

RANDOLPH COUNTY BACKUP 911 FACILITY REROOFING & HVAC REPLACEMENT

ASHEBORO, NORTH CAROLINA

Project No.
1787

Date:
11.07.2024
Drawn by:
IS
Checked by:
JRS
Revisions

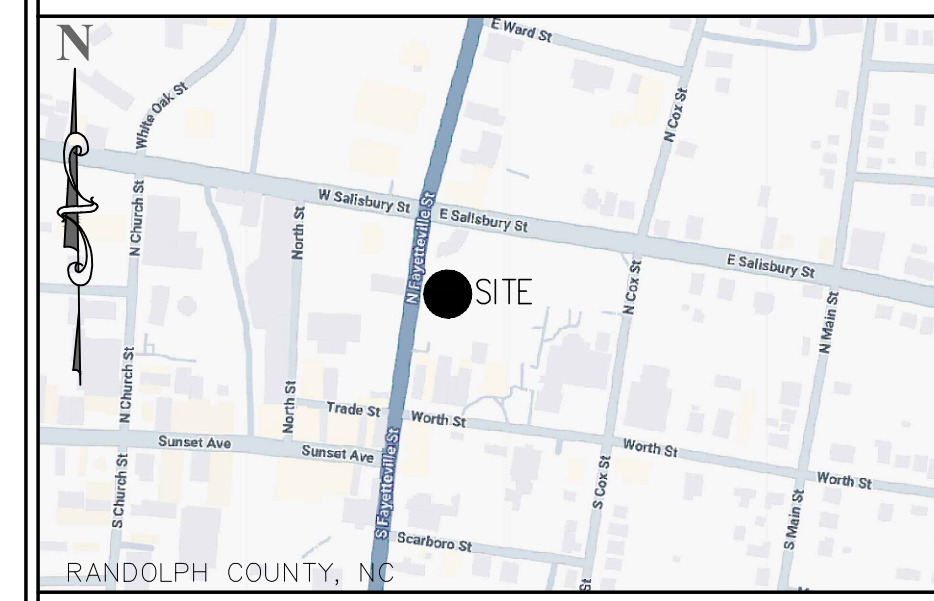
ABBREVIATIONS

A AMP ABV A/C ACOU ACT ADA ADJ. AF AFC AFF AGG AHU ALST. ALUM ALT ANOD AP ACT APC APPROX ARCH ASSY ASTM AUX AWI	B BD BLDG BLK BLKG BM BO, B/O B.O. BOS B. BOTT BRS BRZ BTU BV	C CAB CAP CBB CFMF CG CH	CHBD CI CL CLG CLO CLR CMU COL CONC CONF CONX CONSTR CONTR CORR,CORR CRS CS CT CTK CTR CU CUST CWP	CHALK BOARD CAST IRON CONTROL JOINT CENTER LINE CEILING CLOSET CLEAR CONCRETE MASONRY UNIT CONCRETE COMPRESSOR CONCRETE CONFERENCE CONNECTION CONSTRUCTION CONTINUOUS, CONTINUED CONTRACTOR CORRIDOR COURSE CAST STONE CERAMIC TILE CURTAIN TRACK COUNTER CURB CUSTODIAN CEMENTITIOUS WOOD FIBER PLANK	EMS EMT EQ EQUIP ETC EW EWC EX EXGR EXH EXIST, EXG EXP EXPD EXT	EMERGENCY MEDICAL SERVICES ELECTRICAL METALLIC TUBING EQUAL EQUIPMENT ET CETERA EACH WAY ELECTRIC WATER COOLER EXERCISE EXISTING GRADE EXHAUST EXISTING EXPANSION EXPOSED EXTERIOR	GYP GYPSUM	LLH LLV LP LSD LVR LVT LW	H HB HC HCFV HD HMG HMR HEWC HLB HM HORIZ, H HP HRS HR, HRS HT HTB HWAC HWD	LONG LEG HORIZONTAL LONG LEG VERTICAL LOW POINT LIQUID SOAP DISPENSER LOUVER LUXURY VINYL TILE LIGHTWEIGHT	OH OPH OPNG OPP ORD	OVERHEAD OPPOSITE HAND OPENING OPPOSITE OVERFLOW ROOF DRAIN	S SB SC SCFV SCH, SCHED SD SEC SF SGFT SGL SH, SHT SHR SIM SJ SLD SND SNT SNV SPA SPECS SF SQ SR SS SSK STD STL STOR STRUCT, STRUC SUS SYS	UL UNO URS UTIL UV	UNDERWRITER LABORATORIES UNLESS NOTED OTHERWISE URNAL SCREEN UTILITY ULTRAVIOLET
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SITE MAP



VICINITY MAP



PLAN SYMBOLS

+ [445]	NEW OR REQUIRED POINT ELEVATION		WALL TYPE
+ 233.4	EXISTING POINT ELEVATION		SECTION
	EXISTING CONTOURS		ELEVATION
	NEW CONTOURS		DETAIL
	ROOM NAME AND NUMBER		REVISION #
	COLUMN REFERENCE GRID (LETTER, NUMBER)		FRAME TYPE
	WINDOW TYPE		LEVEL LINE
	DOOR NUMBER, DOOR TYPE, INSTALL NUMBER & HARDWARE GROUP		LEVEL LINE
	TRUE NORTH		PLAN NORTH
	DIM TO STEEL LINE		DIM TO CENTER LINE
	DIM FACE OF STUD OR MASONRY		

OWNER

As the Owner or Owner's Representative, we hereby acknowledge that we have reviewed and approved the plans and specifications from the Construction Documents Phase, as defined by AIA document B 141. We hereby acknowledge and accept these plans and specifications as being a complete and accurate reflection of our design needs and requirements. As Owner, we reserve the right to make changes in the plans and specifications as the need arises.

OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE: _____
SIGNED: _____
DATE: _____

MATERIAL LEGEND

	EARTH (UNDISTURBED)
	EARTH (COMPACTED)
	STRUCTURAL CONCRETE
	BRICK (COMMON OR FACE)
	CONCRETE MASONRY UNITS (CMU)
	CUT STONE
	METAL
	TERRAZZO
	PLASTER, SAND, CEMENT, GROUT
	GLASS
	RIGID INSULATION
	BATT INSULATION
	ROUGH WOOD (CONTINUOUS)
	ROUGH WOOD (NON-CONTINUOUS)
	FINISH WOOD

PROJECT TEAM

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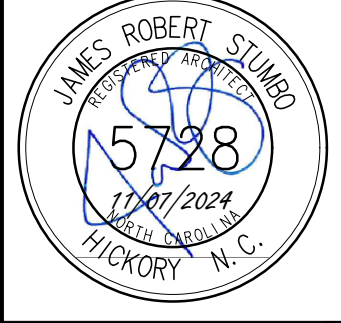
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COVER SHEET

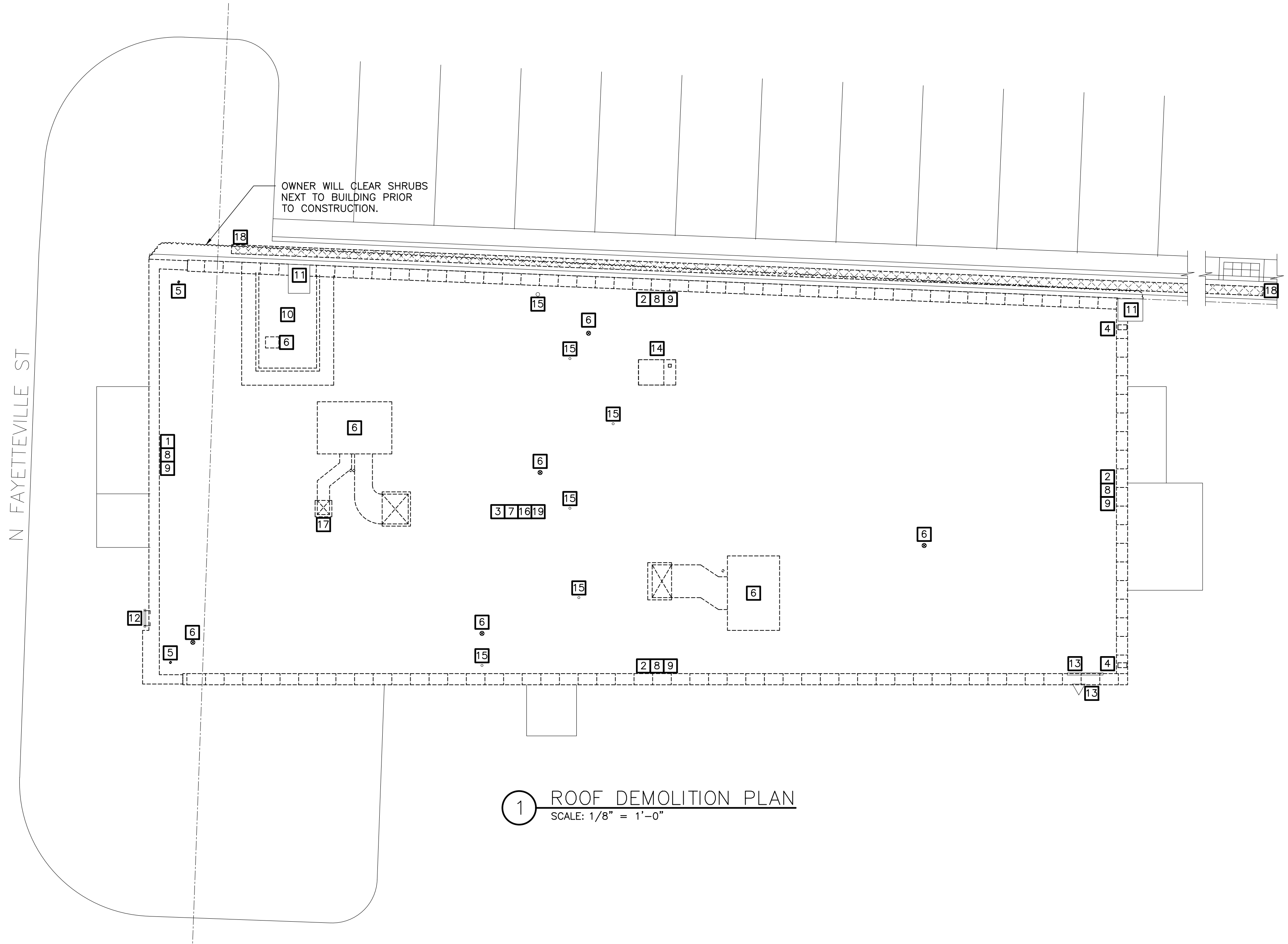
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GENERAL NOTES

- ALL CONTRACTORS MUST MAKE ON SITE VISITATIONS TO PROJECT SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF DEMOLITION AND CONSTRUCTION. IT IS THEIR RESPONSIBILITY TO SUBMIT WRITTEN QUESTIONS ON THE SCOPE OF THE WORK PER THE CONTRACT DOCUMENTS.
- DISCREPANCIES: THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS OR OF ANY VARIATIONS NEEDED IN ORDER TO CONFORM TO CODES, RULES AND REGULATIONS. UPON RECEIPT OF SUCH INFORMATION, THE ARCHITECT WILL SEND WRITTEN INSTRUCTION TO ALL CONCERNED. ANY SUCH DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND WORK SHALL BE PERFORMED IN A MANNER DIRECTED BY THE ARCHITECT.
- EXISTING CONDITIONS: ALL EXISTING INFORMATION WAS TAKEN FROM EXISTING DRAWINGS FURNISHED BY OTHERS AND FIELD OBSERVATIONS, WHICH MAY OR MAY NOT BE CORRECT. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE JOB SITE PRIOR TO STARTING WORK. ANY DISCREPANCIES OR VARIATIONS FROM THE CONDITIONS SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING PRIOR TO DEMOLITION OR CONSTRUCTION AS THE CASE MAY BE.
- THIS IS AN EXISTING BUILDING AND THE OWNER/DESIGN TEAM IS NOT AWARE OF ANY HAZARDOUS MATERIALS. IF THE CONTRACTOR ENCOUNTERS ANY SUSPECT MATERIALS, IMMEDIATELY STOP WORK THAT WILL DISTURB THE SUSPECTED MATERIAL AND CONTACT OWNER/DESIGN TEAM.
- CONTRACTOR SHALL MEET WITH THE ARCHITECT PRIOR TO CONSTRUCTION OF THE PROJECT TO REVIEW ALL EXISTING CONDITIONS AND THE EXACT EXTENT OF THE WORK TO BE COMPLETED.
- DRAWING SCALES: THESE DRAWINGS ARE PREPARED TO THE SCALES NOTED. HOWEVER, DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THE PLANS, SECTIONS OR DETAILS. IF THERE IS ANY QUESTION ABOUT DETAILS OR DIMENSIONS, CONTACT THE ARCHITECT FOR INFORMATION PRIOR TO STARTING WORK.
- ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES.
- THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.
- BY NATURE OF THE SCOPE OF THIS DEMOLITION WORK, THESE NOTES ARE NOT MEANT TO BE EXHAUSTIVE, BUT BROAD SCOPING, AND INCLUDES ALL WORK NECESSARY TO COMPLETE THE WORK, AS NOTED HEREIN & DETAILED ELSEWHERE OR REASONABLY INFERABLE FROM OTHER REQUIREMENTS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR POSSIBLE FURTHER WORK OR CONFLICTS WITH OTHER TRADES. COORDINATE ALL DEMOLITION AS REQUIRED WITH THESE TRADES.
- EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE DEMOLITION OF ALL ITEMS RELATED TO THEIR PORTION OF WORK. FOR EXAMPLE, ANY ABANDONED DUCTWORK OR HEATING/AC EQUIPMENT & ASSOCIATED CONTROL WIRING SHALL BE DEMOLISHED BY THE MECHANICAL CONTRACTOR. ELECTRICAL WIRING TO THE SAME UNIT WOULD BE BY THE ELECTRICAL CONTRACTOR & GAS PIPING BY THE PLUMBING CONTRACTOR. THIS IS TYPICAL FOR ALL EQUIPMENT AND SERVICES.
- THE CONTRACTOR SHALL COORDINATE ALL DEMOLITION TO MAINTAIN PROPER SUPPORT FOR ALL STRUCTURAL ELEMENTS AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF AND PROVIDING ALL TEMPORARY SUPPORTS AND SHORING.
- COORDINATE REMOVAL OF ALL PLUMBING, MECHANICAL & ELECTRICAL ELEMENTS WITH PROPER TRADES PRIOR TO REMOVAL OF WALLS, FLOOR, CEILING, ETC.
- ALL ITEMS NECESSARY FOR THE COMPLETION OF THE INTENT OF THE RENOVATION SHALL BE REMOVED WHETHER NOTED OR NOT WITH NO ADDITIONAL COST TO THE OWNER. PRIOR TO REMOVAL OF ANY ITEMS NOT NOTED OR DEPICTED IN CONSTRUCTION DOCUMENTS, THE GENERAL CONTRACTOR SHALL CONSULT THE ARCHITECT.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF NORTH CAROLINA BUILDING CODE AND ALL OTHER LOCAL CODES AND REGULATIONS HAVING JURISDICTION.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONS USING THE SURROUNDING FACILITIES WHO COME IN CONTACT WITH THE AREA OF CONSTRUCTION. HE SHALL PROPERLY BARRICADE THE AREA TO PREVENT INTRUSION BY PERSONS NOT ASSOCIATED WITH CONSTRUCTION.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING CONSTRUCTION AROUND THE SITE, WHICH WILL REMAIN. ANY DAMAGES SHALL BE REPAIRED TO THE OWNERS' SATISFACTION AT NO COST.
- GENERAL CONTRACTOR SHALL COORDINATE W/ OWNER AND DESIGN TEAM FOR ENTRANCE/EXITS TO BE USED BY CONSTRUCTION TEAM THROUGHOUT CONSTRUCTION.
- GENERAL CONTRACTOR TO VERIFY & COORDINATE W/ OWNER FOR ANY STORAGE AND UTILITY REQUIREMENTS DURING CONSTRUCTION.
- FRAMING LUMBER IN CONTACT WITH MASONRY, CONCRETE, OR STEEL SHALL BE ALL PRESSURE TREATED.
- PROVIDE FIRE TREATED LUMBER AS REQUIRED BY THE BUILDING CODE.
- FIRE PENETRATION NOTES APPLY TO ALL TRADES.
- ALL CUTTING & PATCHING TO BE DONE WITH A NEAT WORKMANSHIP. PLUG, PATCH AND REPAIR ALL SURFACES RELATED TO DEMOLITION AND MATCH TO ADJACENT SURFACE UNLESS OTHERWISE NOTED.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE LEGAL DISPOSAL OF ALL DEBRIS FROM DEMOLITION.

DEMOLITION KEYED NOTES

- REMOVE EXISTING METAL COPING. PROTECT TOP OF WALL WHILE EXPOSED. CLEAN AND PREP AREA TO RECEIVE NEW METAL COPING.
- REMOVE EXISTING TERRACOTTA COPING. PROTECT TOP OF WALL WHILE EXPOSED. CLEAN AND PREP AREA TO RECEIVE NEW METAL COPING.
- REMOVE EXISTING ROOF DOWN TO EXISTING DECK. PROTECT DECK WHILE EXPOSED. STRIP THE SURFACE CLEAR OF ANY DEBRIS. CLEAN AND PREP AREA TO RECEIVE NEW TAPERED INSULATION AND SINGLE PLY MEMBRANE ROOF. SEE ROOF PLAN ON 4.30 FOR NEW ROOF ASSEMBLY.
- REMOVE EXISTING SCUPPERS, GUTTERS AND DOWNSPOUTS. PATCH SCUPPER HOLES WITH MASONRY TO MATCH EXISTING.
- REMOVE EXISTING ROOF DRAINS. CAP THE DRAIN BELOW NEW ROOF AS APPROPRIATE. COVER WITH 12 GAUGE GALVANIZED SHEET METAL, ANCHOR SECURELY TO DECK MAKE READY FOR NEW ROOF.
- ALL EXISTING VENTS, PENETRATIONS, CURBS, EXHAUST, VENTILATION EQUIPMENT TO BE REMOVED UNLESS OTHERWISE NOTED. COORDINATE WITH MECHANICAL CONTRACTOR TO CONFIRM WHICH EXISTING ROOF PENETRATIONS CAN BE REUSED. SMALL ROOF PENETRATIONS SHALL BE COVERED WITH 12 GAUGE GALVANIZED SHEET METAL, ANCHOR SECURELY TO DECK MAKE READY FOR NEW ROOF. ALL REMAINING ROOF PENETRATIONS TO BE EXTENDED AS NEEDED TO BE ABOVE NEW ROOF ASSEMBLY.
- REMOVE ALL EXISTING WALL & CURB FLASHING AND COUNTERFLASHING.
- REMOVE TERMINATION BARS, CLEAN AND PREP MASONRY TO RECEIVE NEW ROOFING.
- PATCH AND POINT UP ALL MASONRY JOINTS AND HOLES SO THAT MASONRY WALLS AND PARAPET TOPS ARE SMOOTH.
- DEMOLISH EXISTING RAISED ROOF AREA DOWN TO THE EXISTING ROOF DECK ELEVATION. PROTECT OPENING WHILE EXPOSED. EXPOSED TOP OF CMU TO BE FULLY GROUTED AND OPENING TO BE COVERED FOR NEW ROOF. SEE 4/5.20 & 5/5.20. COORDINATE WITH MECHANICAL FOR REROUTING OF INTAKE/EXHAUST.
- EXISTING CHIMNEY TO REMAIN. VERIFY W/ OWNER WHAT EXISTING ATTACHMENTS TO THE STRUCTURE ARE TO REMAIN. CARE IS TO BE TAKEN TO NOT DAMAGE EXISTING STRUCTURE AND ATTACHMENTS WHEN REMOVING EXISTING ROOFING AND ITS COMPONENTS.
- EXISTING ROOF ACCESS LADDER TO REMAIN. CARE IS TO BE TAKEN TO NOT DAMAGE EXISTING LADDER WHEN REMOVING EXISTING ROOFING AND COPING.
- EXISTING ANTENNA AND STRUCTURAL ANGLE TO REMAIN. CARE IS TO BE TAKEN TO NOT DAMAGE EXISTING ANTENNA WHEN REMOVING EXISTING ROOFING AND COPING.
- EXISTING HEAT PUMP TO REMAIN. DEMOLISH EXISTING CURB AND RELOCATE HEAT PUMP ACCORDING TO NEW MEP DRAWINGS.
- EXISTING VTR TO REMAIN. EXTEND VTR AT LEAST 8" ABOVE NEW FINISHED ROOF ELEVATION.
- GC/ROOFING CONTRACTOR TO COORDINATE WITH MEP DWGS FOR NEW WORK. KEEP EXTENTS OF DEMOLITION FOR ANY NEW PENETRATIONS TO THE ROOF STRUCTURE TO THE MINIMUM POSSIBLE. PLUG, PATCH & REPAIR ROOF DECK & PREP FOR NEW ROOF. ENSURE THE CUTTING & PATCHING DOES NOT UNDERMINE THE WATERTIGHTNESS OF THE BUILDING.
- INFILL EXISTING SUPPLY DUCT PENETRATION THAT IS NOT BEING COVERED BY NEW RTU'S CURBS AND RUN ROOFING CONTINUOUSLY OVER.
- PROVIDE TRENCHING FOR ROOF DRAIN LINES. SEE ROOF PLAN FOR EXTENT OF ROOF DRAIN LINES AND TIE IN TO EXISTING STORM WATER DRAIN ON SITE. BOTH PARCELS ARE OWNED BY THE SAME OWNER AND WORK WILL BE PERMITTED; THE OWNER IS WORKING ON COMBINING THE PARCELS.
- COORDINATE WITH MEP DRAWINGS FOR ADDITIONAL DEMOLITION & NEW WORK REQUIRED IN OTHER AREAS THE BUILDING. KEEP EXTENTS OF DEMOLITION TO THE MINIMUM POSSIBLE AND TAKE CARE NOT TO DAMAGE ADJACENT AREAS NOT AFFECTED BY WORK. REPLACE AFFECTED ITEM TO MATCH EXISTING. PLUG, PATCH, REPAIR AND PAINT AFFECTED SURFACES TO MATCH ADJACENT SURFACES.



GENERAL NOTES

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WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITH THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER QUANTITY OF WORK OR MATERIAL CALLED FOR. SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

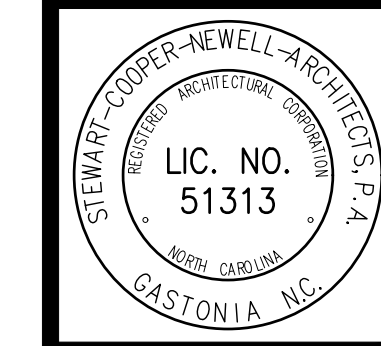
IMPORTANT NOTE

THE CONTRACT DOCUMENTS WERE PREPARED BASED ON EXISTING DRAWINGS PROVIDED TO THE ARCHITECT BY THE OWNER AND BASED ON FIELD OBSERVATIONS. ACTUAL FIELD CONDITIONS MAY VARY AND THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL CONDITIONS AND COORDINATING ANY VARIANCES WITH THE ARCHITECT PRIOR TO DEMOLITION OR CONSTRUCTION AS THE CASE MAY BE.

