



ROGERS CENTRAL KITCHEN HVAC PROJECT

BID No. 2025-05

DSA A#03-124869

ADDENDUM #1

ROGERS CENTRAL KITCHEN HVAC PROJECT

Project: Rogers Central Kitchen HVAC Project

Owner: Lawndale Elementary School District
4161 W. 147th St., Lawndale, CA 90260

Date Issued: April 4th, 2025

The clarifications, modifications, changes, additions, and/or deletions contained herein shall be incorporated within the construction documents for the project. Such information shall take precedence over that previously published.

GENERAL

Item A - Addendum Acknowledgement

Acknowledge receipt of this addendum on the space provided in the bid form.

Item B – CHANGE – Change to Proposal Submittal Time

Proposals shall be submitted by **2 pm**, April 10th, 2025.

Item C – ADD – Chain Link Fence

Contractor to submit shop drawings for chain link fence prior to construction.

Item D – Contractor's Questions and Answers

There were no questions submitted by the contractors.

Item E – Engineers Specifications and Construction Drawing Plans Revisions

See attached to this addendum below.

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ROGERS MS CENTRAL KITCHEN (B#24-025) ADDENDUM 1 SPECIFICATION NARRATIVE

No. AD-01-1

CHANGES TO SPECIFICATIONS

Revised items in the following sections are indicated as follows: Items to be deleted are indicated by ~~strikeout~~
Items to be added are indicated in **bold**

1. **Table of Contents**

- a. Delete Table of Contents in its entirety and replace it with revised Table of Contents issued with this Addendum.

2. **Section 23 80 00 – Heating Ventilating & Air Conditioning Equipment**

- a. Delete Section 23 80 00 in its entirety and replace it with revised Section 23 80 00 issued with this Addendum.

3. **Section 31 10 00 – Site Clearing**

- a. Add Section 31 10 00 in its entirety issued with this Addendum.

4. **Section 32 31 13 – Chain Link Fencing and Gates**

- a. Add Section 32 31 13 in its entirety issued with this Addendum.

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SECTION 23 80 00

HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Air conditioning and air handling equipment including but not limited to:
 - 1. Split System Heat Pump Units.
 - 2. Single Packaged Air Conditioning Units.
 - 3. VRF Heat Pump and Fan Coil Units
- B. Related Requirements:
 - 1. Division 01: General Requirements.
 - 2. Section 07 60 00: Flashing and Sheet Metal.
 - 3. Section 23 05 00: Common Work Results for HVAC.
 - 4. Section 23 05 48: HVAC Sound, Vibration and Seismic Control.
 - 5. Section 23 30 00: Air Distribution.

1.2 DESIGN REQUIREMENTS

- A. The work of this Section is based on HVAC equipment units indicated as Basis of Design in Part 2 of this Section. Products from the different HVAC equipment manufacturers listed are never identical, although equivalent in capacity, performance and quality. In the cases where dimensions, weight, configuration and utility requirements differ from the products used as a basis of design, the Contractor, at no additional cost to the Owner, shall coordinate and submit, for Architect review, revisions to the design.

1.3 SUBMITTALS

- A. Provide in accordance with Division 01 and Section 23 0500: Common Work Results for HVAC.
- B. For products listed that are not the basis of design, submit the following in addition to above requirements:
 - 1. Title 24 Calculations: Replace HVAC unit values in calculation files provided by the Architect and submit for review.

1.4 QUALITY ASSURANCE

- A. Provide submittals in accordance with Section 23 0500: Common Work Results for HVAC.

1.4 PROJECT RECORD DOCUMENTS

- A. Provide Owner instructions on equipment operation and maintenance procedures, as indicated in Section 23 0500: Common Work Results for HVAC.

1.5 WARRANTY

- A. Compressors shall be provided with manufacturer's five year warranty, replacement only.
- B. Manufacturer shall warrant parts, except heat exchangers, for a period of five years.
- C. Heat exchangers shall be provided with manufacturer's ten year warranty, replacement only.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Capacities of air conditioning equipment indicated on Drawings are net capacities actually required. Standard catalog ratings shall be adjusted to actual Project site environmental conditions.

2.2 VRF HEAT PUMP AND FAN COIL UNITS

- A. Manufacturer: Daikin, Mitsubishi, Carrier, Trane, York, Lennox, American Standard Heating & Air Conditioning, or equal.

- 1. Basis of Design: Toshiba - Carrier

- B. HP and matching indoor fan coil units and condenser unit: Furnish VRF heat pump, split type, air-cooled, roof or ground installation with ducted connections or free blow. Units shall be air-cooled heat pump/direct expansion fan coil combinations. Heat pump outdoor section shall be factory assembled and furnished with direct-drive condenser fans with horizontal or vertical air discharge, scroll type compressor, refrigerant coil, fan motors, pre-wired control panel. Unit shall also be provided with a fully piped refrigerant circuit, fully charged with an environmentally friendly refrigerant that is not scheduled for phase out. Provide additional refrigerant for extended lines. Indoor fan coil units shall be furnished with horizontal discharge and will include evaporator coil, fan and motor, condensate pan with drain, thermal expansion valve, pre-wired control panel and remote thermostat control. Nominal unit cooling, heating capacities, electrical characteristics, and operating conditions shall be as indicated on Drawings.

- C. Quality Assurance:

- 1. Cooling capacity rated in accordance with current AHRI Standard 210/240 and 270. Units shall be listed in AHRI.
 - 2. Unit construction shall comply with ANSI/ASHRAE 15, latest revision, and with NEC.
 - 3. Units shall be constructed in accordance with UL standards and shall carry UL label of approval. Units shall have CSA approval.
 - 4. Units shall be listed in CEC directory.

5. Unit cabinet shall be capable of withstanding ASTM B117 500 hour salt spray test.
 6. Unit shall provide an EER/SEER/COP complying with CCR, Title 24, Building Energy Efficiency Standards and per the drawings.
- D. Evaporator and condenser coils: Evaporator and condenser coils shall be copper with mechanically bonded, smooth aluminum plate fins. Tube joints shall be brazed with copper or silver alloy. Coils shall be pressure-tested at the factory. Protective metal guard for inlet and outlet of outdoor coil.
- E. Fans:
1. Condenser Fan and Motors: Condenser fan shall be ECM type motor direct driven, propeller type arranged for horizontal or vertical discharge. Condenser fan motors shall be furnished with inherent protection, and shall be permanently lubricated type, resiliently mounted for quiet operation. Each fan shall be furnished with a safety guard.
 2. Evaporator fan section shall be furnished with ECM type motor centrifugal, forward curved, double width, double inlet fan or fans installed on a solid shaft. Fan shall be statically and dynamically balanced and shall rotate on permanently lubricated bearings.
- F. Unit Cabinets:
1. Cabinets shall be fabricated of galvanized steel, bonderized and finished with baked enamel.
 2. Cabinet interior shall be insulated with minimum one inch thick foil face fiberglass.
 3. Outdoor unit compartment shall be isolated and have an acoustic lining to assure quiet operation.
- G. Compressor: Compressor shall be two stage or variable speed type hermetic scroll.
1. VRF Compressor shall be furnished with access valves and it shall be installed on rubber isolators to reduce sound vibration.
 2. Furnish with high and low-pressure protection.
 3. Each heat pump shall be furnished with factory installed suction accumulator. Field installed accumulators are not permitted.
 4. It shall be furnished with high and low-pressure protection, brass external vapor supply line service valves, vapor return line service valves with service gage connection port, service gage port connections on compressor suction and discharge lines with Schrader-type fittings with brass caps, filter drier, pressure relief, liquid line solenoid valves, thermostatic expansion valves, and a holding charge of refrigerant.
- H. Refrigeration Components: Refrigerant circuit components shall include brass external liquid line service valve with service gage port connections, suction line service valve with service gage connection port, service gage port connections on compressor suction and discharge lines

with Schrader type fittings with brass caps, accumulator, bi-flow filter drier, pressure relief, reversing valve, heating mode metering device, and a holding charge of refrigerant.

I. Controls and Safeties:

1. Compressor motor assembly shall be protected with high and low-pressure switches, internal overloads, internal thermostat, internal relief valve, and anti-recycle relay, or time cycle device to prevent rapid cycling of compressor after any off cycle.
2. Control panel shall be pre-wired in unit casing.
3. The control circuit shall incorporate a safety circuit to render refrigerant system (compressor and outdoor air motor) inoperative should there be a loss of airflow or refrigerant.
4. Units shall also be furnished with automatic condenser-fan motor protection, high condensing temperature protection, compressor motor current and temperature overload protection, high pressure relief and condenser fan failure protection.

J. Low Ambient Operation: Head pressure control shall be provided for operation at outside air temperature below 45 degrees F.

K. Safeties:

1. High condensing temperature protection.
2. Compressor motor current and temperature overload protection.
3. High pressure relief.
4. Outdoor fan failure protection.

L. Filters:

1. Filters shall be 1-inch standard size high capacity replaceable media type, MERV 13, or equal, installed in an external 1-inch rack filter section and complete with an access door.
2. An-line filter-drier shall be furnished with equipment and installed at Project site.

M. Provide programmable digital thermostat with following features:

1. 7-day time clock.
2. Heat, cool, automatic changeover.
3. Occupied / Unoccupied modes.
4. Dry contact switch for input from an external device such as a central time clock, occupancy sensor.

5. Basis of Design: Provide factory programmable controller that comes with the HVAC unit as a standard from manufacturer with built-in occupancy sensor, hard mounted to the wall. a. No occupancy sensor for HVAC units in Kitchen. Provide occupancy sensor for units in offices.
- N. Start-up: Factory test each unit before shipment to Project site. Performance test shall include full refrigeration start-up, fan and controls start-up. Each unit shall be provided with its own report with its own serial number. Non-tested units are not permitted to be delivered to Project site. Provide full start-up of units to include full refrigeration and provide a written report.
- O. Parts Availability: Submit proof in writing that majority (minimum 80 percent) of replacements parts are commonly available and not proprietary. Also, submit proof in writing that a local parts sales and service facility exists, where replacement parts will be warehoused in quantity. Guarantee timely availability for parts that are proprietary.

2.3 ROOF MOUNTED CENTRIFUGAL EXHAUST FANS

A. RMCEF-1:

1. Manufacturer:

CARNES	GREENHECK	LOREN COOK	PENNBARRY	TWIN CITY & BLOWER	OR EQUAL
VBBB Series	SWB Series	CPS	Dynamo	BCV	

2. Provide single width, single inlet, backward inclined steel wheel, belt driven centrifugal vent sets of sizes, capacities and configurations indicated on drawings, complete with accessories for installation of fans. Also, provide accessories for proper operation and balancing of fans in accordance with design intent and sequence of operation.
3. Certification: Fan shall be listed by Underwriters Laboratories (UL 705). Fan shall bear AMCA Certified Ratings Seal for Sound, Air Performance and be manufactured with Type C spark resistant construction.
4. Housing: The fan shall be of bolted and welded construction utilizing corrosion resistant fasteners. The scroll wrapper shall be a minimum 14 gage steel with scroll drain and scroll side panels shall be a minimum 12 gage steel. The entire fan housing shall have continuously welded seams for leak proof operation. A performance cut-off shall be furnished to prevent re-circulation of air in fan housing. The fan housing shall be field rotatable to any one of eight discharge positions and shall have a minimum 1 ½-inch outlet discharge flange. Bearing support shall be minimum 10 gage welded steel. Side access inspection ports shall be provided with quick release latches for access to motor compartment without removing weather cover. Lifting lugs shall be provided for ease of installation. Unit shall bear an engraved aluminum nameplate.
5. Finish: Steel fan components shall be an electrostatically applied, baked epoxy powder coating. Each component shall be subject to a five stage environmentally friendly wash system, followed by a minimum 2.5 mil thick baked powder finish. Paint must exceed 1,000 hour salt spray under ASTM B117 test method. Interior and exterior parts of the

fan exposed to the air being moved shall be coated with minimum 15 mils of baked epoxy.

6. Wheel: Wheel shall be steel centrifugal backward inclined, non-overloading flat blade type. Blades shall be continuously welded to backplate and deep spun inlet shroud. Wheel hub shall be keyed and securely attached to fan shaft. Wheel inlet shall overlap a one piece aerodynamic aluminum inlet cone to provide maximum performance and efficiency. Wheel shall be balanced in accordance with AMCA Standard 204, Balance Quality and Vibration Levels for Fans.
7. Motor: Motor shall be heavy-duty, explosion proof type with permanently lubricated sealed ball bearings and furnished at specified voltage, phase, and enclosure.
8. Bearing: Bearings shall be designed and tested specifically for use in air handling applications. Construction shall be heavy duty re-greasable anti friction ball or roller type in a cast iron pillow block housing selected for a minimum L50 life in excess of 200,000 hours at maximum cataloged operating speed.
9. Shaft: Blower shaft shall be AISI C1045/SAE 1045 hot rolled steel and accurately turned, ground, and polished. Shafting shall be sized for a critical speed of at least 143 percent of maximum RPM.
10. Belts and Drives: Belts shall be oil and heat resistant, non-static type. Drives shall be precision machined cast iron type, keyed and securely attached to wheel and motor shafts. Drives shall be sized for 150 percent of installed motor horsepower. The variable pitch motor drive must be factory set to specified fan RPM.

2.4 INLINE FANS

A. ILF-1:

1. Manufacturer:

LOREN COOK	OR EQUAL
SQN-B or SQN-D	

2. Fan shall be duct mounted, belt driven centrifugal square inline.
3. Certification: Fan shall be manufactured at an ISO 9001 certified facility. Fan shall be listed by Underwriters Laboratories (UL 705) and UL listed for Canada (cUL 705). Fan shall bear the AMCA certified ratings seal for sound and air performance.
4. Housing: The fan shall be of bolted construction utilizing corrosion resistant fasteners. Housing shall be minimum 18 gauge galvanized steel with integral duct collars. Bolted access doors shall be provided on three sides, sealed with closed cell neoprene gasketing. Pivoting motor plate shall utilize threaded L-bolt design for positive belt tensioning. Housing shall be pre-drilled to accommodate universal mounting feet for vertical or horizontal installation. Unit shall bear an engraved aluminum nameplate. Nameplate shall indicate design CFM, static pressure, and maximum fan RPM. Unit shall be shipped in ISTA certified transit tested packaging.

5. Finish: Steel fan components shall be coated with polyester powder coating to exceed 1,000 hour salt spray test under ASTM B117 test method.
6. Wheel: Wheel shall be centrifugal backward inclined, constructed of 100% aluminum, including a precision machined cast aluminum hub. Wheel inlet shall overlap an aerodynamic aluminum inlet cone to provide maximum performance and efficiency. Wheel shall be balanced in accordance with AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans.
7. Motor: Motor shall be NEMA design B with class B insulation rated for continuous duty and furnished at the specified voltage, phase and enclosure.
8. Shaft: Blower shaft shall be AISI C1045/SAE 1045, or 1040 hot rolled and accurately turned, ground, and polished. Shafting shall be sized for a critical speed of at least 143 percent of maximum RPM.
9. Bearings: Bearings shall be designed and tested specifically for use in air handling applications. Construction shall be heavy-duty regreasable ball or roller type in a cast iron pillow block housing and selected for a minimum L50 life in excess of 200,000 hours at maximum cataloged operating speed.
10. Drive: Fans shall be direct drive or belt driven as indicated on drawings.
11. Belts and Drives: Belts shall be oil and heat resistant, static conducting. Drives shall be precision machined cast iron type, keyed and securely attached to the wheel and motor shafts. Drives shall be sized for 150% of the installed motor horsepower. The variable pitch motor drive must be factory set to the specified fan RPM.

2.6 FILTERS

- A. Air filters shall be of pleated, high capacity, disposable type of efficiencies indicated on drawings. Each filter shall consist of a non-woven cotton fabric media, media support grid, and enclosing frame. Filter shall be UL 900 listed, Class 2.
- B. Filter media shall provide an average efficiency as specified on drawings per ASHRAE Standard 52.2.
- C. Initial resistance of air filters shall not exceed following limits for each efficiency level at face velocities indicated. Lower resistance requirements, if indicated on drawings shall have precedence.

30 percent (MERV 8)	0.27 inch water gage at 500 feet per minute
75 percent (MERV 11)	0.28 inch water gage at 500 feet per minute
85 percent (MERV 13)	0.30 inch water gage at 500 feet per minute
95 percent (MERV 14)	0.38 inch water gage at 500 feet per minute
- D. Use standard size Filter Medias only.
- E. Media support shall be a welded wire grid or a rigid frame with an effective open area of not less than 96 percent.
 1. Media support shall be bonded to filter media to eliminate possibility of media oscillation and media pull-away.

2. Media support grid shall be formed in such a manner that it effectively forms a radial pleat design, providing total use of filter media.
 - F. Enclosing frame shall be bonded to air entering and air exit side of each pleat, to ensure pleat stability. Inside periphery of enclosing frame shall be bonded to filter pack, thus eliminating possibility of air bypass.
 - G. Holding frames shall be factory fabricated of 16 gage galvanized steel, or equivalent and shall be furnished with gaskets and spring type positive sealing fasteners. Fasteners shall be capable of being attached or removed without use of tools.
 - H. Manufacturers: Camfil Farr, Koch, or AAF.
- 2.7 LOUVERS, AIR CONDITIONING (use in conjunction with relief damper)
- A. Standard steel louvers shall be furnished complete with frames, blades, finish and construction details per Drawings and manufacturer's recommendations.
 - B. Louvers shall be furnished with horizontal blades, 2 inches deep for air through wall installation in conjunction with gravity relief damper for backdraft protection that will open at 0.01 inch wc room static pressure as indicated on Drawings. Blades shall be 16-gage steel, spaced at 1 7/8-inch at 30 degrees angle, and with baked epoxy coating. Panel size shall be as indicated but not less than 24 inches width by 18 inches in height.

PART 3 - EXECUTION

3.1 GENERAL

- A. Examine areas under which Work of this Section will be performed. Correct conditions detrimental to proper and timely completion of Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 EQUIPMENT FOUNDATIONS

- A. Provide foundations (housekeeping pads, level platforms or curbs) for mechanical equipment whether indicated on drawings or not. Equipment foundations shall be of sufficient size and weight, and of proper design to preclude shifting of equipment under operating conditions, or under abnormal conditions imposed upon equipment.
- B. Provide foundations (housekeeping pads, level platforms or curbs) for mechanical equipment whether indicated on drawings or not. Foundations shall meet requirements of equipment manufacturer and, when required by Architect, obtain from equipment manufacturer, approval of foundation design and construction, for equipment to be installed. Equipment vibration shall be maintained within design limits, and shall be dampened and isolated. Isolators shall be bolted to a structural member so as to be readily removable.

3.3 EQUIPMENT DESIGN AND INSTALLATION

- A. Uniformity: Unless otherwise specified, equipment of same type or classification shall be product of same manufacturer.
- B. Application: Only provide equipment as reviewed by Architect.

- C. Equipment Installation: Equipment installation shall be in strict accordance with these Specifications, and installation instructions of manufacturers. Equipment installed on concrete foundations shall be grouted before piping is installed. Piping shall be installed in such a manner as not to place a strain on equipment. Flanged joints shall be adequately extended before installation. Piping shall be graded, anchored, guided and supported, without low pockets.
1. Install equipment in a neat and skillful manner, properly aligned, leveled, and adjusted for satisfactory operation.
 2. Install so connecting and disconnecting of piping and accessories can be readily accomplished, parts are readily accessible for inspection, service and repair. Space shall be provided to readily remove filters, coils, compressors and fan wheels. Access doors shall be hinged with cam lock door handles.
 3. Provide flexible connections for duct, pipe and conduit connections at moving equipment.

3.4 ROOF-TOP EQUIPMENT MOUNTING

- A. Downflow Packaged Units: Install unit on a prefabricated mounting frame or curb secured directly to roof. Follow manufacturers recommended installation manuals. Submit Shop Drawings for review by Architect.
- B. Horizontal Flow Packaged Units: Install unit on platform or prefabricated mounting frame or curb secured directly to roof designed to suit roof conditions and requirements of provided unit. Submit Shop Drawings for review by Architect.

