

SC LAW ENFORCEMENT DIVISION

CJIS HVAC REPLACEMENT

STATE PROJECT NO. D10-9535-AT

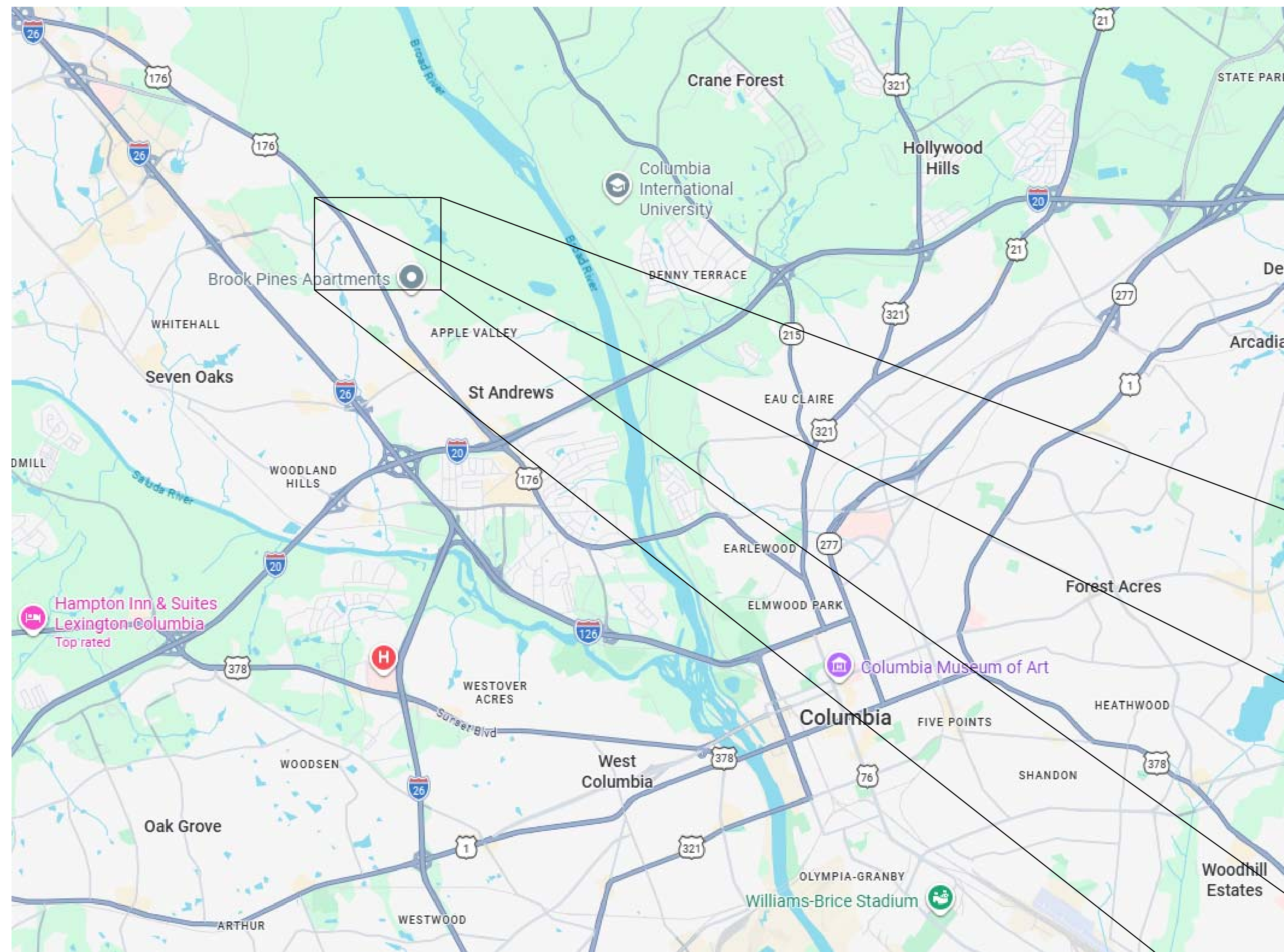
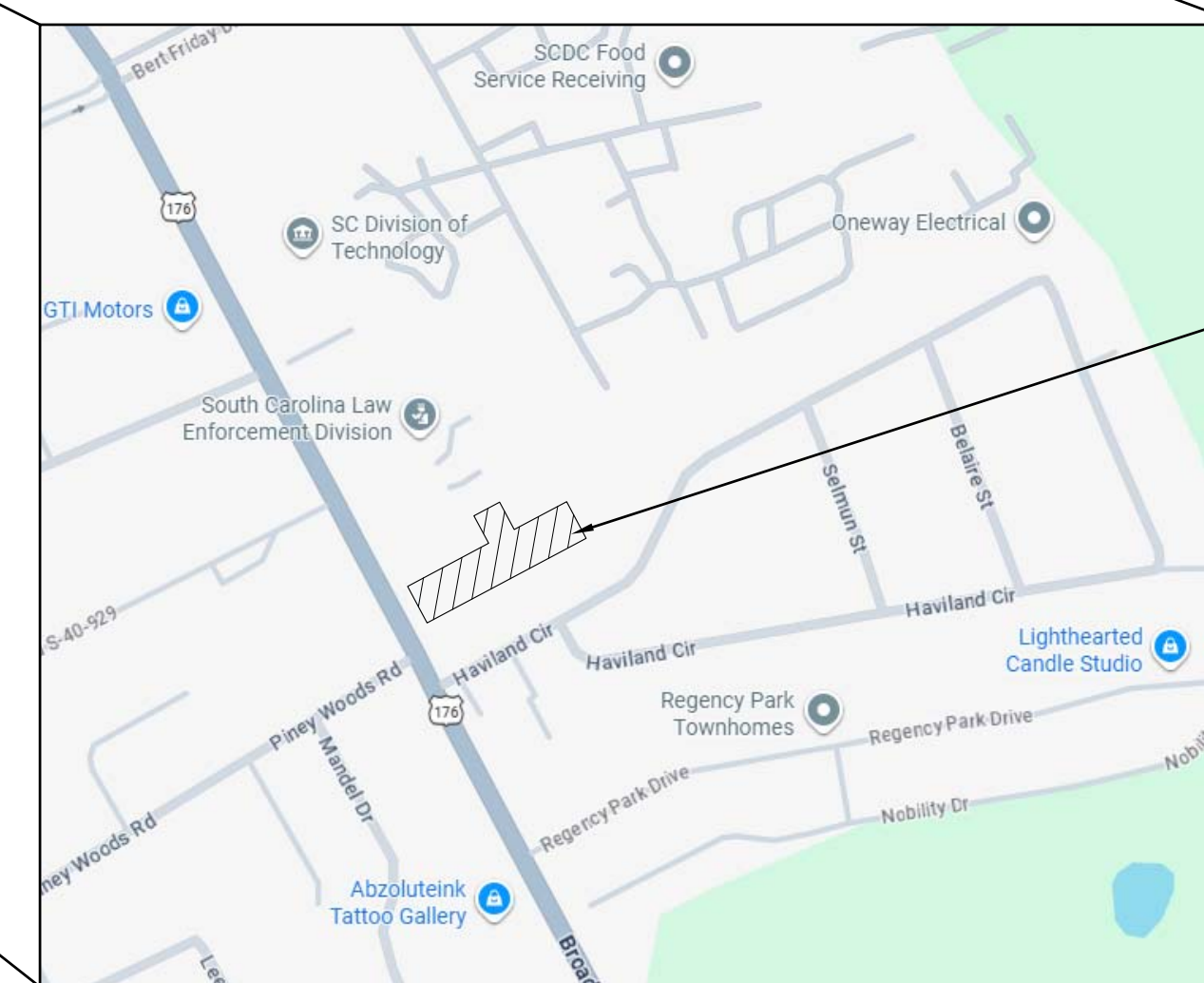


IMAGE OF MAP PROVIDED BY GOOGLEMAPS.COM



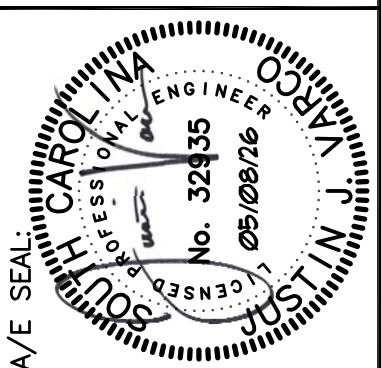
SLED - CJIS BUILDING
4400 Broad River Rd.
Columbia, South Carolina 29201

SPECIAL NOTE:
IT IS HIGHLY RECOMMENDED THAT THE CONTRACTOR VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXIST CONDITIONS RELATING TO THIS PROJECT. SUBMISSION OF A BID WILL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE OF WORK.

INDEX OF DRAWINGS	
C101	COVER SHEET
M201	HVAC ROOF PLAN
M301	HVAC SYMBOLS, NOTES, AND SCHEDULES
M401	HVAC DETAILS
E100	ELECTRICAL NOTES, SCHEDULES, AND SPECIFICATIONS
E101	ELECTRICAL DEMOLITION AND RENOVATION FLOOR PLANS

CODE REVIEW INFORMATION	
PROJECT DESIGNED IN ACCORDANCE WITH:	
1.	International Building Code - 2021 Edition.
2.	International Plumbing Code - 2021 Edition.
3.	International Mechanical Code - 2021 Edition.
4.	National Electric Code - 2020 Edition.
5.	Seismic Design Category C

ISSUE NO.	REMARKS	BY	APPROV'D DATE
-	OSE REVIEW	JUV JUV	05/08/26



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CONTRACTOR: JUSTIN VARCO
COMM. NO. 264187

