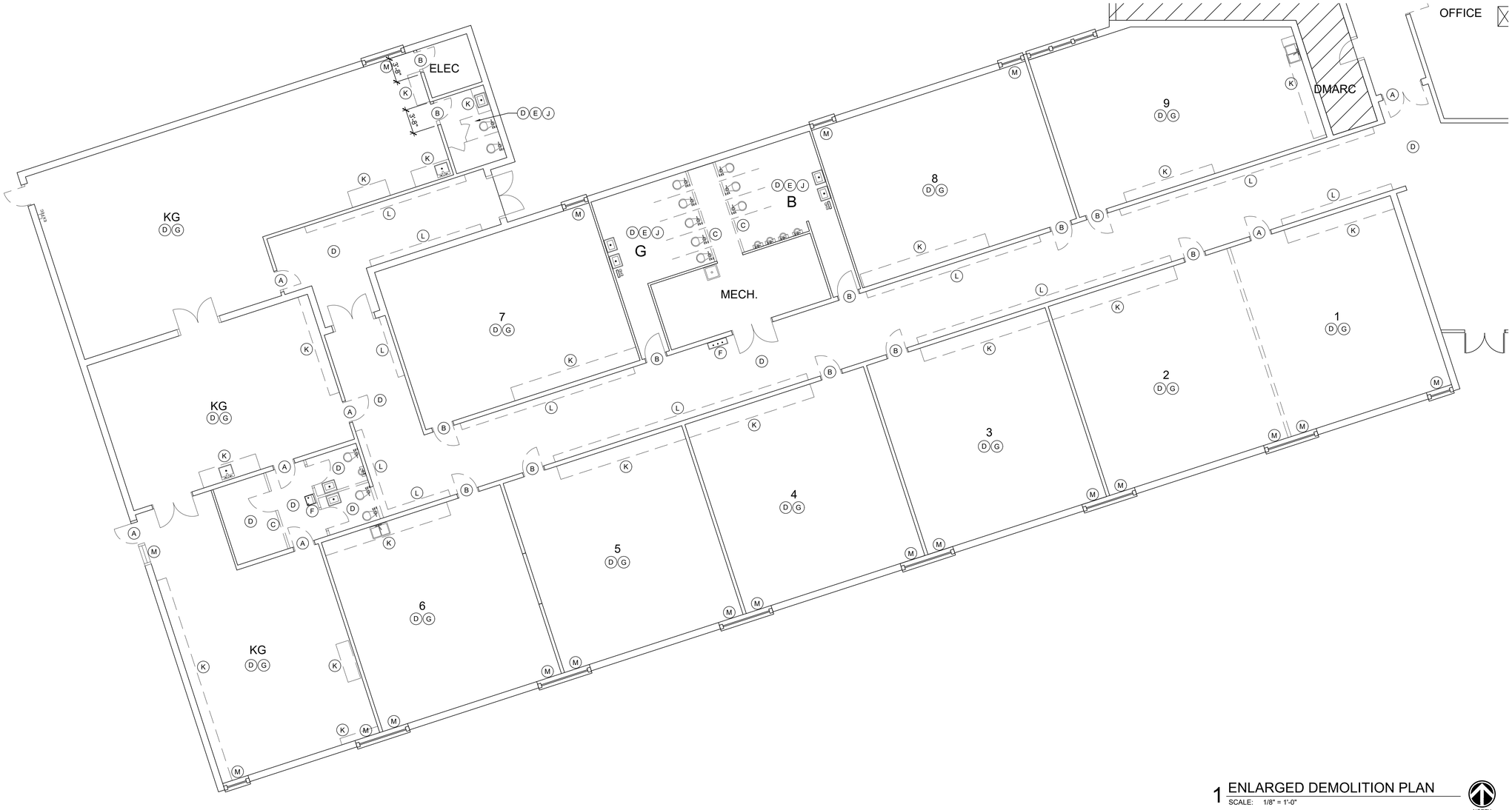
SHEET NO.
A001

DEMOLITION NOTES

1. REMOVE ALL OLD, DAMAGED, OR NON-WORKING TVS, MONITORS, PROJECTOR SCREENS, CLOCKS, & SPEAKERS AND ALL ASSOCIATED COMPONENTS FROM WALLS & CEILINGS.
2. REMOVE ALL ABANDONED CONDUIT FROM WALLS IN ALL REMODELED AREAS
3. REMOVE ALL MINI BLINDS FROM WINDOWS.
4. REMOVE ALL MARKERBOARDS, CHALKBOARDS, TACKBOARDS, CHAIR RAILS AND/OR DISPLAY BOARDS.
5. REMOVE FLOOR COVERING, WALL BASE & FLOOR ADHESIVE IN ROOMS AS NOTED.
6. REMOVE MILLWORK AND SINKS INSTALLED IN MILLWORK IN ROOMS AS NOTED.
7. REMOVE ALL REMAINING UNI-VENTS.
8. ALL DOORS & FRAMES IN DEMOLISHED WALLS ARE TO BE DISPOSED OF, UNLESS NOTED OTHERWISE.
9. REMOVE TACK/MAP RAIL FROM CORRIDOR WALLS.
10. REMOVE ALL EXISTING FLOOR VENTS THROUGHOUT & CAP PRIOR TO INSTALLATION OF NEW FLOORING.
11. REMOVE ALL EXISTING SURFACE MOUNTED DEVICES IN CLASSROOMS TO ALLOW FOR WALLS TO BE FURRED-OUT.
12. REFER TO PLUMBING DRAWINGS FOR EXTENT OF PLUMBING DEMOLITION.
13. REFER TO MECHANICAL DRAWINGS FOR EXTENT OF MECHANICAL DEMOLITION.
14. REFER TO ELECTRICAL DRAWINGS FOR EXTENT OF ELECTRICAL DEMOLITION.

DEMOLITION KEYNOTES

- (A) REMOVE DOOR(S) (HM FRAME TO REMAIN)
- (B) REMOVE DOOR & FRAME
- (C) REMOVE WALL
- (D) REMOVE ENTIRE FLOOR COVERING, ADHESIVE & BASE
- (E) REMOVE TOILET PARTITIONS & ACCESSORIES
- (F) REMOVE DRINKING FOUNTAINS, RE: PLUMBING
- (G) REMOVE CHALKBOARDS & TACK BOARDS FROM ALL WALLS IN ALL CLASSROOMS, TYP
- (H) REMOVE STAGE & STAIRS
- (J) REMOVE EXISTING SINKS &/OR TOILETS, RE: PLUMBING
- (K) REMOVE EXISTING MILLWORK & ALL ASSOCIATED COMPONENTS
- (L) REMOVE LOCKERS & CONCRETE BASES
- (M) REMOVE WINDOW BLINDS



1 ENLARGED DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL DEMOLITION PLAN

DATE: 07/23/2024

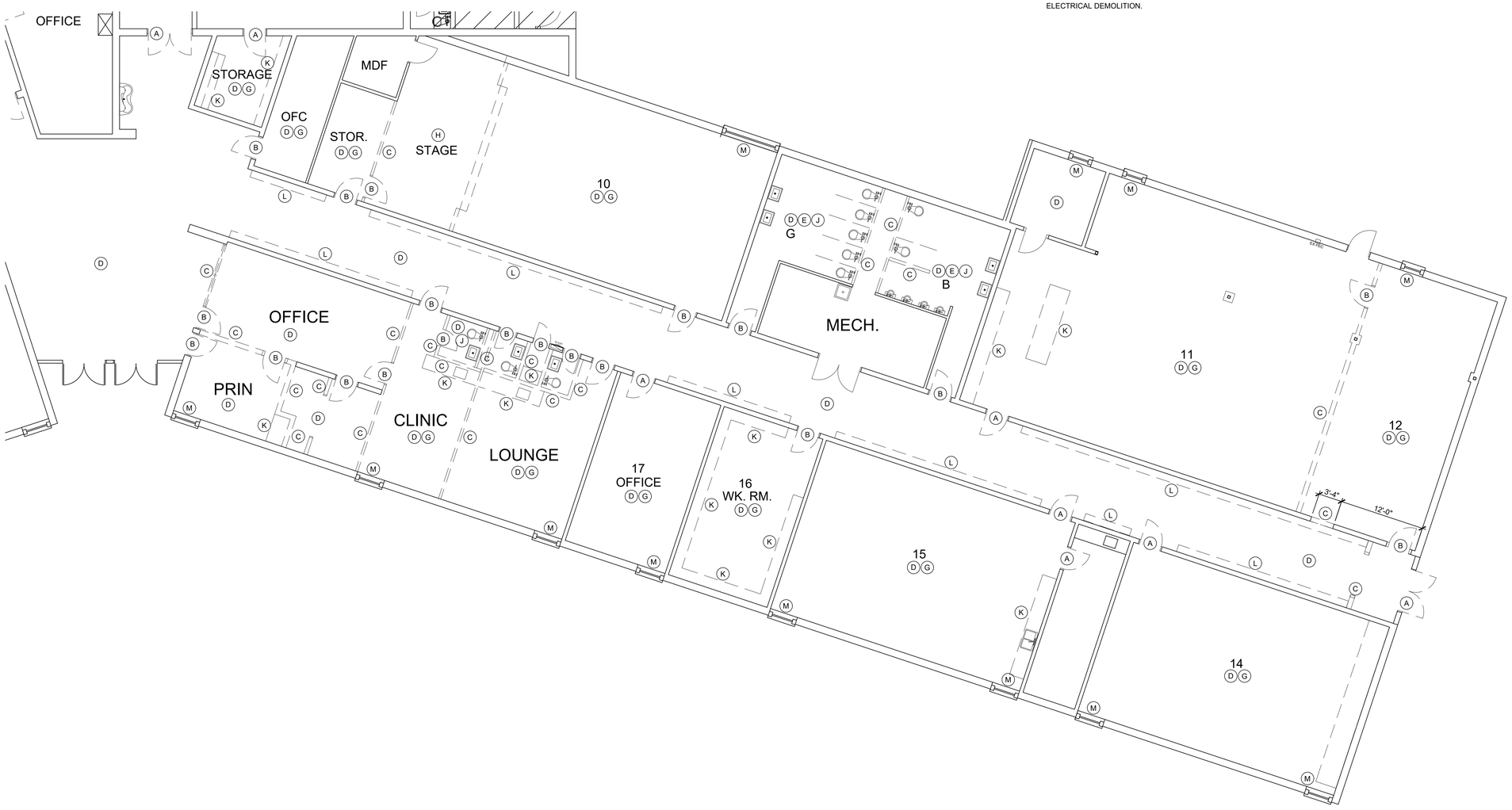
SHEET NO.
AD101

DEMOLITION NOTES

1. REMOVE ALL OLD, DAMAGED, OR NON-WORKING TVS, MONITORS, PROJECTOR SCREENS, CLOCKS, & SPEAKERS AND ALL ASSOCIATED COMPONENTS FROM WALLS & CEILINGS.
2. REMOVE ALL ABANDONED CONDUIT FROM WALLS IN ALL REMODELED AREAS
3. REMOVE ALL MINI BLINDS FROM WINDOWS.
4. REMOVE ALL MARKERBOARDS, CHALKBOARDS, TACKBOARDS, CHAIR RAILS AND/OR DISPLAY BOARDS.
5. REMOVE FLOOR COVERING, WALL BASE & FLOOR ADHESIVE IN ROOMS AS NOTED.
6. REMOVE MILLWORK AND SINKS INSTALLED IN MILLWORK IN ROOMS AS NOTED.
7. REMOVE ALL REMAINING UNI-VENTS.
8. ALL DOORS & FRAMES IN DEMOLISHED WALLS ARE TO BE DISPOSED OF, UNLESS NOTED OTHERWISE.
9. REMOVE TACK/MAP RAIL FROM CORRIDOR WALLS.
10. REMOVE ALL EXISTING FLOOR VENTS THROUGHOUT & CAP PRIOR TO INSTALLATION OF NEW FLOORING.
11. REMOVE ALL EXISTING SURFACE MOUNTED DEVICES IN CLASSROOMS TO ALLOW FOR WALLS TO BE FURRED-OUT.
12. REFER TO PLUMBING DRAWINGS FOR EXTENT OF PLUMBING DEMOLITION.
13. REFER TO MECHANICAL DRAWINGS FOR EXTENT OF MECHANICAL DEMOLITION.
14. REFER TO ELECTRICAL DRAWINGS FOR EXTENT OF ELECTRICAL DEMOLITION.

DEMOLITION KEYNOTES

- (A) REMOVE DOOR(S) (HM FRAME TO REMAIN)
- (B) REMOVE DOOR & FRAME
- (C) REMOVE WALL
- (D) REMOVE ENTIRE FLOOR COVERING, ADHESIVE & BASE
- (E) REMOVE TOILET PARTITIONS & ACCESSORIES
- (F) REMOVE DRINKING FOUNTAINS, RE: PLUMBING
- (G) REMOVE CHALKBOARDS & TACK BOARDS FROM ALL WALLS IN ALL CLASSROOMS, TYP
- (H) REMOVE STAGE & STAIRS
- (J) REMOVE EXISTING SINKS &/OR TOILETS, RE: PLUMBING
- (K) REMOVE EXISTING MILLWORK & ALL ASSOCIATED COMPONENTS
- (L) REMOVE LOCKERS & CONCRETE BASES
- (M) REMOVE WINDOW BLINDS



1 ENLARGED DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL DEMOLITION PLAN

DATE: 07/23/2024

SHEET NO.
AD102

DEMOLITION NOTES

1. REMOVE ALL OLD, DAMAGED, OR NON-WORKING TVS, MONITORS, PROJECTOR SCREENS, CLOCKS, & SPEAKERS AND ALL ASSOCIATED COMPONENTS FROM WALLS & CEILINGS.
2. REMOVE ALL ABANDONED CONDUIT FROM WALLS IN ALL REMODELED AREAS
3. REMOVE ALL MINI BLINDS FROM WINDOWS.
4. REMOVE ALL MARKERBOARDS, CHALKBOARDS, TACKBOARDS, CHAIR RAILS AND/OR DISPLAY BOARDS.
5. REMOVE FLOOR COVERING, WALL BASE & FLOOR ADHESIVE IN ROOMS AS NOTED.
6. REMOVE MILLWORK AND SINKS INSTALLED IN MILLWORK IN ROOMS AS NOTED.
7. REMOVE ALL REMAINING UNI-VENTS.
8. ALL DOORS & FRAMES IN DEMOLISHED WALLS ARE TO BE DISPOSED OF, UNLESS NOTED OTHERWISE.
9. REMOVE TACK/MAP RAIL FROM CORRIDOR WALLS.
10. REMOVE ALL EXISTING FLOOR VENTS THROUGHOUT & CAP PRIOR TO INSTALLATION OF NEW FLOORING.
11. REMOVE ALL EXISTING SURFACE MOUNTED DEVICES IN CLASSROOMS TO ALLOW FOR WALLS TO BE FURRED-OUT.
12. REFER TO PLUMBING DRAWINGS FOR EXTENT OF PLUMBING DEMOLITION.
13. REFER TO MECHANICAL DRAWINGS FOR EXTENT OF MECHANICAL DEMOLITION.
14. REFER TO ELECTRICAL DRAWINGS FOR EXTENT OF ELECTRICAL DEMOLITION.

DEMOLITION KEYNOTES

- (A) REMOVE DOOR(S) (HM FRAME TO REMAIN)
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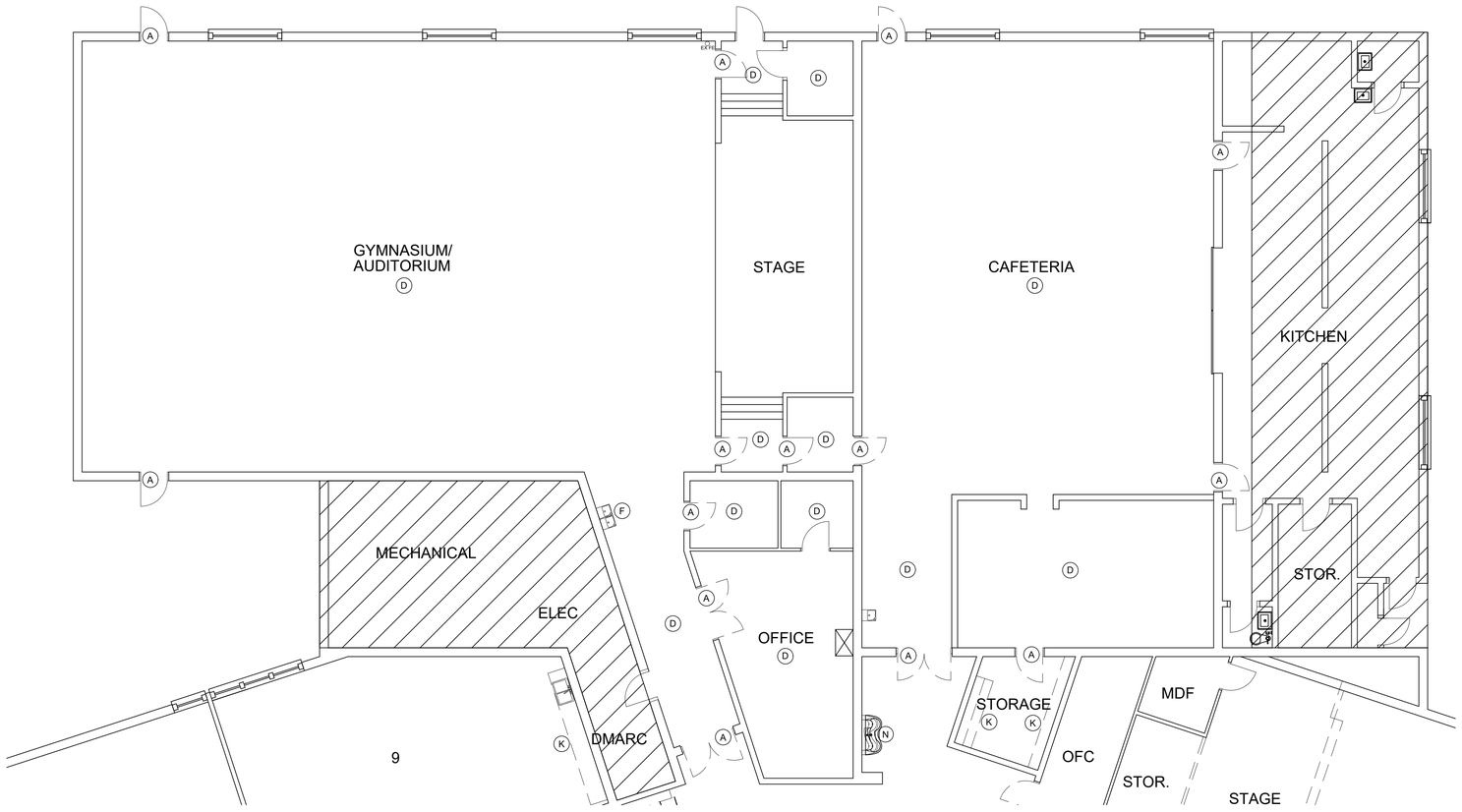
- (D) REMOVE ENTIRE FLOOR COVERING, ADHESIVE & BASE
- (E) REMOVE TOILET PARTITIONS & ACCESSORIES
- (F) REMOVE DRINKING FOUNTAINS, RE: PLUMBING
- (G) REMOVE CHALKBOARDS & TACK BOARDS FROM ALL WALLS IN ALL CLASSROOMS, TYP
- (H) REMOVE STAGE & STAIRS
- (J) REMOVE EXISTING SINKS &/OR TOILETS, RE: PLUMBING
- (K) REMOVE EXISTING MILLWORK & ALL ASSOCIATED COMPONENTS
- (L) REMOVE LOCKERS & CONCRETE BASES
- (M) REMOVE WINDOW BLINDS
- (N) REMOVE HANDWASHING STATION - SALVAGE FOR REINSTALLATION



1 ENLARGED DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL DEMOLITION PLAN

DATE: 07/23/2024

SHEET NO.
AD103

FLOOR PLAN NOTES:

1. INFILL/REPAIR EXTERIOR WALL AT ALL LOCATIONS WHERE HVAC UNITS HAVE BEEN REMOVED.
2. REPAIR ADJACENT WALLS TO REMAIN AS NECESSARY WHERE ALL DEMOLITION OCCURS. MATCH EXISTING CONDITIONS.
3. PATCH AND REPAIR FLOOR AND WALL BASE AS NECESSARY WHERE ANY DEMOLITION OCCURS. FLOOR AND WALL BASE TO MATCH EXISTING.
4. PATCH AND REPAIR DAMAGE TO WALL AND FLOOR WHERE RADIANT HEATERS/UNIVENTS HAVE BEEN REMOVED. PATCH EXTERIOR WALL WITH CMU INFILL. LEVEL FLOORS & COVER WITH SIMILAR FLOOR COVERING WHERE FLOORS ARE TO REMAIN. INSTALL NEW FLOOR COVERING AS SHOWN.
5. REPAIR ALL WALLS, CEILINGS, AND FLOORS WHERE EXISTING MILLWORK AND/OR OTHER EXISTING ATTACHED ITEMS HAVE BEEN REMOVED AND/OR WHERE EXISTING WALLS, CEILINGS, & FLOORS ARE CRACKED OR DAMAGED.
6. INSTALL DUCT BOARD WHERE EXISTING FLOOR GRILLES ARE REMOVED. INFILL OPENING WITH 6" MINIMUM CONCRETE. CONCRETE TO BE FLUSH WITH EXISTING FLOOR.
7. SKIM COAT & LEVEL ALL FLOORS PRIOR TO NEW FLOORING INSTALLATION
8. INFILL RECESSES AT ALL OLD WALK OFF MATS. INFILL TO BE LEVEL WITH ADJACENT FLOOR. PREPARE FOR NEW FLOORING.
9. INSTALL RUBBER BASE IN ALL ROOMS TO RECEIVE VET, LVT OR CARPET
10. ALL MULTI-STALL RESTROOMS TO HAVE VINYL FLOORS WITH 4" INTEGRAL BASE, UNLESS NOTED OTHERWISE
11. ALL CORRIDOR CMU WALLS TO BE FURRRED OUT WITH 2 $\frac{1}{2}$" METAL STUDS @ 16" O.C.TO 6" ABOVE CEILING WITH $\frac{5}{8}$" GYP BD, PAINTED.
12. PAINT ALL WALLS IN CORRIDORS, CLASSROOMS, RESTROOMS, & ALL OTHER REMODELED AREAS. ALL DOOR FRAMES TO BE PAINTED. ALL GYP BD CEILINGS TO BE PAINTED THROUGHOUT.
13. NEW PLUMBING WALLS IN MULTIPLE STALL RESTROOMS TO BE WATER-RESISTANT GYP BD TO DECK WITH WALL TILE & EPOXY PAINT ABOVE, RE: INTERIOR ELEVATIONS FOR TILE PATTERN.
14. **ALL** MULTIPLE STALL RESTROOM WALLS, WHETHER NEW OR EXISTING, TO RECEIVE WALL TILE WITH EPOXY PAINT ABOVE, RE: INTERIOR ELEVATIONS FOR TILE PATTERN. PREPARE AND/OR FLOAT EXISTING WALLS AS NECESSARY TO RECEIVE NEW TILE.
15. NEW ACCESSORIES TO BE INSTALLED IN ALL REMODELED RESTROOMS.
16. INSTALL ROLLER SHADES AT ALL WINDOWS.
17. ALL EXISTING FRAMES TO REMAIN TO HAVE HOLES PATCHED/BONDO AND BE PREPARED FOR NEW DOORS, PAINT
18. INSTALL HARD LID CEILINGS IN RESTROOMS, UNLESS NOTED OTHERWISE.
19. 4'-0" HIGH WALL PROTECTION TO BE INSTALLED ON ALL GYP BD WALLS IN CLINIC, CORRIDORS, AND CAFETERIA.
20. 6'-0" HIGH CORNER GUARDS TO BE INSTALLED AT **ALL EXPOSED GYP BOARD CORNERS**, WHETHER SHOWN @ ALL LOCATIONS ON DRAWINGS OR NOT. STAINLESS CORNER GUARDS TO BE INSTALLED AT RESTROOM CASED OPENINGS.
21. INSTALL 4'-0" x 8'-0" **SOLID PLYWOOD SHEETS** BACKING FOR ALL UPPER CABINETS AND INTERACTIVE BOARDS.
22. REFER TO MEP DRAWINGS FOR EXTENT OF PLUMBING, ELECTRICAL, & MECHANICAL WORK

