

RESO A Supplemental Cooling

Tuesday March 20, 2018

Presented by:

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Deputy Director A&E, SCA**



RESO A Supplemental Cooling

Agenda:

- Discuss Summary of Work
- Review Mechanical Scope and Details
- Review Electrical Scope and Details

Split Systems

- Split Systems have two parts: the outdoor unit and the indoor unit.
- The outdoor unit can be:
 - On Grade
 - Wall Mounted
 - On Roof
- There is no ductwork required for a split system.
- Units will be cooling only.



Summary of Work

The work at the schools shall include, but not be limited to the following general items of work:

- Remove and abate all asbestos, lead paint, and PCB contaminated materials. Coordinate with Hazmat scope of work.
- Provide supplemental cooling for the public assembly space using nominal three (3) ton ductless split A/C units.
- **Outdoor condensing units for split systems shall be on grade. This is the preferred location and should always be considered first.**
- If there is no location for the condensing units on grade, the next priority would be wall mounting the units. If wall mounting the units is not an option, then the condensing units can be mounted on the roof.
- Install all refrigerant piping and wiring between indoor and outdoor units in accordance with manufacturer's written instructions.
- If outdoor condensing units are on the roof, provide pre-fabricated linear support rails and flash to roof to make water tight. Provide roof penetrations and seal water tight. (Only for roof mounted installation).
- Provide cutting, patching, and firestopping of all penetrations as required.
- The existing heating and ventilation system shall remain.
- Provide electrical power to indoor and outdoor units.
- SCA has met with schools at the beginning of the project and has already determined the space to receive cooling and location of the equipment.



Site Safety Notes

The site safety plans at the schools shall include, but not be limited to the following:

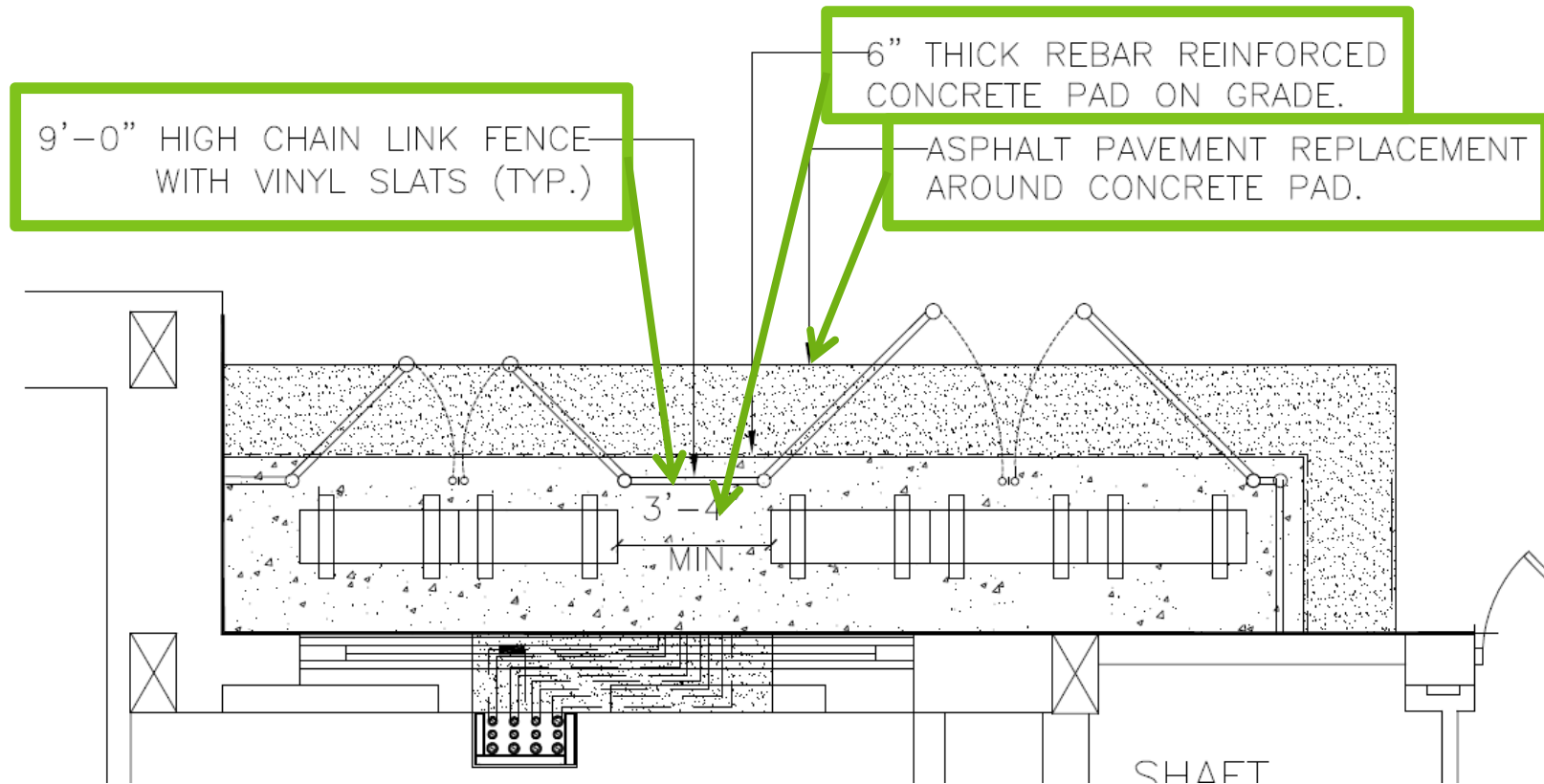
General:

- Each condensing unit shall not exceed 3 tons cooling capacity (36,000 BTU) and shall not exceed 250 pounds in weight.
- All work shall be coordinated with the SCA Site Safety Unit.
- Prepare a Site Safety Plan and submit for review to the Authority's Site Safety Unit within 5 days of notice to proceed.
- Complete plans of the entire site, including building interiors, areas inside the property line, and surrounding areas outside the property line.
- There shall be no contact between the contractor's employees and the students and school staff.

Additional Roof Safety Notes:

- Condensing units shall be carried by hand or on dollies through the building up to the roof.
- No cranes shall be required.
- As per mechanical plans, the condensing units may be installed on the roof at a distance of approximately 20 feet from parapet walls.
- The roof must be surrounded by a parapet wall.
- No materials shall be stored on the roof.
- The G.C. shall establish a "no access" zone on grade around the area of work on the roof. Provide construction fencing to restrict access to the zone.
- The G.C. shall provide a qualified supervisor on the roof at all times that work is being installed on the roof.