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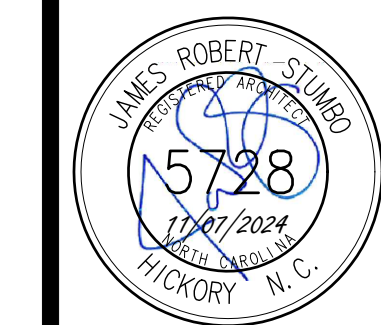
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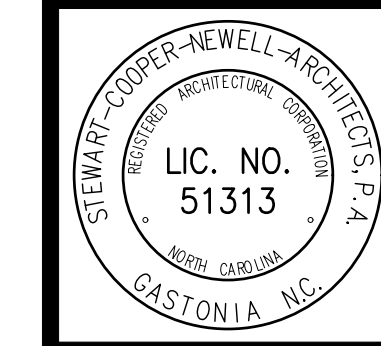
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ROOF DEMOLITION PLAN

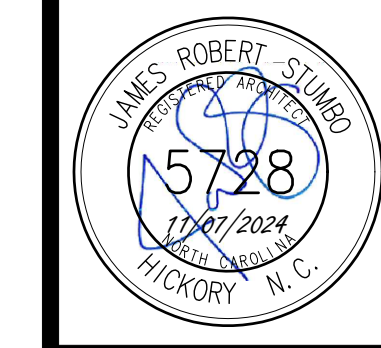
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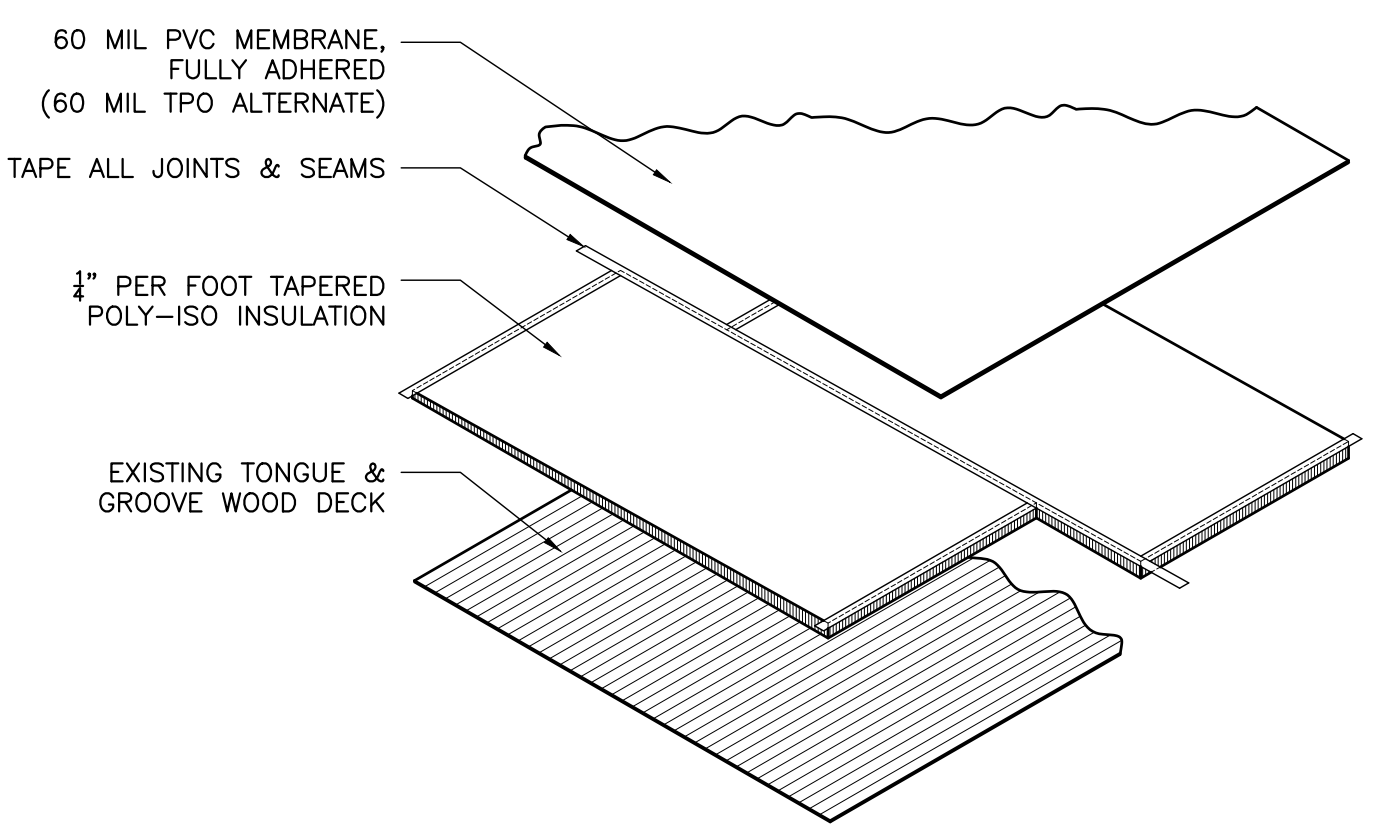
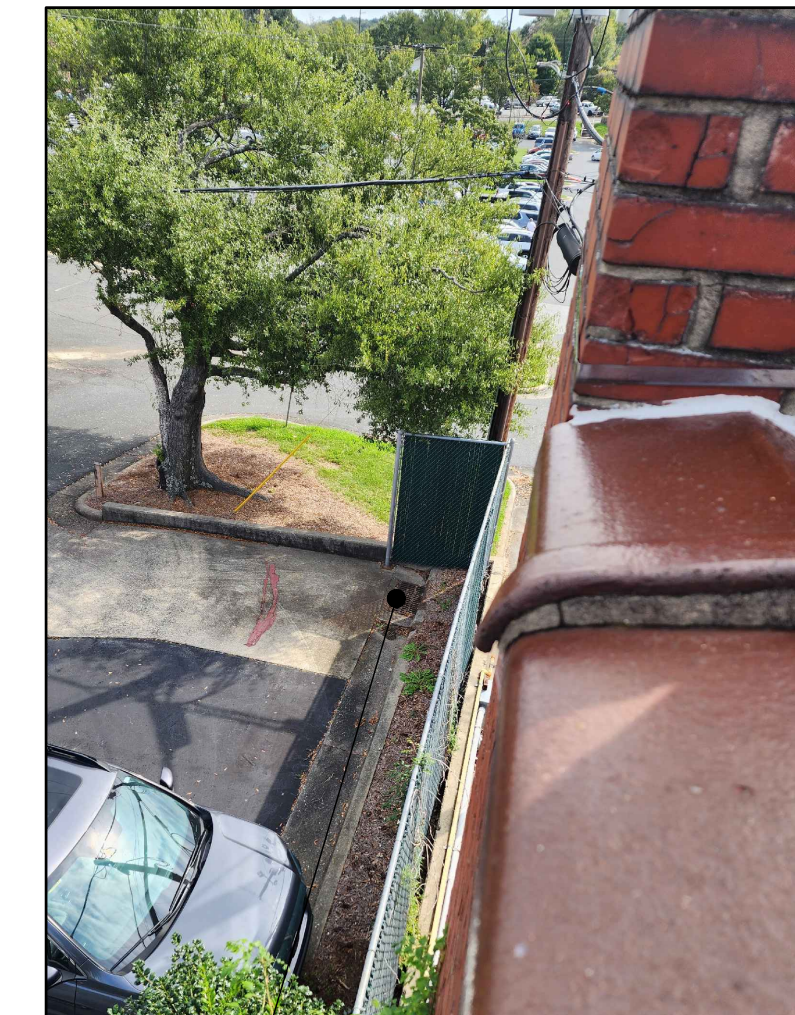


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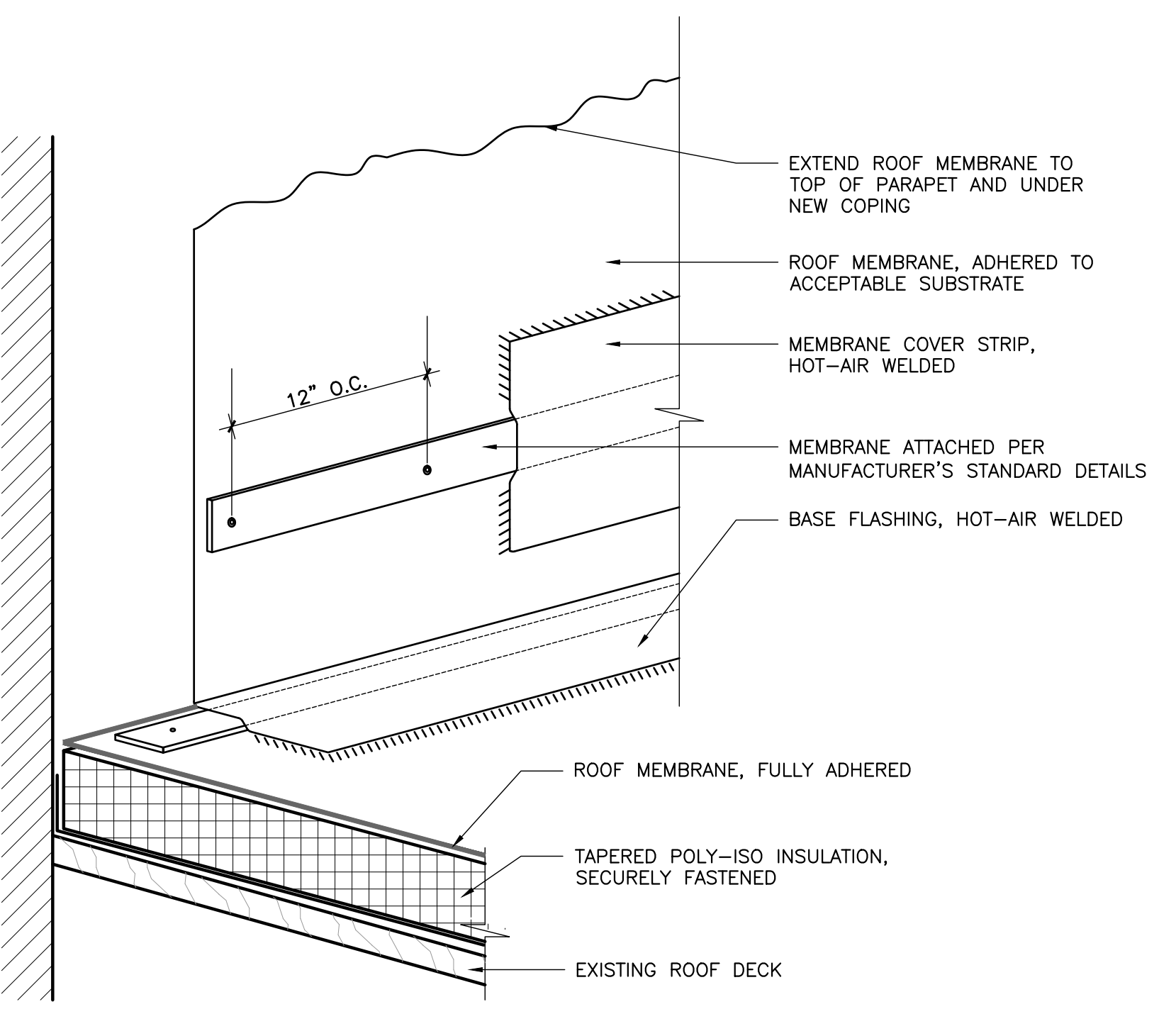
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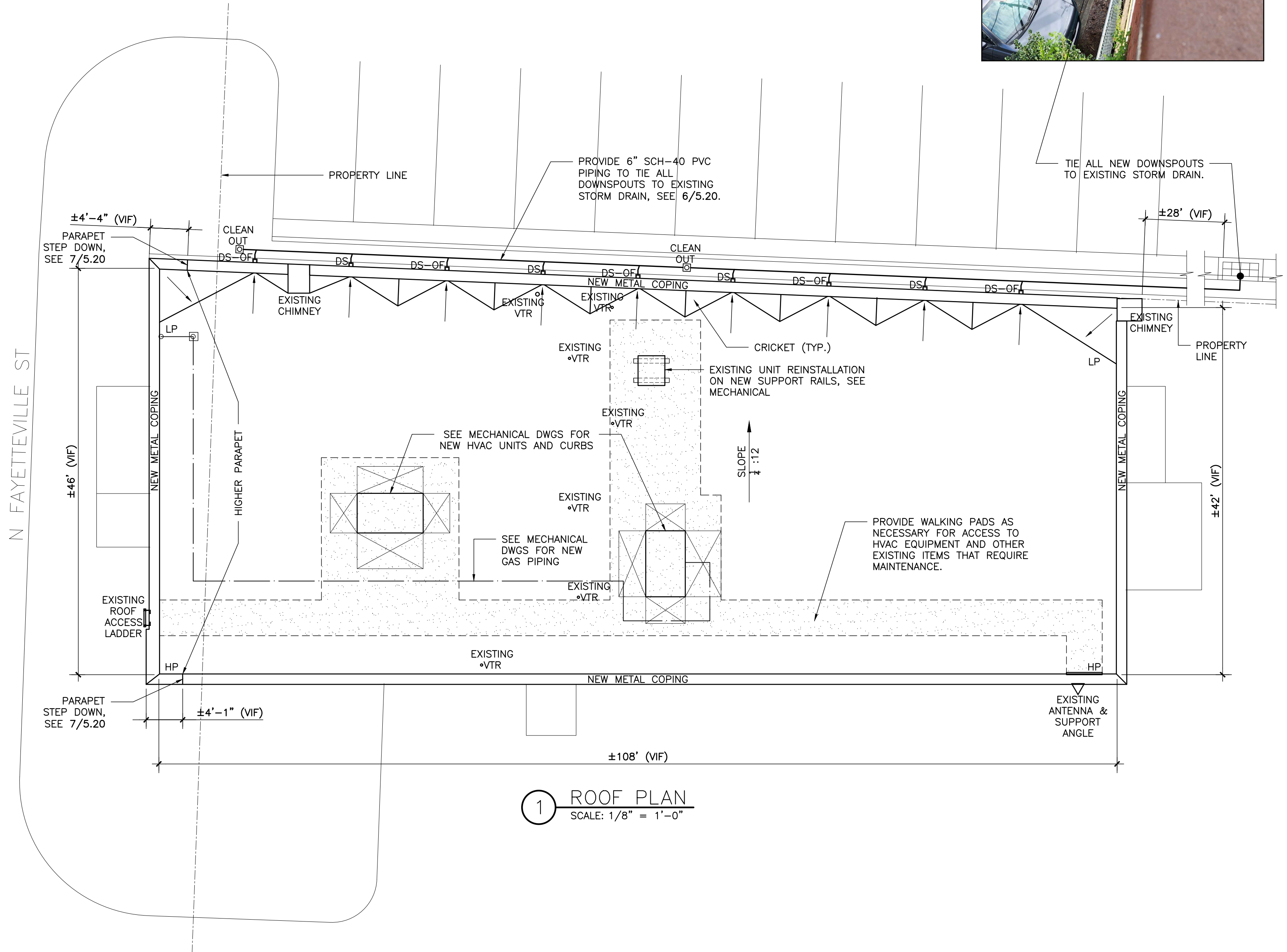
RANDOLPH COUNTY BACKUP
 911 FACILITY REROOFING
 & HVAC REPLACEMENT
 ASHEBORO, NC
 ROOF PLAN, NOTES & DETAILS



3 EXPLODED VIEW DETAIL @ ROOF INSULATION LAYOUT
 SCALE: NOT TO SCALE



2 ADHERED FLASHING DETAIL
 SCALE: NOT TO SCALE



1 ROOF PLAN
 SCALE: 1/8" = 1'-0"

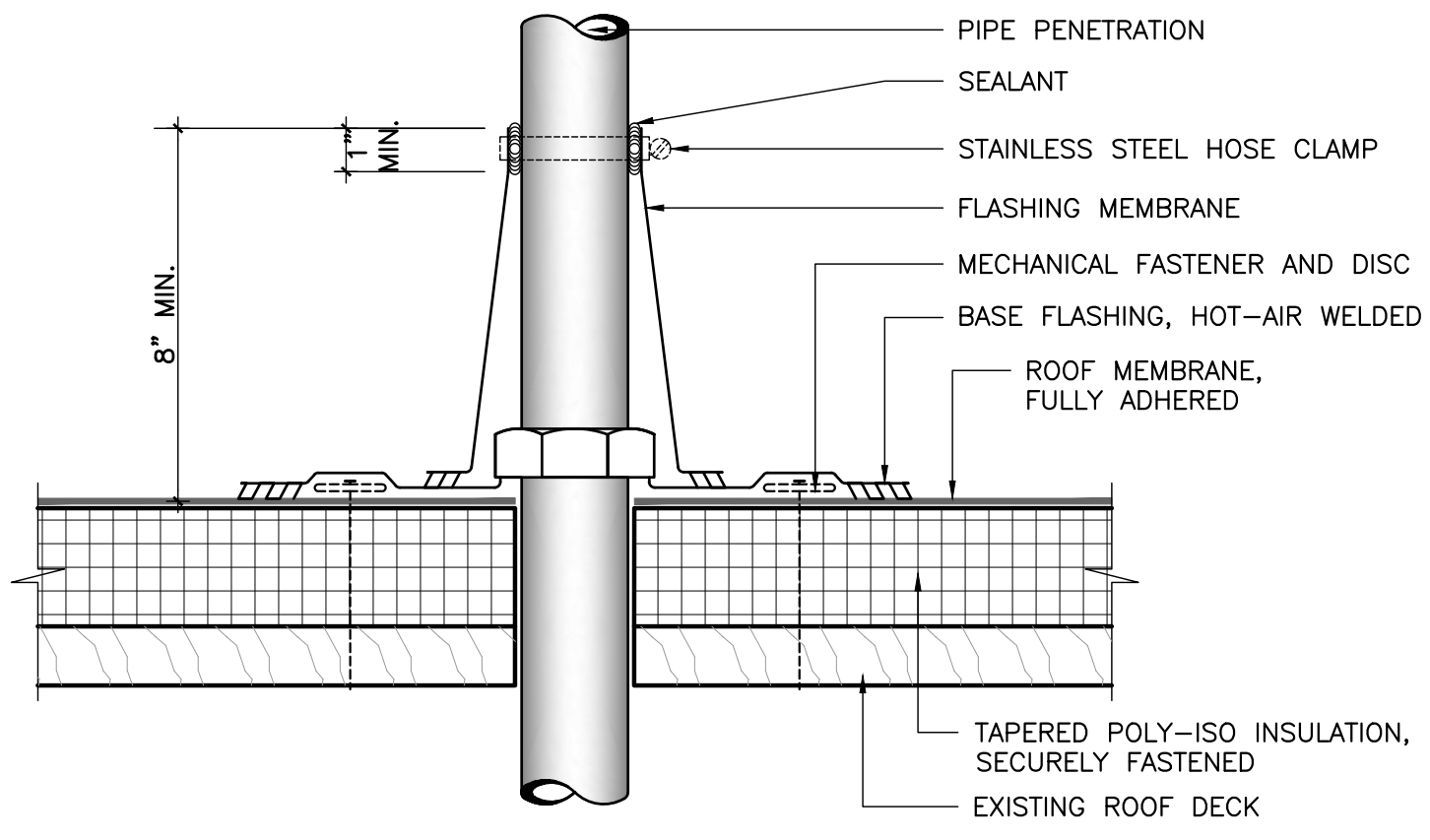
- NEW ROOF ASSEMBLY:**
- 60 MIL PVC MEMBRANE (60 MIL TPO ALTERNATE)
 - TAPERED POLYISO INSULATION (MIN. R25 TOTAL). TAPER SHALL BE MIN. 1/4":12.
- ROOFING MATERIAL SPECS:**
 BASE BID: 60mil SIKA SARNAFIL PVC ROOF MEMBRANE (G 410-60), FULLY ADHERED, COLOR: WHITE
 ALTERNATE: CARLSLE SURE-WELD 60 MIL TPO ROOF MEMBRANE, FULLY ADHERED, COLOR: WHITE

- ROOFING NOTES**
1. PROVIDE ALL FLASHING MATERIALS AND METHODS AS APPROVED BY THE MANUFACTURER FOR A FULL WATERPROOFING SYSTEM.
 2. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO REVIEW OTHER DRAWINGS FOR ROOF PENETRATIONS NOT SHOWN.
 3. PROVIDE CRICKETS AT ALL ROOF PENETRATIONS.
 4. PAINT ALL ROOF PENETRATION PIPES TO MATCH ROOF COLOR.
 5. SEE MEPPF DRAWINGS FOR ROOF PENETRATION LOCATIONS AND DETAILS. GC TO ENSURE ALL PENETRATIONS ARE PROPERLY FLASHED & MADE WATERTIGHT.
 6. GC TO BE RESPONSIBLE FOR ALL ROOF PENETRATIONS. COORDINATE W/ TRADES FOR LOCATIONS & SIZES. GC TO PROVIDE PROPER PENETRATIONS, FLASHINGS & TIE-INS TO EXISTING ROOFING SYSTEM SO AS NOT TO VOID EXISTING ROOFING WARRANTY.
 7. LOCATIONS & SIZES OF MECHANICAL UNITS ARE SCHEMATIC AND BASED ON SPECIFIED EQUIPMENT. AFTER APPROVED SHOP DWGS. & FINAL EQUIPMENT SELECTION, GC TO PROVIDE ARCHITECT W/ EQUIPMENT & ROOF/WALL PENETRATION LAYOUT FOR FINAL REVIEW & STRUCTURAL COORDINATION.
 8. ALL DIMENSIONS TO VIF PRIOR TO ROOF FABRICATION & INSTALLATION.
 9. G.C. TO PROVIDE UNDERGROUND STORM WATER CONNECTIONS TO EXISTING STORM DRAIN.
 10. FLASH ALL EXISTING PENETRATIONS.

