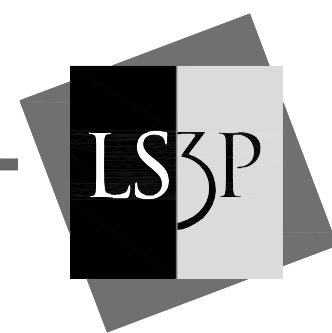


THE UNIVERSITY OF SOUTH CAROLINA BARUCH MARINE FIELD LABORATORY

The Hobcaw Barony | 22 Hobcaw Road | Georgetown, SC 29440 | Tel: (843) 546-4623

ROOF REPLACEMENT PROJECT

PROJECT NUMBER: H27-I934



BID DOCUMENTS

SEPTEMBER 11, 2012

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Mount Pleasant, SC 29464
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GENERAL COORDINATION NOTES:

- COORDINATE AND PROVIDE PROPER FLASHING/ CLOSURES FOR ALL PENETRATIONS FOR MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS.
- ALL PENETRATIONS, (INCLUDING CURBS, MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS) SHALL HAVE A MINIMUM 8" FLASHING HEIGHT ABOVE THE FINISHED ROOF SURFACE.
- A MINIMUM DISTANCE OF 12 INCHES SHALL EXIST BETWEEN ANY AND ALL PENETRATIONS AND/OR TERMINATIONS EXCEPT MINIMUM 30" FROM ROOF DRAINS.
- USE ROUND SHAPES TO CONSTRUCT EQUIPMENT SUPPORTS.
- ANY LOCATIONS/CONDITIONS WHERE THE ABOVE REQUIREMENTS CANNOT BE MET, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ARCHITECT IMMEDIATELY.

CONSTRUCTION NOTES

- SUBSTRATE SHALL BE INSPECTED, CERTIFIED (IF REQUIRED) AND REPAIRED AS NEEDED PRIOR TO ROOF SYSTEM INSTALLATION.
- ROOFING CONTRACTOR SHALL NOTIFY ENGINEER, ARCHITECT, AND OWNER IMMEDIATELY OF ANY ISSUES WHICH WILL AFFECT THE ROOF SYSTEM APPLICATION.
- ALL LOW SLOPED ROOF PENETRATIONS (DRAINS, OVERFLOW DRAINS, SCUPPERS, VTR'S, MECHANICAL CURBS, ETC.) SHALL BE COORDINATED AND SET PRIOR TO COMMENCING ROOFING WORK.
- PROVIDE ALL WOOD PRODUCTS AS REQUIRED TO PROVIDE FOR INDICATED DETAILS AND TO MEET SPECIFIED REQUIREMENTS. SEPARATE ALL TREATED WOOD PRODUCTS FROM METAL SURFACES IN ACCORDANCE WITH SECTION 06105, ROUGH CARPENTRY FOR ROOFING.
- INSTALL NAILERS AT PERIMETERS, CURBS, EXPANSION JOINTS, ETC. PRIOR TO COMMENCING ROOFING WORK. STACKED WOOD CARPENTRY CONFIGURATIONS AND VARYING THICKNESSES MAY BE REQUIRED TO MATCH INSULATION THICKNESSES WITHIN A 1/4" TOLERANCE IN ALL DIRECTIONS.
- ROOFING AND SHEET METAL WORK SHALL BE IN STRICT ACCORDANCE WITH THE CONTRACT REQUIREMENTS. ANY CLARIFICATIONS OR ADDITIONAL INFORMATION SHALL BE IN ACCORDANCE WITH PUBLISHED GUIDELINES OF NRCA ROOFING AND WATERPROOFING MANUAL (5th EDITION) AND SMACNA ARCHITECTURAL SHEET METAL MANUAL (6th EDITION).
- ALL FLASHING TERMINATIONS SHALL HAVE CONFORMING WATERTIGHT SHEET METAL CLOSURES, AND A WATERPROOF UNDERLAYMENT W/ SEALED LAPS IS REQUIRED BENEATH ALL SHEET METAL.
- PLACEMENT OF GUTTERS, CONDUCTOR HEADS, AND BAFFLES ARE REQUIRED TO ENSURE EROSION/DAMAGE AT VALLEY TERMINATIONS DOES NOT OCCUR. OUTSIDE EDGE OF GUTTER SHALL BE ONE INCH LOWER THAN INSIDE EDGE.
- WALKPADS ON LOW SLOPED ROOFS ARE REQUIRED AROUND ALL EQUIPMENT AND ROOF ACCESS POINTS. INSTALL EACH WALKPAD 12" FROM THE NEXT AND 12" AWAY FROM WALLS AND CURBS TO ENSURE PROPER DRAINAGE.
- ALL WORK SHALL BE CONDUCTED IN A SUBSTANTIAL WORKMANLIKE MANNER IN ACCORDANCE WITH SPECIFIED REQUIREMENTS.

PROTECTION NOTES

- THE INSTALLED ROOFING SHALL BE WATERTIGHT AT THE END OF EACH DAY'S WORK AND WHEN INCLEMENT WEATHER THREATENS.
- CONTRACTOR SHALL PROTECT THE BUILDING'S EXTERIOR DURING THE COURSE OF WORK. THE CONTRACTOR SHALL RETURN THE SITE AND ANY DAMAGED ITEMS TO NEW CONDITION.
- STORAGE OF MATERIALS FROM INCLEMENT WEATHER AND TO ENSURE PRODUCTS ARE AT PROPER TEMPERATURE FOR APPLICATION IS REQUIRED AT ALL TIMES.
- ANY SURFACES STAINED, MARRED OR DAMAGED BY THE WORK OR THE CONTRACTOR, THE CONTRACTOR SHALL RETURN THE SITE AND ANY DAMAGED ITEMS OF THE SITE OR FACILITY TO NEW CONDITION AND MATCH ADJACENT SURFACES.
- WORK SHALL BE SEQUENCED TO MINIMIZE TRAFFIC ON THE NEW WORK.
- PROVIDE FOR THE SAFETY AND PROTECTION OF WORKERS, OCCUPANTS AND VISITORS THROUGHOUT THE COURSE OF WORK.
- LAYDOWN / STORAGE AREA IS LIMITED AND SHALL BE AS APPROVED BY THE OWNER.
- ROOF AREAS SHALL BE CLEANED ON A DAILY BASIS AND SECURED AT THE END OF EACH WORK DAY.
- ROOFING CONTRACTOR AND GENERAL CONTRACTOR SHALL COORDINATE PROTECTION OF ALL NEW ROOFING WITH OVERALL CONSTRUCTION PROJECT AND OTHER SUB-CONTRACTORS.

TAPERED INSULATION NOTES

- ROOF INSULATION SYSTEM IS REQUIRED ON ALL ROOFS AS SPECIFIED AND INDICATED ON DRAWINGS.
- ALL ROOF AREAS TO HAVE A MINIMUM 1/4":12" FINISHED SLOPE. THE ROOF SLOPE SHALL BE PROVIDED BY A FULL TAPER INSULATION SYSTEM WHERE THE ROOF DECK DOES NOT PROVIDE 1/4":12" FINISHED SLOPE. TAPER INSULATION SYSTEM SHALL PROVIDE THE REQUIRED SLOPE FOR PRIMARY AND SECONDARY MEANS OF DRAINAGE.
- THE SECONDARY SLOPE (CRICKETS, SADDLES, SUMPS, BACK-SLOPES) SHALL PROVIDE A MINIMUM FINISHED SLOPE EQUAL TO THE PRIMARY SLOPE OF THE ROOF. SECONDARY SLOPE SHALL BE PROVIDED WITH TAPER INSULATION AT A RATE OF 2X THE PRIMARY SLOPE.
- ALL PENETRATIONS/TERMINATIONS SHALL PROVIDE A MINIMUM 8" BASE FLASHING HEIGHT ABOVE THE FINISHED ROOF, INCLUDING THE TAPERED INSULATION.
- INSULATION THICKNESSES SHALL BE COORDINATED WITH AND MATCH NAILER THICKNESSES AND ADJACENT INSULATION THICKNESSES WITHIN A 1/4" TOLERANCE IN ALL DIRECTIONS.
- AT DRAINAGE LOCATIONS ENSURE INSULATION TAPERS UP FROM DRAIN A MINIMUM 1/4":12" AND A MAXIMUM 1":12". PROVIDE TAPERED FILLER TO MATCH FIELD INSULATION THICKNESSES.
- PROVIDE A TAPERED CRICKET ON THE HIGH SIDE OF ALL PENETRATIONS WIDER THAN 24".
- ADJUST CRICKETS AND VALLEYS BASED ON ACTUAL CURB LOCATIONS TO ENSURE POSITIVE DRAINAGE AND CONTACT ARCHITECT/ENGINEER IMMEDIATELY.

GENERAL M/E/P COORDINATION NOTES

- UNLESS REQUIRED OTHERWISE, ALL ROOF PENETRATION AND FLASHINGS SHALL ADHERE TO NRCA ROOFING AND WATERPROOFING MANUAL 5TH EDITION, CONSTRUCTION DETAILS.
- UNLESS REQUIRED OTHERWISE, ALL SHEET METAL DETAILS SHALL ADHERE TO GUIDELINES SET FORTH IN SMACNA ARCHITECTURAL SHEET METAL MANUAL, 6TH EDITION.
- COORDINATE M/E/P SUPPORTS AND PENETRATIONS REQUIREMENTS WITH M/E/P DRAWINGS.
- A MINIMUM DISTANCE OF TWELVE (12) INCHES SHALL EXIST BETWEEN ANY AND ALL PENETRATIONS AND/OR TERMINATIONS. A MINIMUM DISTANCE OF THIRTY (30) INCHES IS RECOMMENDED BETWEEN A ROOF DRAIN AND AN OVERFLOW DRAIN TO PERMIT TAPERED INSULATION AND PROPER FLASHING AND A MINIMUM OF EIGHT (8) INCHES ABOVE THE FINISHED ROOF IS REQUIRED FOR ALL FLASHINGS.
- INSTALL NEW GRAY PVC CONDENSATE LINES WITH "P-TRAPS" ROUTED INTO DRAINS/GUTTERS FROM HVAC UNITS.

DEMOLITION NOTES

- REMOVE EXISTING SYSTEMS IN THEIR ENTIRETY DOWN TO THE EXISTING DECK IN INDICATED AREAS OF ROOF REPLACEMENT. AVOID DAMAGING THE ROOF DECK. NO MORE ROOFING SHALL BE REMOVED THAN CAN BE REPLACED BY THE COMPLETE NEW ROOF SYSTEM THE SAME DAY.
- BUILDING ENVELOPE DEMOLITION IS REQUIRED TO THE VARIOUS COMPONENTS AND SYSTEMS TO COMPLETE THE REQUIRED REPAIRS, MODIFICATIONS AND REPLACEMENTS OF THIS PROJECT.
- REMOVE IDENTIFIED ABANDONED PENETRATIONS SHOWN ON DRAWINGS.
- EXISTING NAILERS AND BLOCKING SHALL BE ADDRESSED PER CONSTRUCTION NOTES.
- REMOVE ALL ROOF, TRIM, SIDING, FLASHINGS AND ACCESSORIES AS NOTED, SPECIFIED OR REQUIRED TO COMPLETE THE WORK, ALL NEW SHEET METAL REQUIRED UNLESS OTHERWISE INDICATED.
- THE UNDERSIDE (INTERIOR SIDE) OF THE DECK MAY HAVE HVAC, ELECTRICAL FIXTURES, ETC. ATTACHED. THE CONTRACTOR SHALL HAVE QUALIFIED CRAFTSMEN REMOVE AND REINSTALL ALL AFFECTED ITEMS OF THE DEMOLITION OF ROOFING TO COMPLETE THE WORK AND TO REPAIR/REPLACE DECKING. THE LOCATION AND METHOD OF ATTACHMENT SHALL BE THE SAME AS THE ORIGINAL, UNLESS DIRECTED OR APPROVED OTHERWISE BY THE ROOF CONSULTANT AND/OR THE OWNER.
- ALL DEMOLITION SHALL ADHERE TO ANSI AND OSHA GUIDELINES.
- THE LIGHTNING PROTECTION SYSTEM SHALL BE TEMPORARILY DISCONNECTED AND REMOVED TO COMPLETE WORK, AND REINSTALLED.

LEGEND

SAMPLE TAKEN, R=ROOF
F=FLASHING S=STICK
ROOF AREA / LEVEL
LOCATION OF SAMPLE CORE

ROOF AREA SYMBOL

PARAPET WALL

DOWNSPOUT TO SPLASH BLOCK

ROOF DRAIN

OVERFLOW SCUPPER

MECHANICAL UNIT

UNIT ON EQUIPMENT SUPPORTS

VENTILATOR ON SUPPORTS

VENTILATOR CURB

DUCT PENETRATION CURB

VENT SUPPORT

PIPE PENETRATION

LIGHTENING ROD

LIGHTENING ARRESTOR ROD

WOOD BLOCKING

GUY WIRE PENETRATION

VENT THRU THE ROOF

PITCH PAN

PITCH PAN WITH ELECTRICAL

ABANDONED PITCH PAN

GOOSE NECK

ELECTRICAL LINE

CONDENSATION LINE

ROOF HATCH/ SCUTTLE CURB

ABANDONED CURB

STAIR

REMOVE EQUIPMENT AND PATCH DECK

SHINGLE ROOF

METAL ROOF

LEAK LOCATION

ABBREVIATIONS

ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
DS/SB	DOWNSPOUT TO SPLASH BLOCK
ETC	ET CETERA
LB	POUND
MAX	MAXIMUM
M/E/P	MECHANICAL/ELECTRICAL/ PLUMBING
MIN	MINIMUM
NRCA	NATIONAL ROOFING CONTRACTORS ASSOCIATION
O.C.	ON CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ASSOCIATION
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS ASSOCIATION, INC.
TYP	TYPICAL
W/	WITH

DETAIL/SECTION IDENTIFIER

DETAIL/SECTION LABEL

SHEET SHOWN ON

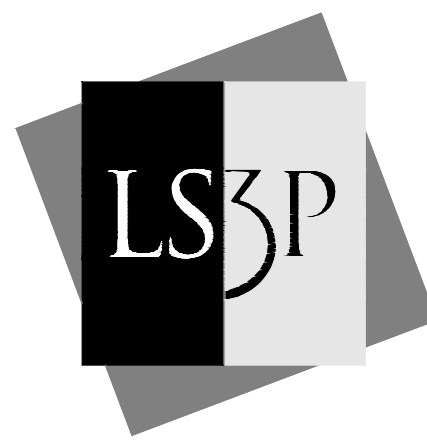
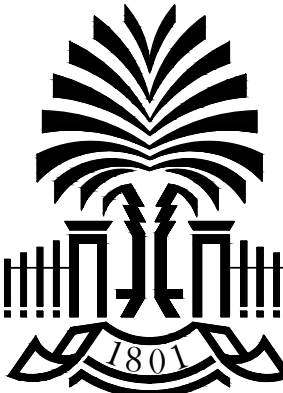
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Project No. H27-1934

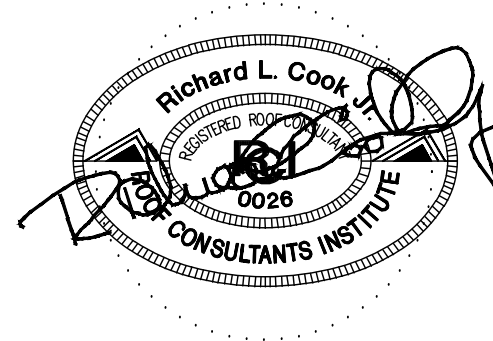
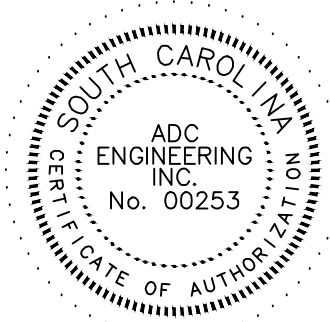
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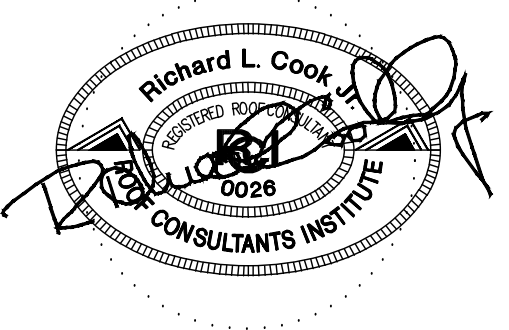
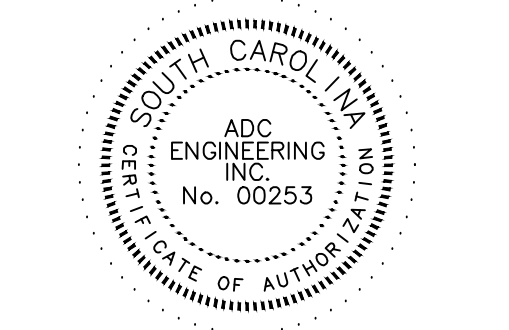
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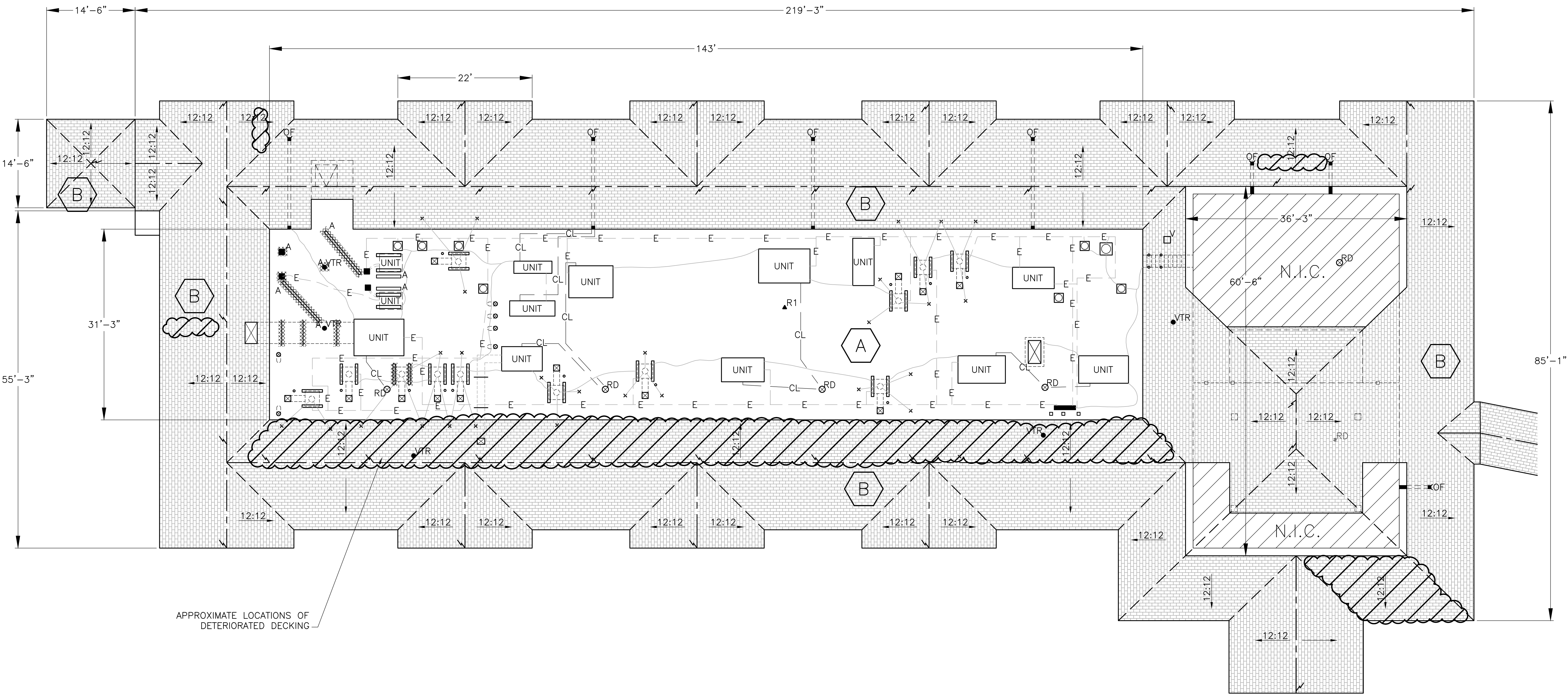
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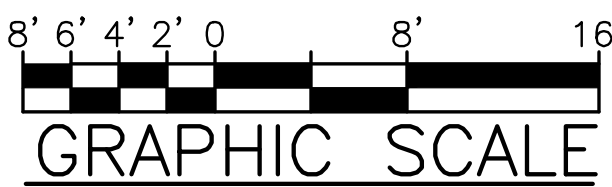


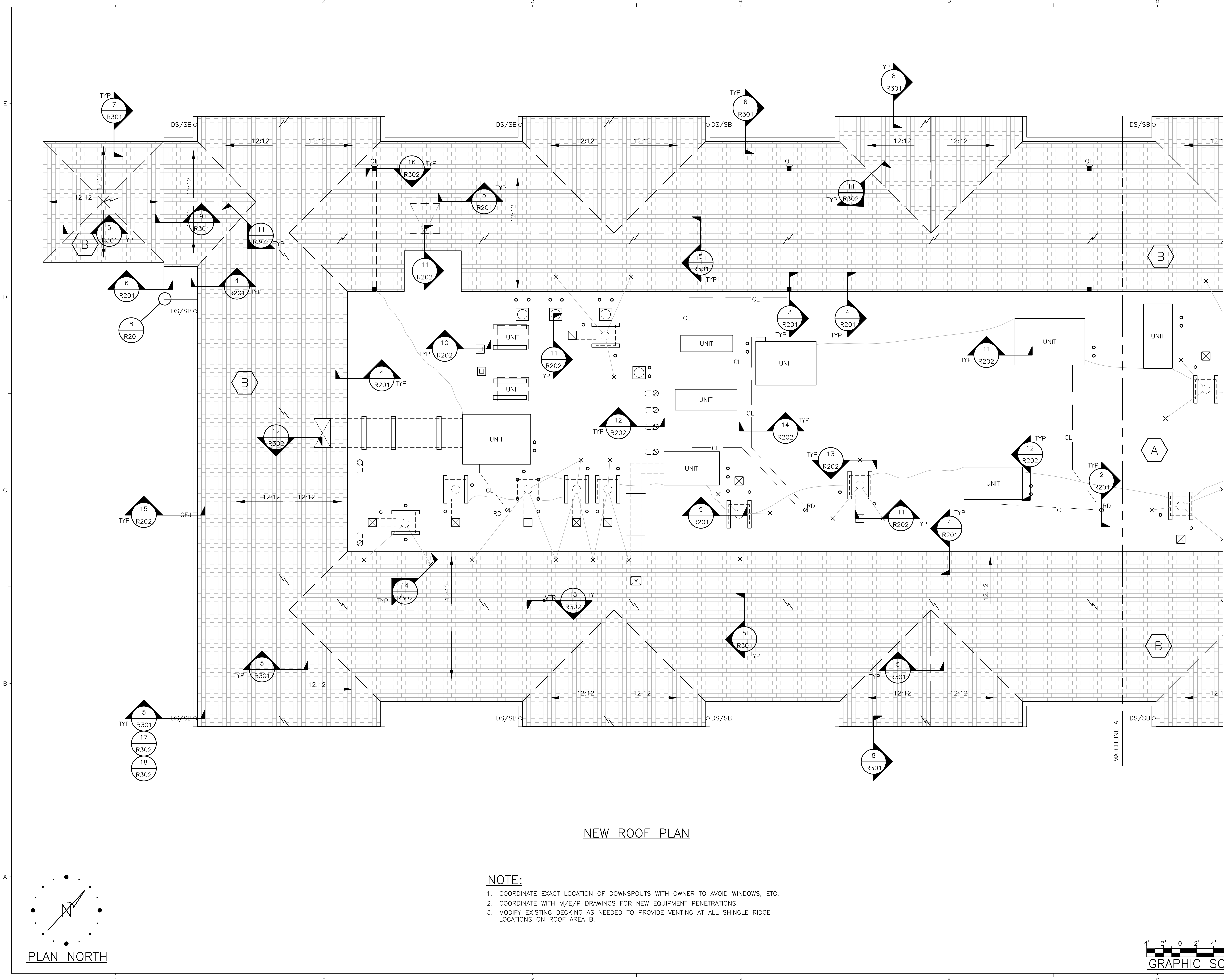
EXISTING ROOF PLAN

CORE SAMPLE SUMMARY

ITEM	DESCRIPTION
R1	COATING EPDM ROOF MEMBRANE (WHITE ON BLACK) 3/4" POLYISOCYANURATE 2" POLYISOCYANURATE 1/2" PERLITE PLYWOOD DECK

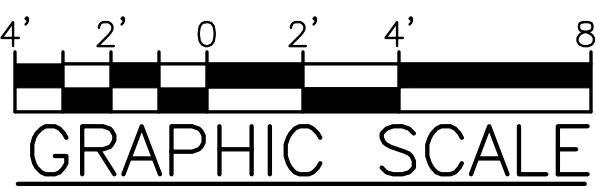
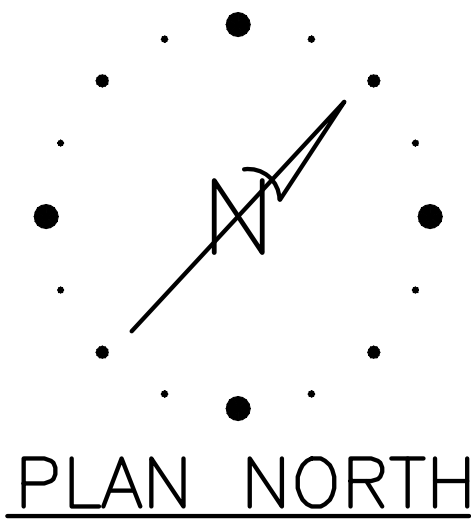
NOTES:
1. COORDINATE WITH M/E/P DRAWINGS FOR EQUIPMENT AND CONDUIT REMOVAL.