P.S. 213 Plan With Units on Grade



- Outdoor condensing units are on a 6" concrete housekeeping pad extending 6" beyond equipment.
- Units are fenced in with a wide, double swing gate for service clearance.
- Pipe penetrations are made through exterior wall.

Units on Grade Preferred Installation

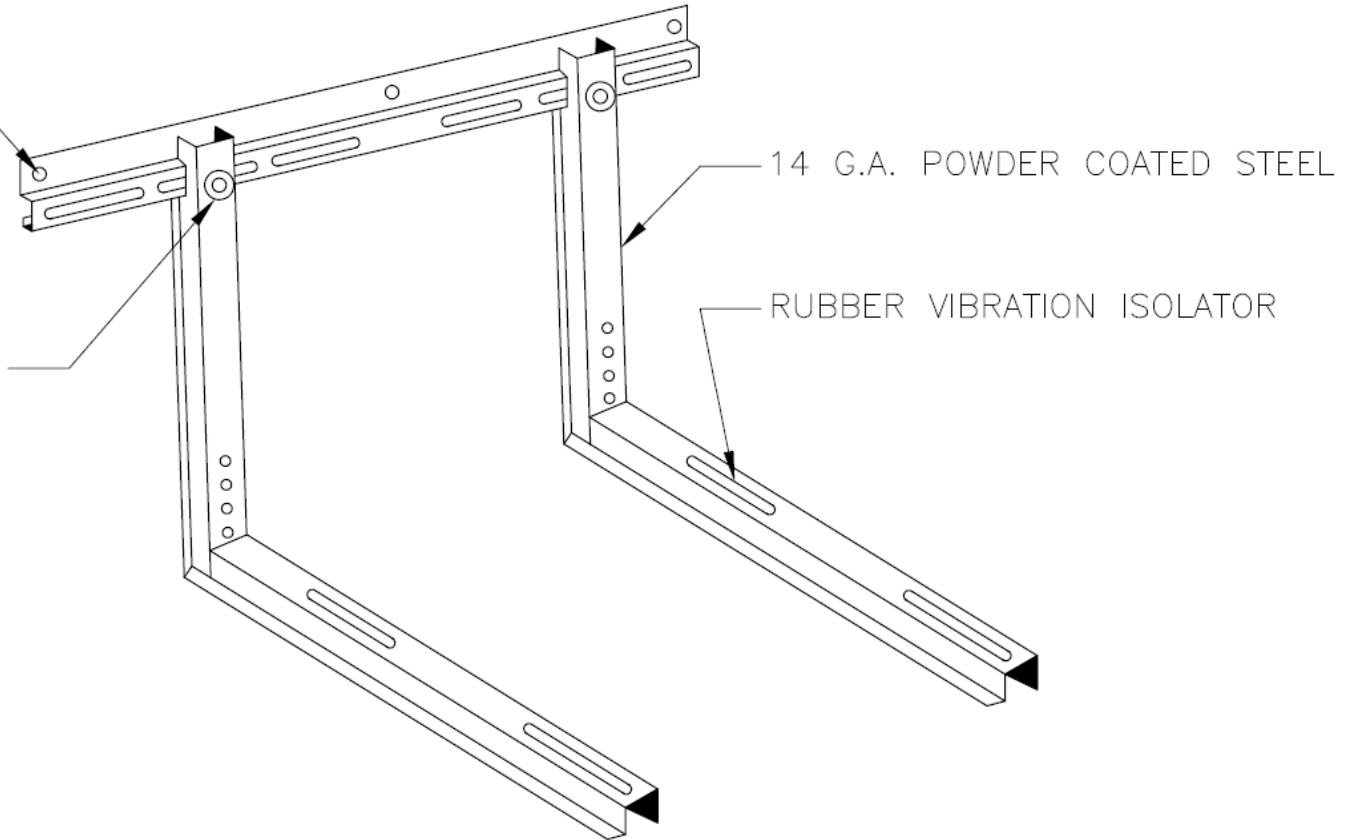


- Outdoor condensing unit is on grade with a concrete house keeping pad.
- Units shall be fenced off to prevent damage and theft.
- Refrigerant piping shall penetrate the exterior wall.

