

ROOFING REPLACEMENT



BLUEFIN LLC CORPORATE OFFICE
6312 S. Fiddlers Green Circle Suite 100E
Greenwood Village, CO 80111
TEL: 866-735-0728

ED CHANCE COURTHOUSE ANNEX

1520 LAKE FRONT CIRCLE
THE WOODLANDS, TEXAS 77380



Montgomery County, Texas



AERIAL SITE PHOTO

Design Summary:
Design Code : 2015 IBC
Risk Category = III
Wind Speed : V = 136 mph (Ultimate)
Wind Speed : V = 105 mph (Nominal)
Wind Exposure Category : C
New roof assembly weight to be 3.0 PSF
Mean Building Roof Height = 17'- 0"
Building Roof Slope = 0.06:12 or 0.3%
Components and Cladding Pressures (Nominal)
Zone 1 P = -24.8 psf
Zone 2 P = -41.7 psf
Zone 3 P = -62.7 psf
Positive All Zones : P = 10.1 psf
a = 4'-3"

NOTE: ROOF GUTTER, DOWNSPOUT SIZE AND LOCATION ARE PER THE EXISTING CONDITIONS.
ROOF GUTTER, DOWNSPOUT SIZE AND LOCATION DESIGN ARE NOT PART OF OUR SCOPE OF WORK.

GENERAL PROJECT NOTES:

1. PROVIDE ALL BUILDING PERMITS AS APPLICABLE.
2. CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS.
3. PERFORM ALL WORK IN CONFORMANCE WITH THE PROJECT DOCUMENTS. REPAIR OR REPLACE ANY WORK DEEMED UNACCEPTABLE BY THE OWNER OR OWNER'S REPRESENTATIVE TO THE SATISFACTION OF THE OWNER.
4. INSTALL CRICKETS BEHIND CURBS AND BETWEEN ROOF DRAINS AS NEEDED TO HELP PROMOTE DRAINAGE.
5. ALL SERVICE LINES SUCH AS GAS LINES, ELECTRICAL LINES AND CONDUITS, SHALL COMPLY WITH CURRENT CODE REQUIREMENTS.
6. PROVIDE FLEX CONDUIT CONNECTIONS TO ROOFTOP UNITS.
7. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS. CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REQUIREMENTS FOR PROTECTION OF EMPLOYEES, SITE PERSONNEL, AND VISITORS.
8. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL AND EQUIPMENT DELIVERY AND STORAGE. OWNER SHALL DESIGNATE STAGING AREA(S).
9. ALL MATERIALS ARE TO BE COVERED WITH WATERPROOF TARPULINS. USING ONLY THE MANUFACTURER'S PROVIDED MATERIAL COVERS IS NOT ACCEPTABLE. ANY MATERIALS DEEMED DEFECTIVE OR UNACCEPTABLE SHALL BE MARKED UP BY THE OWNER'S REPRESENTATIVE AND REMOVED FROM THE SITE WITHIN 24 HOURS.
10. WORK SHALL NOT INTERFERE WITH SITE'S DAILY OPERATIONS. COORDINATE ALL WORK WITH OWNER AND/OR OWNER'S REPRESENTATIVE.
11. CONTRACTOR IS TO PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK.
12. CONTRACTOR TO VERIFY WORKING CONDITION OF ALL EXISTING ROOFTOP EQUIPMENT AND PROVIDE WRITTEN DOCUMENTATION OF CONDITION TO OWNER AND OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK.
13. CONTRACTOR IS TO REPAIR OR REPLACE ANY DAMAGE CAUSED BY CONSTRUCTION TO OWNER'S SATISFACTION.
14. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES, LAWS, RULES, AND REGULATIONS. IF CONFLICT ARISES BETWEEN CODE AND PROJECT DOCUMENTS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE FOR CLARIFICATION.
15. IF SUB-CONTRACTORS ARE REQUIRED TO PERFORM MECHANICAL, PLUMBING, ELECTRICAL, OR OTHER SPECIALTY WORK, CONTRACTOR SHALL PROVIDE A PROPERLY LICENSED SUB-CONTRACTOR TO PERFORM SAID WORK.
16. WHERE DETAILS ARE NOT SHOWN, CONFORM TO SIMILAR WORK ON THE PROJECT. WHERE SPECIFICATION AND DETAILS DON'T COVER THE INSTALLATION OF A PRODUCT, CONFORM TO THE MANUFACTURER'S WRITTEN INSTRUCTIONS/SPECIFICATIONS.
17. ALL MATERIALS USED SHALL BE NEW UNLESS OTHERWISE NOTED.
18. UNLESS OTHERWISE NOTED, ALL BASE FLASHINGS SHALL BE A MINIMUM OF 8" IN HEIGHT. SOME EQUIPMENT MAY NEED TO BE RAISED IN ORDER TO COMPLY WITH THIS REQUIREMENT. CONTRACTOR IS RESPONSIBLE FOR RAISING CURBS, TENDING DUCTWORK, AND EXTENDING PIPES AS NECESSARY TO PROVIDE THE PROPER BASE FLASHING HEIGHT.
19. ALL WORK AND MATERIALS SHALL BE PROVIDED AS REQUIRED BY ROOFING MEMBRANE MANUFACTURER FOR THE SPECIFIED WARRANTY.
20. INSTALL ALL NEW WALKPADS WHERE INDICATED ON DRAWINGS AND AROUND ALL SERVICEABLE EQUIPMENT, AND AT ALL ROOF ACCESS LOCATIONS SUCH AS DOORS AND HATCHES.
21. CONTRACTOR SHALL CLEAN THE SITE DAILY AND DISPOSE OF ALL PROJECT-GENERATED DEBRIS IN PROPER CONTAINERS AND IN ACCORDANCE WITH ALL APPLICABLE CODES, LAWS, AND REQUIREMENTS.

DRAWING INDEX

- C1.0 COVER PAGE
- R1.0 ROOF PLANS
- R1.1 ROOF DETAILS
- R1.2 ROOF DETAILS
- R1.3 ROOF DETAILS
- R1.4 INSULATION FASTENING

Texas COA # F-17281



Salvatore R. Granata, P.E., S.E.

Phone: (878) 367-3151
Cell: (770) 301-5817
Toll Free: (877) 346-5126

146 Lee Road 2012
Opelika, AL 36804

Fax: 866-815-4682
sal@space.com
sal@space.com

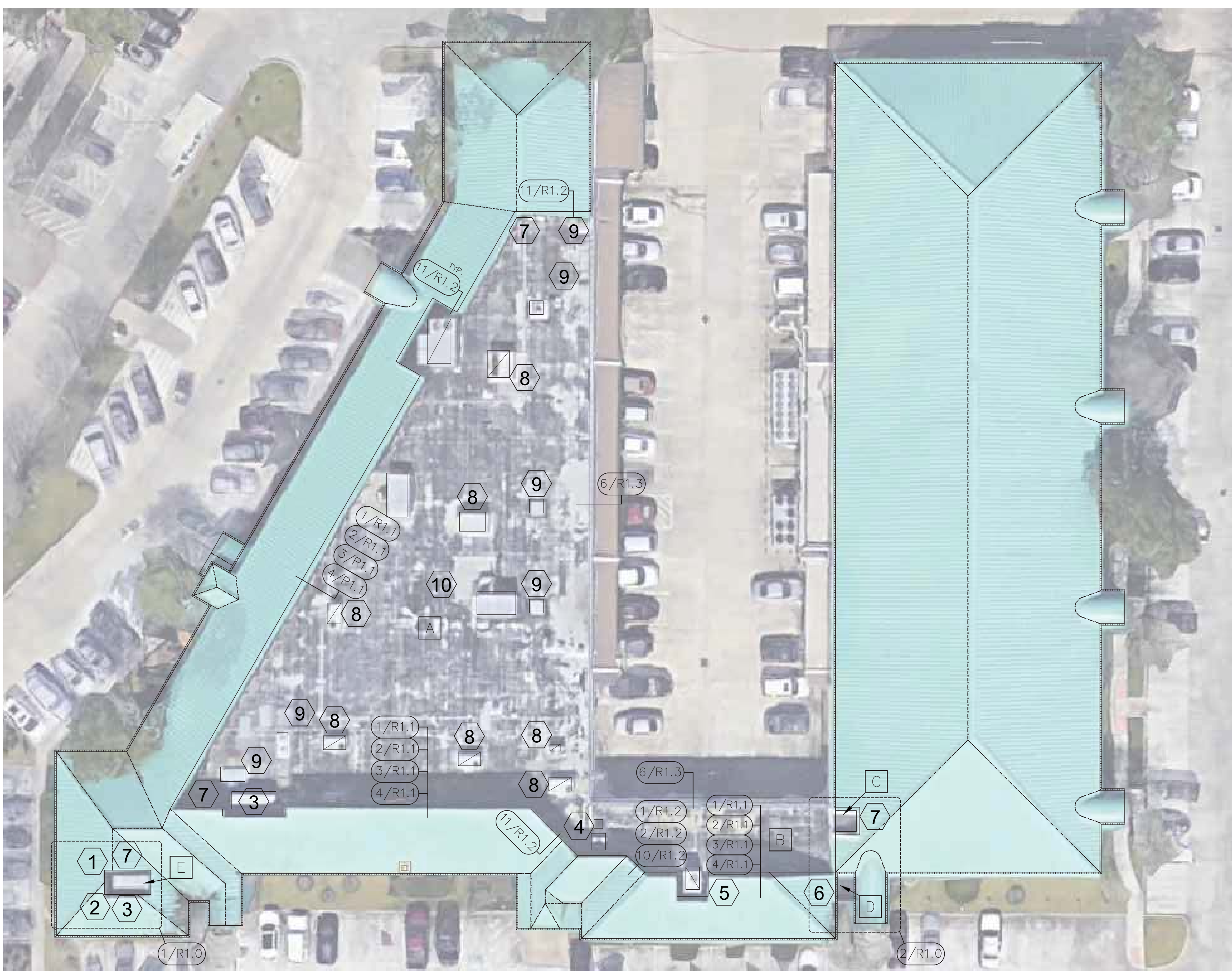


12/11/17

DRAWING TITLE
COVER PAGE

SHEET NUMBER

C1.0



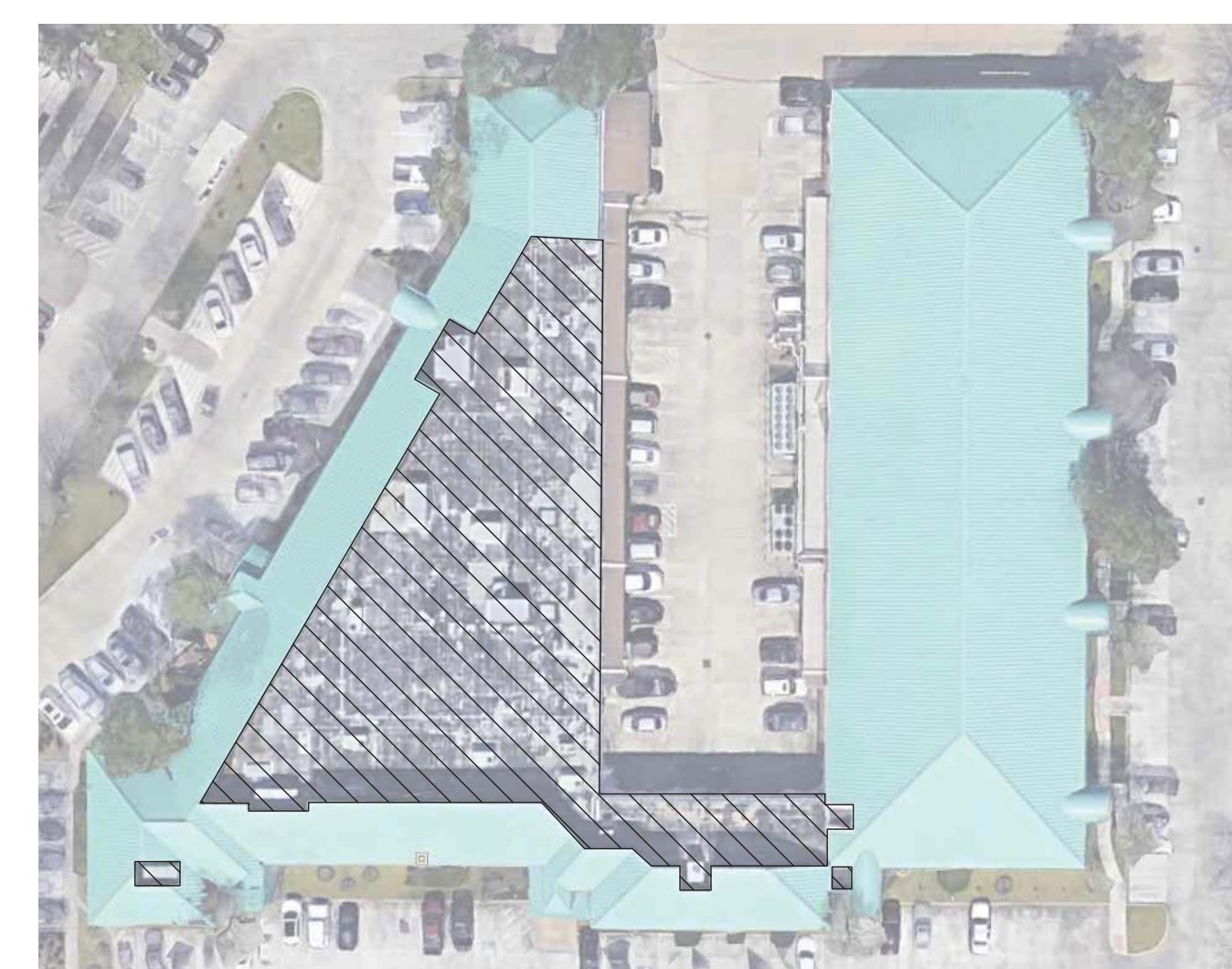
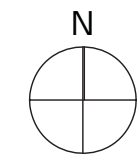
SPECIFIC ROOF NOTES

- 1 INSTALL 1/8" PER FOOT TAPERED ISO INSULATION SYSTEM.
- 2 INSTALL ONE 4-INCH ROOF/OVERFLOW DRAIN COMBINATION AS FOLLOWS.
 - a. CUT ROOF DOWN TO THE BAR JOISTS.
 - b. INSTALL 16 GAUGE QUICKFRAME FRAMING COMPONENTS FOR A NEW ROOF DRAIN.
 - c. INSTALL NEW 4" WADE #3046 ROOF/OVERFLOW DRAIN COMBINATION WITH BEARING PAN.
 - d. INSTALL NEW INSULATED PVC DRAIN LINES TO WEST EXTERIOR WALL.
 - e. PRIMARY DRAIN LINE TO HAVE A 24 GAUGE, PREFINISHED CONDUCTOR HEAD AND 4X4 DOWNSPOUT. DOWNSPOUT TO DRAIN ONTO AN 18" X 36" CONCRETE SPLASH BLOCK.
 - f. OVERFLOW DRAIN LINE OUTLET TO EXIT WALL AND HAVE A BRASS LAMB'S TONGUE INSTALLED.
 - g. SEAL AROUND THE DRAIN LINES WHERE THEY EXIT THE WALL.
 - h. ALL DRAIN BODY INSTALLATION AND PLUMBING TO BE PERFORMED BY A PROPERLY LICENSED AND INSURED PLUMBER.
- 3 CUT AND MOVE VALVES, GAUGES, AND PIPING AS NEEDED TO ACCOMMODATE THE METAL WALL PANELS SYSTEM.
- 4 RAISE THE CONDENSATION DRAIN LINE AS REQUIRED TO ACCOMMODATE THE EXPANSION JOINT. THE LINE IS NOT TO TOUCH THE EXPANSION JOINT COVER. ONCE ALL WORK IS COMPLETE, WRAP THE COPPER CONDENSATION DRAIN LINE WITH RUBBER WHERE IT CROSSES THE EXPANSION JOINT TO PREVENT GALVANIC CORROSION.
- 5 RELOCATE THE ELECTRICAL BOX TO ACCOMMODATE THE METAL WALL PANEL SYSTEM.
- 6 ENCLOSE THE ROOF AREA AS FOLLOWS.
 - a. REMOVE THE EXISTING GUTTER FROM TWO SIDES.
 - b. CONSTRUCTION A 2X6, INSULATED WALL ON THE WEST SIDE AS DETAILED.
 - c. INSTALL TWO THROUGH WALL SCUPPERS FROM TPO-COATED METAL AND RUN THEM OUT THROUGH THE NEW WALL AND ONTO THE NEW ROOF AS DETAILED.
 - d. INSTALL ROOFING AND DETAILS AS SPECIFIED.
- 7 INSTALL A NEW, INSULATED STEEL DOOR AND FRAME AS DETAILED. BASE PLATE FOR THE DOOR IS TO BE CONSTRUCTED FROM PRESSURE TREATED TWO-BY-SIXES WITH PLYWOOD WALLS AND BATT INSULATION BETWEEN THE STUDS. SEE DETAIL 5/R1.3.
- 8 ABANDONED AND/OR NON-SERVICEABLE ROOF TOP UNITS
REMOVE THE EXISTING UNIT CURB, INSTALL NEW 22 GAUGE DECKING OVER THE OPENING FROM BAR JOIST TO BAR JOIST, NEW INSULATION TO MATCH THE THICKNESS OF THE EXISTING ROOF, AND THE NEW SPECIFIED ROOF SYSTEM. THE COUNTY'S MECHANICAL CONTRACTOR WILL DISCONNECT THE UNITS AND DUCTING TO BELOW THE ROOF DECK. THE COUNTY WILL PROVIDE A CRANE TO REMOVE THE UNITS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL WORK WITH THE COUNTY AND PROVIDING THE COUNTY WITH A MINIMUM ONE WEEK NOTICE FOR SCHEDULING THE CRANE.
- 9 ABANDONED CURBS
CONTRACTOR SHALL REMOVE ALL ABANDONED CURBS, INSTALL NEW 22 GAUGE DECKING OVER THE OPENING FROM BAR JOIST TO BAR JOIST, NEW INSULATION TO MATCH THE THICKNESS OF THE EXISTING ROOF, AND THE NEW SPECIFIED ROOF SYSTEM.
- 10 CONTRACTOR SHALL DISCONNECT LIGHTNING PROTECTION (LP) CABLE AND COMPONENTS AS REQUIRED TO PERFORM THE PROJECT SCOPE. CONTRACTOR SHALL REINSTALL ALL LP UPON COMPLETION, REPLACING MISSING OR DAMAGED COMPONENTS AS REQUIRED, AND RECERTIFY THE SYSTEM. ANY LP EXTENDING UNDER THE METAL ROOFING SHALL BE DISCONNECTED FROM UNDER THE METAL ROOFING AND PLACED LOOSELY ONTO THE SURFACE OF THE NEW ROOF.