FLOOR PLAN LEGEND

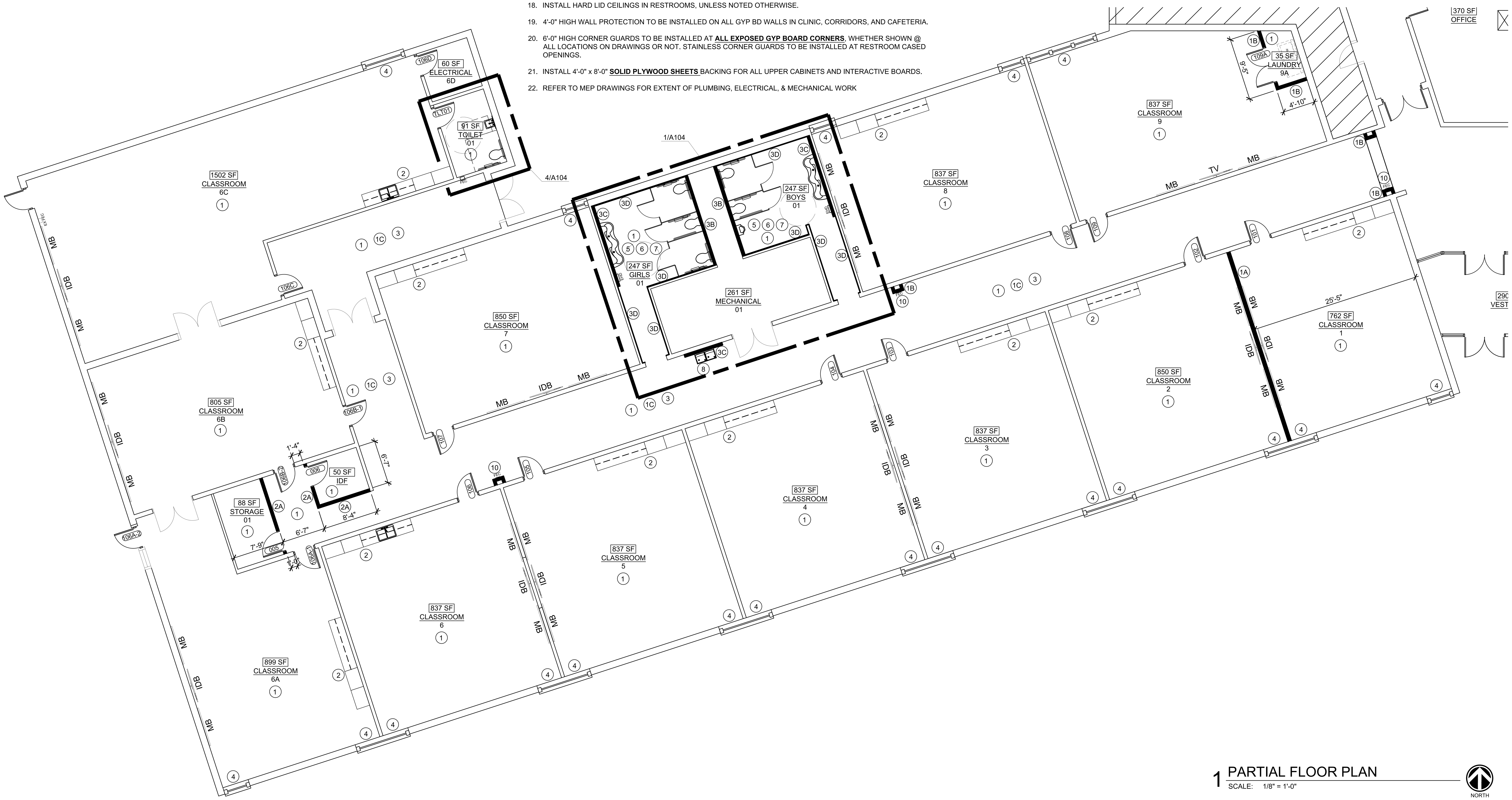
- NEW WALL
- NEW DOOR, REFER TO DOOR SCHEDULE
- (XX) KEYNOTE

FLOOR PLAN KEYNOTES

1. LVT/VINYL FLOORING
2. NEW MILLWORK UNIT
3. WALL PROTECTION
4. NEW WINDOW SHADES
5. NEW TOILET PARTITIONS
6. NEW TOILET ACCESSORIES
7. NEW PLUMBING FIXTURES, RE: PLUMBING
8. NEW ADA DRINKING FOUNTAINS, ONE WITH ELECTRIC BOTTLE FILLER AT LOCATIONS WITH MULTIPLE DRINKING FOUNTAINS. RE: PLUMBING
9. WALK-OFF CARPET
10. FIRE EXTINGUISHER CABINET

WALL TYPES

- (1A) $\frac{5}{8}$" GYP BD ON 3 $\frac{5}{8}$" METAL STUDS @ 16" O.C. TO DECK WITH SOUND BATT INSULATION, PAINT.
- (1B) $\frac{5}{8}$" GYP BD ON 3 $\frac{5}{8}$" METAL STUDS @ 16" O.C. TO 6" ABOVE CEILING, PAINT.
- (1C) $\frac{5}{8}$" GYP BD ON 2 $\frac{1}{2}$" METAL STUDS @ 16" O.C. TO 6" ABOVE CEILING, PAINT
- (2A) 1-HR RATED $\frac{5}{8}$" GYP BD ON 3 $\frac{5}{8}$" METAL STUDS @ 16" O.C. TO DECK WITH SOUND BATT INSULATION, PAINT.
- (3A) WATER RESISTANT GYP BD ON 3 $\frac{5}{8}$" METAL STUDS @ 16" O.C. TO DECK WITH WALL TILE TO 7'-0" AFF
- (3B) WATER RESISTANT GYP BD ON 6" METAL STUDS @ 16" O.C. TO DECK WITH WALL TILE TO 7'-0" AFF
- (3C) WATER RESISTANT GYP BD ON 3 $\frac{5}{8}$" METAL STUDS @ 16" O.C. TO 6" ABOVE CEILING WITH WALL TILE TO 7'-0" AFF
- (3D) $\frac{5}{8}$" WATER-RESISTANT GYP BD ON FURRING CHANNELS TO 6" ABOVE ADJACENT CEILING WITH WALL TILE TO 7'-0" AFF
- (4A) INFILL OPENING WITH METAL STUDS & GYP BOARD



1 PARTIAL FLOOR PLAN
SCALE: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

07/23/2024

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL FLOOR PLAN

DATE: 07/23/2024

SHEET NO.
A101

FLOOR PLAN NOTES:

1. INFILL/REPAIR EXTERIOR WALL AT ALL LOCATIONS WHERE HVAC UNITS HAVE BEEN REMOVED.
2. REPAIR ADJACENT WALLS TO REMAIN AS NECESSARY WHERE ALL DEMOLITION OCCURS. MATCH EXISTING CONDITIONS.
3. PATCH AND REPAIR FLOOR AND WALL BASE AS NECESSARY WHERE ANY DEMOLITION OCCURS. FLOOR AND WALL BASE TO MATCH EXISTING.
4. PATCH AND REPAIR DAMAGE TO WALL AND FLOOR WHERE RADIANT HEATERS/UNIVENTS HAVE BEEN REMOVED. PATCH EXTERIOR WALL WITH CMU INFILL. LEVEL FLOORS & COVER WITH SIMILAR FLOOR COVERING WHERE FLOORS ARE TO REMAIN. INSTALL NEW FLOOR COVERING AS SHOWN.
5. REPAIR ALL WALLS, CEILINGS, AND FLOORS WHERE EXISTING MILLWORK AND/OR OTHER EXISTING ATTACHED ITEMS HAVE BEEN REMOVED AND/OR WHERE EXISTING WALLS, CEILINGS, & FLOORS ARE CRACKED OR DAMAGED.
6. INSTALL DUCT BOARD WHERE EXISTING FLOOR GRILLES ARE REMOVED. INFILL OPENING WITH 6" MINIMUM CONCRETE. CONCRETE TO BE FLUSH WITH EXISTING FLOOR.
7. SKIM COAT & LEVEL ALL FLOORS PRIOR TO NEW FLOORING INSTALLATION
8. INFILL RECESSES AT ALL OLD WALK OFF MATS. INFILL TO BE LEVEL WITH ADJACENT FLOOR. PREPARE FOR NEW FLOORING.
9. INSTALL RUBBER BASE IN ALL ROOMS TO RECEIVE VET, LVT OR CARPET
10. ALL MULTI-STALL RESTROOMS TO HAVE VINYL FLOORS WITH 4" INTEGRAL BASE, UNLESS NOTED OTHERWISE
11. ALL CORRIDOR CMU WALLS TO BE FURRED OUT WITH 2 1/2" METAL STUDS @ 16" O.C.TO 6" ABOVE CEILING WITH 5/8" GYP BD, PAINTED.
12. PAINT ALL WALLS IN CORRIDORS, CLASSROOMS, RESTROOMS, & ALL OTHER REMODELED AREAS. ALL DOOR FRAMES TO BE PAINTED. ALL GYP BD CEILINGS TO BE PAINTED THROUGHOUT.
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22. REFER TO MEP DRAWINGS FOR EXTENT OF PLUMBING, ELECTRICAL, & MECHANICAL WORK

FLOOR PLAN LEGEND

- NEW WALL
- NEW DOOR, REFER TO DOOR SCHEDULE
- (XX) KEYNOTE

FLOOR PLAN KEYNOTES

1. LVT/VINYL FLOORING
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3. WALL PROTECTION
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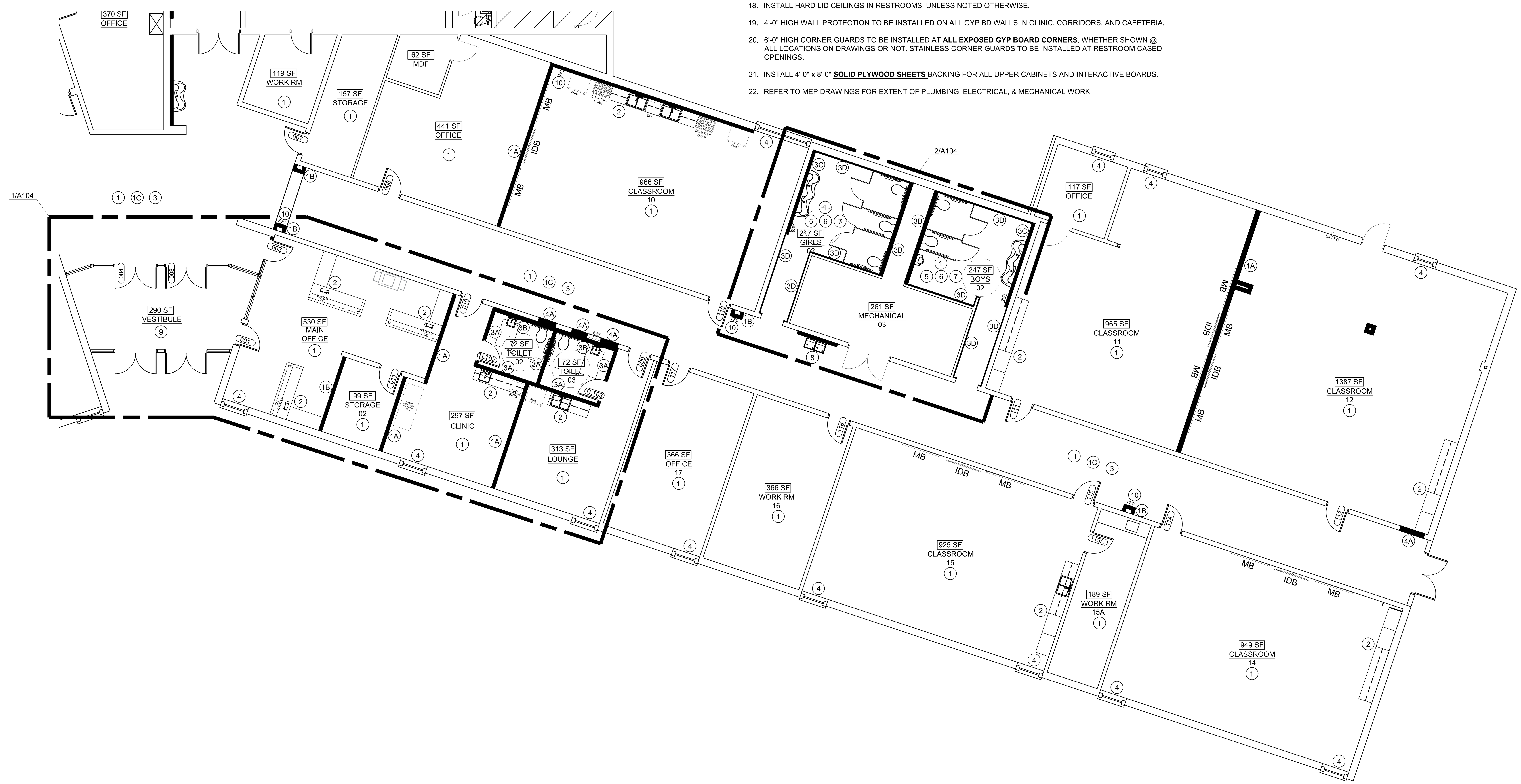

1 PARTIAL FLOOR PLAN
SCALE: 1/8" = 1'-0"
NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL FLOOR PLAN

DATE: 07/23/2024

SHEET NO.
A102

FLOOR PLAN NOTES:

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FLOOR PLAN KEYNOTES

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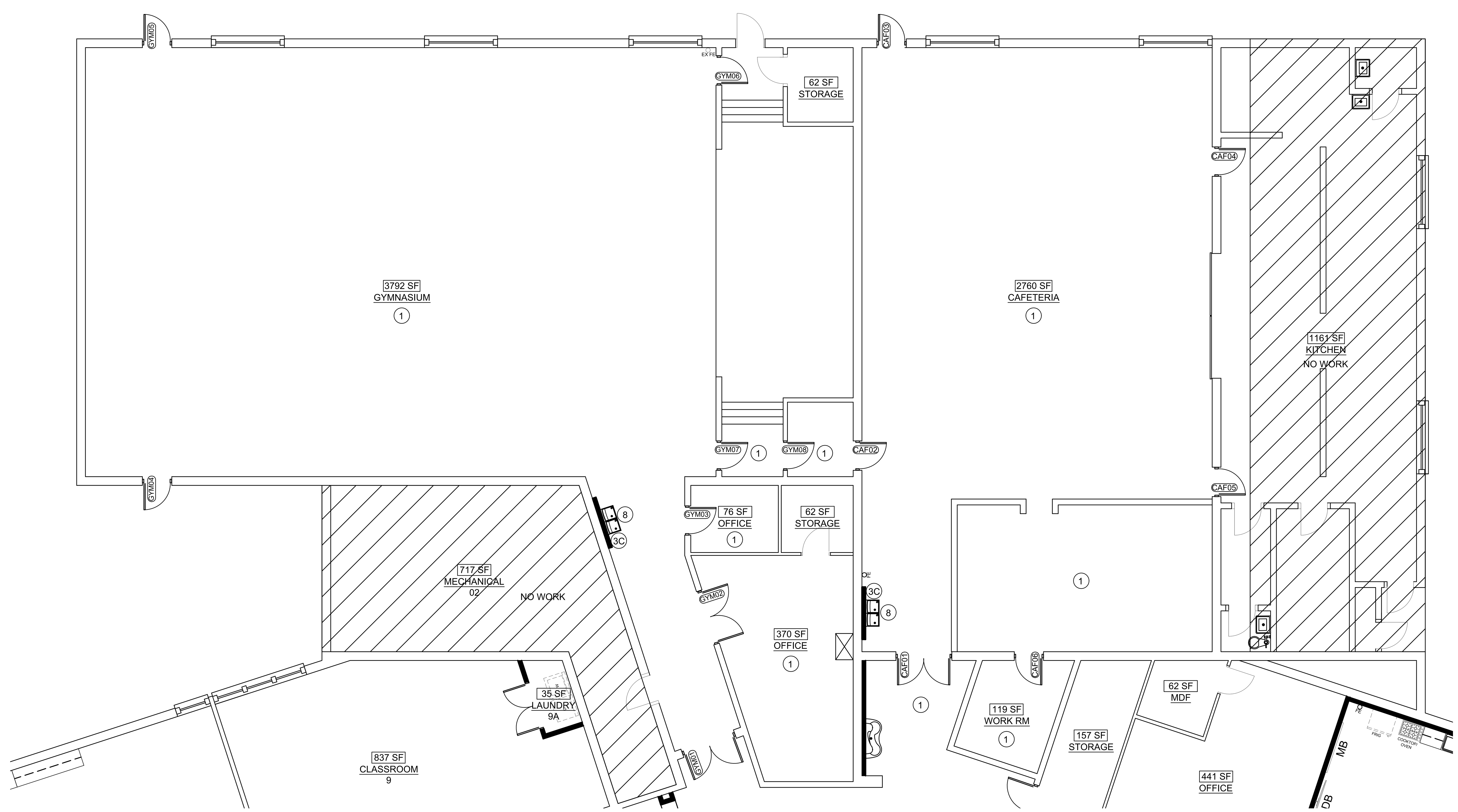
- (4A) INFILL OPENING WITH METAL STUDS & GYP BOARD



1 PARTIAL FLOOR PLAN
SCALE: 1/8" = 1'-0"
NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

07/23/2024

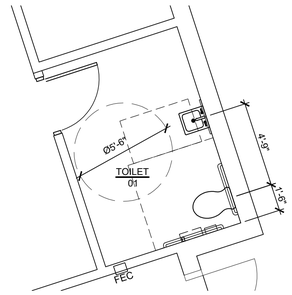
PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PARTIAL FLOOR PLAN