Wall Mounted Unit Detail

PROVIDE STAINLESS
STEEL HILTI KWICK BOLT
TZ SS 304 WEDGE
ANCHOR FOR CRACKED
CONCRETE AND SEISMIC

MOUNT USING HARDWARE
PROVIDED BY MANUFACTURER



Wall Mounted Unit Pictures

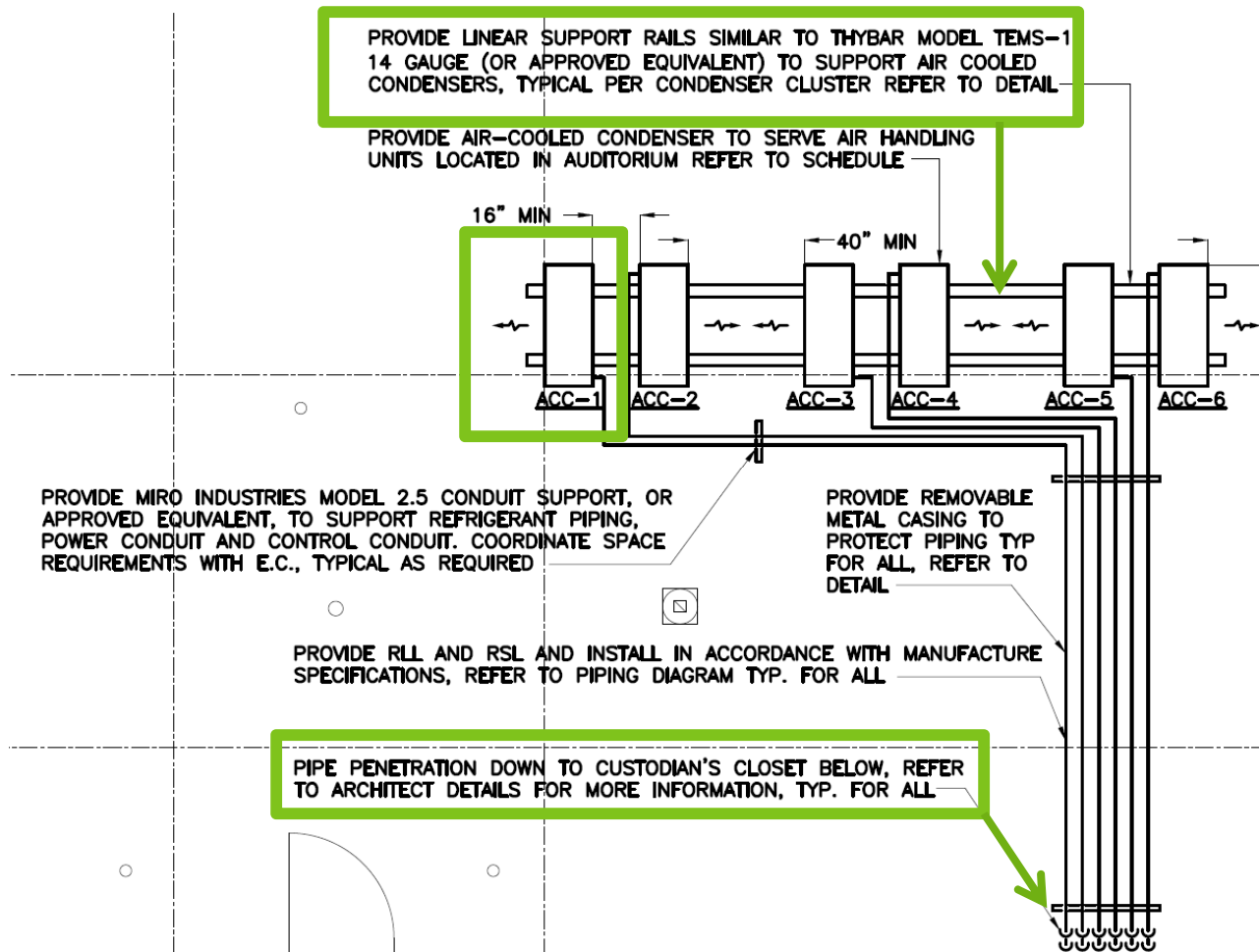


- Provide Mitsubishi wall mounting bracket for air cooled condenser to mount outdoor unit on wall and keep equipment off of floor or roof. Install in accordance with manufacture's written instructions.



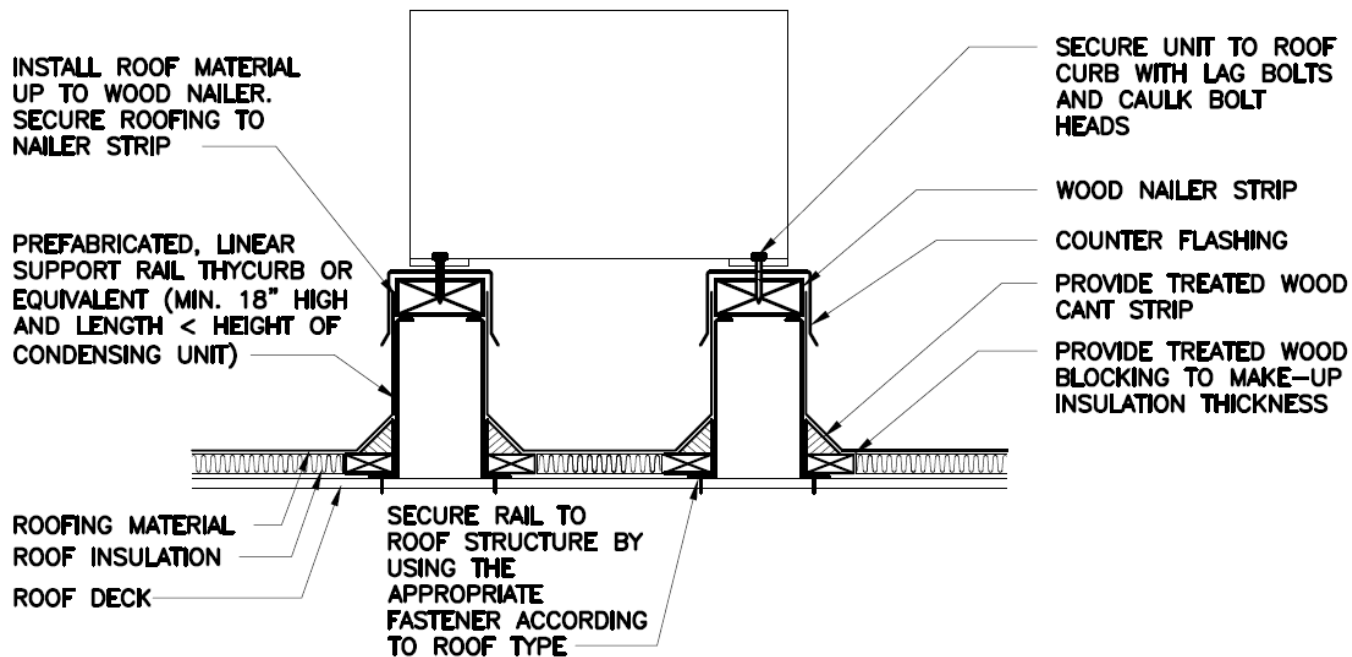
- Picture for mounting bracket only
- Wall mount units no greater than 10'.

P.S. 139 Roof Plan



- Outdoor condensing units are 20' away from roof parapet.
- Units are small enough to be manually transported onto roof without a crane and shall weight less than 250 pounds.
- Units are resting on equipment support curbs. Flash to make water tight.
- Pipe penetrations are sealed and water tight.