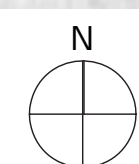
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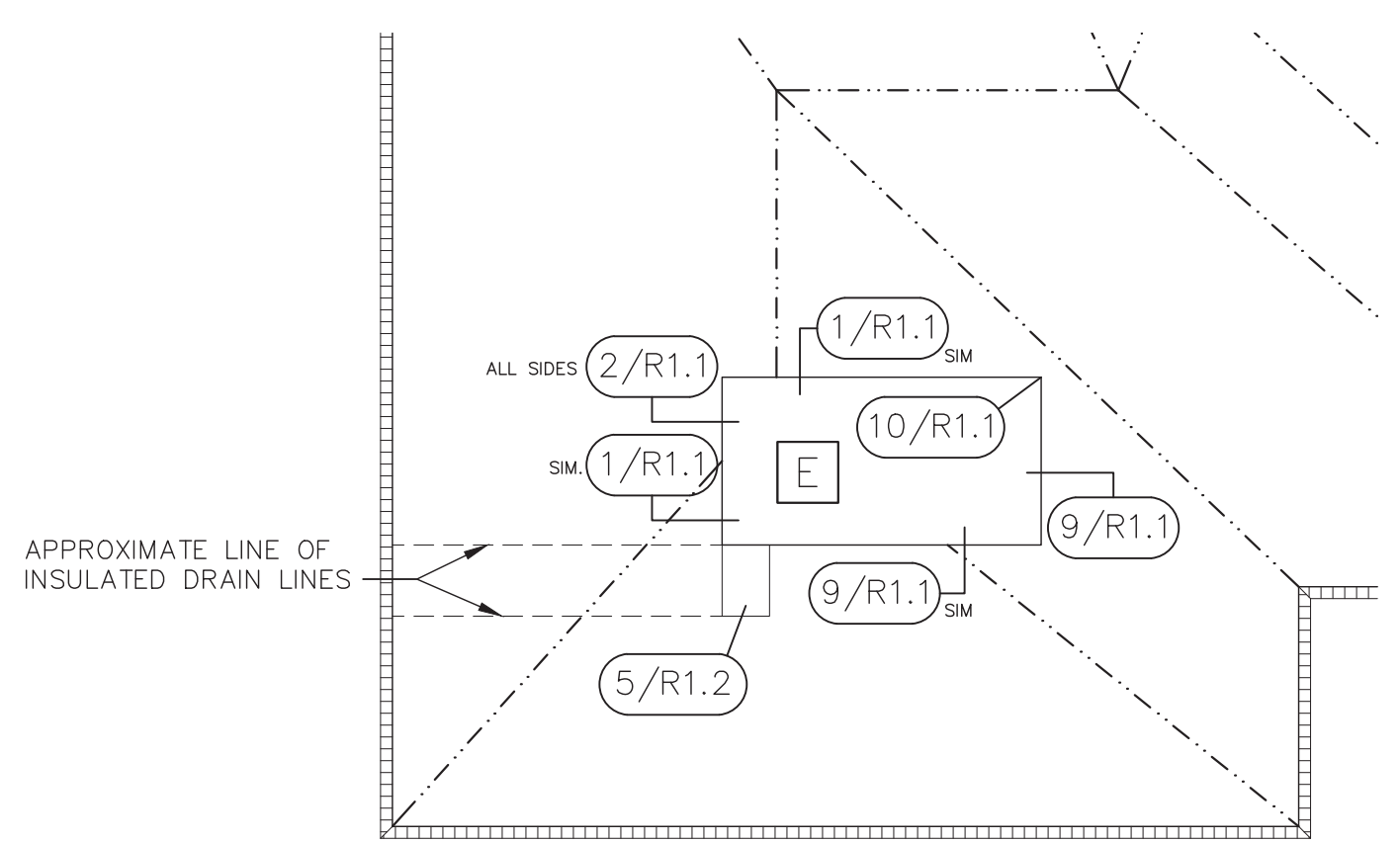
DETAIL REFERENCE ROOF PLAN
N.T.S.



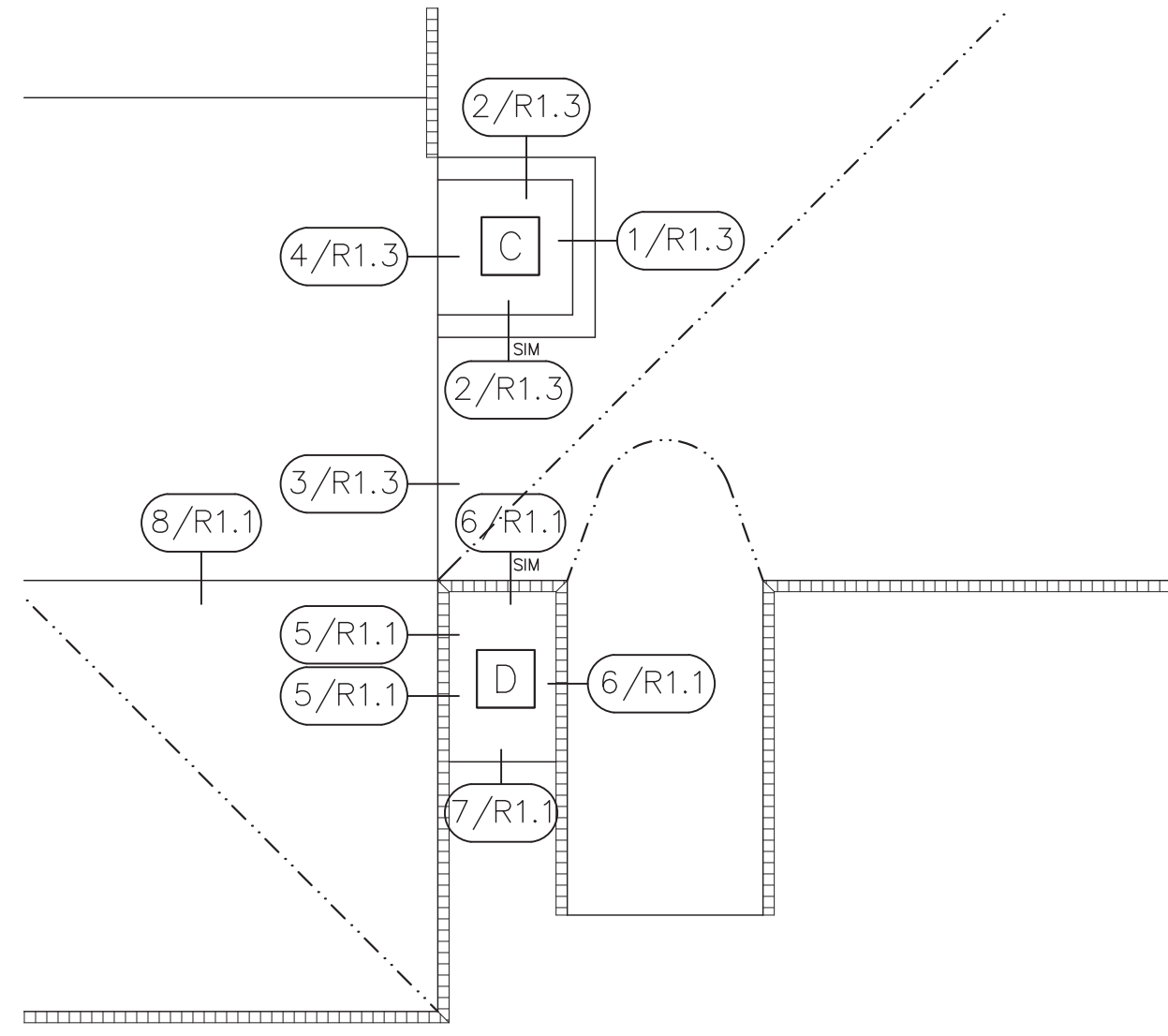
AREA OF WORK



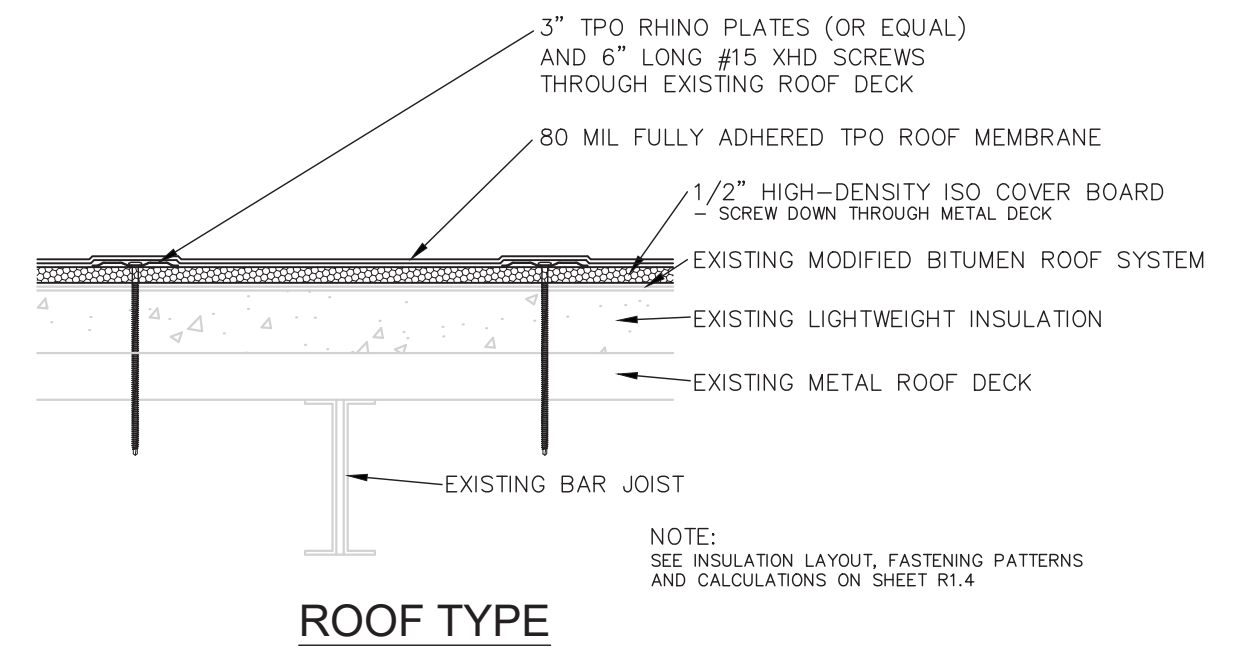
ED CHANCE COURTHOUSE ANNEX KEY PLAN
N.T.S.



1 ENLARGED ROOF PLAN
N.T.S.



2 ENLARGED ROOF PLAN
N.T.S.



ROOF TYPE

NOTE:
SEE INSULATION LAYOUT, FASTENING PATTERNS
AND CALCULATIONS ON SHEET R1-4

DRAWING DATES		
NUMBER	DATE	COMMENTS

• 1 12/11/17 ISSUE FOR BID

DRAWING TITLE
ROOF PLANS

SHEET NUMBER

R1.0

Texas COA # F-17281

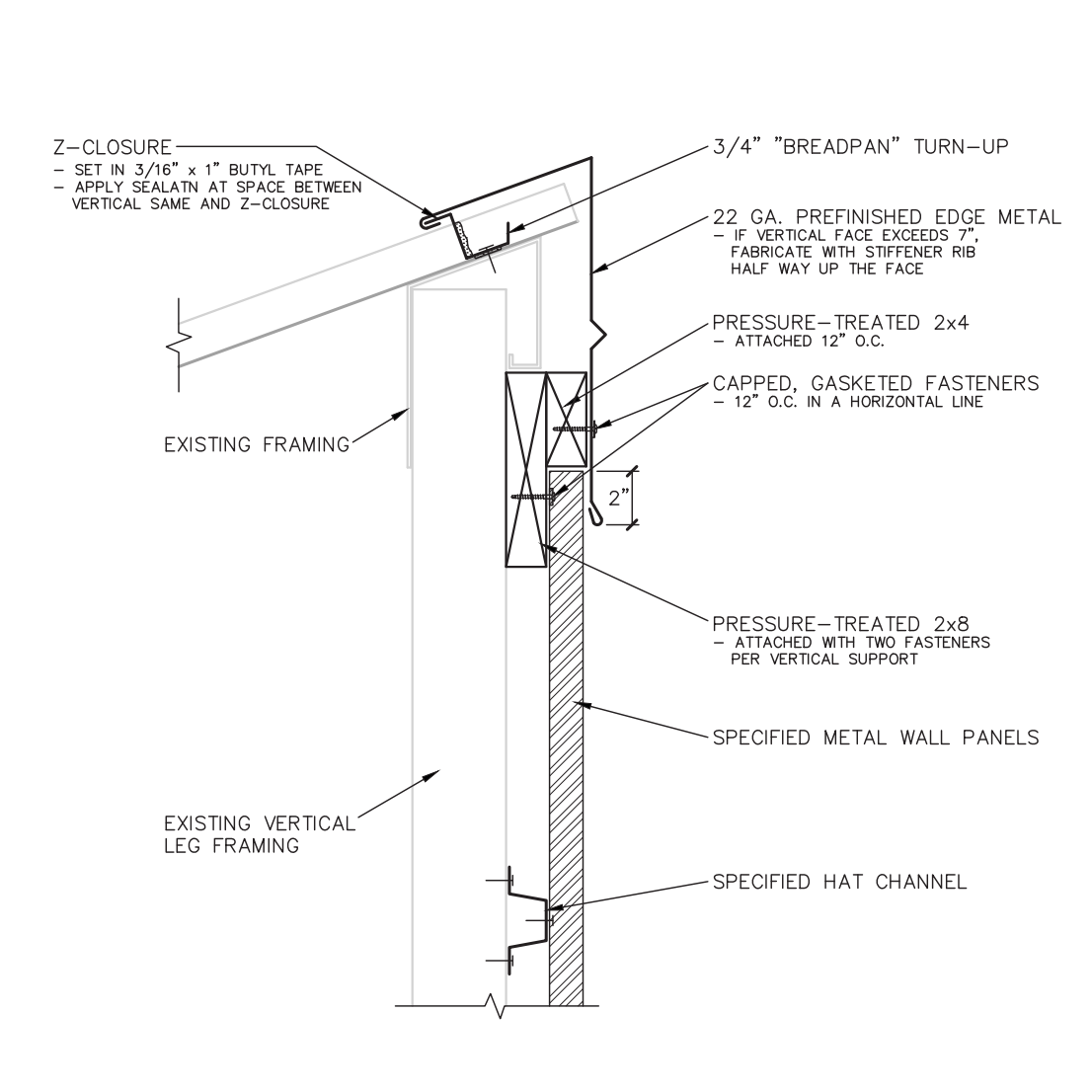


Salvatore R. Granata, P.E., S.E.