3.5 NOISE AND VIBRATION

- A. Operation of Equipment: Mechanical equipment and piping systems shall operate without exceeding specified noise and/or vibration levels.
- B. Corrective Measures: If specified noise and/or vibration levels are exceeded, provide necessary changes to reduce noise and/or vibration levels to within specified levels.

3.6 FIELD TESTS AND INSPECTION

- A. General: Perform field inspections, field tests, and trial operations as specified in Section 23 05 00: Common Work Results for HVAC. Provide labor, equipment and incidentals required for testing. The Project Inspector will witness field tests and trial operations as specified in Section 23 05 00: Common Work Results for HVAC.
- B. Equipment and Material: Equipment and material certified as being successfully tested by manufacturer, in accordance with referenced Specifications and standards, will not require re-testing before installation. Equipment and materials not tested at place of manufacture will be tested before or after installation, as applicable or necessary, to determine compliance with reference Specifications and standards.
- C. Start-Up and Operational Test: System shall be started up and initially operated with components operating. During this test, various strainers or filters shall be periodically cleaned until no further accumulation of foreign material occurs. Adjust safety and automatic control

instruments as required to provide proper operation and control sequence. Refer to Section 23 05 00: Common Work Results for HVAC.

- D. Extent of Field Tests: After installation and before completion, Work of this Section shall be subjected to required field tests, including those specified here and in Section 23 0500: Common Work Results for HVAC.
- E. Operation and Maintenance Data: Provide required operation and maintenance data as specified in Section 23 0500: Common Work Results for HVAC.

3.7 REFRIGERANT PIPING

- A. Unless otherwise indicated, main liquid and suction lines from condensing unit to evaporator coil shall be of sizes specified by manufacturer.
- B. Refrigeration piping shall be refrigeration grade copper tubing, type L hard-drawn. In instances where refrigeration lines are installed in an inaccessible location and must be snaked through conduit or a trench, that portion of tubing required to complete connections through conduit or trench may be soft drawn. Maintain entire system clean and dry during installation. Pipe shall be sealed until installed.
- C. Refrigeration piping, both hard and soft-drawn, shall be straight and free from kinks, restrictions and horizontal runs shall be sloped towards compressor one inch to 10 feet wherever possible. Vapor line oil traps shall be installed on bottom of vertical risers and inverted oil trap shall be installed on top of vertical risers.
- D. Joints shall be installed with Sil-Fos 15, Silvaloy 15, or equal.
- E. Flare nuts required on suction lines shall be of short forged or frost-proof type. Other fittings shall be standard sweat-soldered type. Ells and return bends shall be long radius type. Install leak lock material.
- F. Refrigeration Piping: Joints shall be silver brazed and leak tested. Field fabricated lines shall be thoroughly flushed and cleaned before connection. Bleed nitrogen through lines during silver brazing, and cap and seal lines when not completed and connected to equipment.
- G. Sleeve penetrations of floors, walls and ceiling to allow for free motion of piping. Provide 24 gage galvanized iron pipe and chrome-plated escutcheon plates. Pack annular space between pipe and sleeve with incombustible material such as fiberglass and seal each end with mastic to provide a waterproof seal.
- H. Install insulated couplings at points of connection between dissimilar metals for cathodic protection. Insulate copper tubing from ferrous materials and hangers with 2-inch thickness of 3-inch wide strip, 10 mil polyvinyl tape wrapped around pipe.
- I. Support piping by iron hangers and supports. Hydra-Zorb cushion clamps, LSP Products Group Acousto Clamp, or equal, on non-insulated piping, and Klo-Shure coupling clamp on insulated piping, or equal.
- J. Provide saddles to protect pipe insulation.

- K. Provide connections of copper, copper plated steel, steel, and brass pipe and tubing with Harris Products Group Safety-Silv 56, Lucas-Milhaupt, Inc., or equal, complying with ANSI/AWS A5.8 and NSF 51.
- L. Insulate refrigerant suction lines.
- M. On split heat pump systems, insulate both vapor and liquid lines. For insulation materials, refer to Section 23 07 00: HVAC Insulation.

3.8 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off Project site.

3.9 PROTECTION

- A. Protect Work of this Section until Substantial Completion.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removal of vegetation, grass, grass roots, shrubs, tree stumps, trees, upturned stumps, weed growth, tree roots, brush, masonry, concrete, rubbish, debris and other materials.
2. Removal of concrete and bituminous surfaces.
3. Removal of existing fences and gates.

B. Related Requirements:

1. Division 01 - General Requirements.
8. Section 32 31 13 - Chain Link Fences and Gates.

1.02 SUBMITTALS

- A. Shop Drawings:** Submit site plan indicating extent of site clearing.

1.03 QUALITY ASSURANCE

- A. Comply with Standard Specifications for Public Works Construction, current edition, as a minimum requirement.**

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 TREE AND STUMP REMOVAL

- A. Remove trees and stumps indicated or required to be removed. Remove trees, together with bulk of roots, to a minimum depth of 4 feet below required grade, and within a radius of approximately 7 feet beyond perimeter of trunk at grade.**
- B. Fill and compact excavation from tree and stump removal. Fill in 6 inch layers, each compacted to 90 percent of maximum density in accordance with ASTM D1557.**

1. Back filling shall not commence until the excavation is inspected and tested.

3.02 CONCRETE AND BITUMINOUS SURFACING REMOVAL

- A. Break up and completely remove existing concrete surfacing, curbs, gutters, walks and bituminous surfacing to indicated limits. Cutting shall be performed to a neat and even line with proper tools or a concrete cutting saw. Minimum depth of cut shall be 1 1/2-inch, unless otherwise indicated. Remove concrete broken beyond the indicated limits to the nearest joint or score line and replace with new concrete to match existing.

3.03 FENCING

- A. Existing fences scheduled to remain may be removed to facilitate the Work, provided they are installed to their original condition in accordance with requirements of Section 32 31 13 - Chain Link Fences and Gates.
- B. Fencing indicated to be removed and not reinstalled shall be completely removed, including footings. Fill and compact excavations.
- C. Install chain link fencing indicated to be relocated or reset in accordance with applicable requirements specified under Section 32 31 13 - Chain Link Fences and Gates.

3.04 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Chain link fences, gates and fabrications as indicated.

B. Related Requirements:

1. Division 01 - General Requirements.
2. Section 31 10 00 – Site Clearing.

1.02 SUBMITTALS

- A. Shop Drawings:** Submit dimensioned plans and details indicating extent of fences, locations of gates, and details of attachment and footings. Indicate means and methods for surface preparation and finishing.

- B. Certifications:** Manufacturers material certifications in compliance with the ASTM standards referenced in this Section.

1.03 REFERENCES

A. ASTM International:

1. ASTM A36 – Standard Specification for Carbon Structural Steel.
2. ASTM A47 - Standard Specification for Ferritic Malleable Iron Castings.
3. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
4. ASTM A123 - Standard Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
5. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
6. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
7. ASTM A392: Standard Specification for Zinc-Coated Steel Chain Link Fence Fabric.
8. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

9. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
10. ASTM A824 – Standard Specification for Metallic-Coated Steel Marcellled Tension Wire for Use with Chain Link Fence.
11. ASTM F552 - Standard Terminology Relating to Chain Link Fencing.
12. ASTM C1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
13. ASTM F567: Standard Practice for Installation of Chain Link Fence.
14. ASTM F626 - Standard Specification for Fence Fittings.
15. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric.
16. ASTM F900 - Standard Specification for Industrial and Commercial Swing Gates.
17. ASTM F934 - Standard Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials.
18. ASTM F1083: Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
19. ASTM F1184: Standard Specification for Industrial and Commercial Horizontal Slide Gates.
20. ASTM F1664 – Standard Specification for Poly Vinyl Chloride (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence.
21. ASTM F2200 - Standard Specification for Automated Vehicular Gate Construction.

B. Underwriters Laboratories (UL):

1. UL 325 - UL Standard for Safety Door, Drapery, Gate, Louver, and Window Operators and Systems.

C. American Welding Society (AWS):

1. AWS D1.1 Structural Welding Code - Steel.
2. AWS D1.3 Structural Welding Code - Sheet Steel.
3. AWS D-19.0 Welding Zinc Coated Steel.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Company specialized in manufacturing chain link fence products with at least five years of experience.

- B. Fence Installer: Company with demonstrated successful experience installing similar projects and products in accordance with ASTM F567 and with at least five year experience.

PART 2 – PRODUCTS

2.01 CHAIN LINK FABRIC

- A. Galvanized Chain Link Fabric: Conforming to ASTM A392, Class 2 zinc coating, 2.00 ounces minimum per square foot of uncoated wire surface, hot-dipped galvanized after weaving, and with top and bottom edges knuckled (kk). Tie wires and hog rings shall conform to ASTM F626, and shall be 9 gage and galvanized.
- B. Polymer Coated Chain Link Fabric: Galvanized fabric material, tie wires and hog rings shall be as specified on above paragraph, with polymer coating conforming to ASTM F668, Class 2b, fused and adhered. Color shall be in compliance with ASTM F934.
- C. Chain Link Fabric Requirements:
1. Fabric for perimeter fencing and interior fencing shall be 9 gage woven wire with 2 inch mesh, unless otherwise specified.
 2. For perimeter fences 16 feet high, the upper 8 feet of fabric may be 11 gage.
 3. Fences 12 feet high or less shall be furnished with single width fabric.
 4. Fabric for fencing on top of handball court shall be 9 gage wire minimum with 1 inch mesh.
 5. Fabric for fencing of tennis courts shall be full height, single width, 9 gage by 1-3/4 inches mesh chain link fabric.
 6. Installed fence fabric shall be free from barbs, icicles, or other projections. Fence fabric with such defects will be deemed defective Work.

2.02 STEEL FENCE FRAMEWORK

- A. Posts, Top Rails, Brace Rails and Gate Frames: Standard weight, schedule 40, hot dip galvanized, welded steel pipe conforming to ASTM F1083, Group IA Heavy Industrial Fence Framework, with a minimum yield strength of 30,000 psi. Minimum 1.8 Oz/ft² hot dipped zinc coating average for interior and exterior.
- B. Miscellaneous Metals:
1. Structural Steel Shapes: ASTM A36.
 2. Steel Pipe: ASTM A53 Type E or S, Grade B, standard weight (Schedule 40), unless otherwise noted. Use black finish where hot dip galvanizing after fabrication is indicated.
 3. Square and Rectangular HSS: ASTM A500 Grade B or C.
 4. Steel Bolts: ASTM A307, Grade A, or F3125 with hex steel nuts per ASTM A563 and washers. Galvanized in accordance with ASTM A153.

- C. Polymer Coated Framework: PVC coating fused and adhered to the exterior zinc coating of the post or rail. PVC coating shall have a minimum thickness of 10 mils per ASTM F1043. Color shall be per ASTM F934 and shall match fabric.
- D. Schedule of Posts, Rails, Bracings and Footings: Unless indicated otherwise on the drawings, shall be of sizes indicated on the following schedule.

Item	Height	Nominal Pipe Size (inches)	Outside Diameter (inches)	Weight (pounds per foot)	Footings	
					Diameter(i nches)	Depth (inches)
Top Rail, Brace Rails and Transom Rails	Up to 10'-0"	1-1/4	1.660	2.27	N/A	N/A
	10'-1" to 16'-0"	1-1/2	1.900	2.72	N/A	N/A
Line Posts	Up to 6'-0"	2	2.375	3.65	12	24
	6'-1" to 8'-0"	2	2.375	3.65	12	36
	8'-1" to 10'-0"	2-1/2	2.875	5.80	12	36
	10'-0" to 16'-0"	3	3.5	7.58	14	60
	14'-0" to 16'-0"	3-1/2	4.000	9.12	14	60
Terminal, Corner, Angle & Pull Posts	Up to 8'-0"	2-1/2	2.875	5.79	12	36
	8'-0" to 10'-0"	2-1/2	2.875	5.79	14	42
	10'-1" to 16'-0"	3	3.5	7.58	14	60
Pedestrian Gate Posts	Up to 8'-0"	2-1/2	2.875	5.79	14	36
Gate Frames	Up to 8'-0"	1-1/2	1.900	2.72	N/A	N/A
Driveway Double-Leaf Swing Gate Posts: Opening						
Up to 17'-3-1/2"	Up to 8'-0"	3 1/2	4	9.11	16	42
17'-4" to 20'-3-1/2"	Up to 8'-0"	3-1/2	4	9.11	16	42

2.03 FITTINGS

- A. Fittings shall be malleable iron conforming to ASTM A47 or ASTM F626.
- B. Post Caps: Designed to fit snugly over posts with a minimum projection of 1-1/2 inches below top of posts. Post caps shall be manufactured with a curved top.
- C. Eye Tops: Designed to fit over line posts, and for through passage of top rail.
- D. Expansion Sleeve Couplings for Top Rails: Steel, 6 inches long, designed to fit tightly on inside of rail, fitted with raised center.
- E. Rail Ends for Top Rails and Brace Rails: With holes to receive 3/8 inch bolts for securing to rail end bands.

- F. Tension Bands and Bands for Securing Rail Ends: Mild steel flats, at least 11 gage x one inch, tension bands in gates shall be 11 gage by 1 inch. Bolts for use with tension bands and rail end bands shall be galvanized machined 3/8 inch by 1 1/2-inch.
- G. Tension Bars: Mild steel flats at least 3/16 inch by 3/4 inch.
- H. Polymer Coated Fittings: In conformance with ASTM F626. Polymer coating minimum thickness 0.006 inch, fused and adhered.

2.04 TENSION WIRE

- A. 6 gage marcelled steel wire conforming to ASTM A824, Type II Class 5 zinc coated, 2.00 ounces minimum per square foot of uncoated wire surface. Wavy type wire is not acceptable.
- B. Polymer Coated: Galvanized tension wire shall be as specified on above paragraph, with polymer coating conforming to ASTM F1664. Color shall match fabric and shall be in compliance with ASTM F934.
- C. Turnbuckles for installation with Tension Wires: Eye and hook type, drop forged steel, right and left hand threads, at least 3/8 inch screw diameter with at least 4 1/2-inches of take-up.

2.05 PAINT FOR GALVANIZING REPAIR

- A. Coatings for Refurbishing Galvanizing: Organic zinc-rich paint conforming to ASTM A780 or Carbomastic 15 by Carboline, or equal. Paints and coatings used on the site shall be approved by OWNER's Office of Environmental Health and Safety (OEHS).

2.06 GATES

- A. General:
 - 1. Gate framework shall be fabricated of tubular steel of sizes indicated on the drawings and conforming to ASTM F1083, Group IA, with a minimum yield strength of 30,000 psi. Joints at corners shall be miter cut and continuously welded to sides.
 - 2. Install fence fabric to side members with tension bars and tension bands as specified, spaced not more than 14 inches apart. Tension bars shall extend full height of gate. Install fence fabric to top and bottom members and to brace rail with wire ties as specified for top rails, spaced not more than 12 inches apart. Chain link fabric shall match adjacent fence system.
 - 3. Latches and Hinges: Weld gate latches and strikes to gate posts and frames. Weld OWNER provided hinges to posts. Weld 3 hinges on each post for swing gates more than 16 feet wide. Welding shall be performed before gate frames are galvanized, or welds shall be finished as specified below.
 - 4. Grind welds flush and smooth. Hot-dip galvanize fabricated parts after welding, or be protected by zinc-rich paint in conformance to ASTM A780.

5. Electrically operated gates shall be manufactured and installed in accordance with the safety requirements of ASTM F2200 and UL325.
- B. Swing Gates: Galvanized steel welded fabrication in conformance with ASTM F900, fabric size and gage shall match fence. Positive locking gate latch shall be fabricated of 5/16 inch thick by 1 ¾ inch pressed steel galvanized after fabrication. OWNER will provide one inch weldable hinges only.
- C. Roll Gates: Galvanized steel welded fabrication in conformance with ASTM F900, fabric size and gage shall match fence. Positive locking gate latch shall be fabricated of 5/16 inch thick by 1 ¾ inch pressed steel galvanized after fabrication.
- D. Polymer coated gate frames and gateposts shall match the coating type and color specified for the fence framework. Moveable parts such as hinges, latches and drop rods shall be field coated using a liquid polymer touch up.

2.07 PRIVACY FENCE SLATS

- A. Flat tubular shape with bottom lock track fabricated of PVC material with UV inhibitors.
- B. Privacy Percentage Factor: **[75%]** **[95%]**.

2.08 CONCRETE AND GROUT

- A. Comply with requirements of Section 03 3000, Cast-in-Place Concrete. Provide normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 3,000 psi, 4-inch slump, and one inch maximum size aggregate.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications "Rapid set Cement".

2.09 FABRICATION

- A. Items to be shop fabricated shall be preassembled to greatest extent possible. Use connections that maintain structural value of joined pieces. Mark units for reassembly and installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove sharp and rough areas on exposed surfaces. Form exposed work with accurate angles and surfaces and straight edges. Form exposed connections with hairline joints, flush and smooth.
- C. Weld connections unless otherwise indicated. Weld corners and seams continuously and in accordance with requirements of AWS D1.1 Structural Welding Code. Welds shall be inspected. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- D. Galvanize fabrications in accordance with ASTM A123 and ASTM A153.

PART 3 - EXECUTION

3.01 EARTHWORK

A. Refer to the following Sections for earthwork related work:

1. Section 31 2200 - Grading.
2. Section 31 2316 - Excavation and Fill for Paving.
3. Section 32 0117 - Pavement Repair.

3.02 FRAMEWORK INSTALLATION

- A. Install fences as indicated on Drawings.
- B. Space fence posts at equal intervals between terminal, angle, corner, and gate posts, and not more than 10 feet apart measured from center to center of posts. In curved fence sections having a radius of 50 feet or less, space posts not more than 5 feet - 6 inches apart. Install posts so that top of eye of post caps are level with top of fabric.
- C. Install angle or corner posts at each change in direction of 15 degrees or more, at change of 5 percent or more in grade of fencing, and at the beginning and end of curved fence sections.
- D. Install terminal posts at ends of runs of fencing. Install gateposts on both sides of driveway and pedestrian gates. For double-leaf gates, net opening between gate posts shall be gate size as indicated on Drawings, plus 3 ½-inches; for single leaf gates, net opening shall be gate size plus 2 ½-inches.
- E. Embed posts into footing 6 inches less than the depth of the footing unless noted otherwise on drawings.
- F. Where a fence is to be installed on a curb, construct footings with top of footing level with the lower finish grade. Align posts, set plumb and true before placing footings. Remove splattered concrete from exposed pipe surfaces while concrete is still soft. In bituminous surfaced areas, install seal coat on top of concrete footings.
- G. Install fences with top rail. Top rail shall pass through eye tops and be secured at ends with rail-end fittings and bands.
- H. Install fences over 10 feet in height, in addition to top rail, with a full length horizontal mid-rail set at mid-height of fence and rigidly secured to posts with rail end fittings and bands.
- I. In fences higher than 10 feet, install brace rails at angles, corners, and terminals at 1/4 and 3/4 of fence height. Provide one horizontal brace rail in panels adjacent to terminal, angle, corner, and gateposts, install at mid-height of fence and rigidly secured to posts with rail end fittings and bands. Provide horizontal brace rails, as specified, in panels of curved sections having a radius of 50 feet or less. Brace rails are not required in fencing 4 feet or less in height.
- J. Provide a transom rail and fabric at top of pedestrian gate openings. Install transom rail 6 feet 8 inches above high point of grade at gate opening. Ends of transom rails shall be pinned or riveted to rail end fittings with 1/4 inch mild steel rivets. Pin or rivet shall go through rail and peen. Welding on rail ends is not permitted. Where door closers are installed weld lower transom rail directly to terminal post, rail ends shall not be used.

- K. Install bottom tension wire a minimum of 3 inches from grade for fencing and secure to fence posts with ties. Provide a turnbuckle for each 150 feet of wire or fractional part thereof. Turnbuckles are not required in runs of 15 feet or less. Install ends of tension wires to posts in a manner to prevent slipping or loss of tension. Wrap should start from fence side of post. Turn end of wire around post tightly twisted at least three times around wire. At turnbuckles, wire through eye and tightly twist end at least three times around wire. Cut tail of bottom wire flush.