Equipment Support Rail Detail



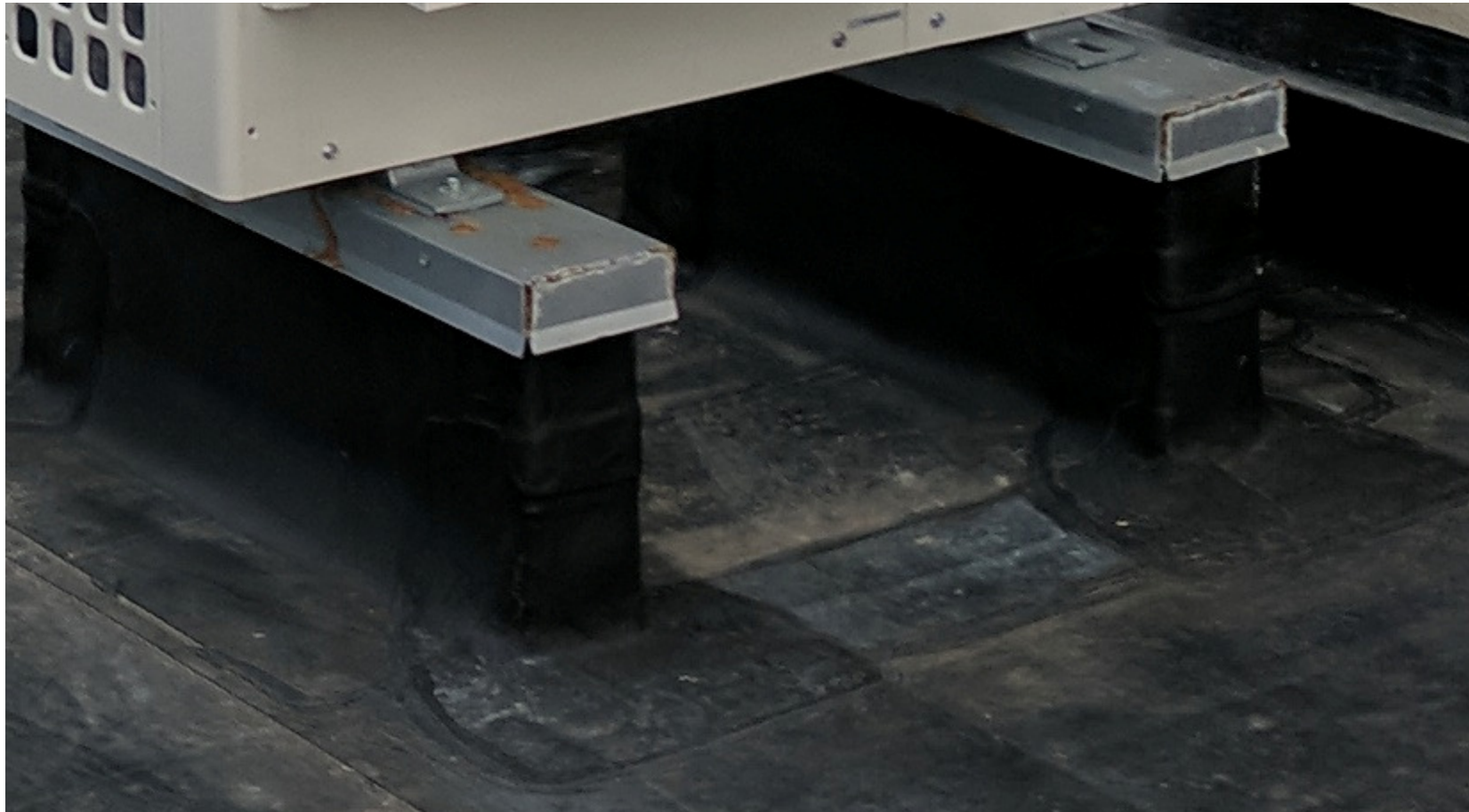
EQUIPMENT LINEAR SUPPORT RAIL DETAIL

NOT TO SCALE

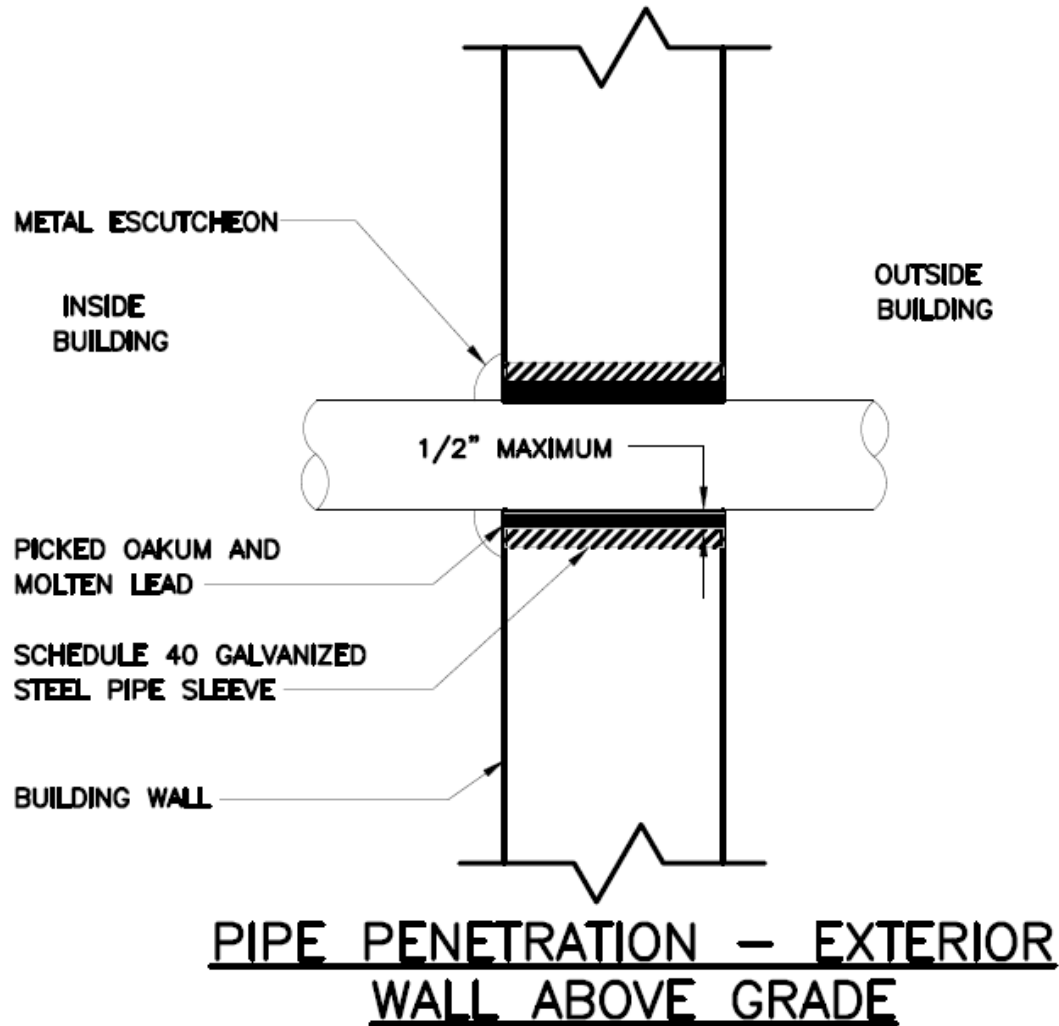
Equipment Support Rail Picture