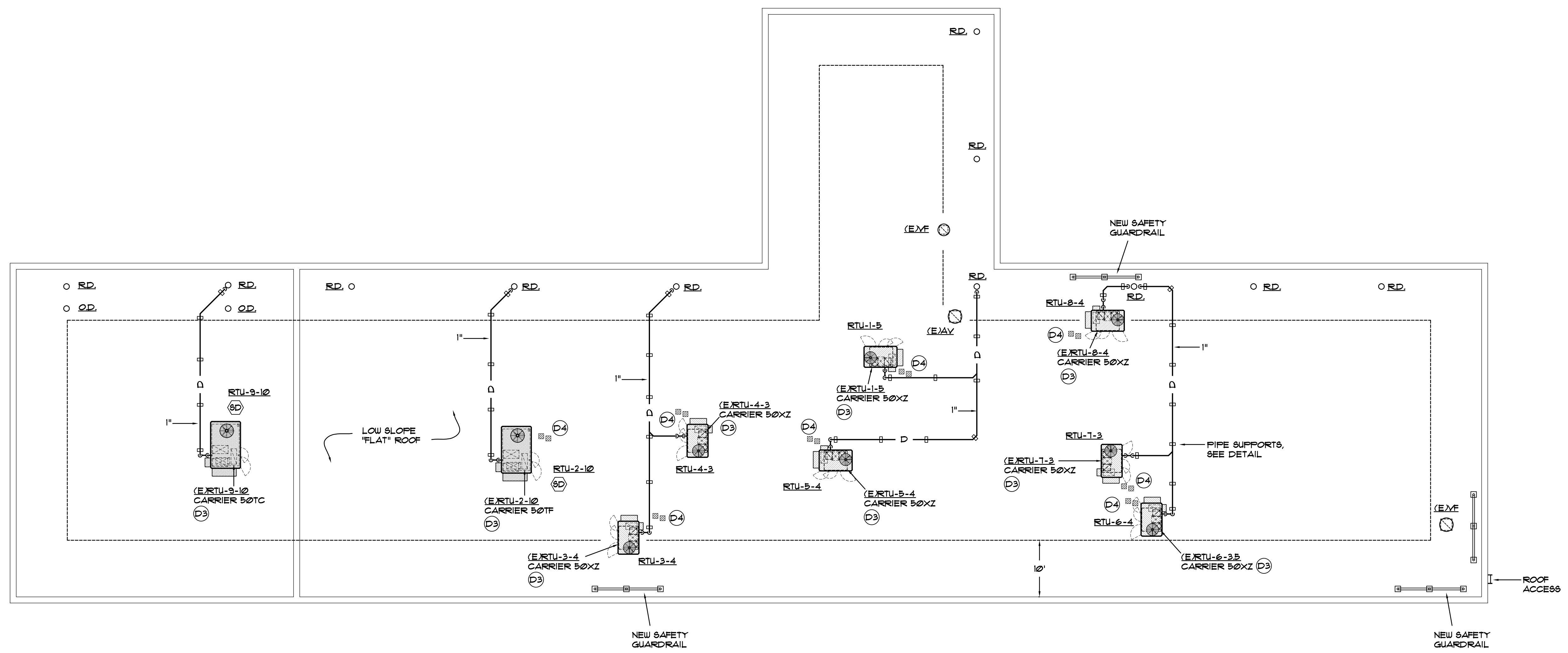
Project: SLED - CJIS HVAC REPLACEMENT
COLUMBIA, SOUTH CAROLINA
STATE PROJECT NO. D10-9535-AT

Sheet Title: COVER SHEET

SHEET NO. C101

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HVAC ROOF PLAN
SCALE: 3/32" = 1'-0" (D1)(D2)

- ROOFING NOTES**
- CONDENSATE DRAIN LINES SHALL BE TYPE "L" COPPER WITH UNION CONNECTION. (SEE DETAIL ON SHEET M401)
 - ROUTE CONDENSATE TO NEAREST ROOF DRAIN.
 - TURN CONDENSATE PIPING DOWN WITH AN ELBOW AT TERMINATION.
 - SUPPORT DRAIN LINES WITH PIPE SUPPORTS AT NOT MORE THAN 8'-0" ON CENTER AND AT EACH CHANGE IN DIRECTION. SEE PIPE SUPPORT DETAIL ON SHEET M41.
 - SLOPE PIPING A MINIMUM OF 1/8TH OF AN INCH PER FOOT.
 - COORDINATE CLEARANCES FOR EQUIPMENT SERVICE AND FRESH AIR INTAKES WITH OTHER TRADES. MAINTAIN MINIMUM DISTANCES.
 - ROOF CURB ADAPTORS SHALL BE INSTALLED LEVEL. COORDINATE EXISTING CONDITIONS; CURB SLOPES PRIOR TO ORDERING. SHIMMED ADAPTORS WILL NOT BE ACCEPTED.

- TYPICAL DEMOLITION NOTES**
- ALL HVAC MATERIAL AND EQUIPMENT MADE OBSOLETE BY THE SCOPE OF THIS WORK SHALL BE REMOVED FROM THE WORK SPACE. EQUIPMENT AND MATERIAL OF VALUE (REFRIGERANT, CONTROL VALVES, CONTROL COMPONENTS, ETC.) SHALL BE TURNED OVER TO THE OWNER AND DELIVERED UNDAMAGED TO THE LOCATION ON SITE WHERE DIRECTED BY THE OWNER. ALL OTHER DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE. REFRIGERANT CYLINDERS TO BE PROVIDED BY THE DISTRICT.
 - THE CONTRACTOR SHALL REMOVE AND RECOVER ALL REFRIGERANT FROM THE EXISTING AIR HANDLER PRIOR TO THE REMOVAL OF THE REFRIGERANT SYSTEM. THE REMOVAL OF REFRIGERANT SHALL MAXIMIZE RECOVERY AND RECYCLING OF OZONE DEPLETING SUBSTANCES (BOTH CHLOROFLOUROCARBONS (CFCs) AND HYDROCHLOROFLOUROCARBONS (HCFCs) AND THEIR BLENDS) DURING DISPOSAL OF ALL AIR CONDITIONING AND REFRIGERANT EQUIPMENT.
 - REMOVE EXISTING ROOFTOP UNIT COMPLETE, INCLUDING CONTROLS, AND CONDENSATE PIPING. PROVIDE A NEW FACTORY ROOF CURB ADAPTOR. PROVIDE NEW CONTROLS. (SEE SPECS.)
 - REMOVE POWER AND CONTROL FEEDERS/WHIPS. PROVIDE A NEW WEATHER PROOF JUNCTION BOX ON TOP OF EXISTING CONDUIT ROOF PENETRATION. NEW POWER AND CONTROLS SHALL EXTEND UP THROUGH THE BASE OF THE NEW RTU, SEE DETAIL ON SHEET M401.

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Project: **SLED - CUIS HVAC REPLACEMENT
COLUMBIA, SOUTH CAROLINA
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Sheet Title:
HVAC ROOF PLAN

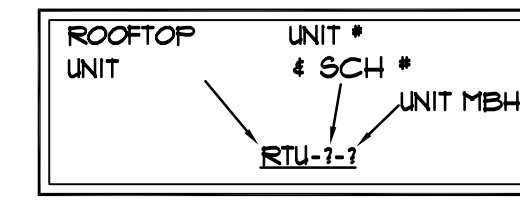
SHEET NO. **M201**

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PACKAGED HEAT PUMP SCHEDULE ①⑤⑥③

MARK	TRANE MODEL ②	O.A. CFM	AUX. HEAT KW (NET)	INDOOR FAN				COOLING ③							HEATING • 41°F ④			
				CFM	E.S.P.	HP.	TOTAL	SENS.	ENT.AIR	SEER	EER	IEER	SEER2	EER2	TOTAL	COP	H&FF	H&FF2
RTU-1-5 ①	WPK060	200	6.0	2,000	0.5"	2.9	61.0	48.3	80/61	16.4	13.5	--	15.8	12.8	53.2	3.8	8.5	1.2
RTU-2-10 ⑧	WPK120	400	18.0	4,000	0.5"	4.2	121.0	91.1	80/61	--	11.0	14.1	--	--	103.4	3.4	--	--
RTU-3-4 ①	WPK048	160	6.0	1,600	0.5"	2.9	49.8	38.6	80/61	16.8	13.5	--	16.2	12.8	42.7	3.8	8.5	1.2
RTU-4-3 ①	WPK036	120	6.0	1,200	0.5"	3/4	37.8	29.0	80/61	14.3	12.0	--	13.4	11.0	30.8	3.5	8	6.1
RTU-5-4 ①	WPK048	160	6.0	1,600	0.5"	2.9	49.8	38.6	80/61	16.8	13.5	--	16.2	12.8	42.7	3.8	8.5	1.2
RTU-6-4 ①	WPK048	160	6.0	1,600	0.5"	2.9	49.8	38.6	80/61	16.8	13.5	--	16.2	12.8	42.7	3.8	8.5	1.2
RTU-7-3 ①	WPK036	120	6.0	1,200	0.5"	3/4	37.8	29.0	80/61	14.3	12.0	--	13.4	11.0	30.8	3.5	8	6.1
RTU-8-4 ①	WPK048	160	6.0	1,600	0.5"	2.9	49.8	38.6	80/61	16.8	13.5	--	16.2	12.8	42.7	3.8	8.5	1.2
RTU-9-10 ⑧	WPK120	400	18.0	4,000	0.5"	4.2	121.0	91.1	80/61	--	11.0	14.1	--	--	103.4	3.4	--	--

- ① ROOF TOP UNIT TO MATCH AVAILABLE ELECTRICAL SERVICE, SEE ELECTRICAL. UNIT SHALL BE SINGLE POINT POWER CONNECTION.
- ② OR BY CARRIER/HEIL, DAIKIN, YORK/JCI, OR ACCEPTED EQUAL. (SEE SPECIFICATIONS)
- ③ BASED ON 95°F CONDENSER AIR TEMPERATURE.
- ④ BASED ON 10°F ENTERING AIR TEMPERATURE.
- ⑤ PROVIDE UNIT WITH A CURB ADAPTER, THRU THE BASE ELEC, HAIL GUARD, HARD WIRED SAFETY CONTROLS, INTERFACE FOR FULL EMS CONTROL, HINGED ACCESS PANELS, CRANK CASE HEATER, AND HOT GAS RE-HEAT.
- ⑥ PROVIDE UNIT WITH MULTIPLE STAGES/COMPRESSORS AND 2-STAGE/VFD FAN AND LOW AMBIENT CONTROLS ON UNITS 4-TONS AND LARGER.
- ⑦ PROVIDE UNIT WITH A 50% MOTOR-OPERATED OUTDOOR AIR DAMPER AND INTAKE HOOD.
- ⑧ PROVIDE UNIT WITH DRY BULB ECONOMIZER AND POWER EXHAUST.
- ⑨ PROVIDE UNIT WITH NEEDLE POINT BI-POLAR IONIZATION GENERATORS BY PHENOMENAL AIR OR GLOBAL PLASMA SOLUTIONS. ION GENERATOR SHALL BE SIZED FOR A MINIMUM OF 360 MILLION IONS PER CC