NEW ROOF PLAN

- NOTE:
- 1. COORDINATE EXACT LOCATION OF DOWNSPOUTS WITH OWNER TO AVOID WINDOWS, ETC.
 - 2. COORDINATE WITH M/E/P DRAWINGS FOR NEW EQUIPMENT PENETRATIONS.
 - 3. MODIFY EXISTING DECKING AS NEEDED TO PROVIDE VENTING AT ALL SHINGLE RIDGE LOCATIONS ON ROOF AREA B.



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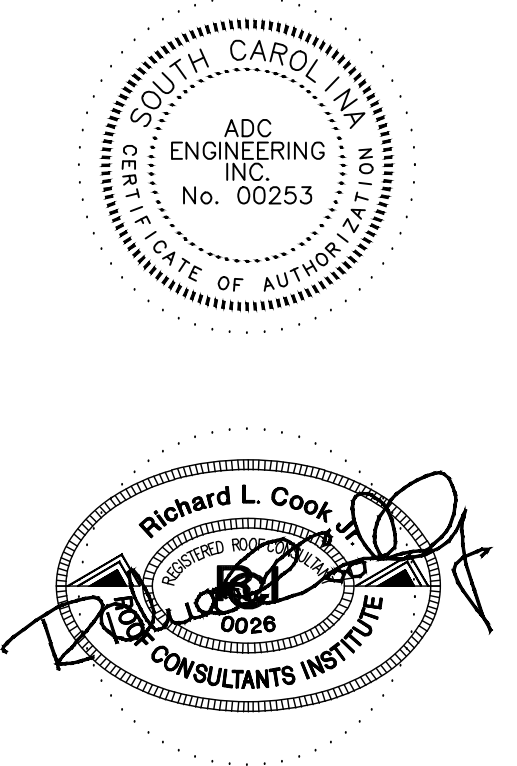
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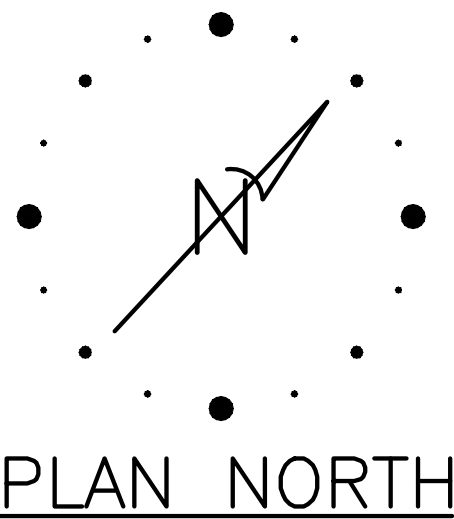
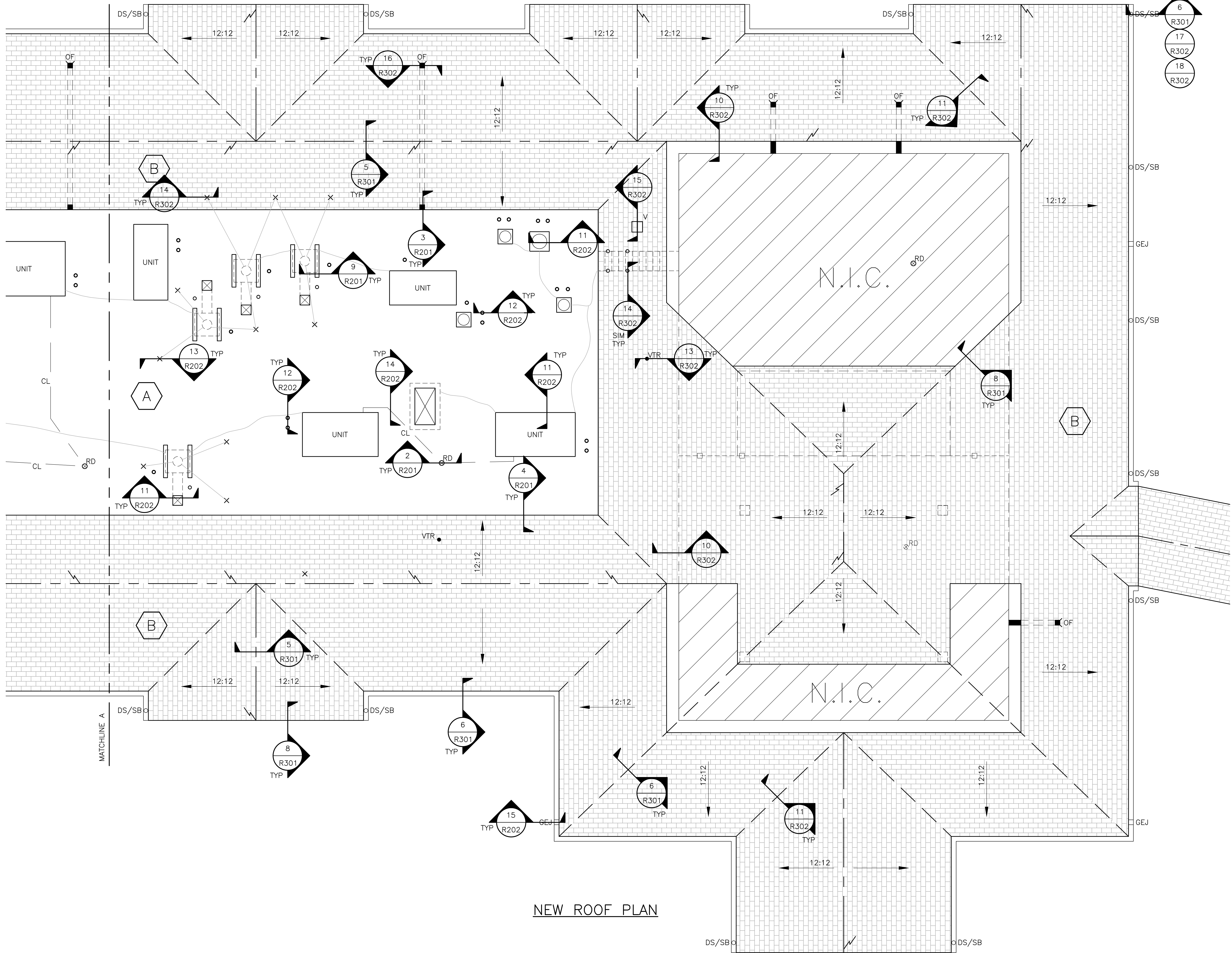
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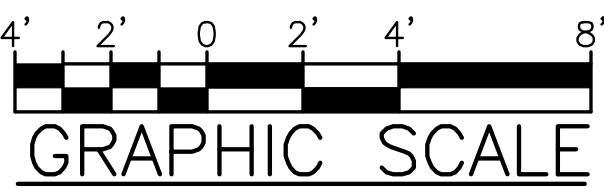
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- NOTE:**
1. COORDINATE EXACT LOCATION OF DOWNSPOUTS WITH OWNER TO AVOID WINDOWS, ETC.
 2. COORDINATE WITH M/E/P DRAWINGS FOR NEW EQUIPMENT PENETRATIONS.
 3. MODIFY EXISTING DECKING AS NEEDED TO PROVIDE VENTING AT ALL SHINGLE RIDGE LOCATIONS ON ROOF AREA B.



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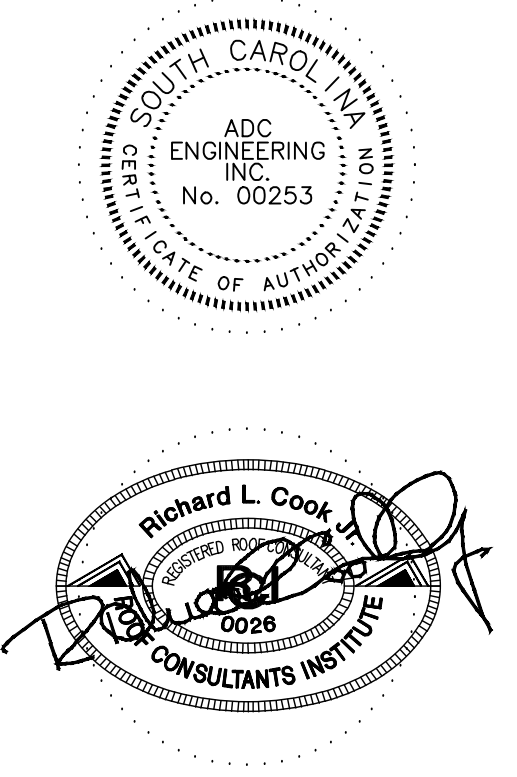
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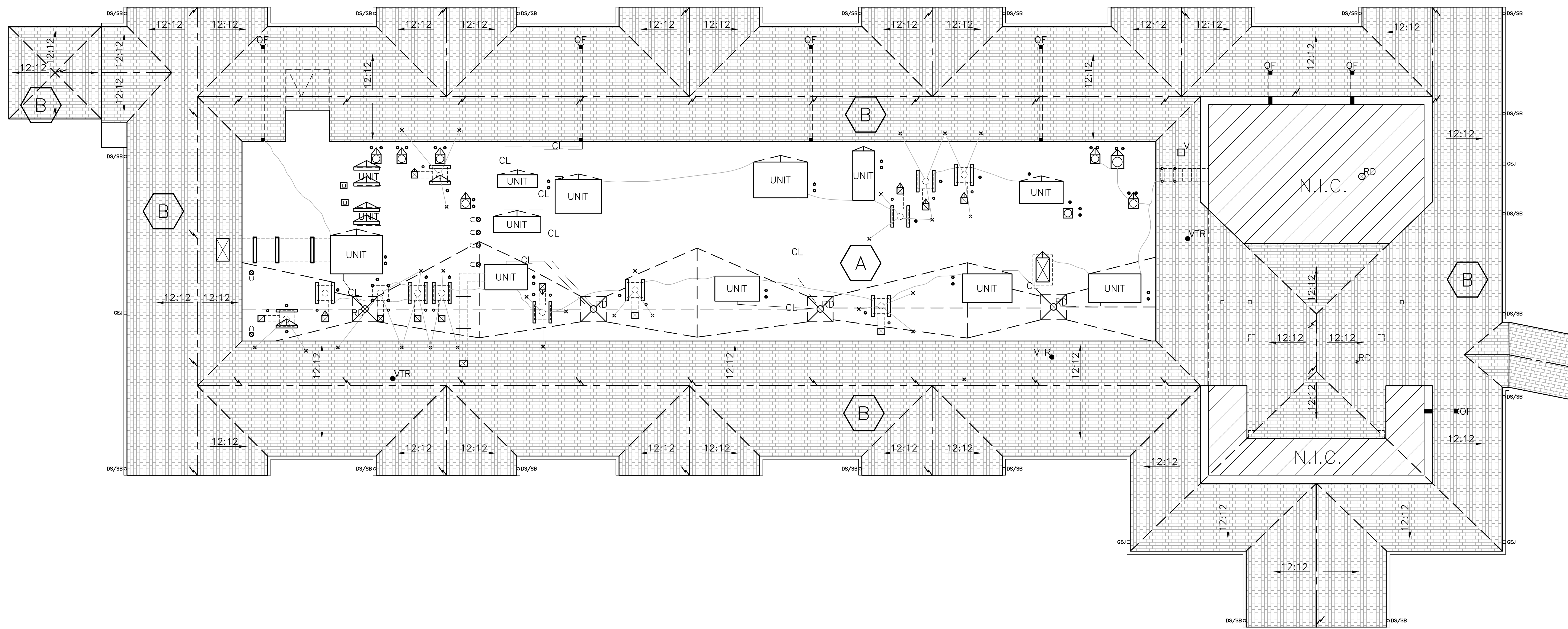
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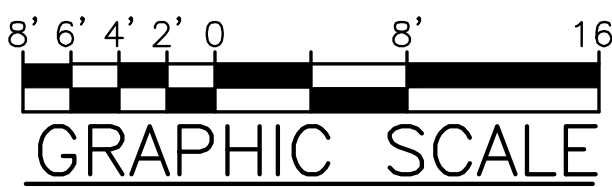
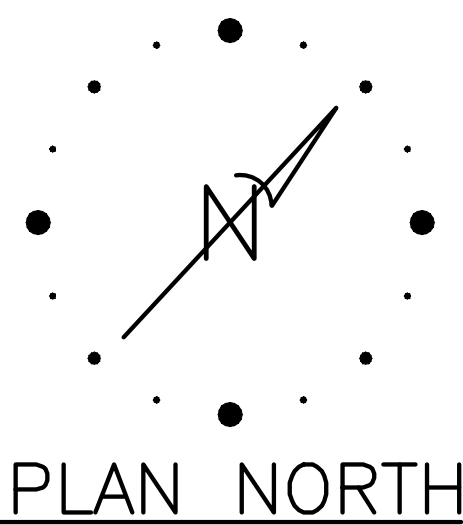
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- TAPERED INSULATION NOTES**
1. AS NOTED IN SECTION 07 22 05 ROOF INSULATION, THE PRIMARY SLOPE FOR INDICATED ROOF AREAS SHALL BE PROVIDED WITH TAPERED INSULATION AT 1/8" PER FOOT.
 2. SECONDARY SLOPE (CRICKETS, SADDLES, SUMPS) SHALL PROVIDE A FINISHED SLOPE OF NOT LESS THAN 1/4":1'.
 3. ALL PENETRATIONS/TERMINATIONS SHALL BE RAISED TO PROVIDE MINIMUM 8" BASE FLASHING HEIGHT.
 4. INSULATION THICKNESSES SHALL BE COORDINATED WITH AND MATCH NAILER THICKNESSES AND ADJACENT INSULATION THICKNESSES WITHIN A 1/4" TOLERANCE IN ALL DIRECTIONS.
 5. AT DRAINAGE LOCATIONS ENSURE INSULATION TAPERS UP FROM DRAIN A MINIMUM 1/4":1' AND A MAXIMUM 1":1'. PROVIDE TAPERED FILLER TO MATCH FIELD INSULATION THICKNESSES.
 6. PROVIDE A TAPERED CRICKET ON THE HIGH SIDE OF ALL NON-ROUND PENETRATIONS WIDER THAN 24".
 7. KEEP CRICKET VALLEYS A MINIMUM OF 12" AWAY FROM ALL PENETRATIONS TO ALLOW DRAINAGE.