Equipment Support Rail Picture

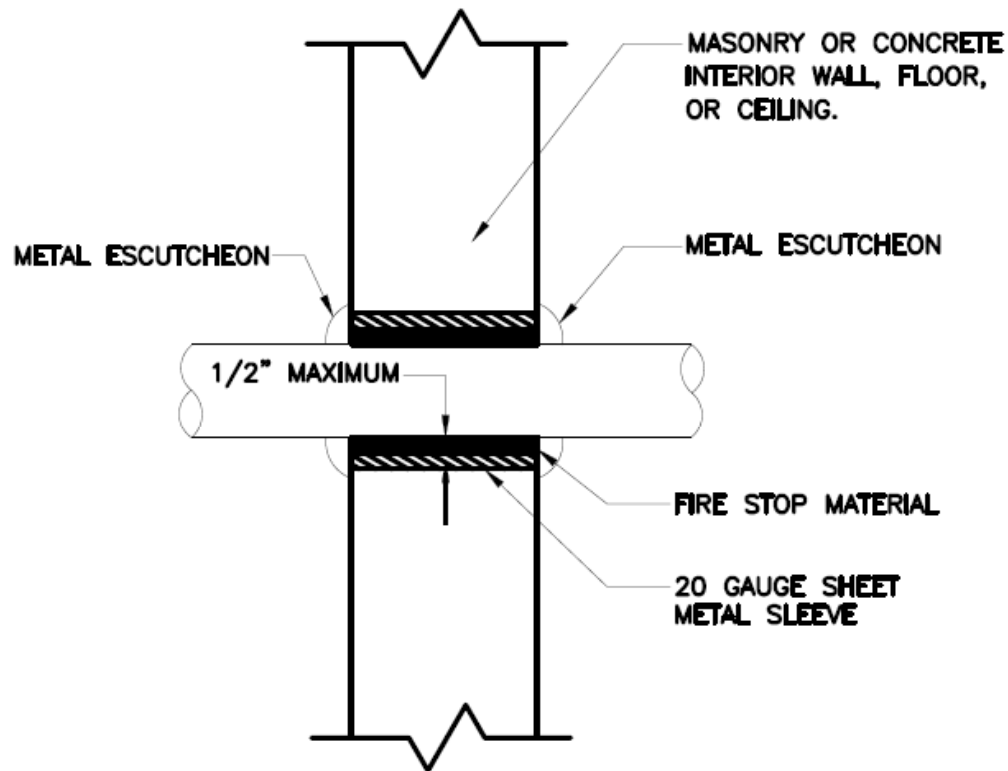


SCA Standard Exterior Pipe Penetration Detail



NOT TO SCALE

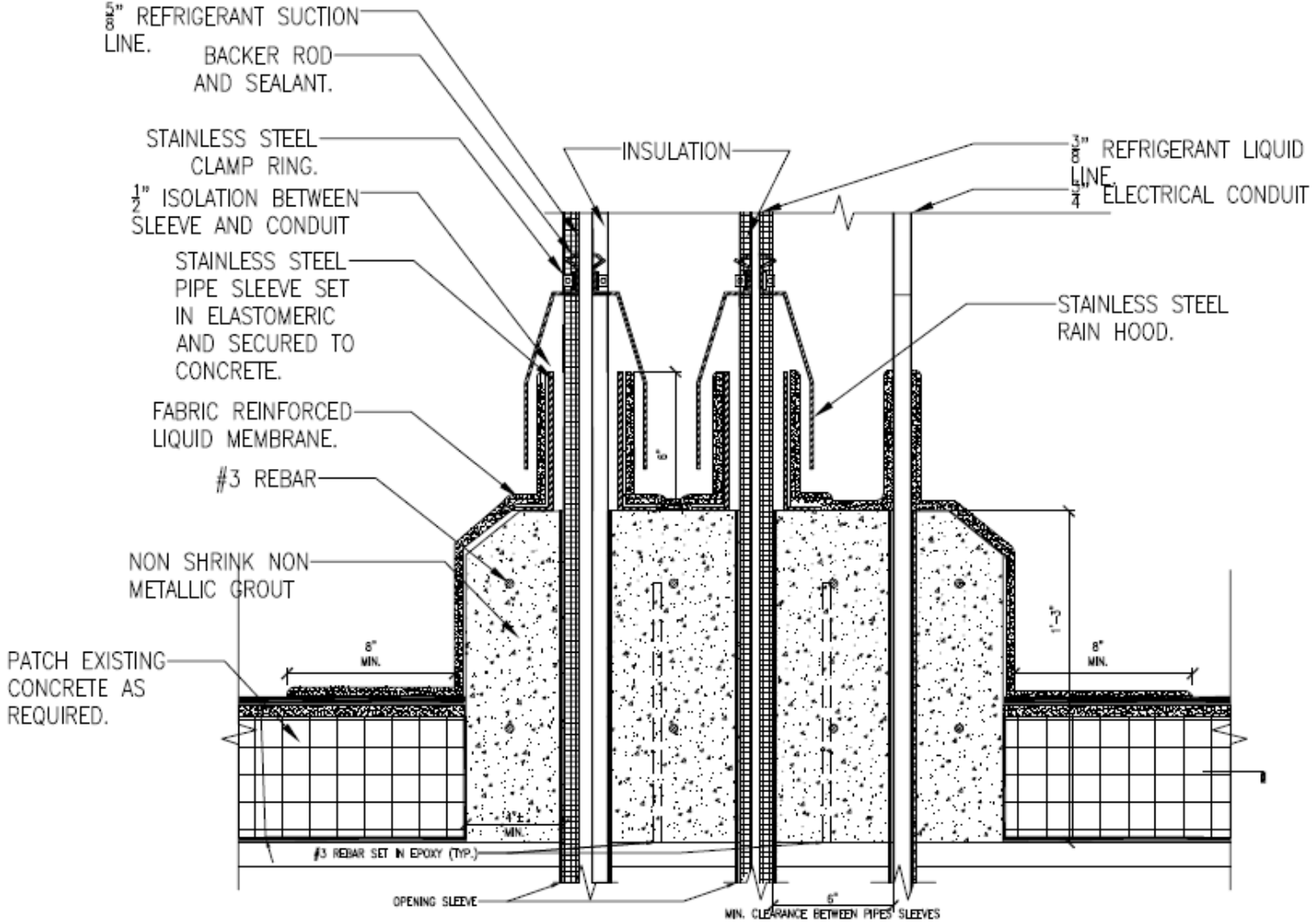
SCA Standard Indoor Pipe Penetration Detail