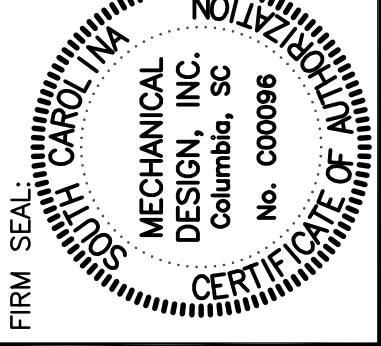
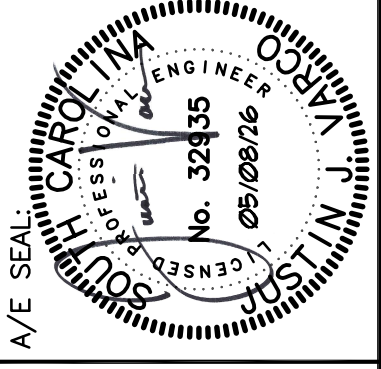
GENERAL NOTES

1. DO NOT SCALE DRAWINGS, ROUGH FROM ARCHITECTURAL AND EQUIPMENT MANUFACTURER'S DRAWINGS.
 2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. DUCT SIZES SHOWN ON DRAWINGS ARE INTERIOR DIMENSIONS.
 3. WHENEVER THE WORD "PROVIDE" IS USED IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
 4. ELECTRICAL CHARACTERISTICS SHOWN ON SCHEDULES OR DRAWINGS ARE DESIGN VALUES ONLY AND SHALL BE VERIFIED BEFORE ORDERING EQUIPMENT.
 5. PROVIDE GLASSFAB AND MASTIC ON ALL DUCT INSULATION, SEE SPECIFICATIONS. DUCT TAPE WILL NOT BE ACCEPTED.
 6. CONDENSATE DRAIN LINES SHALL BE TYPE "L" COPPER WITH UNION CONNECTION. PROVIDE "P" TRAP FOR ALL CONDENSATE DRAINS. DRAIN LINES SHALL BE INSULATED WITHIN THE BUILDING ENVELOPE. SEE SPECS. DRAIN LINES SHALL BE FULL SIZE OF UNIT CONNECTION UNLESS OTHERWISE NOTED ON PLANS.
1. ROUTE CONDENSATE DRAIN LINE TO NEAREST ROOF DRAIN, ELBOW DOWN AT DRAIN.
 2. CONSTRUCT DUCTWORK AS JOB PROGRESSES AND AFTER COORDINATING WITH ALL CONCERNED TRADES AND CONTRACTORS. SEE SPECIFICATIONS FOR FLEXIBLE DUCT REQUIREMENTS.
 3. INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING, INCLUDING VIBRATION ISOLATION SHALL COMPLY WITH 2021 INTERNATIONAL BUILDING CODE FOR SEISMIC PROTECTION. SEE SPECIFICATIONS.
 10. MAINTAIN RECOMMENDED CLEARANCES AT EQUIPMENT AS REQUIRED BY THE MANUFACTURE FOR SERVICE.
 11. ALL SUPPLEMENTAL STEEL AND HANGERS REQUIRED FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR UNLESS SHOWN OTHERWISE IN BID DOCUMENTS.
 12. THERMOSTATS AND OPERABLE CONTROL DEVICES ACCESSIBLE TO STAFF AND/OR THE PUBLIC SHALL BE MOUNTED PER ANSI STANDARDS.

SYMBOLS

	FLEXIBLE DUCT (6 FT. MAX. LENGTH)
	RIGID ROUND RUNOUT DUCT
	NEW MATERIAL
	MATERIAL TO BE REMOVED
	ACOUSTICALLY LINED DUCT
	AIR FLOWRATE, CUBIC FEET PER MINUTE
	GRILLE OR DIFFUSER MARK, BALANCING CFM
	TURNING VANE
	SPLIT DUCT WITH SPLITTER DAMPER
	SPIN-IN TAKEOFF WITH SCOOP AND DAMPER
	MANUAL DAMPER WITH LOCKING QUADRANT
	FLEXIBLE CONNECTION
	MOTOR OPERATED DAMPER, SEE SPEC.
	THERMOSTAT/OVERRIDE/HUMIDISTAT
	SMOKE DETECTOR
	CONDENSATE DRAIN LINE (INSULATED)
	PIPE TURNING DOWN
	PIPE TURNING UP

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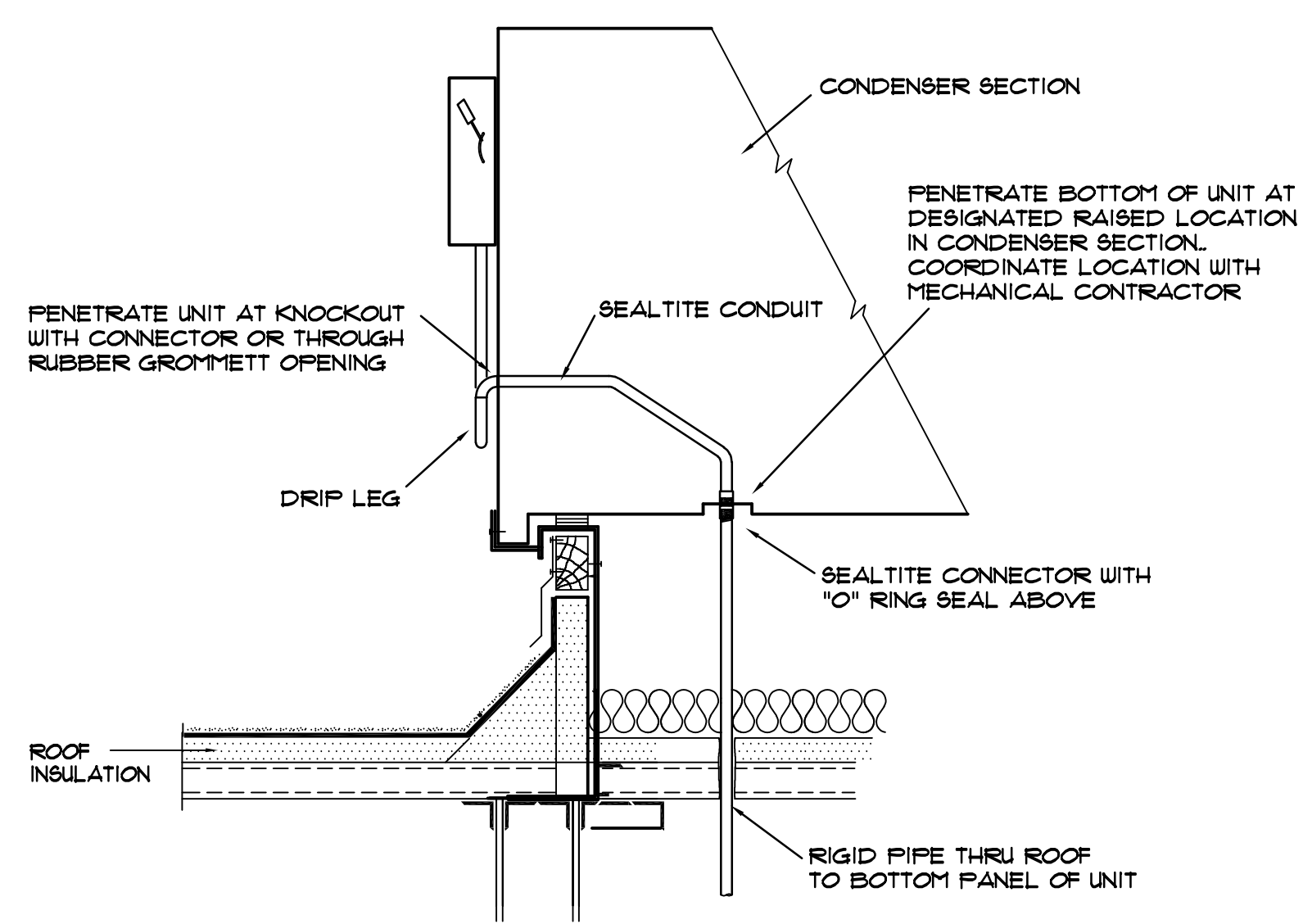
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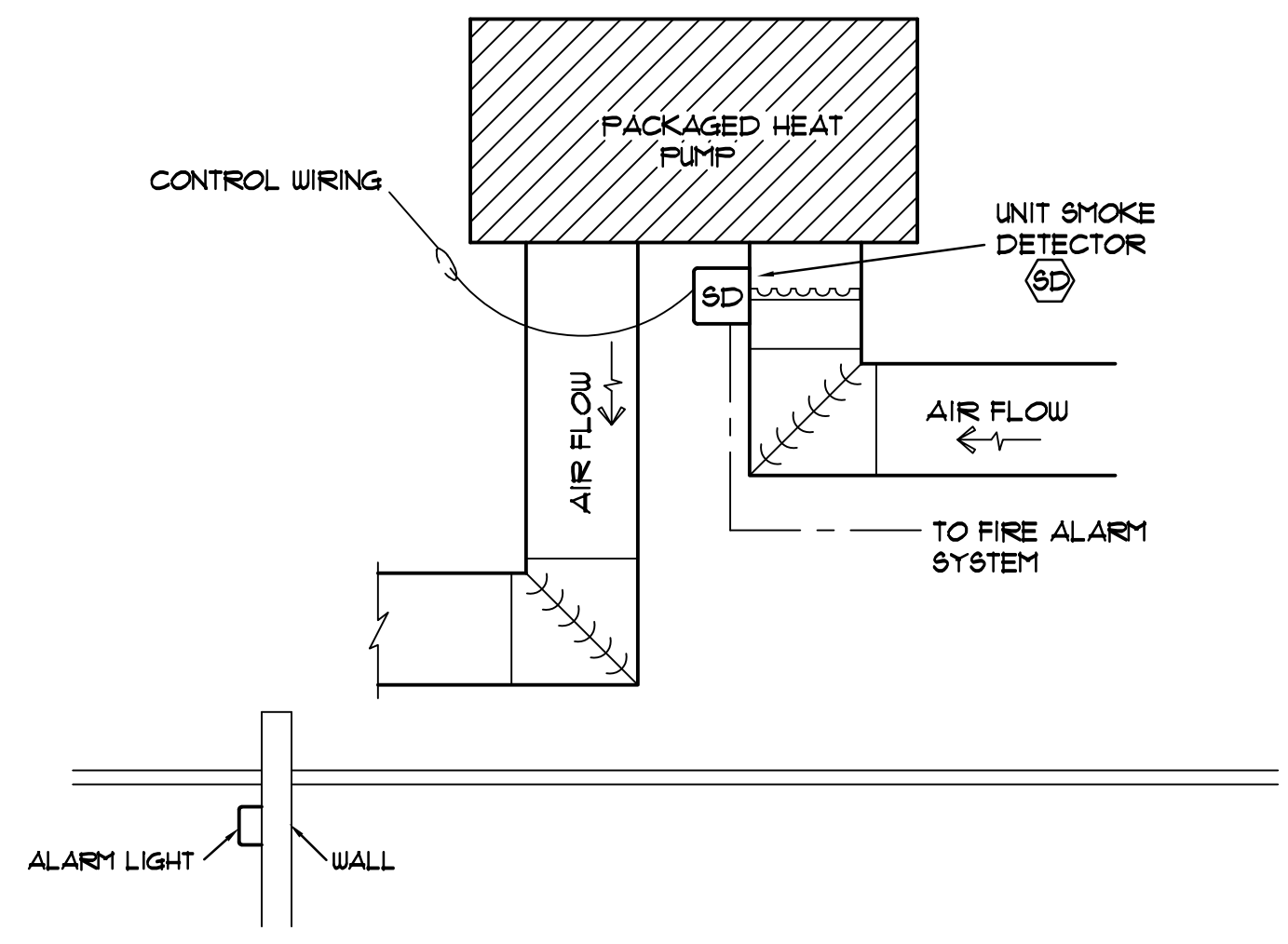
Sheet Title: HYAC SYMBOLS, NOTES, AND SCHEDULES