3.03 CHAIN LINK FABRIC INSTALLATION

- A. Install fence fabric on outward facing side of posts, except for tennis courts. Install fence fabric with top edge projecting above top rail of fence.
- B. Install bottom of fence fabric to clear finish grades, except on bituminous surface install 3/4 inch above such surface. Locally shape and trench ground surfaces where necessary to provide uniform top and bottom alignment of fence.
- C. Tightly stretch fabric and at terminal, pull corner, angle, and gateposts, secure with tension bars extending full height of fence. Secure tension bars to posts with bolted tension bands spaced not more than 14 inches apart.
- D. Bands and Ties: Install bands and ties in accordance with following schedule:
- | | |
|---------------------------|--------------------------|
| 15 bands on 16 feet fence | 16 ties on 16 feet fence |
| 11 bands on 12 feet fence | 12 ties on 12 feet fence |
| 7 bands on 8 feet fence | 7 ties on 8 feet fence |
| 6 bands on 6 feet fence | 6 ties on 6 feet fence |
| 4 bands on 4 feet fence | 4 ties on 4 feet fence |
- E. Fasten fabric to line posts with wire ties spaced not more than 16 inches apart. Where 6 gage aluminum ties are furnished, hook the tie at both ends. Installation of hooked ties with links is not permitted.
- F. Fasten fabric to top rails, mid-rails, brace rails, with wire ties spaced not more than 18 inches apart. Bend back ends of tie wires so as not to be a hazard. At bottom tension wire, install hog rings spaced not more than 18 inches apart. Where 2 fabrics are furnished, lap the fabrics one mesh at mid-rail and tie both fabrics with 9 gage wire or 6 gage aluminum ties to midrails.

3.04 WELD GRINDING

- A. Grind field welds smooth, clean off flux and spatter, damaged galvanizing removed, burrs and projections ground off, properly prepared, then heavily coated with galvanizing repair coating. Install coating in accordance with written recommendations of manufacturer.

3.05 FIELD AND COURT FENCING – NOT USED

3.06 INSTALLATION ON TOP OF CONCRETE WALLS – NOT USED.

3.07 HORIZONTAL APPLICATIONS

- A. Spacing of lid joist framing members shall not exceed four feet on center. Joists shall be welded on both ends to supporting chain link framing structure or mechanically fastened to adjacent buildings, as indicated on the drawings.

3.08 ALTERATIONS TO EXISTING FENCING

A. Resetting Fences:

1. Existing fences shall be reset where finish pavement is raised or lowered more than 6 inches from existing grade. Remove and reinstall entire fence assembly as specified in this Section.
 - a. Where the finish grade is raised 6 inches or less, cut and re-knuckle the existing fence fabric. Adjust tension wire and tie to fabric. Bottom of fence fabric shall be installed $\frac{3}{4}$ " above finish grade.
 - b. Where the finish pavement is lowered 6 inches or less, demolish the fence footing flush with the finish grade and adjust the fabric and its attachments. Bottom of fence fabric shall be installed $\frac{3}{4}$ inches above finish grade.
2. Where existing fencing posts are indicated to be removed, reset or relocated, remove posts including their concrete footings
 - a. Fill footing cavity with sand, compact and cap surface matching existing adjacent material.
 - b. Construct new concrete footings, as specified, in their designated location and set posts as indicated above in Framework Installation Article.
3. Bent posts, rails and accessories shall be replaced with new parts as specified to complete reinstallation. New materials shall closely match design of existing installation. Cut bent portion of posts and weld new sections of equal diameter and thickness. Install splice to inside of all welded section prior to welding. Previously repaired or welded posts shall be replaced.
4. Top rail is required in reinstalled fencing which does not have top rail in its existing condition. Install as specified for new installations.
5. Fabric Removal: Do not remove more than what can be replaced during one day unless a barricade, providing equal security, will be installed in its place. If freestanding temporary fence is used, it shall be clamped and wrap tied.
6. Remove and dispose of off-site concrete debris, chain link, hardware and accessories. Use new hardware and accessories.
7. Gates:
 - a. Remove non-welded type existing hinges and replace with OWNER provided weldable hinges. On existing welded hinges remove bolts and replace with new. Remove existing latches and replace with new.
 - b. Weld gate latches and hinges to posts as indicated for new fencing.

B. Painting: Disassemble existing fence and all attachment hardware (bands, pipe, and wire) prior to preparation of posts for painting. Replace attachment hardware with new.

1. Preparation: Prepare exposed steel posts, rails and accessories thoroughly cleaned of rust, oil and foreign materials. Painted galvanized metal shall be stripped to bare metal before applying prime coat.

2. Priming: Spot prime areas from which the original surface coating had been removed with a metal primer to match adjoining surfaces. Subsequently, install a prime coat to the entire surface to be painted.
3. First Coat: Install first coat as recommended by the paint manufacturer. Furnish a color that is 10 percent to 15 percent lighter or darker than the finish coat.
4. Second or Finish Coat: Install finish coat after the first coat has cured.
5. Install paint in accordance with manufacturer's written recommendations.
6. Protect adjacent structures, walls, concrete or asphalt from paint.

3.09 INSTALLATION OF GATES

- A. Provide gates of the sizes indicated on Drawings. Allow clearance on gates of 1-1/2 inches at bottom and one inch at top. Construct gates installed in sloping areas to conform to the grade. Provide an opening in each gate for access to locking device or padlock. Knuckle ends of fabric cut for opening to eliminate hazards.
- B. Sliding Gates and Swing Gates: Fabricate and install as indicated on Drawings. Wheel housing shall be designed to fit tightly to roll track and prevent gate from rolling over objects. Unsupported cantilever type roll gates are not acceptable. Install gate stops in accordance with the drawings. Both top and track stops are required.

3.10 COMPLETION

- A. Completed fencing shall form continuous units between points indicated with required parts, accessories, and fittings provided and installed. Clean exposed metal surfaces of cement, grout and other foreign substances.
- B. Fill in holes left by removal of existing fence footings, except in areas where grading Work is indicated or specified, to existing grade with clean earth thoroughly compacted to at least same density as adjoining soil.

3.11 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.12 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION



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ROGERS MS CENTRAL KITCHEN (B#24-025) ADDENDUM 1 NARRATIVE

GENERAL

1. G-001 COVER SHEET

- a) Added sheet G-002 Fencing Details to sheet index.
- b) Revised total number of sheets.

2. G-002 FENCING DETAILS

- a) Added sheet G-002 Fencing Details sheet to the set.-

MECHANICAL:

3. M001 MECHANICAL FRONT SHEET

- a) Added Coordination Note #11 to Mechanical Notes.

4. M-002 MECHANICAL LEGEND AND ABBREVIATIONS

- a) Added detail 1 for VRF Wiring Diagrams.

5. M-201 MECHANICAL FIRST FLOOR PLAN

- a) Added Remodel Keynotes 13 and 14.
- b) Relocated outdoor CU units so they aren't underneath the existing overhang.
- c) Revised refrigerant piping routing.
- d) Added note to not penetrate existing exterior stucco overhang or existing exterior stucco walls.
- e) Added in fenced enclosure and gate information.
- f) Relocated Electrical equipment shown for reference and coordination purposes.

6. M-402 MECHANICAL DETAILS SHEET

- a) Revised Detail 1 – FCU Condensate Removal Detail so the CD slope is revised.
- b) Added Detail 4 - Condensate Drain to (E) Lav or Mop Sink.
- c) Revised Detail 6 - Outdoor Unit – CD Connection Detail so the draining method is simplified.
- d) Revised Detail 7 – Outdoor Unit Mounting Detail so the galvanized sheet metal pan is mounted directly to the concrete pad.

7. M-403 MECHANICAL DETAILS SHEET

- a) Revised Detail 2 – Wall Piping Riser Diagram to clarify the spacing between the pipes.
- b) Revised Detail 5 – Split System Installation Detail to remove sheet metal cap and to remove the "slope towards drain" language for the sheet metal pan.

8. M-404 MECHANICAL DETAILS SHEET

- a) Added Detail 2 – Fan Coil Condensate Connection Detail to indicate the condensate drainage for gravity draining the fan coils.
- b) Added Detail 3 – Piping Through Roof Detail for refrigerant piping through the roof.

9. MP-301 MECHANICAL FIRST FLOOR CONDENSATE PLAN

- a. Added General Note 'B'.
- b. Revised Remodel Keynotes #1 and #3. Removed Remodel Keynotes #4, #5 and #6 and indicated them as "Not Used". Added Remodel Keynote #7.

- c. Revised location of outdoor CU units and method of drainage. Removed underground vents that were serving the CU's.
- d. Clarified Pumped Condensate (PCD) locations.
- e. Clarified routing of gravity drained condensate to the existing floor sinks in Kitchen 101.
- f. Clarified routing of pumped condensate from FC-7. This will require patching the existing roof and the existing clerestory window infill.
- g. Revised routing of condensate into sink tailpiece in Laundry/Janitor 117.

ELECTRICAL:

1. E-102 ELECTRICAL ENLARGED SITE PLAN

- a) Revised location of 3" conduit drop through the roof into Serving Line 2 to feed Panel 'HK'.

2. E-103 ELECTRICAL POWER FLOOR PLAN

- a) Revised location of Panel 'HK'.
- b) Added note to not penetrate existing exterior stucco overhang or existing exterior stucco walls.
- c) Relocated Transformer "TR-HK".
- d) Relocated weather-proof exterior power outlet.
- e) Revised location of Panel 'LK'.
- f) Relocated disconnects for CU's to be directly mounted to the CU's.
- g) Removed extra tstat in Serving Line 103.



WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT

4110 W 154TH ST, LAWNDALE, CA 90260

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PTN_64691-65 APPL_03-124869

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SHEET INDEX

GENERAL

G-001 COVER SHEET
G-002 FENCING DETAILS
G-101 SITE PLAN

MECHANICAL

M-001 MECHANICAL FRONT SHEET
M-002 MECHANICAL LEGEND AND ABBREVIATIONS
M-003 MECHANICAL SCHEDULES
M-101 MECHANICAL FIRST FLOOR DEMO PLAN
M-201 MECHANICAL FIRST FLOOR CONSTRUCTION PLAN
MP-301 MECHANICAL FIRST FLOOR CONDENSATE PLAN
M-401 MECHANICAL DETAILS
M-402 MECHANICAL DETAILS
M-403 MECHANICAL DETAILS
M-404 MECHANICAL DETAILS
M-405 MECHANICAL PIPING DIAGRAM
M-501 MECHANICAL TITLE-24
M-502 MECHANICAL TITLE-24

ELECTRICAL

E-001 ELECTRICAL FRONT SHEET
E-002 ELECTRICAL SINGLE LINE DIAGRAM
E-003 PANEL SCHEDULE AND LOAD CALCULATION
E-101 ELECTRICAL SITE PLAN
E-102 ELECTRICAL ENLARGED SITE PLAN
E-103 ELECTRICAL POWER FLOOR PLAN
E-301 ELECTRICAL DETAILS

SHEET COUNT 23 PAGES

PROJECT DATA

SCOPE OF WORK

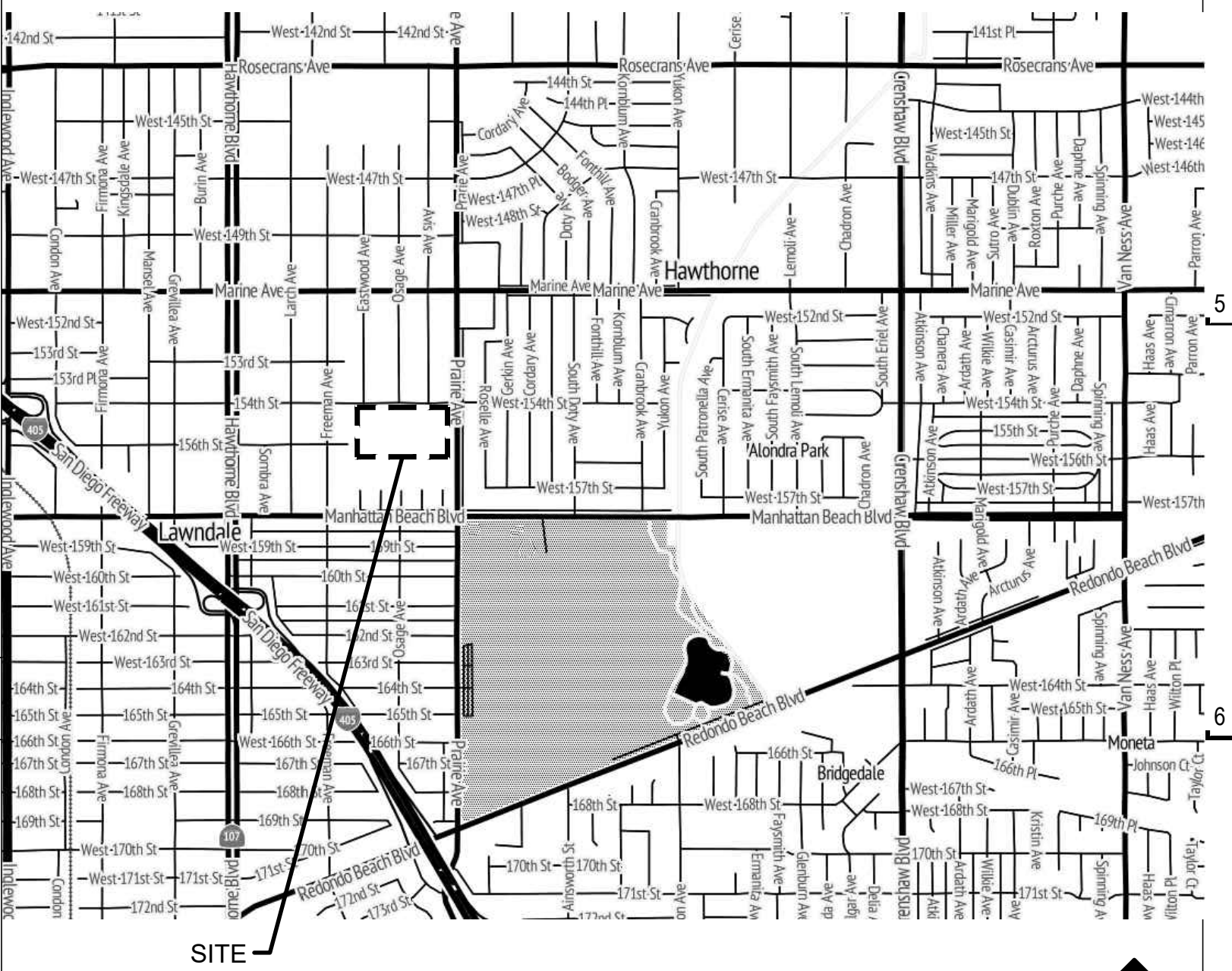
PROJECT SCOPE OF WORK IS TO PROVIDE
SUPPLEMENTAL HVAC TO PROVIDE COOLING IN THE
EXISTING FOLLOWING AREAS:

- KITCHEN 101
- SERVING LINE 103 & 106
- OFFICE 102 & 1118
- STORAGE 107 & 109

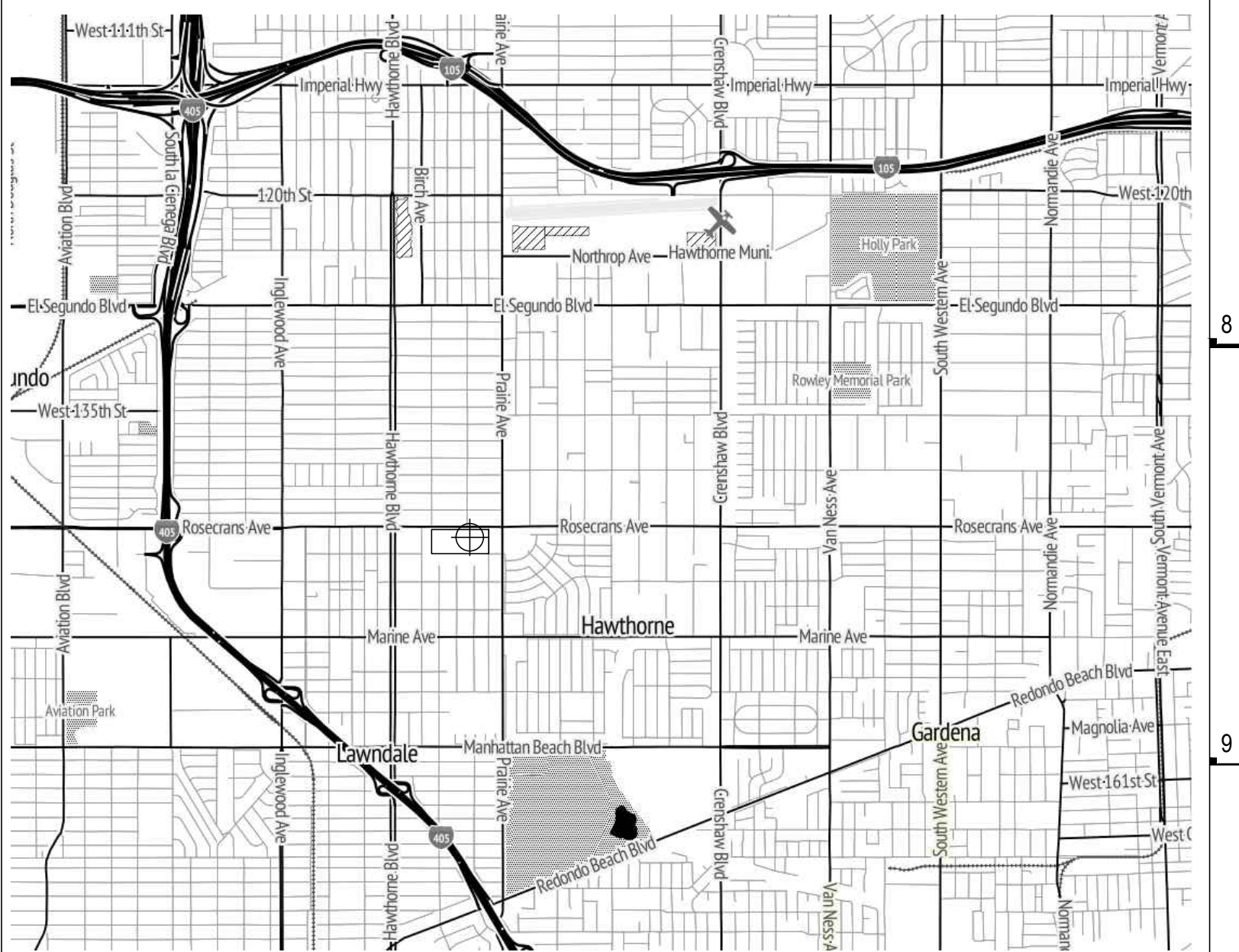
SITE SPECIFIC STRUCTURAL DESIGN CRITERIA

SEISMIC:

EQUIVALENT LATERAL FORCE FOR EQUIPMENT ANCHORAGE
SITE CLASS = D-DEFAULT
Ss = 1.8, Fa = 1.2, Sds = 1.44, Ip = 1.0
Fp = 0.43 Wp FOR GROUND MOUNTED CONDENSER WITH Ap = 1.0, Rp = 2.5
WIND:
95 MPH EXPOSURE C