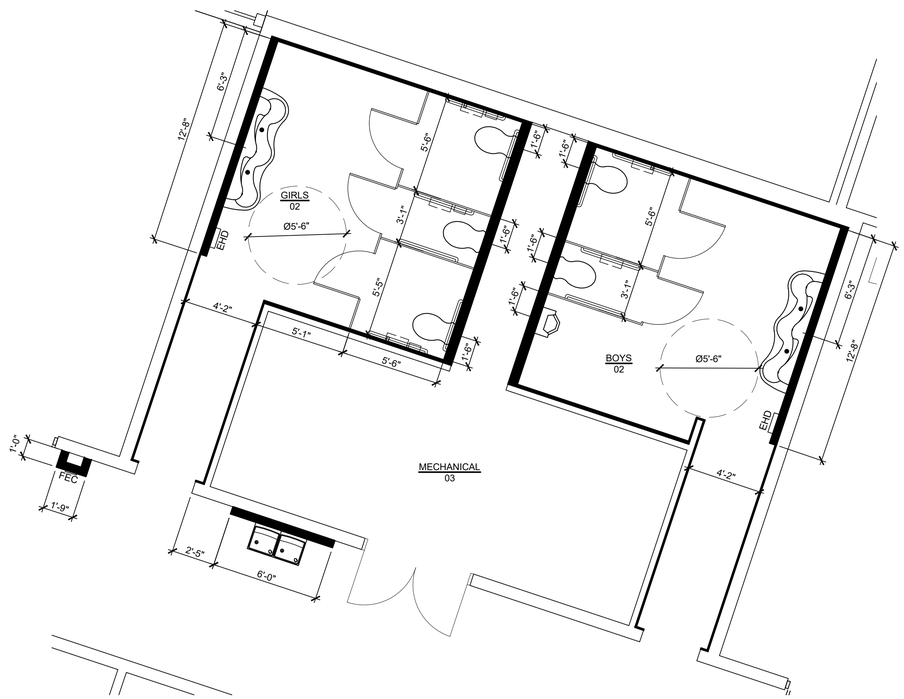
DATE: 07/23/2024

SHEET NO.
A103

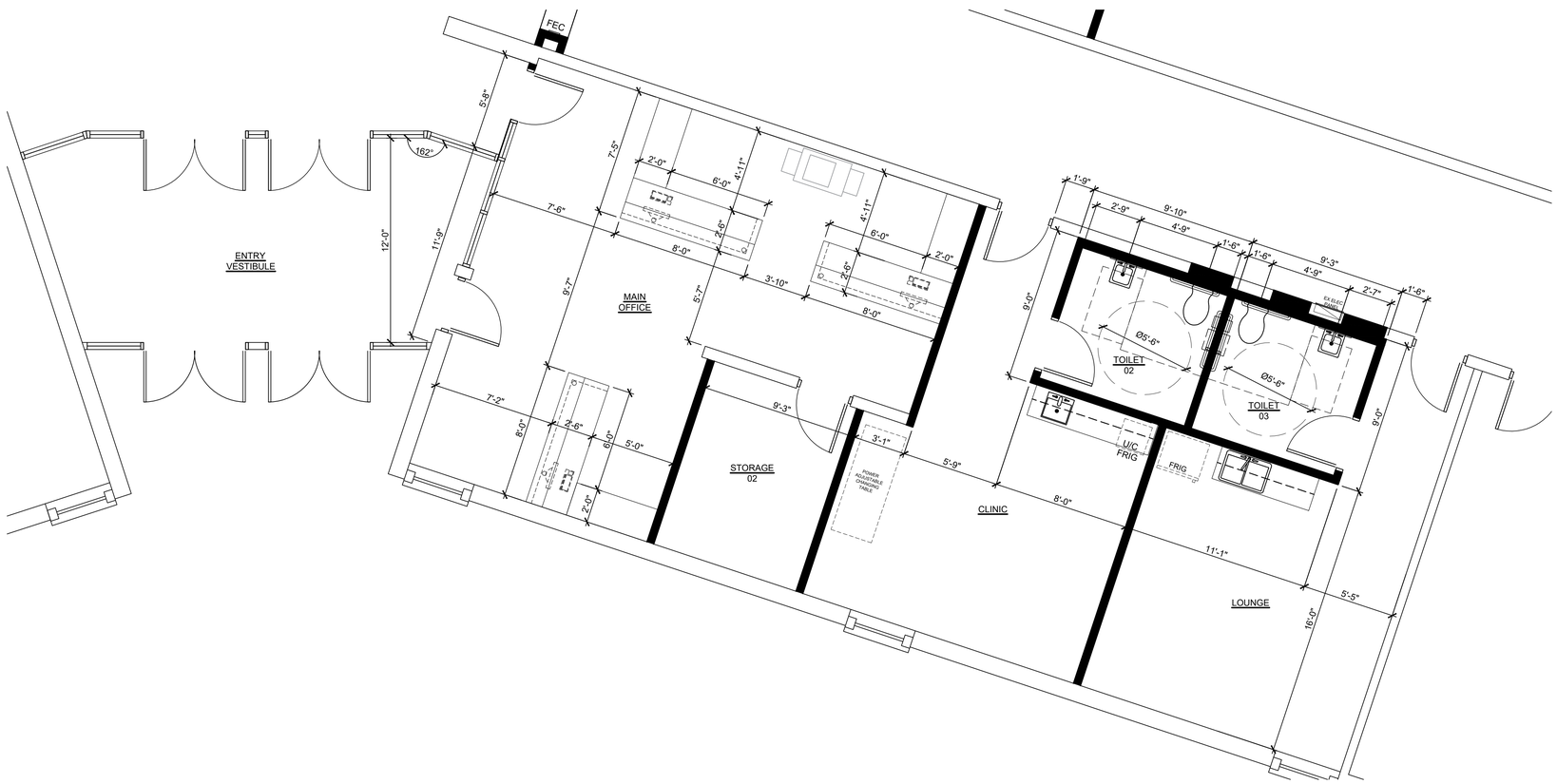


4 ENLARGED RESTROOM PLAN
SCALE: 1/4" = 1'-0"

3 ENLARGED RESTROOM PLAN
SCALE: 1/4" = 1'-0"



2 ENLARGED RESTROOM PLAN
SCALE: 1/4" = 1'-0"



1 ENLARGED OFFICE AREA PLAN
SCALE: 1/4" = 1'-0"

TULSA PUBLIC SCHOOLS

TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

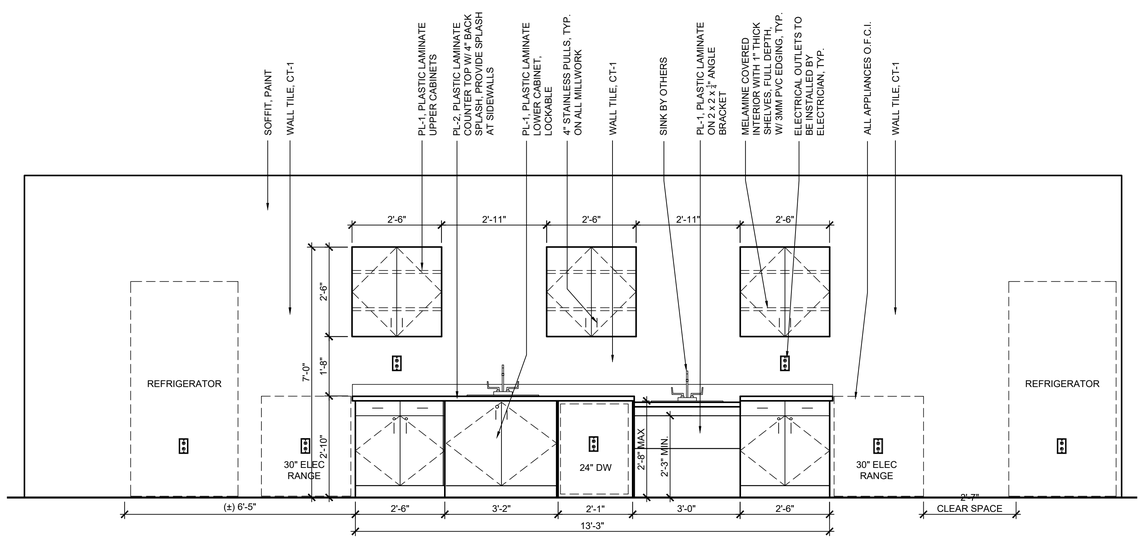
SHEET TITLE
ENLARGED FLOOR PLANS

DATE: 07/23/2024

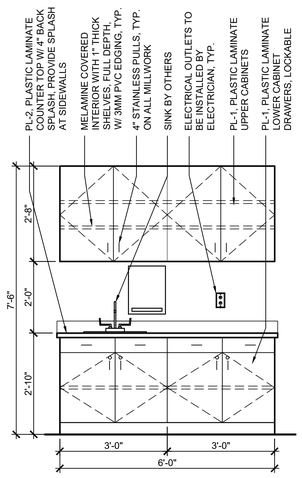
SHEET NO.
A104

MILLWORK FINISHES		
MARK	DESCRIPTION	
PL-1	PLASTIC LAMINATE	WILSONART 7984-38 MANGALORE MANGO
PL-2	PLASTIC LAMINATE	WILSONART 4783-60 WHITE TIGRIS

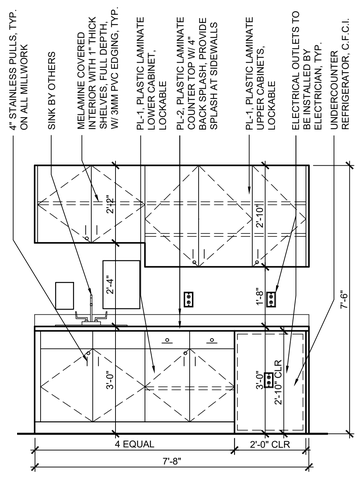
MILLWORK NOTES:
1. KEY ALL LOCKS IN EACH ROOM ALIKE
2. ALL MILLWORK IN NURSE'S OFFICE TO BE LOCKABLE
3. LOCKS TO BE INSTALLED AS SHOWN ON ELEVATIONS



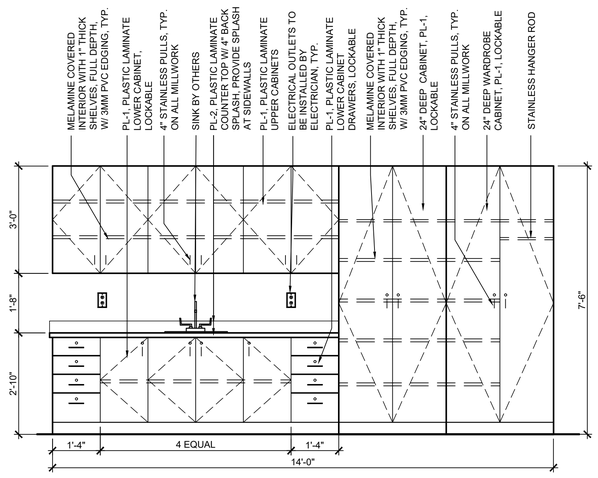
5 MILLWORK ELEVATION - HOME EC
SCALE: 1/2" = 1'-0"



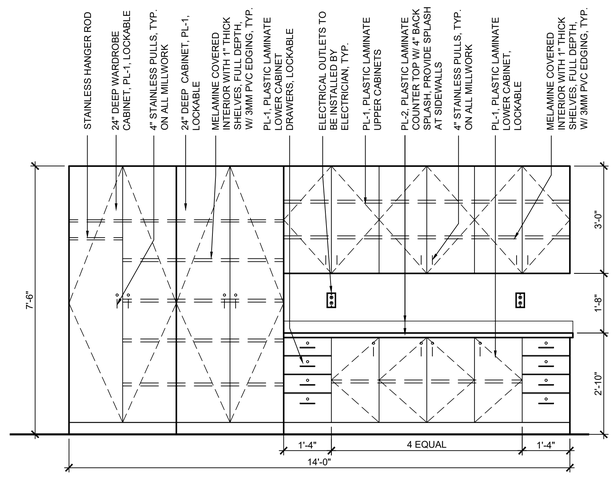
4 MILLWORK ELEVATION
SCALE: 1/2" = 1'-0"



3 MILLWORK ELEVATION - CLINIC
SCALE: 1/2" = 1'-0"



2 MILLWORK ELEVATION - WORKROOM
SCALE: 1/2" = 1'-0"



1 MILLWORK ELEVATION - TYP. CR
SCALE: 1/2" = 1'-0"

TULSA PUBLIC SCHOOLS

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TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

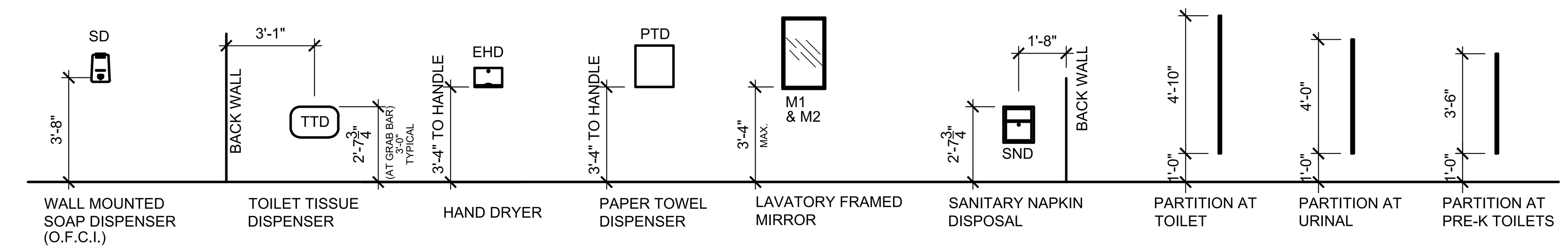
SHEET TITLE
MILLWORK ELEVATIONS

DATE: 07/23/2024

SHEET NO.
A411

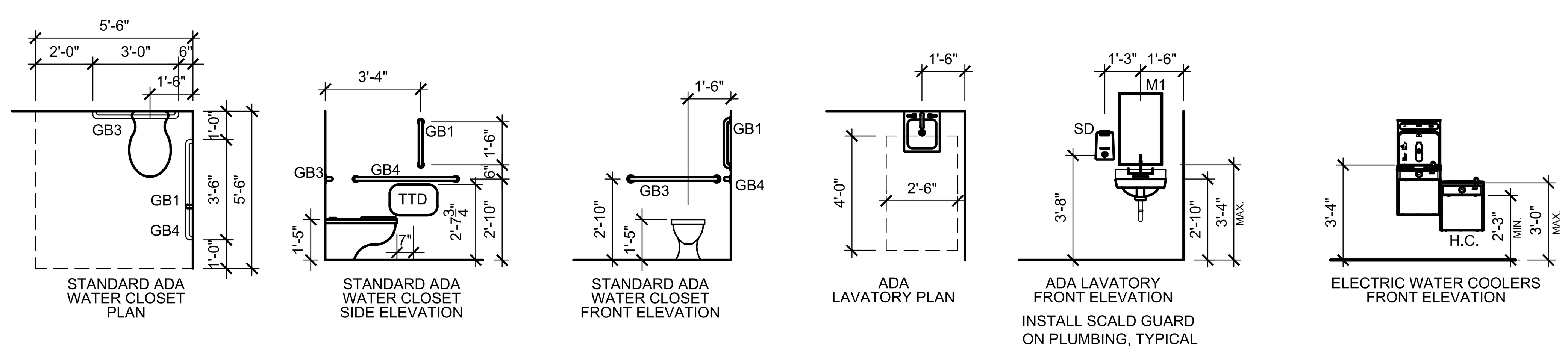
SPECIALTIES SCHEDULE

MARK	DESCRIPTION	MFGR.		(W X H X D) DIMENSIONS	MOUNTING	FINISH	(CFCI, U.N.O.) REMARKS
GB1	GRAB BAR 1 1/2" DIA.	RE: SPECIFICATIONS		18" VERTICAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	C.F.C.I.
GB3	GRAB BAR 1 1/2" DIA.	RE: SPECIFICATIONS		36" HORIZONTAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	C.F.C.I.
GB4	GRAB BAR 1 1/2" DIA.	RE: SPECIFICATIONS		42" HORIZONTAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	C.F.C.I.
M1	MIRROR W/ ANGLE FRAME	RE: SPECIFICATIONS		18" x 30"	1 & 2/A9.1	S.S. W/ SATIN FINISH	C.F.C.I.
SD	SOAP DISPENSER	(O.F.C.I.)		-	1 & 2/A9.1		O.F.C.I.
						-	
EHD	ELECTRIC HAND DRYER	RE: SPECIFICATIONS			1 & 2/A9.1	STAINLESS STEEL	C.F.C.I.
TTD	TOILET TISSUE DISPENSER	RE: SPECIFICATIONS		20"W x 13"H	1 & 2/A9.1	CHROME	C.F.C.I.
TS	TACK STRIP 6' LONG (IN CORRIDORS ABOVE LOCKERS)	RE: SPECIFICATIONS		72" W x 14" H			QTY: 0 C.F.C.I.
TB6	TACK BOARD 6' LONG	RE: SPECIFICATIONS		72" W x 48" H			QTY: 20 C.F.C.I.
MB6	MARKER BOARD 6' LONG	RE: SPECIFICATIONS		72" W x 48" H		WHITE W/ ALUM. TRIM	QTY: 40 C.F.C.I.



4 ACCESSORIES INSTALLATION HEIGHT STANDARDS

SCALE: 1/4" = 1'-0" (C.F.C.I.; CONTRACTOR FURNISH, CONTRACTOR INSTALL, UNLESS NOTED OTHERWISE)

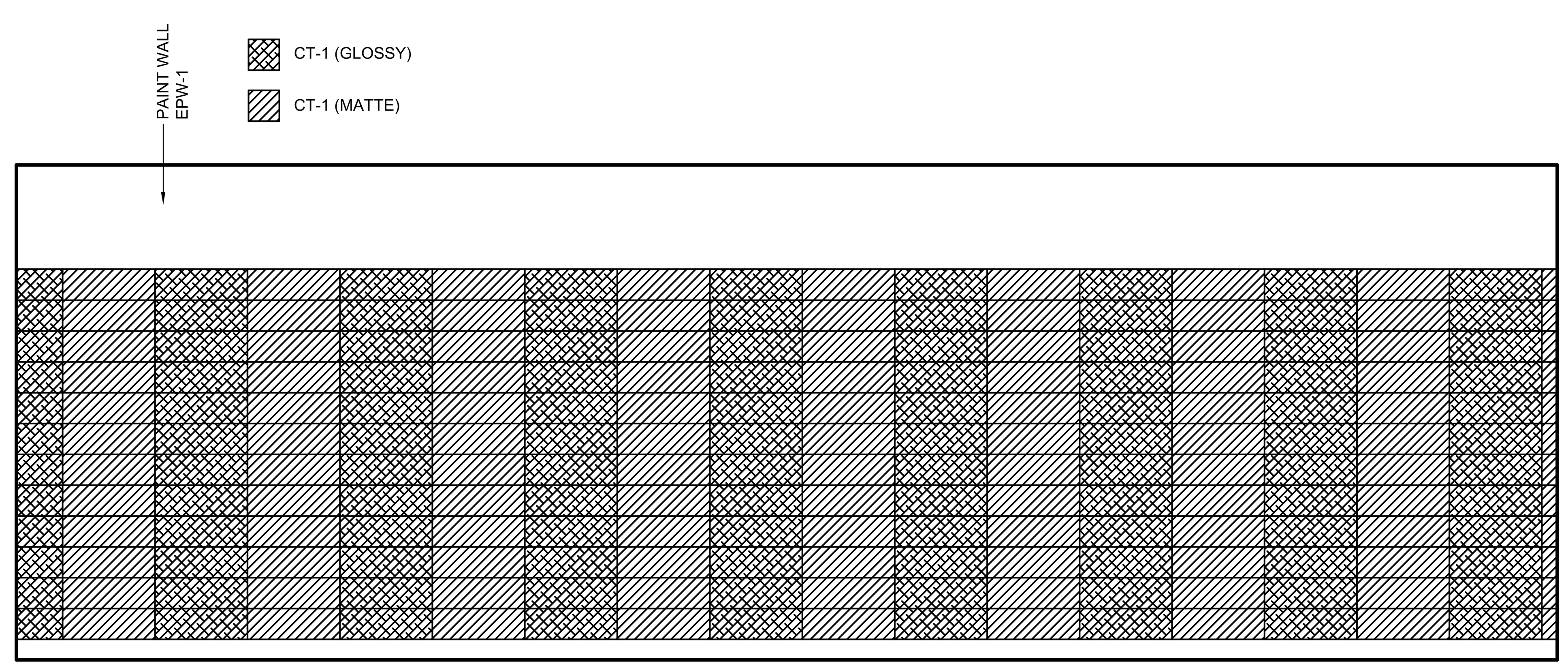


3 STANDARD PLUMBING FIXTURE MOUNTING HEIGHTS & LOCATIONS

SCALE: 1/4" = 1'-0"

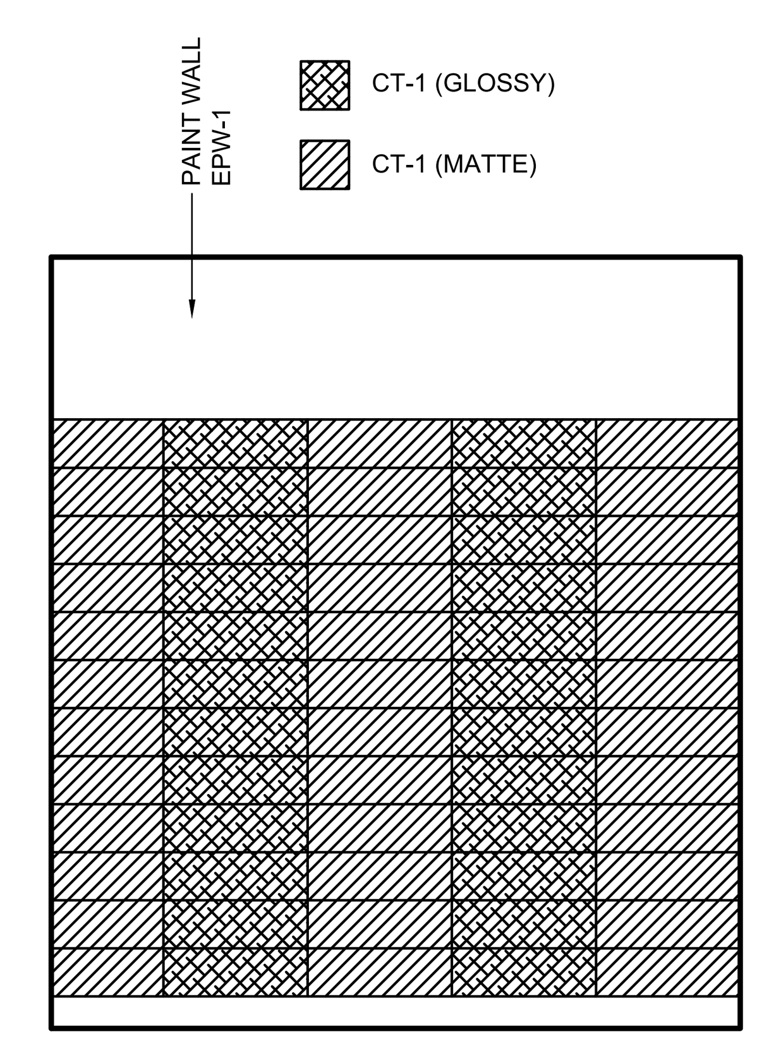
FINISH SCHEDULE

CODE	ITEM	MANUFACTURER	DESCRIPTION	COLOR	SIZE
	FLOORING				
VT-1	VINYL (RESTROOMS)	TARKETT	IQ OPTIMA	TO BE SELECTED	ROLLED
LVT-1	LUXURY VINYL TILE (FIELD)	MOHAWK GROUP	SECOYA C0009	936 CONVERSE BASIN	9" X 59"
TS-1	TRANSITION STRIP	SCHLUTER, BRUSHED ALUMINUM	STYLE APPROPRIATE PER MATERIAL CHANGE		
	WALLS				
EPW-1	EPOXY WALL	SHERWIN WILLIAMS		SW7644 GATEWAY GRAY	
PT-1	PAINT (FIELD)	SHERWIN WILLIAMS		SW7644 GATEWAY GRAY	
PT-2	PAINT (ACCENT)	SHERWIN WILLIAMS		SW9149 INKY BLUE	
PT-3	PAINT (ACCENT)	SHERWIN WILLIAMS		SW6228 REFUGE	
PT-4	PAINT (ACCENT)	SHERWIN WILLIAMS		SW9042 VERDIGREEN	
PT-5	PAINT (DOOR FRAMES)	SHERWIN WILLIAMS		SW7069 IRON ORE	
CT-1	CERAMIC TILE	DALTILE	COLOR WHEEL LINEAR	DESERT GRAY X114 (50%), X714 (50%)	6" X 18"
	WALL BASE				
RB-1	RUBBER BASE	JOHNSONITE	PINNACLE, 100% TYPE TS VULCANIZED RUBBER; COVE	#63 BURNT UMBER (NO SUBSTITUTION)	4" H
	MISCELLANEOUS				
	DOORS - WOOD	VT INDUSTRIES	RED OAK VENEER	FINISH TO BE SELECTED	
WP-1	WALL PROTECTION	INPRO	WALL PROTECTION	TO BE SELECTED	
CG-1	CORNER GUARD	INPRO	TWO-PIECE SURFACE MOUNTED SNAP-ON COVER WITH 3" RETURN	TO BE SELECTED	6'-0"



2 MULTI-STALL RESTROOM WALLS ELEVATIONS

SCALE: 1/2" = 1'-0" ALL RESTROOM WALLS TO BE TILED



1 SINGLE RESTROOM WALLS ELEVATIONS

SCALE: 1/2" = 1'-0" ALL RESTROOM WALLS TO BE TILED

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

07/23/2024

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
FINISH & SPECIALTIES SCHEDULES

DATE: 07/23/2024

SHEET NO.

A601

GLAZING & FRAMING NOTES:

GLAZING TYPES:

TYPE I TEMPERED GLASS, CLASS 1 CLEAR, Q3 (GLAZING SELECT), 1/4" THICK
TYPE II SENTRY GUARD HARDENED GLASS (TWO LAYERS)

NOTES:

1. SOLID CORE WOOD DOOR WITH 2 LAYERS SENTRY GUARD GLASS IN LITE. DOOR FRAME TO BE 14 GA METAL FRAMES WITH 4 ANCHOR POINTS.
2. HOLLOW METAL FRAME DEPTHS ARE APPROXIMATE AND MAY VARY FROM MANUFACTURER TO MANUFACTURER. CONTRACTOR SHALL VERIFY EXACT REQUIRED DEPTH OF EACH FRAME PRIOR TO FABRICATION.

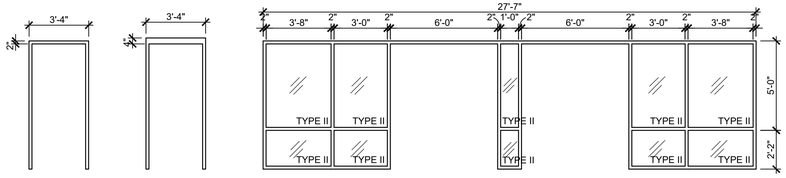
EXISTING DOOR FRAME AND DOOR SIZES ARE APPROXIMATE.
CONTRACTOR SHALL VERIFY EXACT SIZE PRIOR TO FABRICATION.