SHEET NO. **M301**

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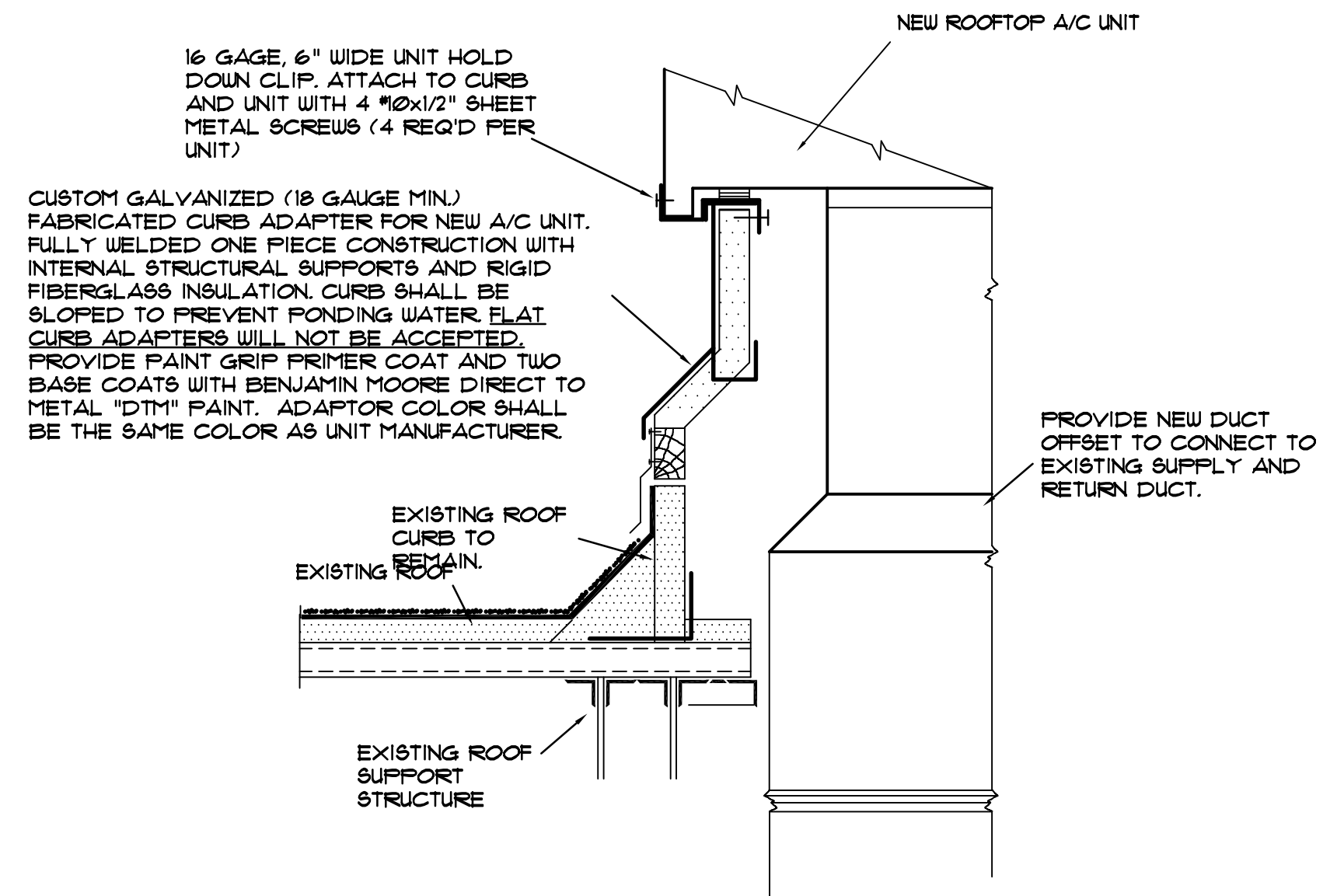
ROOF MOUNTED POWER AND CONTROL WIRING DETAIL
NOT TO SCALE



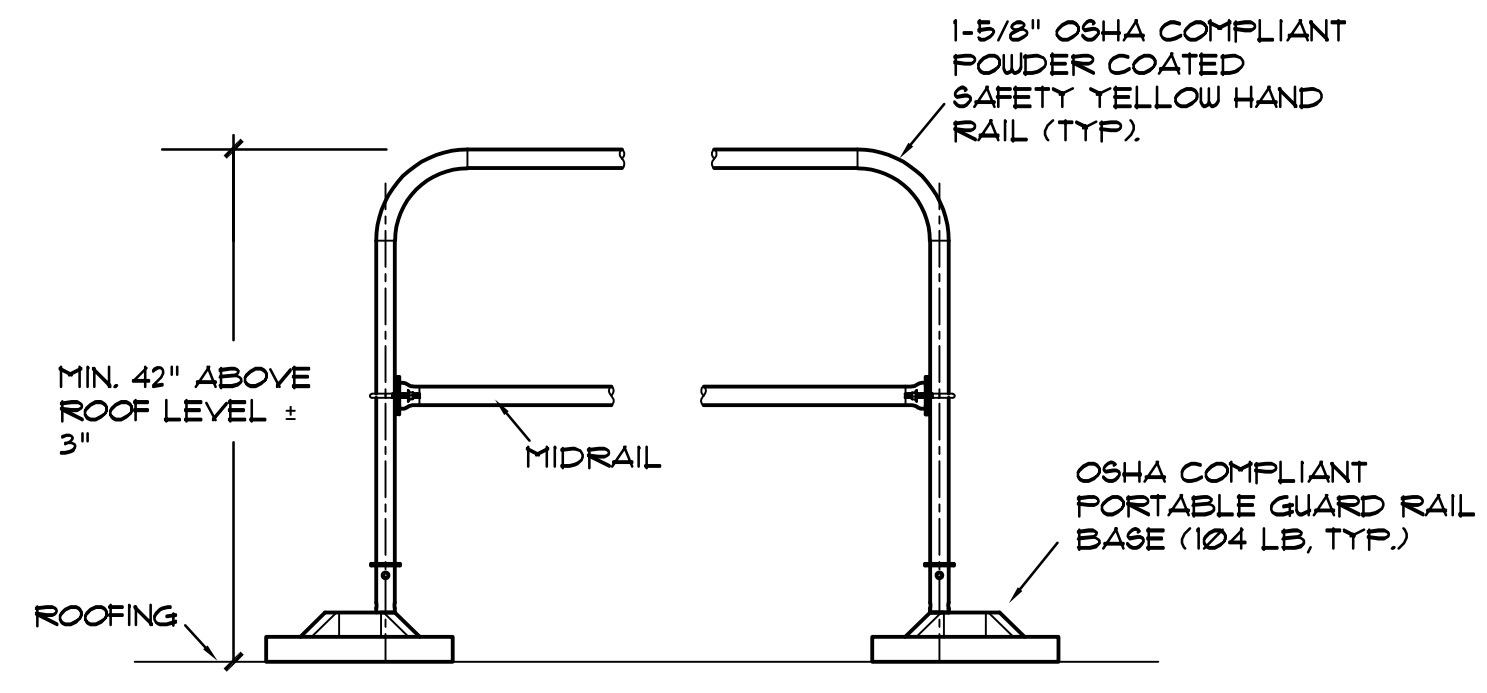
NOTE:
UNIT SMOKE DETECTORS, DETECTORS FOR COMBINATION FIRE/SMOKE DAMPERS (INCLUDING TRANSFER) AND POWER WIRING FOR MOTOR OPERATED DAMPERS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. CONNECTION TO FIRE ALARM SYSTEM SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. INSTALLATION OF DETECTORS, CONTROL AND INTERLOCK WIRING AND DAMPERS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ALARM LIGHT AND CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. COORDINATE WITH THE FIRE ALARM SUPPLIER LOCATION AND QUANTITY OF DETECTORS REQUIRED. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT WIRING FROM NEAREST AVAILABLE UNSWITCHED CIRCUIT TO ANY REQUIRED DAMPER MOTOR.

HYAC AUTOMATIC FAN SHUTDOWN
NOT TO SCALE

SPECIAL NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMIC ATTACHMENT OF THE NEW ROOFTOP UNIT AND CURB ADAPTER TO THE EXISTING ROOF CURB. IF ADEQUATE HOLDDOWN OF THE EXISTING ROOF CURB TO THE STRUCTURE IS NOT EVIDENT (IE 3/8" BOLTS, WELDED CURB TO STRUCTURE, OR STRAPPING) PROVIDE MEANS TO SEISMICALLY ATTACH THE EXISTING CURB TO THE STRUCTURE.