GENERAL NOTES

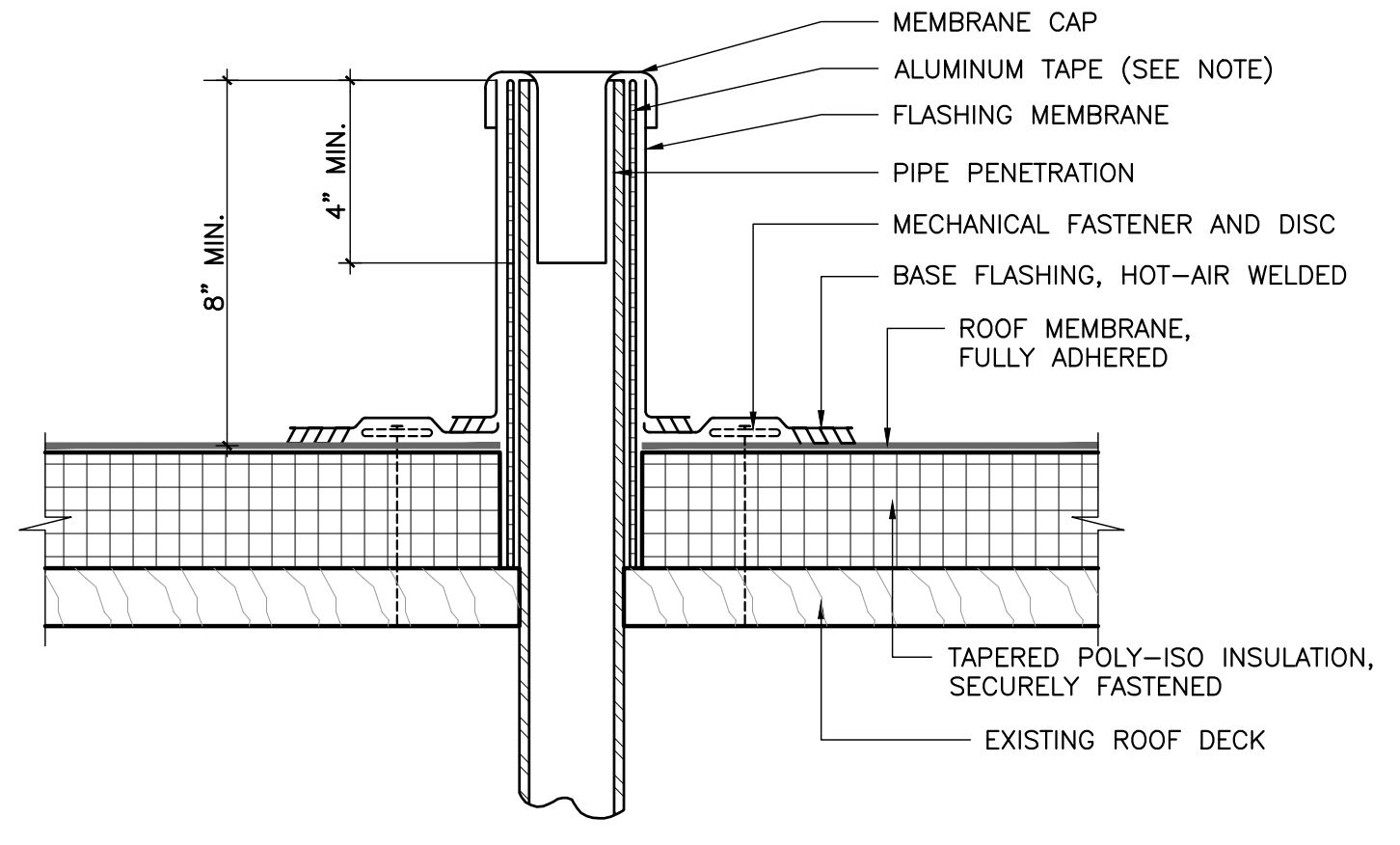
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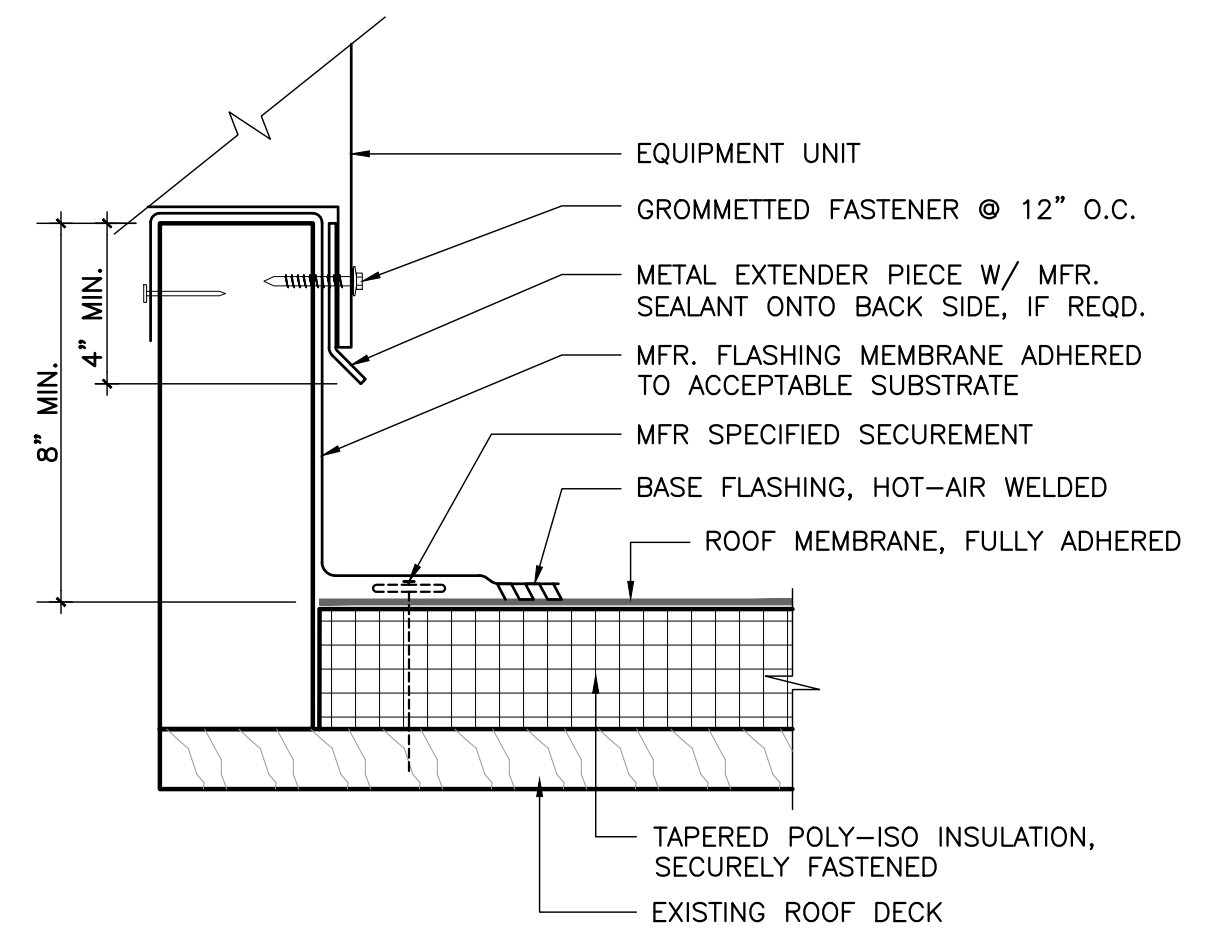
NOTES:
 1. ROOF INSTALLER TO FLASH ALL PENETRATIONS THROUGH ROOF PER MANUFACTURER'S STANDARD DETAIL TO MAINTAIN A WEATHER TIGHT SEAL.
 2. SEE PLUMBING & MECHANICAL DRAWINGS FOR LOCATIONS.

① TYP. CONE FLASHING @ PENETRATION DETAIL
 SCALE: NOT TO SCALE



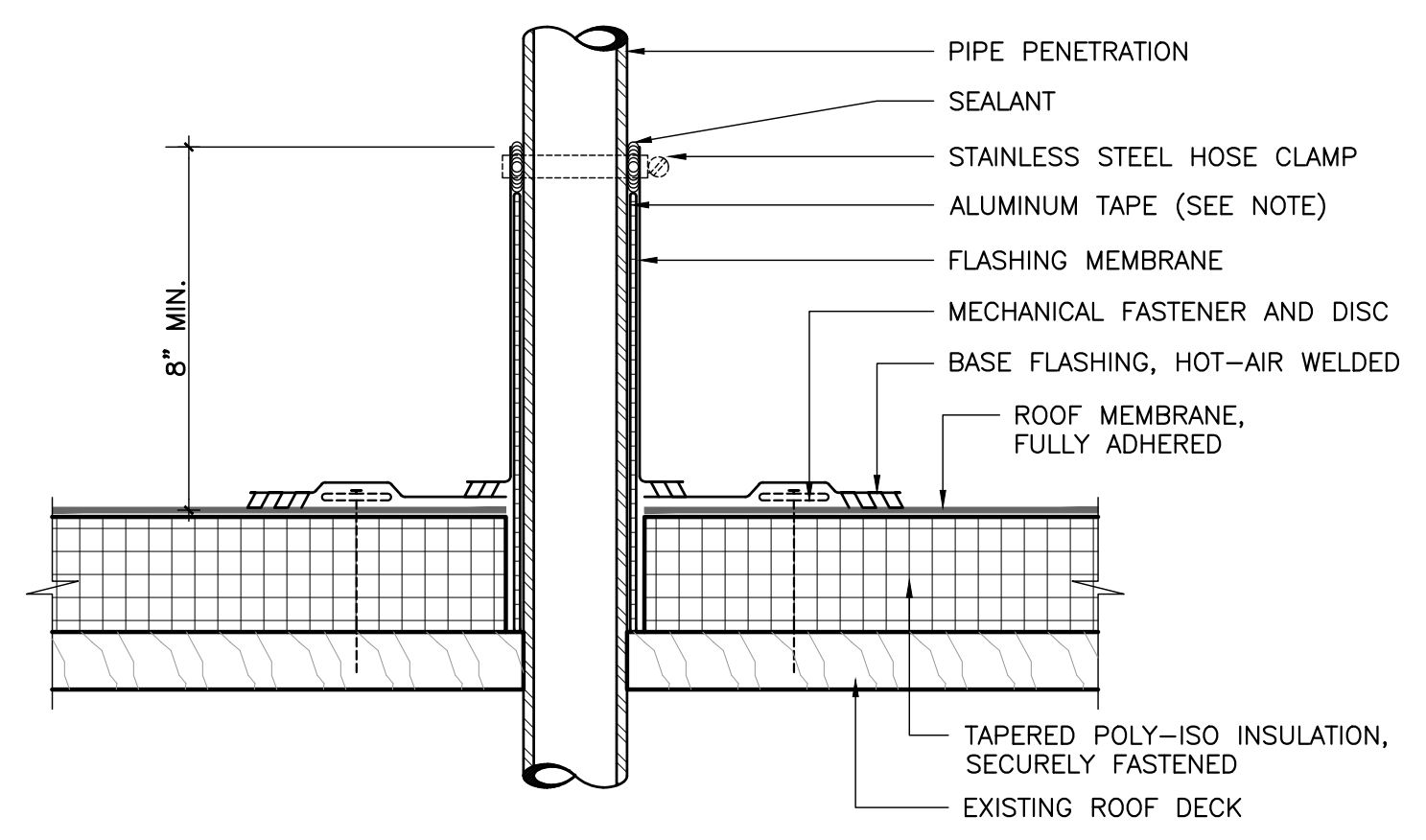
NOTES:
 1. ALUMINUM TAPE IS REQUIRED IF EXISTING PENETRATION IS CONTAMINATED.

② VENT STACK FLASHING - TYPICAL
 SCALE: NOT TO SCALE



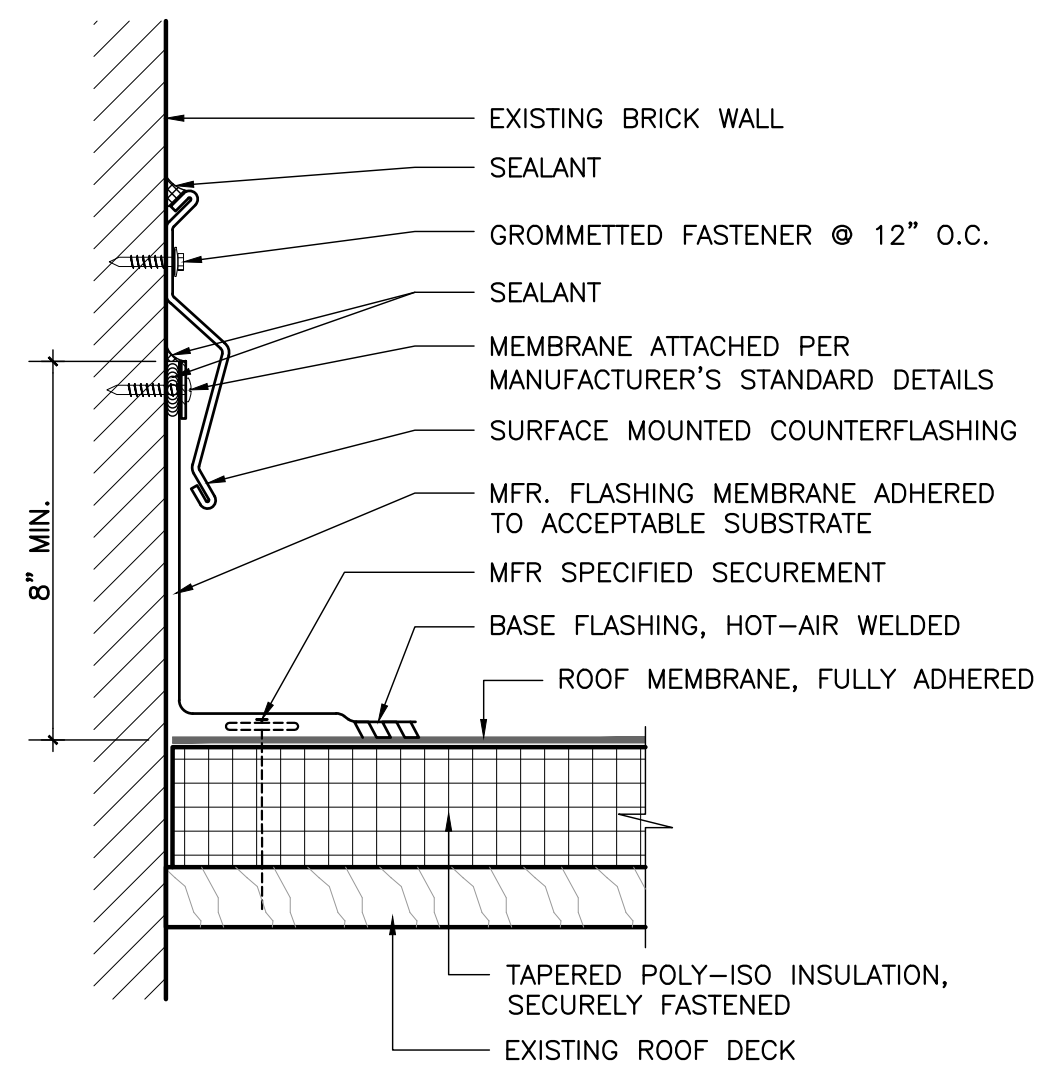
NOTES:
 1. METAL EXTENDER PIECE IS REQUIRED IF EXISTING COUNTERFLASHING IS CONTAMINATED AND/OR COUNTERFLASHING FASCIA IS LESS THAN 4" WIDE, FASTENED 12" O.C. WITH GROMMETTED FASTENER.
 2. METAL COUNTERFLASHING IS TO BE INSTALLED TO MEET LOCAL CODES AND REQUIREMENTS.

③ TYP. CURB FLASHING DETAIL
 SCALE: NOT TO SCALE

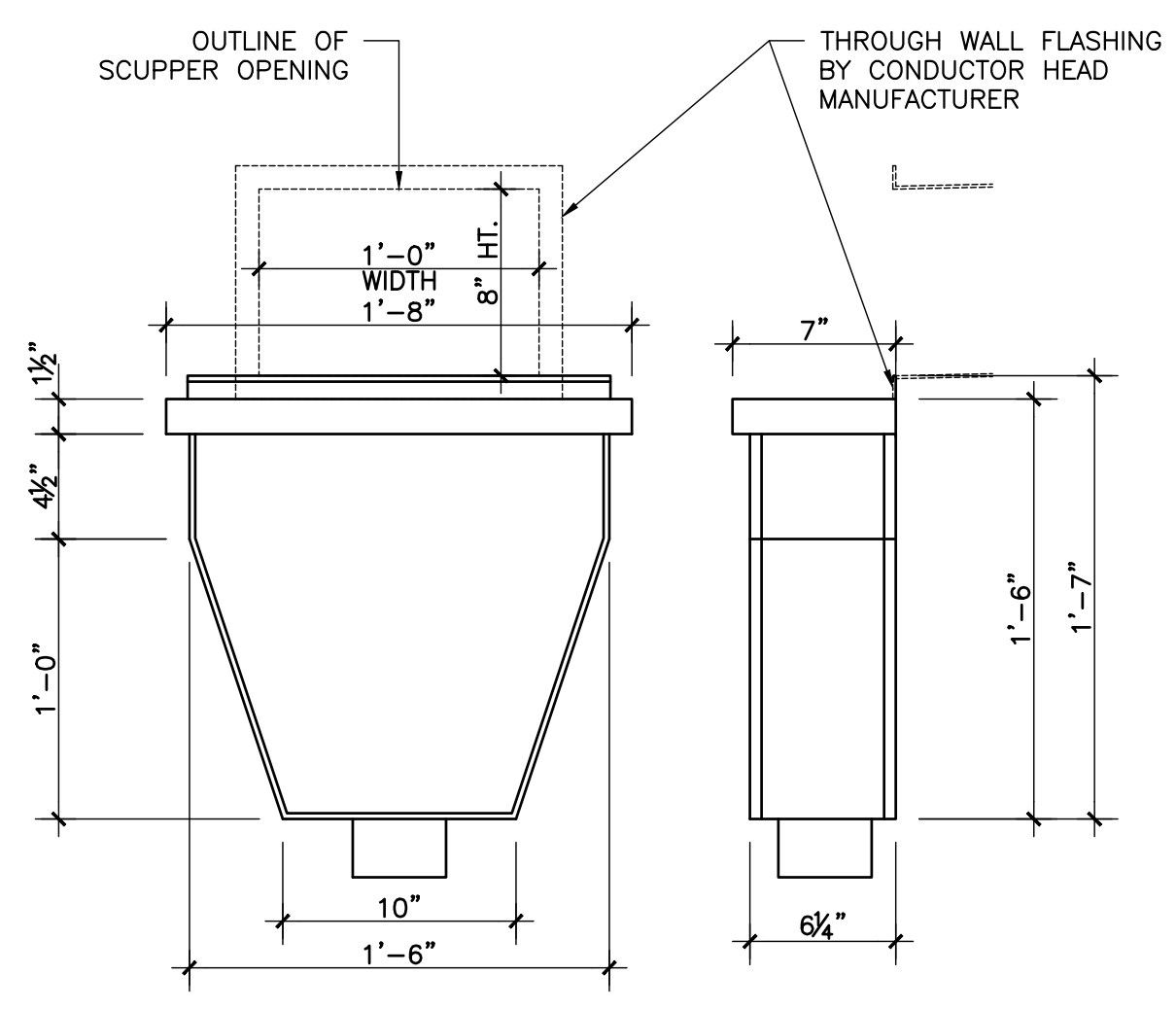


NOTES:
 1. IF EXISTING PENETRATION IS CONTAMINATED, COVER WITH ALUMINUM TAPE AND USE SEALANT UNDER HOSE CLAMP. ALTERNATIVE IS TO ELIMINATE ALUMINUM TAPE AND USE FLASHING MEMBRANE AND SEALANT UNDER HOSE CLAMP.

④ TYP. PIPE PENETRATION FLASHING DETAIL
 SCALE: NOT TO SCALE

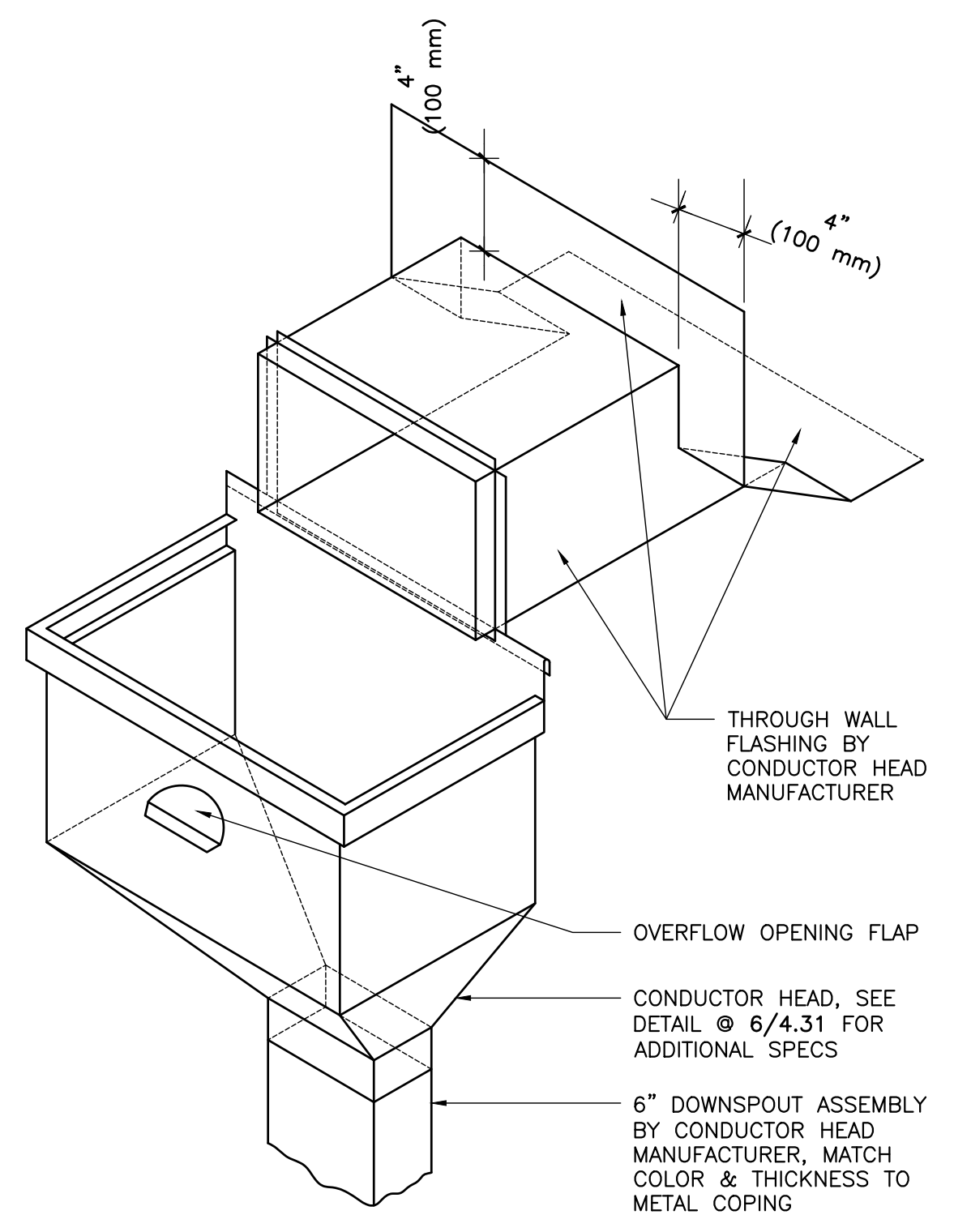


⑤ COUNTERFLASHING DETAIL @ EXISTING CHIMNEY TO REMAIN
 SCALE: NOT TO SCALE



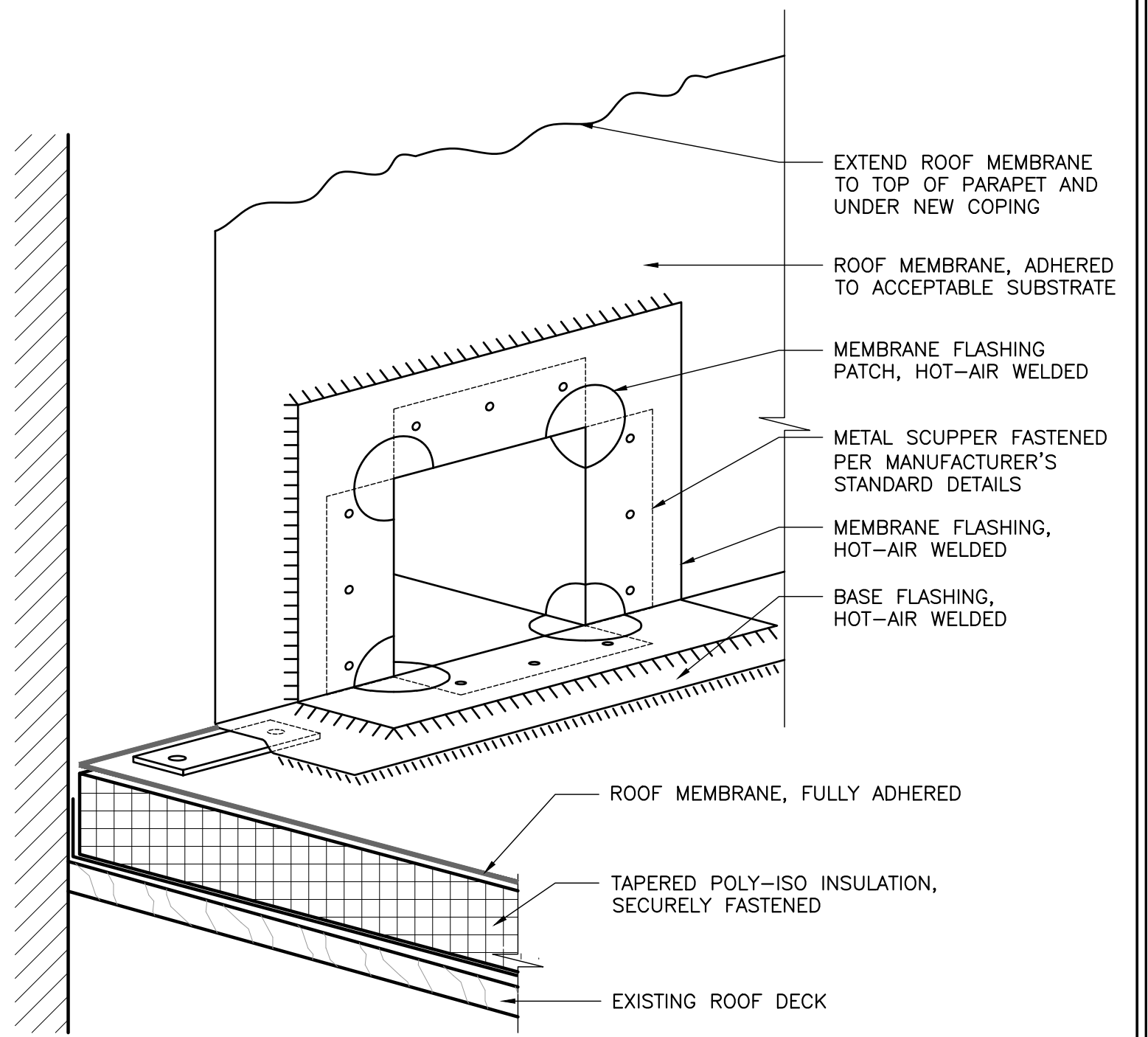
CONDUCTOR HEAD BASIS-OF-DESIGN: "THE COMMERCIAL" BY KM SHEET METAL MATERIAL: ALUMINUM, 24 GA., KYNAR FINISH
NOTE: THE THROUGH WALL FLASHING AND CONDUCTOR HEAD SHOULD BE MADE AS ONE SYSTEM TO MAINTAIN A WATERTIGHT INSTALLATION.