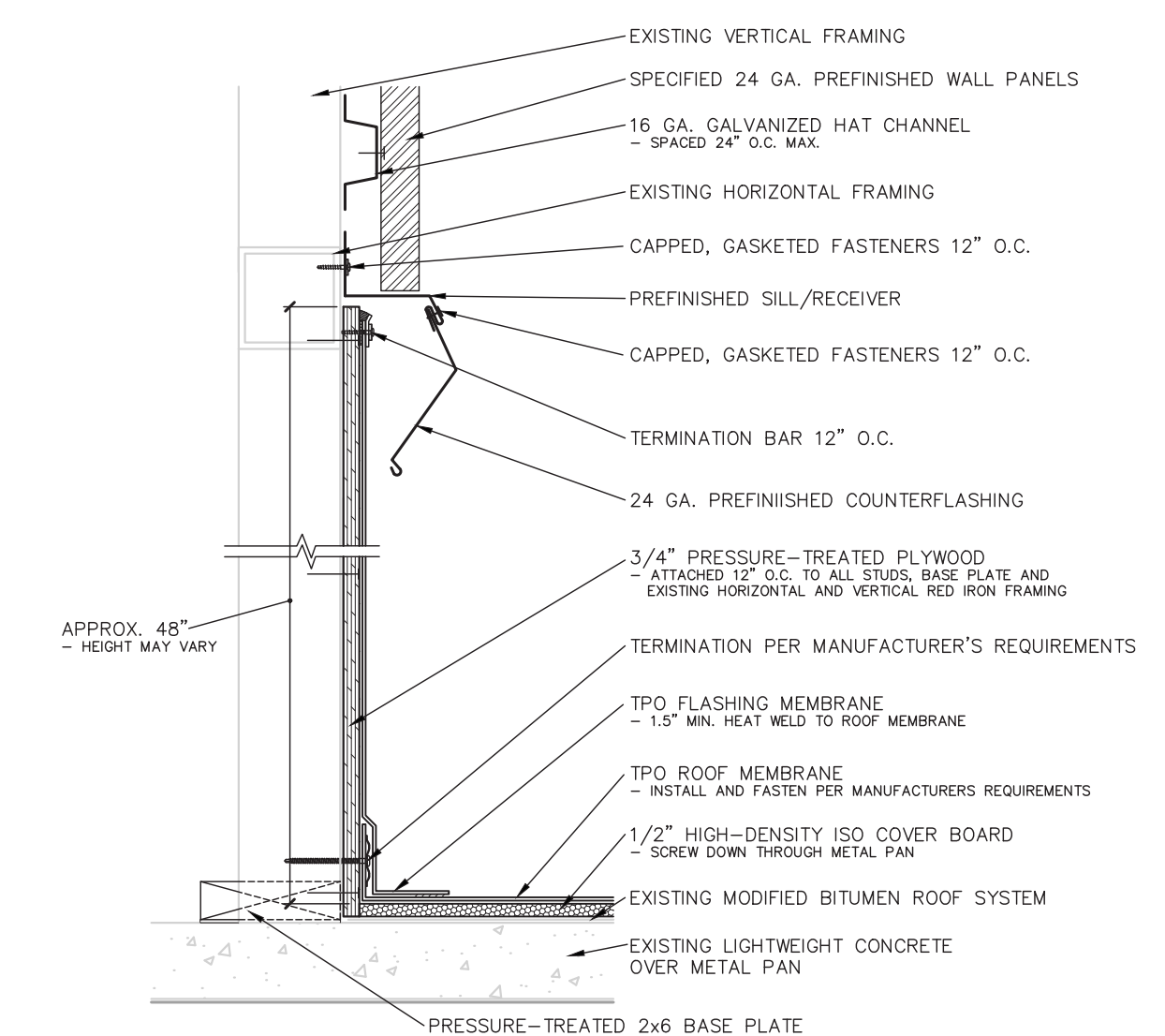
Phone: (878) 367-3151
Cell: (770) 361-5817
Toll Free: (877) 346-5126
146 Lee Road 2012
Opelika, AL 36804
Fax: 866-815-4682
sal@salgr.com
salgranata.com



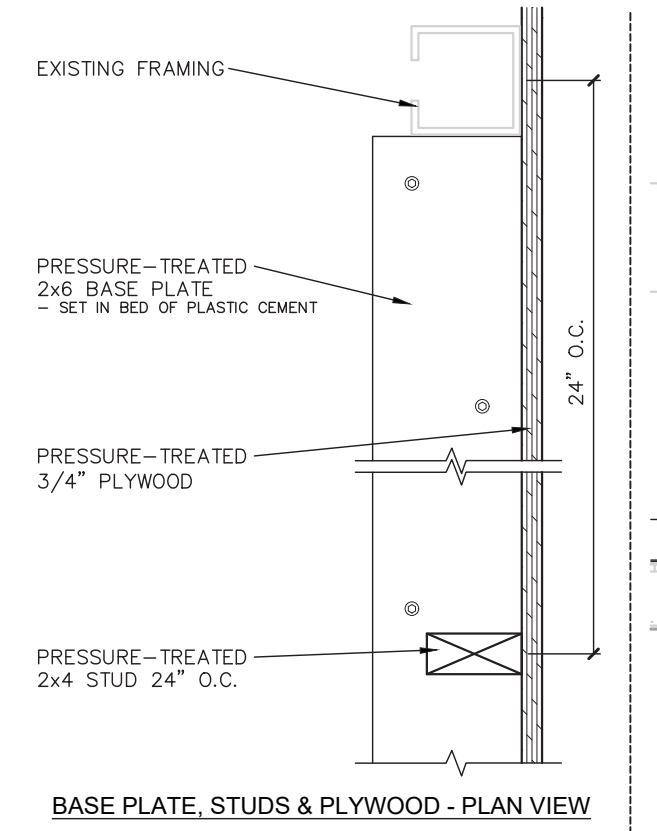
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1 ROOF EDGE
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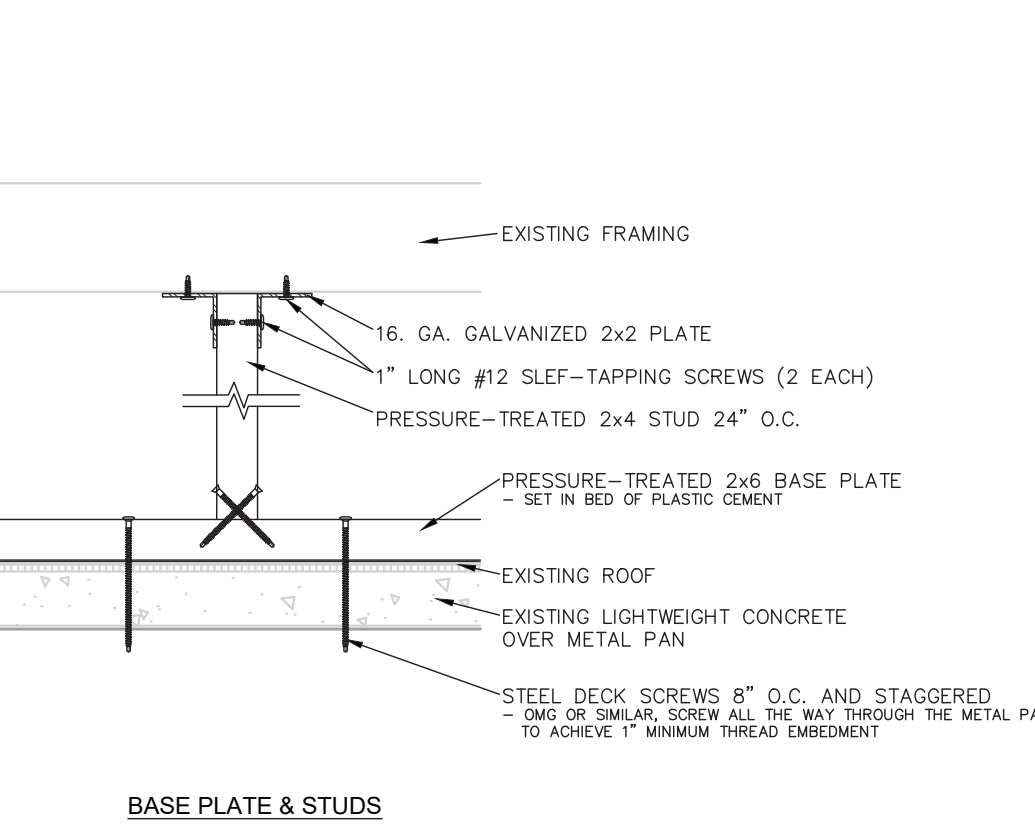


2 WALL FLASHING
N.T.S



BASE PLATE, STUDS & PLYWOOD - PLAN VIEW

3 PLYWOOD AND FRAMING
N.T.S

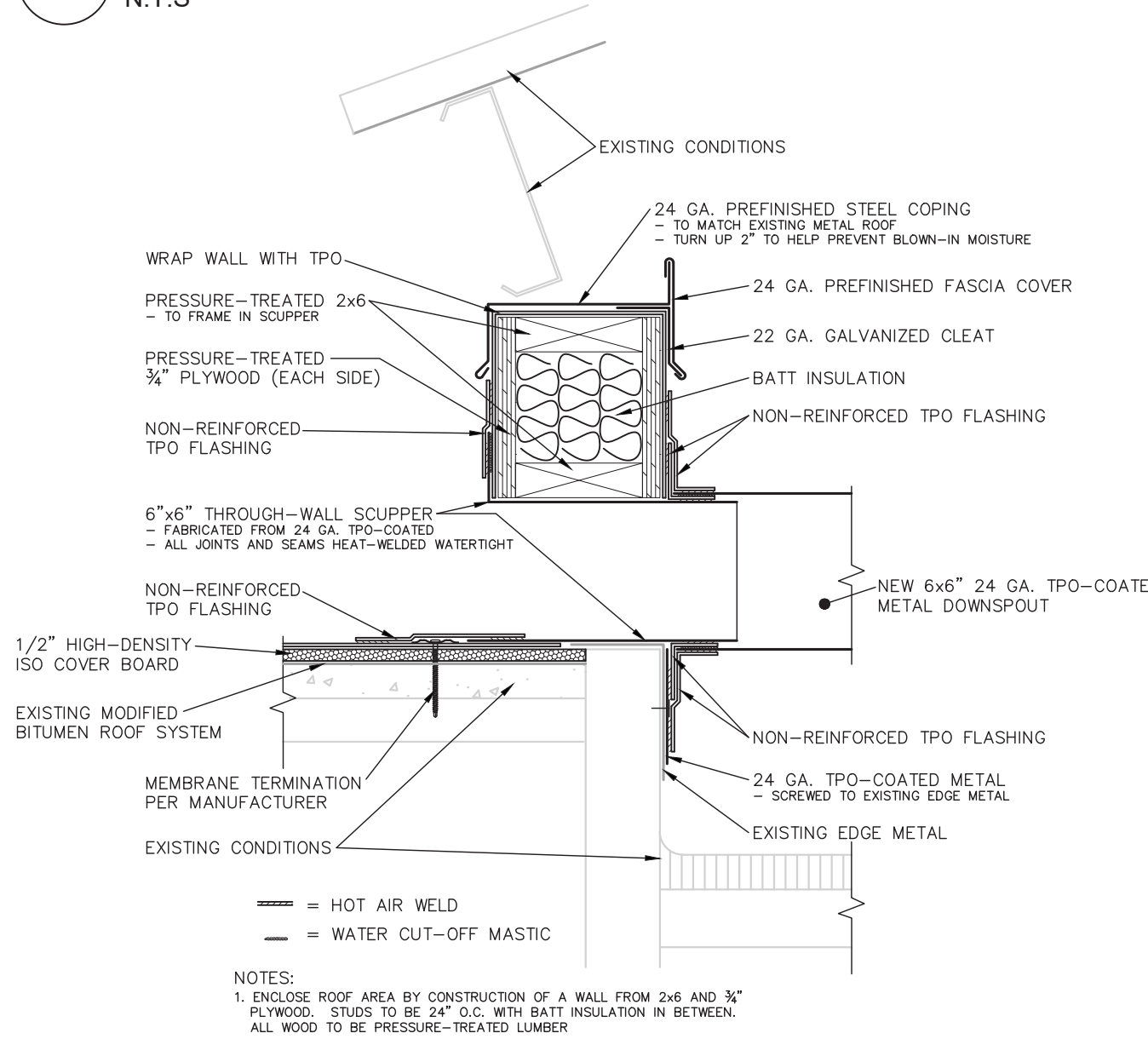


BASE PLATE & STUDS

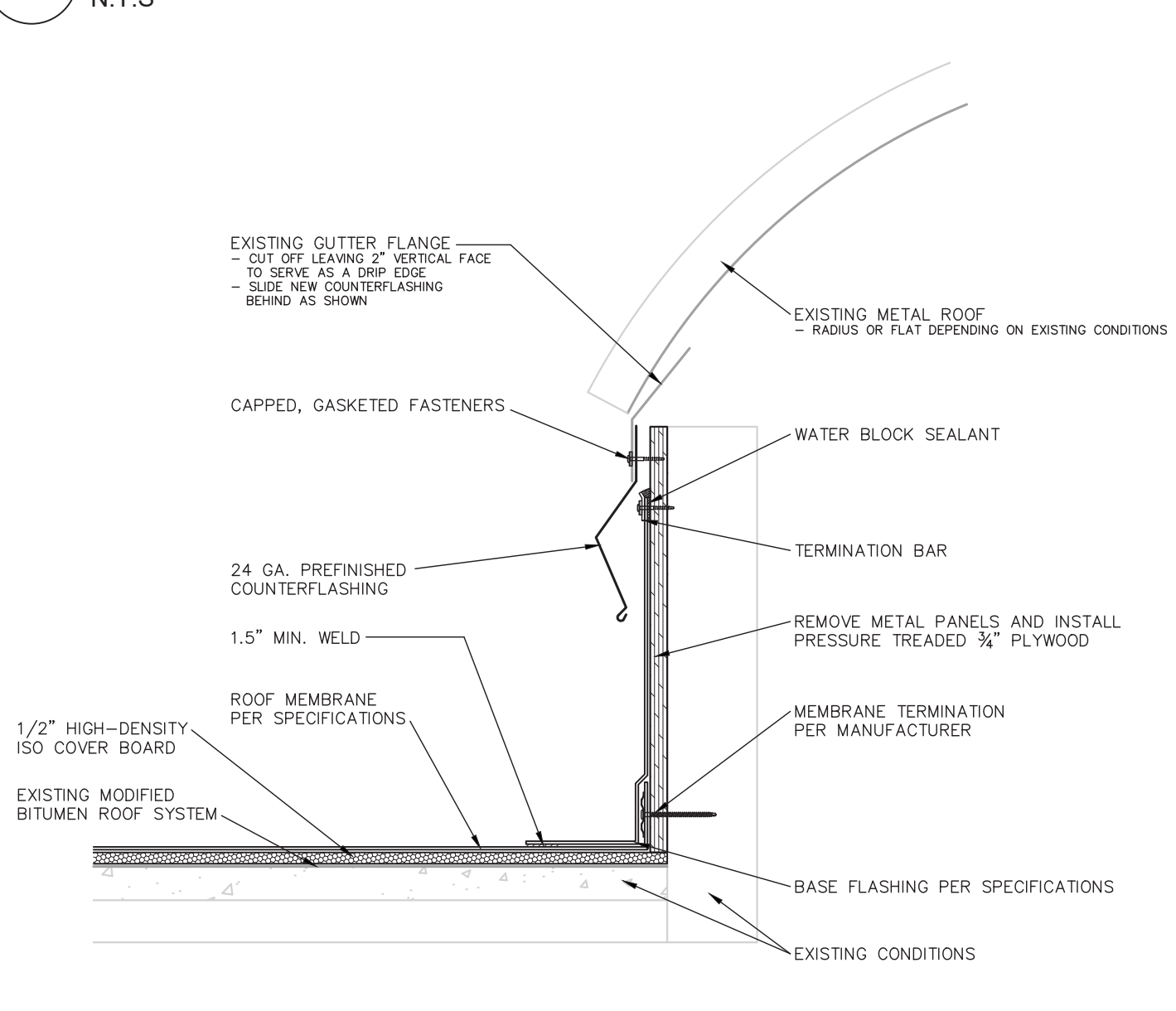


NOTES:
1. 3 INCH WIDE, 16 GAUGE STRAPS EVERY 2 FEET ON CENTER MAX. ATTACH TO EACH HORIZONTAL FRAMING MEMBER USING TWO #12 SELF-TAPPING SCREWS.
2. ATTACH THE HAT CHANNEL TO EACH STRAP AND VERTICAL FRAMING MEMBER USING 4 (EACH) #12 SELF-TAPPING SCREWS.