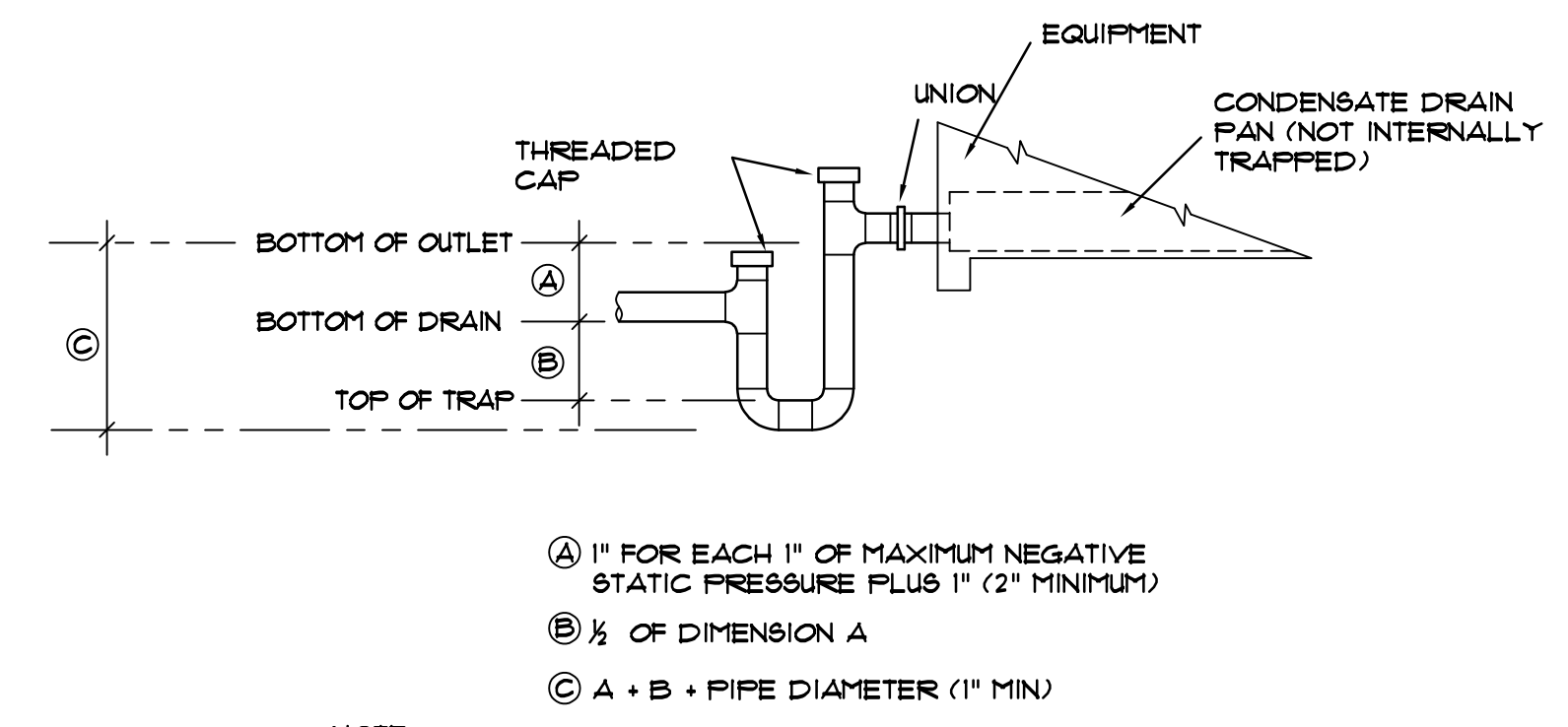


EXISTING CURB AND ADAPTER DETAIL
NOT TO SCALE



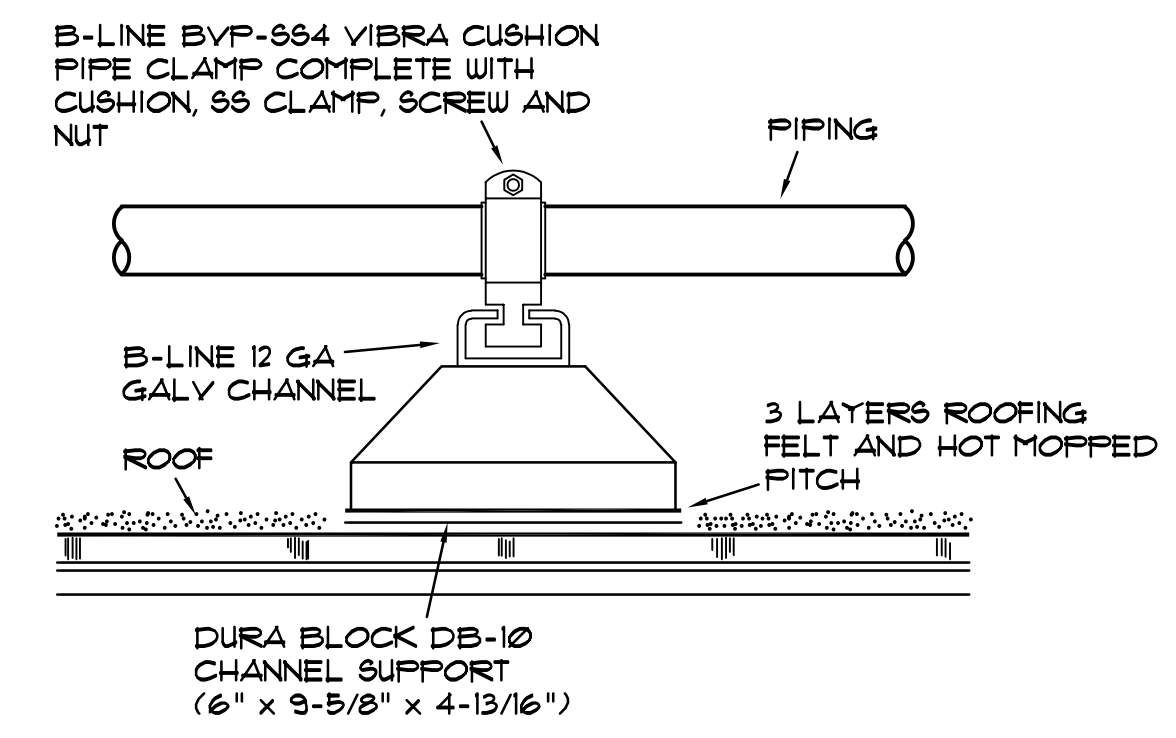
SPECIAL NOTE:
PROVIDE GUARD RAIL AT ANY UNIT WITH LESS THAN 10'-0" FROM ROOF PARAPET TO UNIT SERVICE ACCESS REQUIREMENTS AS DEFINED BY THE UNIT MANUFACTURER.

GUARD RAIL DETAIL
NOT TO SCALE



NOTE:
CONDENSATE DRAIN PIPE SIZE SHALL BE FULL SIZE DRAIN CONNECTION BUT NOT LESS THAN 1" DIAMETER. DRAIN LINE SHALL BE TYPE "L" COPPER

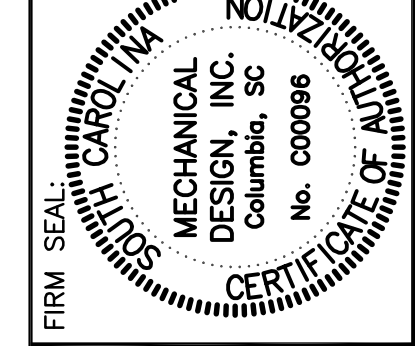
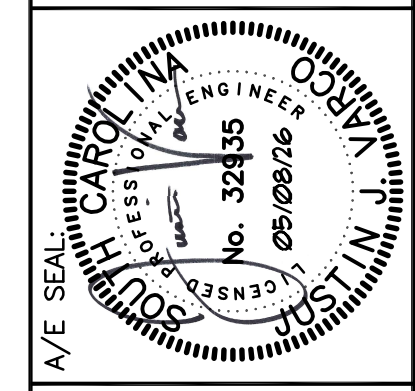
CONDENSATE DRAIN PIPE INSTALLATION DETAIL
NOT TO SCALE



ROOFTOP PIPE SUPPORT DETAIL
NO SCALE

NOTES:
1. LOCATE PIPE SUPPORTS MAXIMUM 8'-0" ON CENTERS AND AT EACH FITTING.
2. POLYETHYLENE FOAM AND WOOD TIMBERS WILL NOT BE ACCEPTED.

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Sheet Title: HYAC DETAILS

SHEET NO. M401

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ELECTRICAL SYMBOL SCHEDULE - GENERAL. Table with 2 columns: Symbol and Description. Includes symbols for branch circuit raceway (LP1-2,4) and homerun to panel.

ELECTRICAL SYMBOL SCHEDULE - POWER. Table with 2 columns: Symbol and Description. Includes symbol for heavy duty disconnect switch.

- GENERAL NOTES ALL DRAWINGS: 1. DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. 2. MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC. 3. ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT. 4. BRANCH CIRCUIT SIZES ARE #12 AWG, 1/2"C. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS. 5. ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSES TO OBTAIN MINIMUM NEUTRAL CURRENT. 6. ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122. 7. SEAL ALL PENETRATIONS THROUGH RATED WALLS AND CEILINGS WITH UL LISTED FIREPROOFING SYSTEM. THIS IS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR, RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL. 8. WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122. 9. ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE. 10. VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY. 11. CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT. 12. ALL RACEWAYS TRANSITIONING BETWEEN CONDITIONED AND UNCONDITIONED SPACES AND RACEWAYS EXITING BUILDING SHALL BE SEALED IN ACCORDANCE WITH NEC. USE POLYWATER FST DUCT SEALANT SYSTEM OR EQUIVALENT. 13. ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES. 14. ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE. 15. ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT. 16. PROVIDE PLASTIC ENGRAVED NAMETAGS FOR ALL ELECTRICAL GEAR, INCLUDING DISCONNECT SWITCHES. INDICATE EQUIPMENT NAME, EQUIPMENT SERVED (WHERE APPLICABLE), FEEDER SOURCE AND CIRCUIT, VOLTAGE. LETTERING SHALL BE 3/8" IN HEIGHT, WHITE ON BLACK BACKGROUND. 17. PROVIDE LABELS INDICATING CIRCUIT NUMBER AND SOURCE FOR ALL 120V AND GREATER DEVICES. LABELS SHALL BE THERMAL TRANSFER TYPE, 3/8" WITH 1/4" LETTERING. WHITE BACKGROUND FOR BLACK DEVICES, CLEAR BACKGROUND OTHERWISE. 18. SLEEVE ALL RACEWAY PENETRATIONS THROUGH SLABS, EXTERIOR WALLS/FOUNDATIONS AND SIMILAR. COORDINATE ALL PROPOSED PENETRATIONS WITH STRUCTURAL ENGINEER AND ARCHITECT.

DISCONNECT SWITCH SCHEDULE. Table with 2 columns: SWITCH and DESCRIPTION. Lists switches from S-1 to S-15 with their respective ratings and types.