VICINITY MAP



LOCATION MAP

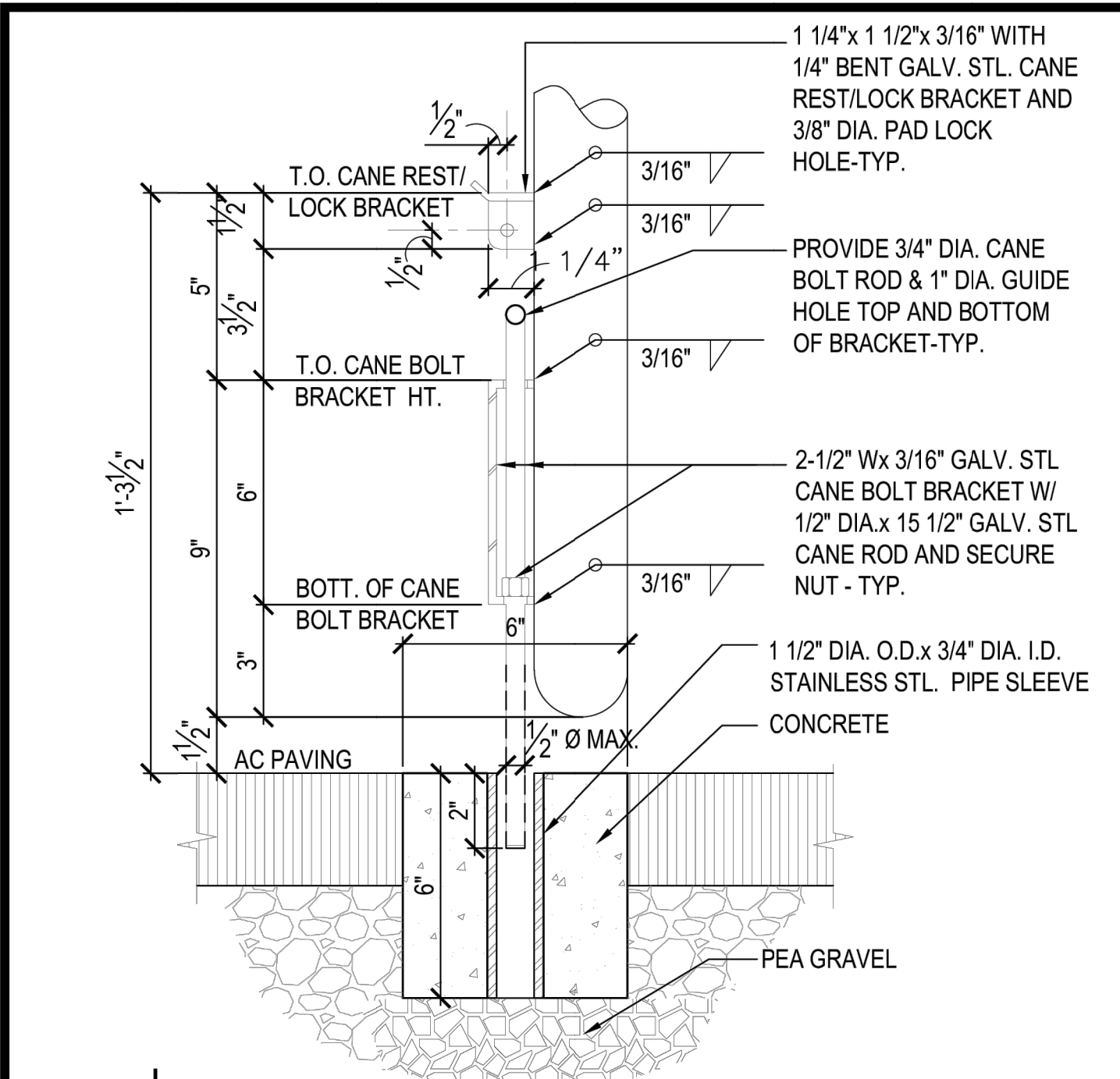


LES WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
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4110 W 154TH ST, LAWNDALE, CA 90260

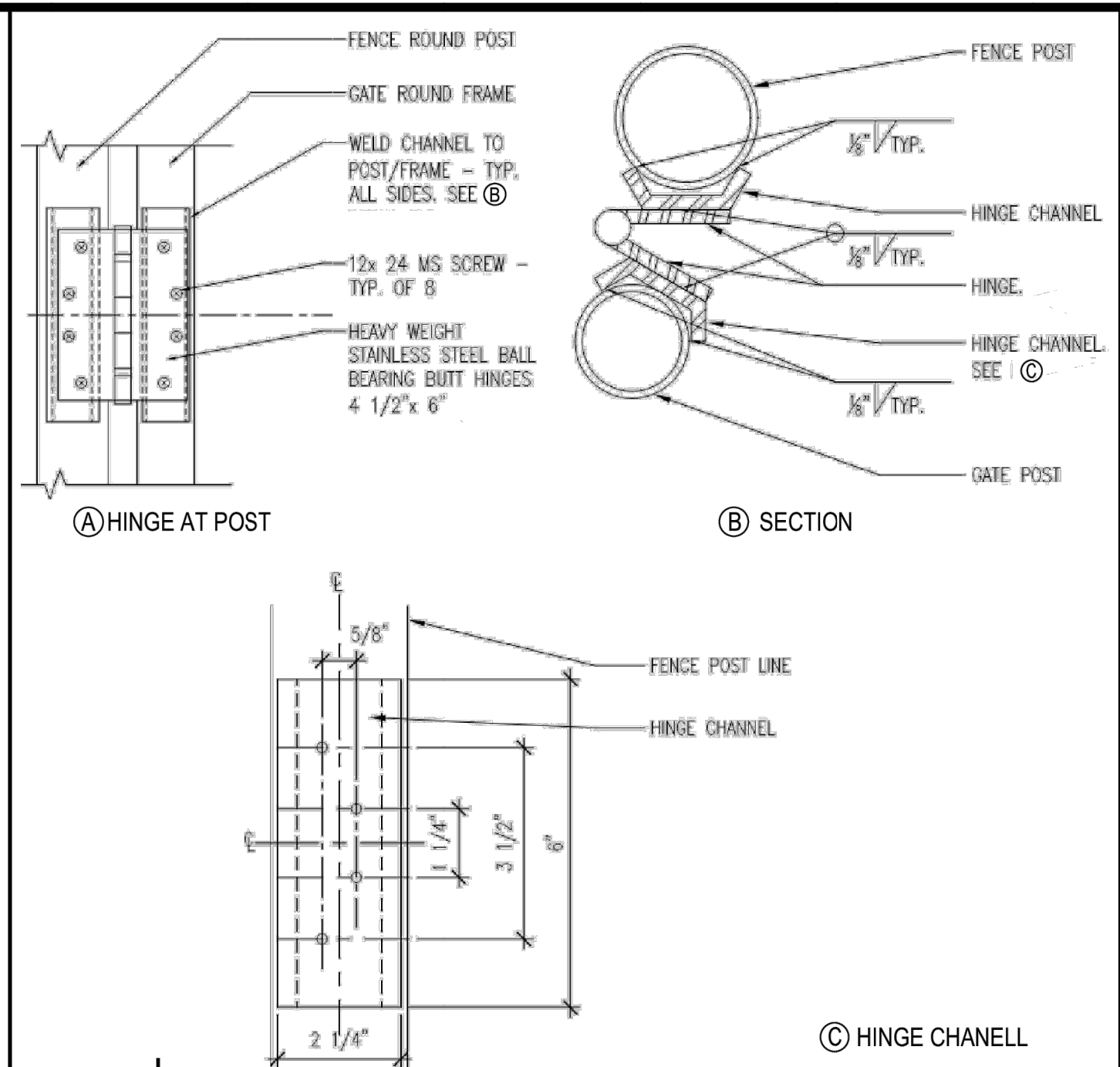
COVER SHEET

G-001

PTN_64691-65 APPL_03-124869



12 CANE BOLT INSERT
REF. SCALE: 3"=1'-0"



9 HINGE DETAIL
REF. SCALE: 1/4"=1'-0"

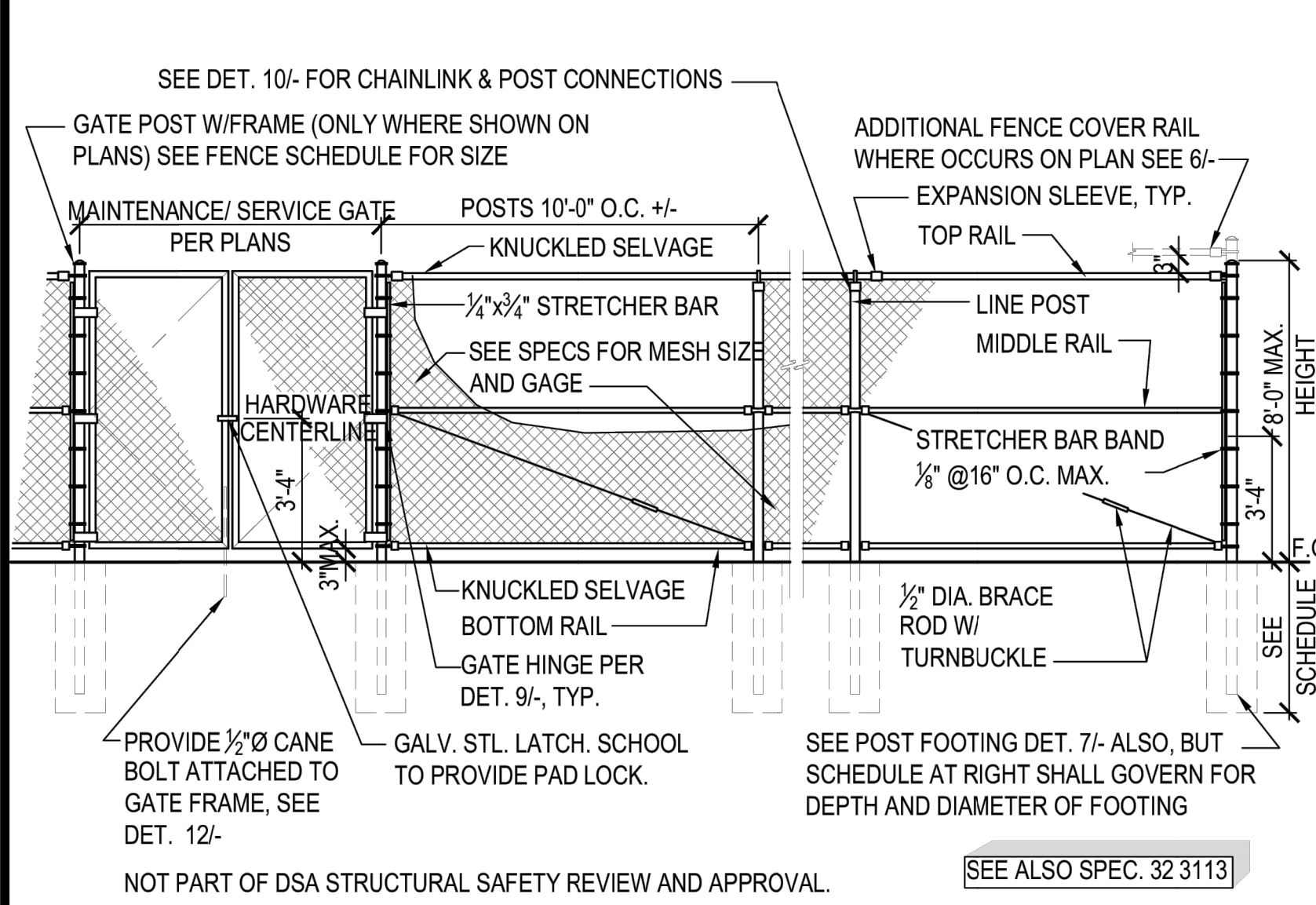
GENERAL NOTES

CONTRACTOR SHALL REPAIR ALL EXISTING PAVING, LAWN, LAWN SPRINKLERS, UTILITIES AND ALL OTHER IMPROVEMENTS DAMAGED BY CONSTRUCTION ACTIVITIES.

PROVIDE SAFETY BARRIERS, CONES, FLASHING LIGHTS AND ALL APPROPRIATE SAFETY MEASURES TO PROTECT THE OWNER'S PROPERTY AND ALL OCCUPANTS.

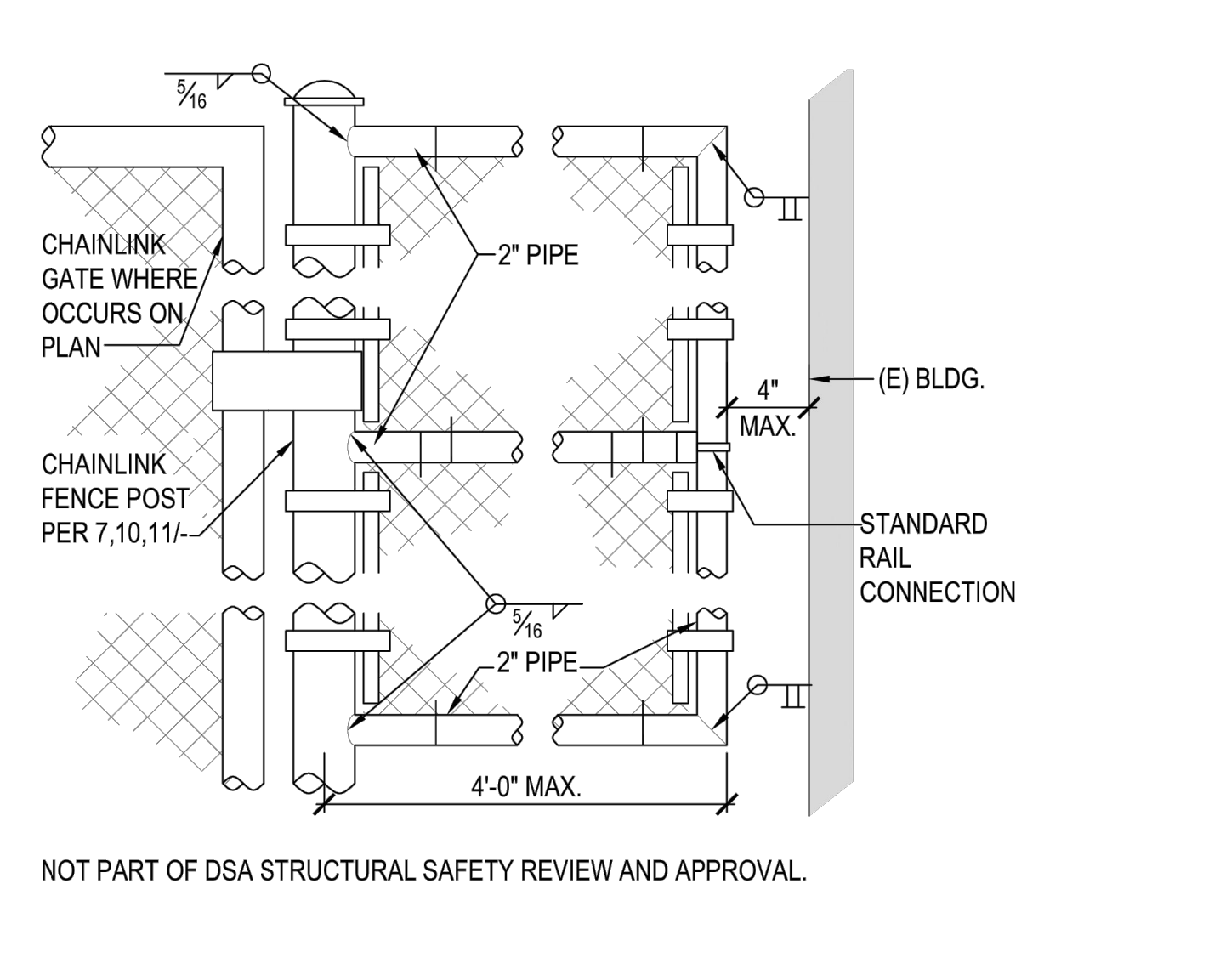
REMOVE ALL DEBRIS & DEMOLITION ITEMS FROM SITE & DISPOSE OF IN A LEGAL MANNER, U.N.O.

CHECK AND PERFORM TEST FOR ALL IRRIGATION LINES AT AREAS WHERE IRRIGATION IS AFFECTED BY CONSTRUCTION. IRRIGATION SYSTEM SHALL BE RESTORED TO THE WORKING CONDITION AFTER CLASSROOMS ARE REMOVED.