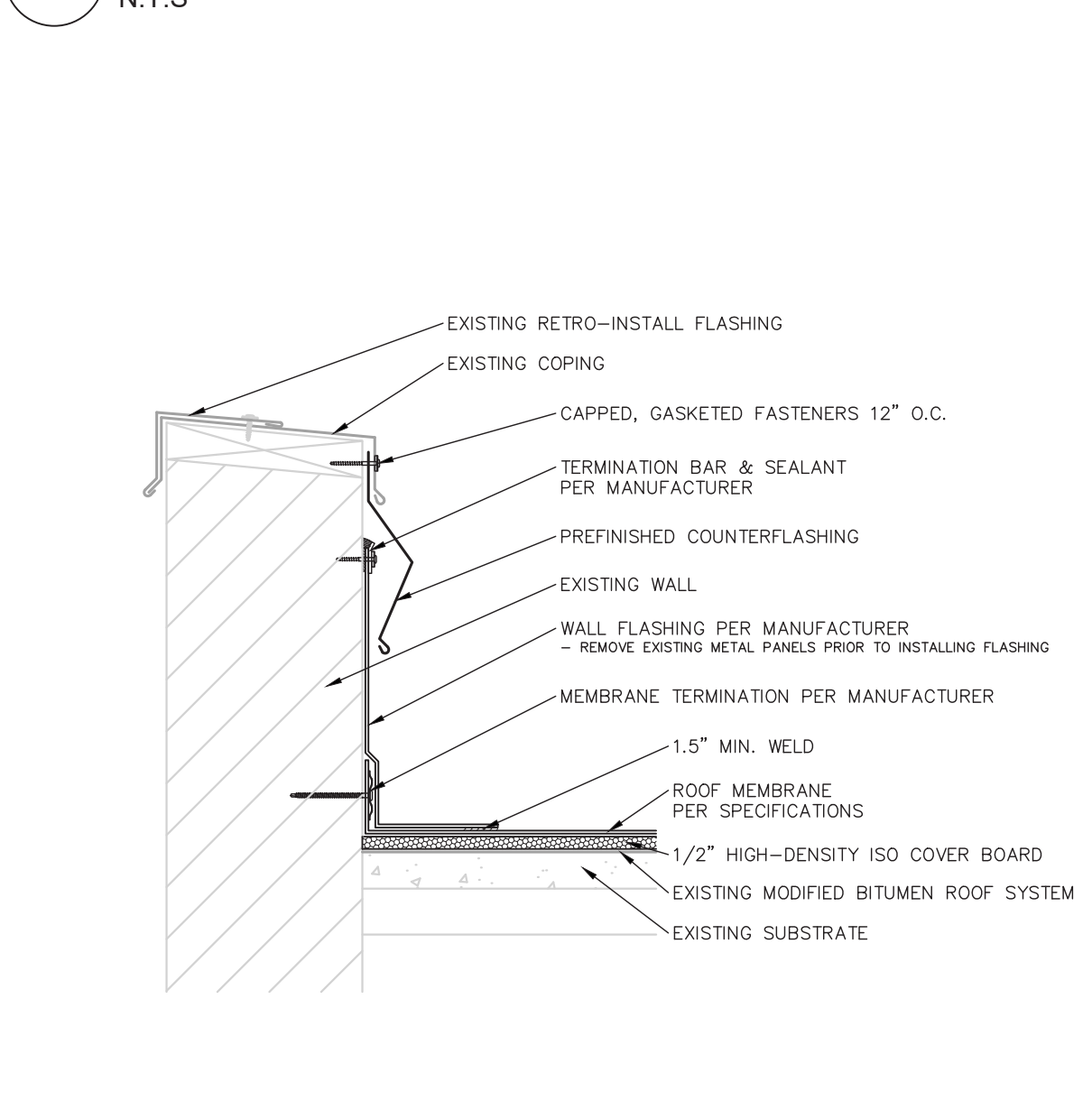
4 PHOTO ELEVATION
N.T.S



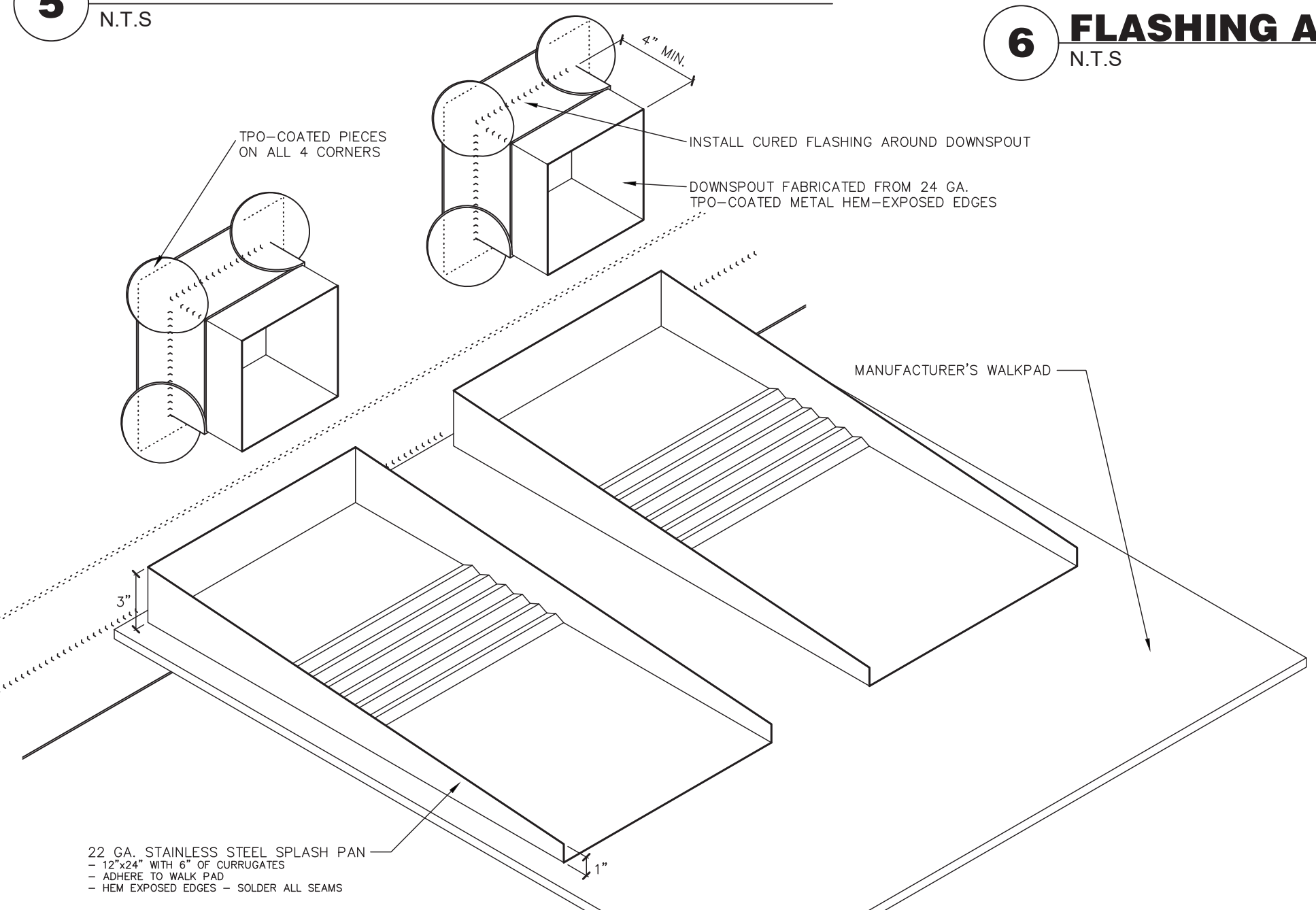
5 SCUPPER
N.T.S



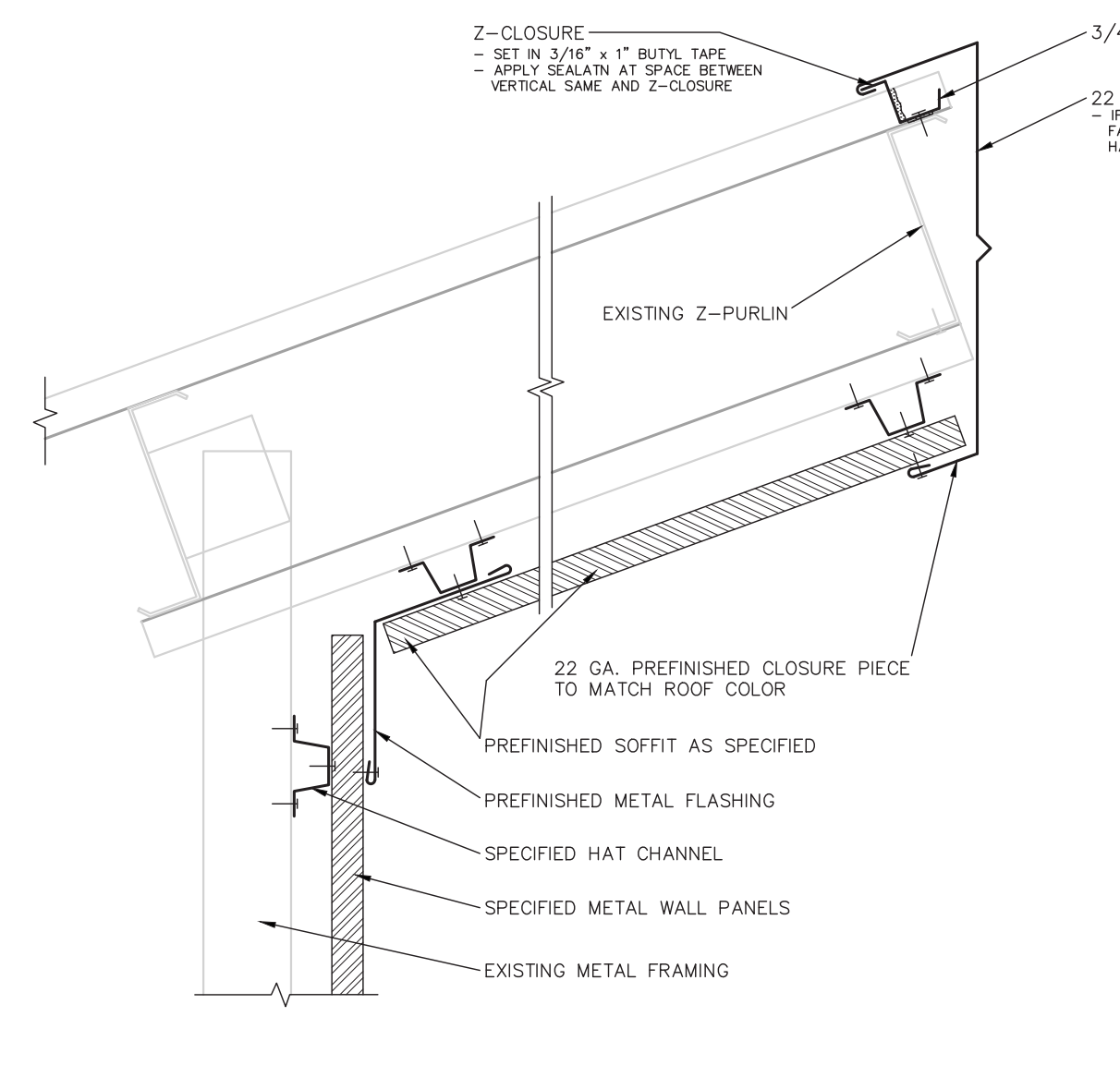
6 FLASHING AT TRANSITION
N.T.S



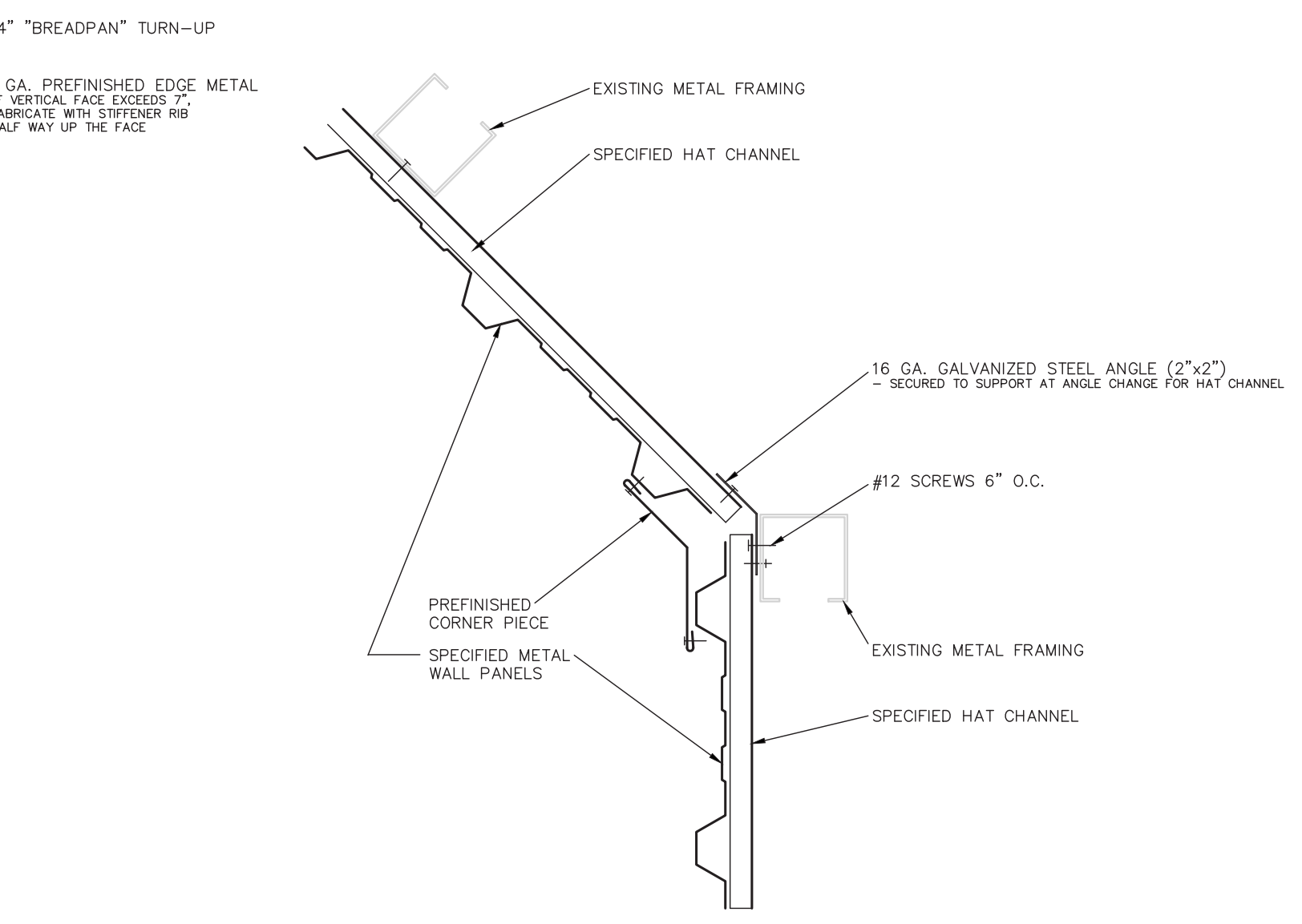
7 PARAPET
N.T.S



8 SPLASH PANS
N.T.S



9 SECTION
N.T.S



10 SECTION
N.T.S

Texas COA # F-17281
Salvatore R. Granata, P.E., S.E.
Phone: (878) 367-3151
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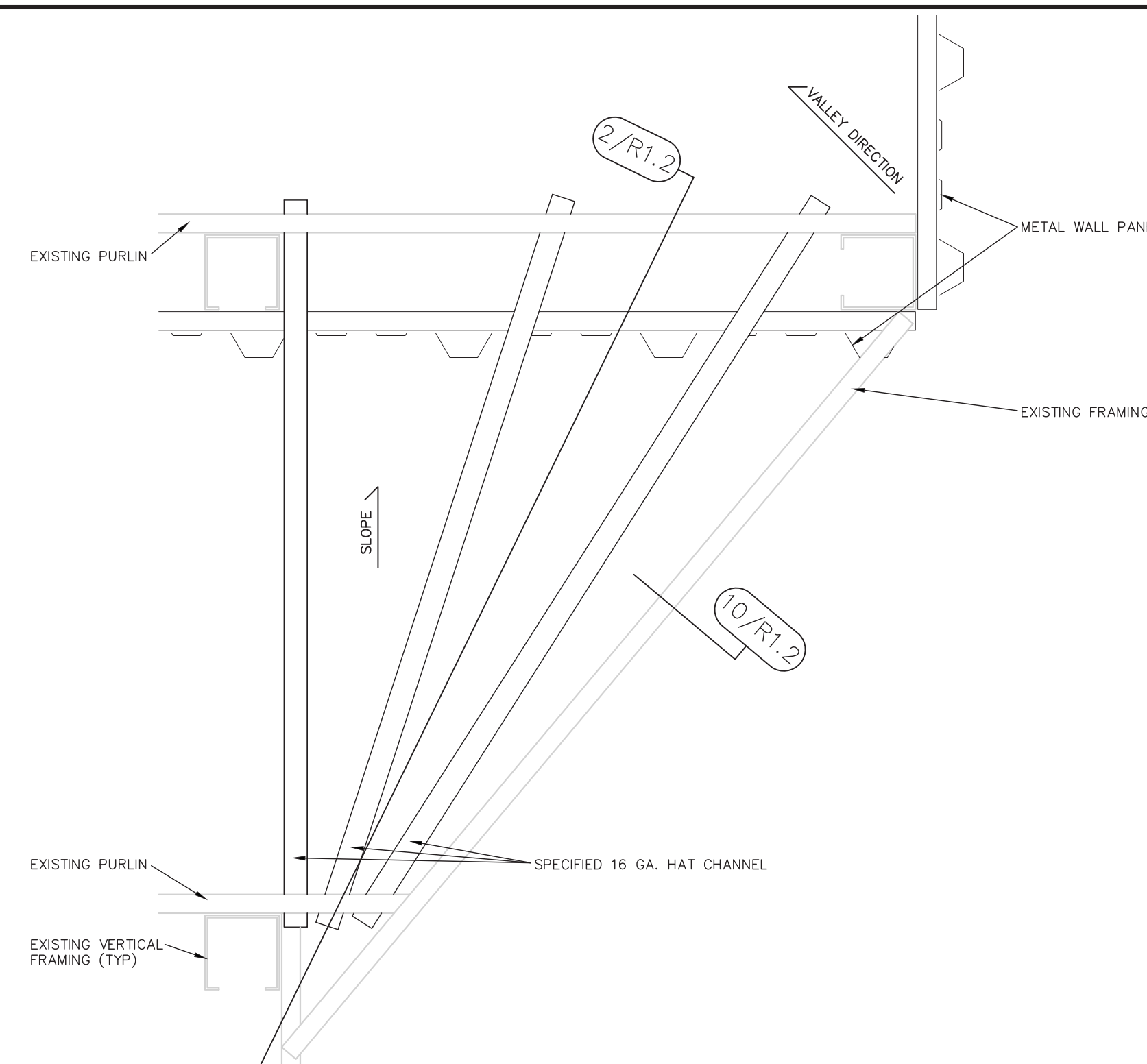
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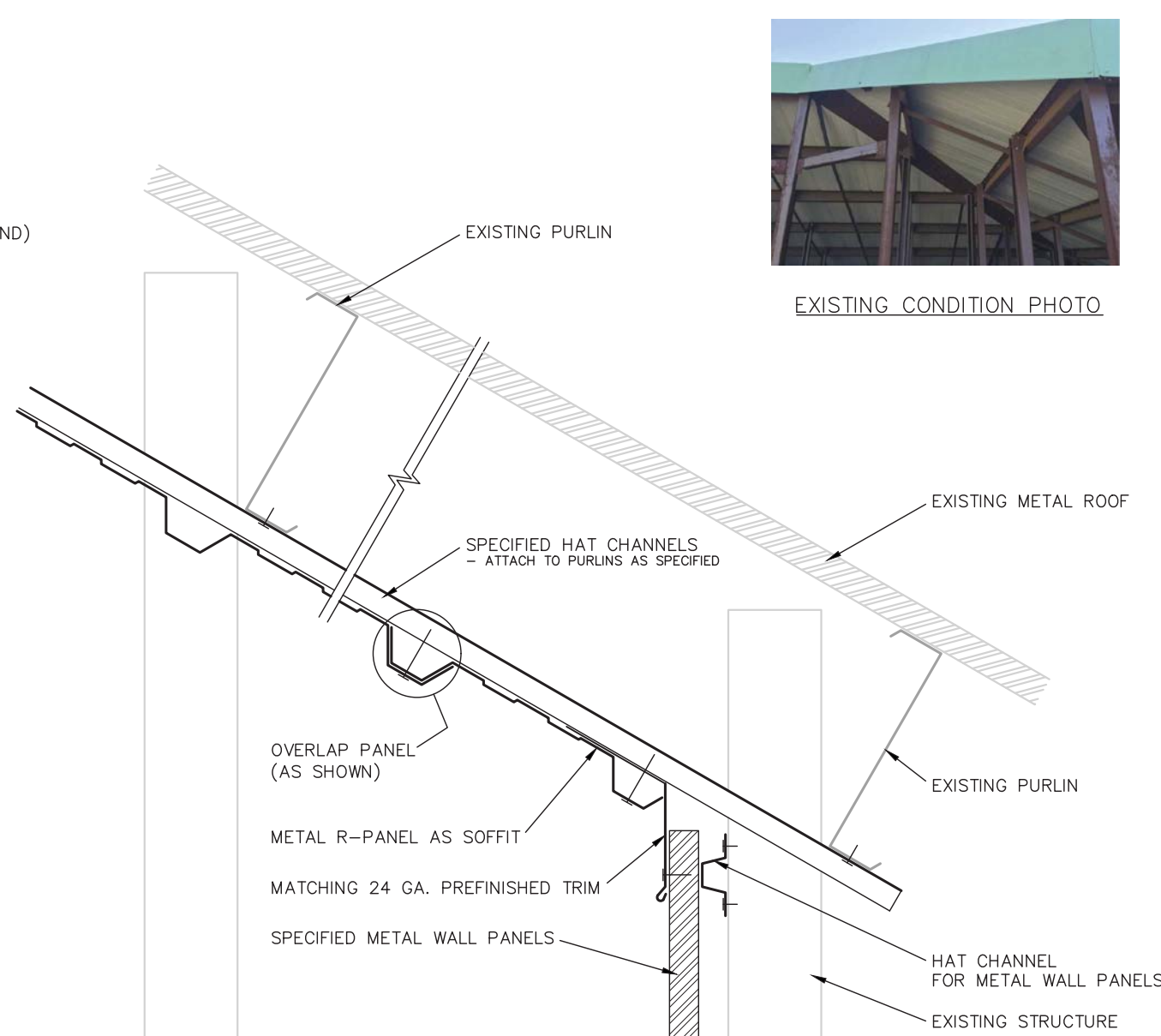
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ROOF DETAILS