- SWITCH NOTES: 1. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE AND BY SAME MFR AS PANELBOARDS. 240V OR 600V TO SUIT CIRCUIT VOLTAGE. 2. ALL DISCONNECTS FUSIBLE UNLESS OTHERWISE NOTED. PROVIDE FUSES TO SUIT LOAD. 3. ENCLOSURES NEMA 3R OUTDOORS AND IN WET LOCATIONS, NEMA 1 ELSEWHERE UNLESS OTHERWISE NOTED. 4. ALL OUTDOOR DISCONNECTS SERVING GROUND MOUNTED HVAC UNITS SHALL NOT BE MOUNTED HIGHER THAN 36" ABOVE FINISHED GRADE. 5. COORDINATE WITH EQUIPMENT MANUFACTURER AND INSTALL TO PROVIDE REQUIRED CLEARANCES PER NEC. 6. COORDINATE WITH MECHANICAL CONTRACTOR, WHERE SCOR RATINGS OF MECHANICAL EQUIPMENT DOES NOT MEET OR EXCEED AIC RATING OF PANELBOARD SERVING EQUIPMENT. PROVIDE CURRENT LIMITING FUSES TO ADEQUATELY PROTECT EQUIPMENT. 7. DISCONNECTS SHALL BE MOUNTED WITHIN SIGHT OF EQUIPMENT SERVED. 8. NF = NON-FUSED. 9. PROVIDE FUSE SIZE INDICATED BY #.

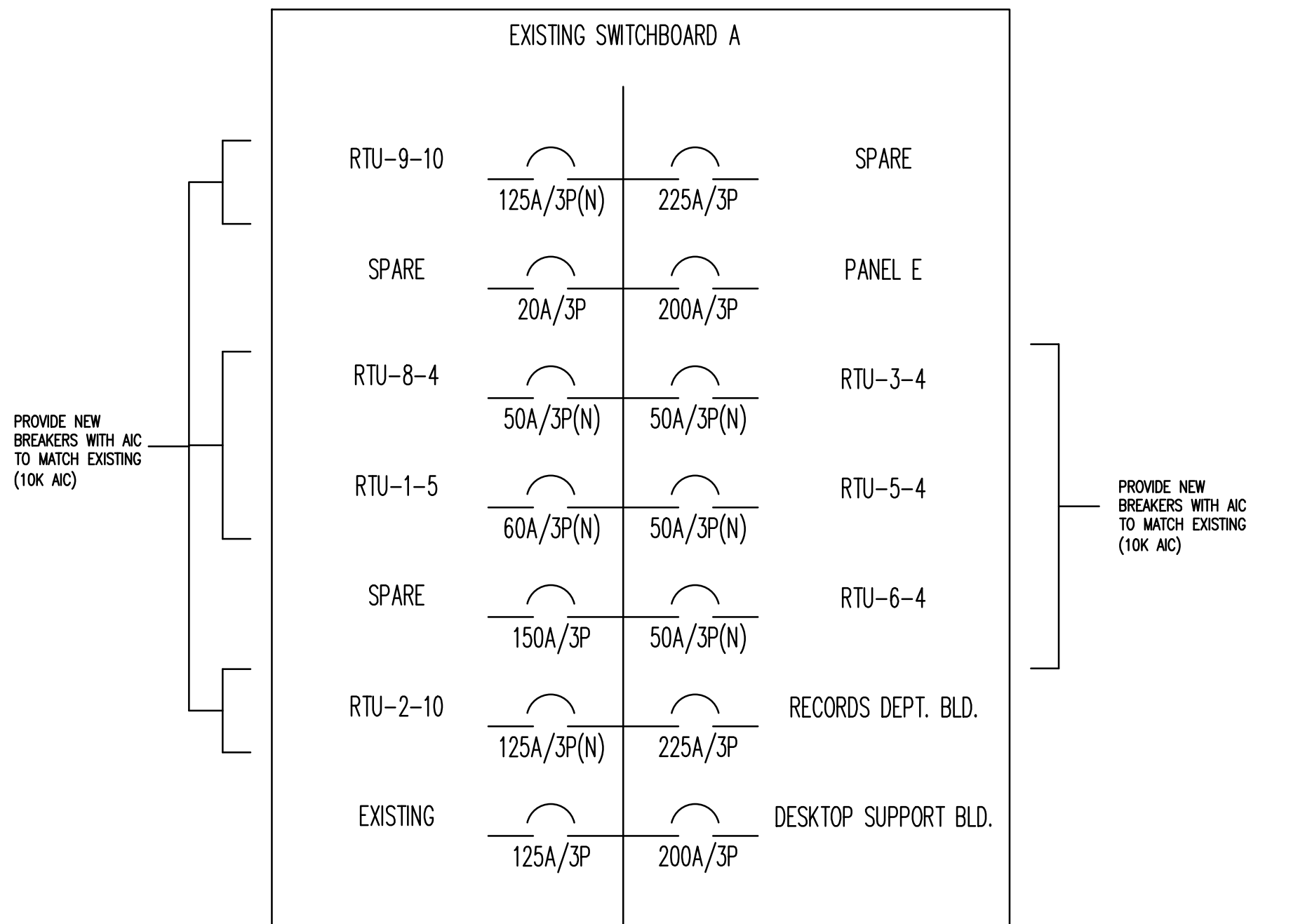
ELECTRICAL SPECIFICATIONS

- 1. GENERAL PROVISIONS
A. Work included in these specifications and included on the drawings shall include furnishing all labor, materials, supplies, and equipment to perform all work required including cutting, channeling, chasing, excavating and backfilling, to install a complete and working electrical system(s) in accordance with these sections of the specifications and the accompanying drawings. This shall include all required preparation work, raceways, coordination, etc. required to install the electrical system.
B. The electrical work shall include, but in no way be limited to the following:
1. Raceways (To include raceways for conductors and cables, but also empty for designated signal systems and future uses.)
2. Electrical Distribution System.
3. Interior Power Systems
4. Exterior Power Systems
5. Connection and installation of Equipment Furnished Under Other Divisions of the Specification.
C. The contractor is responsible for including any and all work related to the electrical that is noted in any part of the specifications or any part of the drawings, including Divisions 1, 15 and any other sections. The contractor will supply power to equipment at the voltage indicated on the drawings. The contractor will be held responsible for coordinating the equipment voltages, control equipment, wiring, and locations and type of terminations/connections and/or disconnects required to comply with the National Electrical Code, International Building Code, International Energy Conservation Code, all local codes, and the equipment manufacturer's requirements.
D. Electrical Drawings are diagrammatic in nature except where specific dimensions, or specific details are shown on the electrical, mechanical, or architectural drawings. The contractor shall refer to other drawings for exact locations of equipment, building dimensions, architectural details and conditions affecting the electrical work; however, field measurements take precedence over dimensioned drawings. The Electrical Contractor shall provide all labor and materials and all incidental elements; junction and pull boxes, filters, pull wires, connectors, support materials, fuses, disconnect switches, lamps, and labels, to install, connect, start-up and result in a complete and working system in accordance with the drawings and specifications. The contractor is responsible for coordinating the installation of all electrical work with the work of other contractors and/or trades. The electrical drawings are such that the electrical service to equipment furnished and installed under other sections of the contract documents (examples, include but are not limited to: HVAC equipment, water heaters, fans, pumps, motors, etc) is coordinated for the specified equipment only. If the equipment installed under other divisions of the contract documents is not the specified equipment it is the responsibility of the contractor to coordinate the electrical service/interface requirements with the electrical contractor.
E. Provide all wiring, connectors, fittings, connections, and all accessories for the complete installation of, and final connections to, equipment furnished under other divisions of the specifications and where indicated on the drawings or otherwise specified.
F. All safety disconnect switches shall be provided under Division 16 unless specifically noted on drawings. The electrical contractor shall furnish and install fuses that are sized in accordance to the equipment nameplate of the equipment served.
G. The contractor is responsible for obtaining all required permits and complying with all National (NEC, IBC, NFPA), State, County, and Municipal codes and regulations. This shall include, but not be limited to, the following:
1. Federal Occupational Safety and Health Act (OSHA)
2. NFPA 70 (National Electrical Code)
3. NFPA 101 (Life Safety Code)
4. Americans with Disabilities Act (ADA).
5. International Building Code (IBC).
6. International Energy Conservation Code (IECC).
H. The contractor shall keep a set of construction drawings during the length of the project on which he shall note any and all changes from the original drawings. This record set of drawings shall be updated daily.
I. Electrical Subcontractor shall submit for review by the Engineer detailed shop drawings of all material listed below. All submittal data shall be submitted at one time through the Architect. No material or equipment for which Engineer's review is required shall be delivered to the job site or installed until the Electrical Contractor has in his possession the reviewed and approved shop drawings for the particular material and/or equipment. The Electrical Contractor shall assemble, organize, prepare and review for correctness shop drawings on all materials, equipment, fixtures and devices to be used. If material submitted is the result of "value engineering" or "prior approval" changes, the submittal must contain supporting documentation of the approved changes, otherwise it will be reviewed against the specified products on these plans. The Electrical contractor shall furnish the number of copies specified by the Architect or one (1) PDF copy of shop drawings if no number is specified by the Architect. Shop drawings that are incorrectly submitted, contain errors or omissions, or not in the form and sequence specified shall be rejected as unapproved.
Shop drawings shall contain as cover page a letter by the supplying Vendor stating that the Vendor has received full contract documents and that to the best of his or her knowledge the submittal is in compliance with the contract documents and design intent including all ancillary parts and pieces required for a complete job.
Review of shop drawings in no way relieves the Contractor of his responsibility of quantity, dimensions, weights, means and methods, safety, or coordination with others.
Failure of the Contractor to submit shop drawings to the Engineer with reasonable time for review shall not entitle the Contractor to an extension of contract time. Reasonable review time is fifteen working days unless otherwise specified.
At minimum shop drawings shall be submitted for:
1. Safety switches
2. Basic materials; wire, conduit, fittings, wiring devices
3. Fuses; include current limiting characteristics
4. Circuit Breakers
J. Requests for Substitution
Submit requests for substitution to Engineer through Architect in PDF format no fewer than ten (10) working days prior to bid time. Requests shall contain cutsheets, catalog numbers, etc. Any approval will be in writing by the Engineer. Prior approval submittals for lighting shall include adequate photometric and energy use documentation for comparison to specified. Lighting vendor shall submit photometrics (point-to-point on floor plans) with comparison to specified fixtures as requested by Engineer during the review process. Substituted items will not result in an increase in cost to the Owner.
K. Catalog numbers and names that appear in the specifications or on the plans may be incomplete or obsolete and are for descriptive purposes only. As such they may not indicate all of the parts, pieces and systems required for a complete and operating installation. It is the responsibility of the Electrical Contractor, the Vendor and the Supplier to review the plans, specifications and applications to determine the correct item(s) required to include all installation and support materials and systems for a complete and working installation.