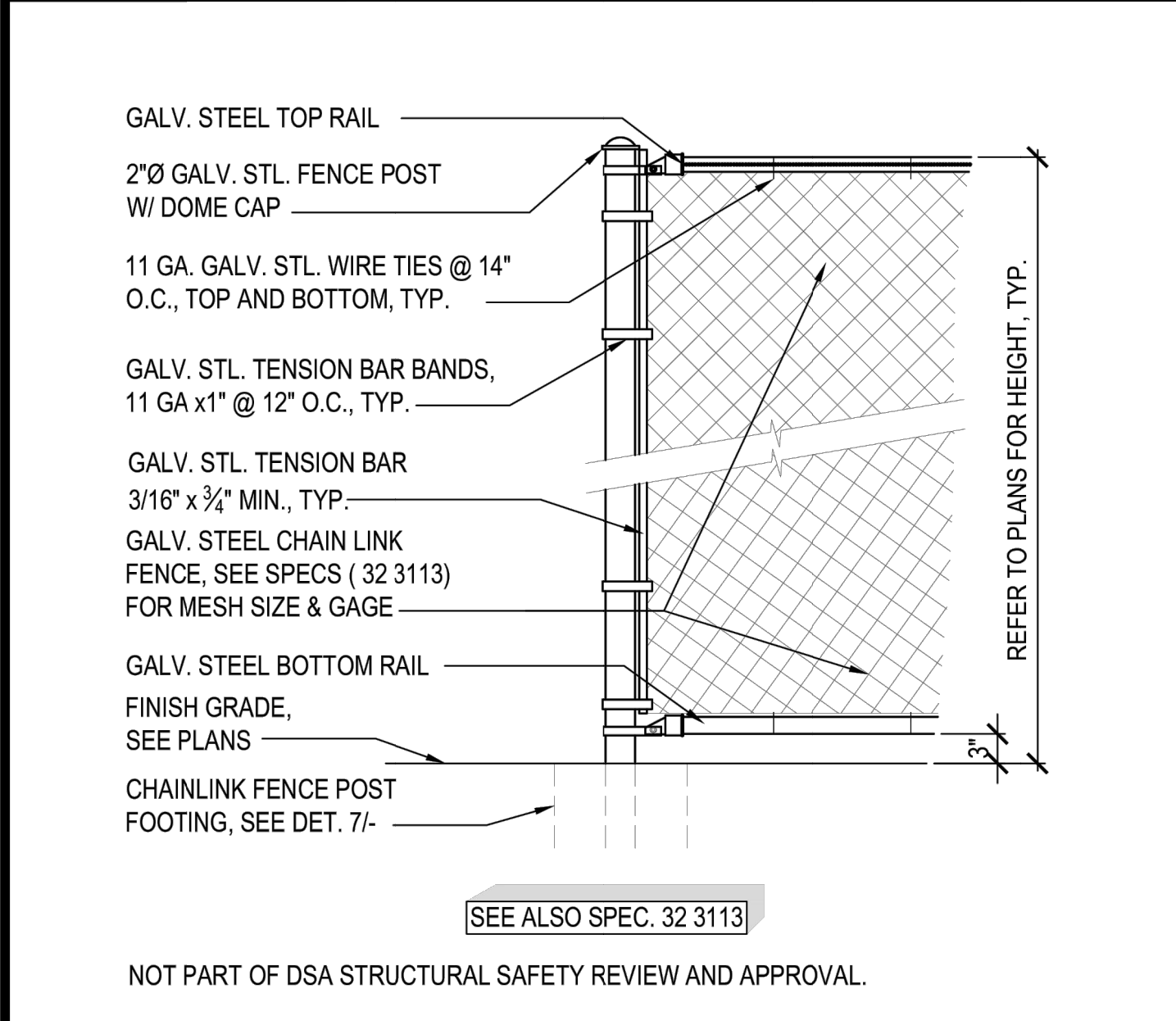


11 CHAIN LINK FENCE & SCHEDULE
REF. SCALE: 1/4"=1'-0"

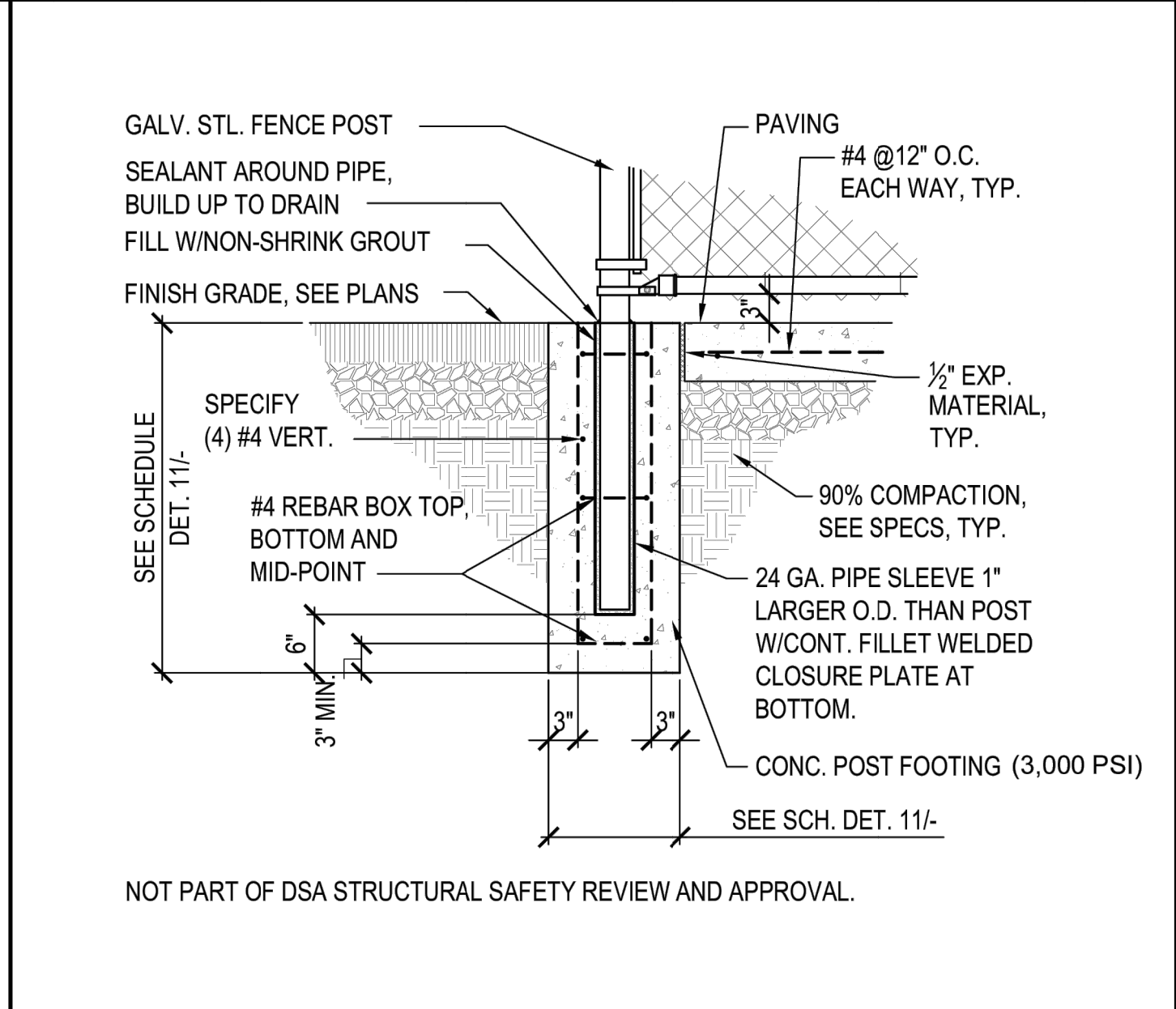
ITEM	HEIGHT	NOMINAL PIPE SIZE	OUTSIDE DIA.	WEIGHT (LBS. PER FOOT)	FOOTINGS DIA.	FOOTINGS DEPTH
TOP RAIL, BRACE RAILS & TRANSOM RAILS	UP TO 10'-0"	1-5/8"	1.660"	2.27	N/A	N/A
	10'-1" TO 16'-0"	1-7/8"	1.900"	2.72	N/A	N/A
LINE POSTS	UP TO 6'-0"	2-3/8"	2.375"	3.65	12"	24"
	6'-1" TO 8'-0"	2-3/8"	2.375"	3.65	12"	36"
	8'-1" TO 10'-0"	2-7/8"	2.875"	5.80	12"	36"
	10'-1" TO 16'-0"	3-1/2"	3.5"	7.58	14"	60"
	14'-0" TO 16'-0"	4"	4.000"	9.12	14"	60"
TERMINAL, CORNER, ANGLE & PULL POSTS	UP TO 8'-0"	2-1/2"	2.875"	5.79	12"	36"
	8'-1" TO 10'-0"	2-1/2"	2.875"	5.79	14"	42"
	10'-1" TO 16'-0"	3"	3.5"	7.58	14"	60"
PEDESTRIAN GATE POSTS	UP TO 8'-0"	2-1/2"	2.875"	5.79	14"	36"
GATE FRAMES	UP TO 8'-0"	1-1/2"	1.900"	2.72	N/A	N/A
DRIVEWAY DOUBLE-LEAF SWING GATE POSTS: OPENING						
UP TO 17'-3-1/2"	UP TO 8'-0"	3-1/2"	4"	9.11	16"	42"
17'-4" TO 20'-3-1/2"	UP TO 8'-0"	3-1/2"	4"	9.11	16"	42"



5 CHAINLINK FENCE CANTILEVER
REF. SCALE: 1-1/2"=1'-0"



10 TYPICAL FENCE DETAIL
REF. SCALE: 3/4"=1'-0"



7 TYPICAL FENCE FOOTING DETAIL
REF. SCALE: 3/4"=1'-0"



An MBE/DBE/DBFV Firm
Glendale/Downtown LA/Fremont/Camarillo
W W W . B U I L D I N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST., LAWDALE, CA 90260

FENCING DETAILS

G-002

MECHANICAL NOTES

SCOPE OF WORK

1.

THE WORK INCLUDED UNDER THIS SECTION CONSISTS OF FURNISHING ALL MATERIALS, EQUIPMENT AND LABOR, AND THE PERFORMING OF ALL FUNCTIONS, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE DRAWINGS TO BE PERFORMED BY OTHERS, AND FOR THE INSTALLATION OF ALL HEATING AND COOLING EQUIPMENT, PIPING AND ALL DUCTWORK, GRILLES, REGISTERS, ETC., INCLUDING ALL CONNECTIONS TO EACH SYSTEM AS SPECIFIED HEREIN AND SHOWN ON THE DRAWINGS. IT SHALL FURTHER INCLUDE FURNISHING AND INSTALLING ALL MISCELLANEOUS ITEMS REQUIRED FOR THE OPERATION OF THE SYSTEM, WHETHER SPECIFICALLY CALLED OUT OR NOT.
2.

SPECIAL INSPECTIONS: WHERE THE PLANS INDICATE SPECIAL INSPECTIONS AND REPORT, OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, HIRE AN INDEPENDENT THIRD PARTY INSPECTOR OR TESTING AGENCY TO PERFORM THE REQUIRED INSPECTIONS FOR THE TYPES OF WORK REQUIRED OR IDENTIFIED ON THE SPECIAL INSPECTION FORM. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE REGISTERED DESIGN PROFESSIONAL ENGINEER, PROVIDING TEST RESULTS AND STATING WHETHER THE ITEMS REQUIRING SPECIAL INSPECTION WERE IN COMPLIANCE WITH THE INSPECTION REQUIREMENTS. PROVIDE ADDITIONAL COST FOR ENGINEER'S SEALED LETTER OF APPROVAL.

COORDINATION

1.

CONTRACT DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS. COORDINATE WORK WITH ALL TRADES TO AVOID INTERFERENCE. INSTALLED HVAC WORK WHICH INTERFERES WITH THE WORK OF OTHER TRADES DUE TO LACK OF COORDINATION SHALL BE RE-INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
2.

REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT, PARTITIONS, WALLS, AND GENERAL CONSTRUCTION.
3.

ALL CONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING WORK WITH OTHER TRADES AFFECTED BY EACH OTHERS WORK.
4.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS WHICH MAY AFFECT HIS WORK BEFORE SUBMITTING BIDS.
5.

PERFORMANCE OF ALL WORK SHALL BE SCHEDULED AS APPROVED BY THE OWNER, AVOID INTERFERENCE WITH FUNCTIONS IN OTHER PARTS OF THE FACILITY, AND COORDINATE WITH THE WORK OF OTHER TRADES. SERVICES SHALL NOT BE INTERRUPTED WITHOUT WRITTEN PRIOR APPROVAL OF THE OWNER.
6.

NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT AND THE STRUCTURAL ENGINEER.
7.

PROTECT EXISTING BUILDING STRUCTURE AND GROUNDS FROM DAMAGE WHICH MAY OCCUR DURING DEMOLITION WORK. ANY DAMAGE TO THE EXISTING FACILITIES SHALL BE REPAIRED, REPLACED, OR RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.
8.

SPACE ABOVE CEILINGS IS CRITICAL - THE CONTRACTOR SHALL VERIFY SPACE ABOVE CEILING & COORDINATE WITH PLUMBING, ELECTRICAL, STRUCTURAL, FIRE PROTECTION, ARCHITECTURAL, AND ALL OTHER TRADES INVOLVED BEFORE COMMENCEMENT OF WORK.
9.

PATCH & PAINT TO MATCH EXISTING SURROUNDING AREA WHERE DUCTS, PIPES, ETC. PASS THROUGH WALL OR CEILING.
10.

INSPECTOR SHALL ENFORCE MATH CERTIFICATION
11.

COORDINATE ALL EXTERIOR PENETRATIONS INCLUDING ROOF PENETRATIONS WITH OTHER TRADES TO PROVIDE A COMPLETE AND FULLY WEATHER-PROOF INSTALLATION.

CODES AND PERMITS

1.

ALL MATERIALS, EQUIPMENT AND INSTALLATION MUST COMPLY WITH ALL APPLICABLE LAWS, CODES, RULES AND REGULATIONS, REQUIRED BY CITY, COUNTY AND STATE, AS WELL AS FEDERAL REQUIREMENTS.
2.

COMBUSTIBLE MATERIALS SHALL NOT BE USED IN A NON-COMBUSTIBLE BUILDING AS DEFINED BY THE BUILDING CODE. COMBUSTIBLE MATERIALS MAY BE PROTECTED AS SPECIFIED BY THE ENGINEER AND ARCHITECT OF RECORD.
3.

PERMITS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES AND FEES.
4.

INSPECTIONS: FURNISH OWNER WITH CERTIFICATE OF INSPECTION AND APPROVAL BY LOCAL AUTHORITIES PRIOR TO FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL WORK MUST BE INSPECTED.

PRODUCTS

1.

ALL PRODUCTS SHALL BE NEW AND UNUSED OF ESTABLISHED AND REPUTABLE AMERICAN MANUFACTURERS. ITEMS OF EQUIPMENT USED FOR THE SAME PURPOSE SHALL BE OF THE SAME MANUFACTURER.
2.

SYSTEMS SHALL BE COMPLETE AND OPERABLE. ANY ACCESSORIES REQUIRED FOR THE OPERATION OF THE SYSTEM SHALL BE INCLUDED AS THOUGH SPECIFICALLY INDICATED TO BE PROVIDED. SUCH ACCESSORIES INCLUDE BUT ARE NOT LIMITED TO FILTERS, CONDENSATE DRAINS, RELIEF VALVES, SERVICE VALVES, THERMOSTATS, VIBRATION ISOLATORS, ETC. MOTOR STARTERS FOR PREWIRED EQUIPMENT (AND OTHER PROTECTION AND CONTROL DEVICES) ARE ALSO INCLUDED IN THIS SPECIFICATION. SPECIFIC REFERENCE TO A MANUFACTURERS PRODUCT IS ONLY TO ESTABLISH TYPE, QUALITY, AND PERFORMANCE REQUIRED. THESE QUALIFICATIONS ARE IN ADDITION TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. LISTING OF ALTERNATE EQUIPMENT MANUFACTURERS SHALL NOT BE CONSTRUED AS AN UNCONDITIONAL APPROVAL OF THE PRODUCTS OF THOSE MANUFACTURERS.
3.

ACCEPTABLE HVAC EQUIPMENT MANUFACTURERS: AS SPECIFIED ELSEWHERE IN THESE DOCUMENTS.
4.

PROVIDE CLEARANCES AS PER MANUFACTURERS RECOMMENDATIONS.

SUBSTITUTIONS

1.

SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE BY OWNERS, ARCHITECTS, OR ENGINEERS WRITTEN APPROVAL. ANY DEVIATION FROM THESE DRAWINGS WILL NOT BE ALLOWED.
2.

MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO THE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION.

GENERAL REQUIREMENTS FOR CONTROLS AND CONTROL WIRING

1.

ALL CONTROL EQUIPMENT, INTEGRAL STARTERS, INTERLOCKING STARTERS, SMOKE DETECTORS, RELAYS, TRANSFORMERS, PANELS AND OTHER DEVICES SHOWN, SPECIFIED OR NEEDED FOR A COMPLETE CONTROL SYSTEM ARE TO BE PROVIDED AND INSTALLED UNDER THIS MECHANICAL DIVISION. COMPONENTS AND WIRING NOT SHOWN, BUT REQUIRED FOR THE PROPER OPERATION OF EQUIPMENT OR CONTROL SYSTEMS, SHALL BE PROVIDED AT NO

2.

ADDITIONAL COST TO THE PROJECT.
3.

POWER WIRING, LOW VOLTAGE WIRING AND RACEWAYS RELATED TO CONTROLS SYSTEMS ARE TO BE PROVIDED AND INSTALLED UNDER THIS MECHANICAL DIVISION.
4.

INSTALLATION OF ALL EQUIPMENT, DEVICES AND WIRING SHALL CONFORM TO THE NATIONAL ELECTRIC CODE. ALL CONTROLS SHALL BE FURNISHED AND PROPERLY IDENTIFIED WITH INSTRUCTIONS FOR PROPER CONNECTIONS. RESPONSIBILITY FOR PROPER CONNECTIONS AND OPERATION IS INCLUDED UNDER THE MECHANICAL CONTRACTORS RESPONSIBILITY. VERIFY ALL VOLTAGES, PHASES AND ELECTRICAL CONNECTIONS WITH THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY EQUIPMENT, AND IF DISCREPANCIES OCCUR, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK.
5.

ALL TEMPERATURE CONTROLS ARE TO BE TESTED, ADJUSTED, AND CALIBRATED FOR PROPER OPERATION.
6.

COORDINATE EXACT THERMOSTAT AND/OR MOUNTING HEIGHT ABOVE FINISHED FLOOR AND FINAL LOCATION WITH THE ARCHITECT.
7.

THERMOSTATS LOCATED ON EXTERIOR WALLS SHALL HAVE AN INSULATED SUB-BASE.

RELIEF VENTS

1.

ALL RELIEF VENT EXTERIOR PENETRATIONS SHALL BE PROVIDED WITH COUNTERBALANCED BAROMETRIC BACKDRAFT DAMPERS.

EQUIPMENT

1.

ALL MECHANICAL EQUIPMENT SHALL BE PROPERLY LISTED AND LABELED BY AN APPROVED AGENCY.
2.

ALL EQUIPMENT SHALL BE LABELED WITH STEEL TAGS EMBOSSED WITH 1/4" HIGH LETTERS, PERMANENTLY ATTACHED. TAG SHALL CLEARLY INDICATE THE AREA SERVED BY THE EQUIPMENT.
3.

MAINTAIN MANUFACTURER'S RECOMMENDATIONS FOR ALL REQUIRED SERVICE CLEARANCES AND INSTALLATION OF EQUIPMENT.
4.

REFER TO ARCHITECTURAL DRAWINGS FOR ACCESS TO ROOF INSTALLED MECHANICAL EQUIPMENT. ROOF ACCESS TO COMPLY WITH THE MECHANICAL CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

CLEANUP

1.

REMOVE AS MUCH DIRT, SCRAP MATERIAL AND DEBRIS AS POSSIBLE, AT THE END OF EACH WORKING DAY TO PREVENT HAZARDOUS CONDITIONS AND EXCESS DUST.
2.

OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT AND APPURTENANCES TO BE REMOVED. CONTRACTOR SHALL MOVE ALL EQUIPMENT NOT REFUSED BY THE OWNER TO A LOCATION ON SITE DESIGNATED BY THE OWNER. COORDINATE REMOVAL WITH THE OWNER PRIOR TO START OF WORK. EQUIPMENT REFUSED BY THE OWNER SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

FINAL TESTS

1.

AN INDEPENDENT AABC, NEBB OR TABB LIFE SAFETY LEVEL 2 CERTIFIED CONTRACTOR SHALL BALANCE AIR DISTRIBUTION TO VALUES LISTED ON DRAWINGS. A FINAL COPY OF THE TEST AND BALANCE REPORT SHALL BE PROVIDED TO THE ENGINEER UPON COMPLETION OF THE REPORT. A PROJECT SHALL NOT BE CONSIDERED IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS UNTIL SUCH A REPORT HAS BEEN PROVIDED TO THE ENGINEER.
2.

BEFORE ACCEPTANCE AND FINAL PAYMENT, IT SHALL BE DEMONSTRATED THAT ALL APPARATUS IS FUNCTIONING PROPERLY AND EFFICIENTLY. THE CONTRACTOR SHALL MAKE A THOROUGH TEST OF EACH SUPPLY, RETURN, AND EXHAUST SYSTEMS TO ASSURE THAT EACH DIFFUSER AND REGISTER HAS THE PROPER QUANTITY OF AIR IN ACCORDANCE WITH AABC OR NEBB. PROVIDE ADDITIONAL COMFORT BALANCE ADJUSTMENTS PER OWNER/TENANT REQUIREMENTS TO ADDRESS ANY NEEDED VARIATIONS IN DESIGN AIR FLOWS.
3.

THE TEST AND BALANCE CONTRACTOR HAS THE RIGHT TO COMMUNICATE ANY INFORMATION TO THE MECHANICAL ENGINEER.

GUARANTEE

1.

THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FROM DEFECT OF WORKMANSHIP, AND SHALL REPLACE OR REPAIR WITHOUT ADDITIONAL COST TO THE OWNER ALL DEFECTIVE MATERIAL AND WORKMANSHIP, FOR A PERIOD OF (1) YEAR AFTER COMPLETION AND ACCEPTANCE.

CLOSEOUT

1.

SUBMIT THE SPECIFIED NUMBER OF COPIES OF SHOP DRAWINGS FOR MATERIALS, FIXTURES AND EQUIPMENT. INDICATE MANUFACTURERS, TRADE NAMES, SPECIFIC MODEL NUMBERS, AND TECHNICAL INFORMATION FOR EACH ITEM BEING FURNISHED.
2.

ASSEMBLE OPERATION MANUALS FOR EACH ITEM INSTALLED FURNISH EQUIPMENT CUT SHEET AND CONTROL WIRING DIAGRAMS. SUBMIT COPIES AS DEFINED UNDER GENERAL CONDITIONS.
3.

ALL SYSTEMS SHALL BE COMPLETE AND FULLY OPERATIONAL. ACCEPTANCE BY THE OWNER SHALL BE A CONDITION OF THE CONTRACT.
4.

ALL MATERIALS, WORKMANSHIP, AND EQUIPMENT SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR AFTER SYSTEM ACCEPTANCE.
5.

PROVIDE TYPE WRITTEN OPERATING INSTRUCTIONS AND EQUIPMENT WARRANTIES TO THE OWNERS REPRESENTATIVES.
6.

CONTRACTOR SHALL FURNISH RECORD SET DRAWINGS CONSISTING OF REPRODUCIBLE CAD FILES UPON COMPLETION OF WORK FOR OWNER'S USE. MINIMUM SCALE SHALL BE 1/8"= 1'-0". THE COMPLETE SET OF RECORD DOCUMENTS IN SHALL BE IN AN AUTOCAD FORMAT AS REQUIRED BY OWNER, ON COMPACT DISC. CONTRACTOR SHALL MAKE FINAL INSPECTION AND TESTS IN THE PRESENCE OF THE OWNER AND SHALL SUPPLY ALL LABOR, MATERIALS, INSTRUMENTS, AND EQUIPMENT REQUIRED FOR TESTING.

ORDER OF PRECEDENCE OF DOCUMENTS

1.