⑥ CONDUCTOR HEAD DETAIL
 SCALE: NOT TO SCALE



NOTES:
 1. CONDUCTOR HEAD AND DOWNSPOUT COLOR AND THICKNESS TO MATCH METAL COPING..

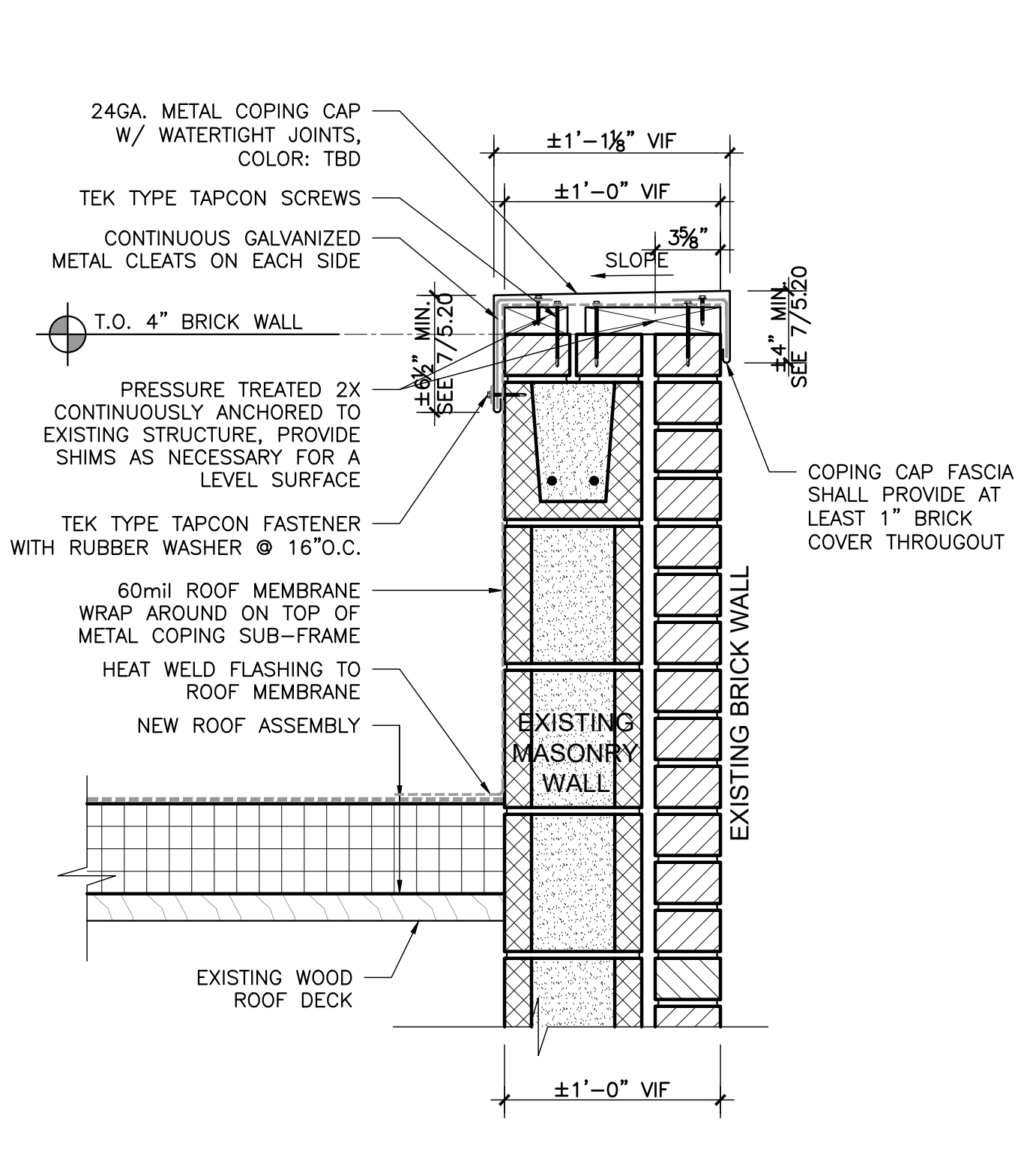
⑦ CONDUCTOR HEAD THROUGHWALL FLASHING SCUPPER DETAIL
 SCALE: NOT TO SCALE



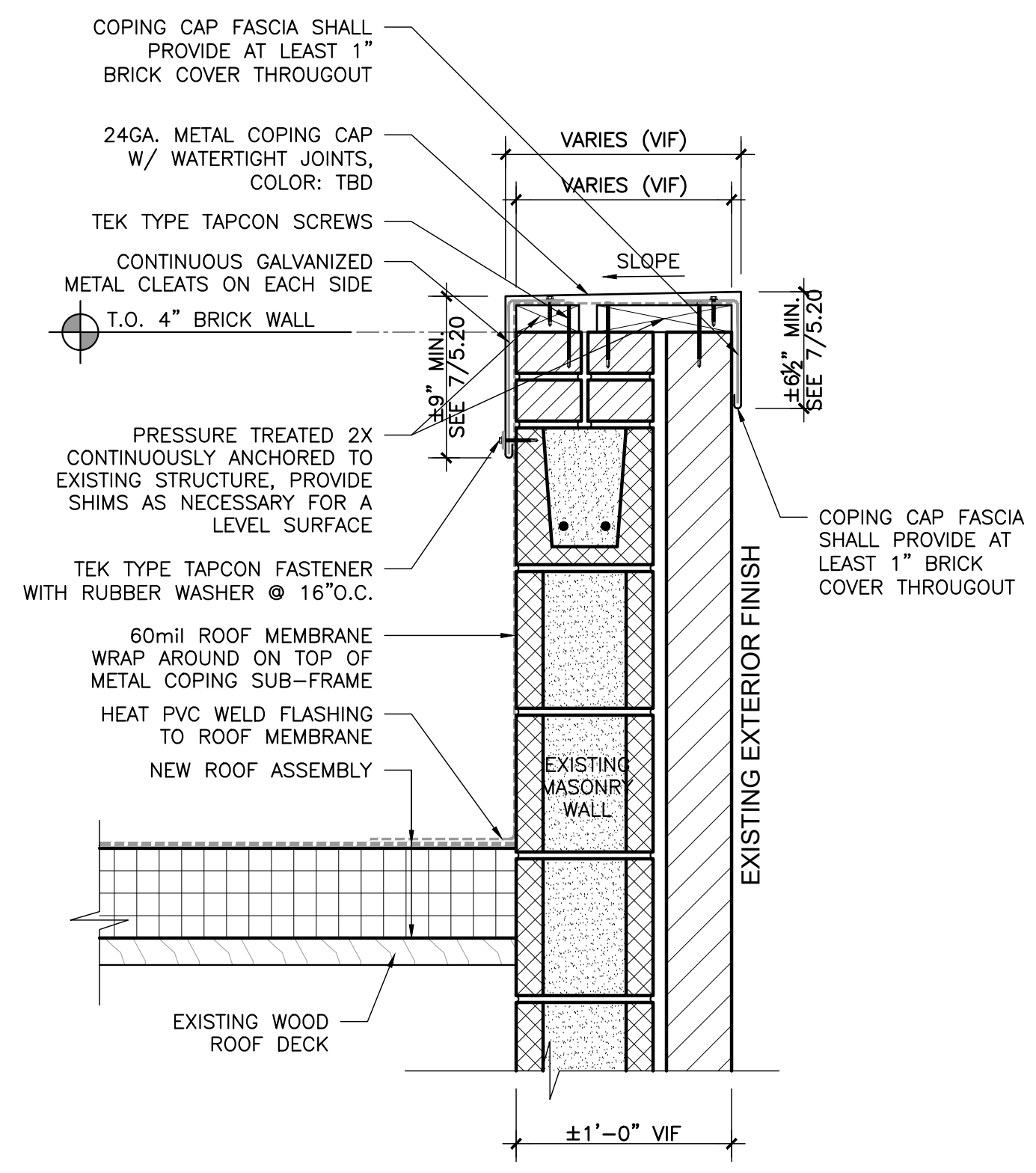
NOTES:
 1. WOOD NAILERS SHALL BE ATTACHED ACCORDING TO THE D.O.R., LOCAL CODE, OR INSURANCE REQUIREMENTS, WHICHEVER IS MORE STRINGENT. NAILER HEIGHT TO MATCH TOP SURFACE TO WHICH MEMBRANE IS TO BE APPLIED.

⑧ THRU-WALL SCUPPER FLASHING DETAIL
 SCALE: NOT TO SCALE

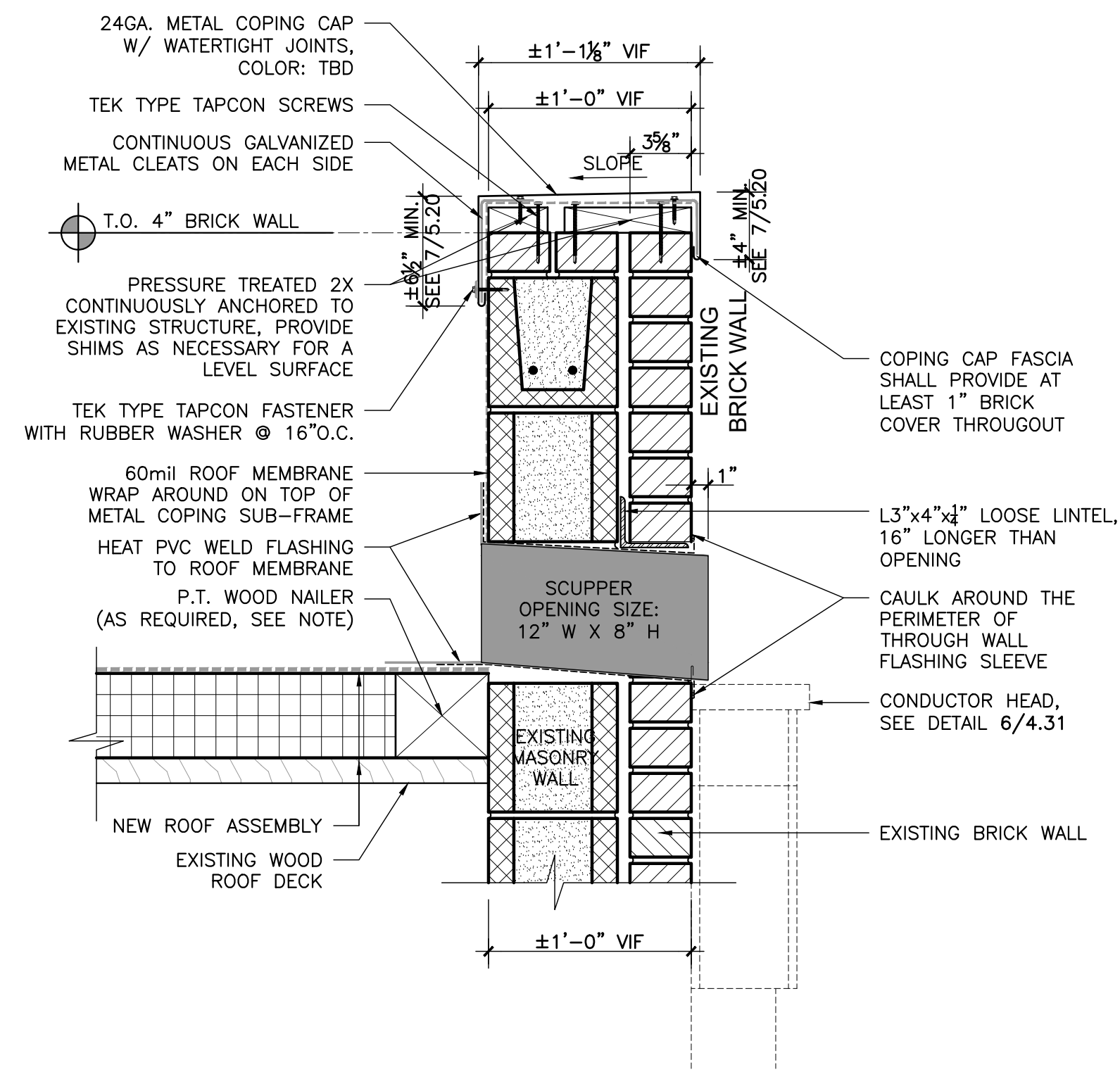
GENERAL NOTES
 ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.
 WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITH THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER QUANTITY OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.



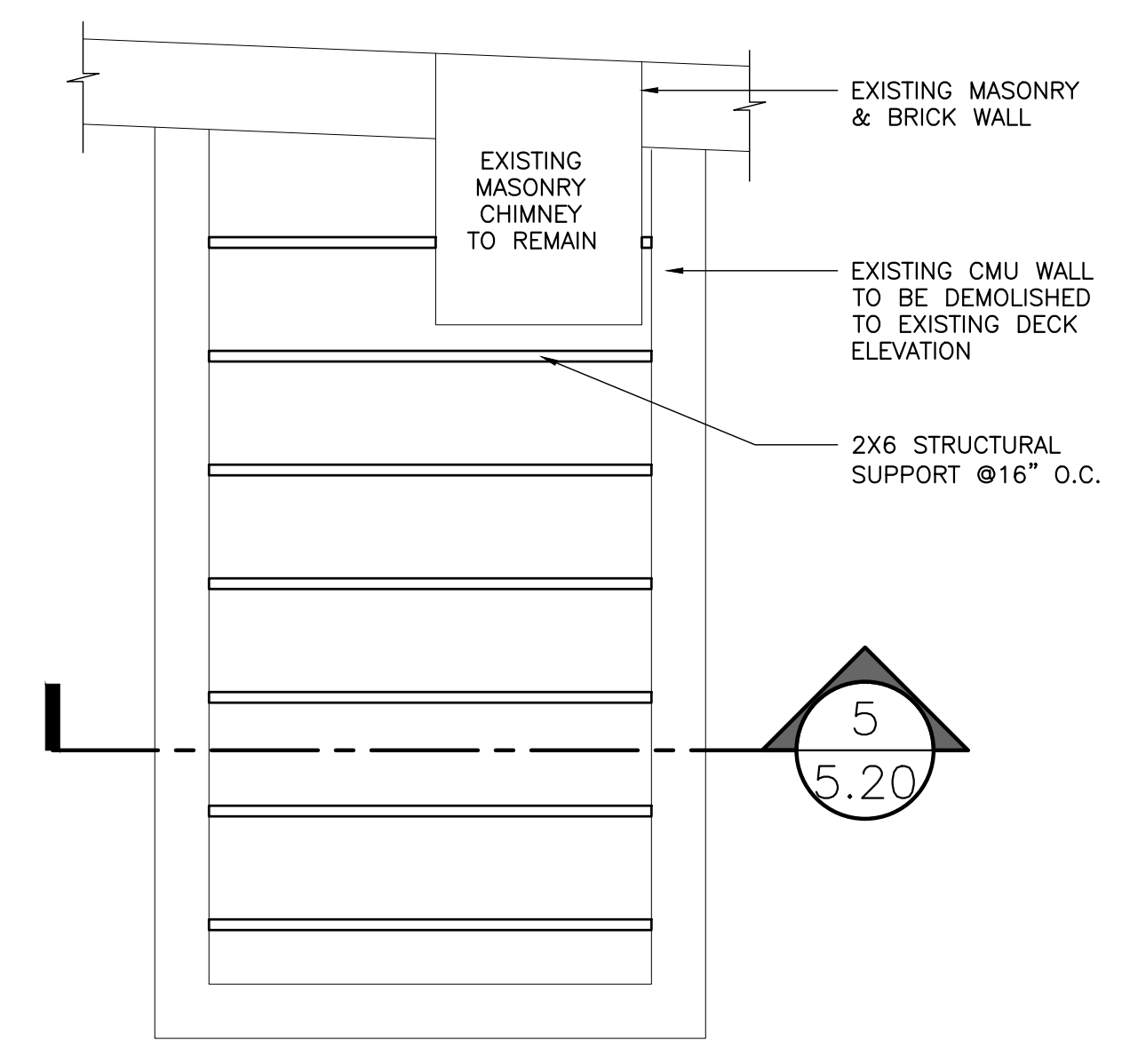
1 COPING DETAIL @ LOWER PARAPET
 SCALE: 1-1/2" = 1'-0"



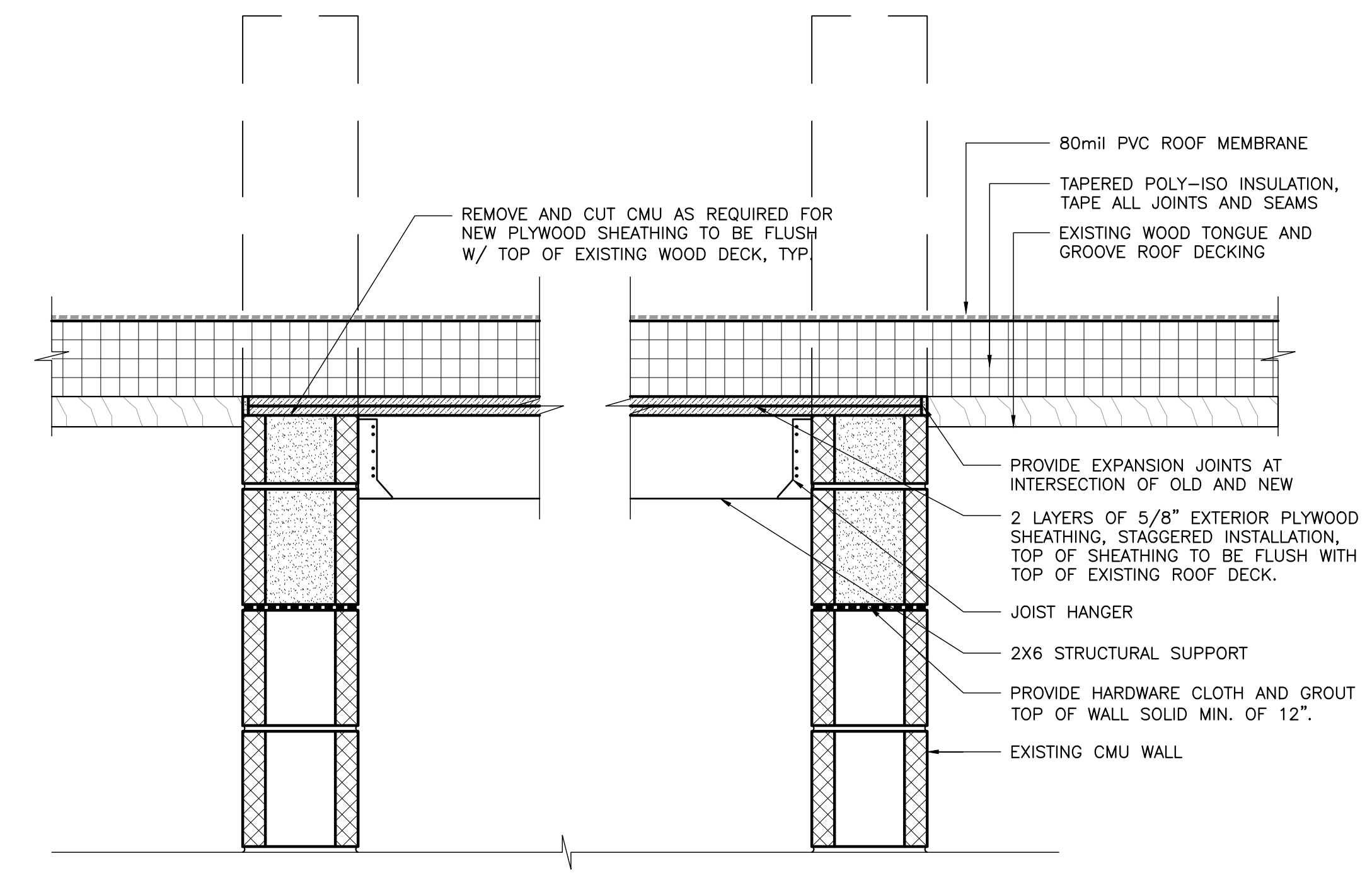
2 COPING DETAIL @ HIGHER PARAPET
 SCALE: 1-1/2" = 1'-0"



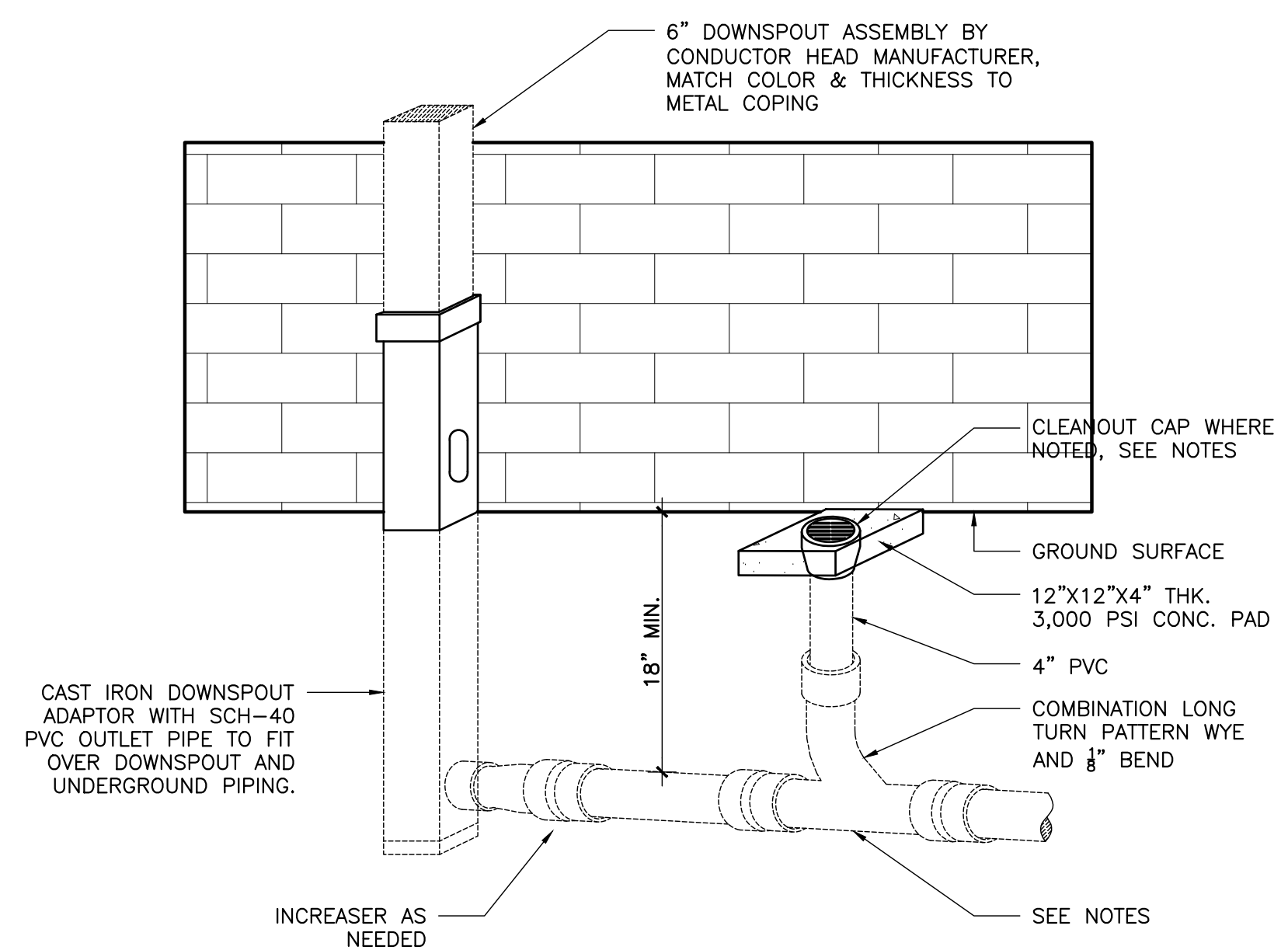
3 THRU-WALL SCUPPER OPENING DETAIL
 SCALE: 1-1/2" = 1'-0"