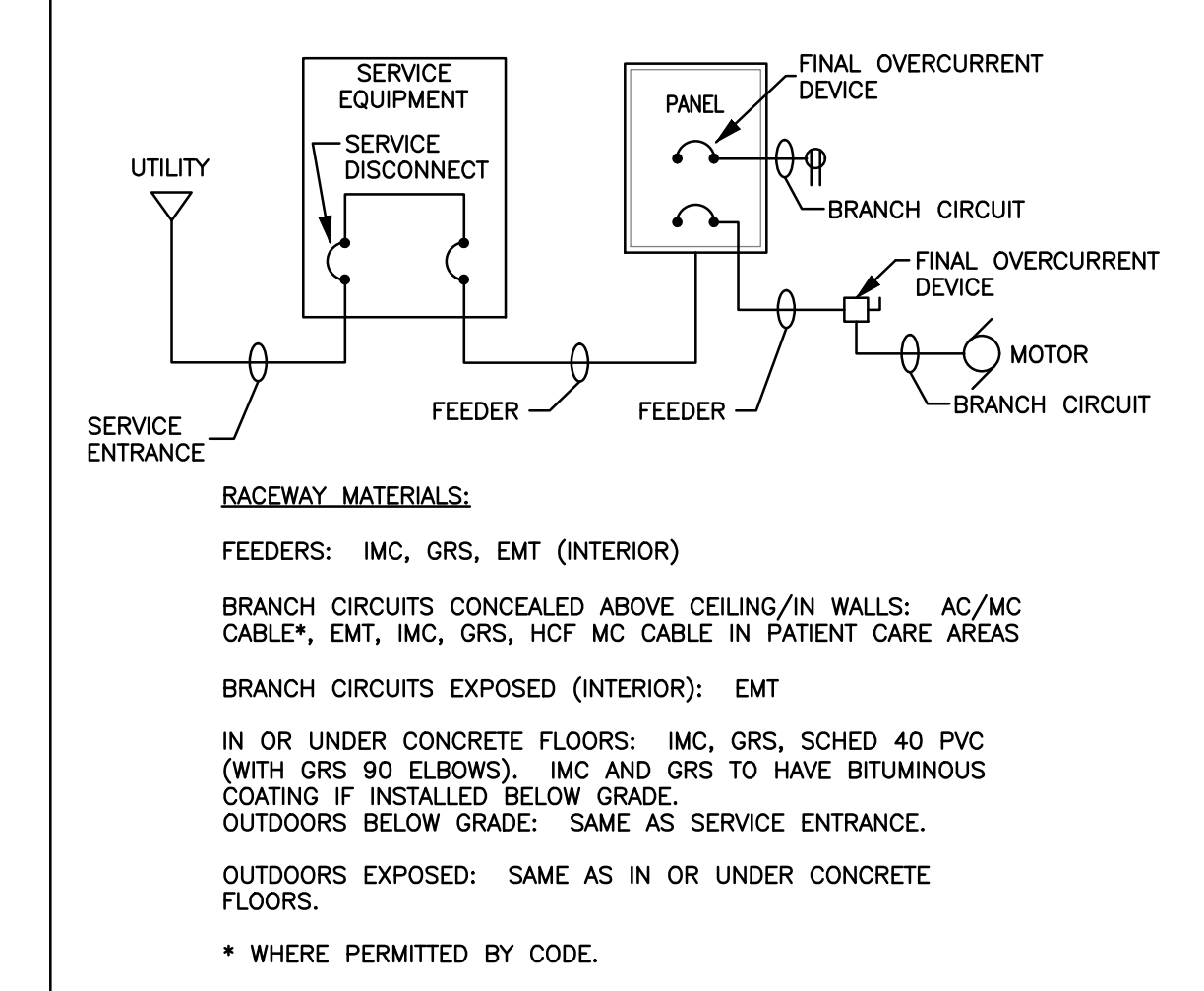
- C. All cables shall be color coded. Color coding shall be as follows:
120/208 Volt Phase
Black A
Red B
Blue C
White Neutral
Green Ground

- D. Each wire or cable in a feeder at its terminal points, and in each pull-box, junction box, and panel gutter through which it passes shall be identified to show the circuit number of the breaker that it connects to. Each common wire, common circuit to common loop of a system, sound system, or any signal system conductor, shall be identified.
E. All installation shall be in accordance with the NEC. All splices shall be in junction boxes and shall be electrically and mechanically secure. Where a circuit home run is shown on the plans without any conductor or raceway identification, it shall be a minimum of 2 # 12, 1 # 12 Ground, 1/2" Conduit. Place an equal number of conductors for each phase of a circuit in same raceway or cable. Splice only in junction or outlet boxes. Neatly train and lace wiring inside boxes, equipment, and panelboards. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

- 7. SECONDARY GROUNDING
A. Work included shall include power system grounding, communication system grounding, and electrical equipment and raceway grounding and bonding. Ground electrical work in accordance with NEC Article 250, local codes as specified herein, and as shown on the drawings.
E. Provide a separate, insulated equipment grounding conductor in feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter. Supplementary Grounding Electrode: Use driven ground rods on exterior of building.
F. Install ground cables continuous between connections. Splices will not be allowed except where indicated on the drawings. Connections made by the CROWL(R) Process are not considered splices. Where ground cables pass through floor slabs, building walls, etc., and are not in metallic enclosures, provide the sleeves of approved nonmetallic material.
G. Install equipment grounding conductors in raceway with feeder and branch circuit conductors. Ground interior lighting fixtures with grounding conductor to rigid metal raceways serving them. Flexible metal conduit shall have a ground wire installed with the power conductors. Where connections are made to motors or equipment with flexible metal conduit, grounding conductor shall be stranded copper conductor within the conduit, bonded to the equipment and to the rigid metal raceway system. At each convenience outlet, install a grounding clip attached to the outlet box and leave a sufficient length of #12 wire with green colored insulation to connect to the grounding terminal of the receptacle.



RACEWAY MATERIAL SCHEDULE



ABBREVIATIONS

Table of abbreviations for electrical symbols. Columns include Abbreviation and Description. Examples: A AMPERE, AFF ABOVE FINISHED FLOOR, AFM ABOVE FINISHED GRADE, BKR ARC FAULT CIRCUIT INTERRUPTER BREAKER, CNDT CONDUIT, etc.

2. FIRE SPREAD PREVENTION MATERIAL

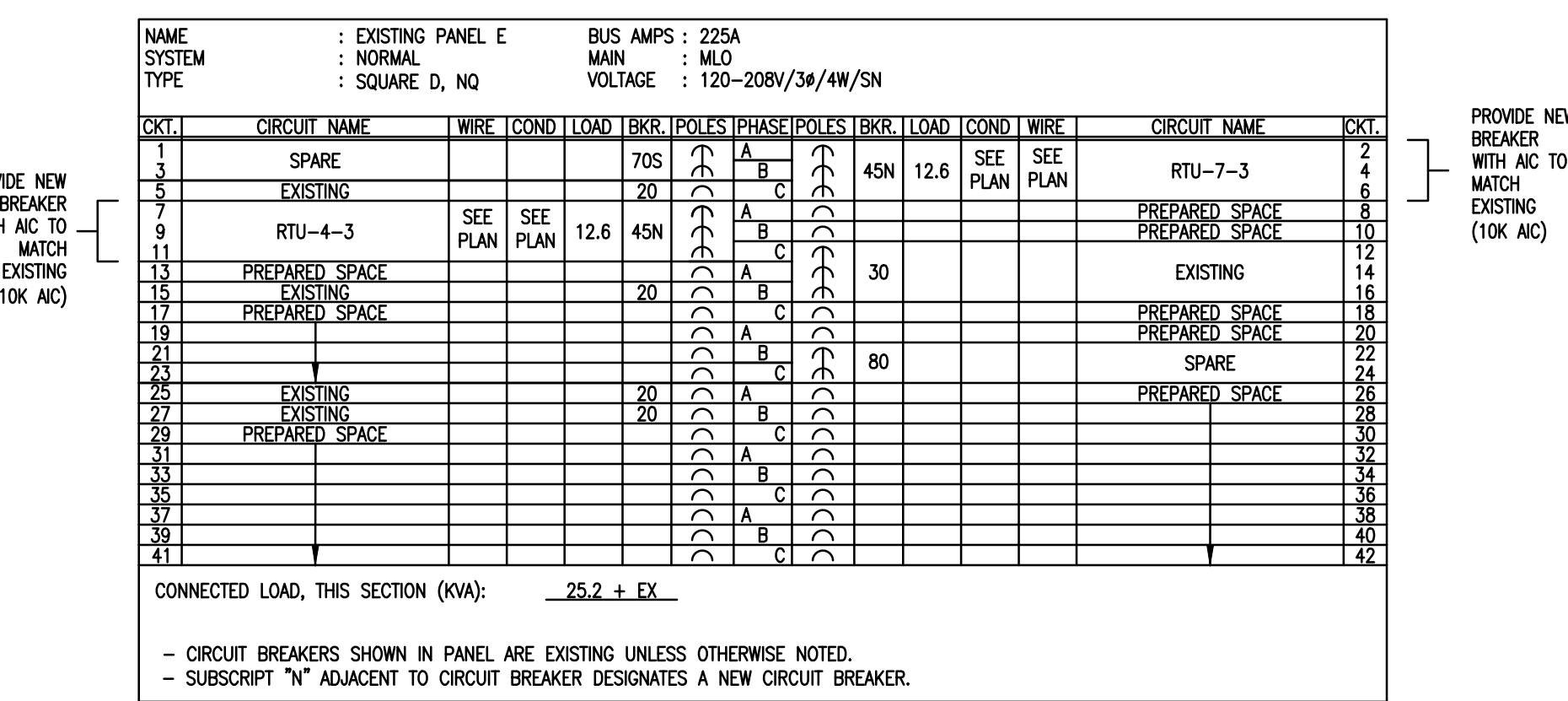
- A. The work shall include the requirement to install fire spread prevention material wherever the electrical contractor installs or penetrates a material (wall, etc.) to install electrical equipment or materials.
B. Fire Resistance Rating: Whenever a fire rated wall, floor, floor-ceiling or roof-ceiling assembly is shown with through-penetrations, provide materials and application procedures which have been tested and classified by UL and approved by FM for the assembly.
C. Installation shall be in accordance with the printed instructions as supplied by the manufacturer.