DOOR HARDWARE NOTES:

1. ALL DOORS TO HAVE ACCESSIBLE HARDWARE WITH FREE EGRESS IN THE DIRECTION OF EGRESS REQUIRING ONLY ONE OPERATION.

DOOR SCHEDULE

MARK (XXX)	DOOR									FRAME					FIRE RATING (IN MINUTES)	REMARKS
	TYPE	WOOD	HOLLOW METAL	ALUMINUM	FRP	OTHER	WIDTH	HEIGHT	THICKNESS	TYPE	WOOD	HOLLOW METAL	ALUMINUM	EXISTING		
001	D	●					3'-0"	7'-0"	1 3/4"	B		●			20	
002	D	●					PR 3'-0"	7'-0"	1 3/4"	D		●			20	
003	D	●					PR 3'-0"	7'-0"	1 3/4"	C		●			20	
004	D	●					PR 3'-0"	7'-0"	1 3/4"	C		●			20	
005	A	●					3'-0"	7'-0"	1 3/4"	A		●			20	
006	A	●					3'-0"	7'-0"	1 3/4"	A		●			20	
007	A	●					3'-0"	7'-0"	1 3/4"	A		●			20	
008	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
009	B	●					3'-0"	7'-0"	1 3/4"	A		●				
010	B	●					3'-0"	7'-0"	1 3/4"	A		●				
011	A	●					3'-0"	7'-0"	1 3/4"	A		●				
012	B				●		PR 3'-0"	7'-0"	1 3/4"					●		
101	B	●					3'-0"	7'-0"	1 3/4"					●	20	
102	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
103	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
104	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
105	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
106	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
106A-1	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
106A-2	B				●		3'-0"	7'-0"	1 3/4"					●		
106B-1	B	●					3'-0"	7'-0"	1 3/4"			●			20	
106B-2	B	●					3'-0"	7'-0"	1 3/4"					●	20	
106C	B	●					3'-0"	7'-0"	1 3/4"					●	20	
106D	A	●					3'-0"	7'-0"	1 3/4"	A		●				
107	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
108	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
109	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
109A	A	●					PR 2'-6"	7'-0"	1 3/4"	A		●				
110	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
111	B	●					3'-0"	7'-0"	1 3/4"					●	20	
112	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
114	B	●					3'-0"	7'-0"	1 3/4"					●	20	
115	B	●					3'-0"	7'-0"	1 3/4"					●	20	
115A	B	●					3'-0"	7'-0"	1 3/4"					●		
116	B	●					3'-0"	7'-0"	1 3/4"	A		●			20	
117	B	●					3'-0"	7'-0"	1 3/4"					●	20	
TLT01	A	●					3'-0"	7'-0"	1 3/4"	A		●				
TLT02	A	●					3'-0"	7'-0"	1 3/4"	A		●				
TLT03	A	●					3'-0"	7'-0"	1 3/4"	A		●				
GYM01	C	●					PR 3'-0"	7'-0"	1 3/4"					●	20	
GYM02	B	●					PR 3'-0"	7'-0"	1 3/4"					●		
GYM03	B	●					3'-0"	7'-0"	1 3/4"					●		
GYM04	B				●		3'-0"	7'-0"	1 3/4"					●		
GYM05	B				●		3'-0"	7'-0"	1 3/4"					●		
GYM06	B	●					3'-0"	7'-0"	1 3/4"					●		
GYM07	B	●					3'-0"	7'-0"	1 3/4"					●		
GYM08	B	●					3'-0"	7'-0"	1 3/4"					●		
CAF01	C	●					PR 3'-0"	7'-0"	1 3/4"					●	20	
CAF02	B	●					3'-0"	7'-0"	1 3/4"					●		
CAF03	B				●		3'-0"	7'-0"	1 3/4"					●		
CAF04	B	●					3'-0"	7'-0"	1 3/4"					●		
CAF05	B	●					3'-0"	7'-0"	1 3/4"					●		
CAF06	B	●					3'-0"	7'-0"	1 3/4"					●		

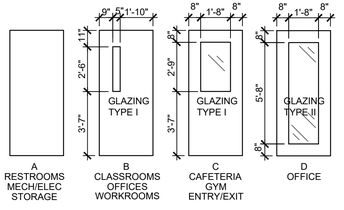


A - HOLLOW METAL B - HOLLOW METAL C - ALUMINUM STOREFRONT D - ALUMINUM STOREFRONT

FRAME TYPES

SCALE: 1/4" = 1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY **ALL** EXISTING DOOR AND FRAME SIZES.



A RESTROOMS MECH/ELEC STORAGE
B CLASSROOMS OFFICES WORKROOMS
C CAFETERIA GYM ENTRY/EXIT
D OFFICE

DOOR TYPES

SCALE: 1/4" = 1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY **ALL** EXISTING DOOR AND FRAME SIZES.

TULSA PUBLIC SCHOOLS

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TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

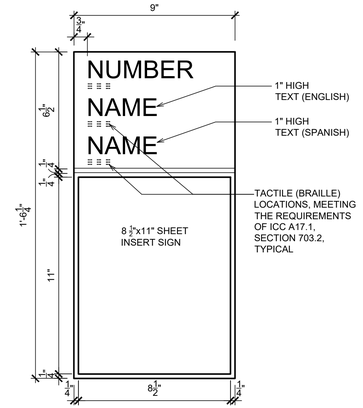
REVISION

SHEET TITLE
DOOR SCHEDULE AND FRAME & DOOR TYPES
DATE: 07/23/2024

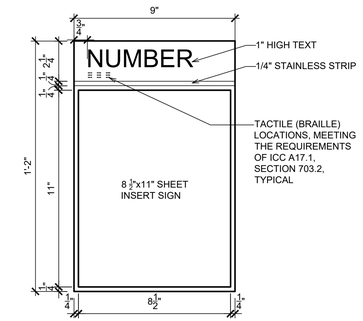
SHEET NO.
A611

SIGNAGE GENERAL NOTES:

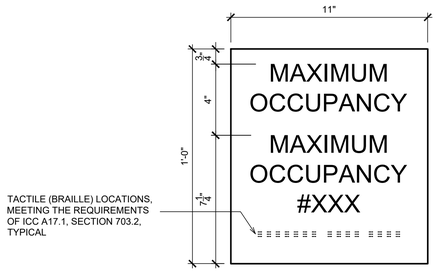
1. PRODUCT AND INSTALLATION SHALL MEET IBC AND ACCESSIBILITY CODES- ICC/ANSI A117.1
2. TEXT HEIGHT SHALL BE 1" HIGH UNLESS NOTED OTHERWISE
3. **FINISHES**: GRAPHITE (WILSONART D91-60 SLATE GREY) WITH SILVER ACCENTS AND LETTERING, UNLESS NOTED OTHERWISE.
4. SQUARED EDGE
5. NO END CAPS CLOSING ACCESS TO CHANGEABLE INFORMATION
6. ALL SIGNS MOUNTED ON GLASS ARE TO HAVE A BLANK PLATE OF SAME COLOR & MATERIAL ON THE OPPOSITE SIDE OF THE GLASS.
7. VERIFY/COORDINATE SIGN LOCATION WITH TPS REPRESENTATIVE PRIOR TO INSTALLATION.
8. RESTROOM SIGNS SHOULD READ EITHER "GIRLS/BOYS" FOR STUDENT RESTROOMS AND EITHER "WOMEN/MEN" OR "RESTROOM" FOR ALL OTHERS. VERIFY MEN/WOMEN DESIGNATIONS WITH TPS REPRESENTATIVE UNLESS THIS IS CLEARLY SHOWN ON DRAWINGS.
9. NOT ALL EXISTING RESTROOMS ARE ACCESSIBLE. WHEN THE RESTROOM IS NOT ACCESSIBLE, DO NOT ADD THE ACCESSIBLE SYMBOL TO SIGN.
10. NOT ALL ROOMS WILL HAVE A SIGN. REFER TO DRAWINGS. IF THERE IS A ROOM IN QUESTION, ASK TPS RESPRESENTATIVE.
11. THIS IS A GENERAL SIGN TYPES SHEET AND **NOT ALL SIGN TYPES WILL BE USED ON EVERY PROJECT.**



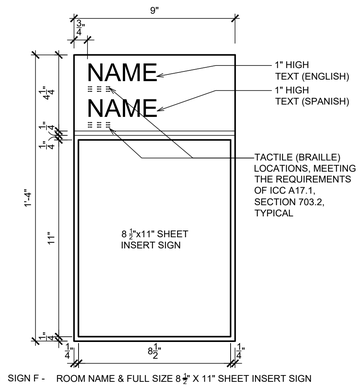
(H) SIGN H - ROOM NAME/NUMBER & FULL SIZE 8½" X 11" SHEET INSERT SIGN



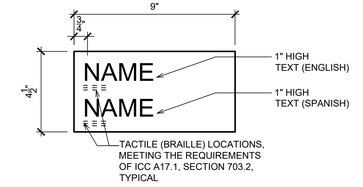
(G) SIGN G - ROOM NUMBER & FULL SIZE 8½" X 11" SHEET INSERT SIGN



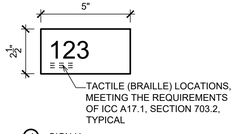
(K) SIGN K - MAXIMUM OCCUPANCY



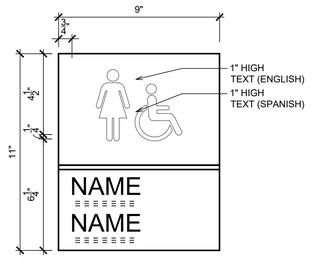
(F) SIGN F - ROOM NAME & FULL SIZE 8½" X 11" SHEET INSERT SIGN



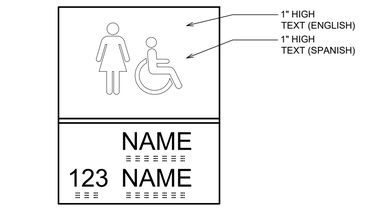
(E) SIGN E - ROOM NAME ONLY SIGN



(J) SIGN H - ROOM NUMBER ONLY SIGN

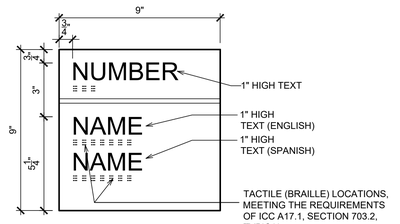


(D) SIGN D - NAME ONLY RESTROOM SIGN

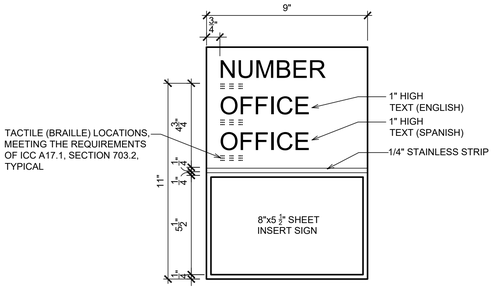


(D1) SIGN D1 - NUMBER & NAME RESTROOM SIGN

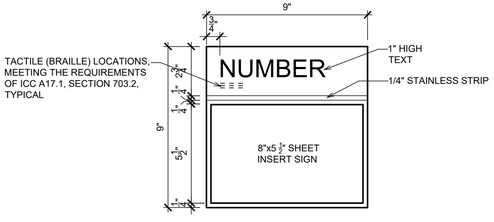
ADA COMPLIANT 6"x 9"
ACCESSIBLE
RESTROOM SIGN FOR UNISEX, MEN OR WOMEN, BOYS OR GIRLS



(C) SIGN C - ROOM NUMBER & ROOM NAME SIGN



(B) SIGN B - ALL OFFICES WITH NO ROOM NUMBER 1/2 SIZE INSERT SIGN



(A) SIGN A - ALL CLASSROOMS, U.N.O. ROOM NUMBER & 1/2 SIZE INSERT SIGN

DUAL LANGUAGE ROOM SIGNAGE TYPES

SCALE: 3"=1'-0"

TULSA PUBLIC SCHOOLS

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TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
SIGNAGE TYPES

DATE: 07/23/2024

SHEET NO.
A612

KEYNOTES: (X)

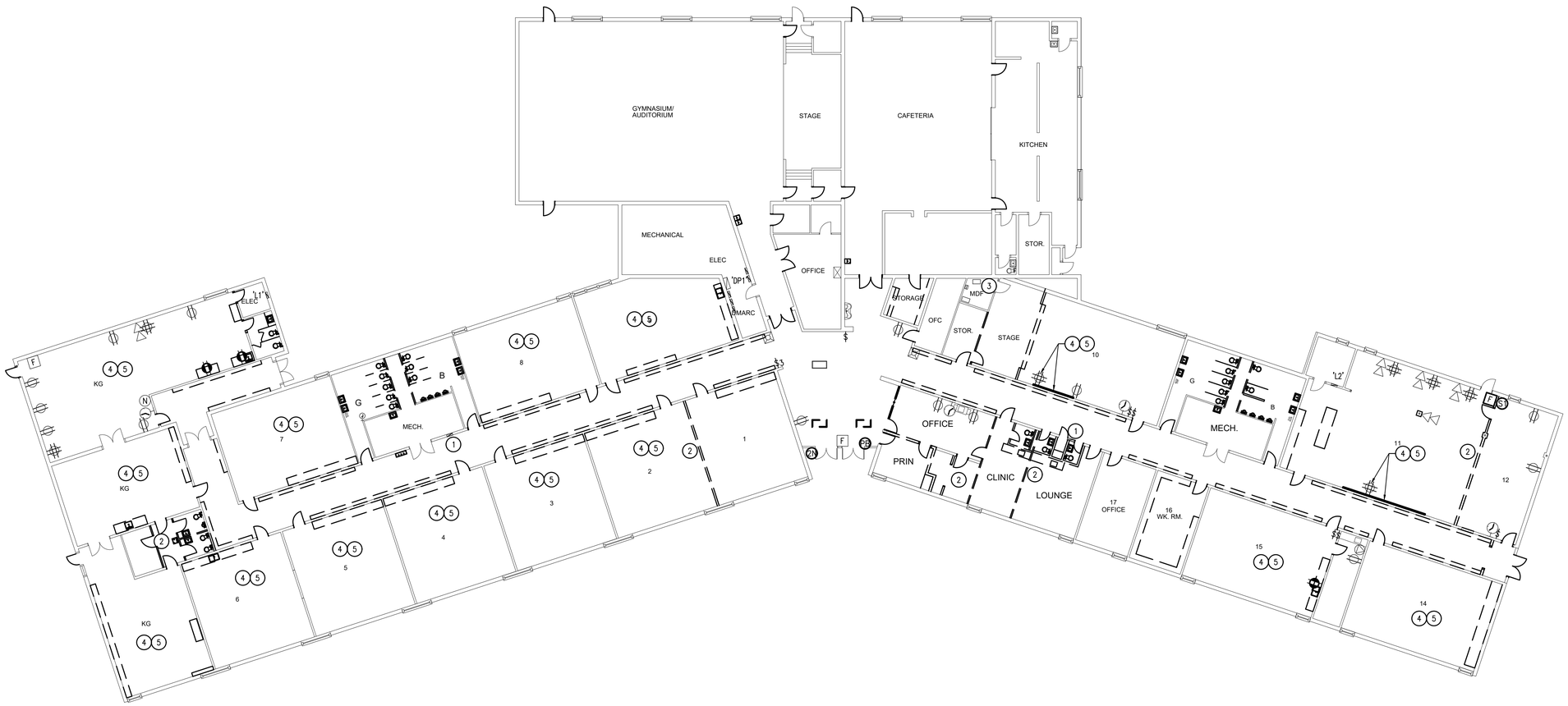
1. REMOVE EXISTING RESIDENTIAL PANELBOARD INTERIORS AND REPLACE WITH NEW COMMERCIAL LISTED INTERIORS AND BREAKERS. TRACE EXISTING CIRCUITS AND DOCUMENT FOR NEW PANEL INDEX IN NEW WORK.

2. REMOVE RECEPTACLE AND DATA/TELE OUTLETS AT REMOVED WALLS. PREPARE BRANCH CIRCUIT HOMERUN FROM SPACE IN CEILING J-BOX TO SERVE NEW AREA CONFIGURATIONS.

3. COORDINATE WORK IN MDF/IDF CLOSETS WITH TPS REPRESENTATIVE TO EXPAND EXISTING RACKS, PATCH-PANELS, ETC. WORK SHALL COMPLY WITH OWNER'S "PREMISE CABLING SPECIFICATIONS" ISSUED BY THE BOND OFFICE.

4. REMOVE WIRING DEVICES IN EXISTING BACKBOXES AND READY FOR NEW WORK.

5. REUSE EXISTING LOW-VOLTAGE RACEWAYS ALONG EXISTING TEACHING WALLS TO BE RELOCATED TO ACCEPT NEW WORK.



1 ELECTRICAL DEMO PLAN
Scale: 1/16" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
ELECTRICAL DEMOLITION PLAN

DATE: 07/11/2024

SHEET NO.
ED101

DEVICE SUBSCRIPT

'o'	LOWER CASE LETTER INDICATES DEVICE CONTROL ARRANGEMENT	LV	LOW-VOLTAGE
AFF	ABOVE FINISHED FLOOR	LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
AFG	ABOVE FINISHED GRADE	LGT	LIGHTING
A/C	HVAC	M	FRACTIONAL HP RATED SWITCH
APL	APPLIANCE	MTR	MOTOR
AF	AMP FUSE	NL	NIGHT LIGHT
AT	AMP TRIP	OCPD	OVER-CURRENT PROTECTION DEVICE
BMS	BUILDING MANAGEMENT SYSTEM	OHE	OVERHEAD ELECTRIC
BTC	BRANCH TO CONNECTION	OHT	OVERHEAD TELEPHONE
C	COMMUNICATION	(R)	REMOVE (260450)
CKT	CIRCUIT	(RR)	REMOVE AND REINSTALL (260450)
CT	CURRENT TRANSFORMER	(RS)	REMOVE AND SALVAGE (260450)
CTL	CONTROL	RCP	RECEPTACLE
D	DATA OUTLET	RI	ROUGH-IN ONLY
(E)	EXISTING TO REMAIN (260450)	S.E.R.	SERVICE ENTRANCE RATED
(ER)	EXISTING RELOCATED	SPD	SURGE PROTECTION DEVICE
EM	EMERGENCY CIRCUIT	S.T.	SHUNT-TRIP BREAKER
EPO	EMERGENCY POWER OFF	SW	SPLIT WIRED RECEPTACLE FOR HALF SWITCHING
EQ	EQUAL	U.C.	UNDER COUNTER
EWC	ELECTRIC WATER COOLER	UGE	UNDERGROUND ELECTRIC
FACP	FIRE ALARM CONTROL PANEL	UGT	UNDERGROUND TELEPHONE
GFCI	GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE	UGF	UNDERGROUND FIBER
GFI	GROUND FAULT CIRCUIT INTERRUPTING BREAKER PROTECTED	UNO	UNLESS NOTED OTHERWISE
GFP	FEED THROUGH GROUND FAULT CIRCUIT INTERRUPTING PROTECTED	W/C	WALL/CEILING MOUNT
JB	JUNCTION BOX	WP	WEATHERPROOF WHILE IN USE
K	KEY OPERATED	WPS	WEATHERPROOF SPRING COVER DEVICE

ELECTRICAL GRAPHIC SYMBOL LEGEND

WALL MOUNTED DEVICES

- WALL MOUNTED, SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- QUAD RECEPTACLE
- SURFACE MOUNTED, SPECIAL RECEPTACLE
- DUPLEX RECEPTACLE W/GFCI
- QUAD RECEPTACLE W/GFCI
- (J) JUNCTION BOX

CEILING MOUNTED DEVICES

- DUPLEX RECEPTACLE
- QUAD RECEPTACLE
- (AP) WIRELESS ACCESS POINT
- (SP) SPEAKER (VALCOM)

FIRE ALARM DEVICES

- [FACP] EMERGENCY COMM. SYS. WITH FACP
- [FAAP] REMOTE LCD ANNUNCIATOR PANEL
- HEAT DETECTOR
- SMOKE DETECTOR, PHOTOELECTRIC
- LED STROBE, W/C, (ALERT)
- LED SPEAKER/STROBE, W/C, (ALERT)
- WALL MOUNT LED SPEAKER/STROBE
- [F] PULL STATION, DOUBLE ACTION
- [DD] DUCT DETECTOR, W/PHOTO SENSOR
- TAMPER SWITCH
- FLOW SWITCH

CONTROL DEVICES

- $ SWITCH
- $3 THREE WAY SWITCH
- $4 FOUR WAY SWITCH
- $D DIMMER SWITCH
- $K KEYED SWITCH
- $M MOTOR RATED SWITCH
- (OS) CEILING MOUNTED, OCCUPANCY SENSOR
- (S) T-STAT SENSOR (DIV 23)
- [R] NEVCO RECEIVER

SECURITY DEVICES

- (M) MOTION DETECTOR - CEILING MOUNTED
- [ML] MAGNETIC LOCKSET
- (C) SURVEILLANCE CAMERA - CEILING MOUNTED
- (C) SURVEILLANCE CAMERA - WALL MOUNTED
- WALL MOUNTED, BUZZER
- PUSH BUTTON - WALL MOUNTED
- (A) ALARM CONTACT

SECURITY/ACCESS CONTROL LEGEND

- (KP) KEY PAD: NAPCO GEM-RP1CAE2 TOUCH-PAD
- (S1) CLASSROOM SECURITY SENSOR - NAPCO C100STE W 12V POWER SUPPLY
- (S2) CORRIDOR SECURITY SENSOR - NAPCO MA9000 100' IRMW
- (S3) EQUIPMENT SECURITY SENSOR - SUPCO LOW PRESSURE SENSOR (SLP2565 & SF9602)
- (2N) 2N HELIOS IP FORCE

SWITCHES/MOTORS/TRANSFORMERS/ETC

- NON-FUSED DISCONNECT
- FUSED DISCONNECT
- COMBO MTR. STARTER DISCONNECT
- (M) MOTOR
- [VFD] VARIABLE FREQUENCY DRIVE (DIV 23)
- RECESSED PANELBOARD
- SURFACE-MOUNTED PANELBOARD
- [IT] ISOLATION TRANSFORMER
- [T] TRANSFORMER
- METER

RACEWAYS

- UNDERGROUND CONDUIT
- CONCEALED CONDUIT
- EXPOSED CONDUIT
- HOMERUN
- INTERCONNECTED HOMERUN CKT.