SHEET NUMBER

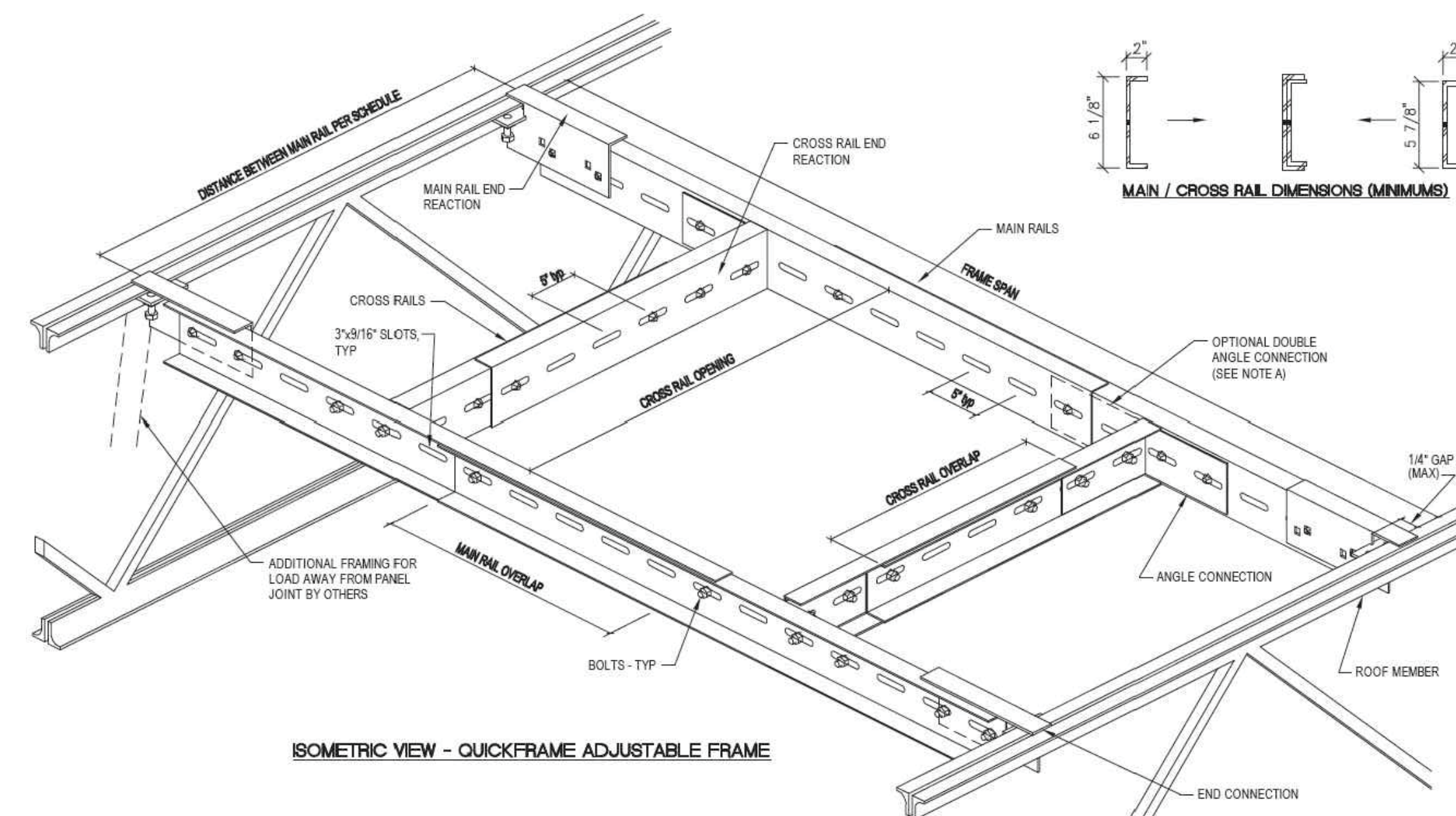
R1.1



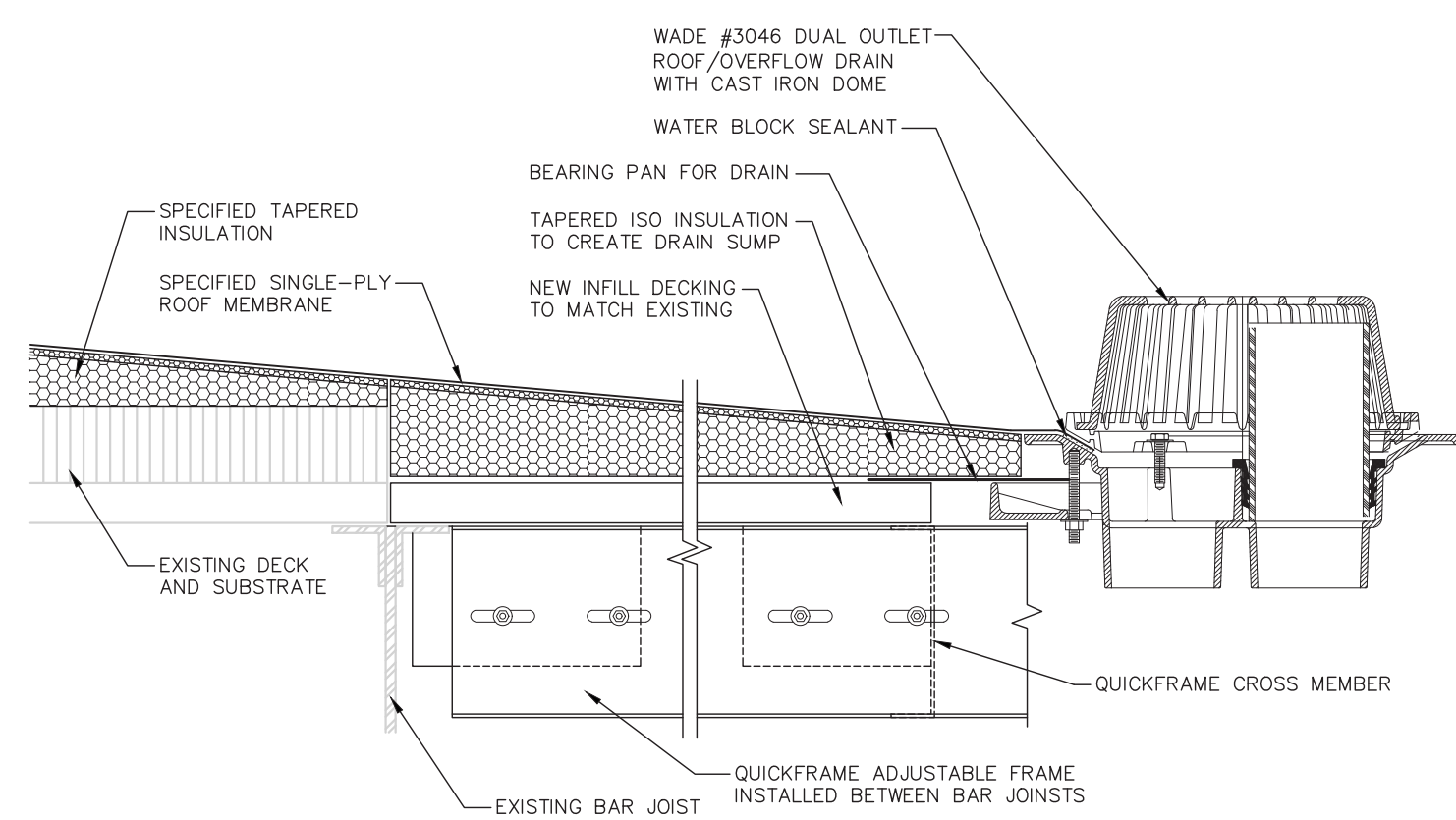
1 FRAMING
N.T.S



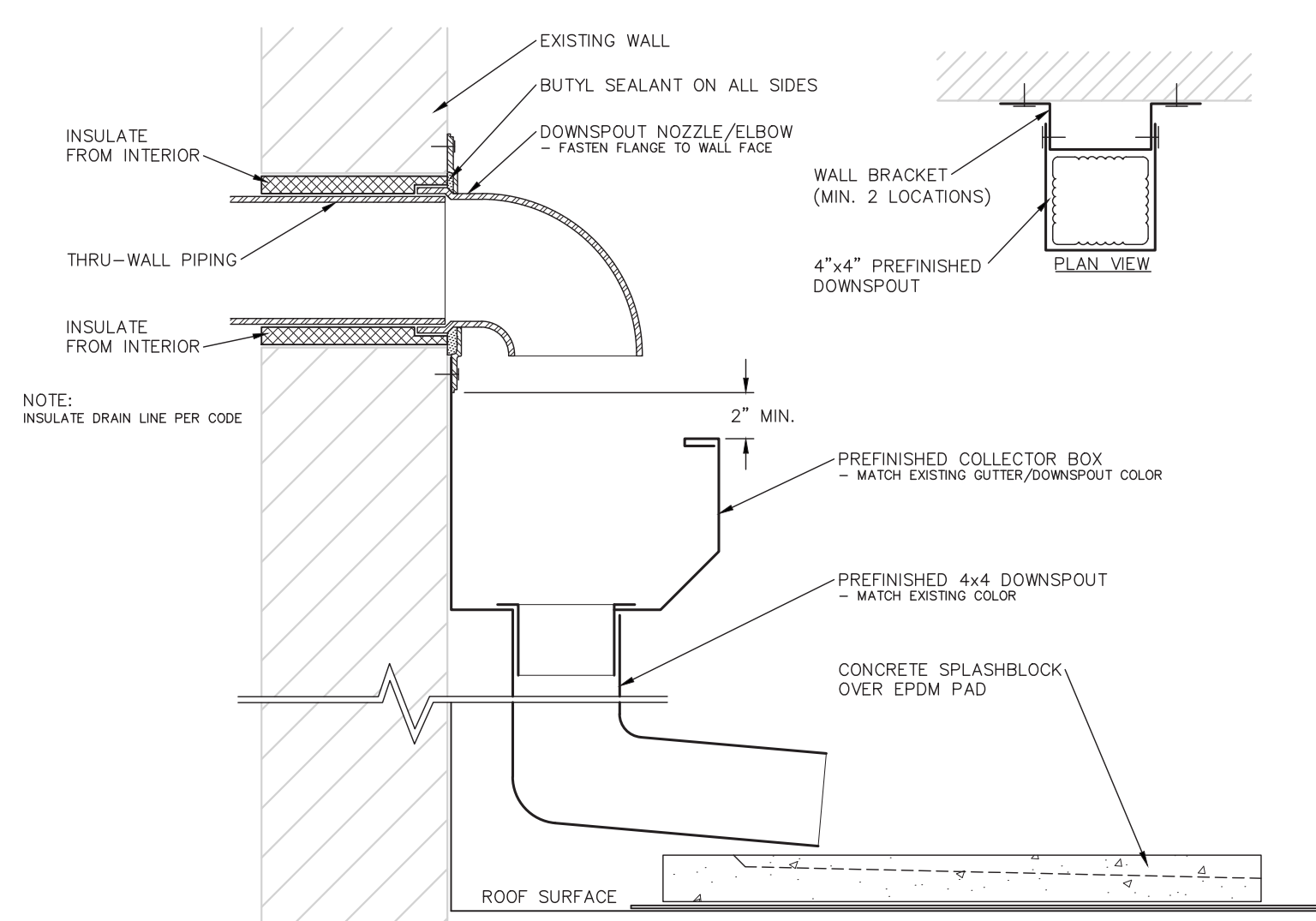
2 SOFFIT SECTION
N.T.S



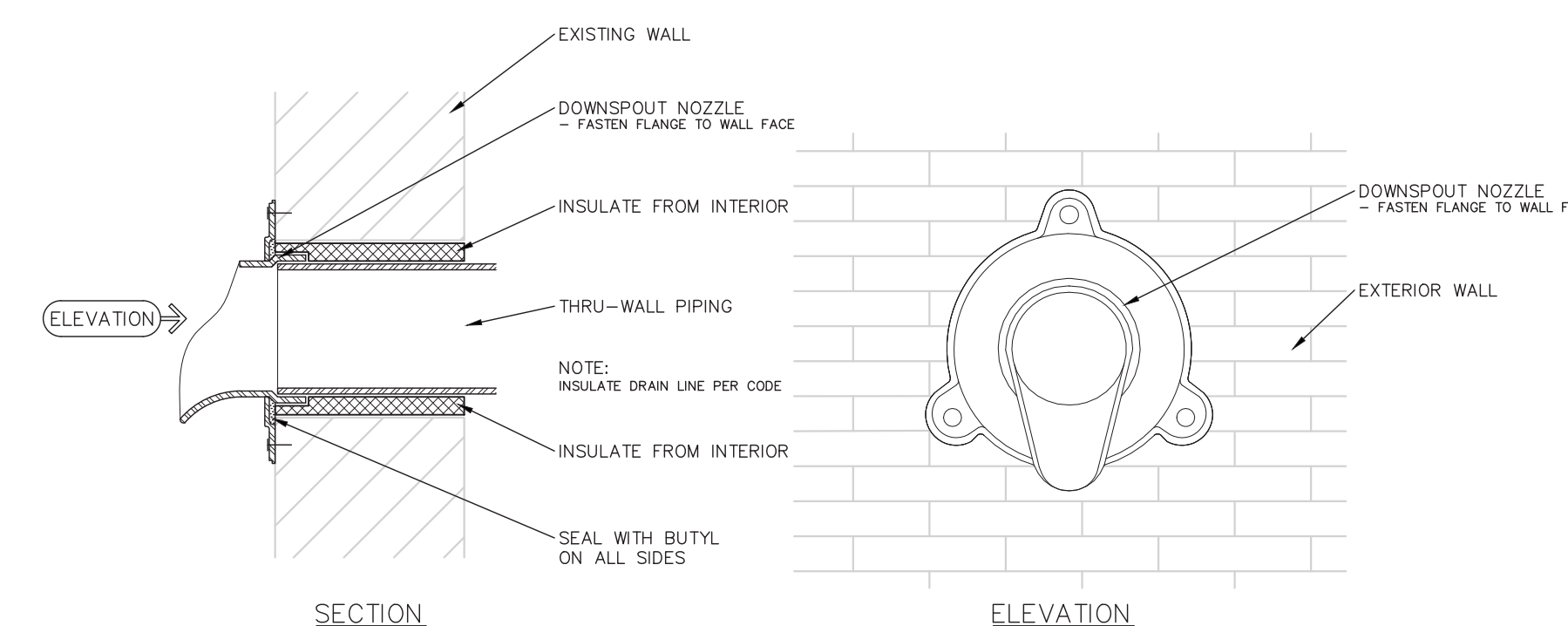
3 QUICKFRAME ADJUSTABLE FRAME
N.T.S



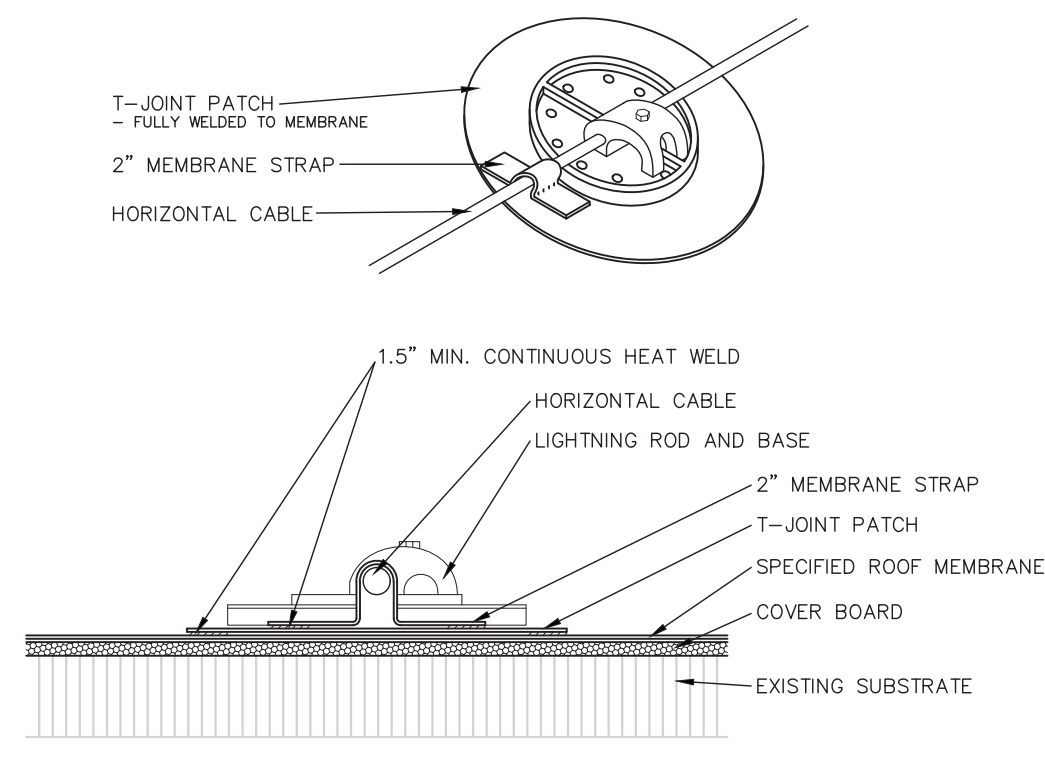
5 ROOF DRAIN
N.T.S



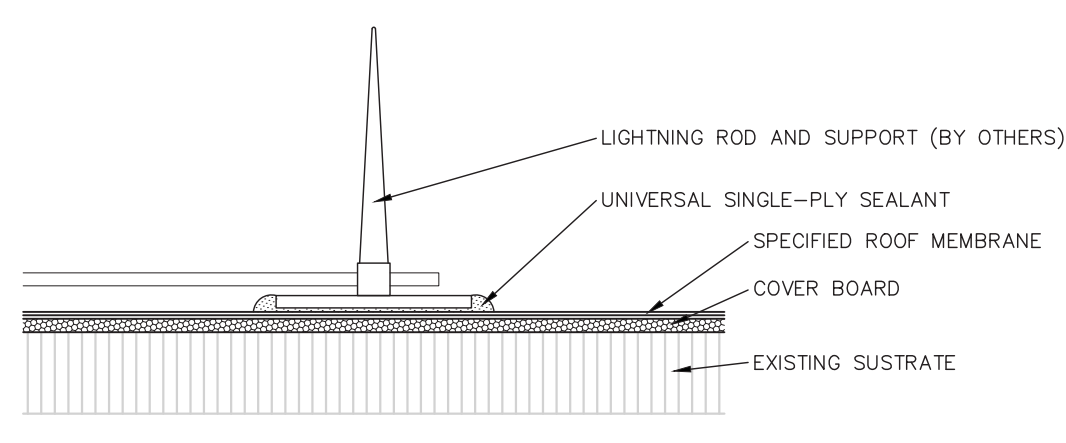
6 THRU-WALL PIPING
N.T.S



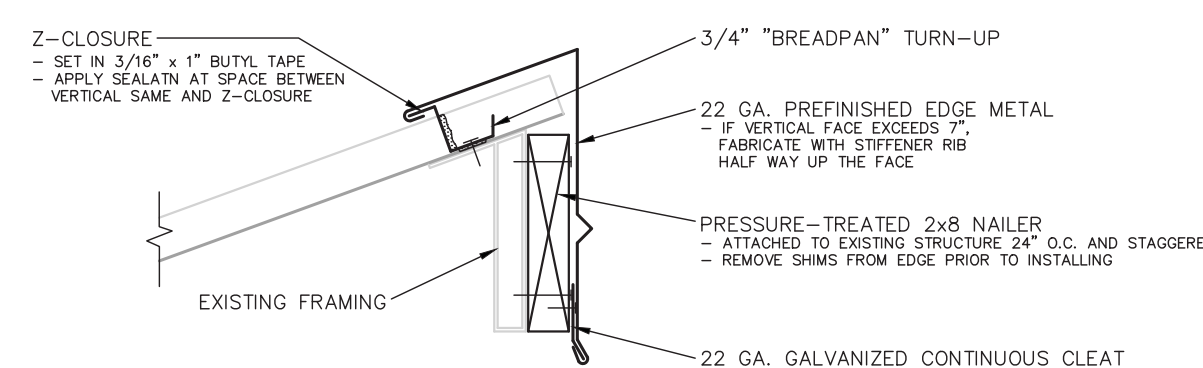
7 THRU-WALL PIPING
N.T.S



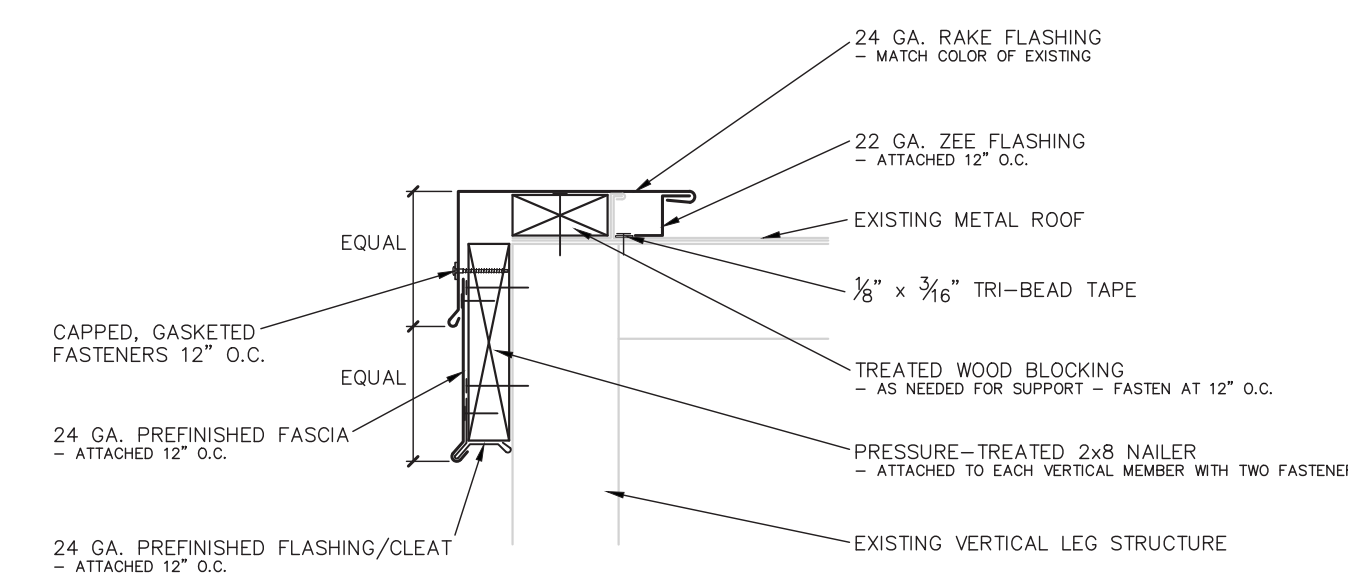
8 LIGHTNING CABLE BASE
N.T.S



9 LIGHTNING ROD AT DECK LEVEL
N.T.S