TAPER ROOF PLAN

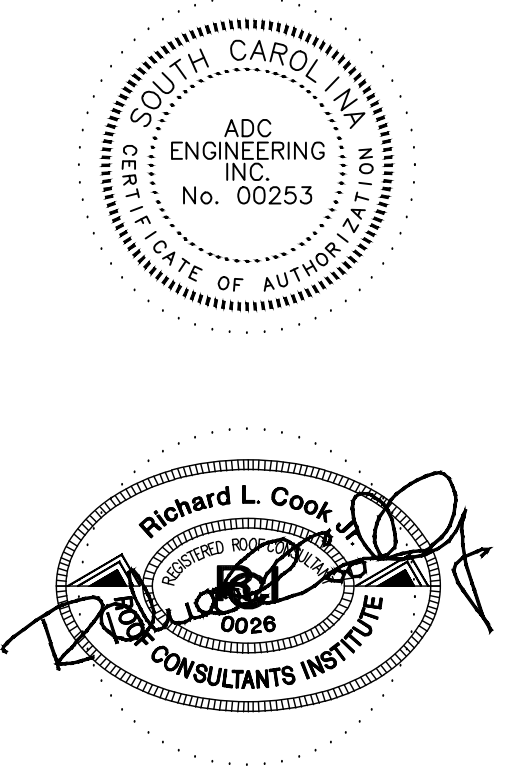


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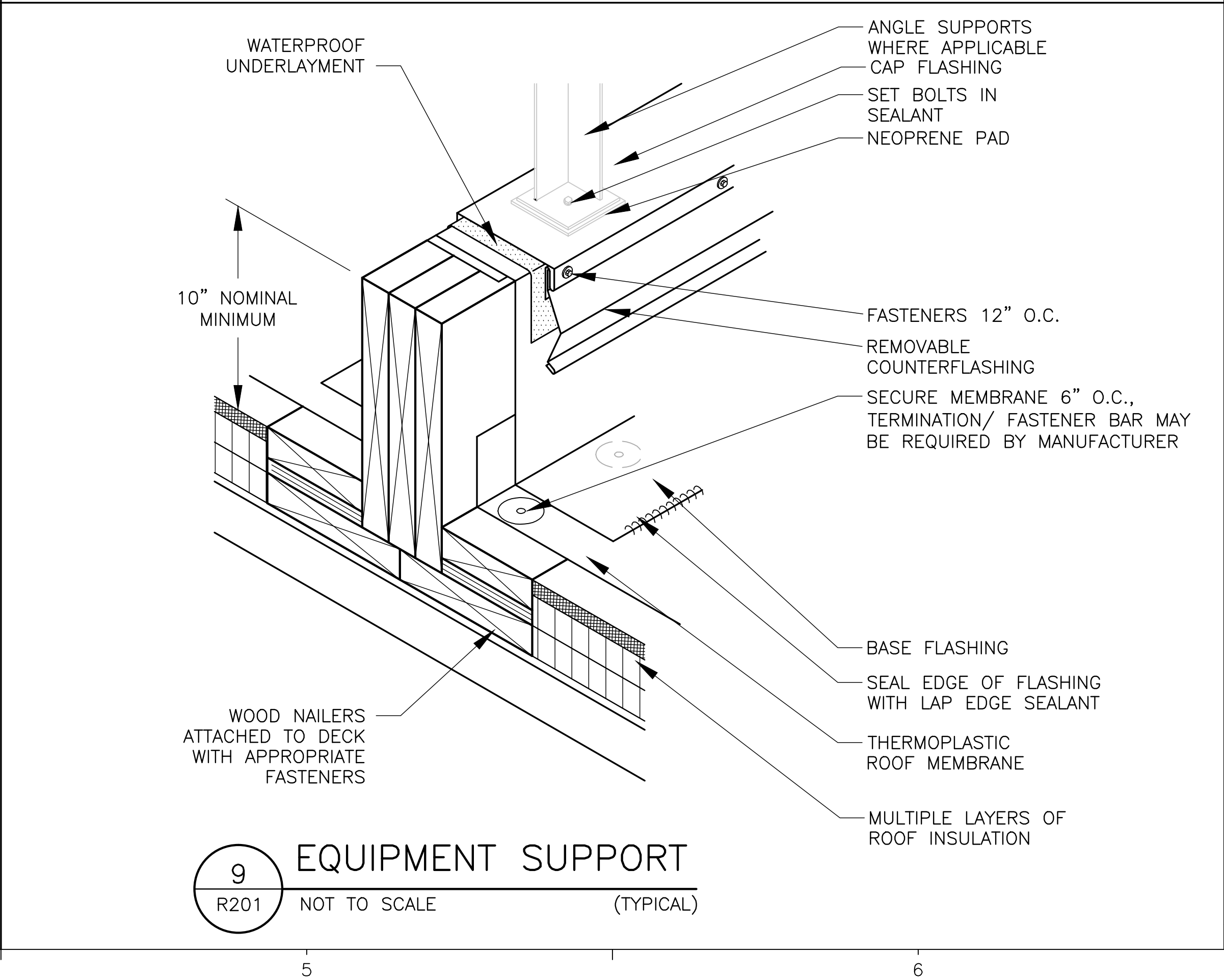
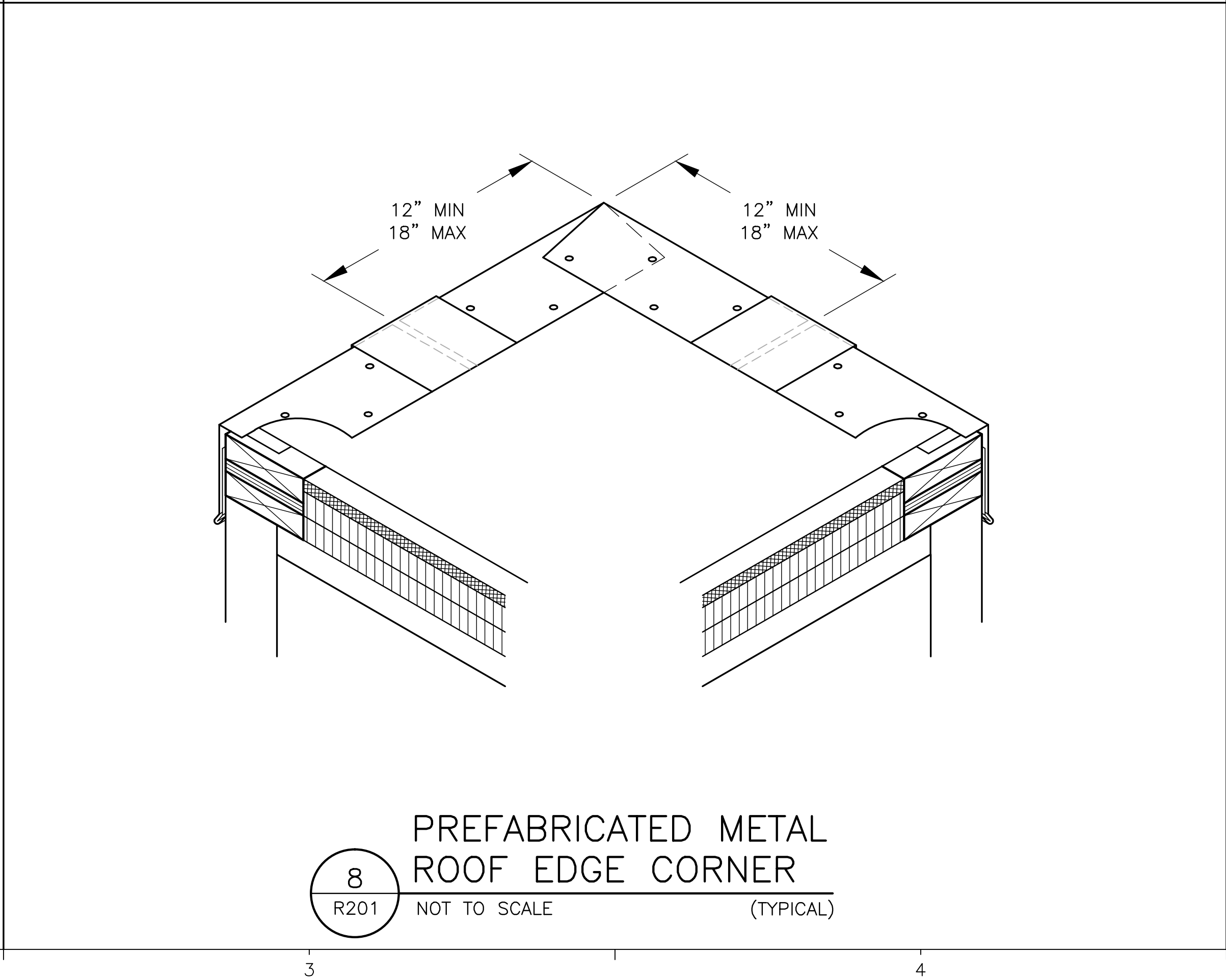
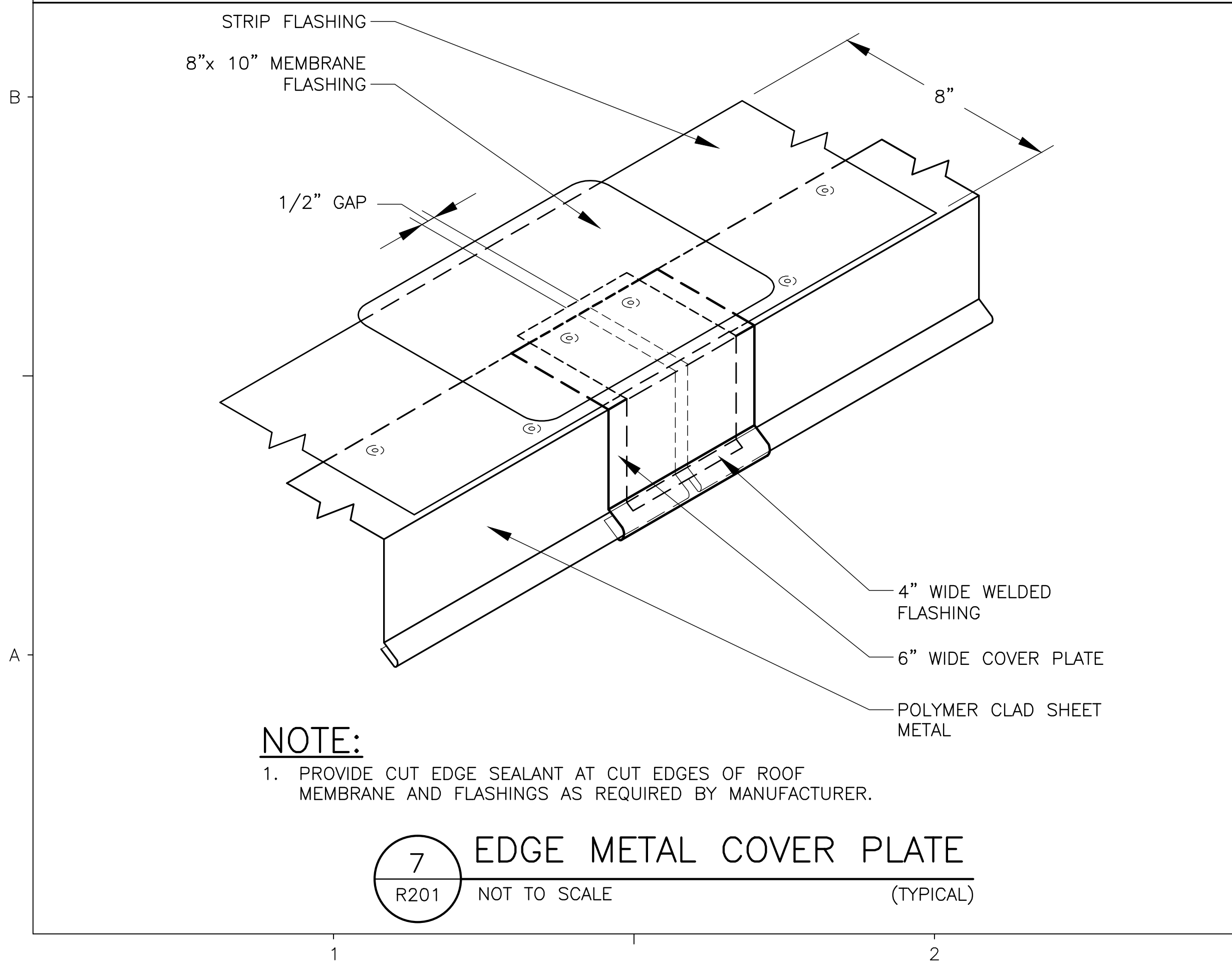
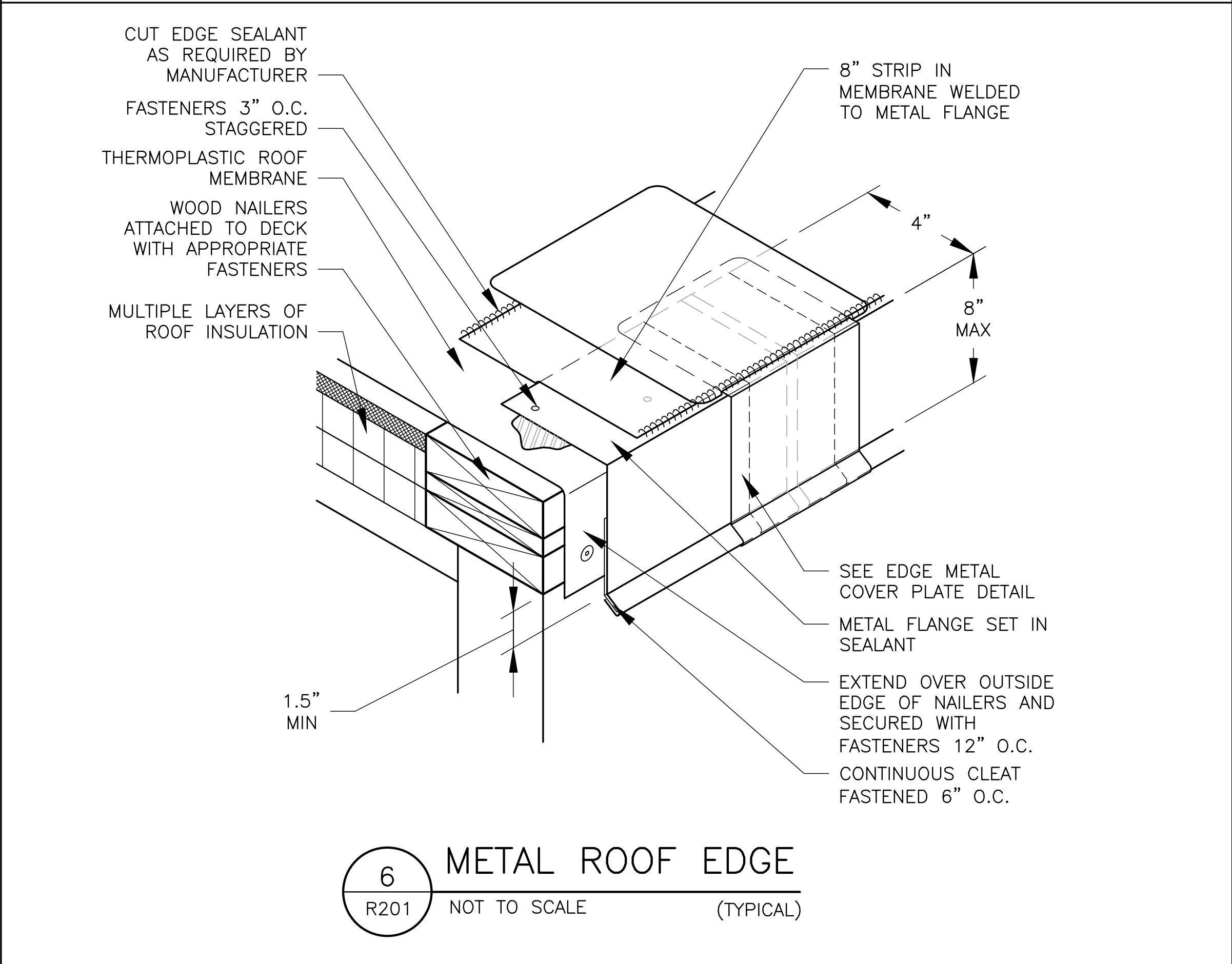
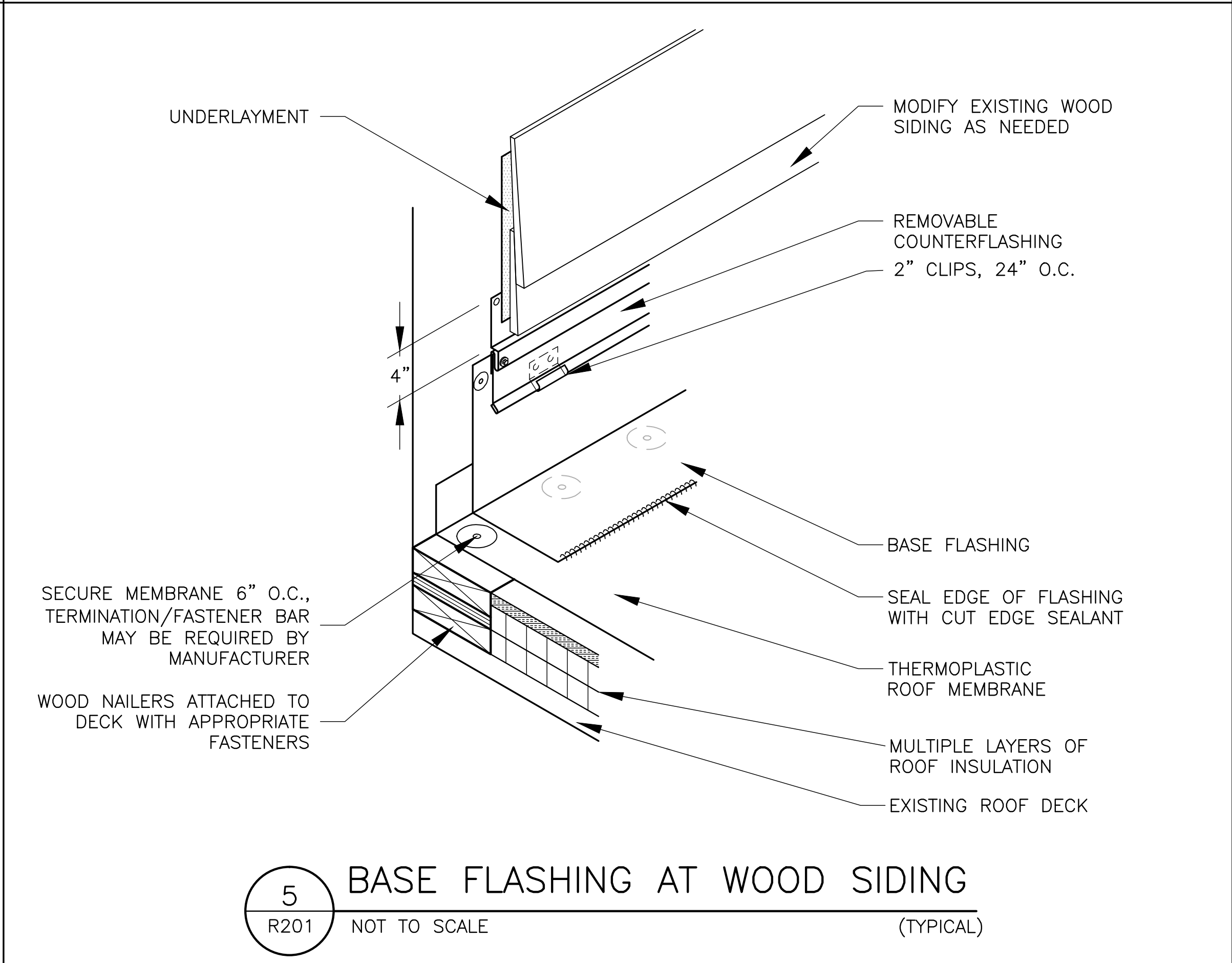
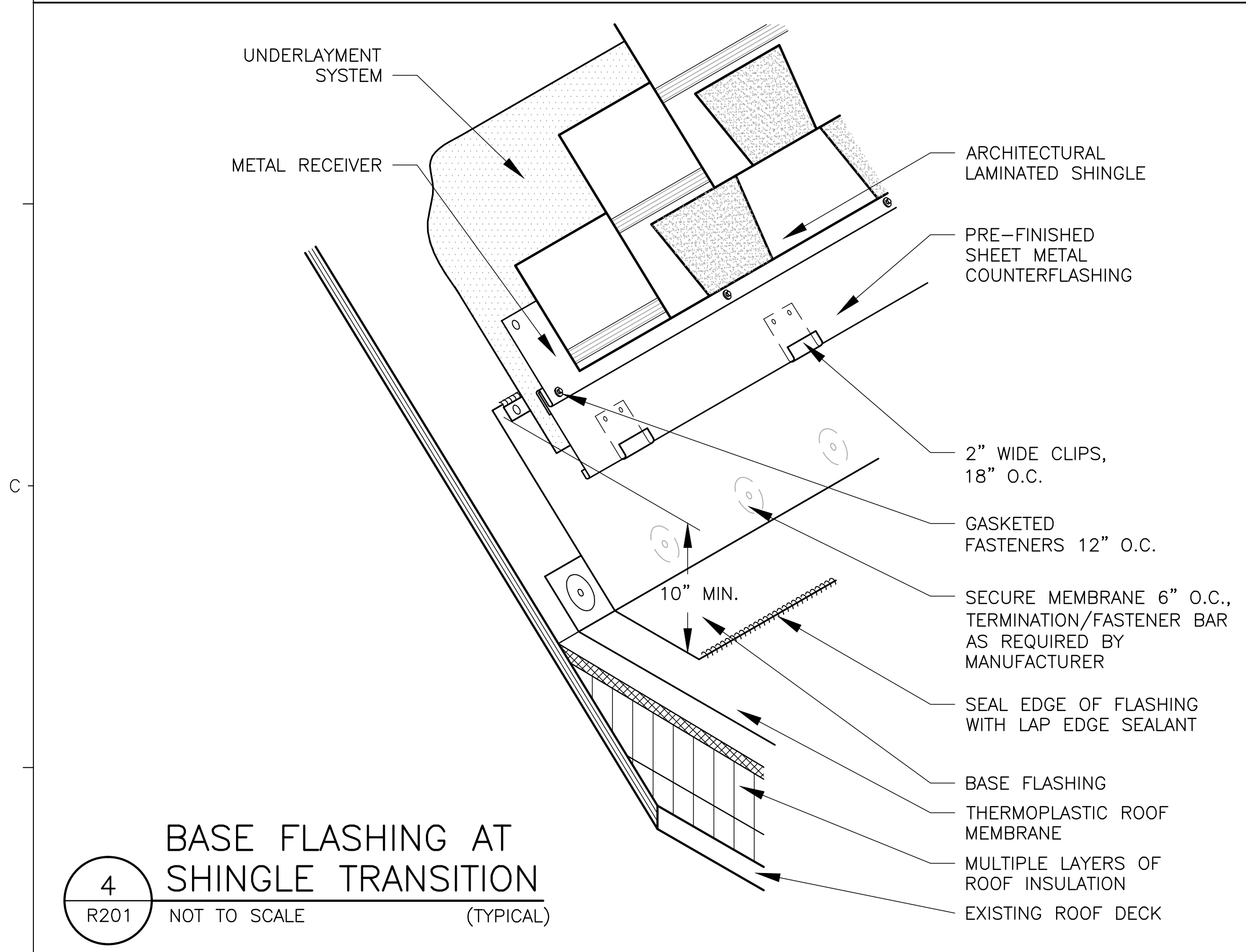
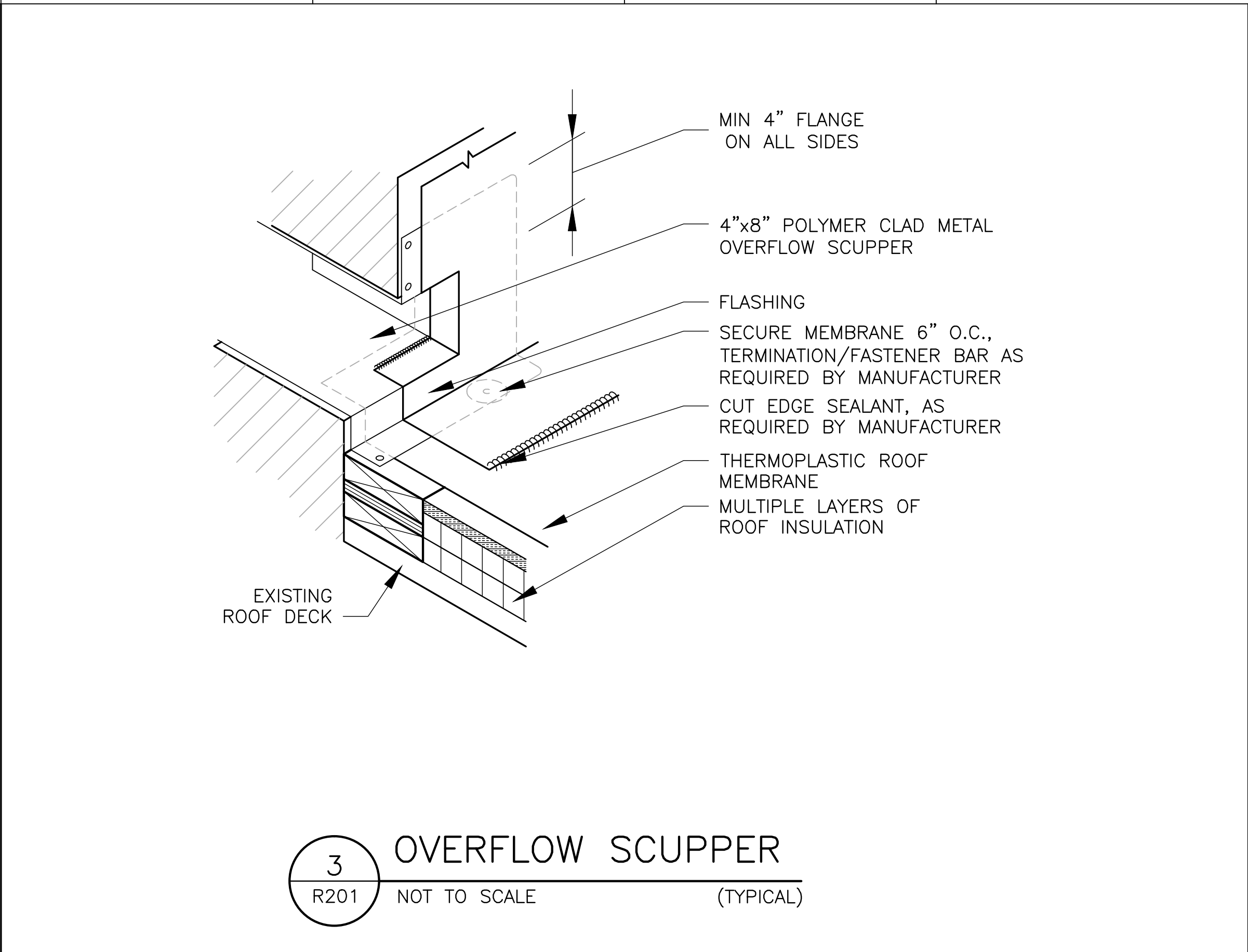
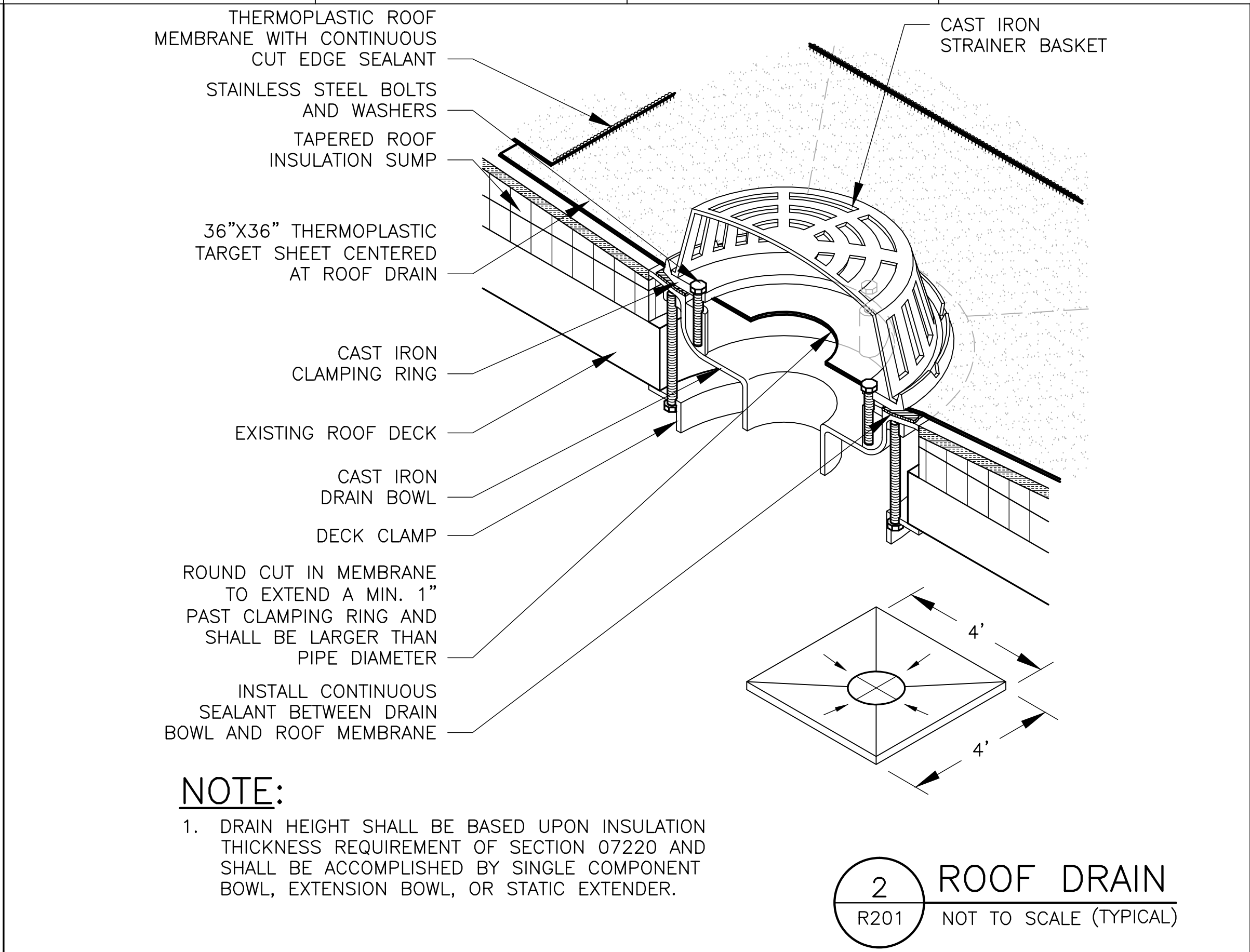
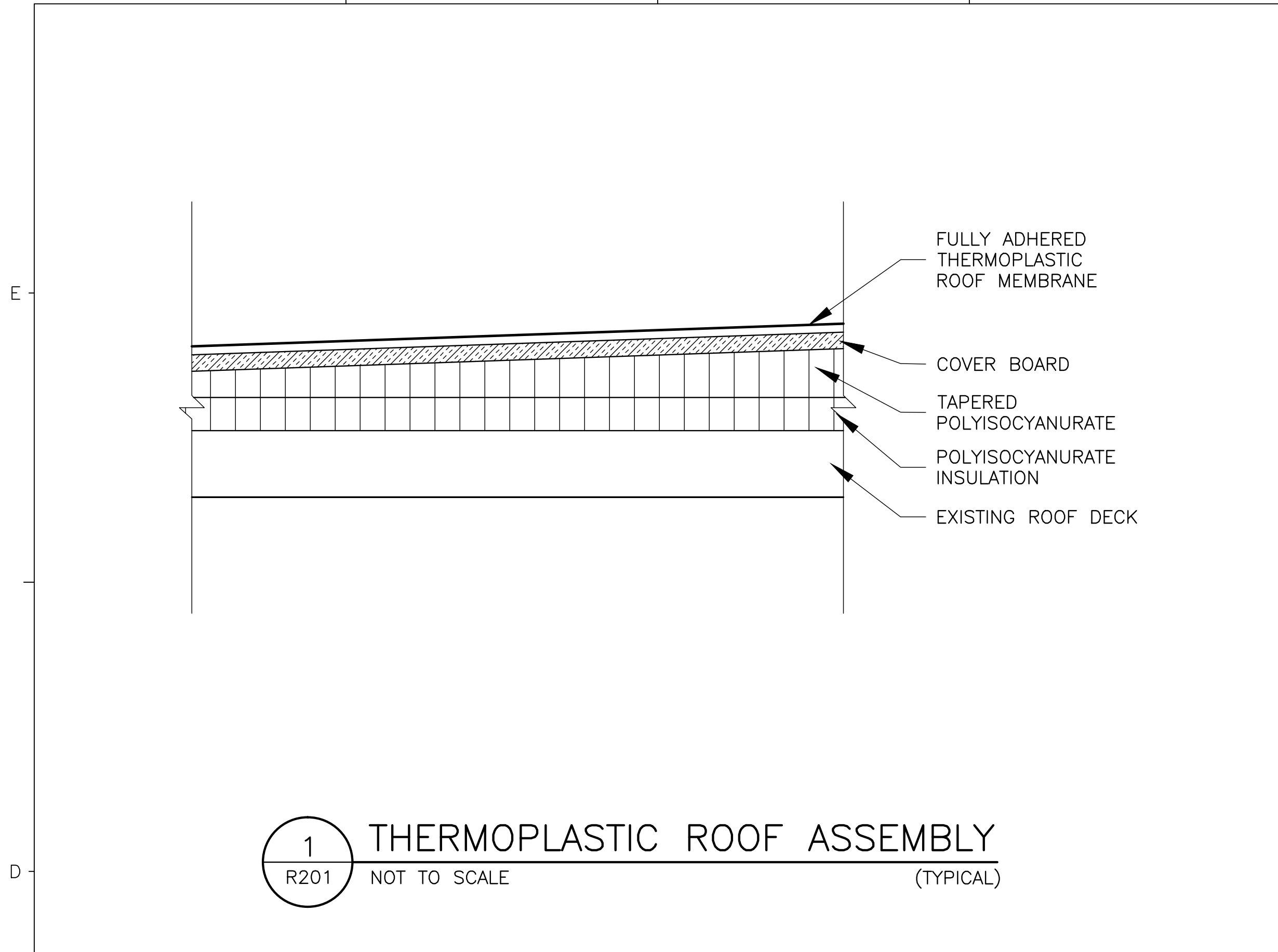
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SERVICE BY DESIGN