WALL MOUNTED, LOW-VOLTAGE DEVICES

- DIGITAL OUTLET - CAT 6
- (N) INTERCOM BUTTON
- IP INTERCOM SYSTEM-CLASSROOMS K-6
- IP INTERCOM SYSTEM-CLASSROOMS 7-12
- IP CLOCK - SINGLE/DOUBLE FACE (SF/DF)
- (SP) IP INTERCOM SYSTEMS-VALCOM HORN/SPEAKER +90"A.F.F.
- (AV) WALL MOUNTED, AUDIO/VISUAL/CTV OUTLET

ELECTRICAL GENERAL NOTES:

A. **SITE OBSERVATION:** CONTRACTOR AND ASSOCIATED DIVISION TRADES SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK DESIGNATED FOR THIS FACILITY PRIOR TO BIDDING. FAILURE TO SIGN-IN AND ATTEND THE PRE-CONSTRUCTION MEETING MAY EXCLUDE CONTRACTOR FROM FUTURE CLAIMS WHERE THE SCOPE OF WORK AND INTENT OF CONTRACT DOCUMENTS IS OPENLY EXPRESSED AND DOCUMENTED FOR FORMAL RESPONSES.

B. **CODE COMPLIANCE, PERMITS AND LICENSES:** ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES. IN EVENT OF CONFLICT BETWEEN DRAWINGS, SPECIFICATIONS, CODES AND ORDINANCES, THE MOST STRINGENT REQUIREMENT FROM THE AUTHORITY HAVING JURISDICTION SHALL TAKE PRECEDENCE. PROCURE ALL NECESSARY PERMITS AND LICENSES REQUIRED FOR WORK. PAY ALL LAWFUL FEES, INCLUDING, BUT NOT LIMITED TO UTILITY DEPOSITS, INSPECTION FEES, AND TEMPORARY AND PERMANENT CONSTRUCTION PERMITS.

C. **MATERIALS:** ALL MATERIALS SHALL BE NEW AND U.L. LISTED FOR THE APPLICATION. REUSE OF EXISTING MATERIALS MUST BE APPROVED PRIOR TO BID BY THE ENGINEER OF RECORD. PROVIDE PROTECTION FOR ALL ITEMS OF APPARATUS, FIXTURES, APPLIANCES, MATERIALS, EQUIPMENT, AND INSTALLATION SO AS TO PREVENT DAMAGE BY ANY TRADE. CONTRACTOR SHALL REPLACE, AT NO EXPENSE TO THE OWNER, ANY ITEM THAT IS MARRED, DEFACED, OR BROKEN PRIOR TO ACCEPTANCE BY OWNER.

D. **SUBSTITUTIONS:** SUBSTITUTIONS SHALL NOT BE ALLOWED AFTER APPROVAL OF SUBMITTED EQUIPMENT AND DEVICES UNLESS BY SPECIAL PERMISSION. NOTIFY ARCHITECT AND REQUEST ADDITIONAL INFORMATION FOR PROPOSED SUBSTITUTIONS OR SUBSTITUTED EQUIPMENT OTHER THAN LISTED IN THE CONTRACT DOCUMENTS OR SUBMITTED DURING PRODUCT REVIEW WHICH REQUIRES ADDITIONAL SPACE, SUPPORT, LAYOUT CONDITIONS, OR OTHER ELECTRICAL REQUIREMENTS. PROVIDE REQUIRED WORK ONLY AFTER WRITTEN NOTICE-TO-PROCEED FROM OWNER OR ENGINEER OF RECORD.

E. **TYPICAL DEVICE MOUNTING HEIGHTS - UNLESS NOTED OTHERWISE:**
PANELBOARDS - 78" AFF. TO TOP OF CABINET (MAX.)
CONTROL PANELS - 72" AFF. TO TOP OF CABINET (MAX.)
DISCONNECTS - 64" AFF. TO TOP OF CABINET (MAX.)
POWER/COMM. OUTLETS - 18" AFF. TO CENTER OF DEVICE
TOGGLE SWITCHES - 48" AFF. TO CENTER OF DEVICE
WHERE DEVICES ARE INDICATED TO BE ABOVE DOORS, CENTER BETWEEN TOP OF DOOR TRIM AND CEILING LINE. ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER TYPICAL HEIGHTS LISTED. DEVICES LOCATED ABOVE COUNTERS SHALL BE MOUNTED 8" ABOVE COUNTERTOPS TO CENTER OF DEVICE.

F. **DIVISION TRADE COORDINATION:** COORDINATE WITH DIVISION TRADES AND THE ACTUAL SITE CONDITIONS OF CONSTRUCTION. RESOLVE CONFLICTS BETWEEN DIVISION TRADES FOR LOCATION OF EQUIPMENT INSTALLED AND ACCESSORIES REQUIRED, SO THAT ANY CONFLICTS ARE COORDINATED AND THE EQUIPMENT IS INSTALLED AS A COMPLETE AND OPERABLE SYSTEM. COORDINATE POWER REQUIREMENTS FOR EQUIPMENT PRIOR TO SUBMITTAL REVIEW BY ENGINEER OF RECORD. COORDINATION OF OTHER TRADES SCOPE-OF-WORK AND MATERIALS ARE A NORMAL PART OF THE CONSTRUCTION PROCESS. THE INTENT OF THE WORK IS IDENTIFIED IN THE FULL SET OF CONTRACT DOCUMENTS, AND IS NOT LIMITED BY DIVISION TRADE DOCUMENTS. FAILURE TO COORDINATE THE WORK SHALL NOT BE SUBJECT TO MONETARY CLAIMS. INSTALL EQUIPMENT AND DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. ADHERING TO REQUIRED CLEARANCES FOR OPERATION AND ACCESS FOR PRODUCT SERVICING. COORDINATE WITH DIVISION 22 & 23 MECHANICAL DUCTWORK SO AS NOT TO INSTALL JUNCTION BOXES ABOVE DUCT WORK OR INACCESSIBLE TO PERSONNEL.

G. **DEVIATIONS FROM CONTRACT DOCUMENTS:** MECHANICAL AND ELECTRICAL PLANS ARE DIAGRAMMATIC, AND SHALL BE FOLLOWED FOR ACTUAL CONSTRUCTION WITHOUT DEVIATIONS. THE APPROVAL FROM THE ARCHITECT OR ENGINEER SHALL BE OBTAINED BEFORE ANY DEVIATIONS FROM THESE PLANS. DIVISION TRADES WHICH DEVIATE FROM PLANS WITHOUT NOTIFICATION SHALL NOT BE COMPENSATED AND SHALL BE RESPONSIBLE FOR THE ADDITIONAL WORK REQUIRED. CONTRACTOR SHALL COORDINATE THE GENERAL WORK IN ORDER THAT EACH DIVISION TRADE WORK AND THE WORK OF THEIR SUB-CONTRACTORS WILL BE PROPERLY INSTALLED. CONTRACTOR SHALL INFORM ARCHITECT OF EXISTING CONDITIONS THAT ARE DISCOVERED DURING WORK IN PROGRESS THAT WOULD REQUIRE DEVIATIONS FROM THE ORIGINAL CONSTRUCTION DOCUMENTS BEFORE PROCEEDING WITH WORK.

H. **EXISTING SYSTEMS:** CONTRACTOR SHALL PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

I. **GROUNDING:** ALL LIGHT FIXTURES SHALL BE REQUIRED TO BE GROUNDED BY AN INSULATED GROUNDING CONDUCTOR. PROVIDE BARE COPPER GROUND BAR INSULATED FROM BUILDING STEEL AT ELECTRICAL CLOSETS DEDICATED FOR LOW-VOLTAGE SYSTEMS. INTERCONNECT LOW-VOLTAGE GROUNDING SYSTEMS TO THE MAIN GROUNDING ELECTRODE SYSTEM SERVING BUILDING. WHERE REQUIRED BY CODE, PROVIDE IRREVERSIBLE GROUNDING CONNECTIONS USING EXOTHERMIC WELDS.

J. **WET LOCATION LISTED DEVICES:** GFCI RECEPTACLES SHALL BE USED AT LOCATIONS WITHIN 6'-0" OF SINKS AND WATER. GFCI OUTLETS IN KITCHEN AREAS SHALL HAVE DEDICATED NEUTRAL(S). GFI BREAKERS SERVING KITCHEN EQUIPMENT SHALL BE DEDICATED CIRCUITS WITH DEDICATED NEUTRAL CONDUCTORS. PANELBOARDS AND METAL ENCLOSED DISCONNECTING MEANS SHALL BE NEMA 4X STAINLESS STEEL UNLESS NOTED OTHERWISE.

K. **FIRE AND SMOKE WALL ASSEMBLIES:** CONTRACTOR SHALL IDENTIFY ALL FIRE AND SMOKE RATED WALLS AND PROVIDE SEALS AT NEW AND EXISTING PENETRATIONS THROUGH RATED WALLS. PROVIDE 20A/1P BREAKER WITH LOCK-ON DEVICE AT HANDLE FOR CONNECTION OF LINE-VOLTAGE SMOKE DAMPERS INSTALLED BY DIVISION 23 CONTRACTOR.

L. **RACEWAYS AND JUNCTION BOXES:** CONDUIT RACEWAYS SHALL BE COMMERCIAL GRADE STEEL AND ALUMINUM U.L. LISTED FOR THE APPLICATION AND NOT LESS THAN 3/4" IN TRADE SIZE. **METAL-CLAD CABLE IS ALLOWED ONLY IN LIMITED LIGHTING AND MILLWORK APPLICATIONS AND LOCATIONS SUBJECT TO THE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.** ALL EXPOSED EXTERIOR CONDUIT SHALL BE RIGID ONLY. IDENTIFY ALL EXPANSION JOINTS AND PROVIDE FOR EXPANSION JOINTS IN ALL CONDUITS CROSSING BUILDING BOUNDARIES. EXPOSED CONDUIT, JUNCTION BOXES AND ACCESSORIES IN FINISHED AREAS TO BE PAINTED AS DIRECTED BY ARCHITECT. COORDINATE CONDUIT RUNS IN EXPOSED AREAS SO THAT ALL RUNS ARE MADE PARALLEL OR PERPENDICULAR TO STRUCTURE.

M. **IDENTIFICATION:** COVERPLATES IN UNFINISHED AREAS AND CEILING CAVITIES SHALL BE LABELED WITH PERMANENT BLACK MARKER WITH CORRESPONDING CIRCUIT. PROVIDE ADHESIVE LABELS WITH PANEL AND CIRCUIT DESIGNATION ON COVERPLATES OF DEVICES IN FINISHED AREAS. PROVIDE 1-INCH LABELS AT BREAKERS: FIRE ALARM RED WITH WHITE LETTERS, SECURITY BLUE WITH WHITE LETTERS, MDF/IDF POWER GREEN WITH WHITE LETTERS.

N. **CONDUITS:** ABANDONED RACEWAYS FOR POWER AND DATA SHALL BE SEALED AT BOTH ENDS WITH HYDRAULIC CONCRETE. RACEWAYS BELOW GRADE THAT PENETRATES EXTERIOR WALLS OR SLAB SHALL BE SEALED TO PREVENT GROUND WATER ENTERING FACILITY.

TULSA PUBLIC SCHOOLS

TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
ELECTRICAL GENERAL NOTES AND SCHEDULES

DATE: 07/11/2024

SHEET NO.
E001

KEYNOTES: (X)

1. TRACE AND VERIFY EXISTING PANELS CIRCUITS MATCH INDEXES. UPDATE INDEXES AS REQUIRED. PANELS WITH SPARE BREAKERS THAT MATCH NEW WORK SHALL BE USED TO SERVE NEW WORK INDICATED.

2. COORDINATE WITH TPS REPRESENTATIVE REUSE OF EXISTING MDF CLOSET AND EXTENSION TO NEW IDF CLOSET WITH FIBER OPTIC CABLING. NEW WORK ON WEST BUILDING TO DERIVE FROM NEW IDF CLOSET. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEM WORKING DURING CONSTRUCTION.

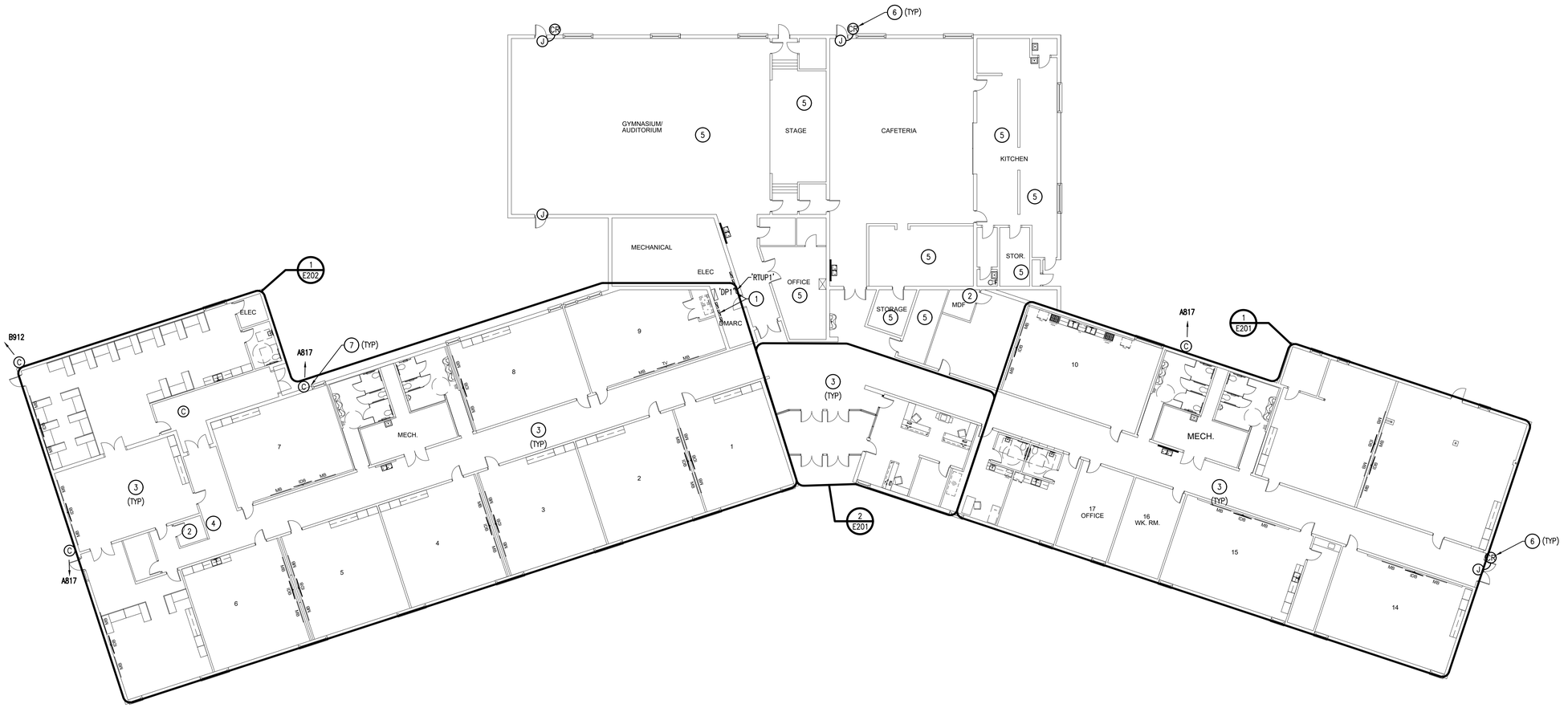
3. EXISTING BUILDING WILL BE OCCUPIED DURING NEW CONSTRUCTION AND ALL NEW WORK SHALL BE SCHEDULED WITH CONSTRUCTION MANAGER AND TPS REPRESENTATIVE PRIOR TO ACCESS TO WORKING AREAS. ALL AREAS SHALL BE CLEANED PRIOR TO OCCUPANTS ALLOWED BACK IN AREAS.

4. NEW CABLING ROUTED IN CEILING FROM NEW IDF CLOSET SHALL BE DONE WHEN SCHOOL IS UNOCCUPIED. CEILING TILES SHALL BE REMOVED AND REINSTALLED IN SCHOOL CORRIDORS.

5. NO WORK IN THIS AREA.

6. PROVIDE ROUGH-IN FOR ACCESS CONTROLS PER TPS REPRESENTATIVE DIRECTIVES AND GUIDELINES. PROVIDE POWER FROM EXISTING PANELBOARD WHERE REQUIRED.

7. PROVIDE RACEWAY THROUGH WALL WITH BACKBOX IN ACCESSIBLE CEILING CAVITY FOR TPS PROVIDED CAMERAS. COORDINATE WITH TPS SECURITY REPRESENTATIVE. HEIGHT PER OWNER DIRECTIVE.



1 OVERALL ELECTRICAL PLAN
Scale: 1/16" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA
PUBLIC SCHOOLS

TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

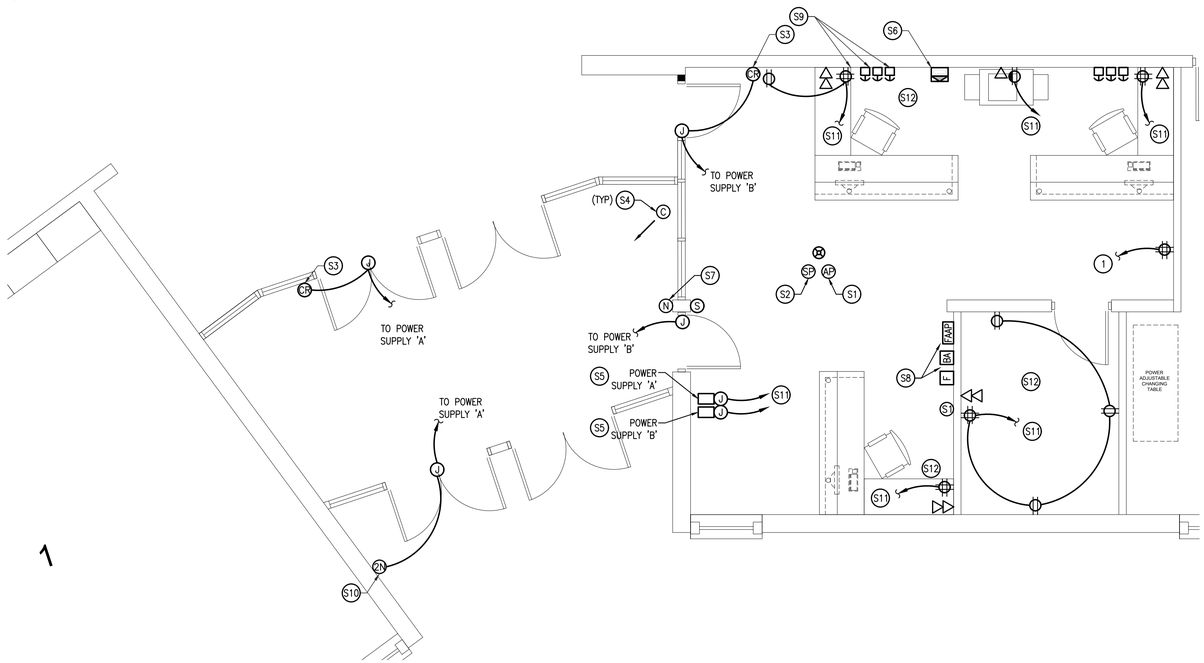
PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
OVERALL ELECTRICAL PLAN

DATE: 07/11/2024

SHEET NO.
E101



2 SECURE ENTRY ENLARGED ELECTRICAL PLAN

Scale: 1/4" = 1'-0"

NORTH

1 EAST ENLARGED ELECTRICAL PLAN

Scale: 1/8" = 1'-0"

NORTH

KEYNOTES: (X)

1. CONTRACTOR TO POWER NEW DEVICES FROM EXISTING CIRCUIT IN AREA. FIELD VERIFY AND TRACE EXISTING PANELS. UPDATE AND PROVIDE NEW PANEL INDEX. HOMERUN CIRCUITS SHALL NOT EXCEED 16-AMPS ON 20A/1P BREAKER OR (8) DUPLEX CONVENIENCE RECEPTACLES.

2. COORDINATE EXACT LOCATION OF DATA OUTLETS AND ACTIVATED PORTS WITH TPS REPRESENTATIVE.

3. **FLUSH VALVES:** INSTALL JUNCTION BOX ABOVE ACCESSIBLE CEILING FOR LOW-VOLTAGE CONTROL TRANSFORMER FOR AUTOMATIC FLUSH VALVES. PROVIDE JUNCTION BOX FOR FLUSH VALVE SENSOR AT EACH TOILET. MOUNT JUNCTION BOX PER FLUSH VALVE MANUFACTURER'S RECOMMENDATIONS. PROVIDE CONDUIT FROM FLUSH VALVES TO CONTROL TRANSFORMER FOR LOW-VOLTAGE WIRING.

4. **HAND DRYERS:** PROVIDE BACKBOX AT THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

5. PROVIDE NEW POWER RECEPTACLES FOR ELECTRIC WATER COOLERS AND BRADLEY SINKS PER MANUFACTURER SPECIFICATIONS AND MOUNTING HEIGHTS. PROVIDE SPECIFIED SURFACE RACEWAYS WHERE UNABLE TO CONCEAL.

6. COORDINATE NEW RECEPTACLES FOR COUNTERTOPS WITH EXISTING RECEPTACLE IN WALL LOCATION TO BE EXTENDED. ENERGIZE FROM EXISTING CLASSROOM RECEPTACLE BRANCH CIRCUIT.

7. COORDINATE CLASSROOM LAYOUT WITH TPS REPRESENTATIVE FOR ADDITIONAL POWER AND DATA OUTLETS. REUSE EXISTING DATA CABLING WHERE APPLICABLE. RE: 1/E301. PROVIDE NEW 20-AMP WIRING DEVICES/RECEPTACLES IN EXISTING BACKBOX. PROVIDE BLANK COVERPLATES AT UNUSED OUTLETS.

SECURE ENTRY KEYNOTES: (SX)

S1. **WIRELESS ACCESS POINTS:** REINSTALL ALL STORED WIRELESS ACCESS POINTS FROM DEMOLITION. SHALL ANY ACCESS POINTS BE DAMAGED DURING WORK, CONTRACTOR SHALL PROVIDE NEW ACCESS POINT MATCHING EXISTING. SHALL ANY DATA CABLING BE DAMAGED DURING WORK, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATCHING CABLING. IN AREA NOT PREVIOUSLY CONTAINING WIRELESS ACCESS POINTS, NEW ACCESS POINTS SHALL BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. PROVIDE CAT-6 CABLING TO NEW WIRELESS ACCESS POINTS.

S2. **SPEAKERS:** CONTRACTOR SHALL PROVIDE VALCOM LAY-IN TALKBACK IP CEILING SPEAKER. PROVIDE CABLING FROM POWER OVER ETHERNET SWITCH TO NEW TALKBACK SPEAKER TO ENERGIZE SPEAKER. UTILIZE SPEAKER CALL SWITCH INPUT TO INTERCONNECT CALL BUTTON IN AREAS THAT REQUIRE A TALKBACK FUNCTION. REFER TO NOTE 'A' FOR AREA SPEAKER REQUIREMENTS. COORDINATE EXACT DEVICE LOCATIONS IN AREA WITH TPS REPRESENTATIVE PRIOR TO ROUGH-IN.

S3. **VISTA CARD READERS:** PROVIDE 120V CIRCUIT TO DOOR STRIKE TO BE CONTROLLED BY NEW CONTRACTOR PROVIDED CARD READER CAPABLE OF INTERCONNECTING WITH EXISTING OPEN OPTIONS CONTROLLER LOCATED IN MDF/IDF CLOSET. PROVIDE RACEWAYS AND CABLES IN J-HOOKS SUPPORTED EVERY 5' IN ACCESSIBLE CEILING CAVITY FROM NEW CARD READER TO EXISTING CONTROLLER. PROVIDE FINAL TERMINATIONS, TESTING, AND COMMISSIONING AND SUBMIT O&M MANUALS TO OWNER. RE: 1/E302.