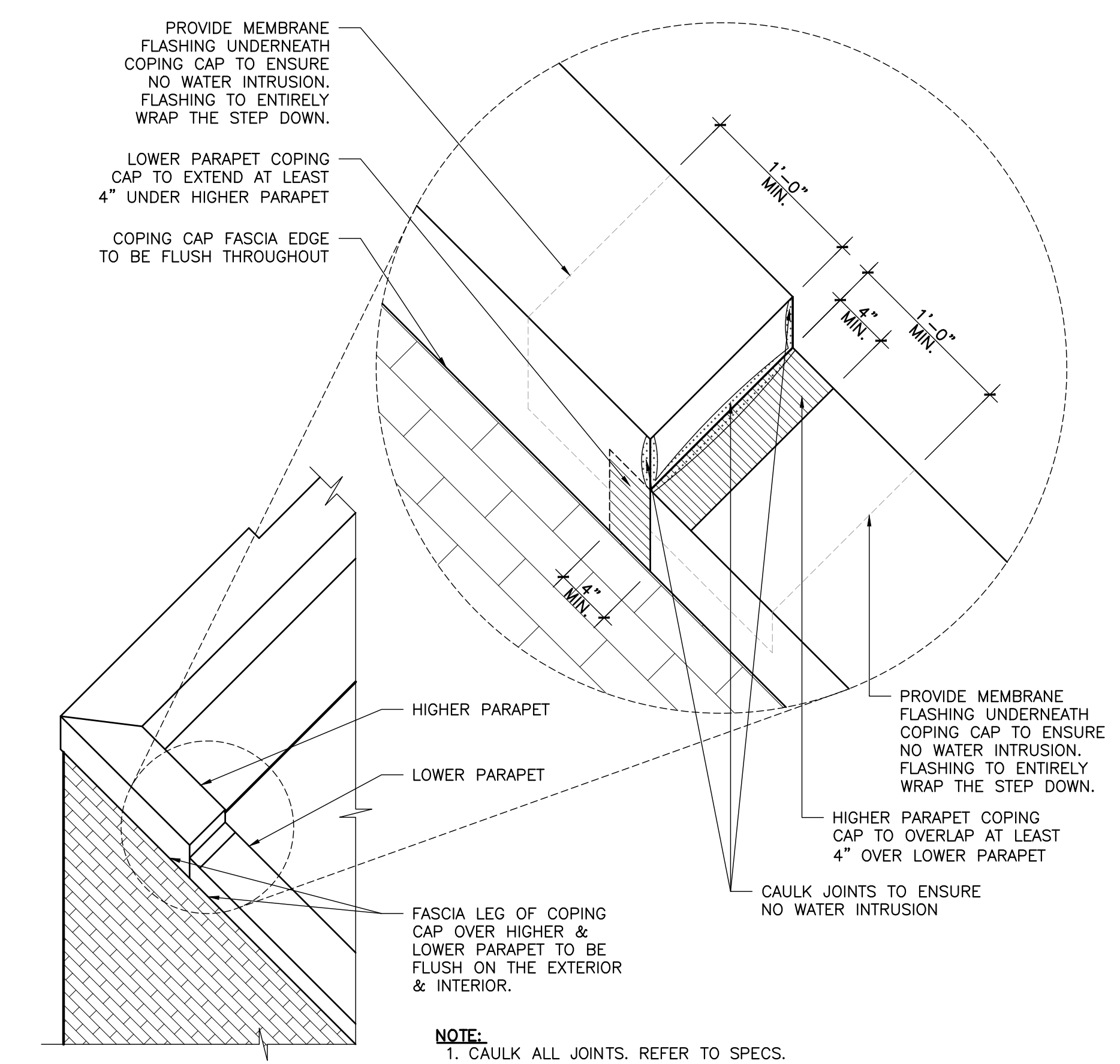
4 EXISTING RAISED ROOF OPENING PLAN DETAIL
 SCALE: 1/2" = 1'-0"



5 EXISTING RAISED ROOF OPENING DETAIL
 SCALE: 1-1/2" = 1'-0"



6 ROOF DRAIN CONNECTION DETAIL
 SCALE: NOT TO SCALE



7 PARAPET STEP DOWN DETAIL
 SCALE: NOT TO SCALE

- NOTE:
 1. ALL BELOW GRADE ROOF DRAINAGE PIPING SHALL BE 6" PVC @ 1% MIN. SLOPE.
 2. PIPE SHALL BE DIP WHEN LESS THAN 24-IN COVER IS PROVIDED.
 3. VERIFY DOWNSPOUT DIMENSIONS MATCH SHOE DIMENSIONS PRIOR TO ORDERING OR INSTALLING ADAPTOR.
 4. CLEANOUT CAP SHALL BE DOMED BRASS GRATE IN LANDSCAPED AREAS, FLUSH BRONZE GRATE IN GRASS AREAS AND BRONZE PLUG IN PAVED AREAS.

EQUIVALENT MANUFACTURERS LISTING

LISTING OF MANUFACTURER'S NAME DOES NOT GUARANTEE APPROVAL. ALL EQUIPMENT MUST MEET OR EXCEED QUALITY AND CAPACITIES OF SPECIFIED EQUIPMENT. FINAL APPROVAL WILL BE BASED ON EQUIPMENT SUBMITTALS. ANY MANUFACTURER NOT LISTED BUT WISHING TO BID THIS PROJECT SHALL SUBMIT A WRITTEN REQUEST A MINIMUM OF 7 DAYS PRIOR TO BID DATE OR AS INDICATED IN THE SPECIFICATIONS. ALL EQUIPMENT LISTED IN THE PROJECT SCHEDULE IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. PRIOR APPROVAL IS REQUIRED FOR ALL MANUFACTURERS NOT LISTED.

PACKAGED ROOFTOP UNITS: AAO, CARRIER, DAIKIN, TRANE
WALL HEATERS: Q-MARK, BERKO, MARKEL, TPI

NOTE:
ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

DRAWING INDEX

#	DRAWING NUMBER	DRAWING NAME
1	M-001	SCHEDULES, NOTES, & LEGEND - MECHANICAL
2	MD-101	DEMOLITION PLANS - MECHANICAL
3	M-101	NEW WORK PLANS - MECHANICAL
4	M-301	DETAILS - MECHANICAL

ELECTRIC WALL HEATER

FWH-1
MANUFACTURER/MODEL: MARKEL J3349T-W
9.6 KW, 208V-3φ, 32.8 MBH, 350 CFM;

PROVIDE UNIT WITH:
BUILT-IN DISCONNECT SWITCH AND THERMOSTAT,
PENCIL-PROOF LOUVERS, CABINET FOR SURFACE
MOUNTING, UL/ETL LABEL.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION	ABBR.
	NATURAL GAS PIPING	G
	CONDENSATE DRAIN	D
	EXISTING NATURAL GAS PIPING	(E)G
	THERMOSTAT / TEMP SENSOR (4'-0" AFF TO TOP)	
	BAROMETRIC PRESSURE SENSOR	
	SUPPLY AIR DIFFUSER (4-WAY)	
	RETURN AIR GRILLE	
	EXHAUST AIR GRILLE	
	DOUBLE LINE DUCTWORK	
	SINGLE LINE DUCTWORK	
	EXISTING DOUBLE LINE DUCTWORK	
	EXISTING SINGLE LINE DUCTWORK	
	EXISTING DUCTWORK TO BE REMOVED	
	20"x14" RECTANGULAR DUCT	
	8" DIAMETER ROUND DUCT	
	DUCT MOUNTED SMOKE DETECTOR W/ ACCESS DOOR	
	POINT OF EXISTING TO NEW CONNECTION	

MECHANICAL DEMOLITION NOTES

1. THE MECHANICAL CONTRACTOR SHALL VISIT SITE PRIOR TO BEGINNING WORK TO DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID.
2. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL EXISTING DUCTWORK AND PIPING. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND MECHANICAL PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE MECHANICAL ENGINEER.
3. THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FIRE DAMPERS ARE LOCATED WHERE INDICATED ON DRAWINGS. ALL NEW AND EXISTING DUCTWORK PENETRATING NEW RATED WALLS SHALL BE PROVIDED WITH A 1½-HOUR (TYPE-B) FIRE DAMPER WHETHER INDICATED ON PLANS OR NOT.

MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2. ALL EQUIPMENT LISTED IN THE PROJECT SCHEDULES IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THIS INCLUDES ANY MODIFICATIONS TO ANY ASSOCIATED MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS REQUIRED BY THIS SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 2" THICK DUCT WRAP WITH VAPOR BARRIER INSULATION (INCLUDING FLEXIBLE DUCT INSULATION) SHALL HAVE A MINIMUM INSTALLED R-VALUE OF 6.0. ROOFTOP UNIT RETURN DUCTWORK SHALL BE LINED WITH 1" THICK FIBERGLASS DUCT LINER FOR ACOUSTICAL PURPOSES. DUCT DIMENSIONS ON PLANS ARE FREE AREA SIZE.
4. ALL DUCTWORK SHALL BE SEALED PER THE REQUIREMENTS OF THE NORTH CAROLINA MECHANICAL CODE. SEAL LOW PRESSURE SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK FOR POSITIVE/NEGATIVE 2" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 4.
5. ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.
6. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
7. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL MECHANICAL SYSTEMS TO THE PERFORMANCE SPECIFICATIONS INDICATED ON PLANS AND PROVIDE THE ENGINEER WITH DIGITAL COPY OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TESTING AND BALANCING CONTRACTOR TO CONFIRM FILTERS ARE CLEAN, AND FREE OF DEBRIS PRIOR TO BEGINNING WORK. THE MECHANICAL CONTRACTOR SHALL REPLACE ANY DIRTY FILTERS, AS NEEDED. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
8. UPON PROJECT COMPLETION, THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER INSTALLATION INFORMATION INCLUDING RECORD SUBMITTALS (WITH ANY SUBMITTAL REVIEW COMMENTS ADDRESSED) AND O&M MANUALS FOR EACH PIECE OF EQUIPMENT INCLUDING ALL SELECTED OPTIONS, THE NAME AND ADDRESS OF AT LEAST ONE SERVICE AGENCY, FULL CONTROL SYSTEM O&M AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, FULL SEQUENCE OF OPERATION, AND PROGRAMMED SETPOINTS.
9. PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE OWNER.
10. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.
11. CONDENSATE DRAIN PIPING SHALL BE UNINSULATED, SCHEDULE 40 PVC PIPE AND FITTINGS WHERE LOCATED ON THE ROOF. TERMINATE ROOFTOP UNIT DRAINS ON A CONCRETE SPLASHBLOCK. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED.
12. ALL REFRIGERANT PIPE AND SHALL BE NITROGENATED ACR COPPER TUBE. SIZE, INSULATE, AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT PIPING INSULATION EXPOSED OUTDOORS SHALL BE COVERED WITH AN OUTER ALUMINUM JACKET.
13. ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.
14. INSTALL THE TOP OF ALL THERMOSTATS, SENSORS, AND SWITCHES AT 4'-0" (MAXIMUM) ABOVE FINISH FLOOR. COORDINATE EXACT THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. ANY DEVICE ON A PERIMETER WALL SHALL BE MOUNTED ON A FOAM-FILLED ELECTRICAL BOX, WITH ALL GAPS BETWEEN BOX AND WALL SEALED TO PREVENT INFILTRATION.
15. CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION. NEW ROOF PENETRATIONS MADE THROUGH EXISTING ROOF SYSTEMS SHALL BE VERIFIED WITH THE OWNER'S EXISTING ROOF WARRANTY PRIOR TO INSTALLATION.
16. ROOF CURBS SHALL ALLOW A MINIMUM OF 8" ABOVE ROOF INSULATION FOR FLASHING, OR AS INDICATED ON THE DRAWINGS, WHICHEVER IS GREATER. IN ADDITION, ALL ROOF CURBS OR EQUIPMENT SUPPORT RAILS THAT SUPPORT EQUIPMENT, PIPING, CONDUIT, ETC. EXPOSED ON THE ROOF SHALL HAVE SUFFICIENT HEIGHT TO MAINTAIN A MINIMUM OF 18" CLEARANCE BELOW SUPPORTED EQUIPMENT FOR ROOF MAINTENANCE.
17. CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. WHERE EXISTING VENT-THROUGH-ROOF (VTR) LOCATIONS ARE WITHIN 10'-0" OF NEW ROOFTOP UNITS' OUTSIDE AIR INTAKE, PROVIDE HORIZONTAL EXTENSION TO MAINTAIN 10'-0" SEPARATION. VTR EXTENSION SHALL MATCH SIZE AND MATERIALS AND BE ROUTED ON ROOF PIPE SUPPORTS EVERY 4'-0" (MIN.).
18. DUCTWORK AND PIPING PASSING THROUGH/ABOVE ELECTRICAL ROOMS SHALL BE CLOSELY COORDINATED WITH THE ELECTRICAL CONTRACTOR. DUCTWORK OR PIPING SHALL NOT BE LOCATED ABOVE ELECTRICAL PANELS.
19. EQUIPMENT OPERATED DURING CONSTRUCTION SHALL USE FILTERED MEDIA TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING COILS, DUCTWORK SYSTEMS, AIR TERMINALS ETC. AT COMPLETION OF CONSTRUCTION, MECHANICAL CONTRACTOR SHALL CLEAN ALL SYSTEMS WITH ALL CONTROL DEVICES WIDE OPEN AND REMOVE ANY REMAINING DEBRIS PRIOR TO TEST AND BALANCING. MECHANICAL CONTRACTOR SHALL REPLACE ALL FILTRATION WITH NEW FILTERS AT COMPLETION OF CONSTRUCTION. ANY DUCTWORK, AIR TERMINALS, AND/OR OTHER EQUIPMENT UPSTREAM OF FILTRATION SHALL BE CLEANED THOROUGHLY OF CONSTRUCTION DEBRIS BEFORE HANDING OVER TO OWNER.
20. ALL MECHANICAL EQUIPMENT SHALL BE U.L. LISTED AND LABELED AS A COMPLETE PACKAGE, NOT THROUGH INDIVIDUAL COMPONENTS OR PARTS. PROVIDE REQUIRED 3RD PARTY FIELD UL LISTING SERVICES AS REQUIRED TO COMPLY.
22. THE MECHANICAL CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA TO DESIGN SEISMIC RESTRAINT ELEMENTS FOR BOTH SEISMIC AND WIND REQUIREMENTS SPECIFIC TO THIS PROJECT. WHERE REQUIRED, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RESTRAINTS (SUPPORTS, ANCHORAGE, BRACING SYSTEM, ETC.) TO RESIST THE EARTHQUAKE EFFECTS AND WIND LOADS OF THE MECHANICAL SYSTEMS. THE ENGINEER'S COMPUTATIONS, BEARING HIS PROFESSIONAL SEAL, SHALL ACCOMPANY SHOP DRAWINGS WHICH SHOW COMPLIANCE TO LOCAL BUILDING CODE AND ASCE 7. COMPUTATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO THE PURCHASE OF MATERIALS, EQUIPMENT, SYSTEMS, AND ASSEMBLIES.

SITE SPECIFIC SEISMIC INFORMATION (**):
SITE CLASS: D
SEISMIC DESIGN CATEGORY: C
IMPORTANCE FACTOR: 1.5

SITE SPECIFIC WIND DESIGN INFORMATION (**):
RISK CATEGORY: IV
ULTIMATE WIND VELOCITY: 120 MPH
EXPOSURE CATEGORY: B

** VERIFY WITH LATEST STRUCTURAL PLANS.

ROOFTOP UNIT SCHEDULE (GAS HEAT, REFRIG. R454B DX COOLED)

SYMBOL	CFM	NOMINAL TONNAGE	OUTSIDE AIR MIN.	E.S.P.	COOLING CAPACITY			EFFICIENCY		GAS HEATING CAPACITY		EFFICIENCY		COMPRESSOR		QPM		SUPPLY FAN		CTRL/COMB.		POWER EXHAUST		POWER SUPPLY		OPERATING WEIGHT	MANUFACTURER TRANE MODEL	
					TC (BTUH)	SHC (BTUH)	SEER	EER	IEER	INPUT (BTUH)	OUTPUT (BTUH)	AFUE	QTY.	RLA	QTY.	FLA(EA.)	HP	FLA	FLA	QTY.	HP	FLA	MCA	MOCQ	VOLTAGE			
RTU-1	3000	7½	*	1.5"	86,300	59,800	N/A	11.0	15.1	150,000	121,500	81%	2	16.5/9.9	1	3.3	3.0	--	--	--	1	1	--	43	50	208V-3φ	1,350 LBS	YSK090A3
RTU-2	3400	8.5	*	1.5"	105,200	72,500	N/A	11.0	15.1	150,000	121,500	81%	2	21.8/13.2	1	2.8	3.0	8.8	--	--	1	1	--	53	70	208V-3φ	1,400 LBS	YSK102A3

- NOTES:**
1. COOLING CAPACITIES BASED ON 95° AMBIENT, 80/67 ENTERING AIR.
 2. PROVIDE UNITS WITH: SEISMIC RATED ROOF CURB, 7-DAY PROGRAMMABLE THERMOSTAT, STANDALONE UNIT CONTROLLER WITH MULTI-ZONE VAV CONTROLS AND STATIC PRESSURE RESET, DUCT-MOUNTED STATIC PRESSURE SENSOR, 2" THROWAWAY FILTERS (MERV 8 MINIMUM), COMPARATIVE ENTHALPY ECONOMIZER, BAROMETRIC EXHAUST, POWERED CONVENIENCE OUTLET, CIRCUIT BREAKER, INTERMITTENT PILOT IGNITION, CONDENSER COIL HALL GUARDS AND HINGED ACCESS DOORS WITH "TOOL-LESS" ENTRY, REFRIGERANT LEAK DETECTION AND SHUT-OFF, 65 KAIC SCOR RATING
 3. UNIT SHALL BE AGA CERTIFIED, U.L. LABELED, AND ASHRAE 90.1 COMPLIANT.
 4. PRIMARY COOLING COIL DRAIN PAN SHALL BE PROVIDED WITH A FLOAT SWITCH BY UNIT MFR; ACTIVATION OF THE FLOAT SWITCH SHALL SHUT DOWN UNIT AND SEND AN ALARM TO THE CENTRAL BAS.
 5. UNITS WILL REPLACE EXISTING EQUIPMENT AND WILL RUN TO MAINTAIN SPACE WITH THE EXISTING DUCT CONFIGURATION. FUTURE DUCT RECONFIGURATION AND WORK IN THIS SPACE WILL ADD VAV TERMINALS, MAKING UNIT MULTI-ZONE WITH ELECTRIC REHEAT.
 6. ADD THERMOSTAT AT LOCATION OF EXISTING THERMOSTAT (FIELD COORDINATE).
- * TEST EXISTING ROOFTOP UNITS FOR OUTSIDE AIR VOLUME PRIOR TO DEMOLITION. REBALANCE NEW UNITS' DESIGN OUTSIDE AIR TO MATCH EXISTING (EXISTING SPACE USAGE TO REMAIN).

GENERAL NOTES

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.
WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITH THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR. SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

2018 NORTH CAROLINA ENERGY CONSERVATION CODE COMMERCIAL ENERGY EFFICIENCY - MECHANICAL SUMMARY

C401 METHOD OF COMPLIANCE

<input checked="" type="checkbox"/> 2018 NCECC CHAPTER 4	<input type="checkbox"/> COMCHECK PROVIDED (2018 NCECC)
<input type="checkbox"/> ASHRAE 90.1-2013 PRESCRIPTIVE	<input type="checkbox"/> COMCHECK PROVIDED (90.1-2013)
<input type="checkbox"/> ASHRAE 90.1-2013 PERFORMANCE	<input type="checkbox"/> ENERGY MODELING DATA PROVIDED
<input type="checkbox"/> N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)	

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

<input type="checkbox"/> C406.2 EFFICIENT MECH EQUIPMENT	<input type="checkbox"/> C406.5 ON-SITE RENEWABLE ENERGY
<input type="checkbox"/> C406.3 REDUCED LTG DENSITY	<input type="checkbox"/> C406.6 DEDICATED OA SYSTEM
<input type="checkbox"/> C406.4 ENHANCED LTG CONTROLS	<input type="checkbox"/> C406.7 SERVICE WATER HEATING
<input checked="" type="checkbox"/> EQUIPMENT REPLACEMENT	

C301 CLIMATE ZONE
3A - RANDOLPH COUNTY, NORTH CAROLINA

DESIGN CONDITIONS
EXTERIOR (ASHRAE 90.1-2013 TABLE D-1)
winter dry bulb 19.5° F.
summer dry bulb 91° F.
summer wet bulb 74° F.
INTERIOR (2018 NCECC SECTION C302.1)
winter dry bulb 70° F.
summer dry bulb 75° F.

C403.2 HEATING & COOLING LOADS AND EQUIPMENT & SYSTEM SIZING

BUILDING HEATING LOAD	N/A - EQUIP REPLACEMENT
BUILDING COOLING LOAD	N/A - EQUIP REPLACEMENT
INSTALLED HEATING CAPACITY	MATCH EXISTING
INSTALLED COOLING CAPACITY	MATCH EXISTING

C403.2.3 & C406.2 - REQUIRED & INCREASED HVAC EQUIPMENT PERFORMANCE
SYSTEM DESCRIPTION - DX VAV ROOFTOP UNITS WITH GAS-FIRED HEATERS

MINIMUM HVAC EQUIP EFFICIENCY COMPLIANCE - TABLE C403.2.3
 INCREASED HVAC EQUIP EFFICIENCY COMPLIANCE - 10% OVER TABLE C403.2.3

EQUIP TYPE	SIZE CATEGORY (BTUH)	SUBCATEGORY	C403.2.3 MINIMUM EFF. (α)	10% INCREASED EFF. (α)	DESIGN EFFIC.
TABLE C403.2.3(1) - UNITARY AIR CONDITIONERS AND CONDENSING UNITS					
AIR COND. AIR COOLED	>= 65,000 & < 135,000	SPLIT SYSTEM & SINGLE PACKAGE	11.2 EER	12.3 EER	SEE SCHEDULE
α. DEDUCT 0.2 FROM THE REQUIRED EERS AND IEERS FOR UNITS WITH A HEATING SECTION OTHER THAN ELECTRIC RESISTANCE HEAT OR NO HEAT.					
TABLE C403.2.3(4) - WARM AIR FURNACES					
WARM AIR GAS FURN	< 225,000	-	78% AFUE OR 80% Et	86% AFUE OR 88% Et	SEE SCHEDULE

C403.2.4 THRU C403.2.11
HVAC SYSTEMS ARE FULLY COMPLIANT WITH THE REQUIREMENTS FOR HVAC
 SYSTEM CONTROL, VENTILATION, ENERGY RECOVERY, DUCT AND PLENUM INSULATION AND SEALING, PIPING INSULATION, AND SYSTEM COMPLETION.

C403.2.12 - AIR SYSTEM DESIGN AND CONTROL
 ALL FANS INSTALLED ON THE PROJECT ARE 5 HP OR LESS AND ARE EXEMPT FROM THESE REQUIREMENTS.
 FANS ABOVE 5 HP MEET THE CFM LIMITATIONS SHOWN BELOW:
OPTION 1 - FAN SYSTEM MOTOR NAMEPLATE HP - TABLE C403.2.12.1(1)

ALLOWABLE MOTOR_HP	CONSTANT VOLUME MINIMUM_CFM	VARIABLE VOLUME MINIMUM_CFM	DESIGN_CFM
7.5	6,818 CFM	5,000 CFM	SEE SCHEDULE
10	9,091 CFM	6,667 CFM	SEE SCHEDULE

C403.3 - ECONOMIZERS (PRESCRIPTIVE)
 PROJECT INCLUDES AN AIR OR WATER ECONOMIZER COMPLIANT WITH C403.3
 PROJECT MEETS AN ECONOMIZER EXCEPTION LISTED IN C403.3

C403.4 - HYDRONIC AND MULTIPLE-ZONE HVAC SYSTEMS CONTROL AND EQUIPMENT (PRESCRIPTIVE)
 PROJECT CONSISTS OF ONLY SINGLE ZONE DX SYSTEMS, EXEMPT FROM THE PRESCRIPTIVE REQUIREMENTS OF C403.4.
 PROJECT CONSISTS OF HVAC SYSTEMS FULLY COMPLIANT WITH THE PRESCRIPTIVE REQUIREMENTS OF C403.4.