BID DOCUMENTS

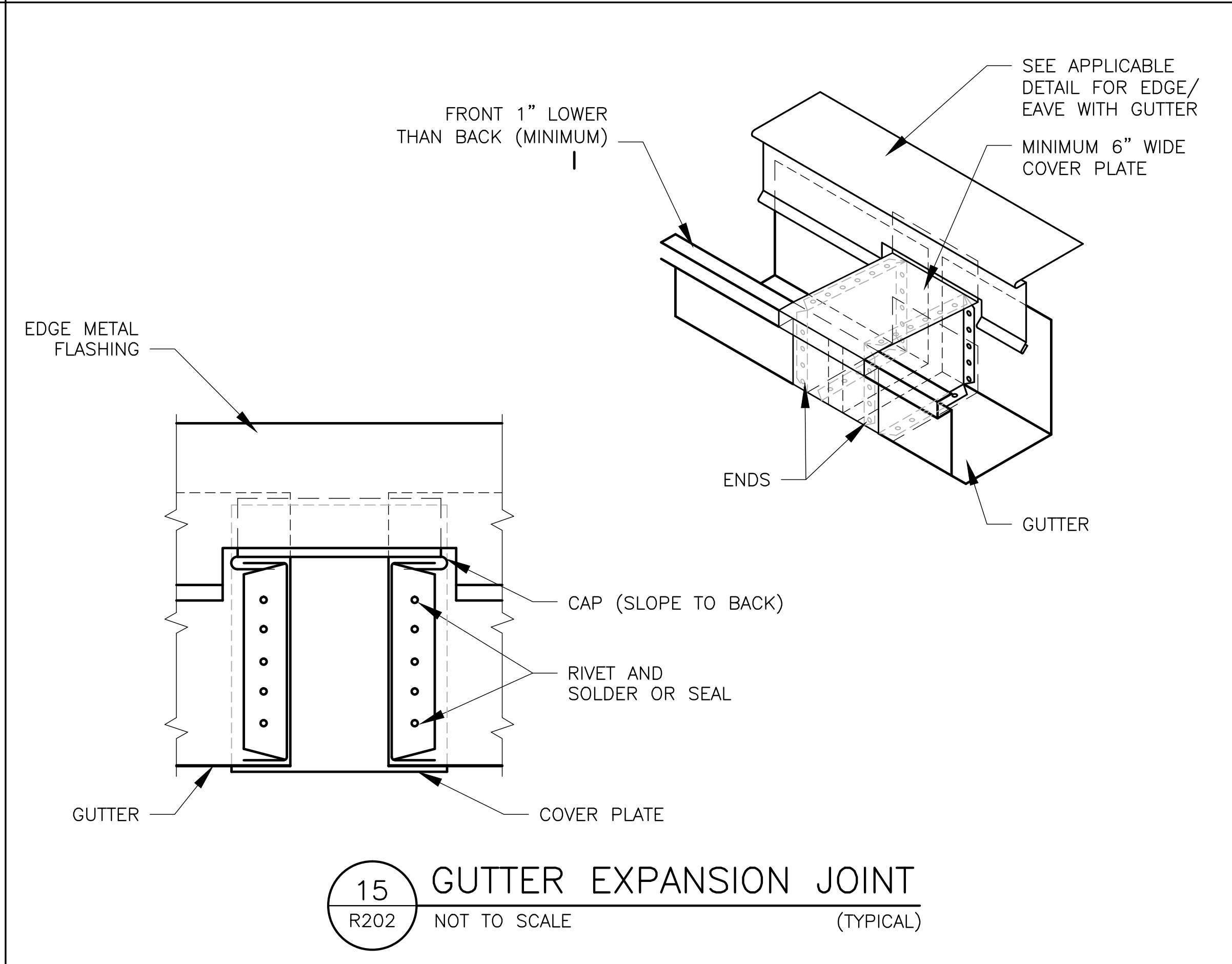
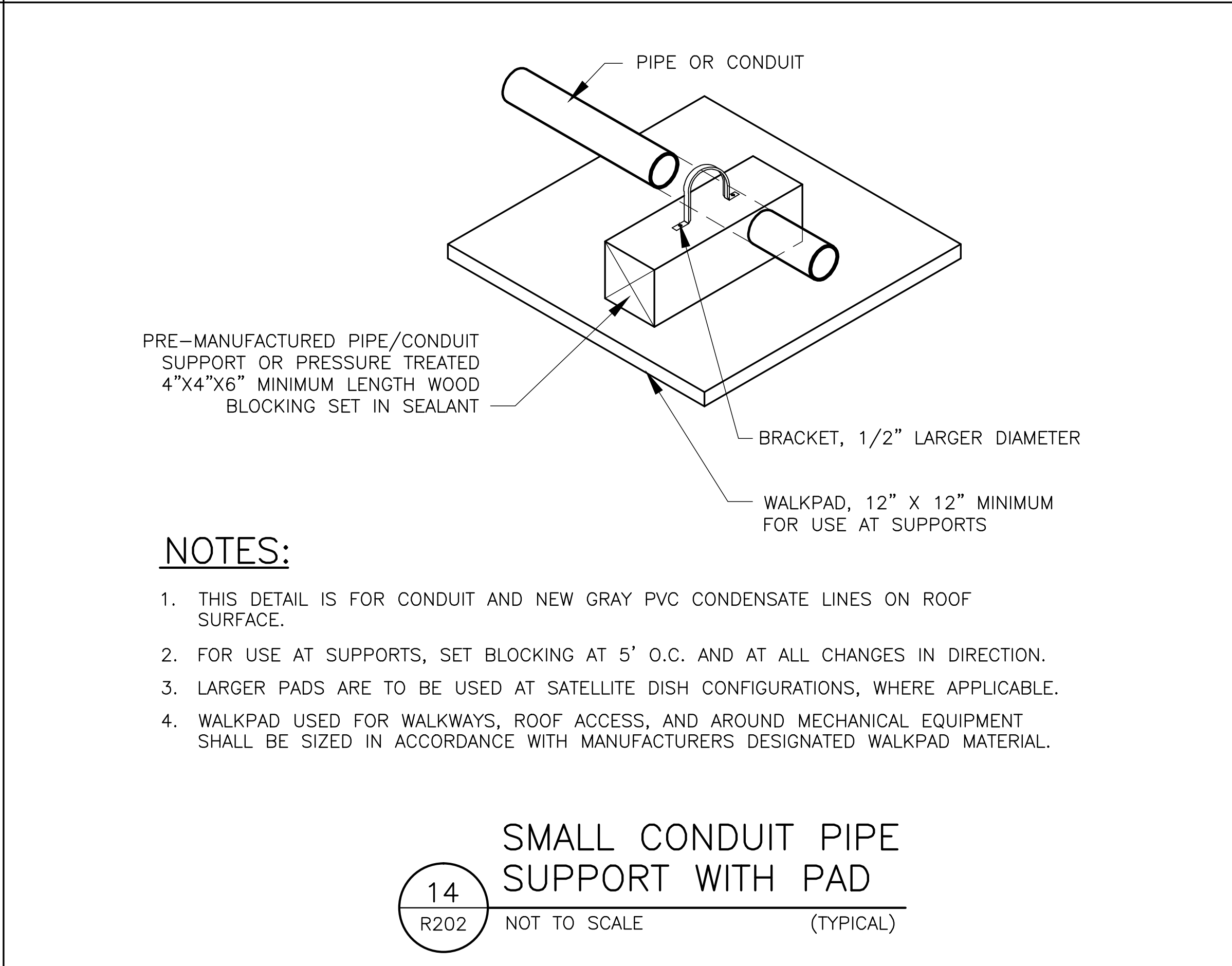
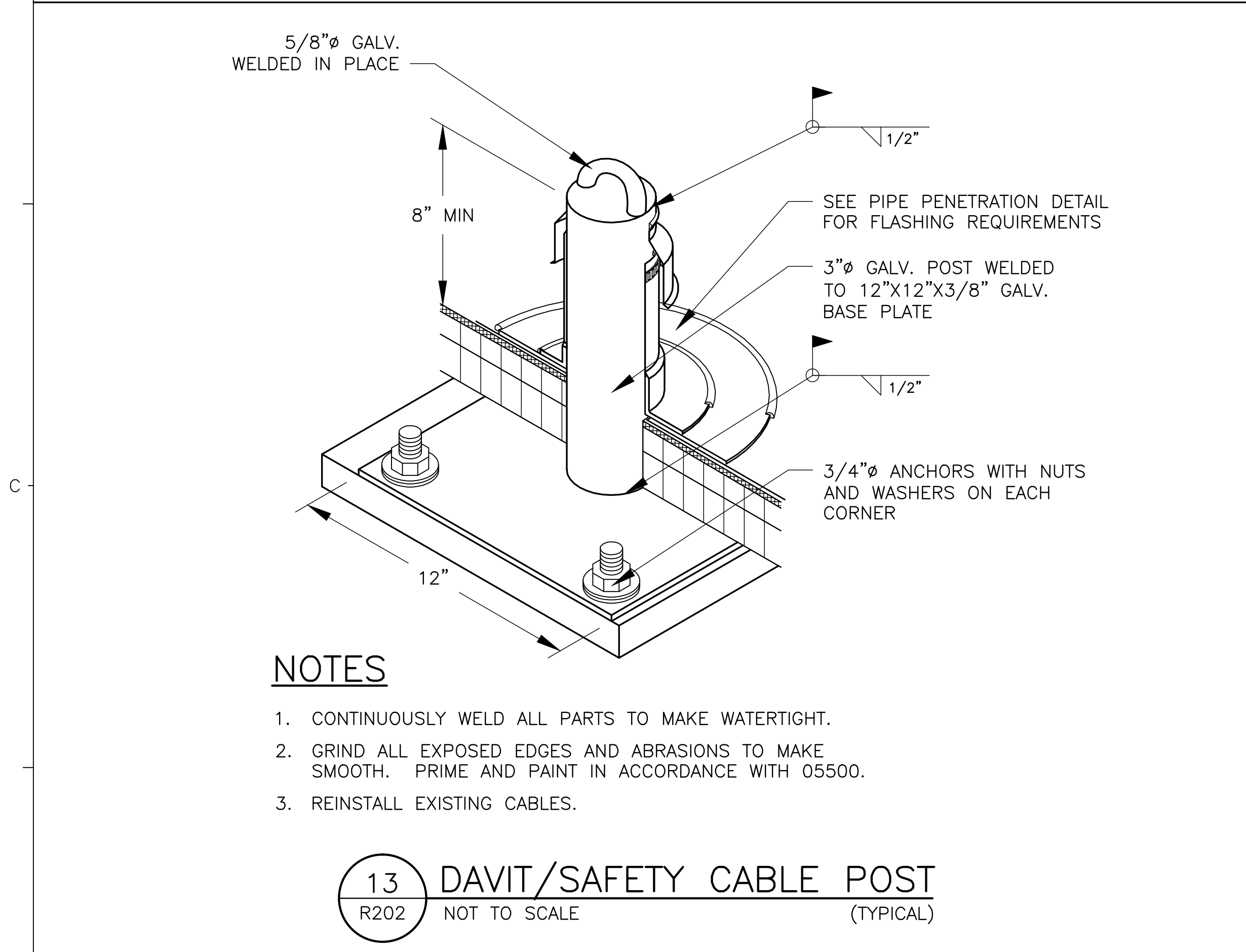
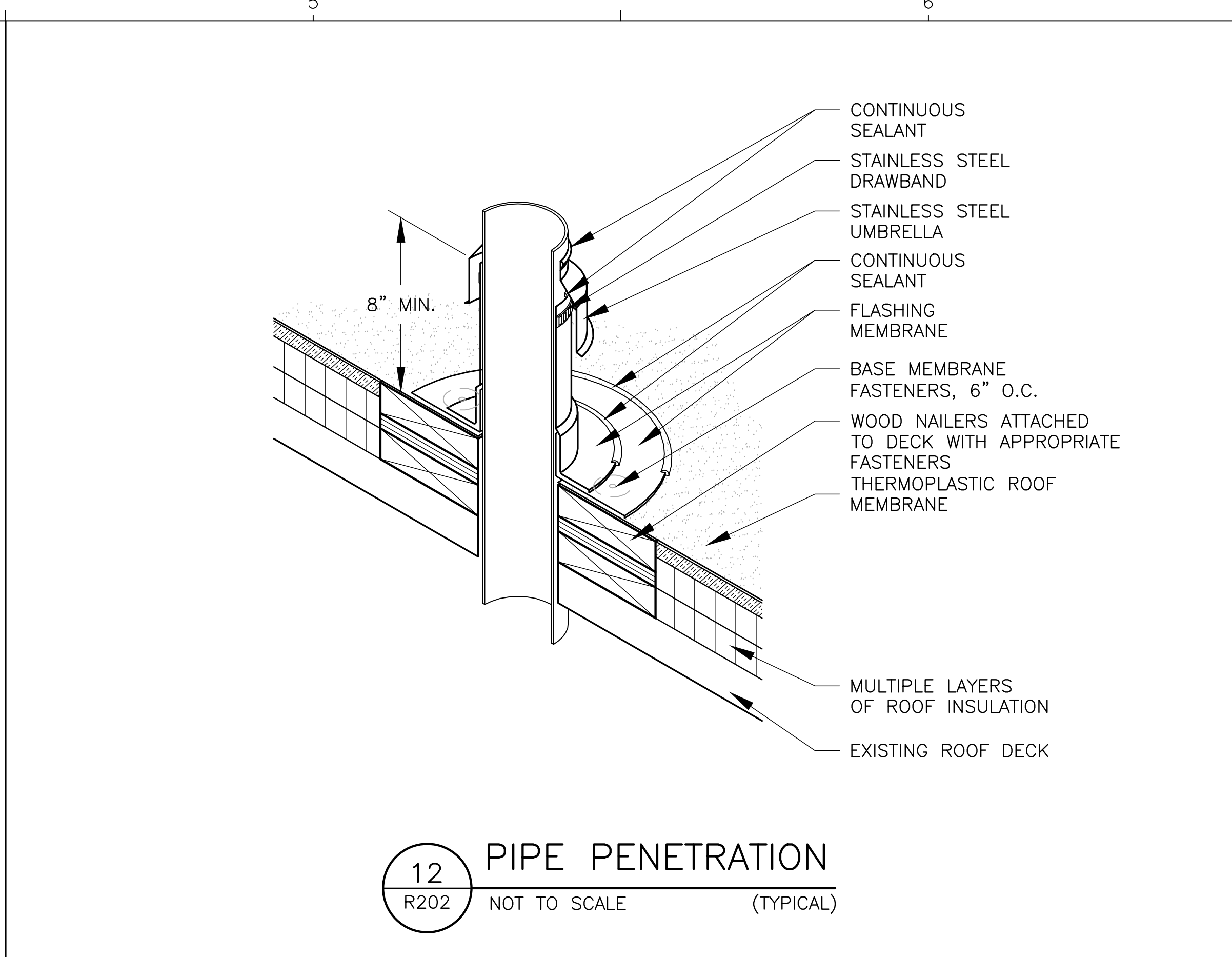
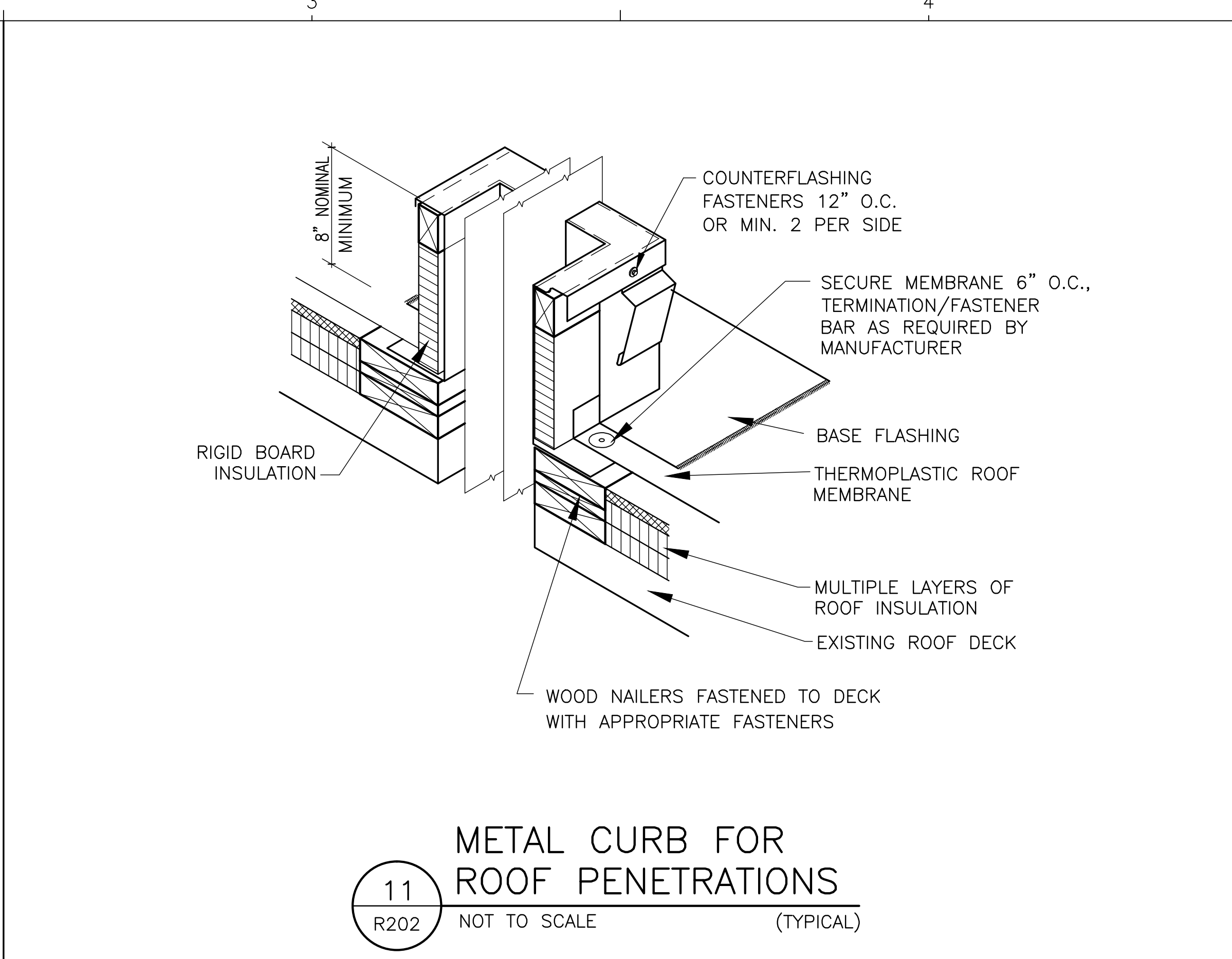
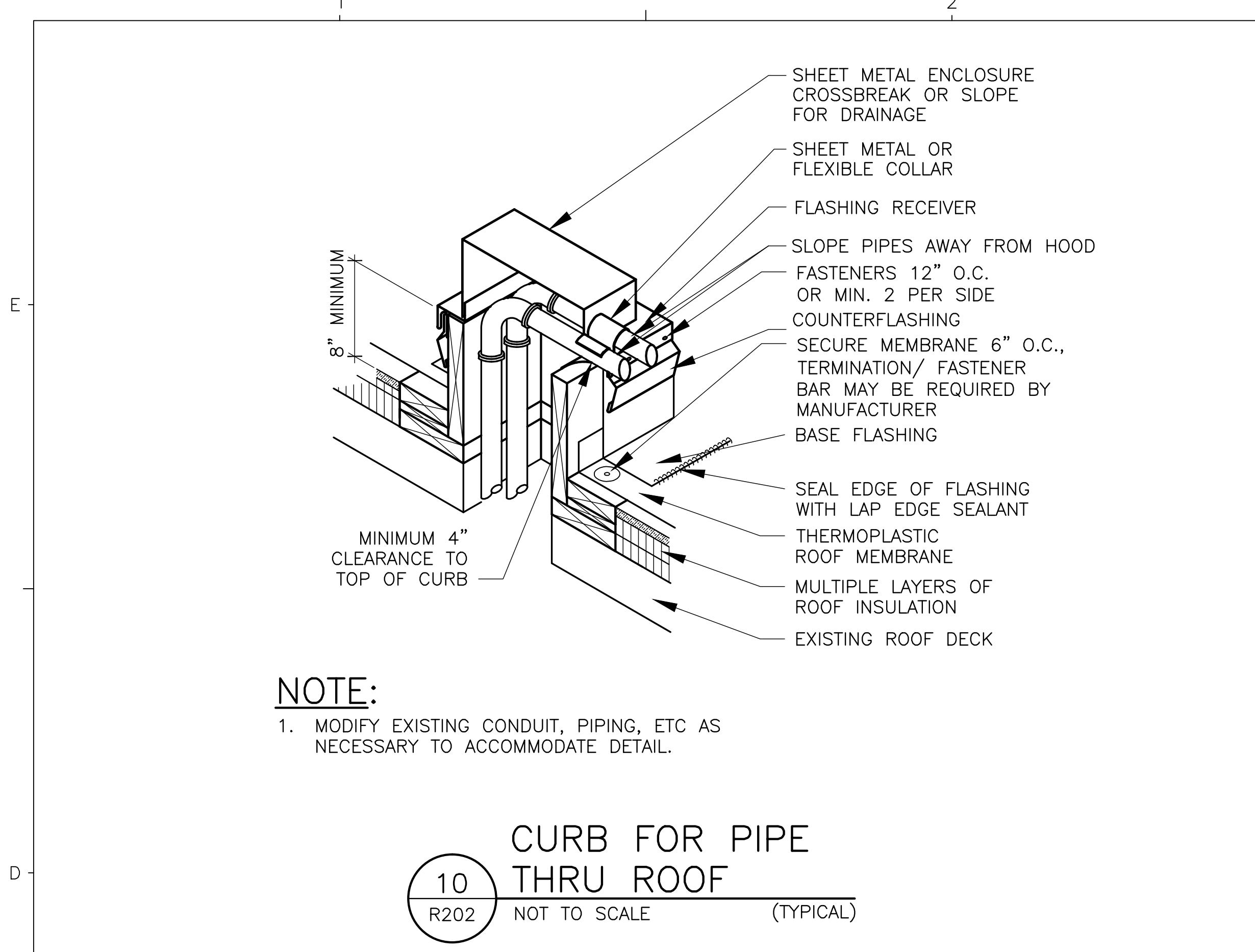