S4. **OWNER SECURITY CAMERAS:** SECURITY CAMERA LOCATIONS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO PROVIDE CABLING AND SUPPORTS. CAMERAS SHALL BE PROVIDED BY OWNER. COORDINATE WITH TPS HEAD OF SECURITY FOR EXACT LOCATION PRIOR TO ROUGH-IN.

S5. **POWER SUPPLY:** PROVIDE (1) DEDICATED 120V CIRCUIT FOR EACH SECURE ENTRY POWER SUPPLY. COORDINATE EXACT LOCATION WITH TPS REPRESENTATIVE AND DOOR HARDWARE CONTRACTOR PRIOR TO ROUGH-IN.

S6. CONTRACTOR SHALL PROVIDE (1) NEW CAT-6 DATA DROP FROM NEW VALCOM DEDICATED RACKS TO NEW CONTRACTOR PROVIDED CLOCK. REFER TO NOTE 'A' FOR AREA CLOCK REQUIREMENTS. IN EXISTING CLASSROOMS, CLOCK TO BE INSTALLED IN SAME LOCATION OF REMOVED CLOCK. COORDINATE EXACT DEVICE LOCATIONS IN AREA WITH TPS REPRESENTATIVE PRIOR TO ROUGH-IN.

S7. CONTRACTOR SHALL PROVIDE NEW VALCOM CALL SWITCH. ROUTE 18 GAUGE PAIR FROM CALL SWITCH TO SPEAKER. REFER TO TPS REPRESENTATIVE FOR AREA CALL SWITCH REQUIREMENTS. COORDINATE EXACT DEVICE LOCATIONS IN AREA WITH TPS REPRESENTATIVE PRIOR TO ROUGH-IN.

S8. SECURITY ALARM KEYPAD TO BE RELOCATED TO LOCATION ILLUSTRATED IN MAIN OFFICE FIELD VERIFY EXISTING LOCATION PRIOR TO NEW WORK. PROVIDE ALL CONDUCTORS, SUPPORTS, AND RACEWAYS FOR RELOCATION OF DEVICES. COORDINATE WITH TPS REPRESENTATIVE FOR EXACT REQUIREMENTS AND LOCATION PRIOR TO ROUGH-IN.

S9. **MOMENTARY VANDAL PROOF ROCKER SWITCHES:** PROVIDE (2) PUSH BUTTONS TO OPERATE DOOR STRIKES TO OFFICE AND (1) PUSH BUTTON FOR PANIC ALARM. PROVIDE CONDUCTORS, RACEWAYS, AND DEVICES FOR COMPLETE OPERABLE SYSTEM. BUTTONS SHALL BE MOUNTED BETWEEN 30" AND 48" COORDINATE WITH TPS HEAD OF SECURITY FOR EXACT HEIGHT PRIOR TO ROUGH-IN. RE: 1/E302.

S10. **2N DEVICE MOUNTING:** WHERE MOUNTING IS DIRECTED BY OWNER, FOLLOW THE GUIDELINES LISTED BELOW. RE: 1/E302.

A. FLUSH MOUNT – PROVIDE 2N FLUSH MOUNTING BOX, FRAME AND SECURITY SCREWS. SAW CUT BRICK OR PLASTERBOARD TO DIMENSIONS OF FLUSH MOUNTED BOX. NIPPLE THRU WALL TO SURFACE MOUNTED J-BOX IN ADJACENT SPACE. ROUTE CABLING IN CONDUIT INTO ACCESSIBLE CEILING CAVITY. ROUTE CABLING TO CONTROL HARDWARE AND MDF/IDF.

B. SURFACE MOUNT – MOUNTING FRAME NOT REQUIRED. PROVIDE SECURITY SCREWS. MOUNT 2N HELIOS IP FORCE UNIT TO EXTERIOR WALL WHERE FLUSH MOUNTING IS INCAPABLE. NIPPLE THRU WALL TO SURFACE MOUNTED J-BOX IN ADJACENT SPACE. ROUTE CABLING IN CONDUIT INTO ACCESSIBLE CEILING CAVITY AND ROUTE TO CONTROL HARDWARE.

S11. USE EXISTING CIRCUITS FOR NEW SECURE ENTRY DEVICES. CIRCUIT NOT TO EXCEED 16A.

S12. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS. CONNECT NEW DEVICES TO EXISTING POWER CIRCUIT IN ROOM.

TULSA
PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

07/23/2024

SEAL

PROJECT TITLE
TRANSITION
ACADEMY
AT
GRIMES

REVISION

SHEET TITLE

EAST ENLARGED
ELECTRICAL PLAN

DATE: 07/11/2024

SHEET NO.

E201

KEYNOTES: (X)

1. CONTRACTOR TO POWER NEW DEVICES FROM EXISTING CIRCUIT IN AREA. FIELD VERIFY AND TRACE EXISTING PANELS. UPDATE AND PROVIDE NEW PANEL INDEX. HOMERUN CIRCUITS SHALL NOT EXCEED 16-AMPS ON 20A/1P BREAKER OR (8) DUPLEX CONVENIENCE RECEPTACLES.

2. COORDINATE EXACT LOCATION OF DATA OUTLETS AND ACTIVATED PORTS WITH TPS REPRESENTATIVE.

3. **FLUSH VALVES:** INSTALL JUNCTION BOX ABOVE ACCESSIBLE CEILING FOR LOW-VOLTAGE CONTROL TRANSFORMER FOR AUTOMATIC FLUSH VALVES. PROVIDE JUNCTION BOX FOR FLUSH VALVE SENSOR AT EACH TOILET. MOUNT JUNCTION BOX PER FLUSH VALVE MANUFACTURER'S RECOMMENDATIONS. PROVIDE CONDUIT FROM FLUSH VALVES TO CONTROL TRANSFORMER FOR LOW-VOLTAGE WIRING.

4. **HAND DRYERS:** PROVIDE BACKBOX AT THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

5. PROVIDE NEW POWER RECEPTACLES FOR ELECTRIC WATER COOLERS AND BRADLEY SINKS PER MANUFACTURER SPECIFICATIONS AND MOUNTING HEIGHTS. PROVIDE SPECIFIED SURFACE RACEWAYS WHERE UNABLE TO CONCEAL.

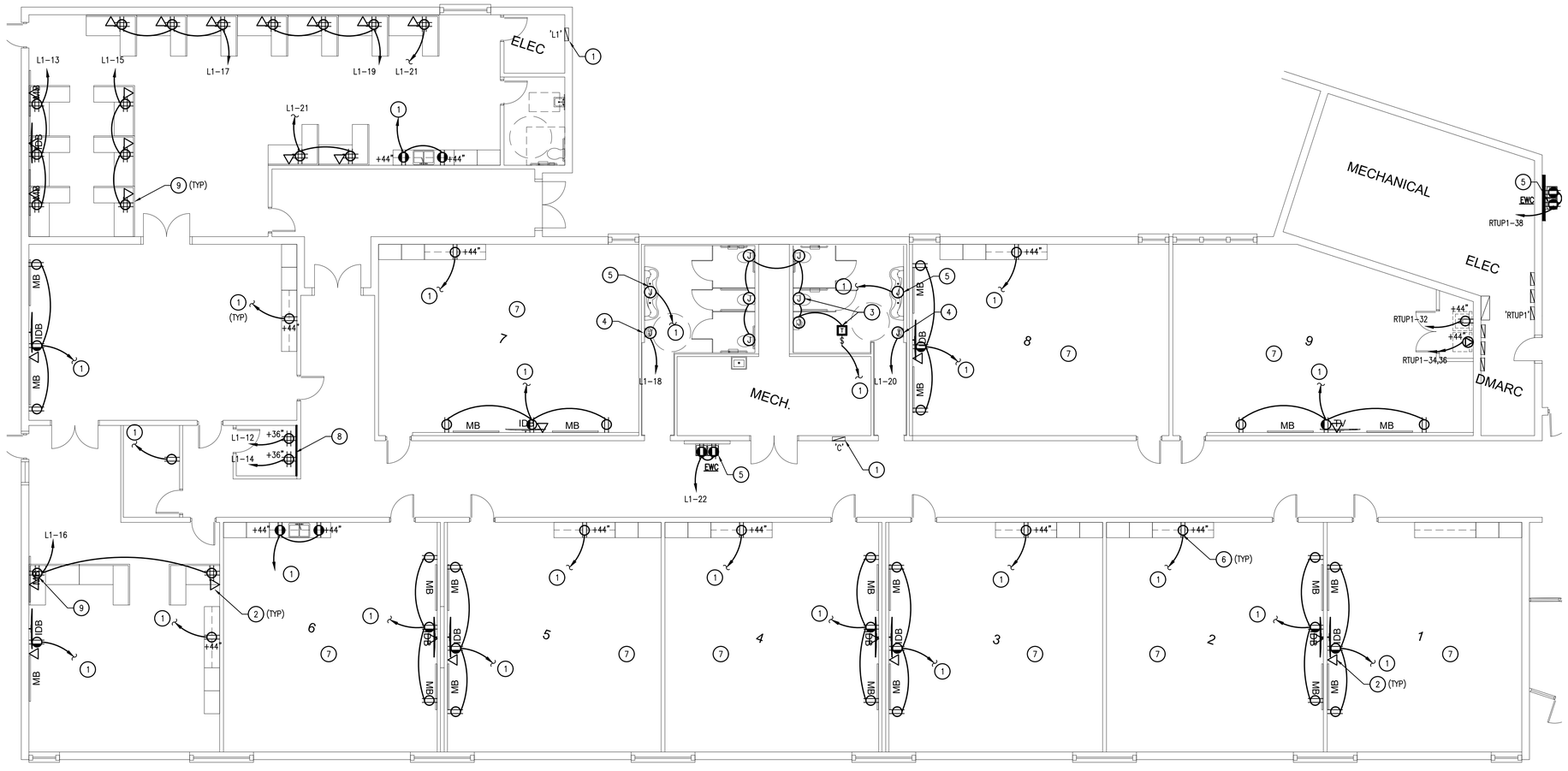
6. COORDINATE NEW RECEPTACLES FOR COUNTERTOPS WITH EXISTING RECEPTACLE IN WALL LOCATION TO BE EXTENDED. ENERGIZE FROM EXISTING CLASSROOM RECEPTACLE BRANCH CIRCUIT.

7. COORDINATE CLASSROOM LAYOUT WITH TPS REPRESENTATIVE FOR ADDITIONAL POWER AND DATA OUTLETS. REUSE EXISTING DATA CABLING WHERE APPLICABLE. RE: 1/E301. PROVIDE NEW 20-AMP WIRING DEVICES/RECEPTACLES IN EXISTING BACKBOX. PROVIDE BLANK COVERPLATES AT UNUSED OUTLETS.

8. PROVIDE TELEPHONE BACKBOARD PAINTED TO MATCH. ROUTE FIBER OPTIC CABLE FROM EXISTING MDF CLOSET AND TERMINATE PER TPS DIRECTIVES.

9. ROUTE POWER AND DATA FROM WALL THROUGH NEW CUBICLE INTERNAL RACEWAY. PROVIDE RACEWAY AS REQUIRED FOR EACH DESK WITH OUTLETS INDICATED.

10. ROUGH-IN FOR ACCESS CONTROLS PER DIRECTIVES BY TPS REPRESENTATIVE FOR SECURITY AND CAMERA SYSTEMS.



1 WEST ENLARGED ELECTRICAL PLAN

Scale: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

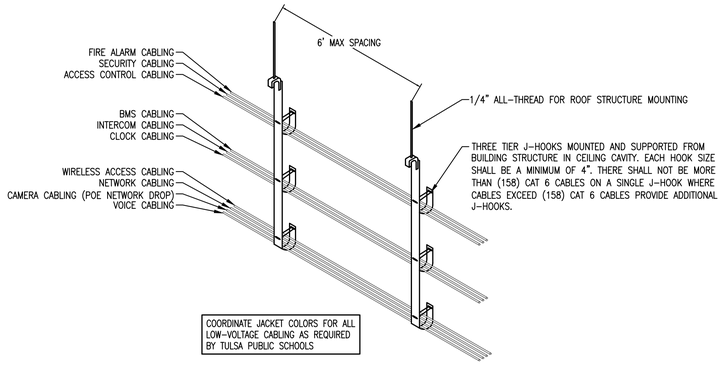
PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
WEST ENLARGED ELECTRICAL PLAN

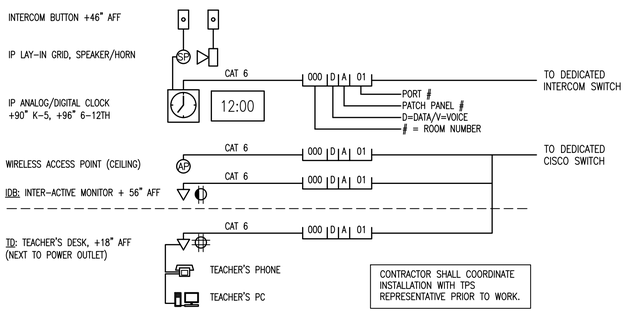
DATE: 07/11/2024

SHEET NO.
E202



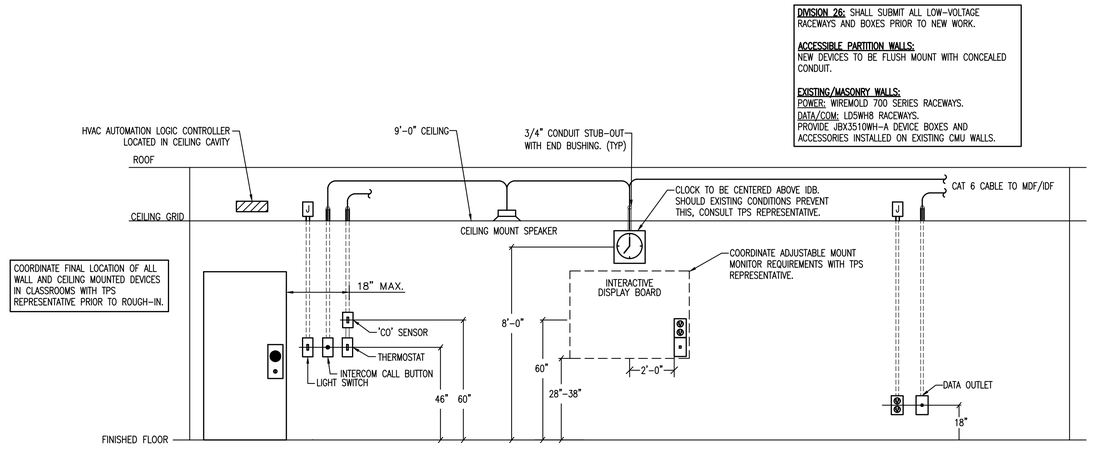
3 STRUCTURED CABLE ROUTING/SUPPORTS

Scale: NTS



2 TYPICAL CLASSROOM DATA DROPS

Scale: NTS



1 TYPICAL CLASSROOM DEVICE INSTALLATION ELEVATIONS

Scale: NTS

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ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

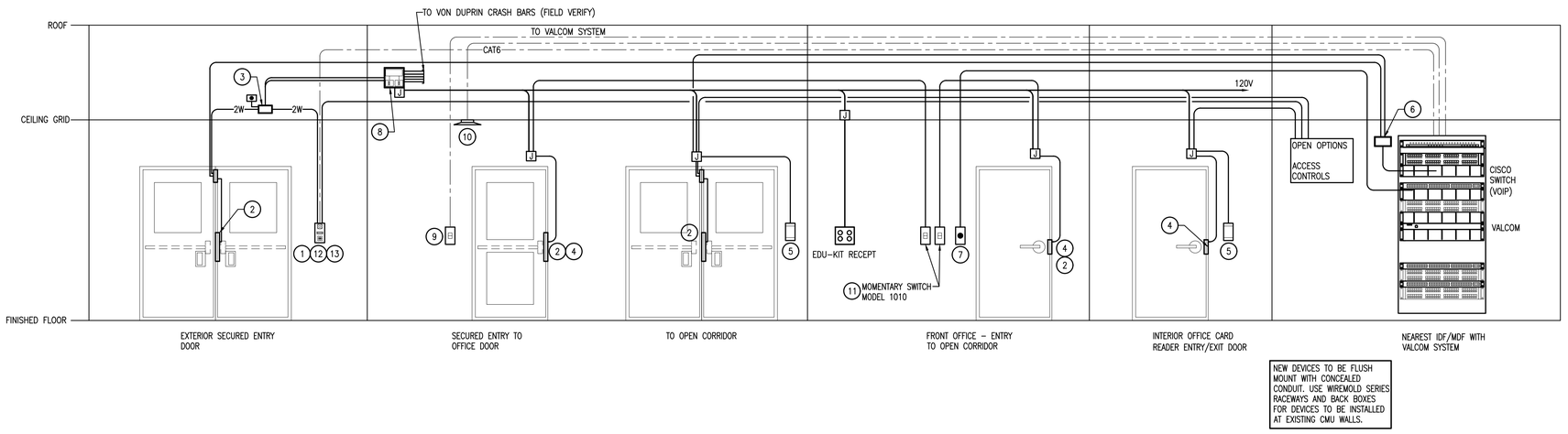
REVISION

SHEET TITLE
ELECTRICAL DETAILS

DATE: 07/11/2024

SHEET NO.
E301

	DESCRIPTION	ANIXTER PART NUMBER
1	2N HELIOS IP FORCE INTERCOM MAN. PART# 9151101CRP	952331
2	0192 RIM STRIKE	CS443408
3	2N SECURITY RELAY	952326
4	4100 STRIKE	CS498075
5	HID CARD READER	512075
6	VIKING K-202-DVA VOICE ALARM DIALING.	356693
7	STI STOPPER STATION	933834
8	900-BB VON DUPRIN BATTERY BACKUP CARD	CS462896
9	VALCOM CALL SWITCH MODEL #V-2972	--
10	VALCOM TALKBACK SPEAKER MODEL #VE4022	--
11	ELECTRIC STRIKE ROCKER SWITCH	CS928135
12	2N HELIOS IP LICENSE, ENHANCED VIDEO TO DOOR PHONES	952426
13	2N SECURED CARD READER READY 13.56 MHZ	952455



1 TYPICAL SECURE ENTRY DEVICE INSTALLATION ELEVATIONS

Scale: NTS

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TRANSITION ACADEMY AT GRIMES
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ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
ELECTRICAL DETAILS

DATE: 07/11/2024

SHEET NO.
E302

FLUSH MOUNTED
GROUND BUS
NEMA 1 ENCLOSURE

EXISTING PANELBOARD 'L1'

VOLT: 120/240V,1PH,3 WIRE
AMPS: 100 AMP, MCB
AIC: (E)

CKT	DESCRIPTION	BRKR	PL	KVA	LINE		KVA	PL	BRKR	DESCRIPTION	CKT
1	MAIN	100	2	–	L1		–	1	20	RECEPT S. RM 105 HALL	2
3	–	–	–	–		L2	–	1	20	RECEPTS W. RM 105	4
5	ROOF GFCI	20	1	–	L1		–	1	20	RECEPTS N. RM 105	6
7	OUTSIDE LIGHT	20	1	–		L2	–	1	20	COMPUTER RECEPT RM 105	8
9	LIGHTS BATH & HALL	20	1	–	L1		–	1	20	COMPUTER RECEPT	10
11	LIGHTS RM 105	20	1	–		L2	1.80	1	20	IDF RECEPTS	12
13	CUBICLE WORKSTATIONS	20	1	1.08	L1		1.80	1	20	IDF RECEPTS	14
15	CUBICLE WORKSTATIONS	20	1	1.08		L2	0.72	1	20	WEST OFFICE RECEPTS	16
17	CUBICLE WORKSTATIONS	20	1	1.08	L1		1.20	1	20	HAND DRYER	18
19	CUBICLE WORKSTATIONS	20	1	1.08		L2	1.20	1	20	HAND DRYER	20
21	CUBICLE WORKSTATIONS	20	1	1.08	L1		1.10	1	20	WEST EWC	22
23	SPARE	20	1	–		L2	–	1	20	SPARE	24
25	SPARE	20	1	–	L1		–	–	–	–	26
27	SPARE	20	1	–		L2	–	–	–	–	28
29	–	–	–	–	L1		–	–	–	–	30
31	–	–	–	–		L2	–	–	–	–	32
33	–	–	–	–	L1		–	–	–	–	34
35	–	–	–	–		L2	–	–	–	–	36
37	–	–	–	–	L1		–	–	–	–	38
39	–	–	–	–		L2	–	–	–	–	40

	KVA	AMPS
PHASE A	–	–
PHASE B	–	–

	KVA	AMPs
CONNECTED	–	–
FEEDER	–	–

SURFACE MOUNTED
GROUND BUS
NEMA 1 ENCLOSURE

EXISTING PANELBOARD 'RTUP1'

VOLT: 208Y/120V,3PH,4 WIRE
AMPS: 400 AMP, MLO
AIC: 22,000

CKT	DESCRIPTION	BRKR	PL	KVA	PHASE		KVA	PL	BRKR	DESCRIPTION	CKT
1	RTU-1	50	3	4.92	A		2.76	3	30	RTU-6	2
3	–	–	–	4.92		B	2.76	–	–	–	4
5	–	–	–	4.92		C	2.76	–	–	–	6
7	RTU-2	30	3	2.76	A		2.76	3	30	RTU-7	8
9	–	–	–	2.76		B	2.76	–	–	–	10
11	–	–	–	2.76		C	2.76	–	–	–	12
13	RTU-3	30	3	2.76	A		2.76	3	30	RTU-8	14
15	–	–	–	2.76		B	2.76	–	–	–	16
17	–	–	–	2.76		C	2.76	–	–	–	18
19	RTU-4	40	3	3.76	A		2.76	3	30	RTU-9	20
21	–	–	–	3.76		B	2.76	–	–	–	22
23	–	–	–	3.76		C	2.76	–	–	–	24
25	RTU-5	30	3	2.76	A		0.80	1	20	WATER CIRCULATING PUMP	26
27	–	–	–	2.76		B	0.90	1	20	AUTO DOOR	28
29	–	–	–	2.76		C	0.18	1	20	SPARE	30
31	COOKTOP OVEN	40	2	3.33	A		1.10	1	20	WASHER	32
33	–	–	–	3.33		B	2.20	2	30	DRYER	34
35	COOKTOP OVEN	40	2	3.33		C	2.20	–	–	–	36
37	–	–	–	3.33	A		1.10	1	20	GYM EWC	38
39	SPARE	20	1	–		B	–	1	20	SPARE	40
41	SPARE	20	1	–		C	–	1	20	SPARE	42

	KVA	AMPS
PHASE A	42.72	356.00
PHASE B	40.49	337.42
PHASE C	40.49	337.42

	KVA	AMPs
CONNECTED	123.70	343.61
FEEDER	–	–

NOTE: PROVIDE HACR BREAKERS

FLUSH MOUNTED
GROUND BUS
NEMA 1 ENCLOSURE

EXISTING PANELBOARD 'L2'