SHOULD A CONFLICT ARISE BETWEEN CONSTRUCTION DOCUMENTS, THE ORDER OF PRECEDENCE SHALL BE:

1.1.

SPECIAL PROVISIONS

1.2.

GENERAL PROVISIONS

1.3.

SPECIFICATIONS

1.4.

DETAILS ON DRAWINGS

1.5.

PLAN DRAWINGS
2.

THE ENGINEER OF RECORD SHALL BE NOTIFIED BEFORE A DECISION IS MADE.

TITLE 24 NOTES

1.

ALL THERMOSTATS SHALL HAVE A DEADBAND BETWEEN HEATING AND COOLING, CAPABLE OF ADJUSTMENT UP TO 10°F.
2.

ALL EQUIPMENT DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FIXED IN PLACE IN ACCORDANCE WITH SEISMIC REQUIREMENTS.
3.

REQUIRED ROUTINE MAINTENANCE ACTION SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE PERMANENT WEATHERPROOF LABEL. THE LABEL MAY BE LIMITED TO CROSS-REFERENCING THE MAINTENANCE MANUAL IF SUCH MAINTENANCE ACTION IS DESCRIBED THEREIN FOR THE LABELED ITEM.
4.

AIR-HANDLING DUCT SYSTEMS SHALL BE CONSTRUCTED, INSTALLED, SEALED, AND INSULATED AS PROVIDED IN THE LATEST EDITION OF THE UNIFORM MECHANICAL CODE CHAPTER 6 OR SMACNA GUIDELINES AS A MINIMUM.
5.

ALL EQUIPMENT SHALL CONFORM TO AND BE CERTIFIED IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND THE REQUIREMENTS FOR SUCH DEVICES GIVEN IN THE PLANS AND SPECIFICATIONS APPROVED BY THE LOCAL ENFORCEMENT AGENCY.
6.

ALL EQUIPMENT SHALL BE LABELED AS TO FUNCTION AND SPACES SERVED. (SEE SCHEDULE)

POLLUTANT CONTROL

INDOOR AIR QUALITY DURING CONSTRUCTION

TEMPORARY VENTILATION DURING CONSTRUCTION SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING:

1.

VENTILATION DURING CONSTRUCTION SHALL BE ACHIEVED THROUGH OPENINGS IN THE BUILDING SHELL USING FANS TO PRODUCE NOT LESS THAN THREE AIR CHANGES PER HOUR.
2.

THE SUPPLY AND RETURN HVAC SYSTEM OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS THAT CAN COLLECT IN THE SYSTEM.
3.

THE BUILDING WILL BE OCCUPIED DURING DEMOLITION AND CONSTRUCTION. VENTILATION SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTROL MEASURES OF THE SMACNA IAQ GUIDELINES FOR OCCUPIED BUILDINGS DURING CONSTRUCTION.
4.

THE PERMANENT HVAC SYSTEM SHALL NO BE USED DURING CONSTRUCTION TO CONDITION AND VENTILATE THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. WHERE REQUIRED, A SUPPLEMENTAL HVAC SYSTEM SHALL BE USED DURING CONSTRUCTION.

APPLICABLE CODES

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING PARTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR):

PART 1 - 2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
PART 2 - 2022 CALIFORNIA BUILDING CODE (CBC) VOLUME 1 AND 2
PART 3 - 2022 CALIFORNIA ELECTRICAL CODE (CEC)
PART 4 - 2022 CALIFORNIA MECHANICAL CODE (CMC)
PART 5 - 2022 CALIFORNIA PLUMBING CODE (CPC)
PART 6 - 2022 CALIFORNIA ENERGY CODE (CEC)
PART 7 - CURRENTLY VACANT
PART 8 - 2022 CALIFORNIA HISTORICAL BUILDING CODE
PART 9 - 2022 CALIFORNIA FIRE CODE (CFC)
PART 10- 2022 CALIFORNIA EXISTING BUILDING CODE
PART 11- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
PART 12- 2022 CALIFORNIA REFERENCED STANDARDS

PARTIAL LIST OF APPLICABLE STANDARDS:

NFPA 13. AUTOMATIC SPRINKLER SYSTEMS (CALIFORNIA AMENDED)	2022 EDITION
NFPA 14. STANDPIPE SYSTEMS (CALIFORNIA AMENDED)	2024 EDITION
NFPA 17. DRY CHEMICAL EXTINGUISHING SYSTEM	2024 EDITION
NFPA 17A. WET CHEMICAL SYSTEMS	2024 EDITION
NFPA 20. STATIONARY PUMPS	2022 EDITION
NFPA 24. PRIVATE FIRE MAINS (CALIFORNIA AMENDED)	2022 EDITION
NFPA 72. NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED)	2022 EDITION
(NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES")	
NFPA 80. FIRE DOOR AND OTHER OPENING PROTECTIVES	2022 EDITION
NFPA 253. CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2023 EDITION
NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEM	2022 EDITION

GENERAL NOTES

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT:
HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/
ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM
/ACCEPTANCE.

THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

A DSA CERTIFIED CLASS 3 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN THE SECTION 4-342 PART 1, TITLE 24, C.C.R.

SCOPE OF WORK

1.

PROVIDE THREE NEW HEAT PUMP VRF SPLIT SYSTEM TO SERVER KITCHEN, OFFICE'S STORAGE AND SERVING AREAS.

DSA ANCHORAGE NOTES

APPLICABLE CODE: 2022 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1.

ALL PERMANENT EQUIPMENT AND COMPONENTS.
2.

TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3.

TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- A.

COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- B.

COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

APPLICABLE CODE: 2022 CBC

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS. MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☒ E ☐ OPTION 1: DETAILED ON THE APPROVAL DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MECHANICAL SHEET INDEX

NUMBER	SHEET TITLE
M-001	MECHANICAL FRONT SHEET
M-002	MECHANICAL LEGENDS AND ABBREVIATIONS
M-003	MECHANICAL SCHEDULES
M-101	MECHANICAL DEMO FLOOR PLAN
M-201	MECHANICAL FIRST FLOOR PLAN
MP-301	MECHANICAL FIRST FLOOR CONDENSATE PLAN
M-401	MECHANICAL DETAILS SHEET
M-402	MECHANICAL DETAILS SHEET
M-403	MECHANICAL DETAILS SHEET
M-404	MECHANICAL DETAILS SHEET
M-405	MECHANICAL PIPING DIAGRAM
M-501	MECHANICAL TITLE-24
M-502	MECHANICAL TITLE-24

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Glendale/Downtown LA/Fremont/Camarillo
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JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST., LAWNDALE, CA 90260

MECHANICAL
FRONT SHEET

M-001

PTN_64691-65 APPL_03-124869

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB 24-025
SCALE AS NOTED
PM
DATE 01/22/2025
ADDENDUM 1 - 04/04/2025

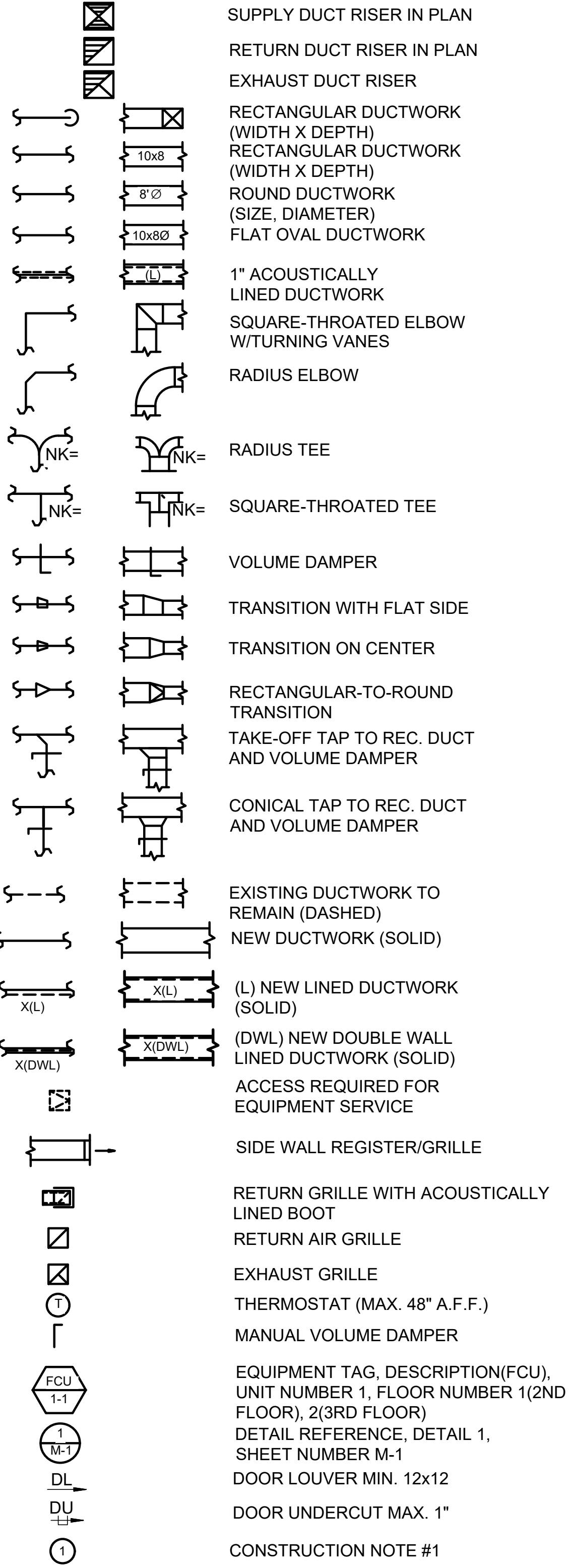


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MECHANICAL
LEGEND AND
ABBREVIATIONS

M-002

DUCTWORK SYMBOLS



VRF WIRING DIAGRAMS

SCALE NTS 1

SUPPLY / TRANSFER GRILLE SIZES

SYSTEM	TAG	MANUFACTURER MODEL NO.	NOM. DUCT SIZE	CFM	NOISE CRITERIA	VELOCITY (FPM)	VEL. PRESSURE	TOTAL PRESSURE ("W.G.)			THROW (FT)			REMARKS
								0°	22.5°	45°	0°	22.5°	45°	
OUTSIDE AIR	SG-1	TITUS 300F	6x6	0-57	-	300	0.006	0.016	0.018	0.028	5-7-14	4-5-11	2-3-6	1. PROVIDE DAMPER
OUTSIDE AIR	SG-2	TITUS 300F	22x10	550-685	18	500	0.016	0.046	0.051	0.077	22-33-48	17-26-37	10-15-22	
OUTSIDE AIR	SG-3	TITUS 300F	24x22	1610-1715	22	500	0.016	0.046	0.051	0.077	35-53-76	27-41-59	16-24-34	
TRANSFER AIR	TG-1	TITUS 300R	8x8	0-110	-	300	0.006	0.016	0.018	0.028	6-10-19	5-8-15	3-5-9	

NOTES:
1. VERIFY ALL AIR DISTRIBUTION DEVICE LOCATION, APPEARANCES, AND FINISHES WITH ARCHITECT AND ENGINEER FOR APPROVAL BEFORE ORDERING.
2. PAINT THE INSIDE OF ALL GRILLE "FLAT-BLACK" TO PREVENT SEE THROUGH EFFECT.
3. FRAME TYPE TO MOUNT ON DUCT.
4. MODEL NUMBERS AND MATERIALS SHALL NOT BE CONSIDERED COMPLETE. REVIEW THE COMPLETE DESCRIPTION, NOTES, AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

HVAC ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AC	AIR CONDITIONING UNIT	FLR	FLOOR	RG	RETURN GRILLE
AD	ACCESS DOOR	FLA	FULL LOAD AMPS	RLA	RATED LOAD AMPS
AFF	ABOVE FINISHED FLOOR	FPM	FEET PER MINUTE	RPM	REVOLUTIONS PER MINUTE
BDD	BACK DRAFT DAMPER (WEIGHTED)	FT	FEET	SA	SUPPLY AIR
BTU	BRITISH THERMAL UNITS PER HOUR	HPU	HEAT PUMP UNIT	SP	STATIC PRESSURE
CD	CEILING DIFFUSER	HP	HORSE POWER	SR	SUPPLY REGISTER
CFM	CUBIC FEET PER MINUTE	IN	INCHES	TD	TEMPERATURE DIFFERENCE
CLG	CEILING	LAT	LEAVING AIR TEMPERATURE	TEMP	TEMPERATURE
CONT.	CONTINUOUS	LBS	POUNDS	TG	TRANSFER GRILLE
CU	CONDENSING UNIT	MAX	MAXIMUM	TSTAT	THERMOSTAT
CSFD	COMBINATION FIRE/SMOKE DAMPER	MBH	ONE THOUSAND BTUH	TYP	TYPICAL
DBT	DRY BULB TEMPERATURE	MCA	MINIMUM CIRCUIT AMPS	TSP	TOTAL STATIC PRESSURE
DN	DOWN	MCOP	MAXIMUM CIRCUIT AMPS	UH	UNIT HEATER
DTR	DOWN THROUGH ROOF	MIN	MINIMUM	UNO	UNLESS NOTED OTHERWISE
EA	EACH	MVD	MANUAL VOLUME DAMPER	UTR	UP THROUGH ROOF
EAT	ENTERING AIR TEMPERATURE	MD	MOTORIZED DAMPER	V	VOLT
EF	EXHAUST FAN	N/A	NOT APPLICABLE	VENT	VENTILATION
EG	EXHAUST GRILLE	NC	NOISE CRITERIA	VTR	VENT THROUGH ROOF
EFF	EFFICIENCY	NO	NUMBER	W	WATT
EMS	ENERGY MANAGEMENT SYSTEM	NTS	NOT TO SCALE	WBT	WET BULB TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE	OSA	OUTSIDE AIR		
°F	DEGREES, FAHRENHEIT	RA	RETURN AIR		
FCU	FAN COIL UNIT				

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REMODEL
KEYNOTES

- EXISTING EXHAUST HOOD TO REMAIN.
- EXISTING AIR CURTAIN TO REMAIN.
- EXISTING RELIEF GRILLE TO REMAIN AND REUSE.
- EXISTING SUPPLY GRILLE TO REMAIN AND REUSE.
- PROVIDE NEW VENT LOUVER ON THE WALL ABOVE LOWER ROOF.
- PROVIDE NEW FAN COIL UNIT AS PER SCHEDULE.
- PROVIDE NEW VRF HEAT PUMP AS PER SCHEDULE.
- PROVIDE NEW SUPPLY FAN WITH MERV-13 FILTER AS PER SCHEDULE.
- PROVIDE NEW THERMOSTAT.
- FOR REFRIGERANT PIPE SIZING REFER SHEET M-405.
- PROVIDE NEW 8 x 8 TRANSFER GRILLE.
- SEE MP-301 FOR DRAINING OF OUTDOOR UNITS.
- ROUTE DX LINES FOR CU-1 & 2 THROUGH EXTERIOR WALL THEN UP THROUGH ROOF. SEE KEYNOTE 14 FOR CONTINUATION. FIELD LOCATE EXISTING WALL FRAMING & ROOF FRAMING. DO NOT CUT.
- RUN CU-1 & 2 DX LINES ALONG ROOF. PENETRATE THROUGH EXISTING UPPER CLERESTORY WINDOW INFILL TO SERVE INDOOR UNITS. FIELD VERIFY EXISTING ROOF FRAMING. DO NOT CUT.



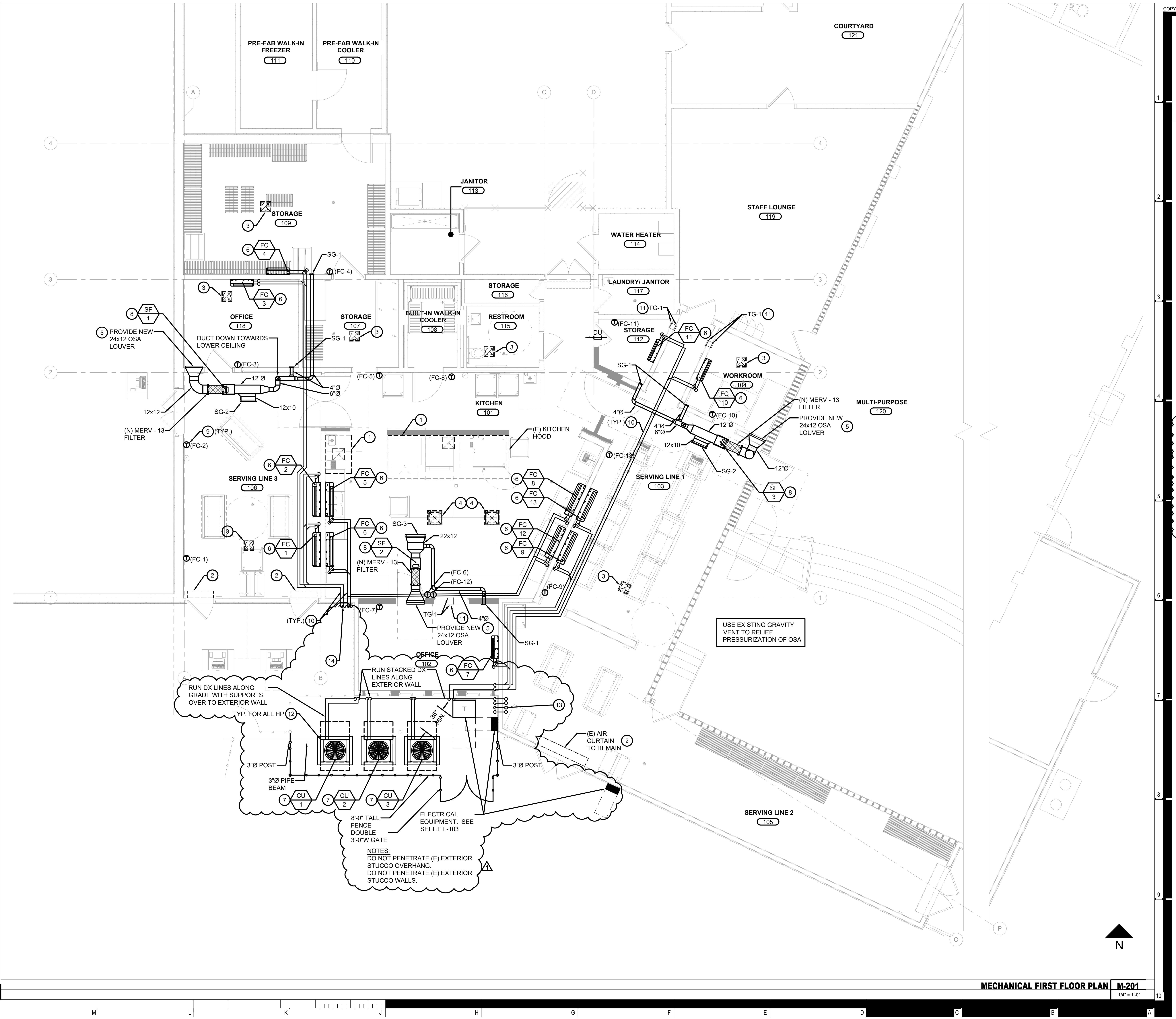
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LAWDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWDALE, CA 90260

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**MECHANICAL
FIRST FLOOR
PLAN**

M-201



MECHANICAL FIRST FLOOR PLAN M-201

1/4" = 1'-0"