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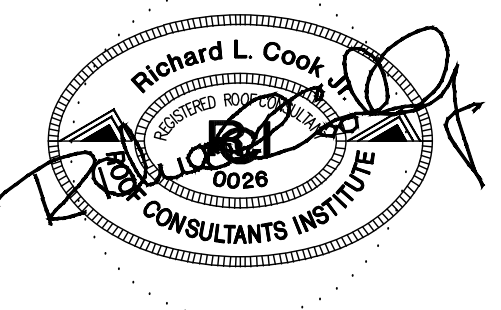
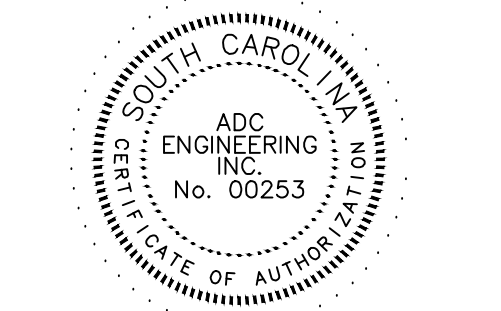
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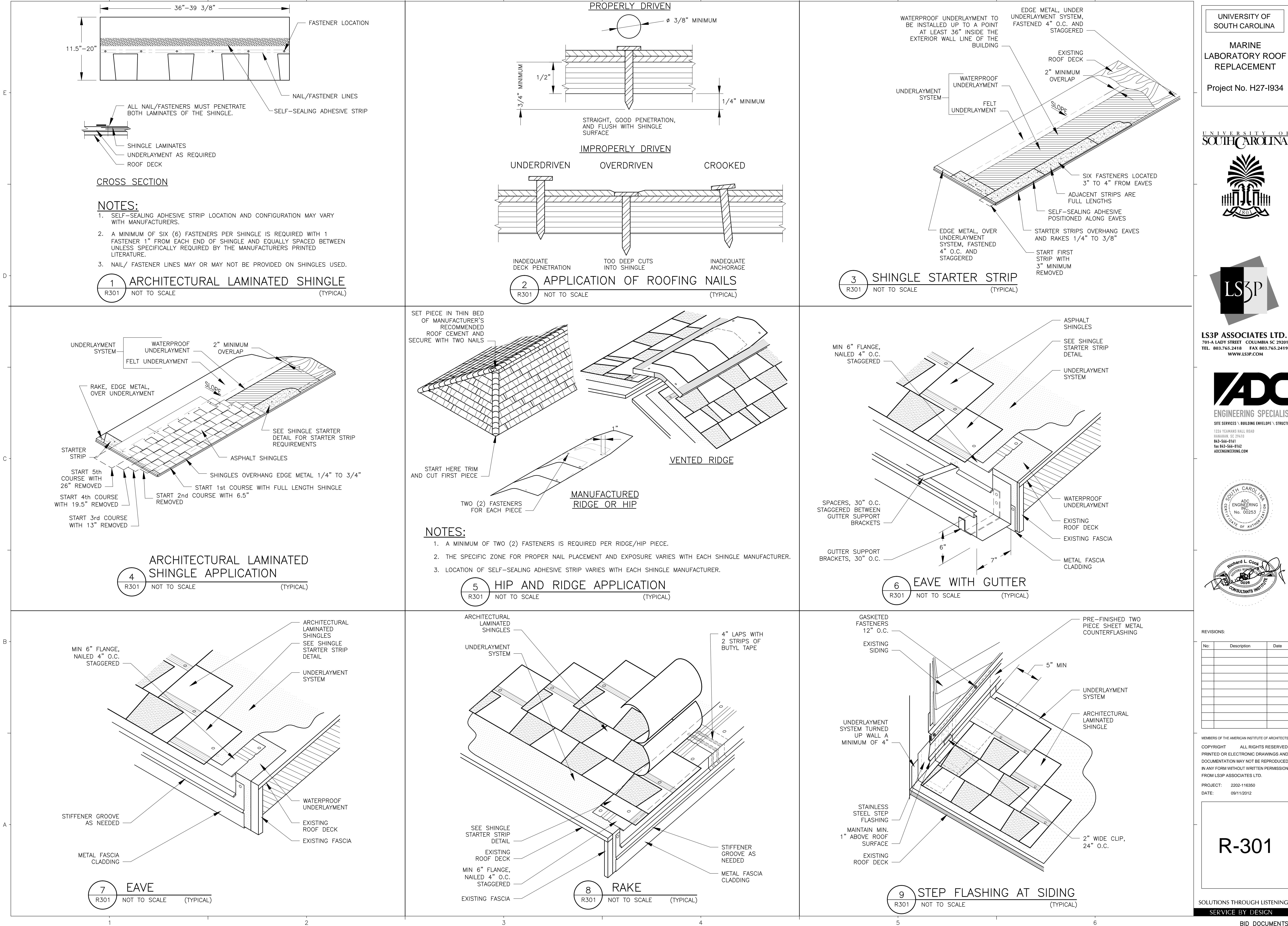