PIPE PENETRATION IN INTERIOR WALL/FLOOR/CEILING

NOT TO SCALE

Pipe Penetration Detail



Pipe Penetration Picture

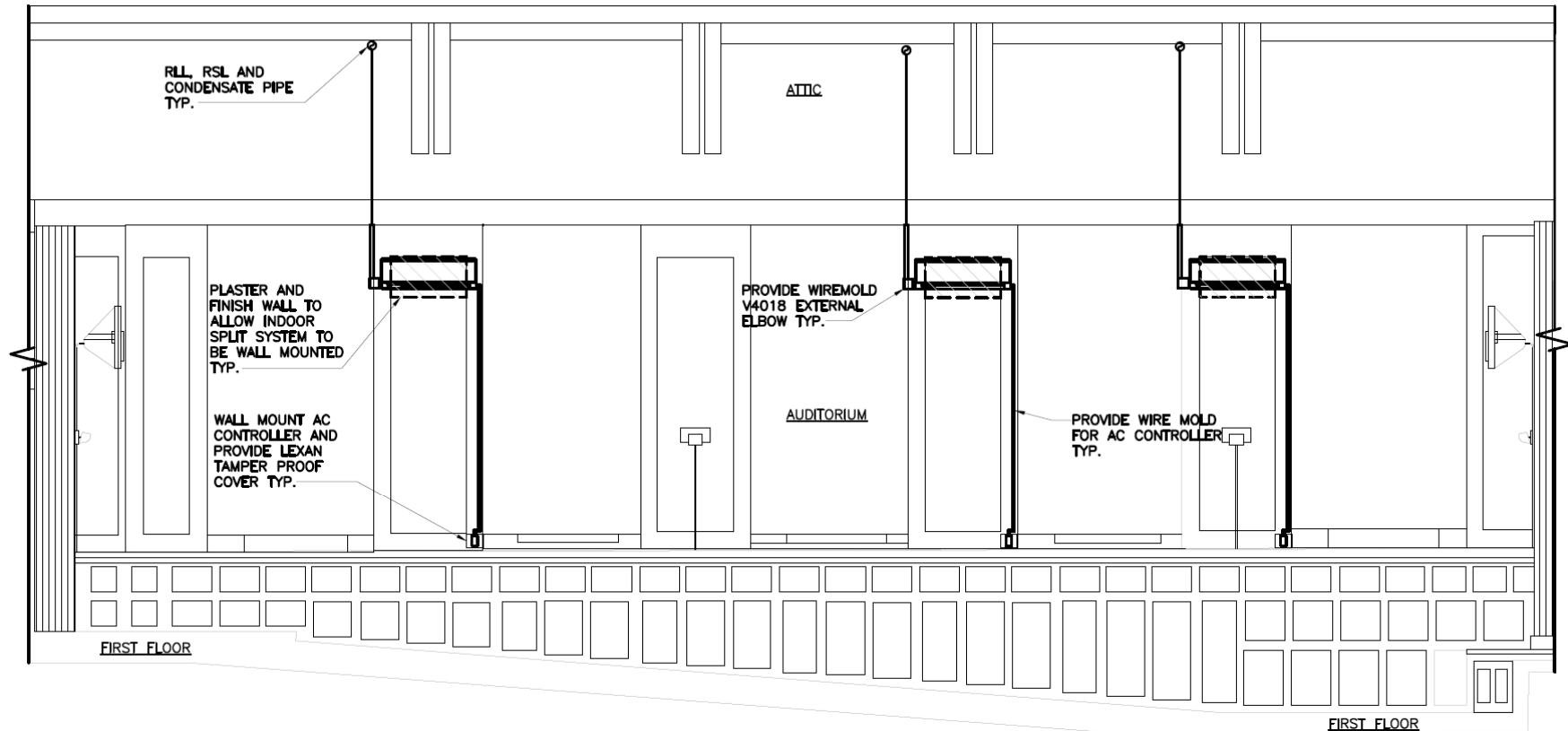


Refrigerant Line Set

- Pre-insulated, pre-cut, pre-flared (or field) refrigerant line set will be used to replace typical, expensive copper tubing. In order to reduce cost, refrigerant line set may be pre-manufactured and cut to length in factory in lieu of brazed copper tubing. This is the only type of piping to be used for the project.
- Piping shall be charged with dry nitrogen.
- Refrigerant line set shall be Muller Industries UL Recognized at 700 PSI MWP with insulation that meets ASTM C-534 & UL 25-50 Fire & Smoke Rating.