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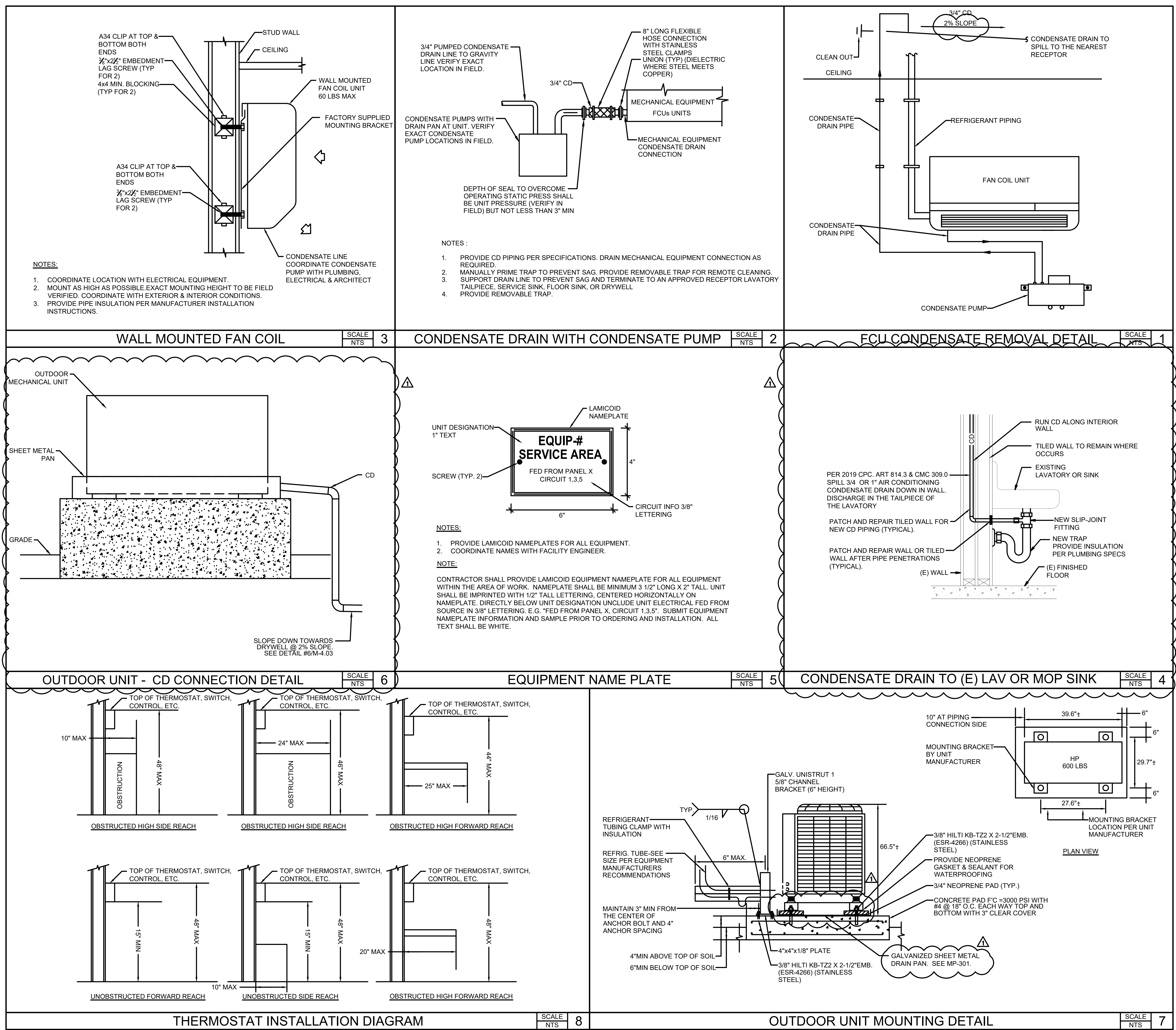
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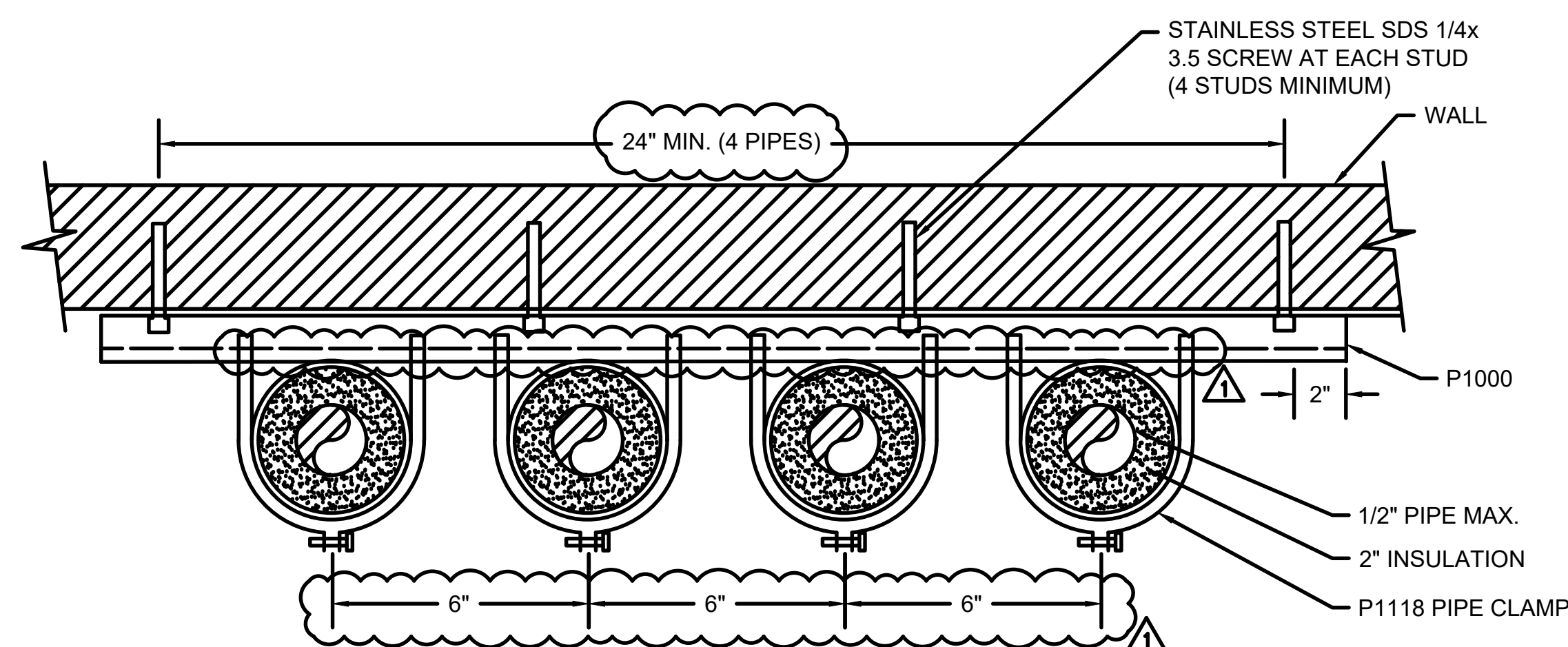
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MECHANICAL DETAILS
SHEET

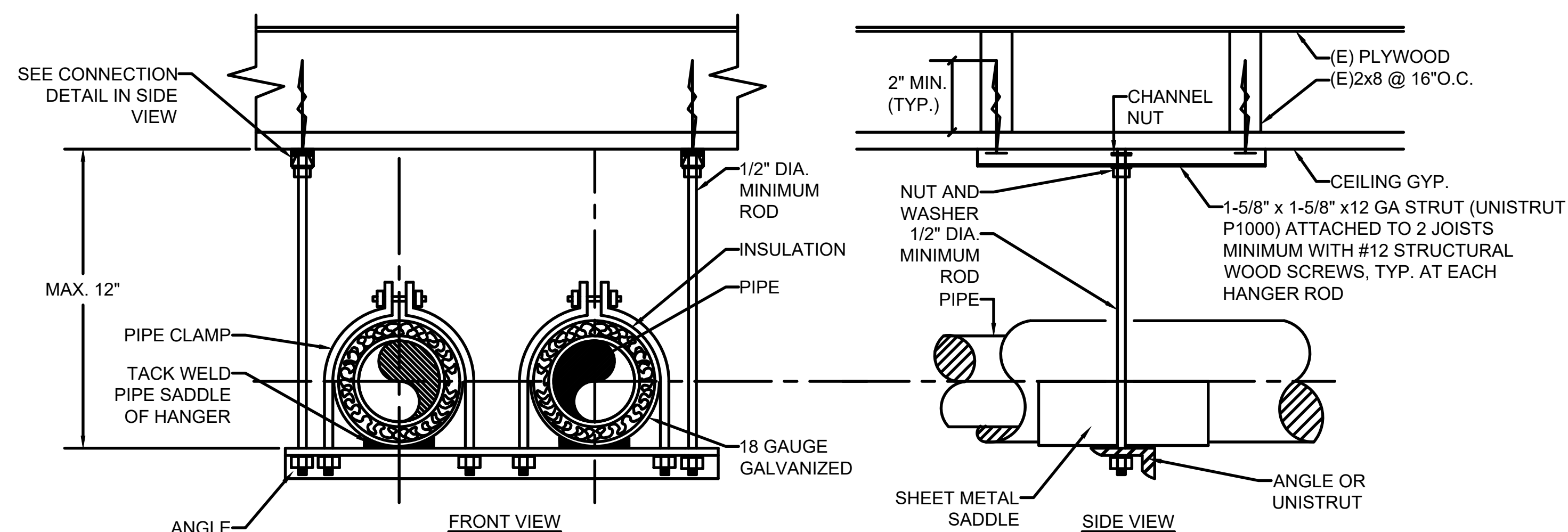
M-402



I:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\W24-025 M-402 MECHANICAL DETAILS SHEET.dwg, 4/9/2025, 1:50:06 PM, patrick



SUPPORT SPACING NOT TO EXCEED 10'-0"



PIPE SUPPORT SPACING SCHEDULE		
TYPE OF PIPE	NOM SIZE	MAX. SPACING
COPPER	3/4" AND SMALLER	5 FT.
	1" TO 1-1/4"	6 FT.
	1-1/2" TO 3"	7 FT.

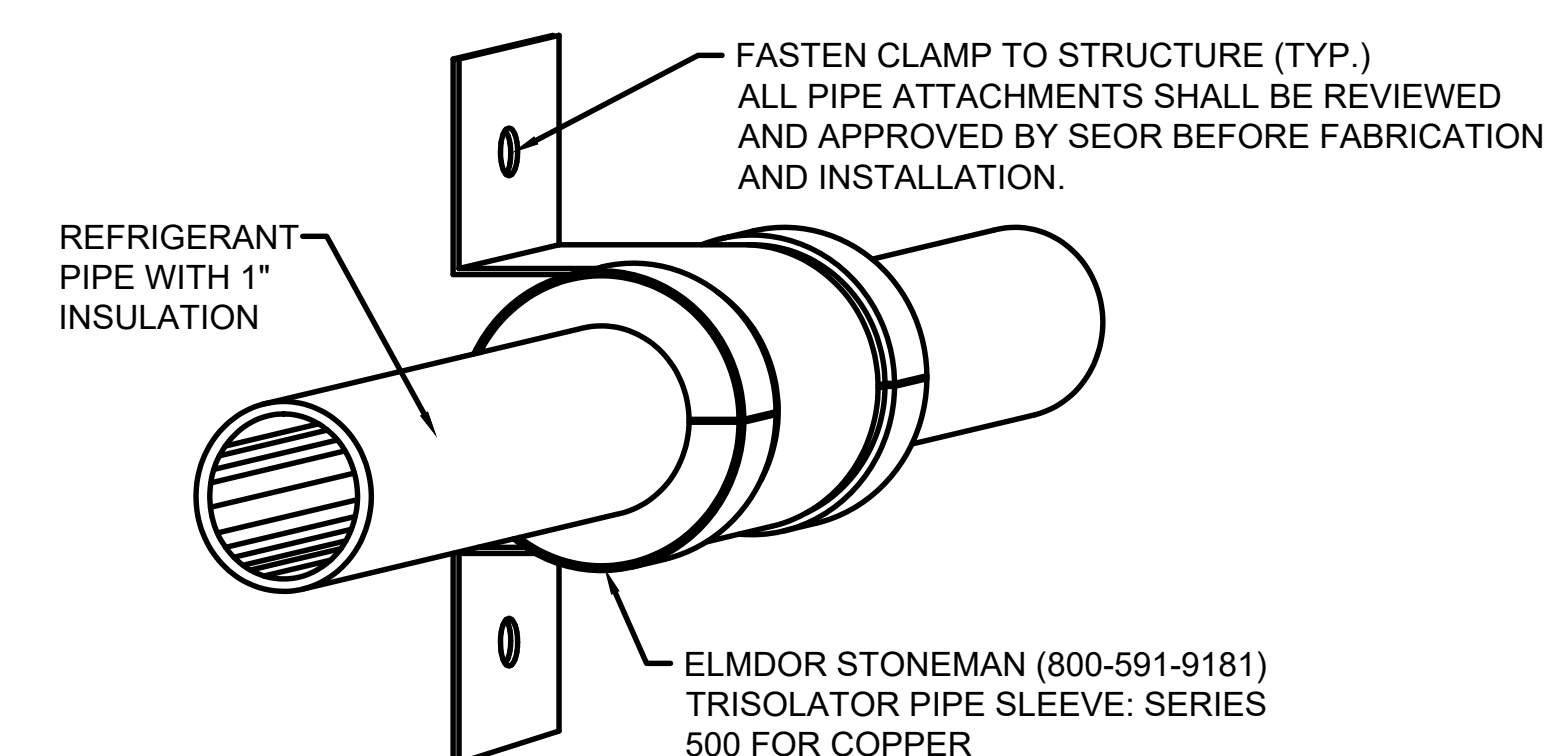
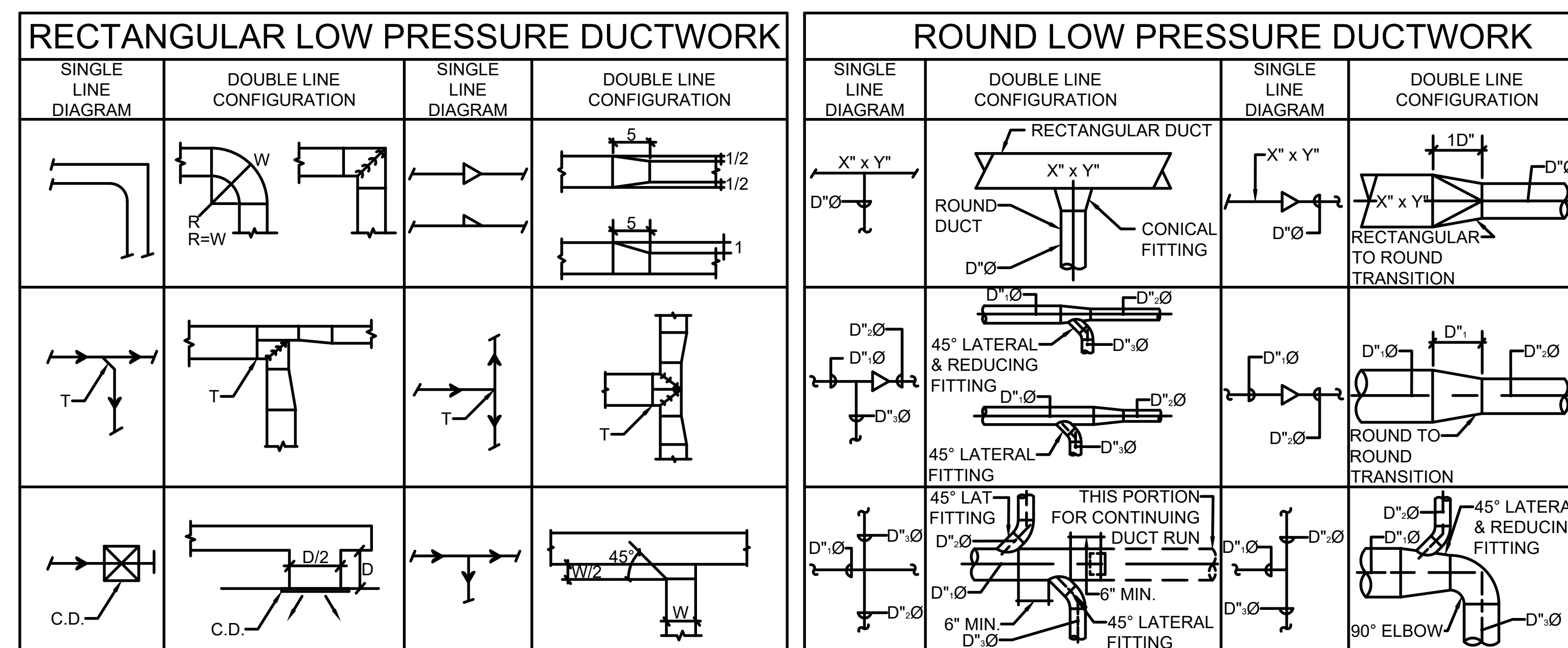
MAX. PIPE SIZE: 1-1/8" DIAMETER = 7 LBS. PER LINEAR FOOT.