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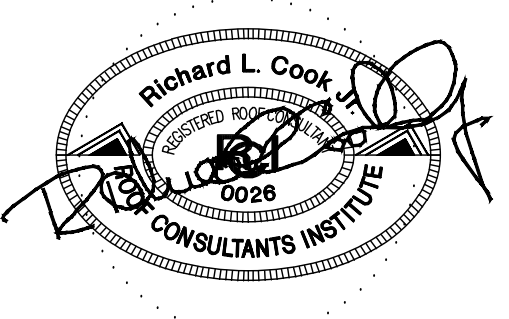
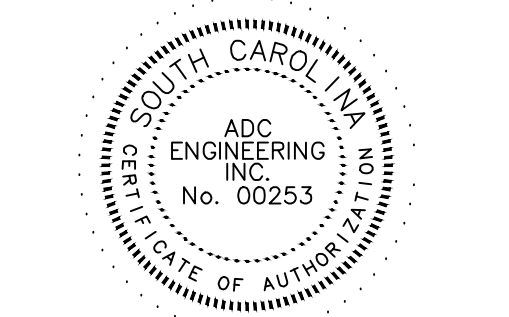
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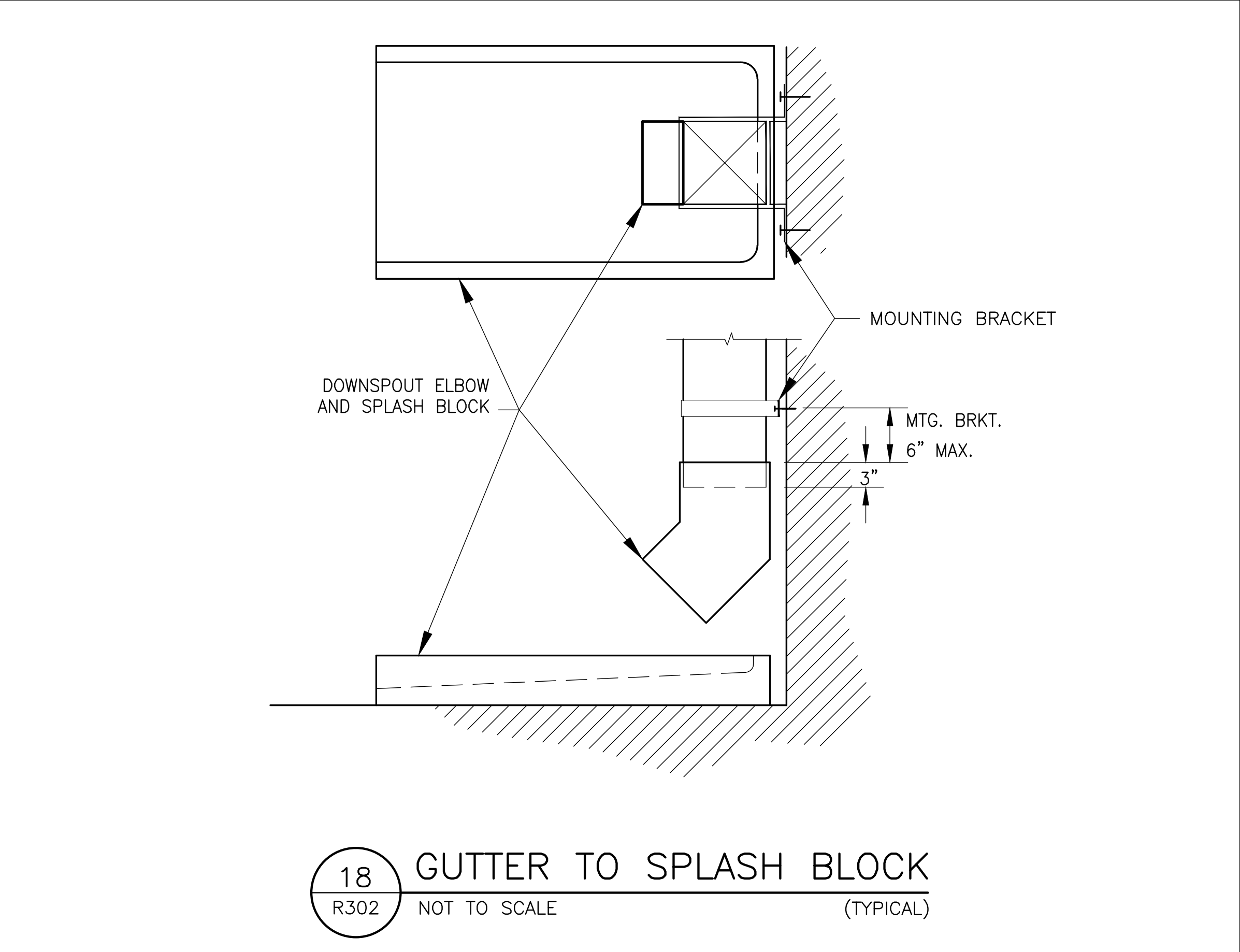
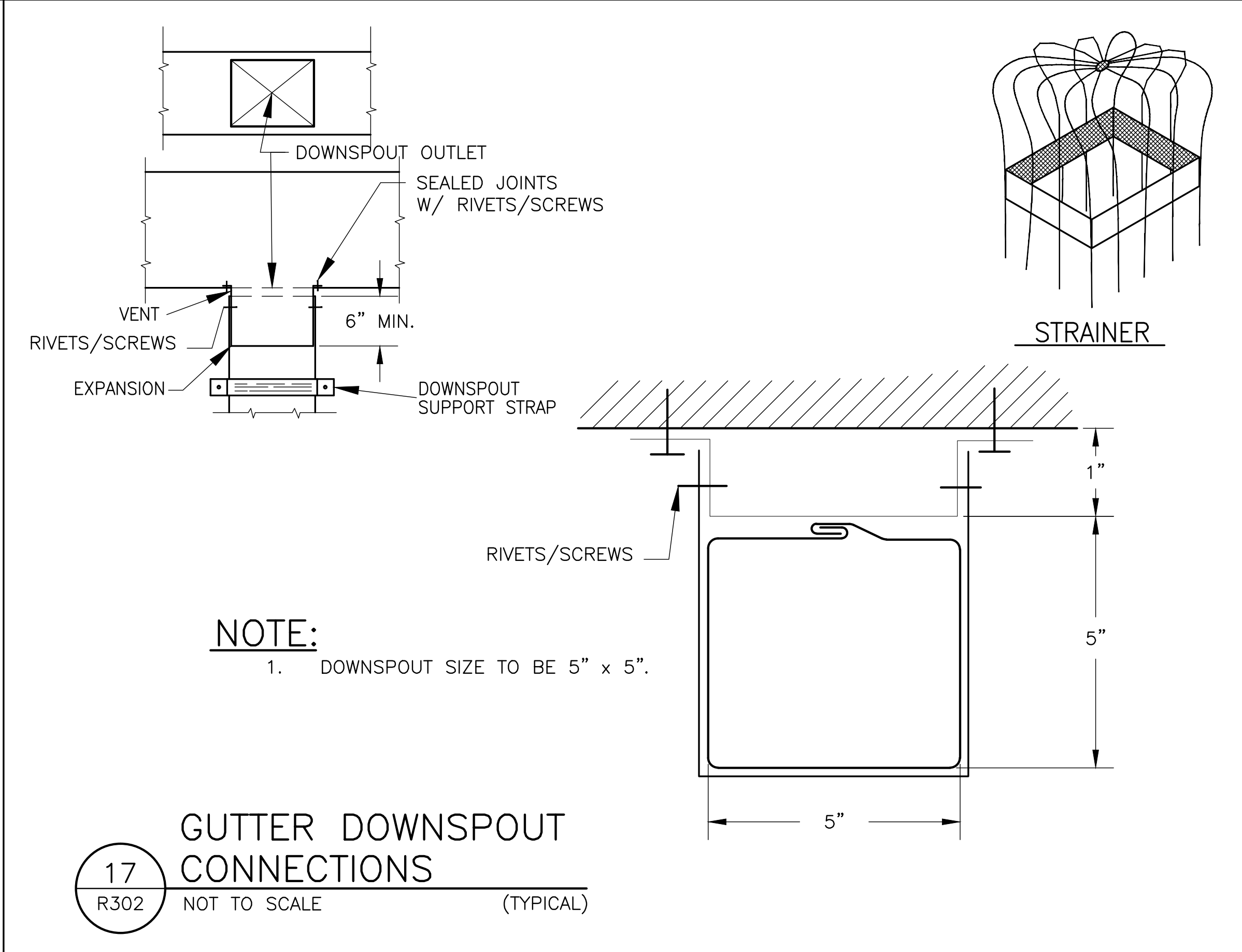
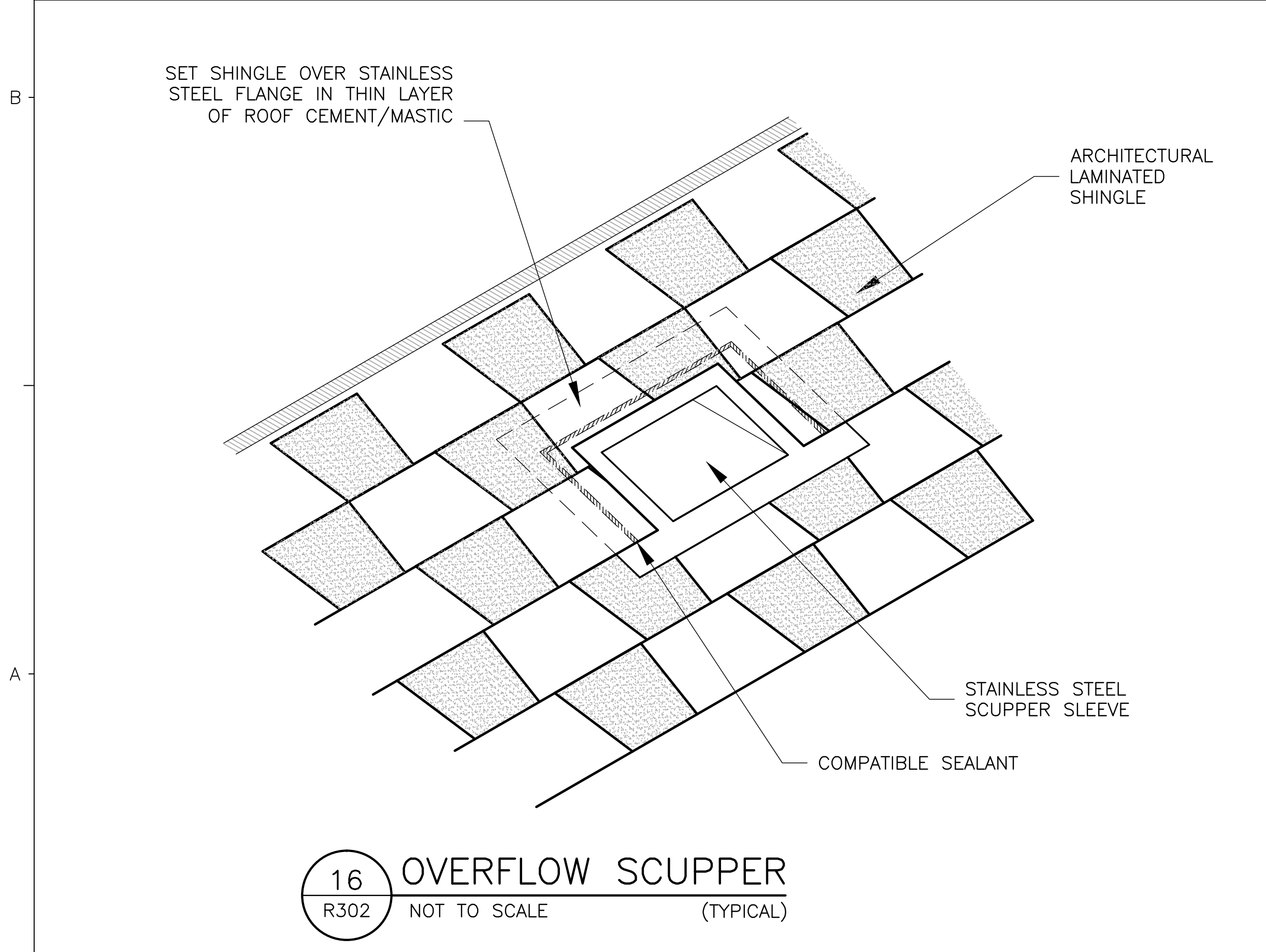
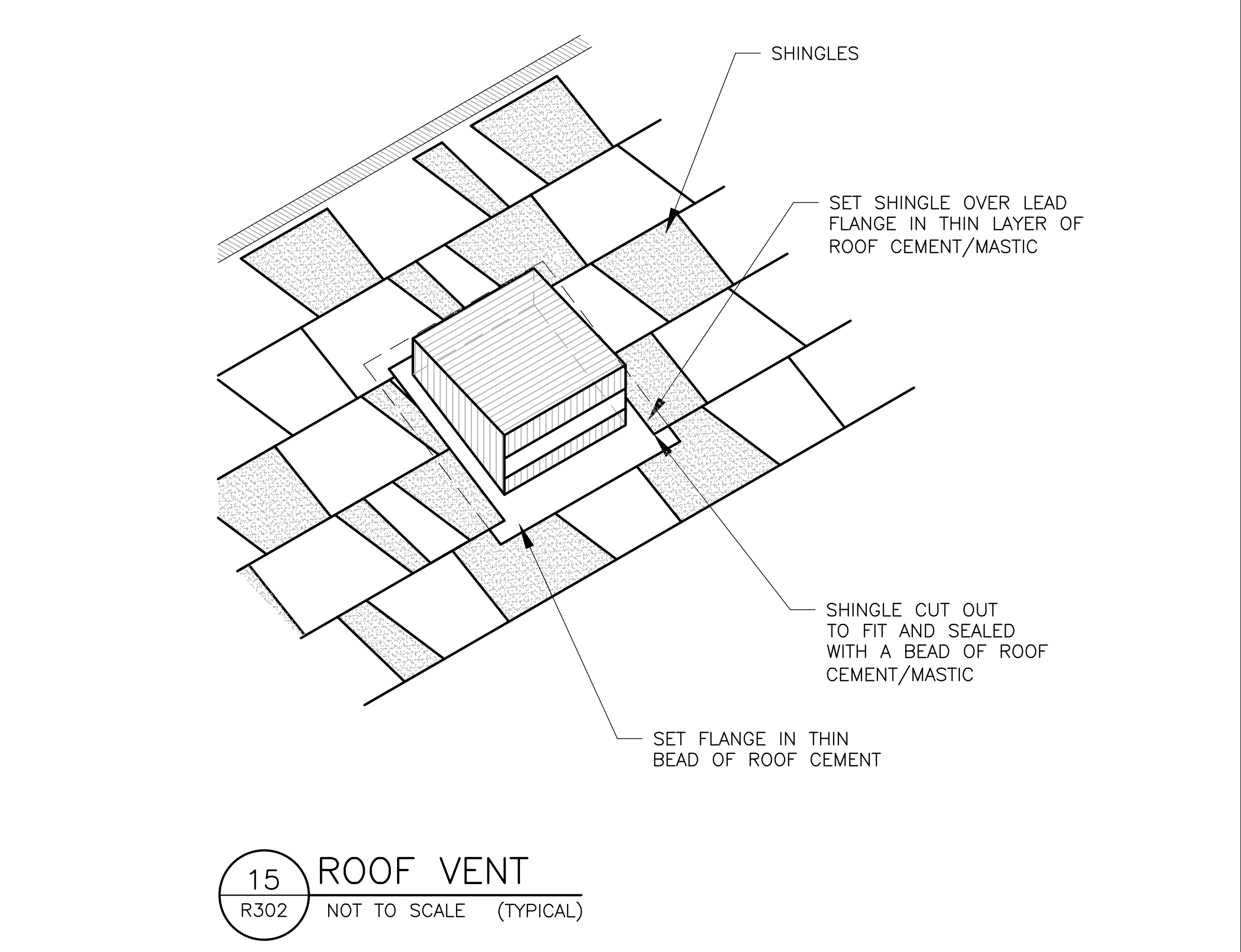
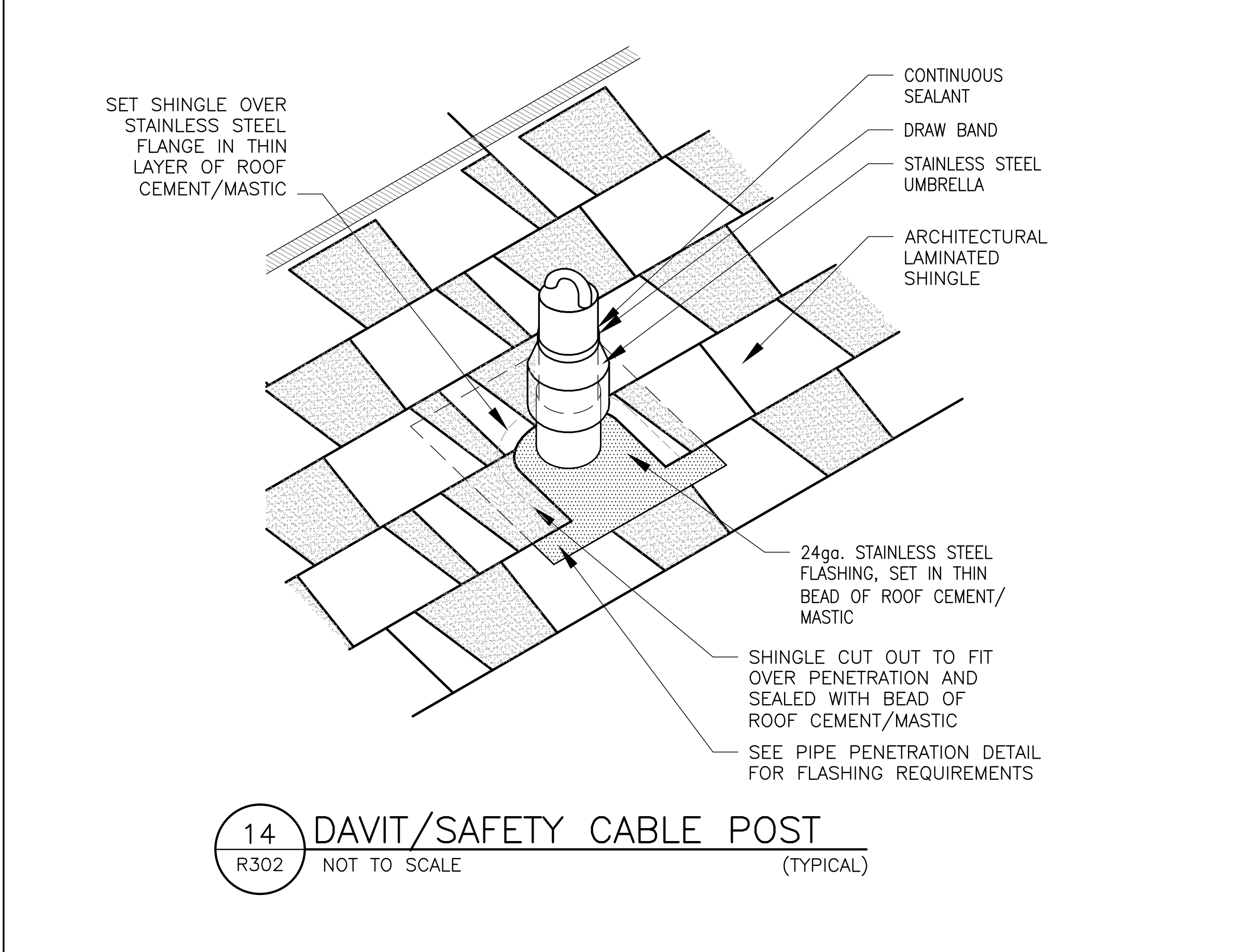
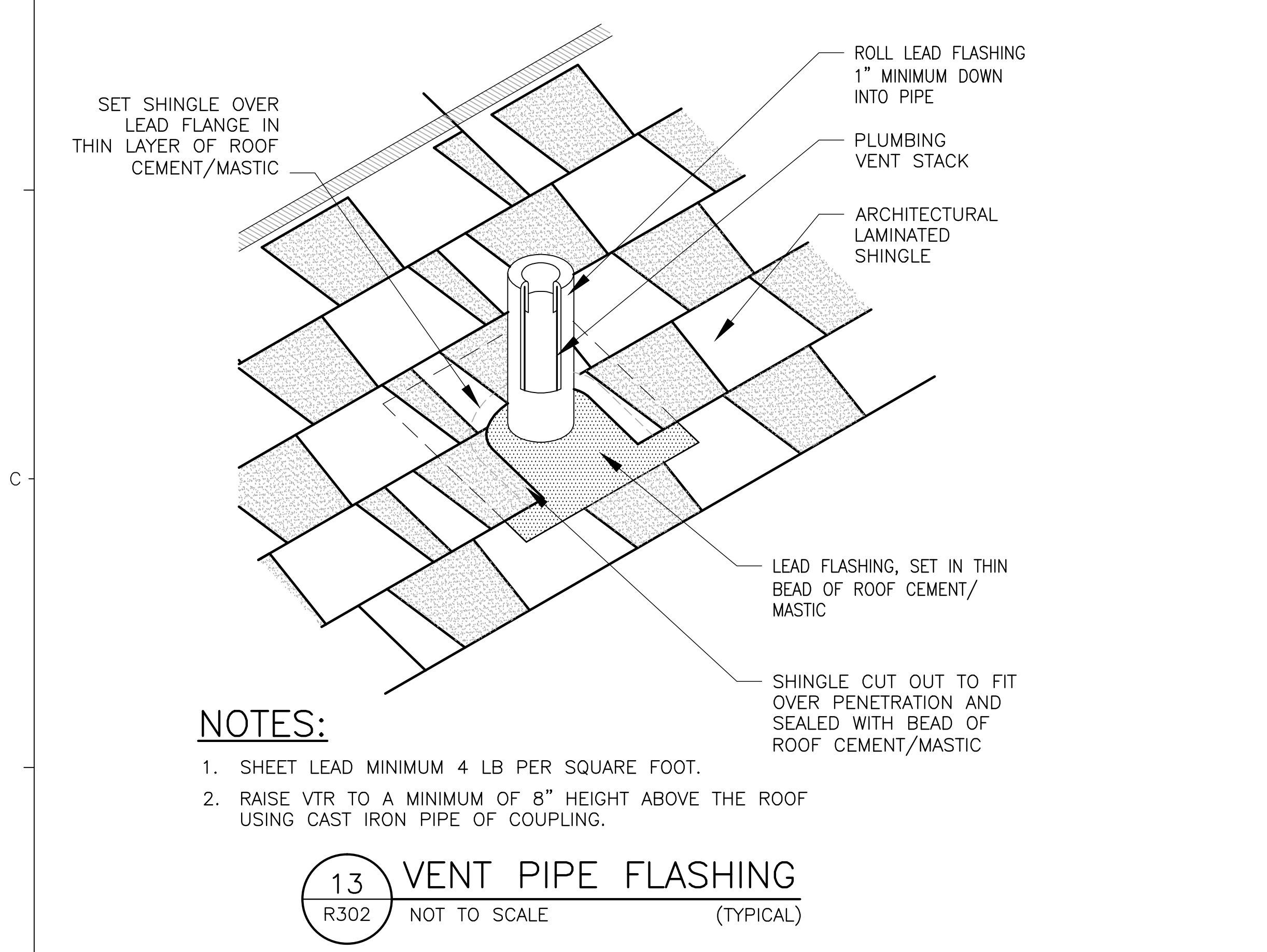
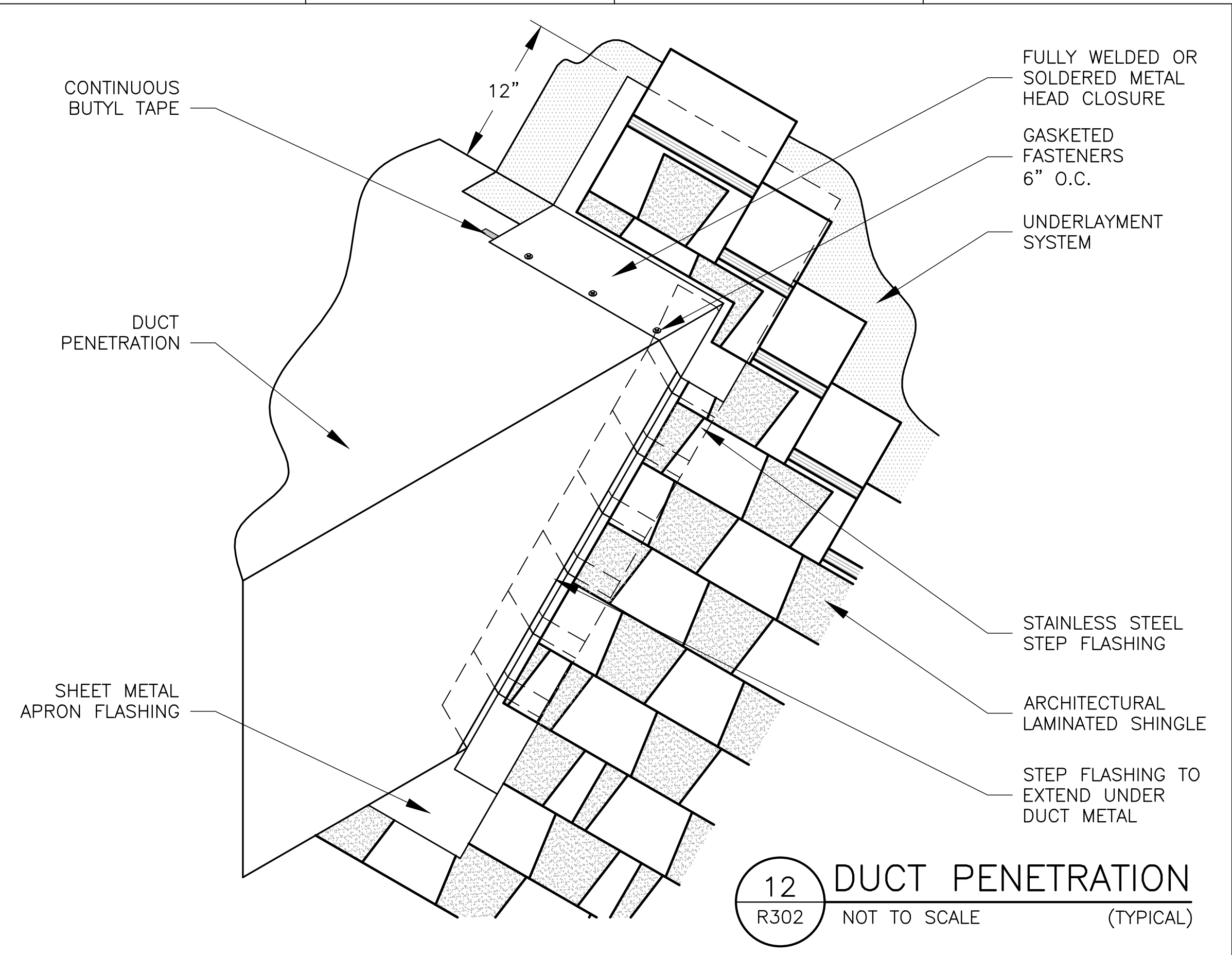
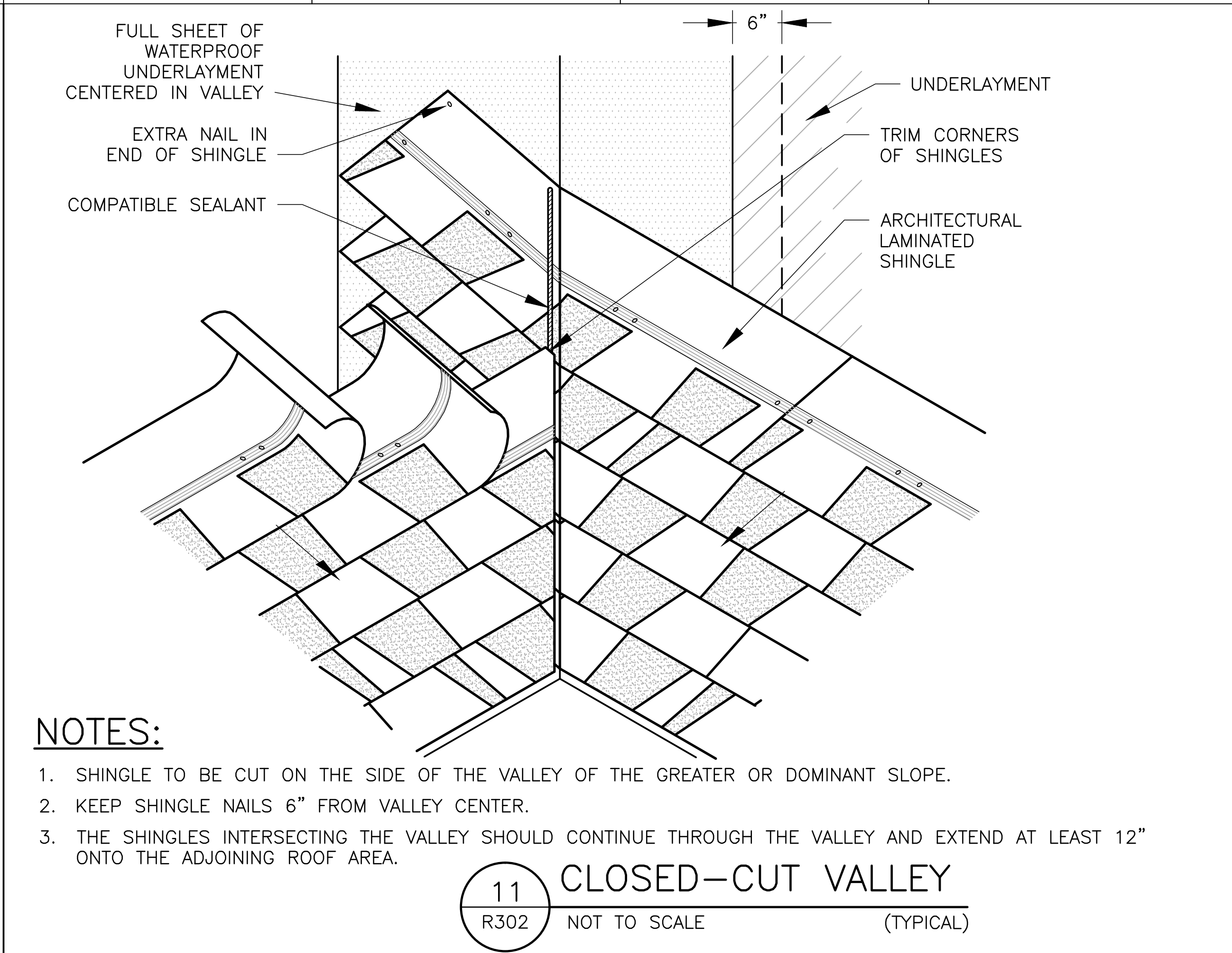
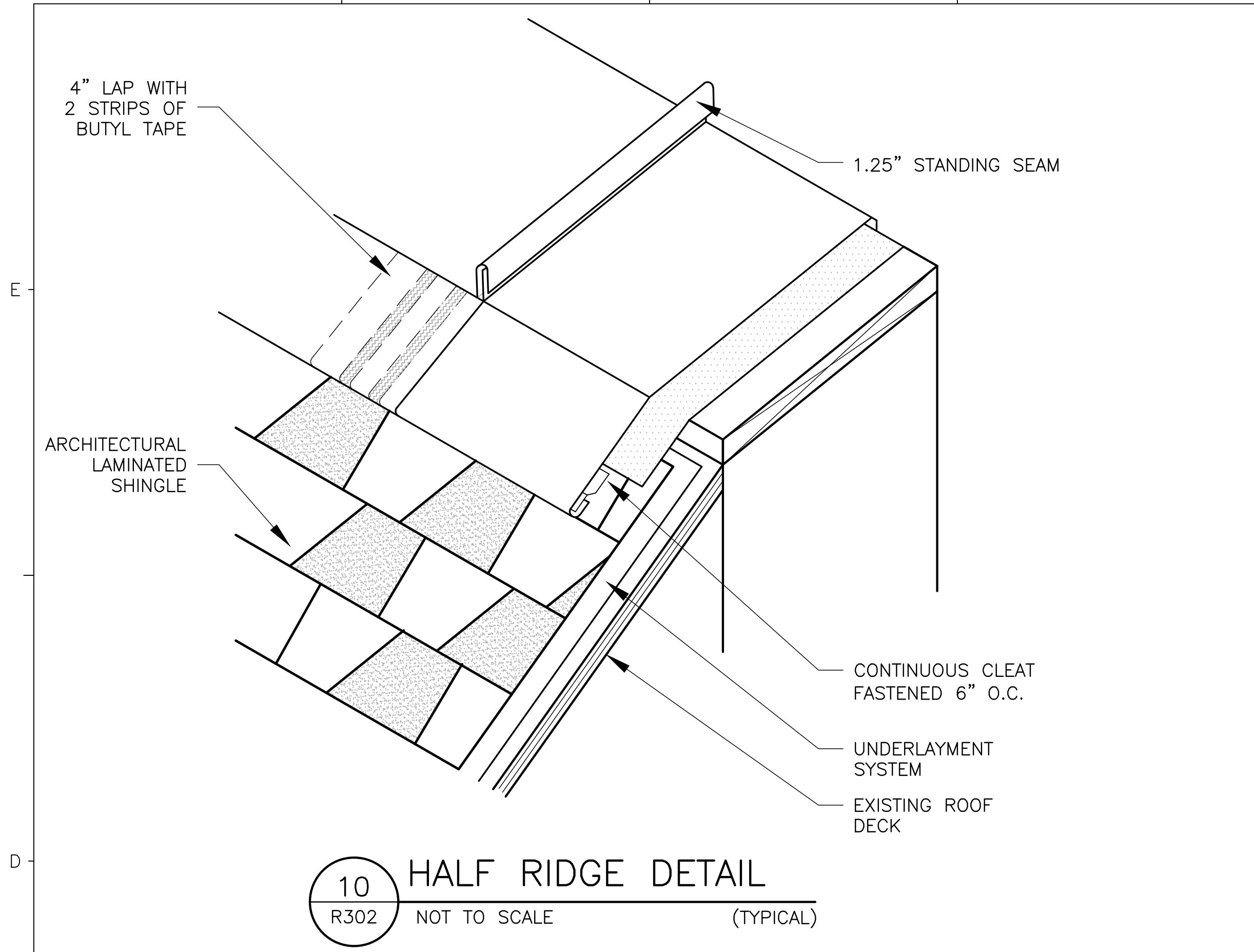
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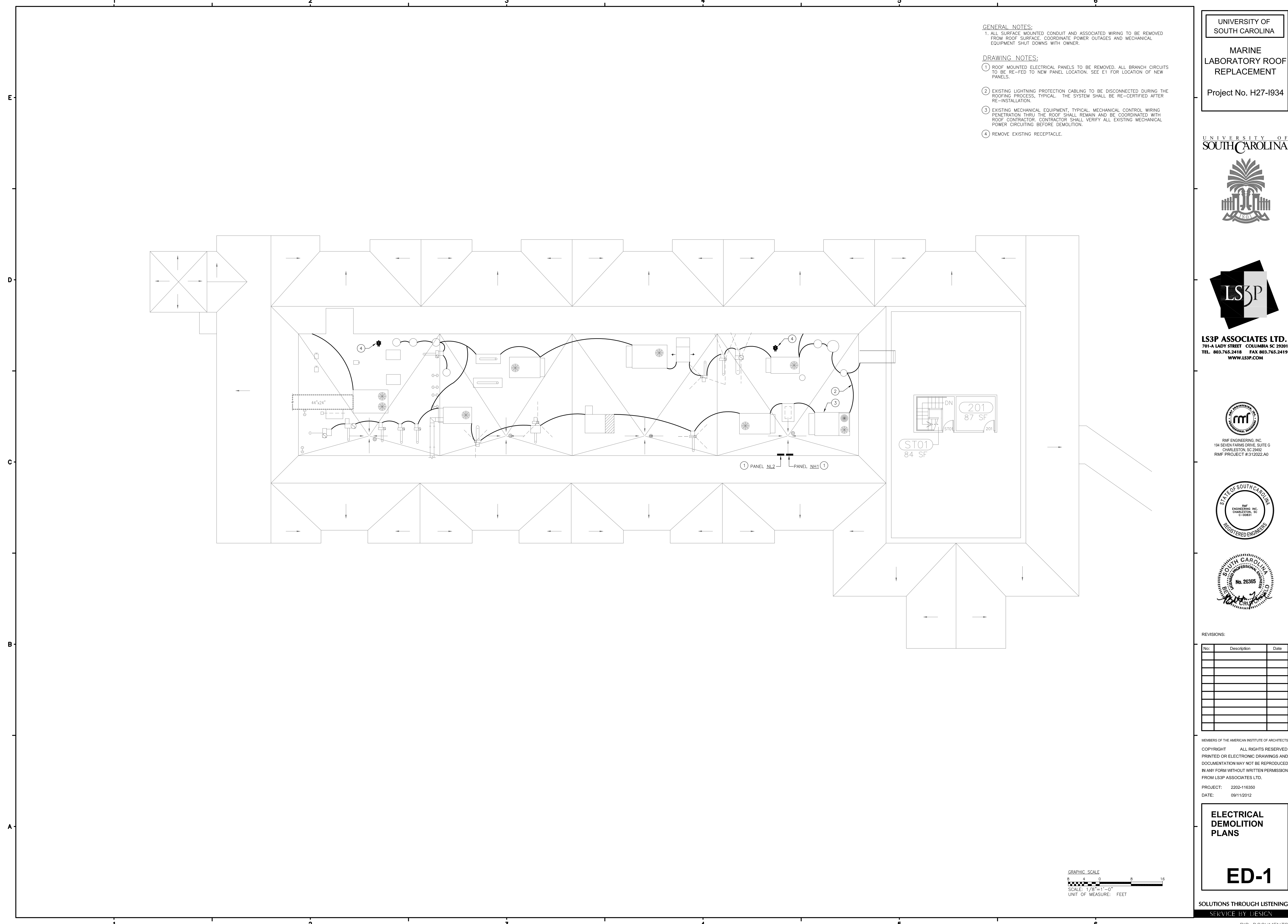