10 ROOF EDGE
N.T.S



11 RAKE EDGE
N.T.S

NOTES:
1. CLEAN EXPOSED MEMBRANE SURFACE WITH WEATHERED MEMBRANE CLEANER (WHEN USING TPO) AND PVC MEMBRANE CLEANER (WHEN USING PVC) AND ALLOW TO DRY.
2. WHEN USING TPO MEMBRANE, APPLY TPO PRIMER TO THE MEMBRANE SURFACE PRIOR TO THE APPLICATION OF UNIVERSAL SINGLE-PLY SEALANT.

NUMBER	DATE	COMMENTS

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ROOF DETAILS

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R1.2

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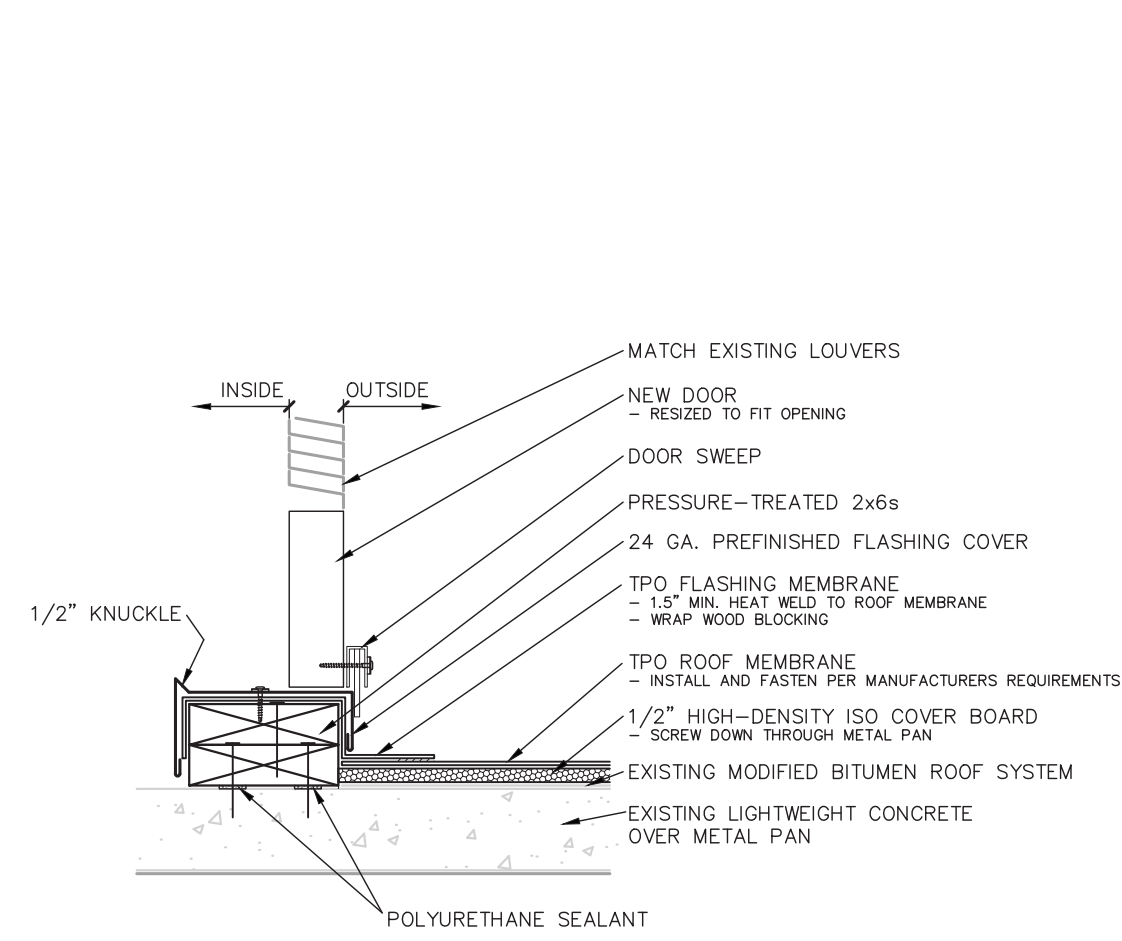
Salvatore R. Granata, P.E., S.E.