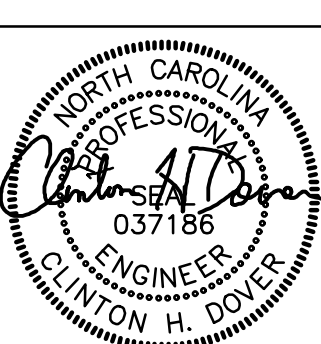
C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS).
 ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE.

C408 - SYSTEM COMMISSIONING
 AREA OF WORK IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
 BUILDING IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

Project No. 1787

Date: 11.07.2024
Drawn by: CHD
Checked by: BMB
Revisions:

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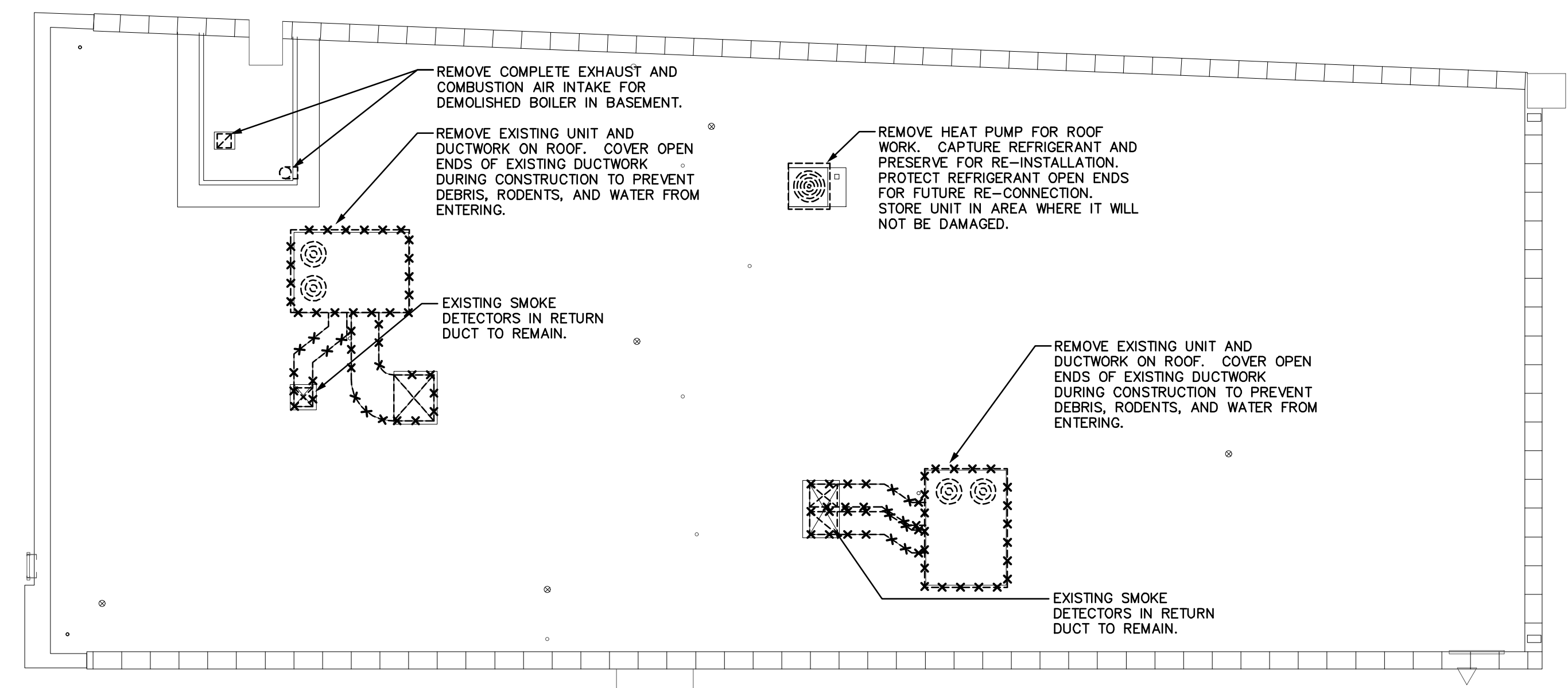
Stewart Cooper · Newell Architects
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RANDOLPH COUNTY BACKUP #1
FACILITY REEROOFING & HVAC REPLACEMENT ASHEBORO, NC
SCHEDULES, NOTES, AND LEGEND - MECHANICAL

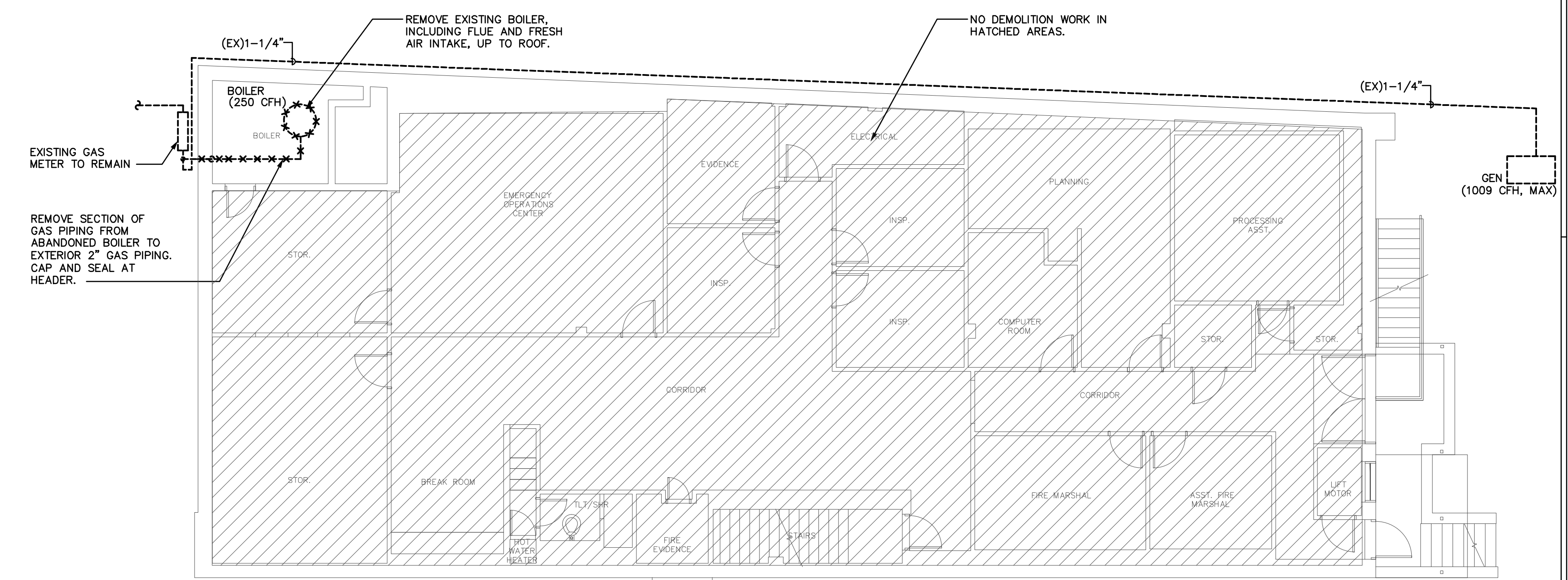
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North Carolina License Number: C-0914