3. RACEWAYS/CONDUITS AND ASSOCIATED EQUIPMENT

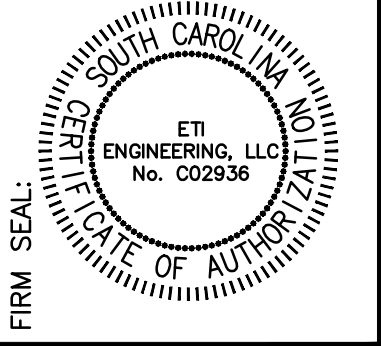
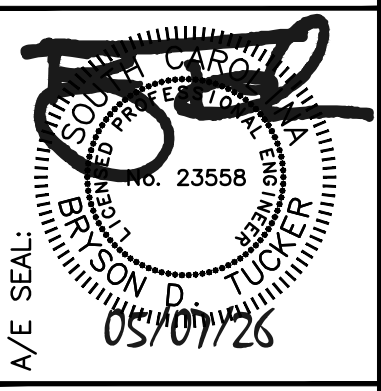
- A. The work shall include all raceways, conduits, fittings, and all other equipment required to install a raceway system. This shall include, but not limited to the following:
1. Rigid metal conduit and fittings.
2. Electrical metallic tubing and fittings.
3. Flexible metal conduit and fittings.
4. Liquid tight flexible metal conduit and fittings.
5. Non-metallic conduit and fittings.
B. Except where otherwise permitted on drawings route all conductors in conduit.
C. All signal systems shall have their wiring installed in conduit/raceways to above accessible ceiling and in inaccessible ceiling spaces. All cabling exposed above ceiling shall be plenum rated.
Conduit routing and device wiring for signal system components is not shown on the drawings. The contractor shall coordinate with the signal system manufacturer to determine the conduit (size and routing) and wiring requirements to circuit the equipment shown on the drawings.
D. Specified products and their areas of use shall be as described on drawings.
E. Fittings shall be steel compression type, concrete tight for all EMT raceways. For PVC raceways, use slip fittings with glue joints. For rigid galvanized steel and IMC, fittings shall be threaded galvanized iron, heavy steel, concrete tight.
F. Size conduit for conductor type installed; 1/2 inch minimum size.
G. For all empty raceways, furnish and install a nylon pull cord. The nylon pull cord shall be rated for a 200 pound force pull strength.

- 4. WIRE AND CABLE - 600 VOLTS AND LESS
A. Work shall include the furnishing and installing of all required wire and cable to complete the wiring and electrical system. This shall include, but not be limited to the following:
1. Building wire.
2. Wiring connections and terminations.
B. All service entrance power cable shall be type XHHW OR THWN-2, 90 degree C, copper conductor U.N.O. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation, THHN. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THHN. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid conductor. MINIMUM SIZE SHALL BE #12 FOR ALL WIRING ABOVE 48 VOLTS. All conductors in damp or wet locations (including below grade) shall be listed for that use, THWN-2 or equivalent.

EXISTING MAIN SWITCHBOARD A SINGLE-LINE DIAGRAM NO SCALE



ISSUE NO. REMARKS: OSE REVIEW. APPROVED DATE: 05/08/26. BY: JUV JUV.



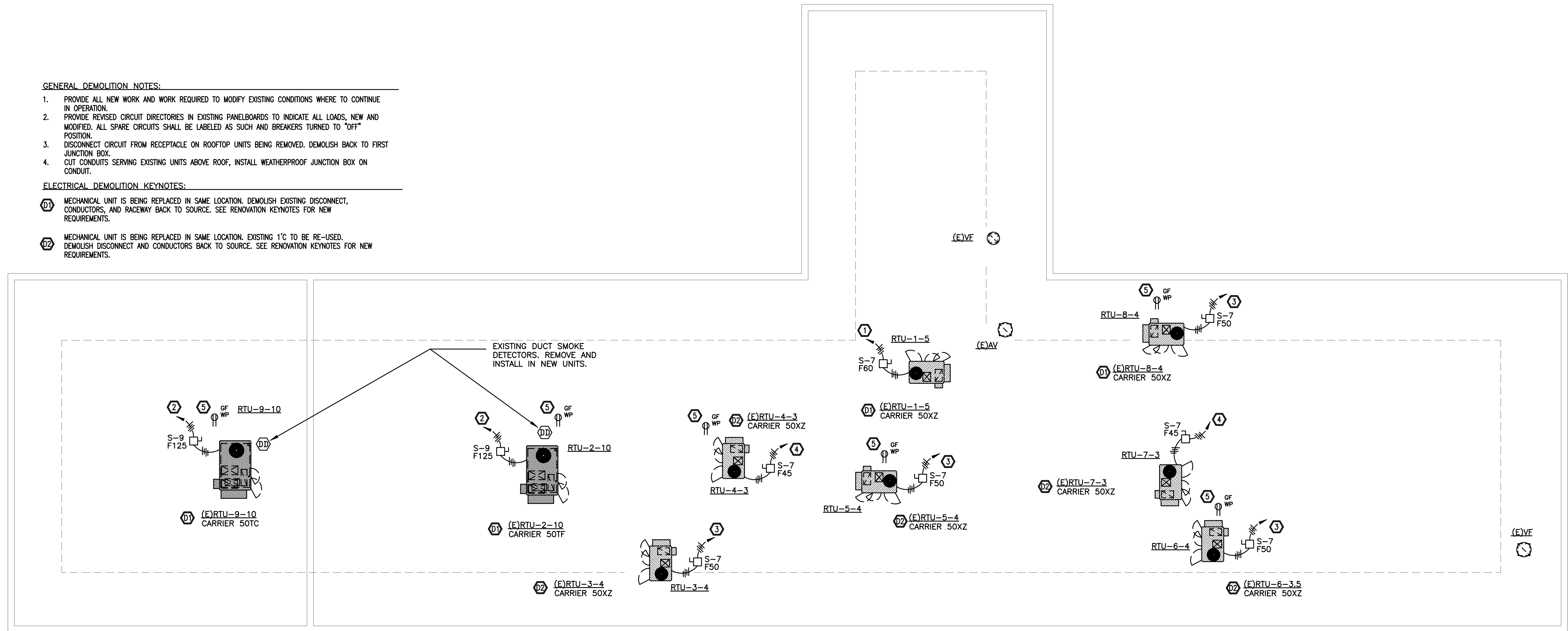
MECHANICAL DESIGN INC. 4408 Broad River Road, Columbia, S.C. 29210. CONTACT: JUSTIN VARCO. COMM. NO. 264187.

Project: SLED - CUIS HVAC REPLACEMENT COLUMBIA, SOUTH CAROLINA STATE PROJECT NO. D10-9535-AT. Sheet Title: ELECTRICAL NOTES, SCHEDULES, AND SPECIFICATIONS. SHEET NO. E100.



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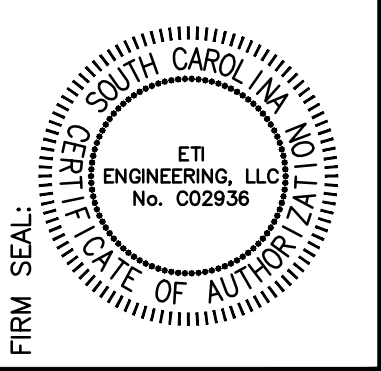
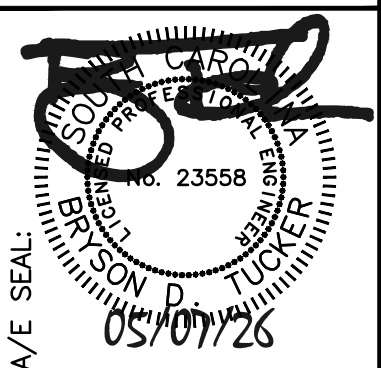
- GENERAL DEMOLITION NOTES:**
1. PROVIDE ALL NEW WORK AND WORK REQUIRED TO MODIFY EXISTING CONDITIONS WHERE TO CONTINUE IN OPERATION.
 2. PROVIDE REVISED CIRCUIT DIRECTORIES IN EXISTING PANELBOARDS TO INDICATE ALL LOADS, NEW AND MODIFIED. ALL SPARE CIRCUITS SHALL BE LABELED AS SUCH AND BREAKERS TURNED TO "OFF" POSITION.
 3. DISCONNECT CIRCUIT FROM RECEPTACLE ON ROOFTOP UNITS BEING REMOVED. DEMOLISH BACK TO FIRST JUNCTION BOX.
 4. CUT CONDUITS SERVING EXISTING UNITS ABOVE ROOF. INSTALL WEATHERPROOF JUNCTION BOX ON CONDUIT.
- ELECTRICAL DEMOLITION KEYNOTES:**
- 01 MECHANICAL UNIT IS BEING REPLACED IN SAME LOCATION. DEMOLISH EXISTING DISCONNECT, CONDUCTORS, AND RACEWAY BACK TO SOURCE. SEE RENOVATION KEYNOTES FOR NEW REQUIREMENTS.
 - 02 MECHANICAL UNIT IS BEING REPLACED IN SAME LOCATION. EXISTING 1" TO BE RE-USED. DEMOLISH DISCONNECT AND CONDUCTORS BACK TO SOURCE. SEE RENOVATION KEYNOTES FOR NEW REQUIREMENTS.



1 ELECTRICAL DEMOLITION & RENOVATION PLAN
E101 APPROXIMATE SCALE: 3/32" = 1'-0"

- GENERAL ELECTRICAL RENOVATION NOTES:**
1. RE-USE EXISTING 1" WHERE NOTED. SEE DEMOLITION KEYNOTES.
 2. WHERE RE-USING EXISTING CONDUITS, EXTEND AND ROUTE CONDUIT THROUGH MECHANICAL UNIT BASE. SEE MECHANICAL PLANS FOR DETAIL.
- ELECTRICAL RENOVATION KEYNOTES:**
- 01 CONNECT TO NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD "A" WITH 3/4" #10 GND - 1-1/4".
 - 02 CONNECT TO NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD "A" WITH 3/4" #6 GND - 2".
 - 03 CONNECT TO NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD "A" WITH 3/8" #10 GND - 1".
 - 04 CONNECT TO NEW CIRCUIT BREAKER IN EXISTING PANEL "E" WITH 3/8" #10 GND - 1".
 - 05 CONNECT TO NEAREST RECEPTACLE CIRCUIT.

ISSUE NO.	REMARKS	BY	APPROV'D	DATE
-	OSE REVIEW	JUV	JUV	05/08/26



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Project: SLED - CUIS HVAC REPLACEMENT
COLUMBIA, SOUTH CAROLINA
STATE PROJECT NO. D10-9535-AT
Sheet Title: ELECTRICAL DEMOLITION AND RENOVATION PLAN

SHEET NO. E101



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ETI-8204-10201