VOLT: 120/240V,1PH,3 WIRE
AMPS: 100 AMP, MCB
AIC: (E)

CKT	DESCRIPTION	BRKR	PL	KVA	LINE		KVA	PL	BRKR	DESCRIPTION	CKT
1	MAIN	100	2	–	L1		–	1	20	CLASSROOM LIGHTS	2
3	–	–	–	–		L2	–	1	20	LIGHTS W. SIDE	4
5	TVSS CLASSROOM	20	1	–	L1		–	1	20	OUTSIDE LIGHT	6
7	OFFICE RECEPTS	20	1	–		L2	–	1	20	LIGHTS E. SIDE	8
9	RECEPT N. CLASSROOM	20	1	–	L1		–	1	20	POWER POLE	10
11	RECEPT N. WALL	20	1	–		L2	–	1	20	POWER POLE	12
13	TVSS W. WALL	20	1	–	L1		–	1	20	TVSS N. WALL	14
15	CLOCK RECEPT	20	1	–		L2	–	1	20	TVSS N. WALL	16
17	RECEPT N. WALL	20	1	–	L1		–	1	20	OFFICE RECEPTS	18
19	REFRIGERATOR RM 10	20	1	1.10		L2	–	1	20	ROOF GFCI	20
21	REFRIGERATOR RM 10	20	1	1.10	L1		0.65	1	20	DISHWASHER	22
23	HAND DRYER	20	1	1.20		L2	1.80	1	20	KITCHENETTE COUNTER RECEPTS	24
25	HAND DRYER	20	1	1.20	L1		1.10	1	20	REFRIGERATOR LOUNGE	26
27	EAST EWC	20	1	1.10		L2	1.80	1	20	LOUNGE COUNTER RECEPTS	28
29	SPARE	20	1	–	L1		–	–	–	–	30
31	SPARE	20	1	–		L2	–	–	–	–	32
33	–	–	–	–	L1		–	–	–	–	34
35	–	–	–	–		L2	–	–	–	–	36
37	–	–	–	–	L1		–	–	–	–	38
39	–	–	–	–		L2	–	–	–	–	40

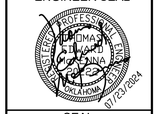
	KVA	AMPS
PHASE A	–	–
PHASE B	–	–

	KVA	AMPs
CONNECTED	–	–
FEEDER	–	–

TULSA PUBLIC SCHOOLS

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL



SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
ELECTRICAL PANEL SCHEDULES

DATE: 07/11/2024

SHEET NO.
E401

PLUMBING KEYNOTES: (X)

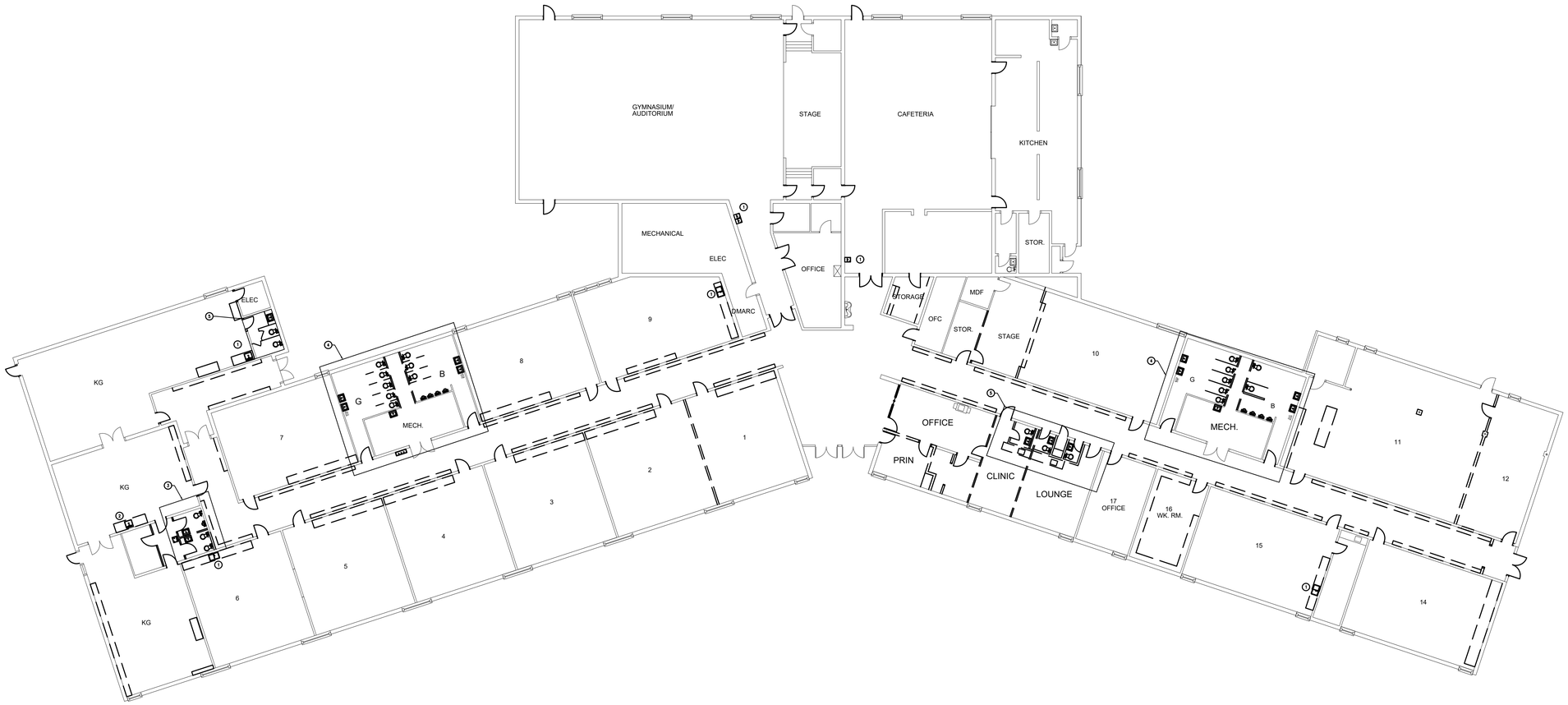
1. REMOVE EXISTING FIXTURE AND RETURN TO OWNER. PROVIDE TEMPORARY CAP ON WATER, WASTE AND VENT PIPE. PREPARE FOR MODIFICATIONS OF EXISTING SERVICE PIPING IN NEW WORK. FOR INSTALLATION OF NEW FIXTURES. EXISTING VTR SHELL REMAIN AND BE RECONNECTED IN NEW WORK.

2. REMOVE PLUMBING FIXTURES, SUPPORTS AND ALL ASSOCIATED WATER, WASTE AND VENTS BACK TO SOURCE. COORDINATE WITH ARCHITECT FOR REPAIR OF SLAB.

3. REMOVE ALL PLUMBING FIXTURES IN TOILETS, SUPPORTS AND ALL ASSOCIATED WATER, WASTE AND VENTS BACK TO SOURCE. COORDINATE WITH ARCHITECT FOR REPAIR OF SLAB.

4. REMOVE ALL PLUMBING FIXTURES IN TOILETS, SUPPORTS AND ALL ASSOCIATED WATER, WASTE AND VENTS BACK TO SOURCE. COORDINATE WITH ARCHITECT FOR REPAIR OF SLAB. REMOVE MAIN WASTE PIPE BETWEEN TOILETS. MAINTAIN VTR FOR CONNECTION IN NEW WORK.

5. REMOVE ALL PLUMBING FIXTURES IN TOILET. PROVIDE TEMPORARY CAPS ON WATER AND VENT PIPING. PREPARE AREA FOR INSTALLATION OF PLUMBING FIXTURES IN NEW WORK.



1 PLUMBING DEMO PLAN
Scale: 1/8" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PLUMBING DEMOLITION PLAN

DATE: 07/11/2024

SHEET NO.
PD101

PLUMBING SYMBOL LEGEND

	SANITARY SEWER (UNDER FINISHED FLOOR)		
	SANITARY SEWER (ABOVE FINISHED FLOOR)		
	DOMESTIC COLD WATER (C)		
	DOMESTIC HOT WATER (H)		
	DOMESTIC HOT WATER RETURN (HR)		
	PLUMBING VENT		
G	NATURAL GAS (G)		
CD	CONDENSATE (CD)		
	ELBOW DOWN		BALL VALVE
	TEE DOWN		BUTTERFLY VALVE
	ELBOW UP		CHECK VALVE
	TEE UP		GATE VALVE
	CAP		P&T RELIEF VALVE
	CONNECT TO EXISTING		SHUT-OFF VALVE IN VERTICAL
FCO	FLOOR CLEANOUT		STRAINER
WCO	WALL CLEANOUT		UNION
	TWIN CLEANOUT		GAS REGULATOR
	FLOOR DRAIN		GAS SHUT-OFF VALVE
VTR	VENT THROUGH ROOF	FPHB	FREEZE PROOF HOSE BIBB
	WATER HAMMER ARRESTOR		ANGLE VALVE

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE COLOR	SIZE TYPE	MANUFACTURER MODEL #	CARRIER TRAP	PIPING CONNECTIONS (IN) SOIL	VENT	CW	HW	REMARKS/ACCESSORIES
WC-1 (STD)	WATER CLOSET	ELONGATED BOWL	KOHLER	FLOOR	(4)	(2)	(1-1/4)	–	1.28 GPF, SLOAN ROYAL OPTIMA 111 ES-S TMO FV, EL-154 XFMR(OPERATE 8 FLUSH VALVES), BEMIS 9500SSCT SEAT, WHITE OPEN FRONT W/SS CHECK HINGE
	WHITE	VC	K-96053	INTEGRAL	4	2	1	–	
WC-1H (MAN-ADA)	WATER CLOSET	ELONGATED BOWL	KOHLER	FLOOR	(4)	(2)	(1-1/4)	–	1.28 GPF, SLOAN ROYAL OPTIMA 111 ES-S TMO FV, EL-154 XFMR(OPERATE 8 FLUSH VALVES), BEMIS 9500SSCT SEAT, WHITE OPEN FRONT W/SS CHECK HINGE
	WHITE	VITREOUS CHINA	K-96057-SS	INTEGRAL	4	2	1	–	
UR-1&1H (STD)	URINAL	WASHOUT	KOHLER	ZURN Z1222	(2)	(1-1/2)	(1)	–	0.5 GPF SLOAN ROYAL OPTIMA 186-0.5 ES-S, TMO FV, EL-154 XFMR(OPERATE 8 FLUSH VALVES), TOP SPUD
	WHITE	VITREOUS CHINA	K-4991-ET	INTEGRAL	2	1-1/2	3/4	–	
L-1H	LAVATORY	20x18	KOHLER	ZURN Z1231	(2)	(1-1/2)	(1/2)	(1/2)	T&S BRASS B-2711-VF05 FAUCET, OFFSET TAILPIECE, GRID STRAINER CP SUPPLIES W/ WHEEL HANDLE STOPS, MIXING VALVE WATTS LFUSG-B.
	WHITE	WALL MOUNT	K-2867	17GA. CP TUBE	1-1/4	1-1/4	3/8	3/8	
L-3H	LAVATORY	3-STATION	BRADLEY	WALL	(2)	(1-1/2)	(1/2)	(1/2)	SPRAYHEAD WITH INFRARED CONTROL, SOLENOID VALVE, THERMOSTATIC MIXING VALVE.
	WHITE	WALL MOUNT	MG-3/IR	17GA. CP TUBE	1-1/2	1-1/2	1/2	1/2	
SK-2	SINK	22 X 19 X 7-1/2	ELKAY	COUNTERTOP	(2)	(2)	(1/2)	(1/2)	T&S BRASS B-2731 FAUCET, 1.5 GPM, 9" SWIVEL SPOUT WITH LEVER HANDLE, LK35 STRAINER, CP SUPPLIES, WHEEL HANDLE STOPS, MIXING VALVE WATTS LFUSG-B.
	SS	SELF-RIMMING	LR2219	17GA CP TUBE	1-1/2	1-1/2	3/8	3/8	
SK-1	LOUNGE SINK	33 X 22 X 7-1/2	ELKAY	COUNTERTOP	(2)	(2)	(1/2)	(1/2)	T&S BRASS B-2731 FAUCET, 1.5 GPM, 8-1/2" SPOUT WITH LEVER HANDLE, LK35 STRAINERS, CP SUPPLIES, WHEEL HANDLE STOPS, MIXING VALVE WATTS LFUSG-B.
	SS	DBL COMPARTMENT	PSR3322	17GA CP TUBE	1-1/2	1-1/2	3/8	3/8	
MSB	MOP BASIN	24x24x10	FIAT	FLOOR	(3)	(2)	(1/2)	(1/2)	FAUCET 830-AA, BUCKET HOOK, 3/4" HOSE THREAD SPOUT, VACUUM BREAKER, 832-AA HOSE & WALL BRACKET, 36" HOSE, STAINLESS STEEL CORNER WALL GUARD MSG2424.
	STD	MOLDED STONE	MSB2424	3" DEEP SEAL	3	2	1/2	1/2	
FD-1	FLOOR DRAIN	6" STRAINER	ZURN	FLOOR	(3)	(2)	–	–	ADJUSTIBLE TOP, SEDIMENT BUCKET, TRAP SEAL EQUAL TO PROSET TRAP GAURD
	STD	CAST IRON	Z-415B-Y	DEEP SEAL C.I.	3	2	–	–	
EWC-1	ELEC. WATER CLR.	8.0 GPH	ELKAY	ZURN Z-1225	(2)	(1-1/2)	(1/2)	–	FRONT BUTTON, WALL SPLASH GUARD, SUPPLY W/ STOP VALVE, 120/1/60, BOTTLE FILLING STATION VRCWS ON ADA UNIT.
	STD.	WALL MOUNTED, HI/LO	VRCTL8WSK	17GA. CP, P-TRAP	1-1/4	1-1/4	3/8	–	

NOTES:
1. ALL WALL MOUNTED EQUIPMENT TO BE PROVIDED WITH ADDITIONAL REINFORCING IN WALL CONSTRUCTION.
2. ALL LAVATORY AND SINK SUPPLIES TO BE CHROME PLATED WITH STOP VALVES.
3. LOCATE FLUSH VALVES FOR HANDICAP ACCESSIBLE WATER CLOSETS WITH ACTUATOR ON WIDE ACCESS SIDE OF FIXTURE.
4. INSULATE HANDICAP ACCESSIBLE LAVATORY TAILPIECE, WASTE P-TRAP, HOT WATER SUPPLY, AND COLD WATER SUPPLY WITH TRU-BRO MODEL 102 & 105

PLUMBING GENERAL NOTES:

A. WORK SHOWN ON THE DRAWINGS IS TO BE COORDINATED WITH WORK OF ALL OTHER TRADES AND ACTUAL CONDITIONS OF CONSTRUCTION.

B. VERIFY LOCATION AND SIZE OF ALL EXISTING PLUMBING SYSTEM INDICATED TO BE, TIED-TO, OR REVISED FOR NEW WORK. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY.

C. COORDINATE LOCATION AND SIZE OF UTILITY SERVICES WITH CIVIL DRAWINGS PRIOR TO BUILDING ROUGH-IN.

D. LAY OUT THE PLUMBING SYSTEM IN CAREFUL COORDINATION WITH THE DRAWINGS, DETERMINING PROPER ELEVATION FOR ALL COMPONENTS OF THE SYSTEM. FOLLOW THE GENERAL LAYOUT SHOWN ON DRAWINGS IN ALL CASES EXCEPT WHERE OTHER WORK MAY INTERFERE.

E. INSTALL PIPING PARALLEL AND PERPENDICULAR TO BUILDING WALLS AND PARTITIONS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS, DOORS AND FEATURES.

F. LAY OUT PIPES TO FALL WITHIN PARTITIONS OR CHASES. DO NOT REQUIRE FURRING OTHER THAN THOSE SHOWN ON THE DRAWINGS.

G. DO NOT INSTALL DOMESTIC WATER PIPING IN EXTERIOR WALLS. WHERE BUILDING DESIGN FORCES INSTALLATION OF PIPING IN EXTERIOR WALLS, INSTALL PIPING ON ROOM SIDE OF EXTERIOR WALL INSULATION AND INCREASE PIPE INSULATION THICKNESS REQUIRED TO NEXT STANDARD THICKNESS WITH A MINIMUM THICKNESS OF 1-1/2 INCHES.

H. NO FIXTURE TRAP SHALL BE INSTALLED INSIDE EXTERIOR WALLS.

I. MAKE CHANGES IN PIPE SIZE NOTED ON THE PLANS AFTER LAST FITTING OF LARGER PIPE. WHEN SUPPLY PIPES ARE LARGER THAN EQUIPMENT TAPINGS, REDUCE SIZE IMMEDIATELY PRIOR TO ENTRY.

J. MAKE CHANGES IN DIRECTION WITH MANUFACTURED STANDARD PIPE FITTINGS.

K. CAP ALL PIPE OPENINGS DURING CONSTRUCTION.

L. LABEL PIPING TO IDENTIFY SYSTEM TYPE AND DUTY. FOR EXISTING BUILDINGS, FOLLOW ESTABLISHED IDENTIFICATION NOMENCLATURE.

M. COORDINATE LOCATION AND METHOD OF ATTACHMENT OF HANGERS AND SUPPORTS FOR PIPING SYSTEM TO BUILDING STRUCTURE WITH THE ARCHITECT AND STRUCTURAL ENGINEER. ESTABLISH PROPOSED LOCATIONS OF SYSTEM PIPE ANCHORS AND OBTAIN APPROVAL FROM THE ARCHITECT AND STRUCTURAL ENGINEER.

N. SLEEVE PIPING THROUGH EXTERIOR WALLS, FIRE AND SMOKE RATED WALLS AND ASSEMBLIES, ON GRADE SLAB FLOORS. ANNULAR SPACE BETWEEN PIPE AND SLEEVE SHALL BE CAULKED AND SEALED. FIRE RATED PENETRATIONS SHALL BE FIRE STOPPED TO MEET RATING OF CONSTRUCTION PENETRATED. EXTEND SLEEVES A MINIMUM OF 2 INCH ABOVE FLOOR PENETRATIONS IN POTENTIALLY WET AREAS SUCH AS MECHANICAL AND EQUIPMENT ROOMS.

O. DOMESTIC WATER PIPING SHALL BE INSTALLED TO SLOPE TO DRAIN POINTS. WHERE CONDITIONS DICTATE TRAPPED SECTION OF PIPING, A DRAIN VALVE OR CAPPED TEE SHALL BE INSTALLED TO FACILITATE DRAINING OF THE TRAPPED SECTION OF PIPING.

P. THOROUGHLY FLUSH DOMESTIC WATER PIPING. SCREENED OUTLETS SHALL BE REMOVED DURING FLUSHING PROCESS AND REINSTALLED AT COMPLETION.

Q. INSULATE ALL DOMESTIC HOT AND COLD WATER PIPING.

R. COPPER AND PLASTIC PIPING INSTALLED IN STUD WALLS SHALL BE PROTECTED WITH MINIMUM 1/16 INCH SHIELD PLATES EXTENDING BEYOND THE PIPE IN ALL DIRECTIONS.

S. INSTALL SHUT-OFF VALVES IN HOT WATER AND COLD WATER LINES AHEAD OF CONNECTIONS TO ALL PLUMBING FIXTURES & EQUIPMENT.

T. REVIEW CONNECTION REQUIREMENTS OF ACTUAL EQUIPMENT FURNISHED PRIOR TO ROUGH-IN. (THIS INCLUDES EQUIPMENT FURNISHED BY MECHANICAL CONTRACTOR, ANY OTHER DIVISION WORK, OR THE OWNER.) ADJUST ROUGH-IN TO MEET INSTALLATION REQUIREMENTS.

U. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATIONS AND DIMENSIONED LOCATIONS OF PLUMBING FIXTURES. FIXTURES DESIGNATED FOR HANDICAP USE SHALL BE INSTALLED TO MEET MOST CURRENT APPLICABLE ADA AND/OR ANSI REQUIREMENTS FOR INSTALLATION CLEARANCE AND ACCESS.

V. FLOOR DRAINS AND CLEANOUTS SHALL BE FURNISHED WITH TOP AND TRIM COMPATIBLE WITH FLOOR COVERING MATERIAL. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR FINISH ALTERNATES AFFECTING FLOOR DRAIN AND CLEANOUT TRIM REQUIREMENTS.

W. ALL FLOOR DRAINS TO HAVE A MINIMUM WATER SEAL OF 3 INCHES.

X. SLOPE FLOOR TO DRAIN AS NOTED ON THE ARCHITECTURAL DRAWINGS. FLOOR DRAINS SHALL NOT BE INSTALLED WITH "DUCK NEST" AROUND DRAIN.

Y. PROVIDE FUNNEL RECEPTOR FOR FLOOR DRAINS WHERE REQUIRED TO PREVENT SPILLAGE FROM INDIRECT WASTE LINES.

Z. FLOOR CLEANOUTS SHALL BE LOCATED A MINIMUM OF 18 INCHES CLEAR FROM WALLS AND OBSTRUCTIONS TO SERVICE.

AA. LOCATE CLEANOUTS AT CHANGES OF DIRECTION AND NO MORE THAN 50-FT. O/C. INSIDE THE BUILDING AND 100 FT. O/C. FOR EXTERIOR PIPING. PROVIDE ADDITONAL CLEANOUTS AS NOTED AND/OR REQUIRED TO FULLY CLEAN AND SERVICE PIPING SYSTEMS.

AB. INSTALL A CLEANOUT AT THE FOOT OF EACH SINK WASTE STACK.

AC. PROVIDE ACCESS DOORS FOR ALL INACCESSIBLE VALVES AND CLEANOUTS.

AD. COORDINATE LOCATION OF TERMINATION OF VENT PIPING WITH OTHER TRADES AND ARCHITECTURAL FEATURES AND CONDITIONS. MAINTAIN REQUIRED CLEARANCES TO OUTSIDE AIR INTAKES, WINDOWS, ETC. AS REQUIRED BY LOCALLY ACCEPTED CODE.

AE. RUN ALL DRAIN LINES FROM EQUIPMENT OVERFLOW RECEIVERS, ETC. TO FLOOR/ HUB DRAINS. DRAIN LINES SHALL BE HARD DRAWN COPPER INSTALLED WITH MINIMUM 1/8 INCH PER FOOT SLOPE SECURED BY GUIDES AND SUPPORTS FOR PIPE SIZE SHOWN. NO DRAIN LINE TO BE SMALLER THAN 3/4 INCH. INSTALL TEE AT EACH ELBOW OF CONDENSATE DRAIN WITH CLEANOUT PLUG ON BLIND TEE.

AF. REFER TO ARCHITECTURAL DRAWINGS AND DIVISION 1 SPECIFICATIONS FOR DESCRIPTION OF ALTERNATES.

PLUMBING GENERAL DEMOLITION NOTES:

A. ALL ABANDONED PIPING TO BE REMOVED AND CAPPED AT LOCATION OF PENETRATION INTO AREA OF REMODEL. PIPING SHALL BE LABELED AS ABANDONED FOR FUTURE REFERENCE. ANY ABANDONED PIPING WHICH MUST BE LEFT IN PLACE IS TO BE LABELED AS TO SERVICE AND NOTED AS ABANDONED.