Phone: (678) 367-3151
Cell: (770) 301-5817
Toll Free: (877) 346-5126

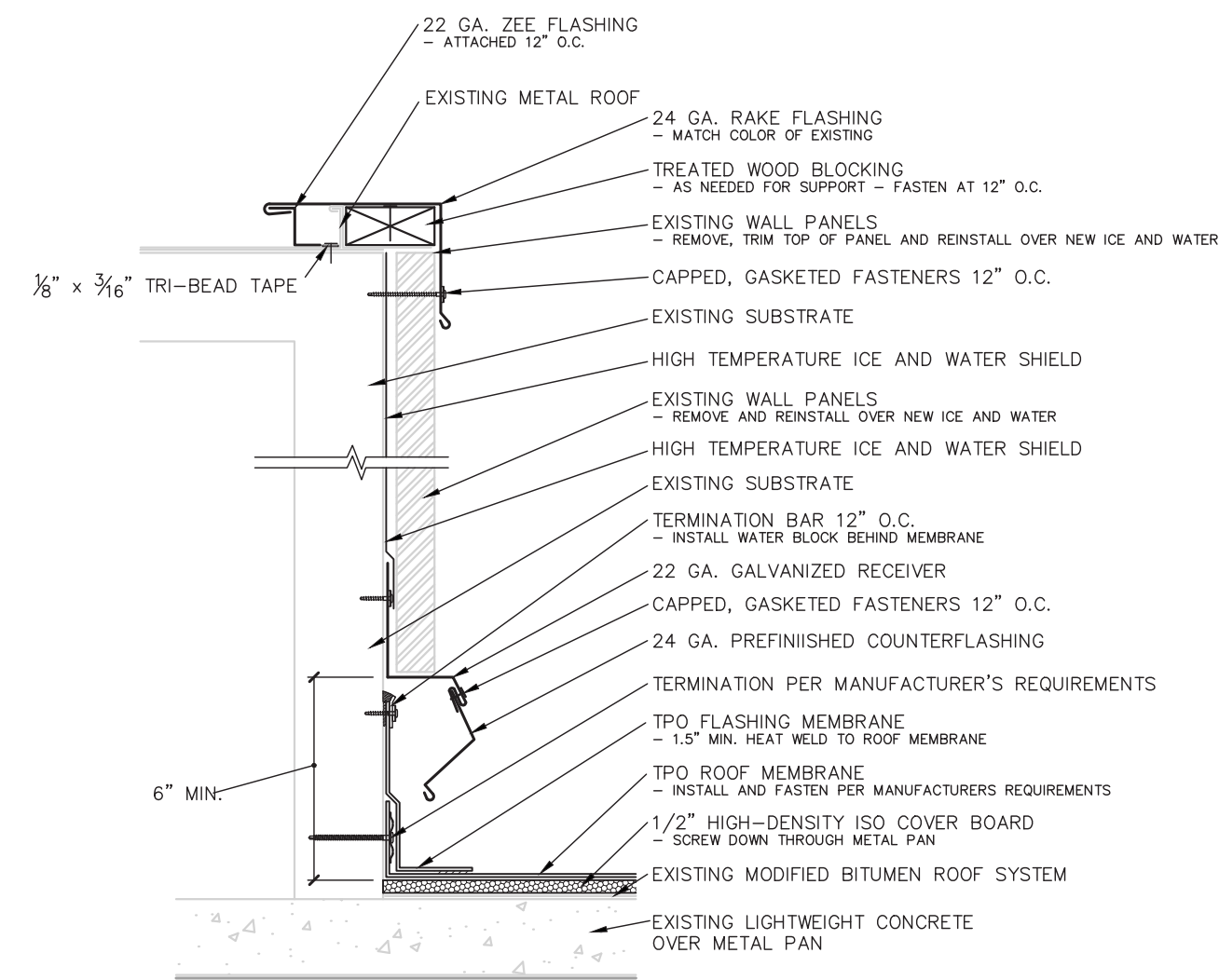
146 Lee Road 2012
Opelika, AL 36804

Fax: 866-815-4682
sal@salgrnata.net
salgrnata.com

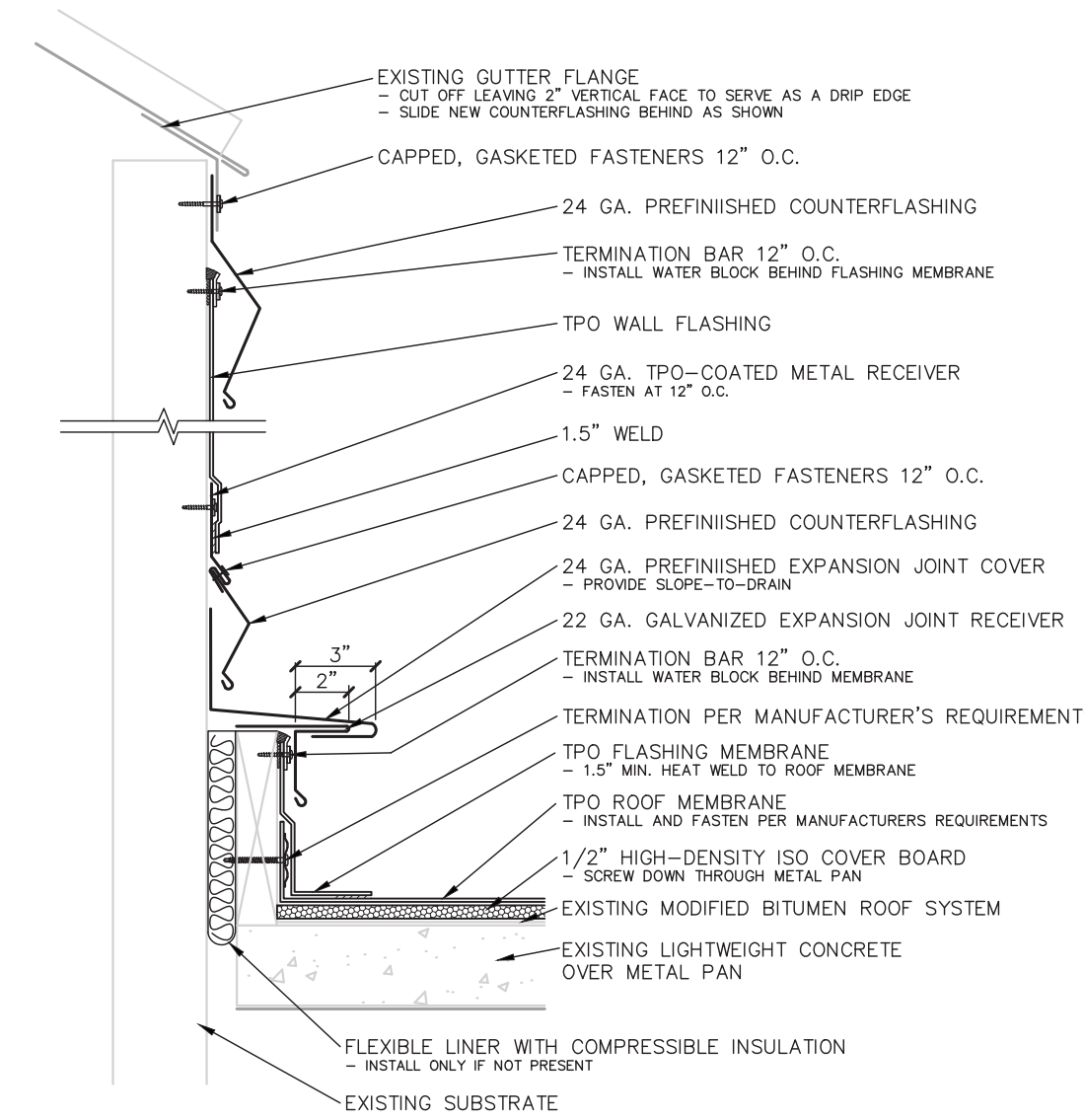




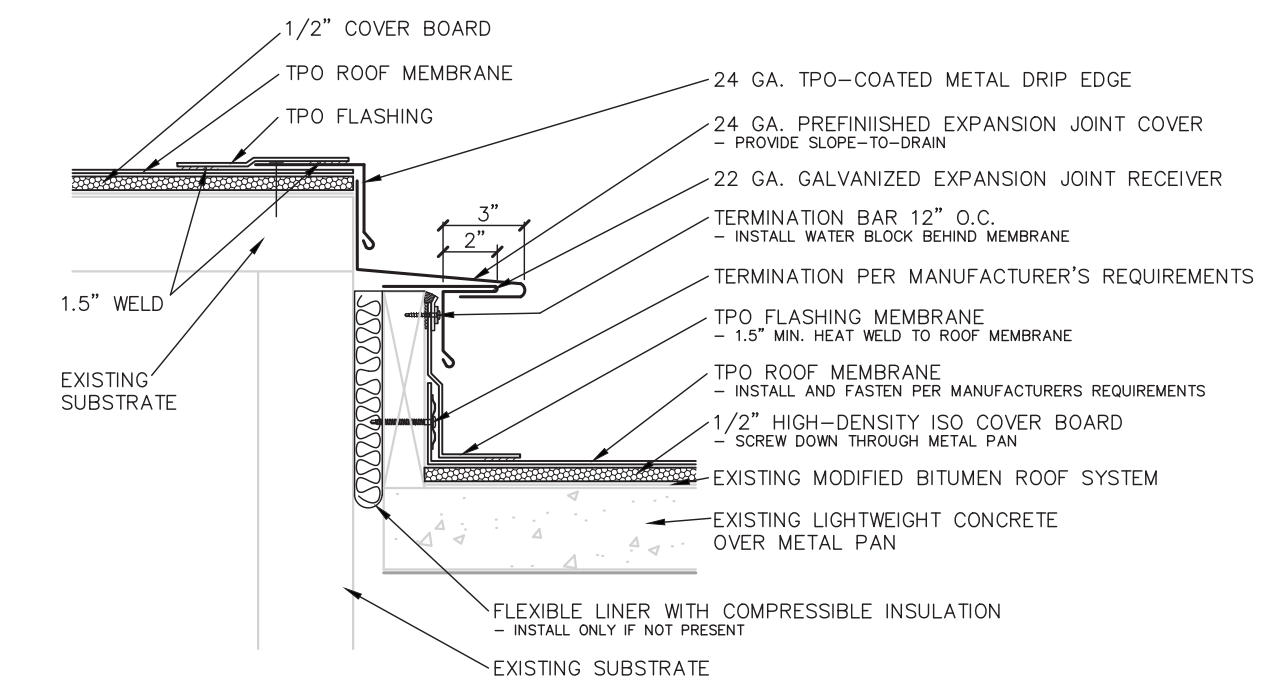
1 LOUVER FLASHING
N.T.S



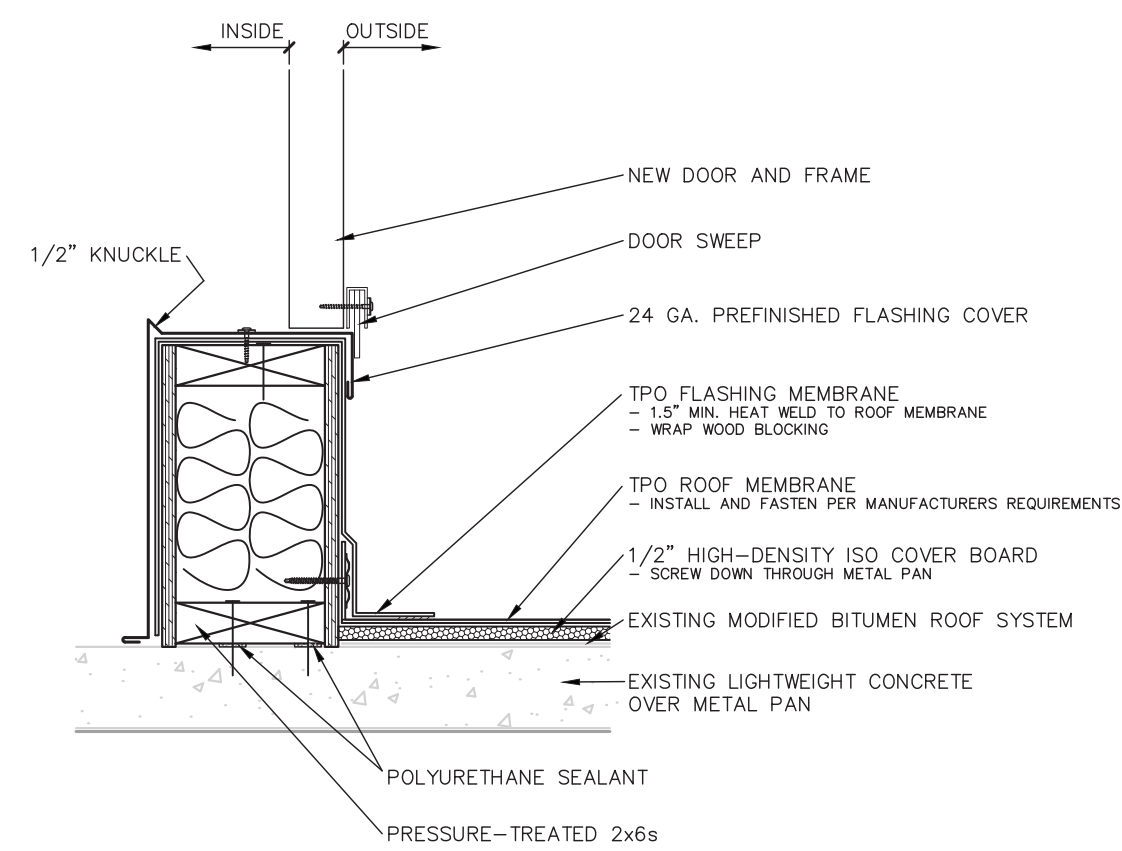
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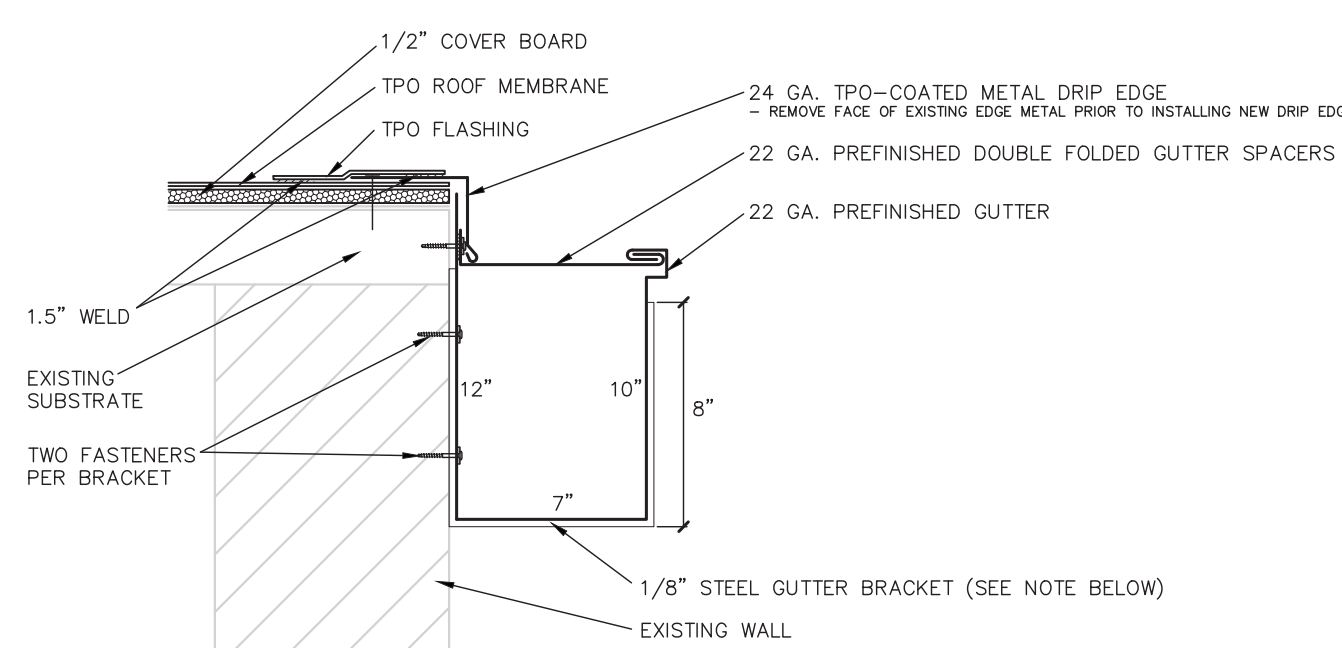
3 WALL EXPANSION JOINT
N.T.S