1 ROOF DEMOLITION PLAN - MECHANICAL
 1/8" = 1'-0"

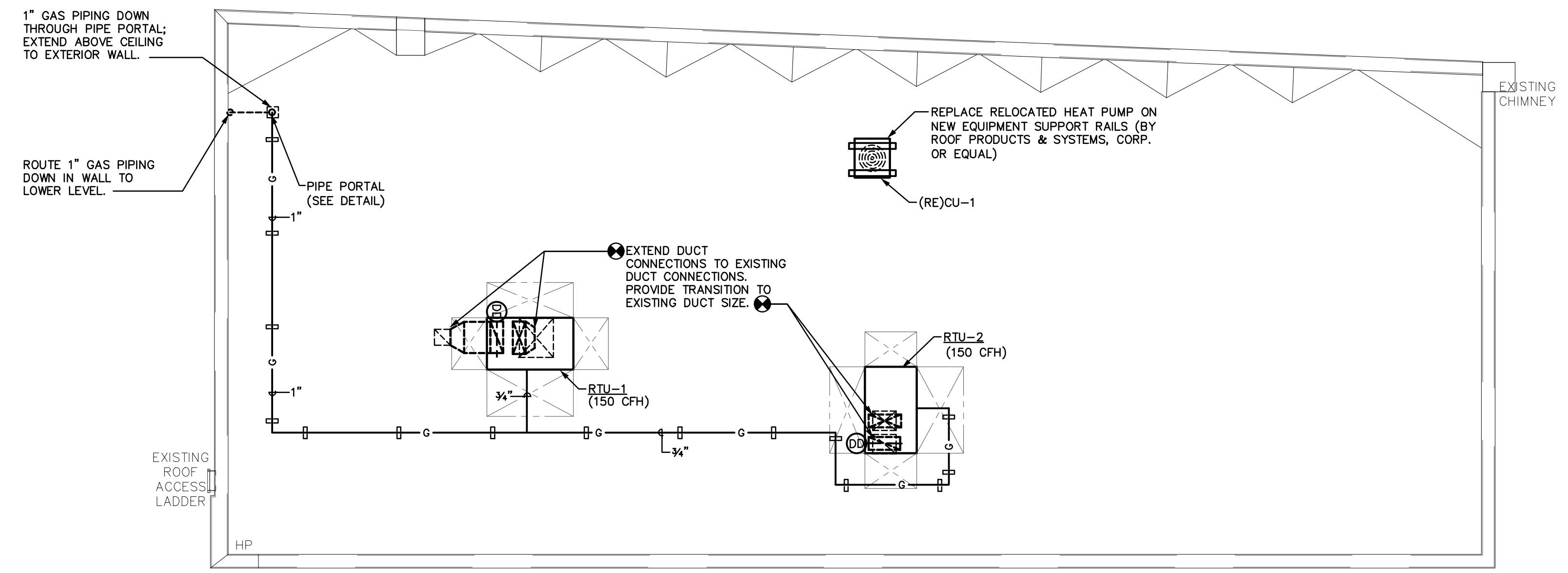


1 LOWER FLOOR DEMOLITION PLAN - MECHANICAL
 1/8" = 1'-0"

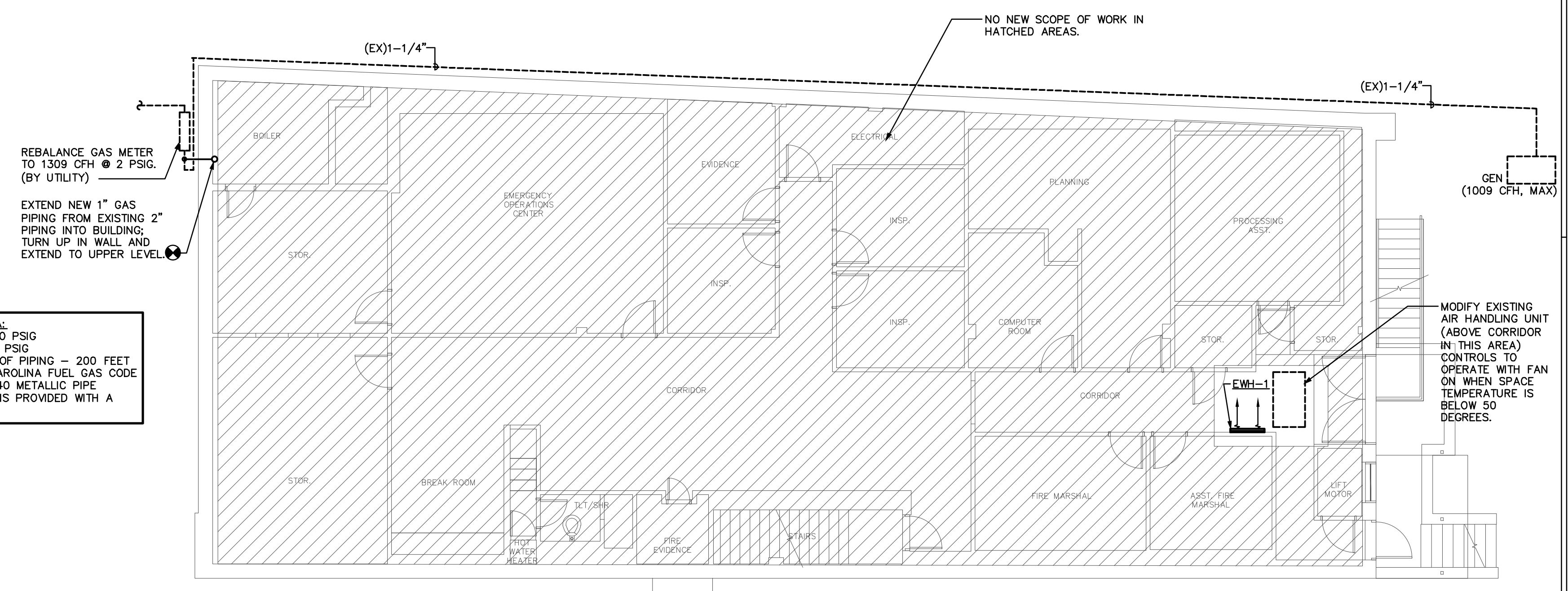
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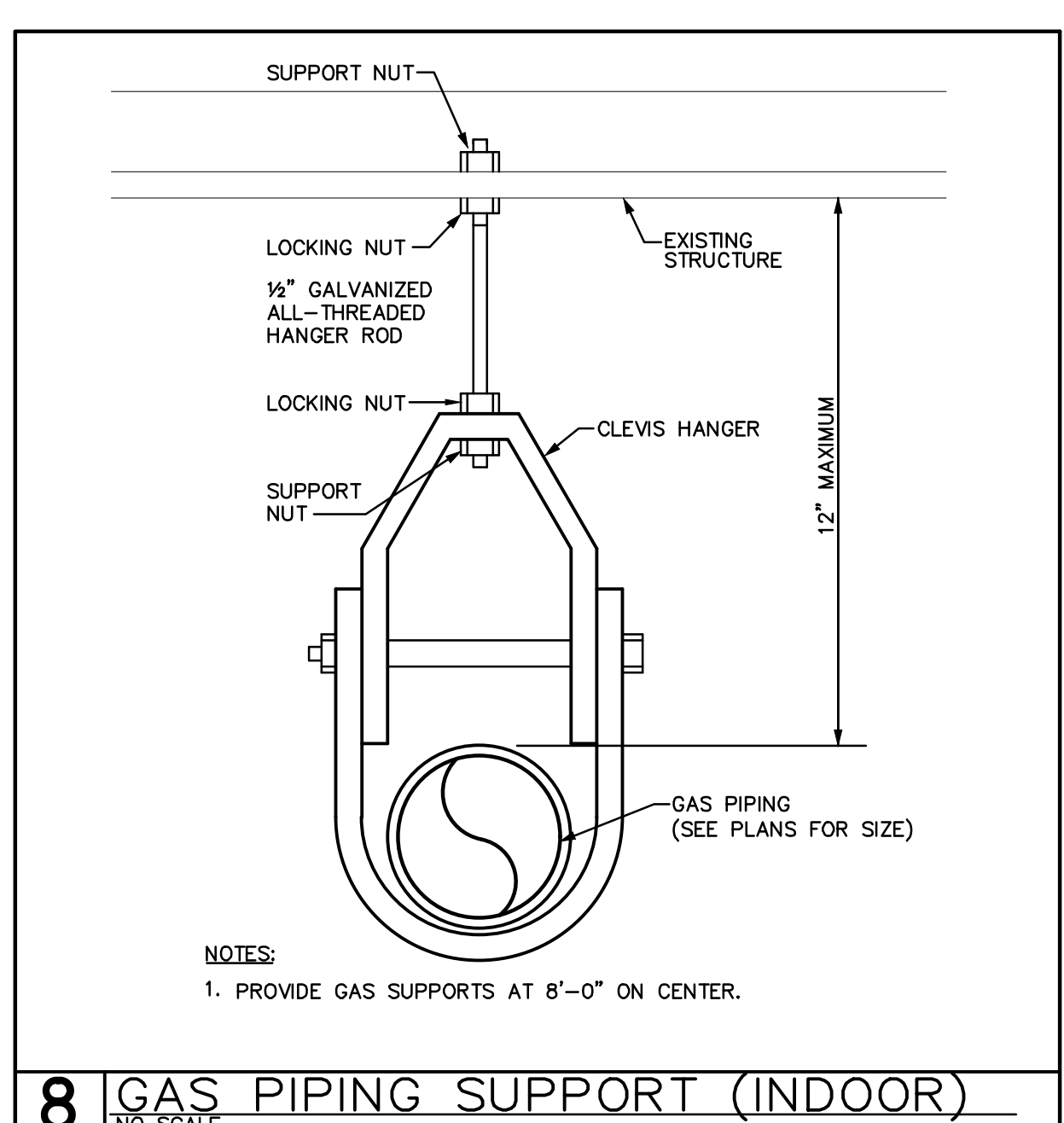
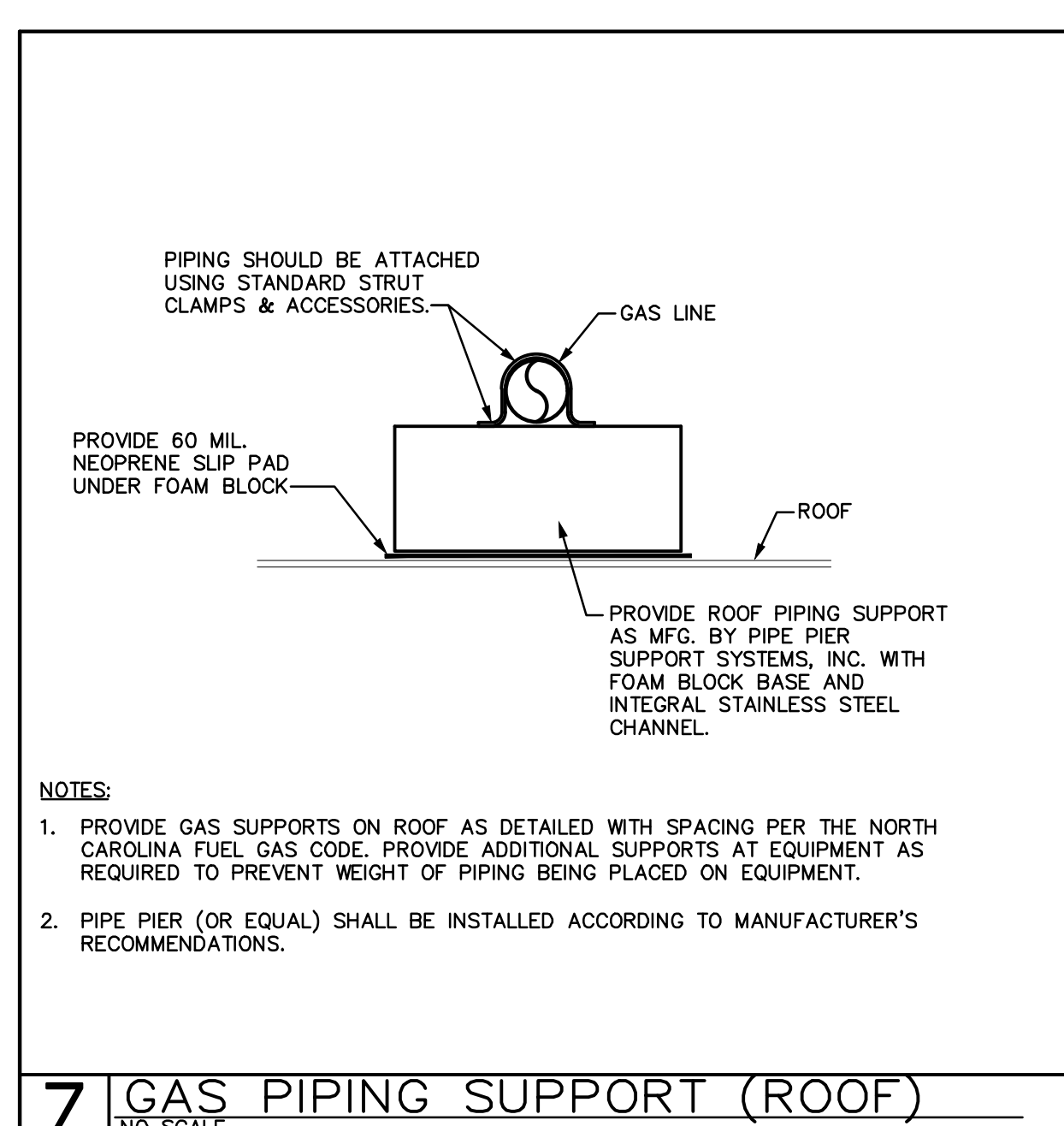
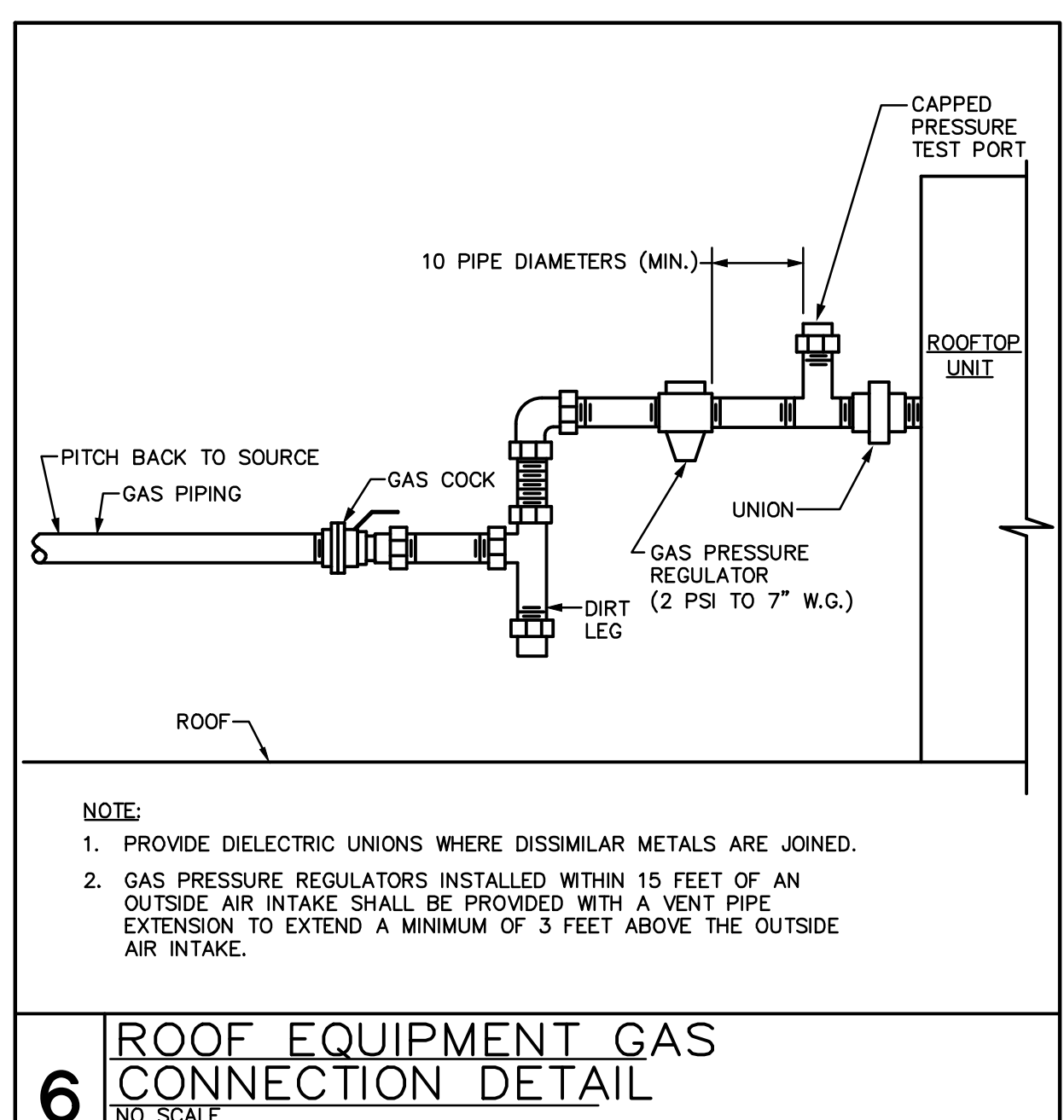
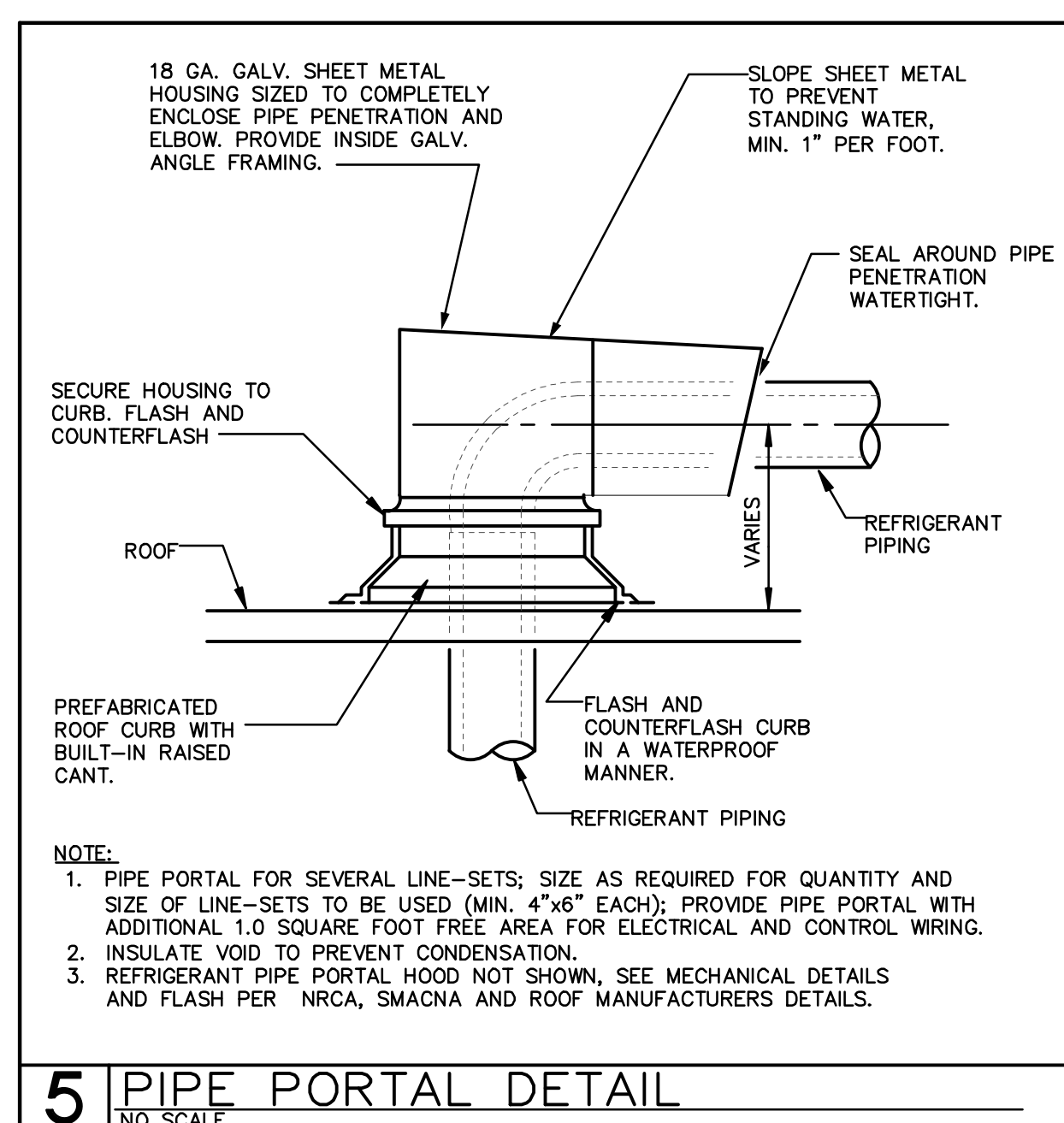
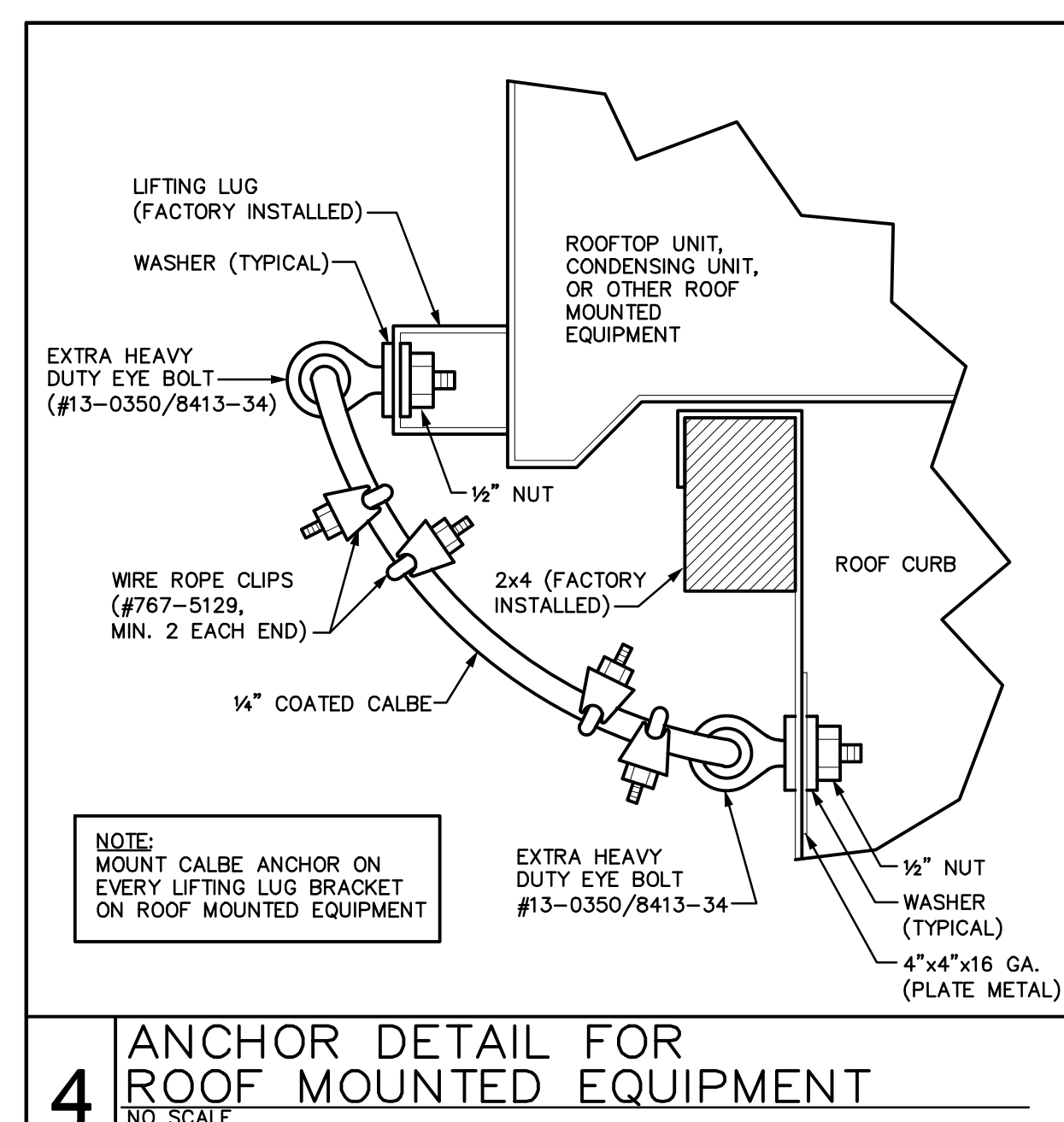
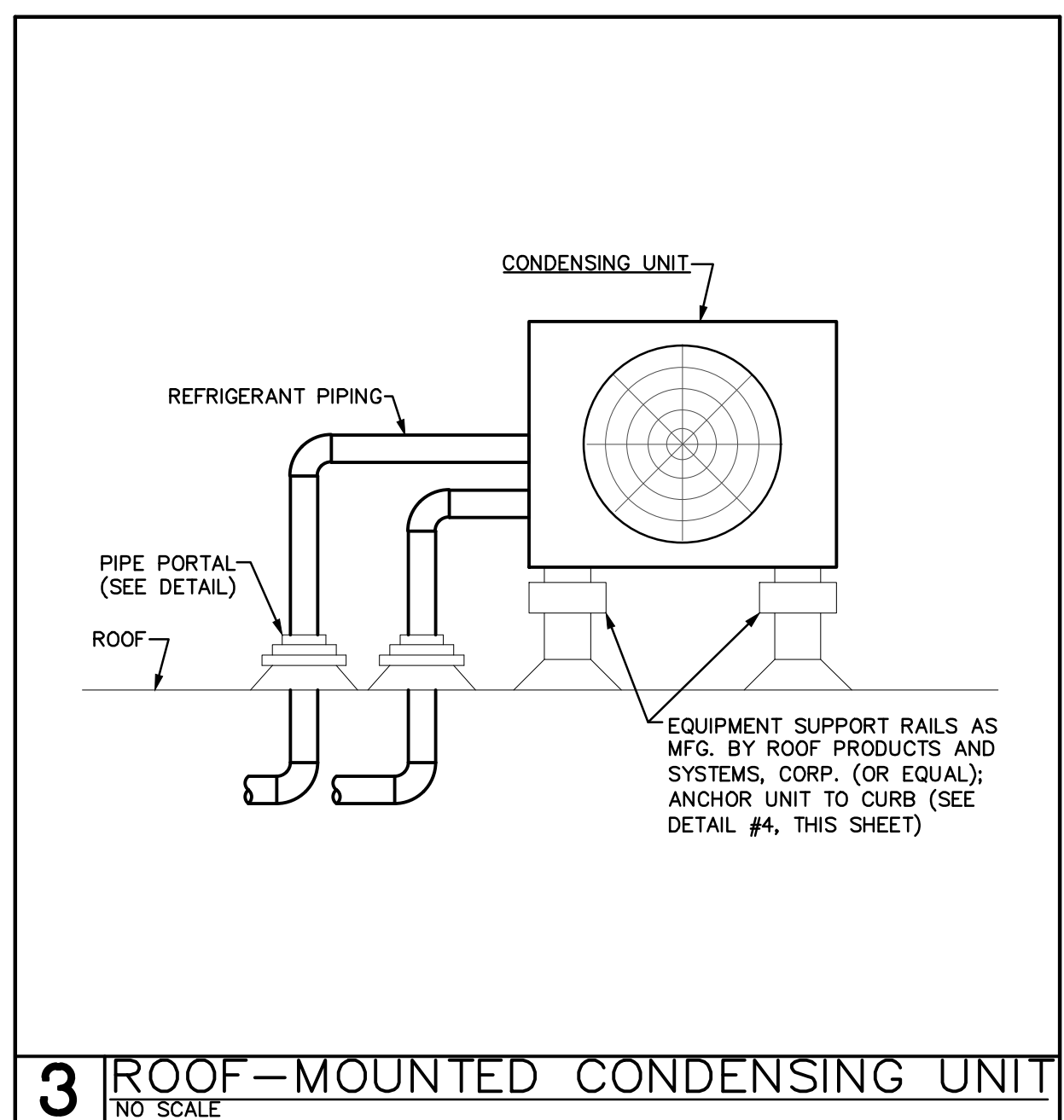
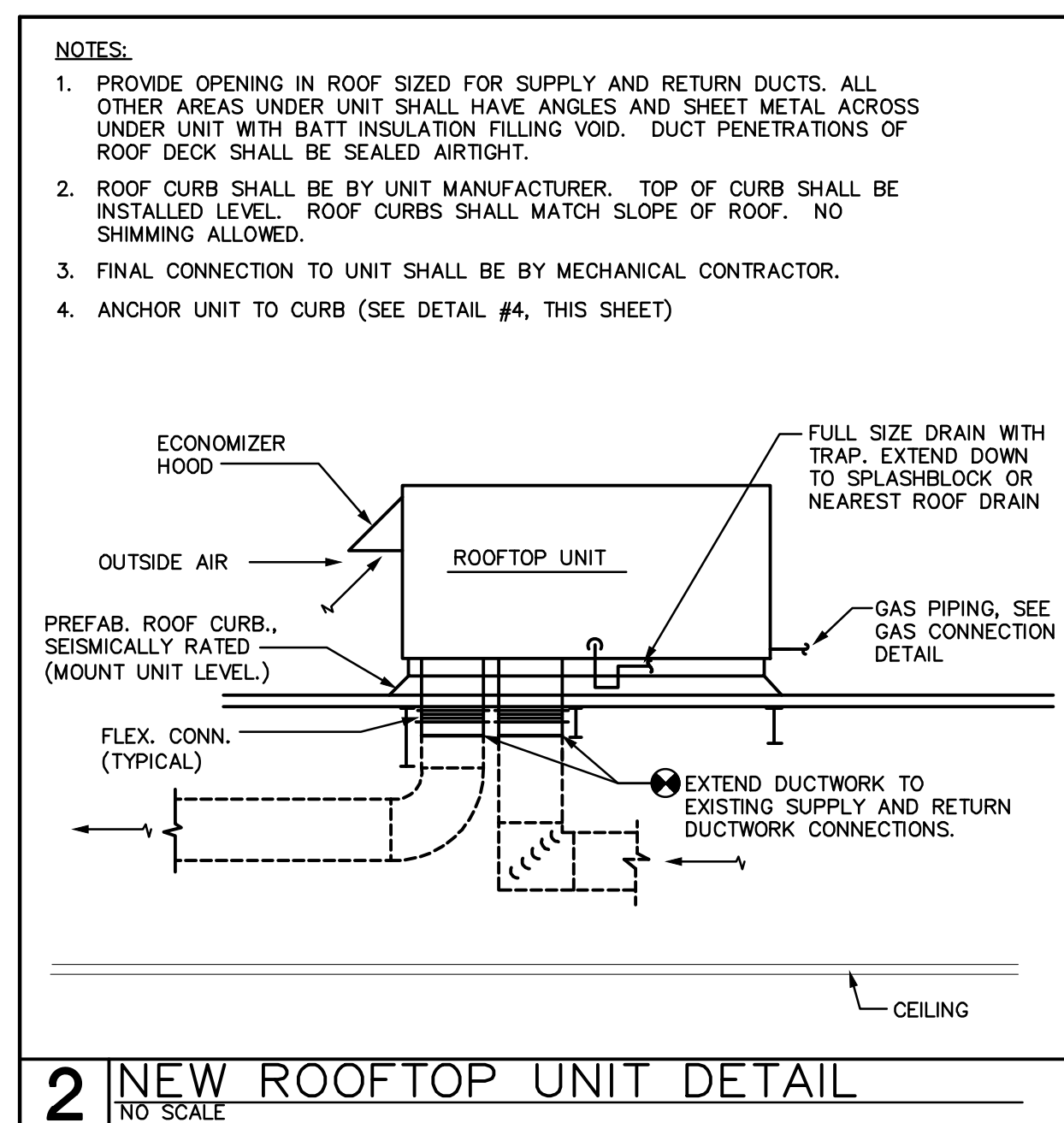
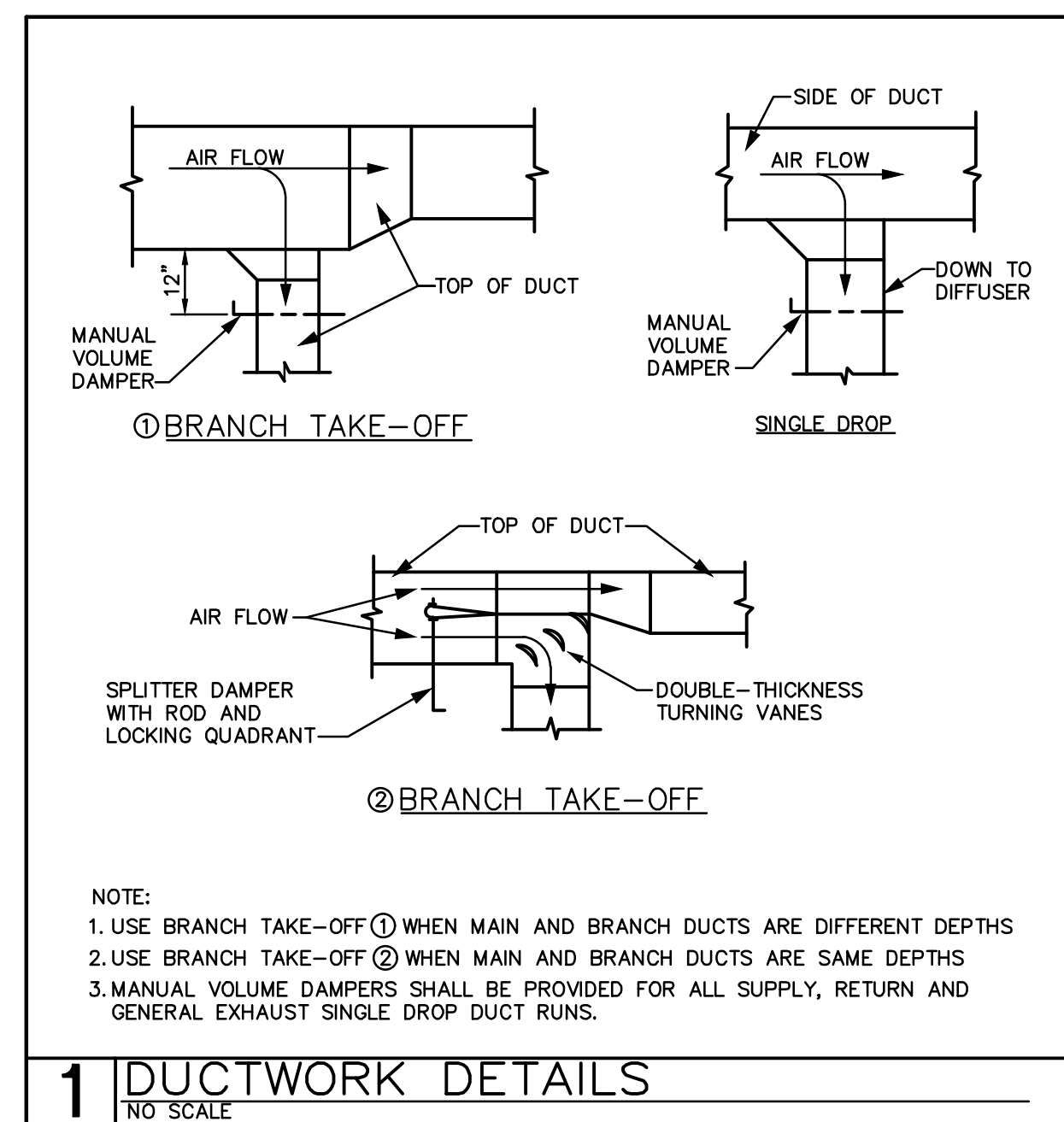
GAS PIPING DESIGN CRITERIA:
INITIAL GAS PRESSURE - 2.0 PSIG
GAS PRESSURE DROP - 1.0 PSIG
TOTAL EQUIVALENT LENGTH OF PIPING - 200 FEET
PIPING SIZED PER NORTH CAROLINA FUEL GAS CODE TABLE 402.4(3) SCHEDULE 40 METALLIC PIPE
EACH PIECE OF EQUIPMENT IS PROVIDED WITH A GAS PRESSURE REGULATOR.

1 LOWER FLOOR PLAN - MECHANICAL
1/8" = 1'-0"

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SYMBOL SCHEDULE

DEVICES AND PATHWAYS

- WIRING SYSTEM CONCEALED IN WALL OR CEILING. WHEN SHOWN, CROSS LINES INDICATE NUMBER OF WIRES. (GROUND WIRES ARE NOT SHOWN)
- WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.
- WIRING SYSTEM EXPOSED
- CONDUIT TURNED UP TO FLOOR ABOVE.
- CONDUIT TURNED DOWN TO FLOOR BELOW.
- BRANCH CIRCUIT HOMERUN TO PANEL.
- JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
- JUNCTION BOX FOR HAND DRYER CONNECTION; SEE MOUNTING HEIGHTS DETAIL FOR EXACT HEIGHT; SEE ARCH. SHEETS FOR COORDINATION. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING. PROVIDE WITH MANUAL TOGGLE SWITCH DISCONNECT (S) MOUNTED ABOVE CEILING. IF MOUNTED IN HARD CEILING SPACE AN ACCESS DOOR SHALL BE PROVIDED AT TOGGLE SWITCH LOCATION.
- DUPLEX RECEPTACLE, 20 AMP, 120 VOLT. HUBBELL 5352, OR EQUAL.
- DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER BACKSPLASH, OR AT HEIGHT NOTED.
- QUAD RECEPTACLE. TWO NEMA 5-20R DUPLEX RECEPTACLES.
- STANDARD TWO NEMA 5-20R DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.
- GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6" OF A SINK OR IN A KITCHEN SHALL BE GFCI.
- ISOLATED GROUND RECEPTACLE. NEMA 5-20R DUPLEX.
- WEATHERPROOF RECEPTACLE. NEMA 5-20R GF DUPLEX. COVER SHALL BE INTERMATIC #WP1020 (CLEAR) OR SPECIFICATION EQUAL.
- DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT.) COOPER 5352, OR EQUAL. T.V. RECEPTACLE MOUNTED AT 88" AFF.
- DUPLEX SWITCHED TAMPER RESISTANT RECEPTACLE, 20 AMP, 120 VOLT.
- SURGE PROTECTION DEVICE (SPD); SEE DETAIL.
- WIREMOLD 2400 PLUGMOLD. NEMA 5-15R RECEPTACLES ON 12" CENTERS. ALTERNATE CIRCUITS.
- KITCHEN RECEPTACLE. SEE KITCHEN EQUIPMENT SCHEDULE.
- SPECIAL OUTLET. SEE PLANS.
- MODULAR FURNITURE CONNECTION. PROVIDE DOUBLE-GANG BARRIERED J-BOX FOR POWER & TELE/DATA. EXTEND 1-1/4" EC TO ABOVE ACCESSIBLE CEILING FOR TELE/DATA. CONNECT POWER AS INDICATED.
- ELECTRICAL POWER POLE
- MOTOR OPERATED DAMPER, INTERLOCK WITH FAN AS INDICATED. (DAMPER BY M.C.)
- GROUNDING BAR PER DIAGRAM.