B. ALL EXISTING ACTIVE SYSTEM PIPING INSULATION DAMAGED DURING DEMOLITION WORK SHALL BE REPAIRED.

C. ALL TERMINATION LOCATIONS AND EXISTING PIPING SYSTEMS LEFT IN PLACE, BUT ABANDONED SHALL BE RECORDED ON THE RECORD DRAWINGS. NOTATION OF DIMENSIONED LOCATION AND VALVING SHALL BE INCLUDED ON THE RECORDED DRAWINGS.

D. ALL CUTTING AND PATCHING SHALL BE DONE IN COMPLIANCE WITH ARCHITECT'S DIRECTIVE AS TO METHOD AND PROCEDURES.

E. THE CONTRACTOR SHALL SCHEDULE WORK WITH THE OWNER'S REPRESENTATIVE. ALL CONSTRUCTION DEBRIS SHALL BE REMOVED AND SPACES CLEANED AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL MAKE PROVISIONS FOR PLASTIC SHEETING TO CONTROL CONSTRUCTION DUST WITHIN AREA OF CONSTRUCTION.

F. ABANDONED PLUMBING SYSTEM PIPING SHALL BE CAPPED BEHIND FINISHED SURFACES. RECORD DRAWINGS SHALL NOTE LOCATION OF CAPPED PIPING.

G. ALL REMOVED PLUMBING EQUIPMENT SHALL BE RETURNED TO OWNER'S STORAGE LOCATION AS DIRECTED. CARE SHALL BE TAKEN IN THE REMOVAL OF EQUIPMENT TO MAINTAIN SALVAGE VALUE. WHERE EQUIPMENT IS FOUND TO BE DAMAGED OR BEYOND SERVICEABLE CONDITION, THE CONTRACTOR SHALL IDENTIFY EQUIPMENT TO THE OWNER FOR OBSERVATION PRIOR TO REMOVAL.

H. WHERE EXISTING ACTIVE PIPING SYSTEMS ARE FOUND TO BE DETERIORATED AND REQUIRING REPLACEMENT, PROVIDE A WRITTEN REPORT TO THE OWNER IDENTIFYING WORK REQUIRED. INCLUDE A PROPOSAL FOR PERFORMING THE WORK WITH COSTS AND SCHEDULE TO COMPLETION. DO NOT PROCEED WITH REPAIR WORK UNTIL THE OWNER HAS PROVIDED A WRITTEN DIRECTIVE ACCEPTING THE SUBMITTED PROPOSAL.

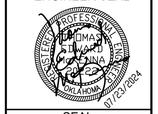
I. ALL EXISTING SANITARY LINES LEFT FOR REUSE AND TIED INTO FOR NEW SANITARY WASTE SHALL BE RODDED CLEAN.

J. COORDINATE DOWN TIME WITH OWNER PRIOR TO SCHEDULING WORK ON ANY ACTIVE PLUMBING PIPING SYSTEM (WASTE, WATER, VENT). PLAN AND SCHEDULE WORK IN FULL COORDINATION AND COOPERATION WITH THE OWNER, GIVING ADEQUATE NOTICE FOR THE OWNER TO SCHEDULE PROCEDURES AND PROCURE NECESSARY TEMPORARY SUPPLIES.

TULSA PUBLIC SCHOOLS

TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL



SEAL

PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PLUMBING GENERAL NOTES AND SCHEDULES

DATE: 07/11/2024

SHEET NO.
P001

KEYNOTES: (X)

1. INSTALL NEW SK-1 IN NEW MILLWORK. MODIFY EXISTING WASTE, WATER AND VENT PIPING TO ACCOMMODATE NEW FIXTURE CONNECTIONS. PROVIDE NEW SHUT-OFF VALVES AND RUN-OUT PIPING. PROVIDE THERMOSTATIC MIXING VALVE.

1 OVERALL PLUMBING PLAN

Scale: 1/16" = 1'-0"

NORTH

TULSA PUBLIC SCHOOLS
TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

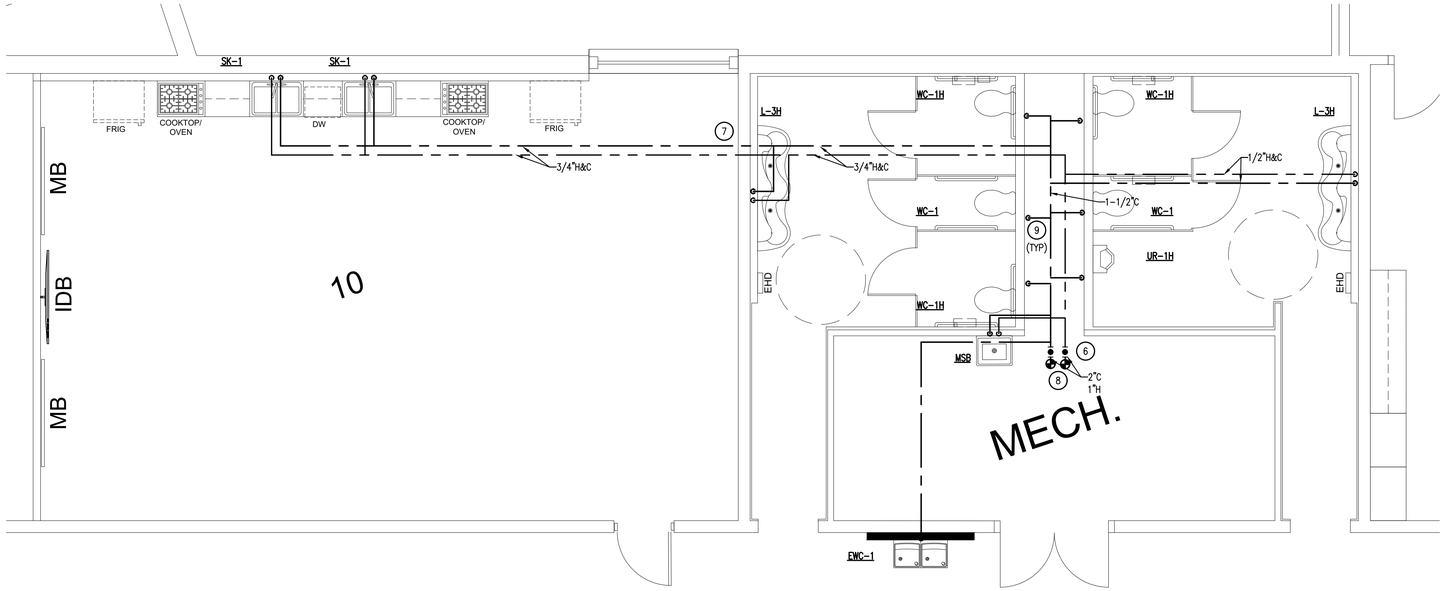
PROJECT TITLE
TRANSITION ACADEMY AT GRIMES

REVISION

SHEET TITLE
PLUMBING PLAN

DATE: 07/11/2024

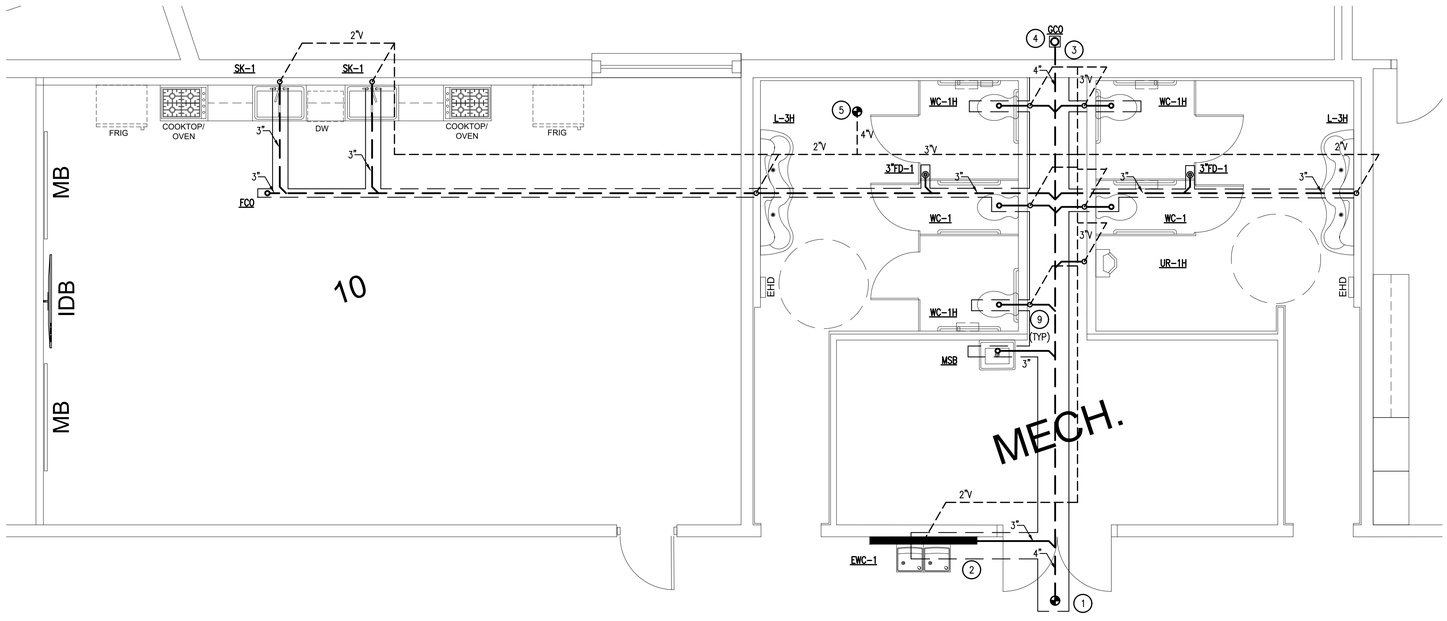
SHEET NO.
P101



2 ENLARGED DOMESTIC WATER PLAN-NEW

Scale: 1/4" = 1'-0"

NORTH



1 ENLARGED WASTE AND VENT PLAN-NEW

Scale: 1/4" = 1'-0"

NORTH

KEYNOTES: (X)

1. CONNECT NEW SEWER TO EXISTING AT THIS APPROXIMATE LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION, INVERT AND SIZE OF EXISTING SEWER. NOTIFY ENGINEER IF INVERT OR SIZE IS NOT OBTAINABLE FOR CONNECTION.

2. AREAS OF SLAB CUTS. COORDINATE WITH ARCHITECT FOR REPAIR OF SLAB.

3. SLEEVE ALL PIPE PASSING THROUGH FOOTINGS.

4. ALL EXTERIOR CLEANOUTS SHALL BE SET IN CONCRETE PAD MINIMUM 24" SQUARE AND 8 INCHES THICK.

5. CONNECT NEW VENT SYSTEM TO EXISTING VTR.

6. INSTALL BLUE DOT ON CEILING GRID TO INDICATE LOCATION OF VALVES. ALL VALVES SHALL BE FULLY ACCESSIBLE.

7. SEAL ALL PENETRATIONS THROUGH FIRE WALLS. FIRE STOPPING SHALL MEET FIRE RATING OF WALLS.

8. CONNECT NEW WATER PIPING TO EXISTING AT THIS APPROXIMATE LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING WATER PIPE. NOTIFY ENGINEER IF WATER PIPE SIZES ARE SMALLER THAN THE NEW PIPE TO BE CONNECTED.

9. SECURE PIPING TO VERTICAL WALL IN CHASE WITH UNIT-STRUT AND PIPE CLAMPS.

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TRANSITION ACADEMY AT GRIMES
3212 E 56TH STREET
TULSA, OK 74105

ENGINEER SEAL

SEAL

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REVISION

SHEET TITLE
ENLARGED PLUMBING PLANS

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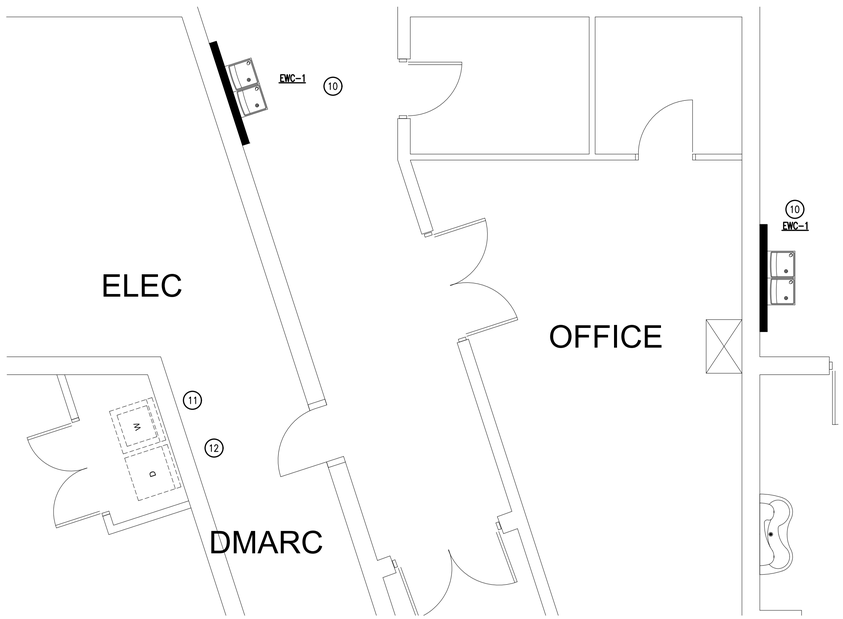
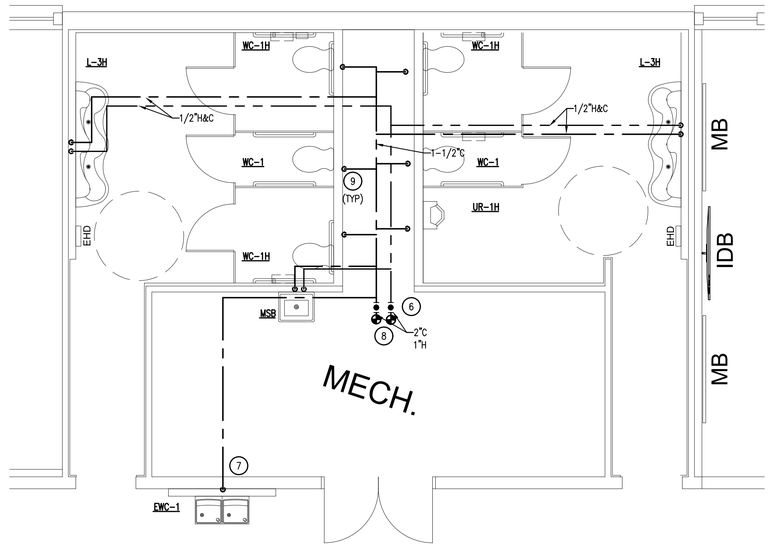
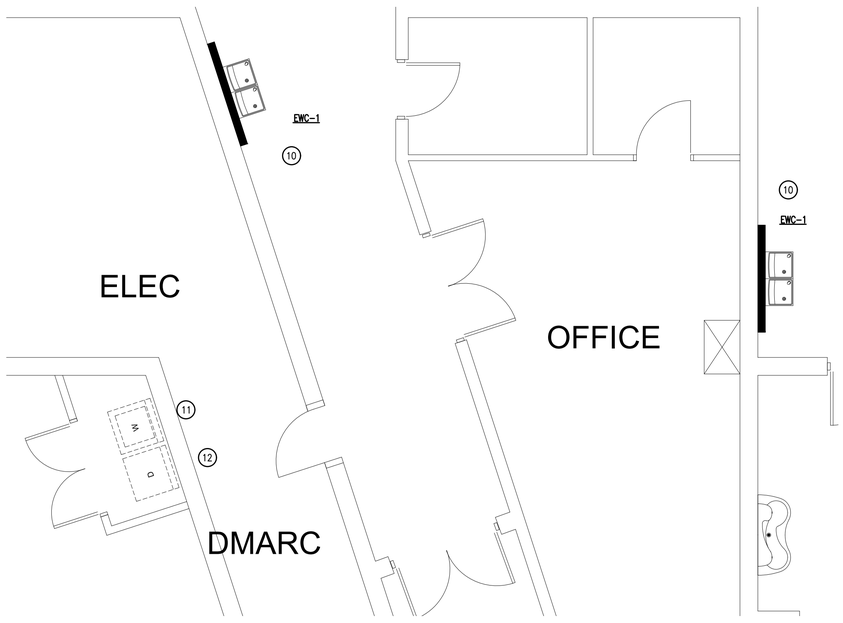


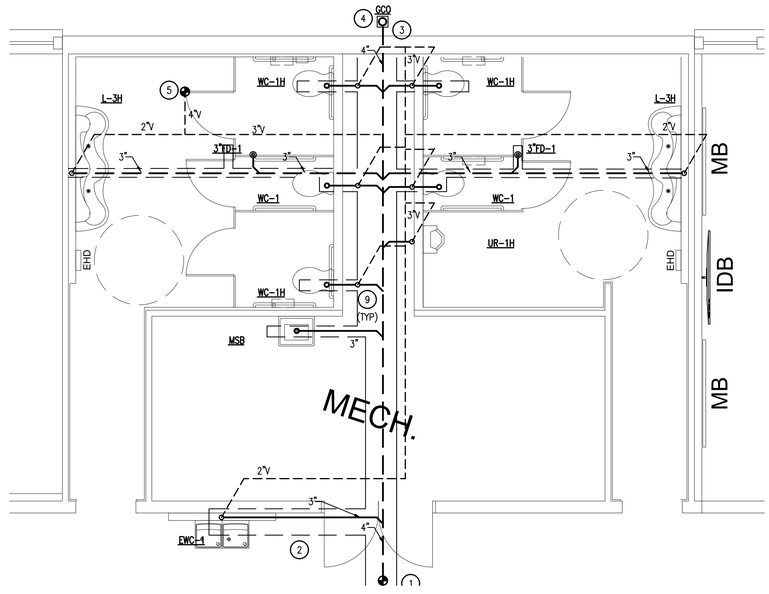
4 ENLARGED DOMESTIC WATER PLAN-NEW
Scale: 1/4" = 1'-0"
NORTH



3 ENLARGED DOMESTIC WATER PLAN-NEW
Scale: 1/4" = 1'-0"
NORTH



2 ENLARGED WASTE AND VENT PLAN-NEW
Scale: 1/4" = 1'-0"
NORTH



1 ENLARGED WASTE AND VENT PLAN-NEW
Scale: 1/4" = 1'-0"
NORTH

KEYNOTES: (X)

1. CONNECT NEW SEWER TO EXISTING AT THIS APPROXIMATE LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION, INVERT AND SIZE OF EXISTING SEWER. NOTIFY ENGINEER IF INVERT OR SIZE IS NOT OBTAINABLE FOR CONNECTION.

2. AREAS OF SLAB CUTS. COORDINATE WITH ARCHITECT FOR REPAIR OF SLAB.

3. SLEEVE ALL PIPE PASSING THROUGH FOOTINGS.

4. ALL EXTERIOR CLEANOUTS SHALL BE SET IN CONCRETE PAD MINIMUM 24" SQUARE AND 8 INCHES THICK.

5. CONNECT NEW VENT SYSTEM TO EXISTING VTR.

6. INSTALL BLUE DOT ON CEILING GRID TO INDICATE LOCATION OF VALVES. ALL VALVES SHALL BE FULLY ACCESSIBLE.

7. SEAL ALL PENETRATIONS THROUGH FIRE WALLS. FIRE STOPPING SHALL MEET FIRE RATING OF WALLS.

8. CONNECT NEW WATER PIPING TO EXISTING AT THIS APPROXIMATE LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING WATER PIPE. NOTIFY ENGINEER IF WATER PIPE SIZES ARE SMALLER THAN THE NEW PIPE TO BE CONNECTED.

9. SECURE PIPING TO VERTICAL WALL IN CHASE WITH UNI-STRUT AND PIPE CLAMPS.

10. INSTALL NEW EWC AT THIS APPROXIMATE LOCATION. MODIFY EXISTING WATER, WASTE AND VENT PIPING TO ACCOMMODATE NEW FIXTURE SERVICE LOCATIONS.

11. INSTALL GUY GRAY WASHER BOX FOR NEW CLOTHES WASHER. MODIFY EXISTING WATER, WASTE AND VENT PIPING TO ACCOMMODATE NEW FIXTURE SERVICE CONNECTIONS.

12. INSTALL 4" DRYER VENT, TERMINATE THRU ROOF WITH GOOSENECK TERMINATION. TERMINATE WITH GOOFGOOSEVENT MODEL RG4 OR SIMILAR.

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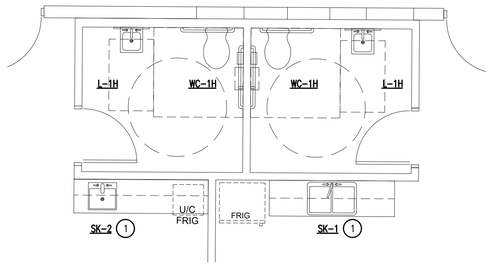
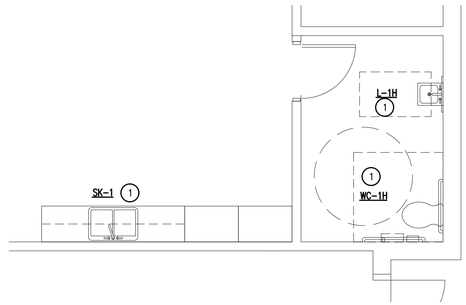
KEYNOTES: (X)

1. INSTALL NEW FIXTURE AT THIS APPROXIMATE LOCATION. MODIFY EXISTING WATER, WASTE AND VENT PIPING TO ACCOMMODATE NEW FIXTURE SERVICE LOCATIONS.

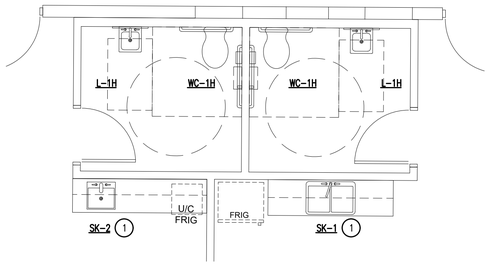


4 ENLARGED DOMESTIC WATER PLAN-NEW
Scale: 1/4" = 1'-0"

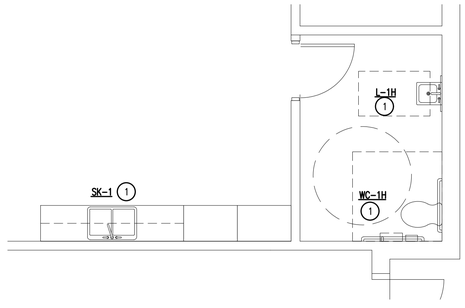


3 ENLARGED DOMESTIC WATER PLAN-NEW
Scale: 1/4" = 1'-0"

NORTH



2 ENLARGED WASTE AND VENT PLAN-NEW
Scale: 1/4" = 1'-0"



1 ENLARGED WASTE AND VENT PLAN-NEW
Scale: 1/4" = 1'-0"

NORTH

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