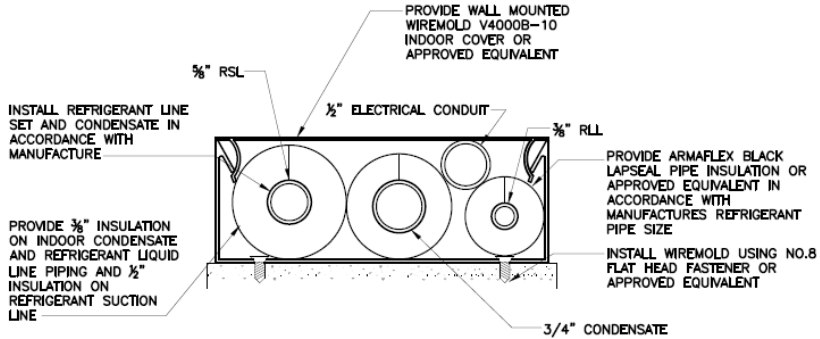


Indoor HVAC Section P.S. 174

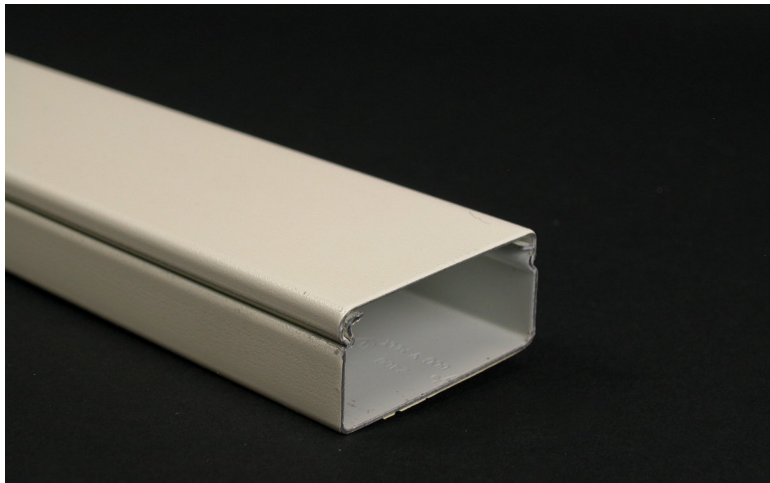
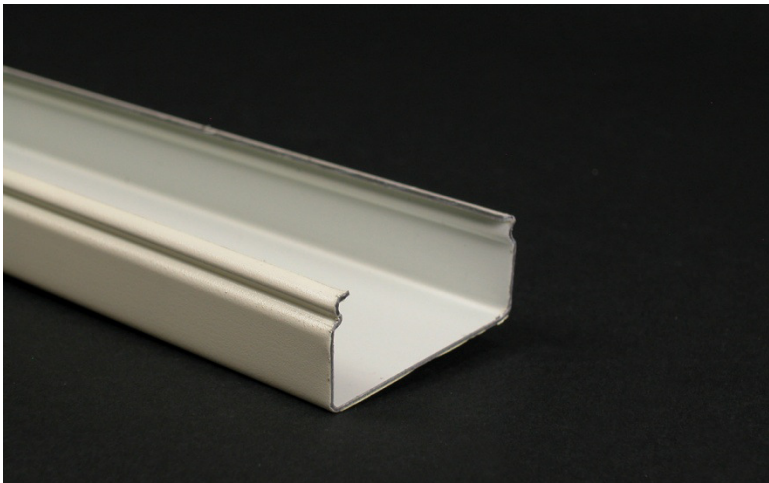


- Wall mounted unit shall be installed high on the wall and centered when necessary.
- All exposed refrigerant piping in the auditorium shall be covered in wiremold. All exposed condensate piping shall be covered in wiremold or removable metal casing. Paint wiremold and removable metal casing to match existing wall.
- Provide insulation for piping. Core drill, sleeve, and patch floor at pipe penetrations.
- Pitch condensate pipe 1/8" for every 1'.

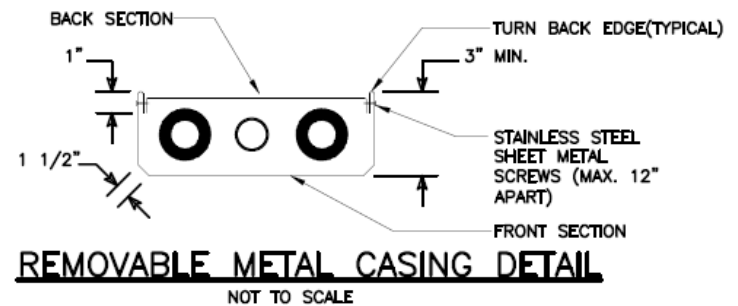
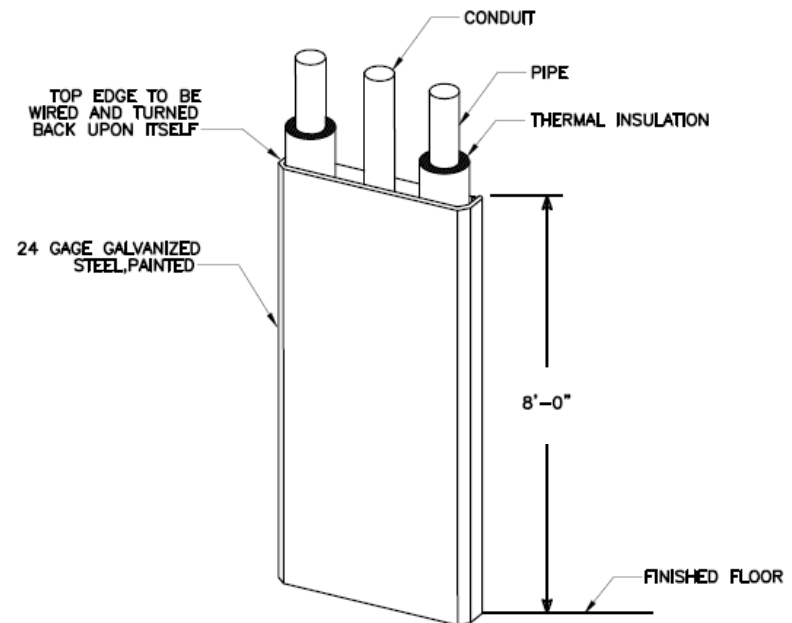
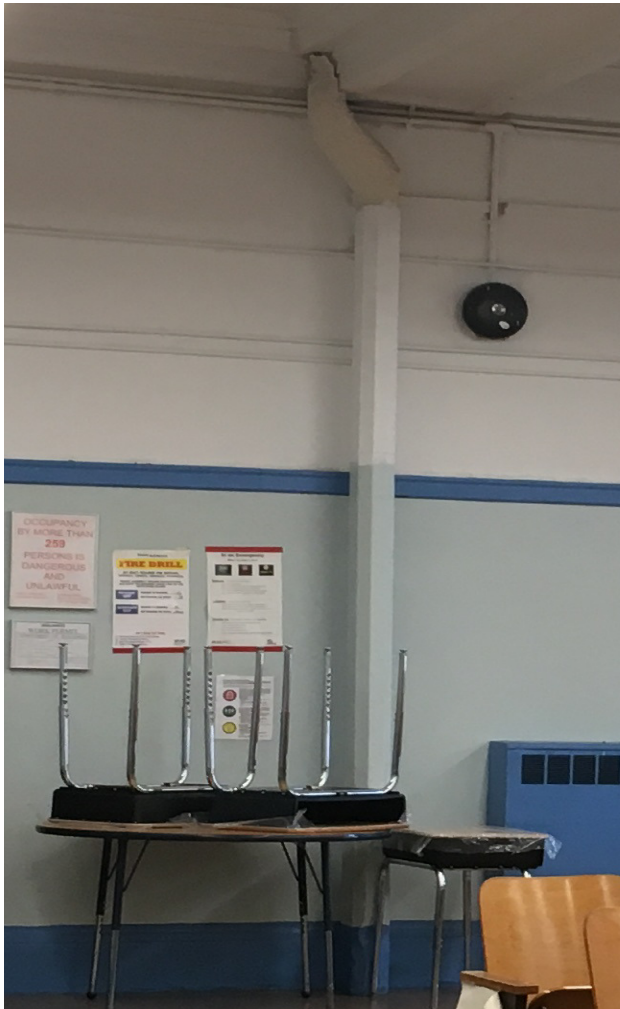
Wiremold Details