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E	STANDARD ANSI			ELECTRICAL DIAGRAMS			POWER SYMBOLS			LIGHTING SYMBOLS			ELECTRICAL ABBREVIATIONS				
	SYMBOL	DESCRIPTIONS	SYMBOL	DESCRIPTIONS	SYMBOL	DESCRIPTIONS	MH (UON)	SYMBOL	DESCRIPTIONS	MH (UON)	SYMBOL	DESCRIPTIONS	MH (UON)				
D		SYNCHRONIZING OR SYNCHRONISM CHECK DEVICE		APPARATUS THERMAL DEVICE		UNDER-VOLTAGE RELAY	48" TOD		DOUBLE POLE TOGGLE SWITCH	48" TOD		THREE-WAY TOGGLE SWITCH (SPDT)	48" TOD	A, AMP	— AMPERE	KVAR	— KILOVOLT AMPERES REACTIVE
		DIRECTIONAL POWER RELAY		UNDERCURRENT OR UNDER-POWER RELAY		BEARING PROTECTIVE DEVICE	18" CTR		DIMMER SWITCH	48" TOD		LOW VOLTAGE CONTROL SWITCH	48" TOD	AC	— ALTERNATING CURRENT	KW	— KILOWATTS
C		RUNNING CIRCUIT BREAKER		UNIT SEQUENCE STARTING RELAY		REVERSE-PHASE OR PHASE BALANCE CURRENT RELAY	18" CTR		RELAY	48" TOD		LIGHTING CONTACTOR	48" TOD	A/C	— AIR CONDITIONING	KWH	— KILOWATT HOUR
		REVERSE-PHASE OR PHASE BALANCE CURRENT RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	18" CTR		GROUND FAULT INTERRUPTER TYPE RECEPTACLE	18" BOD		FLUORESCENT LIGHTING FIXTURE — RECESSED, SURFACE, OR PENDANT MOUNTED, TYPE AS SPECIFIED	48" TOD	AFF	— ABOVE FINISHED FLOOR	LA	— LIGHTNING ARRESTOR
B		PHASE SEQUENCE VOLTAGE RELAY		INCOMPLETE SEQUENCE RELAY		EXCITER OR DC GENERATOR RELAY	18" BOD		ISOLATED GROUND RECEPTACLE	18" BOD		FLUORESCENT INDUSTRIAL LIGHTING FIXTURE	48" TOD	AFG	— ABOVE FINAL GRADE	LC	— LIGHTING CONTACTOR
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	18" BOD		DUPLEX RECEPTACLE AT 54" AFF	54" CTR		FLUORESCENT LIGHTING FIXTURE — WALL MOUNTED, TYPE AS SPECIFIED	48" TOD	AHU	— AIR HANDLING UNIT	LTG	— LIGHTING
A		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	54" CTR		DUPLEX RECEPTACLE FOR PAY PHONE	36" CTR		LIGHTING FIXTURE — RECESSED, SURFACE, OR PENDANT MOUNTED	48" TOD	AIC	— AMPS INTERRUPTING CAPACITY	LTNG	— LIGHTNING
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	36" CTR		DUPLEX RECEPTACLE FOR CART RECHARGE	36" CTR		LIGHTING FIXTURE — WALL MOUNTED TYPE AS SPECIFIED	48" TOD	ALT	— ALTERNATE	LP	— LIGHTING PANEL
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	72" CTR		DUPLEX RECEPTACLE FOR CART RECHARGE	36" CTR		WALL WASHER	48" TOD	ANN	— ANNUNCIATOR	LRA	— LOCKED ROTOR AMPERES
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	18" BFC		DUPLEX RECEPTACLE FOR TELEVISION RECEPTACLE	18" BFC		ADJUSTABLE WALL WASHER	48" TOD	APPROX	— APPROXIMATELY	MATV	— MASTER ANTENNA TELEVISION
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	84" CTR		DUPLEX RECEPTACLE FOR CLOCK HANGER OUTLET	84" CTR		EMERGENCY FIXTURE ON EMERGENCY OR NIGHT LIGHT CIRCUIT	48" TOD	ARCH	— ARCHITECT	MCB	— MAIN CIRCUIT BREAKER
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	84" CTR		DUPLEX RECEPTACLE FOR PROGRAM CLOCK OUTLET — SINGLE FACE, DOUBLE FACE	84" CTR		EMERGENCY BATTERY PACK WITH NUMBER OF HEADS INDICATED	48" TOD	ATC	— AUTOMATIC TEMPERATURE CONTROL	MCC	— MOTOR CONTROL CENTER
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR EMERGENCY POWER OFF SWITCH	48" TOD		EMERGENCY BATTERY PACK WITH REMOTE HEADS	48" TOD	ATG	— AUTOMATIC TRANSFER SWITCH	MH	— MANHOLE, MOUNTING HEIGHT
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR JUNCTION BOX	48" TOD		EMERGENCY BATTERY PACK — SEMI RECESSED, CEILING MOUNT	48" TOD	AWG	— AMERICAN WIRE GAUGE	MLO	— MAIN LUGS ONLY
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR HEATER CONNECTION — NUMBER INDICATES KILOWATTS (3kW)	48" TOD		EXIT SIGN — CEILING OR PENDANT MOUNTED (SHADED PORTION INDICATES FACE)	48" TOD	BAS	— BUILDING AUTOMATION SYSTEM	MSP	— MOTOR STARTER PANEL
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR HEATER FAN — CEILING MOUNTED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	BFC	— BELOW FINISHED CEILING	MTD	— MOUNTED
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR ENCLOSED CIRCUIT BREAKER	48" TOD		EXIT SIGN WITH DIRECTIONAL ARROWS	48" TOD	BFG	— BELOW FINISHED GRADE	MV	— MERCURY VAPOR
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR ENCLOSED CIRCUIT BREAKER	48" TOD		POLE MOUNTED LIGHTING FIXTURE — SINGLE, DOUBLE HEAD	48" TOD	BLDG	— BUILDING	NC	— NORMALLY CLOSED
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR NON-FUSED DISCONNECT SWITCH, 30A, 3P (UNLESS OTHERWISE NOTED)	48" TOD		POLE MOUNTED LIGHTING FIXTURE— SINGLE, POLE TOP	48" TOD	BOD	— BOTTOM OF DEVICE	NEC	— NATIONAL ELECTRICAL CODE
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR FUSED DISCONNECT SWITCH — FUSE SIZE AS INDICATED (40A)	48" TOD		POLE MOUNTED LIGHTING FIXTURE— SINGLE, POLE TOP	48" TOD	CON	— CONDUIT	NFSS	— NON-FUSED SAFETY SWITCH
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR MAGNETIC MOTOR STARTER	48" TOD		LIGHTING POLE (SPORTS)	48" TOD	CATV	— CABLE TELEVISION	NO	— NUMBER, NORMALLY OPEN
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR COMBINATION MAGNETIC MOTOR STARTER, ABBREVIATION INDICATES TYPE: FVNR, FVR, RVAT, 251W, 252W, SST	48" TOD		EXIT SIGN — CEILING OR PENDANT MOUNTED (SHADED PORTION INDICATES FACE)	48" TOD	CB	— CIRCUIT BREAKER	OC	— ON CENTER
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR VARIABLE FREQUENCY CONTROLLER W/FUSED DISCONNECT SWITCH	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CCTV	— CLOSED CIRCUIT TELEVISION	OFCI	— OWNER FURNISHED CONTRACTOR INSTALLED
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR MOTOR — NUMERALS (IF SHOWN) INDICATE HP	48" TOD		EXIT SIGN WITH DIRECTIONAL ARROWS	48" TOD	CL	— CURRENT LIMITING	OFOI	— OWNER FURNISHED OWNER INSTALLED
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR GENERATOR — NUMERALS (IF SHOWN) INDICATE KW	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CLG	— CEILING	OH	— OVERHEAD
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR MANUAL MOTOR STARTER WITH THERMAL OVERLOADS	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CONN	— CONNECT	Ø, PH	— PHASE
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR CONTROL PANEL — TYPE AS INDICATED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CPT	— CONTROL POWER TRANSFORMER	P	— POLE
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR MOMENTARY CONTACT START-STOP PUSH BUTTON STATION	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CTR	— CENTER	PB	— PUSHBUTTON
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR MAINTAINED CONTACT EMERGENCY STOP PUSHBUTTON STATION	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CU, CO	— CUPPER	PF	— POWER FACTOR
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR PANELBOARD	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	CX	— CONNECT TO EXISTING	PFCC	— POWER FACTOR CORRECTION CAPACITOR
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR DISTRIBUTION PANELBOARD	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DC	— DIRECT CURRENT	PL	— PILOT LIGHT
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR TRANSFORMER	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DISC	— DISCONNECT	PLC	— PROGRAMMABLE LIGHTING CONTROL
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR RACEWAY "UP" OR "TOWARDS"	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DN	— DOWN	PNL	— PANEL
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR RACEWAY "DOWN" OR "AWAY"	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DP	— DISTRIBUTION PANEL	PP	— POWER PANEL
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR CIRCUIT CONCEALED IN WALLS OR CEILING SPACE, CONDUCTORS SHALL BE MINIMUM 2#12 AWG AND 1#12 AWG GROUND IN 3/4" CONDUIT, (UNLESS OTHERWISE NOTED)	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DPST	— DOUBLE POLE SINGLE THROW	PR	— PAIR
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR RACEWAY CONCEALED IN SLAB OR BELOW GRADE, BRANCH CIRCUIT HOMERUN TO PANELBOARD, QUANTITY OF CIRCUITS INDICATED BY ARROWS ()	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DT	— DOUBLE THROW	PT	— POTENTIAL TRANSFORMER
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR RACEWAY RUN EXPOSED, CONDUCTORS SHALL BE MINIMUM 2#12 AWG AND 1#12 AWG GROUND IN 3/4" CONDUIT, (UNLESS OTHERWISE NOTED)	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	DWG	— DRAWING	PVC	— POLYVINYL CHLORIDE
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR BUS DUCT OR CABLE TRAY UP OR TOWARDS	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	E, EMERG	— EMERGENCY	PH	— PUMP
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR BUS DUCT OR CABLE TRAY DOWN OR AWAY	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EC	— EMPTY CONDUIT	RCS	— REMOTE CONTROL SWITCH
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR BUS DUCT, TYPE & SIZE AS INDICATED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EF	— EXHAUST FAN	REC, RECP	— RECEPTACLE
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR TELEPHONE AND POWER POLE ASSEMBLY	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EH	— ELECTRIC HEATER	REQ'D	— REQUIRED
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR CONCRETE ENCASED DUCTBANK BELOW GRADE	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	ELEC	— ELECTRIC	RFI	— RADIO FREQUENCY INTERFERENCE
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR SURFACE MOUNTED RACEWAY ASSEMBLY WITH REMOVABLE COVER	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	ELEV	— ELEVATION	RCS	— RIGID GALVANIZED STEEL
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR MULTI OUTLET ASSEMBLY — DARK SQUARES INDICATE PREWIRED RECEPTACLE LOCATIONS, SIZE AS INDICATED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	ETR	— EXISTING TO REMAIN	RLA	— RUNNING LOAD AMPERES
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD		DUPLEX RECEPTACLE FOR MULTI-OUTLET ASSEMBLY WITH RECEPTACLES LOCATED WHERE INDICATED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EX	— EXISTING	RM	— ROOM
		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY	48" TOD		DUPLEX RECEPTACLE FOR MULTI-OUTLET ASSEMBLY WITH COMMUNICATION OUTLETS LOCATED WHERE INDICATED	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EXP	— EXPOSED	RVAT	— REDUCED VOLTAGE AUTO TRANSFORMER
		INCOMPLETE SEQUENCE RELAY		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY	48" TOD		DUPLEX RECEPTACLE FOR FLEXIBLE CONDUIT	48" TOD		EXIT SIGN — WALL MOUNTED — END, BACK	48" TOD	EWC	— ELECTRIC WATER COOLER	RX	— REMOVE EXISTING
		MACHINE OR TRANSFORMER THERMAL RELAY		EXCITER OR DC GENERATOR RELAY		INCOMPLETE SEQUENCE RELAY	48" TOD										



- GENERAL NOTES:**
1. ALL SURFACE MOUNTED CONDUIT AND ASSOCIATED WIRING TO BE REMOVED FROM ROOF SURFACE. COORDINATE POWER OUTAGES AND MECHANICAL EQUIPMENT SHUT DOWNS WITH OWNER.
- DRAWING NOTES:**
① ROOF MOUNTED ELECTRICAL PANELS TO BE REMOVED. ALL BRANCH CIRCUITS TO BE RE-FED TO NEW PANEL LOCATION. SEE E1 FOR LOCATION OF NEW PANELS.
② EXISTING LIGHTNING PROTECTION CABLING TO BE DISCONNECTED DURING THE ROOFING PROCESS, TYPICAL. THE SYSTEM SHALL BE RE-CERTIFIED AFTER RE-INSTALLATION.
③ EXISTING MECHANICAL EQUIPMENT, TYPICAL. MECHANICAL CONTROL WIRING PENETRATION THRU THE ROOF SHALL REMAIN AND BE COORDINATED WITH ROOF CONTRACTOR. CONTRACTOR SHALL VERIFY ALL EXISTING MECHANICAL POWER CIRCUITING BEFORE DEMOLITION.
④ REMOVE EXISTING RECEPTACLE.

UNIVERSITY OF
SOUTH CAROLINA

MARINE
LABORATORY ROOF
REPLACEMENT

Project No. H27-1934

UNIVERSITY OF
SOUTH CAROLINA

LS3P

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701-A LADY STREET COLUMBIA SC 29201
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RMF ENGINEERING, INC.
194 SEVEN FARMS DRIVE, SUITE G
CHARLESTON, SC 29492
RMF PROJECT R-512022.A0

STATE OF SOUTH CAROLINA
RMF ENGINEERING, INC.
CHARLESTON, SC
C-00831
REGISTERED ENGINEERS

STATE OF SOUTH CAROLINA
No. 28365
Professional Engineer

REVISIONS:

No.	Description	Date

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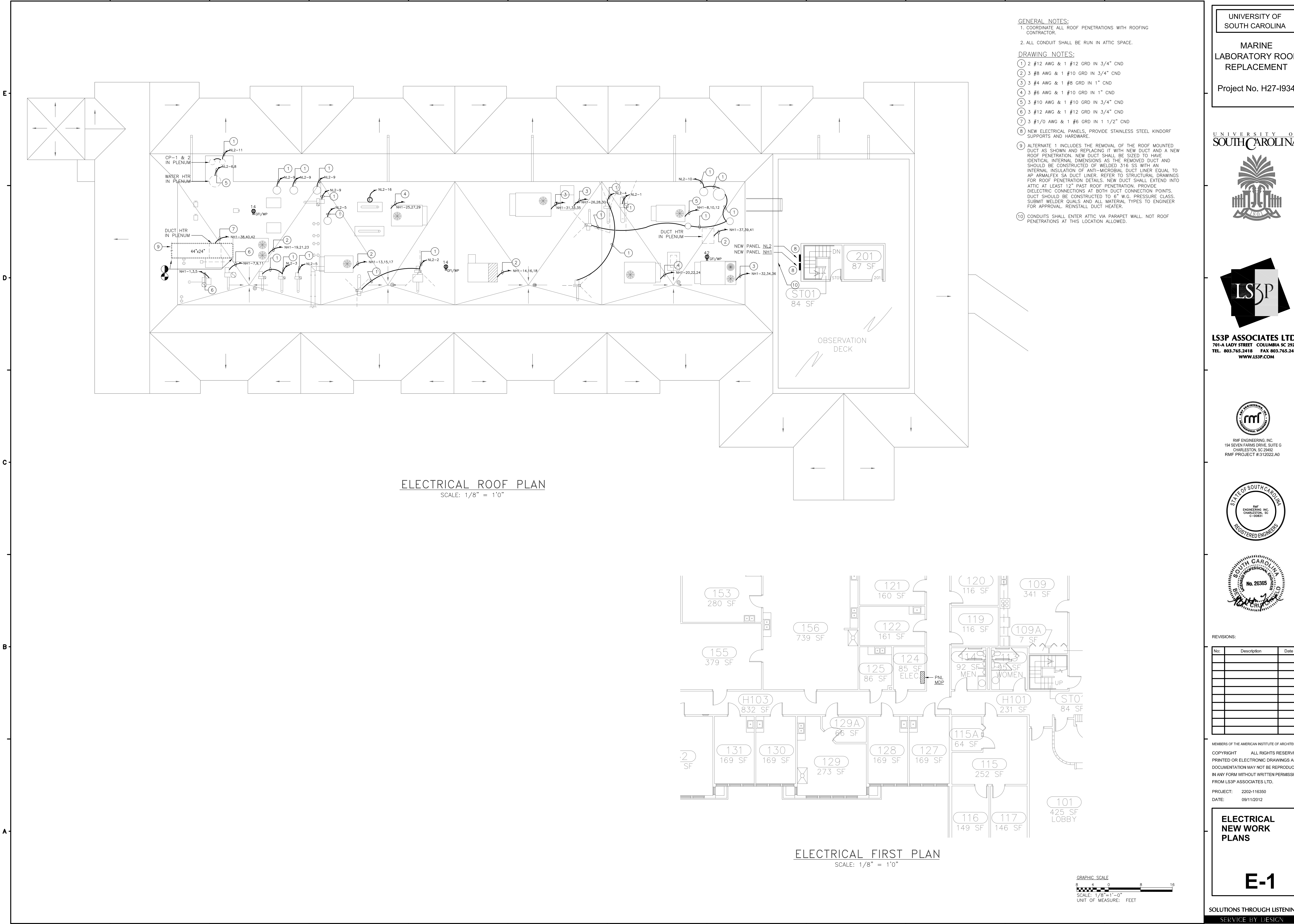
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**ELECTRICAL
DEMOLITION
PLANS**

ED-1

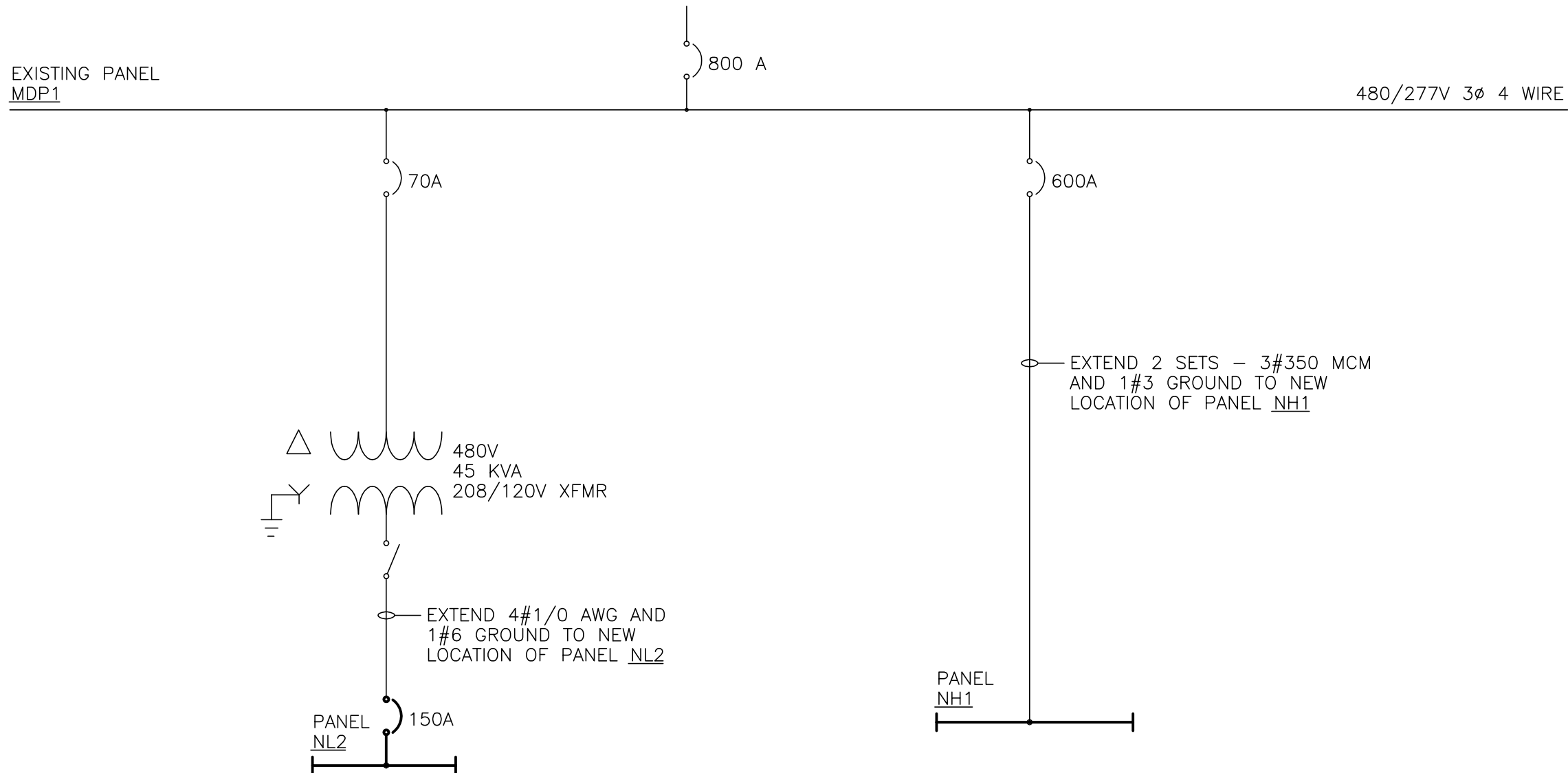
SOLUTIONS THROUGH LISTENING
SERVICE BY DESIGN

BID DOCUMENTS



PANELBOARD: NH1 MAINS: MLO AMPS: 600 MIN AIC: 22,000											
LOCATION: ROOF VOLTS: 480/277 PHASE: 3 WIRES: 4											
MOUNTING: SURFACE ENCL NEMA: 4X NOTES: ①											
SERVES	CB	TA	CB	TA	CB	TA	CB	TA	CB	TA	SERVES
	1	2	3	4	5	6	7	8	9	10	
EF-1	3	20	3	4	5	6	7	8	9	10	EXISTING ②
	1	2	3	4	5	6	7	8	9	10	
EF-2	3	20	9	10	11	12	13	14	15	16	AC-2
	1	2	3	4	5	6	7	8	9	10	
HP-4	3	40	15	16	17	18	19	20	21	22	HP-5
	1	2	3	4	5	6	7	8	9	10	
AC-1	3	45	21	22	23	24	25	26	27	28	HP-6
	1	2	3	4	5	6	7	8	9	10	
HP-2	3	60	27	28	29	30	31	32	33	34	MAU-1
	1	2	3	4	5	6	7	8	9	10	
HP-3	3	70	33	34	35	36	37	38	39	40	HP-1
	1	2	3	4	5	6	7	8	9	10	
EDH-2	3	50	39	40	41	42	43	44	45	46	EDH-1
	1	2	3	4	5	6	7	8	9	10	

PANELBOARD: NL2 MAINS: MCB AMPS: 150 MIN AIC: 10,000											
LOCATION: ROOF VOLTS: 208/120 PHASE: 3 WIRES: 4											
MOUNTING: SURFACE ENCL NEMA: 4X NOTES: ①											
SERVES	CB	TA	CB	TA	CB	TA	CB	TA	CB	TA	SERVES
	1	2	3	4	5	6	7	8	9	10	
EF-10	1	20	1	2	3	4	5	6	7	8	EF-6,7
EF-3,4	1	20	3	4	5	6	7	8	9	10	EF-8,9
EF-5,18	1	20	5	6	7	8	9	10	11	12	WATER HEATER
EXISTING ②	1	20	7	8	9	10	11	12	13	14	
EF-11,12,13,20	1	20	9	10	11	12	13	14	15	16	EF-14,15,16,17,19
CP-1,2	1	20	11	12	13	14	15	16	17	18	RAP-1, HVAC TIME CLOCK
REC GND LEVEL ③	1	20	13	14	15	16	17	18	19	20	REC ROOF TOP
HEAT TAPE ③	1	20	15	16	17	18	19	20	21	22	GEN REC
HEAT TAPE ③	1	20	17	18	19	20	21	22	23	24	EXISTING
HEAT TAPE ③	1	20	19	20	21	22	23	24	25	26	EXISTING
SPARE	1	20	21	22	23	24	25	26	27	28	SPARE
SPARE	1	20	23	24	25	26	27	28	29	30	SPARE
SPARE	1	20	25	26	27	28	29	30	31	32	SPARE
SPARE	1	20	27	28	29	30	31	32	33	34	SPARE
SPARE	1	20	29	30	31	32	33	34	35	36	SPARE
SPARE	1	20	31	32	33	34	35	36	37	38	SPARE
ATTIC FANS ③	1	20	33	34	35	36	37	38	39	40	SPARE
WATER HEATER/FUME HOOD ③	2	30	35	36	37	38	39	40	41	42	SPARE
EXISTING ②	2	30	39	40	41	42	43	44	45	46	EWG - CORRIDOR 112
	2	30	41	42	43	44	45	46	47	48	FUME HOOD
	2	30	43	44	45	46	47	48	49	50	REC ROOF TOP



ELECTRICAL SINGLE LINE DIAGRAM
SCALE: NONE

- DRAWING NOTES:
- ① PANEL CIRCUIT BREAKERS SHALL BE LOCKABLE IN THE OPEN POSITION FOR DISCONNECTING DURING MAINTENANCE.
 - ② LOAD UNKNOWN, EXTEND CIRCUIT FROM EXISTING PANEL LOCATION.
 - ③ RECONNECT TO EXISTING ROOF/ATTIC CONNECTION.