PANELS, DISCONNECTS

- CONNECTION TO MOTOR. STARTER PROVIDED BY OTHERS UNLESS OTHERWISE NOTED.
- FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION
- NON-FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- CIRCUIT BREAKER. NUMERALS INDICATE RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- COMBINATION STARTER/FUSED DISCONNECT. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- PLYWOOD TELEPHONE BACKBOARD. SIZE AS INDICATED ON RISER.
- PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'-6" AFF.
- DOOR MOTOR CONTROL. MOUNT +48" AFF. CONTROLS SHALL BE UP, DOWN, AND STOP MOUNTED ON 4" SQUARE BOX (FLUSH BOX)

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY

- C401 METHOD OF COMPLIANCE
- 2018 NCECC CHAPTER 4 NC SPECIFIC COMCHECK PROVIDED
- N/A BASED ON PROJECT SCOPE ASHRAE 90.1-2013
- C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS
- C406.2 EFFICIENT MECH EQUIPMENT C406.5 ON-SITE RENEWABLE ENERGY
- C406.3 REDUCED LTG DENSITY C406.6 DEDICATED OA SYSTEM
- C406.4 ENHANCED DIGITAL LTG CNTLS C406.7 HI-EFF SERVICE WTR HTG
- NOT APPLICABLE BASED ON PROJECT SCOPE C406.7.1 WTR HTG LOAD FRACTION SCOPE
- C408 - SYSTEM COMMISSIONING:
- BUILDING IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- BUILDING IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.
- C405.2 - LIGHTING CONTROLS (MANDATORY REQUIREMENTS):
- LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION C405.2, EXCEPT WHERE EXEMPT.
- NOT APPLICABLE
- C405.3 - EXIT SIGNS (MANDATORY REQUIREMENTS):
- INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
- NOT APPLICABLE
- C405.4 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):
- NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.
- C405.4.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:
- NA WATTS SPECIFIED
- NA % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)
- C405.4.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:
- METHOD OF COMPLIANCE:
- BUILDING AREA METHOD SPACE-BY-SPACE METHOD
- NA WATTS ALLOWED
- C405.5.1 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):
- NOT APPLICABLE
- TOTAL CONNECTED EXTERIOR LIGHTING POWER:
- NA WATTS SPECIFIED
- TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:
- NA WATTS ALLOWED
- C405.6 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):
- SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R-2 BUILDINGS.
- NOT APPLICABLE
- C405.7 - ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):
- ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
- NOT APPLICABLE
- C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):
- ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- NOT APPLICABLE

ABBREVIATIONS

+42"	DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO MOUNTED. SEE PLANS.
3R	NEMA 3R
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
C.B.	CIRCUIT BREAKER
EC	EMPTY CONDUIT WITH PULL CORD
E.C.	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FACP	FIRE ALARM CONTROL PANEL
FPN	FUSE PER NAMEPLATE
LC	LIGHTING CONTACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
U.G.	UNDERGROUND
WP	WEATHERPROOF
S.E.	SERVICE ENTRANCE
EM	EMERGENCY FIXTURE WITH BATTERY OR GEN. BACK-UP
ER	EXISTING ITEM RELOCATED TO THIS LOCATION.
RL	EXISTING ITEM TO BE RELOCATED.
EX	EXISTING ITEM TO REMAIN.
RP	EXISTING ITEM TO BE REPLACED.
RV	EXISTING ITEM TO BE REMOVED.
RC	RE-CONNECT
Isc	RMS SYMMETRICAL SHORT CIRCUIT CURRENT
AIC	AMPERE INTERRUPTING CAPACITY (EQUIPMENT RATING)

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1. GENERAL:

- A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.
- B. ALL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
- C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.
- D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
- E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. THE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE.
- F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.
- G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES.
- H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUND TO THE MAIN SERVICE PANEL/EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.54.
- K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE.
- M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
- N. ALL ELECTRICAL JUNCTION BOXES, SWITCHES, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER.
- O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.
- P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.
- Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
- R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.
- S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION OF "CONNECT" IN THE 2024 NATIONAL ELECTRICAL CODE) WITH THE EXISTING SYSTEMS TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS.
- T. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN.
- U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.
- V. CONTRACTOR SHALL TEST ALL "LIFE SAFETY" EQUIPMENT AND SYSTEMS FOR PROPER FUNCTION AND OPERATION. UPON SUCCESSFUL COMPLETION OF TESTS, CONFIRMATION SHALL BE SENT TO THE ENGINEER OF RECORD IN THE FORM OF A LETTER STATING THE TESTS PERFORMED, THE RESULTS, AND THE DATE TESTS WERE SUCCESSFULLY COMPLETE. "LIFE SAFETY" EQUIPMENT AND SYSTEMS CONSIST OF THOSE AS SPECIFIED IN THE STATE BUILDING CODE, THE NATIONAL ELECTRICAL CODE (NEC), NFPA 101, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
- W. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
- X. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.

2. RACEWAY:

- A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
- B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
- C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.
- D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILING. WHERE THERE ARE INACCESSIBLE CEILING, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.
- F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.
- G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.
- H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
- I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
- J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMBERS.
- K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
- M. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".
- N. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 3/8", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".
- O. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE ROS.
- P. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
- Q. ALL UNDERGROUND RACEWAYS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM BITUMASTIC.
- R. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATER-TIGHT BY USE OF POLYETHYLENE GRAFTED POLYETHYLENE TAPE.
- S. THE USE OF AC OR NM CABLE IS NOT PERMITTED.

3. OUTLET BOXES:

- A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.
- B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.
- C. ATTACH MOUNTING CONNECTORS HAVING INSULATED THROATS TO THE WALL.
- D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT METAL STUDS TO PREVENT TWISTING OF BOX IN WALL.
- E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.
- F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

- A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLUICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.
- B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
- C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
- D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
- E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR-CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.
- F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
- G. ALL CONDUCTORS SHALL BE IN CONDUIT.
- H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
- I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. WHERE EXPLICITLY INDICATED ON THE DRAWINGS:
 - 1) ALL 20A MULTI-WIRE RECEPTACLE CIRCUITS SHALL UTILIZE A #10 AWG NEUTRAL CONDUCTOR.
 - 2) ONLY WHERE PERMITTED UNDER "RACEWAYS", MC CABLE ASSEMBLIES CAN BE AFC "SUPER NEUTRAL" OR EQUAL, UNLESS OTHERWISE INDICATED ON THE DRAWINGS. WHERE MULTI-WIRE BRANCH CIRCUITS ARE EXPLICITLY INDICATED ON THE DRAWINGS, THEY SHALL BE INSTALLED PER NEC 210.4. MEANS SHALL BE PROVIDED TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES IN ADDITION TO OTHER REQUIREMENTS PER NEC 210.4.
- J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CRIMPING CONDUIT WRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
- K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPLITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.
- L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
- M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED. SYSTEMS FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.
- O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250-122.
- P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300-18.
- Q. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

VOLTAGE	CONDUCTOR LENGTH *	BRANCH CIRCUIT
120	0' - 50'	#12
120	51' - 90'	#10
120	91' - 140'	#8
120	141' - 225'	#6
277	0' - 125'	#12
277	126' - 200'	#10
277	201' - 330'	#8
277	331' - 525'	#6

* - THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

5. WIRING DEVICES:

- A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED EQUAL, UNLESS OTHERWISE NOTED:
 - SINGLE-POLE 20 AMP COOPER AH1221
 - DOUBLE-POLE 20 AMP COOPER AH1222
 - THREE-WAY 20 AMP COOPER AH1223
 - FOUR-WAY 20 AMP COOPER AH1224
- DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:
 - 15 AMP DUPLEX COOPER 5252
 - 20 AMP DUPLEX COOPER 5352
 - 15 AMP DUPLEX GFCI COOPER SGF15F
 - 20 AMP DUPLEX GFCI COOPER SGF20F
- THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.
- B. SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
- C. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.
- D. ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE.
- E. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" AND EXTRA-DUTY RATED SO PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION. COOPER #WU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL.
- F. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.
- G. DIMMERS SHALL BE LINEAR SLIDE, PRESENT ON/OFF, SQUARE LAW DIMMING, W/RFI FILTERING AND VOLTAGE COMPENSATION CIRCUITING.
- H. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSORS/SWITCHES SHALL BE INSTALLED WITH AN EQUIPMENT GROUNDING CONDUCTOR.
- I. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.
- J. ALL GFCI RECEPTACLES SHALL HAVE AUTO-MONITORING / SELF-TEST FUNCTION AND REVERSE LINE-LOAD MISFIRE FUNCTION AND MEET ALL REQUIREMENTS OF UL 943 (LATEST EDITION).

6. SUPPORTS:

- A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.
- B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
- C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.

- D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MAXIMUM OF 3'-0" FROM BOXES.
- E. LIGHTING FIXTURES MOUNTED IN OR ON CEILING SHALL BE SUPPORTED FROM STRUCTURE VIA 1/2 GAUGE STEEL WIRE. PROVIDE A MINIMUM OF FOUR WIRES, ONE ATTACHED TO EACH CORNER OF LAY-IN FIXTURES. RECESSED DOWNLIGHT FIXTURES SHALL BE SUPPORTED THE SAME. DO NOT SUPPORT RACEWAY OR FIXTURES FROM CEILING GRID OR DUCT WORK. USE U.L. LISTED GRID CLIPS ON ALL LAY-IN FIXTURES.

7. PAINTING:

- A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH, OR AS DIRECTED BY THE ARCHITECT.

11. EQUIPMENT IDENTIFICATION:

- J. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT, INCLUDING BUT NOT LIMITED TO, WIRING TROUGHS, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, ETC. NAMEPLATE SHALL INDICATE THE DEVICE NAME, SYSTEM VOLTAGE (VOLTAGE/PHASE/WIRE), AND UPSTREAM DEVICE AND CIRCUIT PROVIDE NAMEPLATES FOR CIRCUIT BREAKERS IN SWITCHGEARS, SWITCHBOARDS AND DISTRIBUTION PANELS.
- K. NAMEPLATE COLORS SHALL BE AS FOLLOWS:
 - 120/208V EQUIPMENT BLUE SURFACE WITH WHITE CORE
 - 277/480V EQUIPMENT BLACK SURFACE WITH WHITE CORE
 - EMERGENCY SYSTEMS GREEN SURFACE WITH WHITE CORE
 - FIRE ALARM SYSTEM BRIGHT RED SURFACE WITH WHITE CORE
 - SECURITY SYSTEMS BURGUNDY SURFACE WITH WHITE CORE
 - TELEPHONE SYSTEMS ORANGE SURFACE WITH WHITE CORE
 - DATA SYSTEMS BROWN SURFACE WITH WHITE CORE
 - TV SYSTEMS PURPLE SURFACE WITH WHITE CORE
 - PAGING SYSTEMS WHITE SURFACE WITH BLACK CORE
- L. NAMEPLATES UP TO 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/16" THICK.
- M. NAMEPLATES LARGER THAN 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/8" THICK.
- N. LETTERING HEIGHT SHALL BE 1/2" MINIMUM.
- O. NAMEPLATES SHALL BE ATTACHED WITH SELF-DRILLING/SELF-TAPPING SCREWS, EXCEPT RIVETS SHALL BE USED WHERE END OF SCREW IS NOT PROTECTED. QUANTITY AS FOLLOWS:
 - UP TO 5 SQUARE INCHES: 2 SCREWS
 - 5 TO 12 SQUARE INCHES: 4 SCREWS
 - ABOVE 12 SQUARE INCHES: 6 SCREWS

12. DISCONNECTS:

- A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES, UNLESS OTHERWISE NOTED. FUSED OR NON-FUSED AS INDICATED. SWITCHES SHALL HAVE CIRCUIT BREAKER TYPE FUSE CLIPS. SWITCHES SHALL BE BY EATON, SQUARE-D, ABB, OR APPROVED EQUAL. WHERE FED FROM A LOAD CENTER, GENERAL-DUTY SWITCHES SHALL BE PERMITTED.
- B. FUSES LESS THAN 60A SHALL BE CLASS RMS, DUAL-ELEMENT, TIME-DELAY WITH INDICATION.
- C. FUSES GREATER THAN 60A SHALL BE CLASS J, DUAL-ELEMENT, TIME-DELAY WITH INDICATION.
- D. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.

13. PANELBOARDS:

- A. PANELBOARDS SHALL BE PROVIDED AS MANUFACTURED BY EATON, SQUARE-D, ABB, OR APPROVED EQUAL. ALL NEW EQUIPMENT FOR THE PROJECT SHALL BE BY THE SAME MANUFACTURER. LOAD CENTER TYPE PANELBOARDS SHALL BE USED WHERE THE PANELBOARD SERVES A DWELLING UNIT.
- B. ALL DISCONNECTS INCLUDING NEUTRAL AND GROUND, SHALL BE COPPER.
- C. ALL BREAKERS SHALL BE AUTOMATIC THERMAL-MAGNETIC TYPE MOLDED CASE BOLT-ON TYPE, CALIBRATED FOR 40 DEGREE C, OR AMBIENT COMPENSATION, UNLESS OTHERWISE NOTED.
- D. PANELS SHALL BE FULLY RATED (AIC) NO SERIES AIC RATINGS ARE ALLOWED.
- E. PANELS SHALL HAVE FULL SIZE EQUIPMENT GROUNDING BARS AND NEUTRAL BARS, EXCEPT WHERE INDICATED TO BE 200%.
- F. ALL PANELBOARD AND BREAKER LUGS SHALL BE SIZED AND RATED PER THE CONDUCTOR SIZE AND MATERIAL.
- G. LIGHTING AND APPLIANCE PANELS (100A-600A) SHALL HAVE FRONT ACCESSIBLE HINGED DOOR-IN-DOOR COVERS WITH DEAD FRONT, SHALL BE 20" WIDE MINIMUM WITH MINIMUM 4" WIDE WIRING GUTTERS.
- H. DISTRIBUTION PANELS (600A-1200A) SHALL HAVE FRONT ACCESSIBLE DEAD FRONT COVERS.
- I. PROVIDE HANDLE LOCK-ON DEVICES FOR ALL CIRCUIT BREAKERS CONNECTED TO EMERGENCY, EXIT, NIGHT LIGHTING, FIRE ALARM, TELEPHONE BOARDS, AND SECURITY SYSTEMS.
- J. BREAKERS USED FOR SWITCHING SHALL BE SWITCHING DUTY (SWD) RATED.
- K. BREAKERS USED FOR HEATING, AIR-CONDITIONING AND/OR REFRIGERATION SHALL BE HACR RATED.
- L. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.
- M. ARC-FAULT CIRCUIT-INTERRUPTER (AFCI) PROTECTION SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.12, INSTALLED IN A READILY ACCESSIBLE LOCATION. THIS INCLUDES ALL 120V, 15A AND 20A BRANCH CIRCUITS IN DWELLING UNITS, DORMITORY/STUDENT HOUSING UNITS AND HOTEL/MOTEL GUEST ROOMS/SUITES AS DEFINED BY THE NEC.
- N. ALL OVERCURRENT DEVICES WHICH COMPRISE THE EMERGENCY SYSTEM OR LEGALLY REQUIRED STANDBY SYSTEM SHALL BE SELECTIVELY COORDINATED. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MANUFACTURER LITERATURE INDICATING COMPLIANCE WITH THE SELECTIVE COORDINATION REQUIREMENTS PER THE NEC.
- O. ALL PANELBOARDS SHALL HAVE METAL DIRECTORY FRAME, FOR EACH PANELBOARD, PROVIDE TYPED CIRCUIT DIRECTORY PER NEC 408.4. SPARE CIRCUIT BREAKERS SHALL BE LABELED SPARE AND IN THE OFF POSITION.

14. FIRE STOPPING:

- P. ALL PENETRATIONS OF RATED ASSEMBLIES SHALL BE SEALED WITH RATED MATERIALS MEETING ASTM E-814.
- Q. PROVIDE FIRESTOPPING DEVICES OR SYSTEM(S) WHICH HAVE BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814. INSTALL THE DEVICE(S) OR SYSTEM(S) IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE THE APPROPRIATE DEVICE(S) OR SYSTEM(S) WITH AN "F" RATINGS EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED.
- R. DEVICE(S) AND/OR SYSTEM(S) SHALL BE BY HILTI, 3M OR EQUIVALENT.

17. SEISMIC:

- A. THE ELECTRICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING SEISMIC SUPPORT AND BRACING OF ELECTRICAL COMPONENTS TO RESIST THE EFFECTS OF EARTHQUAKES ON THE ELECTRICAL SYSTEM AS WELL AS ANY REQUIRED SPECIAL INSPECTIONS BASED ON THE SPECIFIC GEOGRAPHIC LOCATION AS REQUIRED. THE SEISMIC RESTRAINTS AND SPECIAL INSPECTIONS SHALL MEET ALL APPLICABLE STATE AND LOCAL BUILDING CODE REQUIREMENTS AS WELL AS ASCE-7 REQUIREMENTS.

18. ELECTRICAL COORDINATION WITH OTHER TRADES:

- A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED EQUIPMENT, KITCHEN, LABORATORY, ETC. UNLESS NOTED.
- B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS.
- C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.
- D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. AN EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.

1 ELECTRICAL SPECIFICATIONS

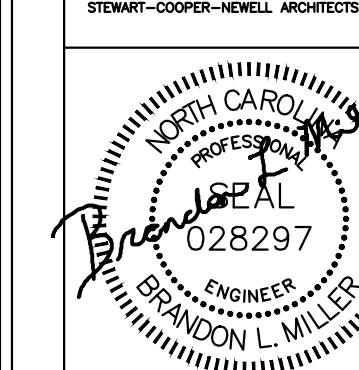
NO SCALE

GENERAL NOTES

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN RECORDS OF THE CONTRACT DOCUMENTS AND HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES. WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITH THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER WORK OR MATERIAL CALLED FOR. DO NOT ASSUME THAT DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
1787
Date:
11.07.2024
Drawn by:
BLM
Checked by:
JAH
Revisions

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ELECTRICAL SPECIFICATIONS
Sheet No.
10.01



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ROOFTOP UNIT SCHEDULE

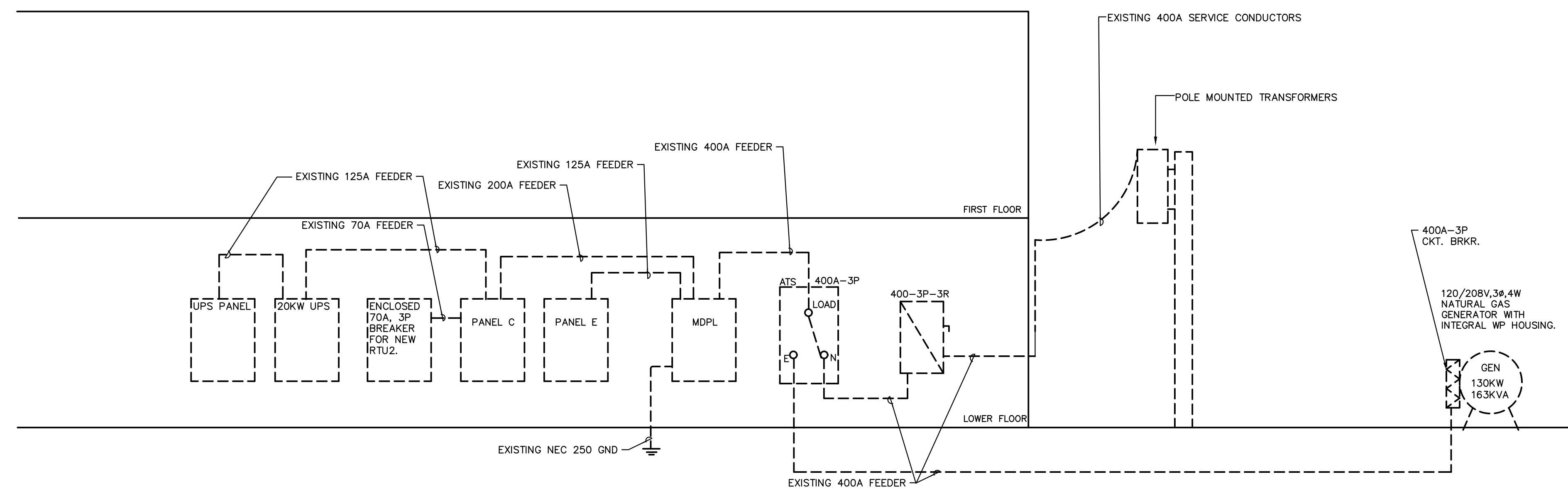
SYMBOL	COMPRESSOR		OFM		SUPPLY FAN		CTRL/COMB.		POWER EXHAUST		POWER SUPPLY		DISCONNECT	
	QTY	FLA	QTY	FLA(EA.)	HP	FLA	FLA	QTY	HP	FLA	MGA	MOCP		VOLTAGE
RTU-1	2	16.5/9.9	1	3.3	3.0	---	---	1	1	---	43	50	208V-3Ø	60/F50-3P-3R
RTU-2	2	21.8/13.2	1	2.8	3.0	---	---	1	1	---	53	70	208V-3Ø	100/F70-3P-3R

ELECTRIC WALL HEATER

FWH-1
9.6 KW; 208V-3Ø
BUILT-IN DISCONNECT SWITCH AND THERMOSTAT.

EXISTING PANEL: PANEL C													EXTG MFGR	
VOLTAGE: 120 / 208													EXTG TYPE	
MOUNTING: SURFACE													22,000 AIC	
3 PHASE													4 WIRE	
200 AMP													MAIN LUGS ONLY	
LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (NOB 1)	CKT NO	A	B	C	CKT NO	FRAME (NOB 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
	SPACE ONLY				1									
	SPACE ONLY				2									
	SPARE				3									
3.50	EXISTING ELEVATOR	EX			4									
3.50		EX												
4.20	NEW RTU-1				5									
4.20	(EXISTING BREAKER)													
4.00	EXISTING WELDING RECEPT	EX			6									
4.00		EX												
	SPARE				7									
31.1	SUB-TOTALS												0.0	
LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		NOTES:								
LIGHTS	0.0	1.25	0.0	CONNECTED		1. ALL BREAKERS AND BRANCH CIRCUITS ARE EXISTING AND TO REMAIN UNLESS OTHERWISE NOTED.								
HEATING	0.0	1.00	0.0	A = 11.7 KVA	97.4 A									
COOLING	0.0	1.00	0.0	B = 7.7 KVA	64.1 A									
VENTILATION	12.6	1.00	12.6	C = 11.7 KVA	97.4 A									
MOTORS	0.0	1.00	0.0	DEMAND										
KITCHEN	0.0	0.65	0.0	A = 11.7 KVA	97.4 A									
REC. (1st 10KVA)	0.0	1.00	0.0	B = 7.7 KVA	64.1 A									
REC. (>10KVA)	0.0	0.50	0.0	C = 11.7 KVA	97.4 A									
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%										
MSC.	18.5	1.00	18.5	A = 14.6 KVA	121.8 A									
SPARE	0.0	1.00	0.0	B = 9.6 KVA	80.1 A									
TOTAL (KVA)	31.1		31.1	C = 14.6 KVA	121.8 A									

EXISTING PANEL: MDPL													EXTG MFGR	
VOLTAGE: 120 / 208													EXTG TYPE	
MOUNTING: SURFACE													42,000 AIC	
3 PHASE													4 WIRE	
400 AMP													MAIN LUGS ONLY	
LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (NOB 1)	CKT NO	A	B	C	CKT NO	FRAME (NOB 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
4.00	BASEMENT HVAC	EX			1				2				NEW EWH-1	3.20
4.00		EX	60		3				4				NEW BREAKER	3.20
4.00		EX			5				6					3.20
8.50	UPSTAIRS 911 PANEL	EX			7				8				BASEMENT PANEL C	11.70
8.50		EX	200		9				10					7.70
8.50		EX			11				12					11.70
6.20	BASEMENT PANEL E	EX			13				14				UPS	5.00
6.20		EX	125		15				16					5.00
6.20		EX			17				18					5.00
56.1	SUB-TOTALS												55.7	
LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		NOTES:								
LIGHTS	0.0	1.25	0.0	CONNECTED		1. ALL BREAKERS AND BRANCH CIRCUITS ARE EXISTING AND TO REMAIN UNLESS OTHERWISE NOTED.								
HEATING	9.6	1.00	9.6	A = 38.6 KVA	321.4 A									
COOLING	0.0	1.00	0.0	B = 34.6 KVA	288.1 A									
VENTILATION	24.6	1.00	24.6	C = 38.6 KVA	321.4 A									
MOTORS	0.0	1.00	0.0	DEMAND										
KITCHEN	0.0	0.65	0.0	A = 32.9 KVA	274.1 A									
REC. (1st 10KVA)	10.0	1.00	10.0	B = 28.9 KVA	240.8 A									
REC. (>10KVA)	34.1	0.50	17.1	C = 32.9 KVA	274.1 A									
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%										
MSC.	33.5	1.00	33.5	A = 41.1 KVA	342.6 A									
SPARE	0.0	1.00	0.0	B = 36.1 KVA	301.0 A									
TOTAL (KVA)	111.8		94.8	C = 41.1 KVA	342.6 A									



NOTES:
1. ALL EQUIPMENT AND FEEDERS SHOWN ON THIS RISER ARE EXISTING AND TO REMAIN. THE SCOPE OF WORK INCLUDES ROOF-TOP UNIT REPLACEMENT WITH EXISTING BREAKERS WHICH CURRENTLY FEEDS EXISTING ROOF TOP EQUIPMENT THAT IS BEING REPLACED ONE-FOR-ONE. SCOPE OF WORK ALSO INCLUDES ADDING A NEW CIRCUIT FOR A NEW UNIT HEATER.

1 PARTIAL POWER RISER DIAGRAM

NO SCALE

GENERAL NOTES

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR. SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.



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