WALL PIPING RISER DIAGRAM

SCALE	2
NTS	

REFRIGERANT PIPING HANGER DETAIL

SCALE	1
NTS	

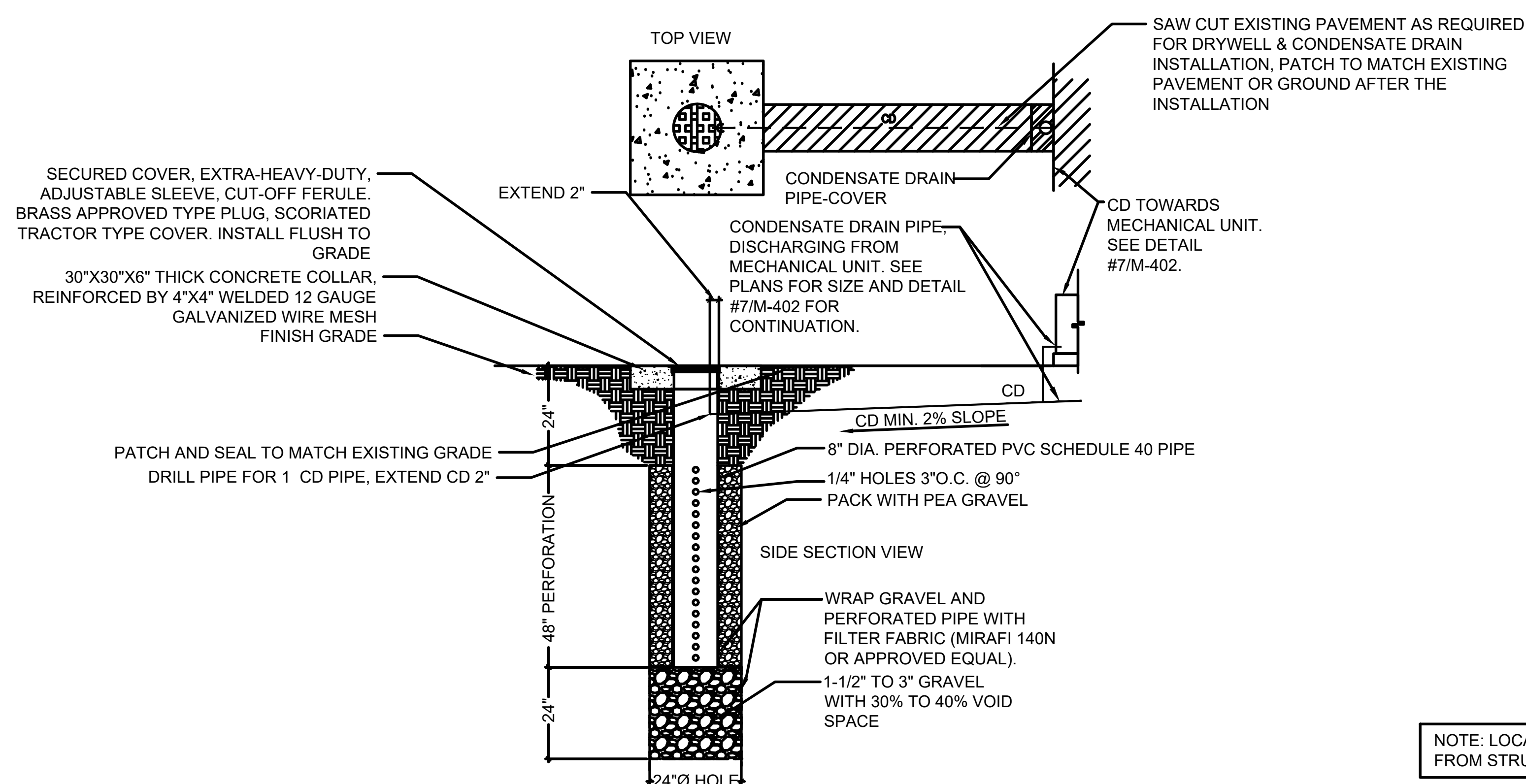


DUCT WORK

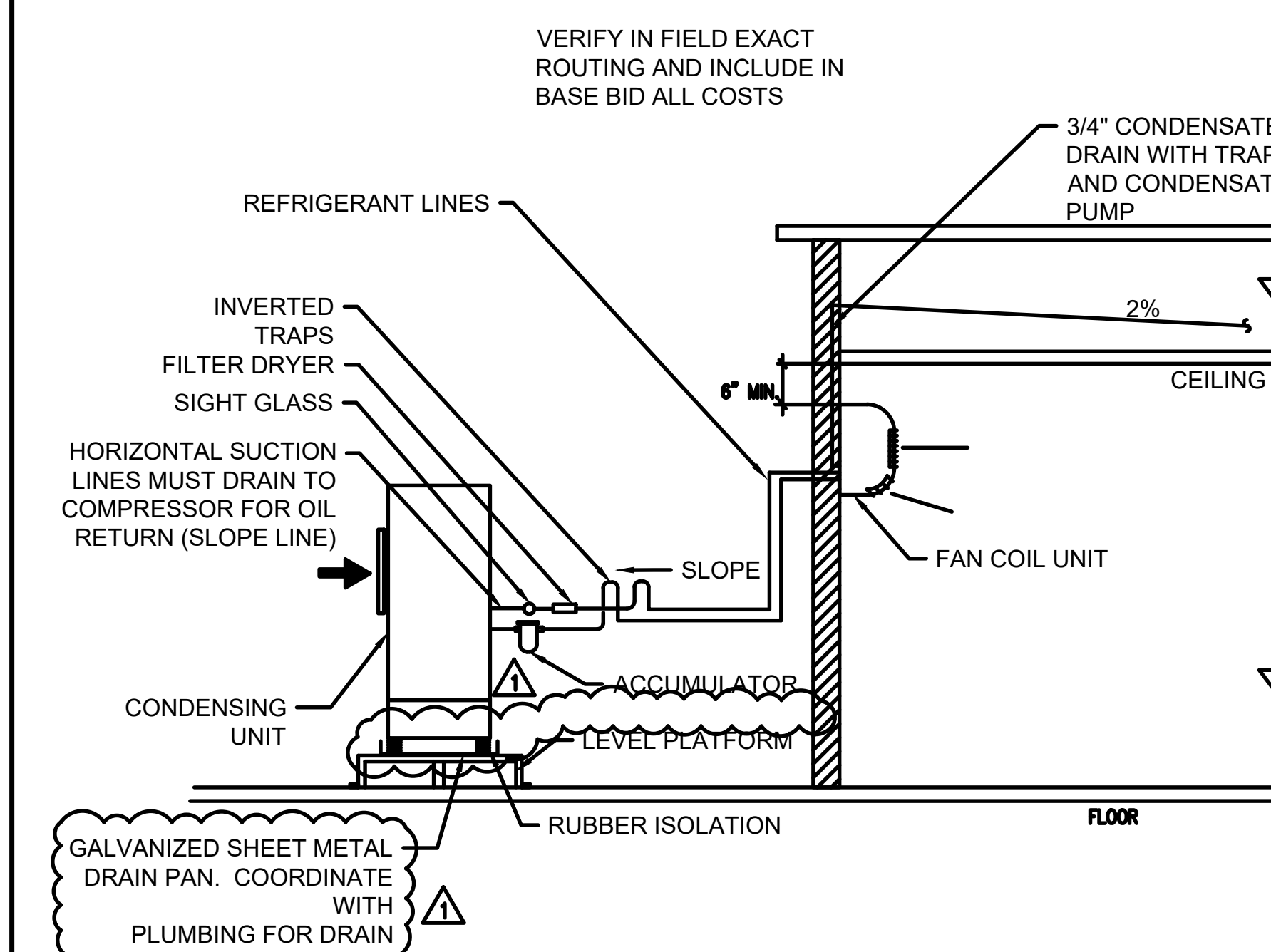
SCALE	4
NTS	

REFRIGERANT PIPE WALL ATTACHMENT DIAGRAM

1	SCALE	3
	NTS	



NOTE: LOCATE DRYWELL NOT LESS THAN 10 FEET FROM STRUCTURES AND PROPERTY LINES.



CONDENSATE DRAINAGE DRYWELL

SCALE	6
NTS	

SPLIT SYSTEM INSTALLATION DETAIL

SCALE	5
NTS	



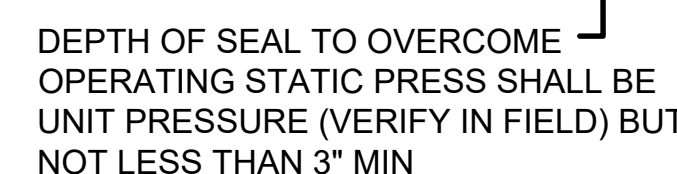
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MECHANICAL DETAILS SHEET

LESLIE WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWDALE, CA 90260



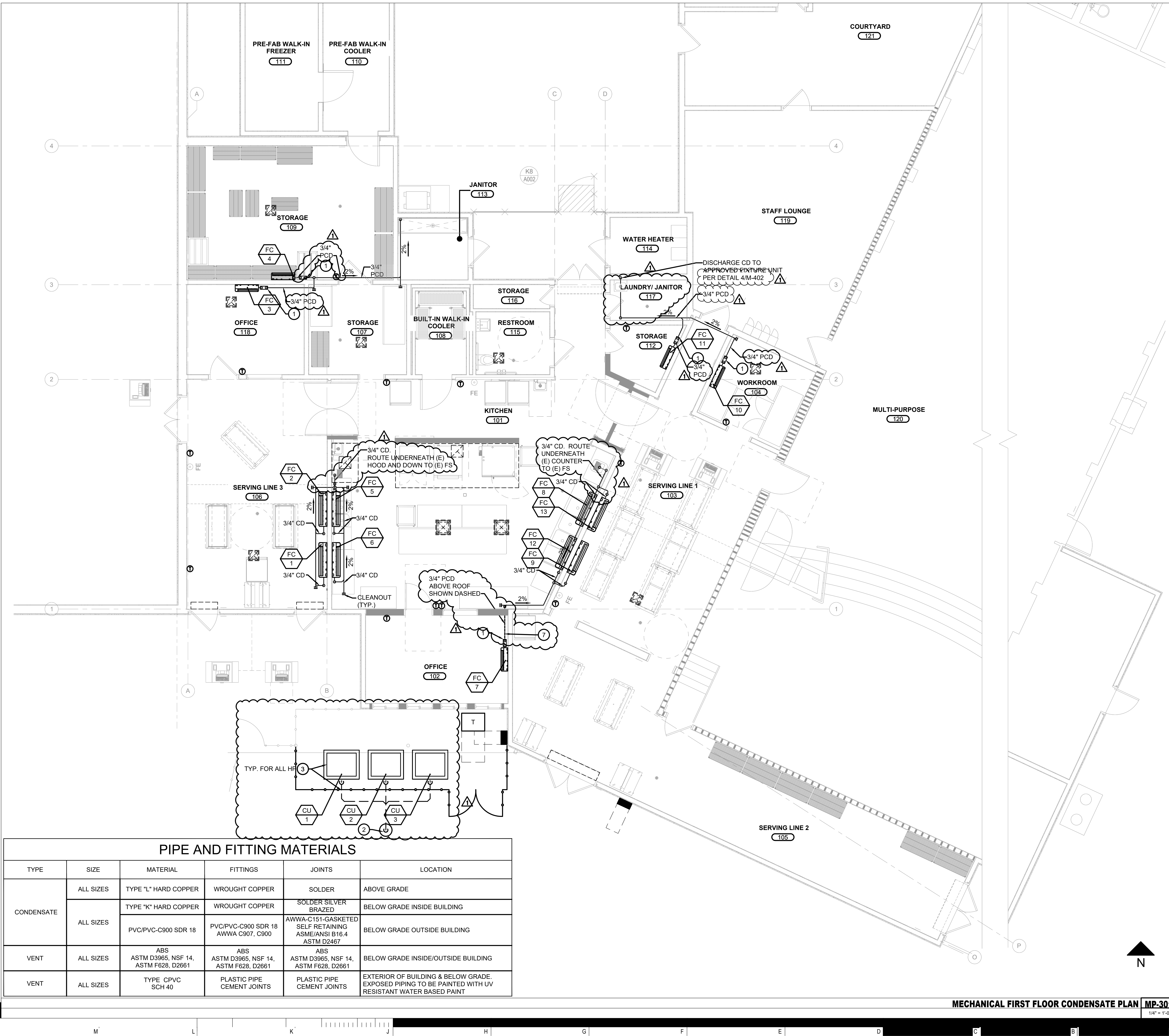
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1. PROVIDE CD PIPING PER SPECIFICATIONS. DRAIN MECHANICAL EQUIPMENT CONNECTION AS REQUIRED.
2. MANUALLY PRIME TRAP TO PREVENT SAG. PROVIDE REMOVABLE TRAP FOR REMOTE CLEANING
3. SUPPORT DRAIN LINE TO PREVENT SAG AND TERMINATE TO AN APPROVED RECEPTOR LAVATORY TAILPIECE, SERVICE SINK, OR FLOOR SINK.
4. PROVIDE REMOVABLE TRAP.

SCALE	2
NTS	

DRAWING NO.: -1



PIPE AND FITTING MATERIALS					
TYPE	SIZE	MATERIAL	FITTINGS	JOINTS	LOCATION
CONDENSATE	ALL SIZES	TYPE "L" HARD COPPER	WROUGHT COPPER	SOLDER	ABOVE GRADE
	ALL SIZES	TYPE "K" HARD COPPER	WROUGHT COPPER	SOLDER SILVER BRAZED	BELOW GRADE INSIDE BUILDING
		PVC/PVC-C900 SDR 18	PVC/PVC-C900 SDR 18 AWWA C907, C900	AWWA-C151-GASKETED SELF RETAINING ASME/ANSI B16.4 ASTM D2467	BELOW GRADE OUTSIDE BUILDING
VENT	ALL SIZES	ABS ASTM D3965, NSF 14, ASTM F628, D2661	ABS ASTM D3965, NSF 14, ASTM F628, D2661	ABS ASTM D3965, NSF 14, ASTM F628, D2661	BELOW GRADE INSIDE/OUTSIDE BUILDING
VENT	ALL SIZES	TYPE CPVC SCH 40	PLASTIC PIPE CEMENT JOINTS	PLASTIC PIPE CEMENT JOINTS	EXTERIOR OF BUILDING & BELOW GRADE. EXPOSED PIPING TO BE PAINTED WITH UV RESISTANT WATER BASED PAINT

- GENERAL NOTES
- A. PROVIDE INSULATION ON ALL INTERIOR CONDENSATE DRAINS.

B. FC-3.4.7.10.11 SHALL BE PROVIDED WITH CONDENSATE PUMPS. ALL OTHER FAN COILS WILL HAVE GRAVITY CONDENSATE DRAINAGE TO AN APPROVED RECEPTOR.
- REMODEL KEYNOTES
- 1 PLUMBING CONTRACTOR SHALL PROVIDE INSULATION ON ALL CONDENSATE DRAIN PIPE & PUMP WITH 2% SLOPE TO FLOOR SINK OR APPROVED RECEPTOR.

2 INSTALL DRYWELL AT 10 FEET MINIMUM AWAY FROM BUILDING. REFER TO DETAIL #6/M-403

3 PROVIDE SHEET METAL PAN UNDER HEAT PUMP UNIT WITH DRAIN. CONNECT 3/4" CD TO PAN AND RUN BELOW GRADE AT 2% SLOPE TOWARDS DRYWELL. SEE #6 & 7/M-402

4 NOT USED.

5 NOT USED.

6 NOT USED.

7 PUMP PCD UP TO ROOF (SUPPORT WITH DURA-BLOK) THEN ROUTE OVER TO EXISTING WINDOW INFILL AND INTO KITCHEN 101. CONNECT TO OTHER CD PIPING IN KITCHEN 101.



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MECHANICAL FIRST FLOOR CONDENSATE PLAN

LES D WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWDALE, CA 90260

TOW-AWAY
N
03-103412

(E) BUILDING L
A# 6840
A# 9109/A# 103412

(E) BUILDING M
A# 6840
A# 9109/A# 103412

(E) BUILDING N
A# 6840
A# 9109/A# 103412

(E) MPR
BUILDING I
DSA A# 9109 /
65078/ A # 103412

(E) MENS/WOMENS RESTROOM
A# 3920, A# 9109, A# 65078, A# 103412
(CLOSED WITH CERTIFICATION)

(E) RELO

(E) RELO

(E) RELO

(E) RELOCATABLES
A# 56842 / 65078/ A# 103412

(E) RELO

(E) RELO

(E) RELO

(E) RELO

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RELO

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ELECTRICAL ENLARGED SITE PLAN	E-102
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- ① CONDUIT RUN EXPOSED ABOVE EXISTING CANOPY. REFER TO DETAIL SHEET 4/E-301 FOR CONDUIT SUPPORT.
- ② CONDUIT PENETRATE THROUGH WALL. REFER TO DETAIL SHEET 5/E-301.
- ③ CONDUIT DOWN AND TERMINATE TO PANEL-HK BELOW. REFER TO SHEET E-103 FOR EXACT LOCATION OF PANEL. REFER TO DETAIL SHEET 4/E-301 FOR ROOF/CANOPY PENETRATION.
- ④ CONDUIT TERMINATED ABOVE EXISTING MAIN SWITCHBOARD-MSA TO WALL REFER TO DETAIL SHEET 4/E-301 FOR ROOF/CANOPY PENETRATION AND SINGLE LINE DIAGRAM ON SHEET E-002 FOR POWER CONNECTION.
- ⑤ CONDUIT RUN INSIDE THE ELECTRICAL ROOM ABOVE THE EXISTING-"MSA". TERMINATE ON SWITCHBOARD IN DISTRIBUTION SECTION.



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4110 W 154TH ST, LAWDALE, CA 90260

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**ELECTRICAL
ENLARGED SITE PLAN**

E-102

124-025 LESD Rogers MS Central Kitchen HVAC Upgrades\124-025 E-102 ELECTRICAL ENLARGED SITE PLAN.dwg, 4/3/2025 1:49:25 PM, patrick

AGENCY

PTN. 64691-65 APPL. 03-124869

KEY NOTES

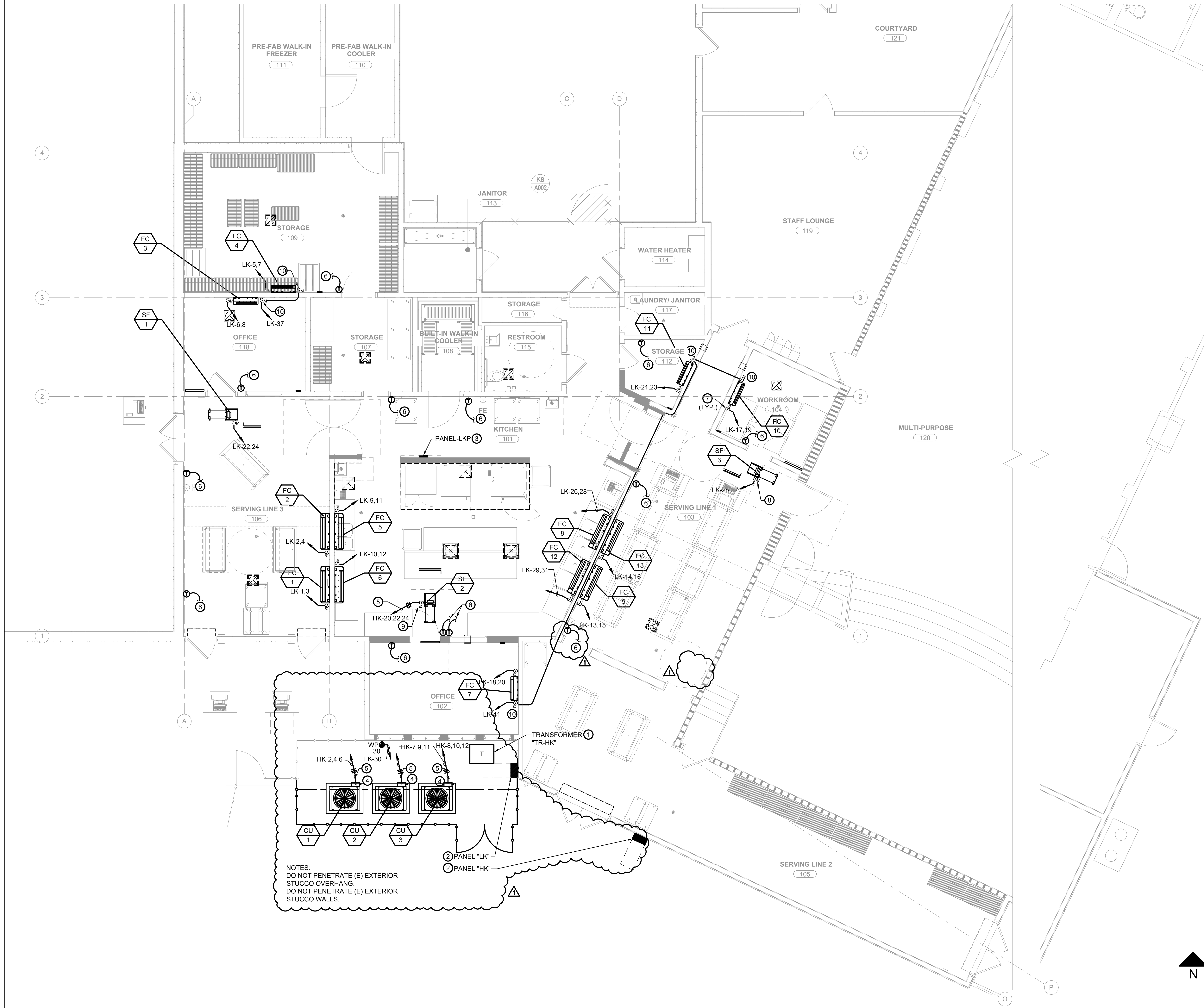
- 1 DRY TYPE TRANSFORMER, NEMA 3R. REFER TO DETAIL SHEET 2/E-301 FOR MOUNTING.
- 2 PANELBOARD, NEMA 3R. REFER TO DETAIL SHEET 1/E-301 FOR MOUNTING.
- 3 PANELBOARD, NEMA 1. REFER TO DETAIL SHEET 1/E-301 FOR MOUNTING.
- 4 PROVIDE 30AS/20AFU, 480V, 3P (NEMA 3R) WEATHERPROOF DISCONNECT SWITCH. PROVIDE CONDUIT, CONDUCTORS, BOXES AND ALL NECESSARY ACCESSORY WITH UNISTRUT SUPPORT.
- 5 PROVIDE 3/4" C, 3#12 CU., 1#12 CU. GND.
- 6 PROVIDE 3/4" CONDUIT FROM HVAC UNIT TO CORRESPONDING THERMOSTAT / OUTDOOR HVAC UNIT FOR CONTROL WIRING. COORDINATE WITH MECHANICAL CONTRACTOR AND REFER TO MECHANICAL SHEETS FOR WIRING.
- 7 PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLER/DISCONNECT SWITCH, 2P, 15A, 208V TYPICAL TO ALL FC'S, U.O.N..
- 8 PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLER/DISCONNECT SWITCH, 2P, 208V.
- 9 PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLER/DISCONNECT SWITCH, 3P, 460V.
- 10 PROVIDE 15AMP MOTOR RATED SWITCH FOR THE CONDENSATE PUMP, FIELD VERIFY MOUNTING HEIGHT.



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ELECTRICAL
POWER FLOOR
PLAN

E-103



ELECTRICAL POWER FLOOR PLAN E-103

1/4" = 1'-0"