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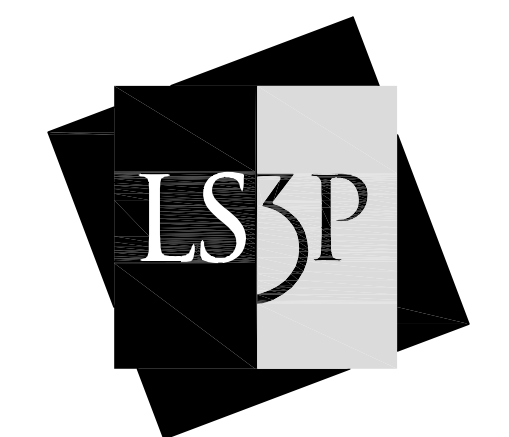
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ELECTRICAL
SCHEDULES

E-2

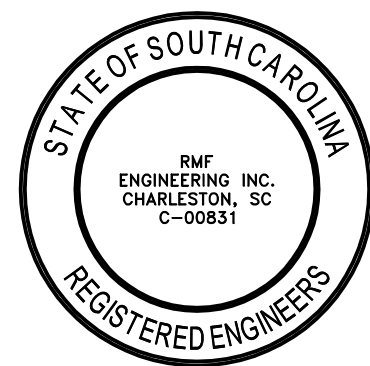
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ELECTRICAL SPECIFICATIONS

E-3

SOLUTIONS THROUGH LISTENING
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260500 COMMON WORK RESULTS FOR ELECTRICAL

1. ALL WORK SHALL BE MANUFACTURED, TESTED AND INSTALLED IN ACCORDANCE WITH THE 2008 NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES. IN ADDITION, ALL WORK SHALL BE IN ACCORDANCE WITH AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), AMERICAN WITH DISABILITIES ACT (ADA), 2003 INTERNATIONAL BUILDING CODE (IBC), ILLUMINATING ENGINEERING SOCIETY (IES), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATES (NEMA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) AND UNDERWRITERS LABORATORY, INC. (UL). THE CONTRACTOR SHALL FURNISH A FIRE UNDERWRITERS CERTIFICATE OF INSPECTION COVERING THE WORK INSTALLED UNDER THIS SPECIFICATION. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND CERTIFICATES.
2. THOROUGHLY EXAMINE THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS PRIOR TO COMMENCEMENT OF ANY WORK. COORDINATE WORK WITH ALL OTHER TRADES.
3. ALL ELECTRICAL EQUIPMENT SHALL BE NEW, OF FIRST QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED, AND FINISHED IN EVERY DETAIL.
4. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING COMPLETE ITEMS OR SYSTEMS: A SYSTEM OF INTERIOR WIRING AND CONNECTIONS TO EQUIPMENT PROVIDED UNDER OTHER SECTIONS OF THE SPECIFICATION.
5. CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED DURING CONSTRUCTION.
6. ALL MATERIALS REQUIRED FOR THE WORK SHALL BE NEW, OF FIRST QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL, AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO BUILDING SPACES. THE QUALITY AND KIND OR QUALITY OF MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS APPROVED BY THE ENGINEER SHALL BE PROVIDED.
7. THESE PLANS AND SPECIFICATIONS ARE INTENDED TO PROVIDE A BROAD OUTLINE OF THE WORK AND EQUIPMENT REQUIRED, BUT ARE NOT INTENDED TO INCLUDE ALL THE DETAILS OF CONSTRUCTION.
8. ALTHOUGH THE LOCATION OF EQUIPMENT MAY BE SHOWN ON THE ELECTRICAL PLANS IN A CERTAIN PLACE, THE CONSTRUCTION OF THE BUILDING, MAY DISCLOSE THE FACT THAT THE LOCATION FOR THIS ELECTRICAL WORK DOES NOT MAKE ITS POSITION EASILY AND QUICKLY ACCESSIBLE. IN SUCH CASES, THE CONTRACTOR SHALL CALL ATTENTION TO THIS FACT BEFORE INSTALLING HIS WORK FOR ACTION BY THE ARCHITECT AND SHALL BE GUIDED BY HIS WRITTEN INSTRUCTIONS.
9. THE CONTRACTOR SHALL VERIFY THE SERVICE REQUIREMENTS OF ALL PIECES OF EQUIPMENT BEFORE MAKING FINAL PROVISIONS.
10. THE CONTRACTOR SHALL MAINTAIN A SET OF WHITE PRINTS THROUGHOUT THE WORK UPON WHICH HE SHALL CAREFULLY RECORD THE ACTUAL LOCATIONS, INSTALLING DIMENSIONS TO LOCATE WHEN DIFFERENT FROM CONTRACT DRAWINGS, EACH PIECE OF ELECTRICAL EQUIPMENT, CONTROL DEVICES, SWITCHES, OUTLETS, WIRES, CABLES, CONDUITS, ETC. UPON COMPLETION OF THE WORK, HE SHALL DELIVER THIS SET OF PRINTS TO THE ARCHITECT. THE ARCHITECT RESERVES THE RIGHT TO WITHHOLD FINAL PAYMENTS UNTIL RECORD "AS-BUILT" DRAWINGS ARE RECEIVED.
11. PRIOR TO ACCEPTANCE OF THE FINISHED PROJECT THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT THREE (3) COPIES OF AN ELECTRICAL SYSTEMS MAINTENANCE MANUAL. THE MANUAL SHALL BE BOUND IN A DURABLE HARDBACK BINDER WITH DATA SHEETS INDIVIDUALLY PUNCHED OR PERFORATED AND ENTERED. DATA SHEETS SHALL BE GROUPED, AND SECTION DIVIDERS SHALL BE PROVIDED AT THE CONTRACTOR'S OPTION. THE MANUAL MAY CONTAIN HEAVY MANILA TIE-FLAP ENVELOPES TO BE PUNCHED AND ENTERED. WHEN BEING PLACED IN THE ENVELOPE TO IDENTIFY ITS CONTENTS, THE MANUAL SHALL HAVE AN IDENTIFYING LABEL ON THE FRONT COVER AND SHALL INCLUDE THE FOLLOWING.
 - ONE (1) ACCEPTED COPY OF THE MATERIALS LIST.
 - ONE (1) ACCEPTED COPY OF EACH SHOP DRAWING.
 - ONE (1) COMPLETE COPY OF EACH PANELBOARD DIRECTORY.
 - EACH DIRECTORY SHALL BE A SEPARATE SHEET.
 - ONE (1) COPY OF EACH CIRCUIT BREAKER TIME-CURRENT CURVE.
 - ONE (1) COPY OF EACH OPERATION DESCRIPTION.
12. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR INSPECTION FOR THE PROJECT. UPON COMPLETION OF THE WORK, A FINAL INSPECTION CERTIFICATE SHALL BE SUBMITTED TO THE ARCHITECT IN TRIPPLICATE. THIS CERTIFICATE SHALL BE SUBMITTED PRIOR TO REQUEST FOR FINAL PAYMENT. THE CONTRACTOR SHALL PAY ALL FEES REQUIRED FOR INSPECTION.
13. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BID DATE TO EXAMINE THE CONDITIONS UNDER WHICH HIS WORK IS TO BE PERFORMED. NO EXTRAS SHALL BE ALLOWED FOR FAILURE TO NOTE EXISTING CONDITIONS.
14. USE NEMA TYPE I GENERAL PURPOSE ENCLOSURES FOR ALL INDOOR EQUIPMENT, NEMA 3R FOR OUTDOOR EQUIPMENT UNLESS OTHERWISE NOTED.
15. SUBMIT DRAWINGS AND DATA SHEETS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO DIMENSIONS, MATERIALS, FITNESS AND OTHER PERTINENT DATA SPECIFIC TO THIS PROJECT. WHERE SPECIFICATIONS OR ELEMENT FUNCTIONS OR ITEMS ARE REQUIRED TO MEET THESE SPECIFICATION THEY SHALL BE SPECIFICALLY NOTED. OBTAIN APPROVAL BEFORE THE FOLLOWING APPARATUS INVOLVED IS ORDERED, BUILT, OR INSTALLED: PANELBOARDS AND CIRCUIT BREAKERS, AND WIRING DEVICES AND PLATES.
16. COORDINATE THE WORK TO MINIMIZE PENETRATION OF WATERPROOF CONSTRUCTION, INCLUDING ROOFS, EXTERIOR WALLS, ETC. WHERE SUCH PENETRATIONS ARE NECESSARY PROVIDE ALL NECESSARY SLEEVES, SHIELDS, GROMMETS, FLASHING, AND CAULKING TO MAKE PENETRATION ABSOLUTELY WATERTIGHT.
17. ALL CONDUITS PASSING THROUGH FIRE RATED, FIRE RESISTANT OR FIRE STOPPED WALLS, CEILING OR FLOORS SHALL BE SEALED WITH FOAM TYPE FIRE RESISTANT SEALANT.

TESTS:

1. CONTRACTOR SHALL PROVIDE TESTING FOR THE EQUIPMENT AND BRANCH CIRCUITS, AND SUCH OTHER TESTS AS ARE DESCRIBED IN OTHER SECTIONS OF THIS SPECIFICATION.
2. THE CONTRACTOR SHALL FURNISH ALL LABOR, SPECIALTIES, INSTRUMENTS, EQUIPMENT, ETC., REQUIRED FOR THE TESTS, AND SHALL PAY ANY OTHER EXPENSES INCURRED, INCLUDING NECESSARY CHANGES TO THE SYSTEMS AS REQUIRED TO PRODUCE THE SPECIFIED RESULTS.
3. ALL TESTS SHALL BE CONDUCTED BEFORE ANY EQUIPMENT IS CONNECTED THAT WOULD BE SUBJECT TO DAMAGE FROM THE TEST.
4. THE CONTRACTOR SHALL NOTIFY ALL PARTIES WHOSE PRESENCE IS NECESSARY FOR THE TESTS. IN ALL CASES, THE ARCHITECT SHALL BE NOTIFIED AT LEAST ONE (1) DAY PRIOR TO THE ACTUAL TEST.
5. RESULTS OF THE TESTS SHALL SHOW THAT THE FEEDERS, EQUIPMENT AND WIRING SHALL MEET THE REQUIREMENTS OF THIS SPECIFICATION. SHOULD ANY OF THE ABOVE TESTS INDICATE DEFECTS IN MATERIALS OR WORKMANSHIP, THE FAULTY INSTALLATION SHALL BE REPAIRED OR REPLACED AT ONCE AND THE NECESSARY PORTIONS OF THE TESTS RECONDUCTED TO THE APPROVAL OF THE ARCHITECT.
6. THE TESTS SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER THE FOLLOWING:
 - THAT ALL LIGHTING, POWER, AND CONTROL CIRCUITS ARE CONTINUOUS AND FREE OF SHORT CIRCUITS.
 - THAT ALL CIRCUITS ARE FREE FROM UNSPECIFIED GROUNDS, AND GROUNDED WHERE SPECIFIED.
 - THAT THE RESISTANCE TO GROUND ON ALL NON-GROUNDED CIRCUITS IS AT LEAST ONE (1) MEGOHM.
 - THAT ALL CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS.
 - THAT ALL CIRCUITS ARE OPERABLE, WHICH DEMONSTRATION SHALL INCLUDE FUNCTIONING OF EACH CONTROL NOT LESS THAN TEN (10) TIMES AND CONTINUOUS OPERATION OF EACH LIGHTING AND POWER CIRCUIT FOR NOT LESS THAN 1/2 HOUR.
 - THAT THE RESISTANCE OF THE GROUND FIELD SYSTEM DOES NOT EXCEED FIVE (5) OHMS.

260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- ALL WIRING SHALL BE SINGLE CONDUCTOR ANNEALED COPPER WITH TYPE THHN, OR THWN INSULATION UNLESS OTHERWISE NOTED OR HEREINAFTER SPECIFIED. WIRING SHALL BE RATED 600 VOLTS. BRANCH CIRCUIT WIRING, NO. 10 AND SMALLER, CONNECTED TO INTERIOR RECEPTACLES, LIGHTING FIXTURES, AND SWITCHES SHALL BE SOLID CONDUCTOR AND MAY BE TYPE THW OR THHN. ALL WIRING NO. 8 AWG AND LARGER SHALL BE STRANDED.
- MINIMUM SIZE OF BRANCH CIRCUIT WIRING IS NO. 12 AWG. MINIMUM SIZE OF NORMAL BRANCH CIRCUIT WIRE IS NO. 10 AWG WHERE USED FOR 120 VOLT BRANCH CIRCUIT HOMERUNS SEVENTY-FIVE (75) FEET AND LONGER.
- ALL PHASE CONDUCTORS SHALL BE FACTORY COLOR CODED TAPE OR COLOR CODED "SLIPPERS", APPLIED AT EACH SPLICE AND TERMINATION IN ACCORDANCE WITH THE FOLLOWING SCHEDULES:

208/120V. SYSTEMS PHASE - COLOR	480/277V. SYSTEMS PHASE - COLOR
A - BLACK	A - BROWN
B - RED	B - ORANGE
C - BLUE	C - YELLOW
N - WHITE	N - WHITE
GRD - GREEN	GRD - GREEN
- GREEN COLORED INSULATED EQUIPMENT GROUND CONDUCTOR SHALL BE PROVIDED FOR ALL FEEDERS AND FOR ALL BRANCH CIRCUITS.
- FOR WIRE IDENTIFICATION, USE BRADY "QUICK-LABELS" ON ALL CONDUCTORS AT THE TERMINATION OF THE RUN AND IN ALL OUTLETS. CODING SCHEME IS THE RESPONSIBILITY OF THE CONTRACTOR, BUT IS GENERALLY TO FOLLOW THE TERMINAL NUMBERING OF THE PANELBOARD. ARRANGE THIS CODING SCHEME SO AS TO PROVIDE QUICK AND EASY IDENTIFICATION OF THE CONDUCTORS. IDENTIFY EACH FEEDER CONDUCTOR IN PULL AND JUNCTION BOXES WITH A STAMPED FIBRE TAG.
- INSTALL ALL WIRING IN EMT RACEWAY, EXCEPT WHERE OTHERWISE SPECIFIED. M.C. CABLE MAY BE UTILIZED, WHERE ALLOWED BY THE LOCAL CODE, FOR BRANCH CIRCUIT LIGHTING WHIPS ONLY. ALL FEEDERS FROM SWITCHBOARD TO BRANCH CIRCUIT PANELS SHALL BE IN CONDUIT.
- RUN ALL GROUNDING CONDUCTORS IN RACEWAYS.
- NO MORE THAN 3 PHASE WIRES IN ANY BRANCH CIRCUIT.

260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEM

1. THE REQUIRED EQUIPMENT GROUNDING ELECTRODE CONDUCTORS AND GROUNDING CONDUCTORS SHALL BE SIZED IN COMPLIANCE WITH N.E.C. ARTICLE 250.4(B) AND 250.6(A). FOR CIRCUITS WITH RATED CURRENTS EXCEEDING 250 AMPERES, A GROUNDING CONDUCTOR SHALL BE MINIMUM SIZED 10, 12 AWG. FOR OVERCURRENT DEVICES GREATER THAN 250 AMPERES, THE MINIMUM SIZED SHALL BE 12 AWG. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE PROVIDED WITH GREEN INSULATION EQUIVALENT TO THE INSULATION ON THE ASSOCIATED GROUNDING CONDUCTOR. ALL RELATED ELECTRICAL BRANCH CIRCUIT GROUNDING CONDUCTORS SHALL BE CONNECTED TO THE BRANCH CIRCUIT GROUNDING BUS WITH APPROVED PRESSURE CONNECTORS.
2. THE LOW VOLTAGE DISTRIBUTION SYSTEM SHALL BE PROVIDED WITH A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH SINGLE OR THREE-PHASE FEEDER OR BRANCH CIRCUIT. REQUIRED EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN COMMON WITH THE RELATED PHASE AND/ OR NEUTRAL CONDUCTORS, WHEN THE RACEWAY FOR BRANCH CIRCUITS IS EMT OR METAL SURFACE RACEWAY. A MINIMUM OF TWO (2) SEPARATE GROUNDING CONDUCTORS SHALL BE PROVIDED FOR EACH EQUIPMENT CONNECTIONS UTILIZED IN CONJUNCTION WITH THE ABOVE. SHALL BE PROVIDED WITH SUITABLE GREEN INSULATED GROUNDING CONDUCTORS AND CONNECTED TO APPROVED GROUNDING TERMINALS AT EACH END OF THE FLEXIBLE CONDUIT.

260533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

RACEWAYS:

1. ALL RACEWAYS RUN IN ATTIC, CEILING, OR WALL SPACE SHALL BE EMT. ALL CIRCUIT RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE AND A MINIMUM SIZE OF 3/4" UNLESS OTHERWISE NOTED. ALL RACEWAYS RUN IN SLAB OR EXPOSED ON EXTERIOR WALLS SHALL BE RIGID STEEL OR IMC.
2. PROVIDE TRAPEZE TYPE CONDUIT HANGERS EVERY EIGHT (8) FEET FOR STRAIGHT RUNS AND WITHIN THREE (3) FEET OF EACH TERMINATION.
3. ELECTRICAL METALLIC TUBING SHALL BE AS MANUFACTURED BY ALLED CONDUIT OR APPROVED EQUAL. ALL CONDUIT FITTINGS SHALL BE STEEL COMPRESSION FITTINGS.
4. RIGID GALVANIZED STEEL CONDUIT SHALL BE THREADED, GALVANIZED OR SHERARDIZED INSIDE AND OUT, AS MANUFACTURED BY ALLED, TRIANGLE, WESTERN OR WHEATLAND. CONTRACTOR MAY USE INTERMEDIATE GRADE CONDUIT (IMC).
5. CONNECTIONS TO VIBRATING EQUIPMENT AND TO LIGHTING FIXTURES SHALL BE MADE WITH FLEXIBLE CONDUIT, GALVANIZED TYPE AS MANUFACTURED BY NATIONAL-FLEX STEEL OR APPROVED EQUAL.
6. CONNECTIONS TO MOTORS OR MOTORS LOCATED OUTDOORS SHALL BE MADE WITH HEAVY LIQUID TIGHT SEAL-TITE CONDUIT WITH COMPRESSION TYPE FITTINGS, AS MANUFACTURED BY CROUSE HIND SERIES LA.
7. CONDUIT IN DIRECT CONTACT WITH EARTH OR IN CORROSIVE ATMOSPHERE SHALL BE POLYVINYL CHLORIDE CONDUIT. POLYVINYL CHLORIDE CONDUIT SHALL BE SCHEDULE 40 AS MANUFACTURED BY CARLON OR APPROVED EQUAL.
8. PROVIDE DRIVE-ON BUSHINGS FOR ENDS OF PVC CONDUIT FOR SECONDARY INCOMING SERVICE.
9. MAINTAIN SIX (6) INCH MINIMUM CLEARANCE BETWEEN ALL RACEWAY AND PARALLEL RUNS OF WATER PIPES.
10. ALL FEEDERS TO BRANCH CIRCUIT PANELBOARDS SHALL BE IN CONDUIT.
11. USE OZ/GEDNEY COMPANY TYPE B INSULATING BUSHINGS ON ALL RACEWAY FREE ENDS AND ENTERING PANELS. PULL BOXES, DISCONNECTS, ETC.
12. VERTICAL ELBOWS STUBBED OUT OF FLOORS OR EQUIPMENT PADS SHALL BE IMC OR RGS CONDUIT.

OUTLET BOXES:

1. AT ALL OUTLETS OF WHATEVER KIND, FOR ALL SYSTEMS, PROVIDE A SUITABLE BOX SPECIALLY DESIGNED TO RECEIVE THE TYPE OF FIXTURE OR EQUIPMENT TO BE USED. THE BOXES SHOULD BE PROVIDED WITH SUITABLE FIXTURE SUPPORTS OF SIZE AND KIND REQUIRED FOR THE FIXTURE TO BE HUNG.
2. PROVIDE BOX COVERS TO FIT OUTLET BOX INSTALLED OF THE REQUIREMENT THAT THE TYPE OF THE COVER TO MATCH THE FINISHED PLASTER, MASONRY, ACOUSTICAL MATERIAL, OR OTHER FINISH.
3. PROVIDE JUNCTION OR PULL BOXES WHERE EVER INDICATED OR WHERE REQUIRED TO FACILITATE WIRE PULLING OR CONNECTION. FABRICATE BOXES WITH TWELVE (12) GAUGE MINIMUM GALVANIZED STEEL AND EQUIP WITH SUITABLE WIRE CLAMPS AND SADDLES TO HOLD THE WIRE INSIDE AND ON EXTERIOR OF COVER WITH ONE (1) INCH HIGH STENCILED LETTERS.
4. PROVIDE SINGLE GANG FS TYPE DEVICE BOX WITH WATERPROOF "WHILE IN USE" RECEPTACLE COVER.

260548 VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

1. PROVIDE SEISMIC SUPPORTS AND ANCHORS FOR ELECTRICAL EQUIPMENT, AND SEISMIC BRACING FOR RACEWAY SYSTEMS IN COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE 2009.

262416 PANELBOARDS

1. PANELBOARDS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SQUARE D, SIEMENS, OR CUTLER HAMMER. PANELBOARD TYPES AND CIRCUIT BREAKER PHASE DESIGNATIONS ARE GIVEN ON THE DRAWINGS. ALL PANELBOARDS DESIGNATED FOR SERVICE ENTRANCE SHALL BE RATED FOR SAME AND SHALL BE PROVIDED WITH A UL SERVICE ENTRANCE LABEL.
2. PROVIDE PANELBOARDS OF TYPES INDICATED AND WITH FEATURES AND SIZES OF CUTOUTS SHOWN ON DRAWINGS AND DESCRIBED HEREIN. USE FULL DISTRIBUTED PHASING OF BRANCH CIRCUIT CONNECTIONS. PROVIDE GROUND AND NEUTRAL BUSES MADE OF SAME MATERIAL AS PHASE BUSES IN ALL PANELS. PANEL BUSES SHALL BE NINETY-EIGHT (98) PERCENT CONDUCTIVITY HARD-DRAWN COPPER. ALL LUGS SHALL BE SUITABLE FOR COPPER UL LISTED WIRE OR CABLE AND SHALL BE TESTED AND LISTED IN CONJUNCTION WITH APPROPRIATE UL STANDARDS.
3. PANELS ENCLOSURES SHALL BE RATED 4X.
4. PROVIDE DOORS WITH CONCEALED HINGES AND CORROSION PROOF FLUSH TUMBLER LOCK AND CATCH ON ALL PANELBOARDS. KEY ALL PANELBOARDS ALIKE.
5. THE MANUFACTURER'S NAMEPLATE SHALL BE OF CORROSION RESISTANT METAL SUCH AS STAINLESS STEEL AND HAVE THE PERTINENT RATINGS ENGRAVED IN RAISED LETTER AND NUMERALS. THE PERTINENT RATINGS SHALL INCLUDE AMPERAGE, VOLTAGE, PHASE, WIRES, AC, MANUFACTURER AND MODEL NUMBER.
6. PANELBOARD BACK BOXES SHALL BE CORROSION RESISTANT, ZINC FINISH. PANELBOARD FRONTS SHALL BE REINFORCED STEEL, POWDER FINISH PAINTED LIGHT GRAY, AND BE EQUIPPED WITH CONCEALED HINGES AND CONCEALED TRIM ADJUSTING SCREWS. DIRECTORY CARD HOLDERS SHALL BE CLEAR LEXAN SLOT MOUNTED TO THE FRONT DOOR.
7. MOUNT A TYPEWRITTEN DIRECTORY OF CIRCUITS, WITH LEGEND PROVIDED BY THE ENGINEER. THE PANEL DIRECTORY SHALL LIST THE PANEL FROM WHICH IT IS FED, AND THE DATE THE PANEL WAS INSTALLED OR ENERGIZED.
8. CIRCUIT NUMBERS TO PANELBOARDS INDICATED ON THE DRAWINGS ARE FOR THE PURPOSE OF CLARIFYING THE GROUPING OF OUTLETS INTO CIRCUITS. FOLLOWING THIS NUMBERING ARE ALLOWED TO BE SHOWN IN THE PANEL, ENSURING THIS NUMBERING AS CLOSELY AS PRACTICABLE.
9. WHERE "SPACE" IS CALLED FOR ON SCHEDULE, PROVIDE NECESSARY BUS, DISCONNECT SUPPORTS, CONNECTIONS, AND BLANK COVERS FOR FUTURE BREAKERS.
10. CIRCUIT BREAKERS OR FUSIBLE DEVICES SHALL BE THE BOLTED TYPE OR POSITIVE GRIPPING JAW ASSEMBLIES AND LOCKED PRESSURE CONNECTIONS.
11. MAIN AND BRANCH CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, AND TRIP INDICATING. ALL TWO (2) AND THREE (3) POLE BREAKERS SHALL HAVE INTERNAL COMMON TRIPS.
12. THE NEUTRAL BUS IN EACH PANELBOARD SHALL BE ISOLATED FROM THE CABINET TO PREVENT NEUTRAL GROUNDS AT THE CABINET.
13. PROVIDE A GROUND BUS IN EACH PANELBOARD CABINET. EACH GROUND BUS SHALL BE BONDED TO THE CABINET.
14. THE CONTRACTOR SHALL BALANCE THE LOADING OF ANY PANELBOARDS HAVING CIRCUIT DESIGNATIONS ALTERED FROM THOSE INDICATED ON THE DRAWINGS.

262816 VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

1. PROVIDE SAFETY SWITCHES WHERE INDICATED.
2. SAFETY SWITCHES SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SQUARE D, OR CUTLER HAMMER. SAFETY SWITCHES SHALL BE HORSEPOWER RATED, GENERAL DUTY, QUICK MAKE OPERATING MECHANISM, U.L. LISTED, WITH NUMBER OF POLES, FUSES, NEMA TYPE, AND CAPACITIES INDICATED. COVER SHALL BE INTERLOCKED WITH SWITCH HANDLE. VOLTAGE RATING; 240 VOLT FOR 208 VOLT SYSTEM.
3. ENCLOSURES SHALL BE NEMA 1 RATED INDOORS, NEMA 4X RATED OUTDOORS, OR AS OTHERWISE INDICATED.

264113 LIGHTNING PROTECTION

1. EXISTING SYSTEM SHALL BE RE-INSTALLED AND U.L. RE-CERTIFIED AT THE COMPLETION.