INDOOR WALL MOUNT LINE SET
COVER AND INSULATION
 NOT TO SCALE



Removable Metal Casing Details



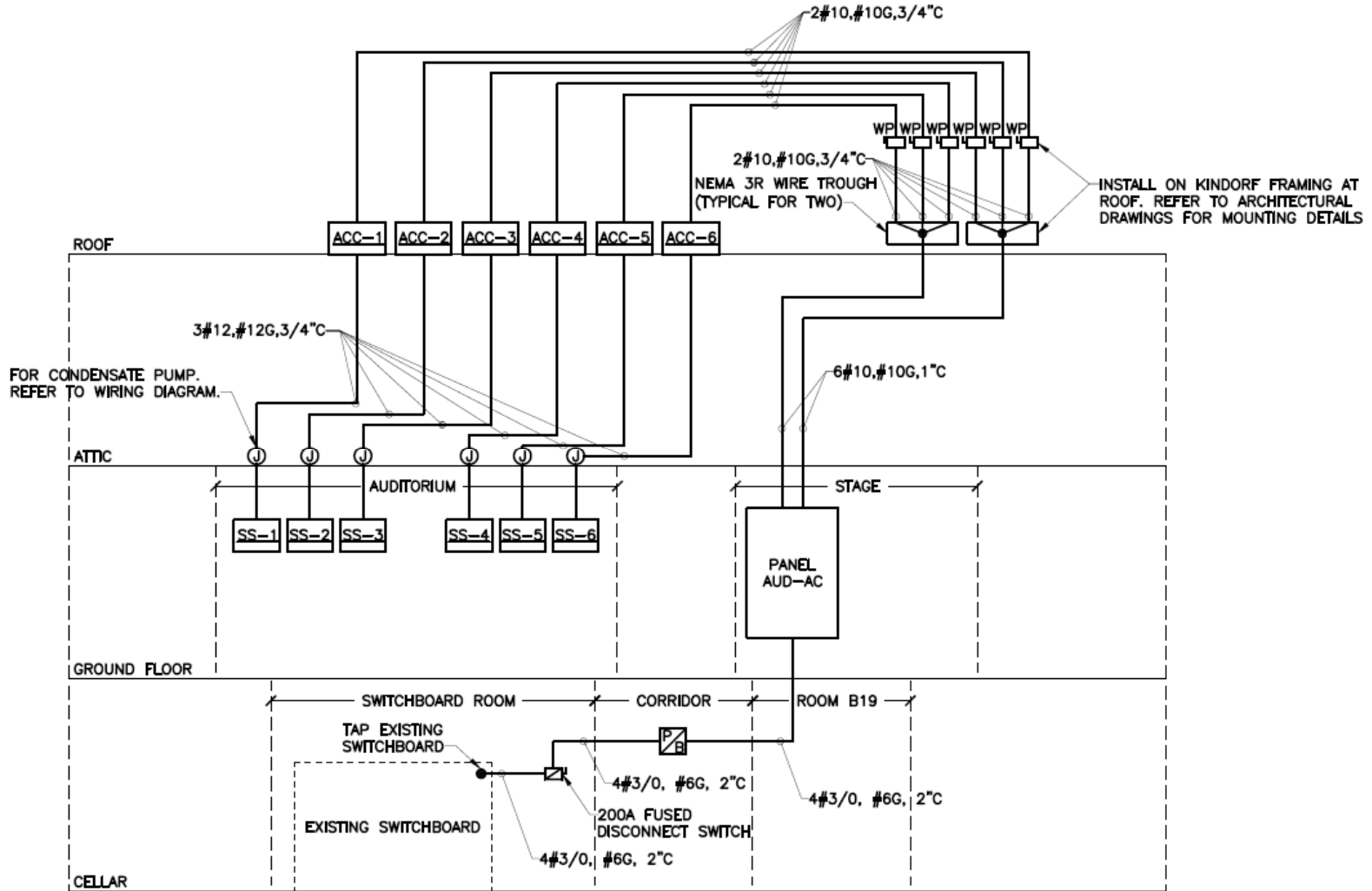
Controls

- A summer/winter switch shall be provided in the public assembly space for control of the existing Reheat Coils and Supplemental Split Air Conditioning Systems to prevent simultaneous heating and cooling.
- During the summer mode, the existing pneumatic two-way control valves shall be closed to disable heating. The contractor shall provide E-P switch and intercept the existing pneumatic control signals to the existing control valves as required. The multi-unit split air conditioning controller shall provide on-off and cooling set-point control of each connected ductless split system.
- During the winter mode, the existing pneumatic two-way control valves shall be controlled by the existing pneumatic thermostat and controls to remain. The multi-unit split air conditioning unit shall command all ductless split systems to be off to prevent simultaneous heating and cooling.

Asbestos: Sample Page From Spec 02081

SUMMARY OF INSPECTION RESULTS FOR ASBESTOS IN PUBLIC SCHOOL 174Q 65-10 DIETERLE CRESCENT QUEENS, NEW YORK 11374					
Line #	PROPOSED WORK AS PER SCA RENOVATION PLANS	SUSPECT MATERIAL THAT WILL BE IMPACTED	SAMPLING AND INSPECTION RESULTS	QUANTITY OF ASBESTOS MATERIAL	NOTES
	<u>WORK AREA</u>				
	1 st Floor Auditorium	Wall Plaster	Non-ACM	---	As per 2016 AHERA See Note b
	1 st Floor Auditorium	Acoustical Wall Plaster	ACM	24 SF	As per 2016 AHERA; Impacted by installation of piping / A/C Units
	1 st Floor Auditorium	Acoustical Wall Plaster	ACM	1,850 SF (Patching /Painting)	All painting, patching, and repair of soffit plaster must be performed exclusively by the abatement contractor
	1 st Floor Auditorium	Ceiling Plaster	Non-ACM	---	As per 2016 AHERA See Note b
	1 st Floor Auditorium	Acoustical Ceiling Plaster	Non-ACM	---	As per 2016 AHERA See Note b
	1 st Floor Auditorium	Brown 12x12 Floor Tile	Non-ACM	---	As per 2016 AHERA
	1 st Floor Auditorium	Mastic to Brown 12x12 Floor Tile	Non-ACM	---	As per 2016 AHERA
	1 st Floor Auditorium	Gray Paint on Concrete Floor	Non-ACM	---	As per 2017 ATC Report IEH# 67285
	1 st Floor Auditorium	Concrete Floor	Non-Suspect	---	

Electric Riser Diagram



Questions?