4 EXPANSION JOINT
N.T.S



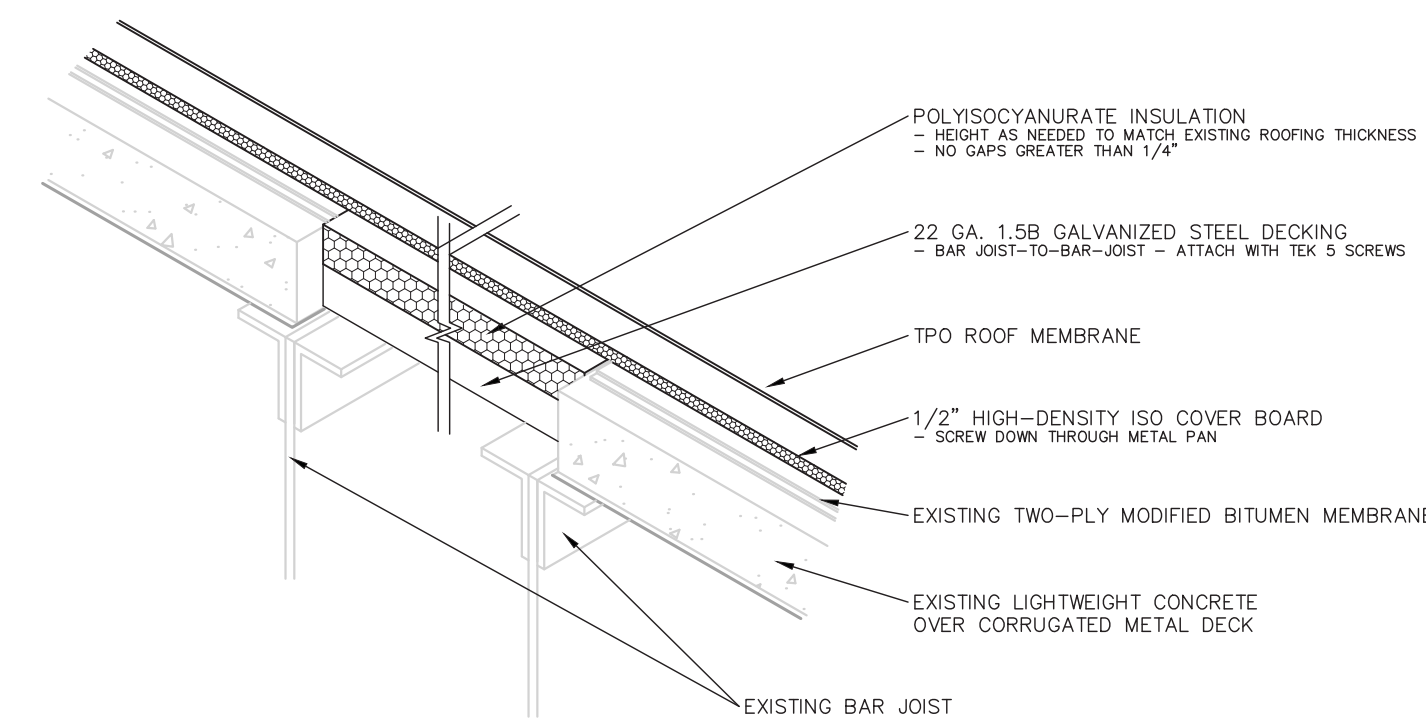
5 DOOR THESHOLD
N.T.S



NOTES:

- GUTTER SUPPORT BRACKETS CONSISTING OF 1/8" GALVANIZED METAL 1.5 FEET ON CENTER WITHIN 10 FEET OF THE INSIDE CORNER. INSTALL 36 INCHES ON CENTER ELSEWHERE AND 6 INCHES FROM EACH END. COVER WITH PREFINISHED METAL OF A MATCHING COLOR (TO THE GUTTER) TO PROVIDE CONTINUITY OF APPEARANCE. FIELD PAINTING IS NOT ACCEPTABLE.
- INSTALL 22 GAUGE PREFINISHED STEEL GUTTER SPACERS 1 FOOT ON CENTER WITHIN 10 FEET OF THE INSIDE CORNER, BOTH DIRECTIONS. INSTALL 3 FEET ON CENTER ELSEWHERE. OFFSET FROM GUTTER BRACKETS. GUTTER SPACERS TO BE "DOUBLE" FOLDED.
- INSTALL ALL NEW 24 GAUGE PREFINISHED STEEL DOWNSPOUTS WHERE EXISTING ARE LOCATED. MATCH SIZE OF EXISTING

6 GUTTER EDGE
N.T.S



7 DECK PATCH
N.T.S

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ROOF DETAILS

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R1.3

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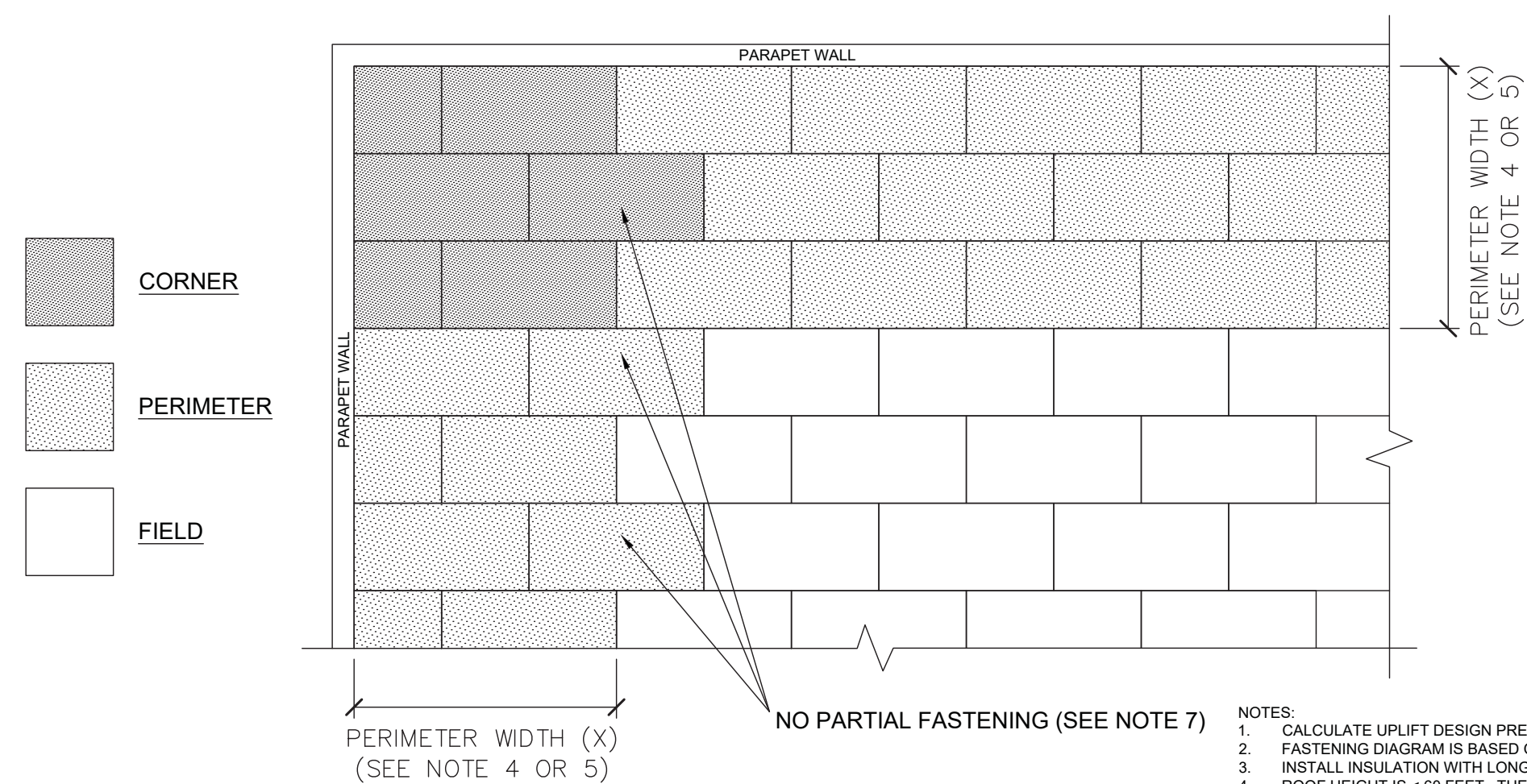
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Cell: (770) 301-5817
Toll Free: (877) 346-5126

146 Lee Road 2012
Opelika, AL 36804

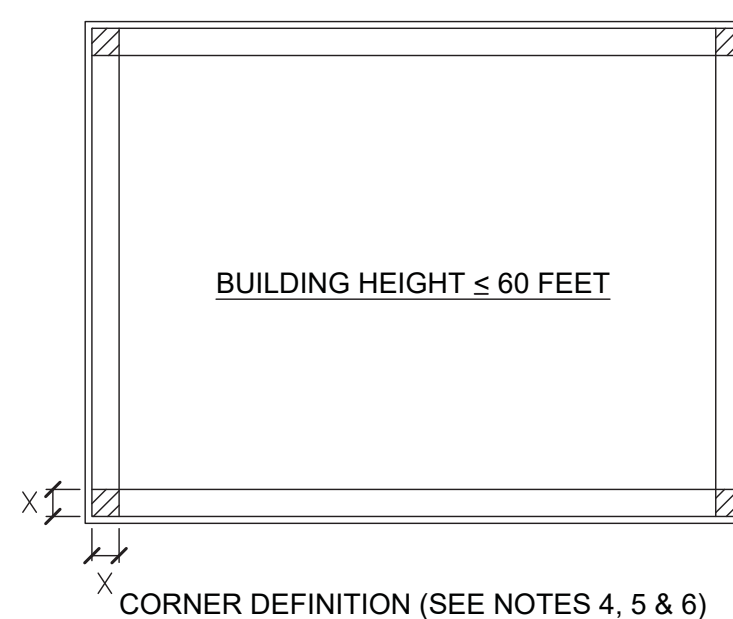
Fax: 866-815-4682
sal@bluefin.net
salgranata.com



12/11/17



- NOTES:
1. CALCULATE UPLIFT DESIGN PRESSURES IN ACCORDANCE WITH ASCE-7.
 2. FASTENING DIAGRAM IS BASED ON FM GLOBAL DATA SHEET 1-29.
 3. INSTALL INSULATION WITH LONG JOINTS IN A CONTINUOUS STRAIGHT LINE WITH END JOINTS STAGGERED.
 4. ROOF HEIGHT IS ≤ 60 FEET. THE PERIMETER (X) IS THE SMALLER DIMENSION OF:
10% OF THE SHORTEST SIDE (PLAN VIEW)
OR
40% OF ROOF HEIGHT.
BUT
NOT LESS THAN 4% OF THE SHORTEST SIDE (PLAN VIEW) OR 3 FEET.
 5. ROOF HEIGHT > 60 FEET, THE PERIMETER (X) IS:
10% OF THE SHORTEST SIDE (PLAN VIEW) BUT NOT LESS THAN 3 FEET.
 6. THE CORNERS MAY BE TREATED AS PERIMETERS IF THE PARAPET IS ≥ 3 FEET ON ALL SIDES ACCORDING TO ASCE-7.
 7. IF ANY PORTION OF THE BOARD LIES IN A PERIMETER OR CORNER ZONE, ENHANCE THE FASTENING OF ENTIRE BOARD.



1 INSULATION BOARD LAYOUT DEFINED

N.T.S

2 BUILDING CORNER DEFINED

N.T.S

Figure 3-9:
Aggregate blow-off
associated with building
irregularities. Hurricane
Hugo (South Carolina,
1989)



Figure 3-10:
The irregularity created by
the stair tower (covered
with a metal roof) caused
turbulence resulting in
wind speed-up and roof
damage. Hurricane
Andrew (Florida, 1992)

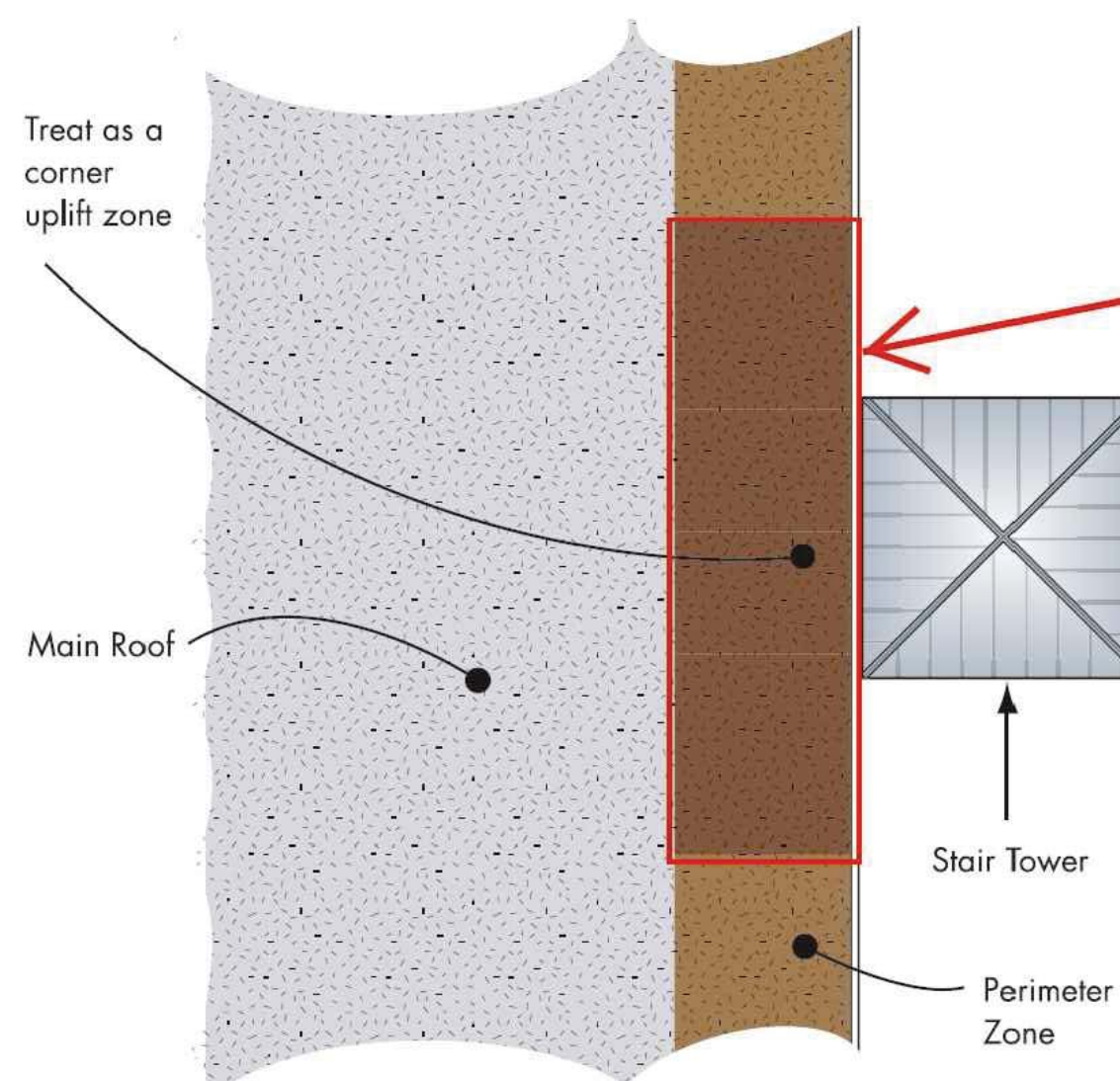
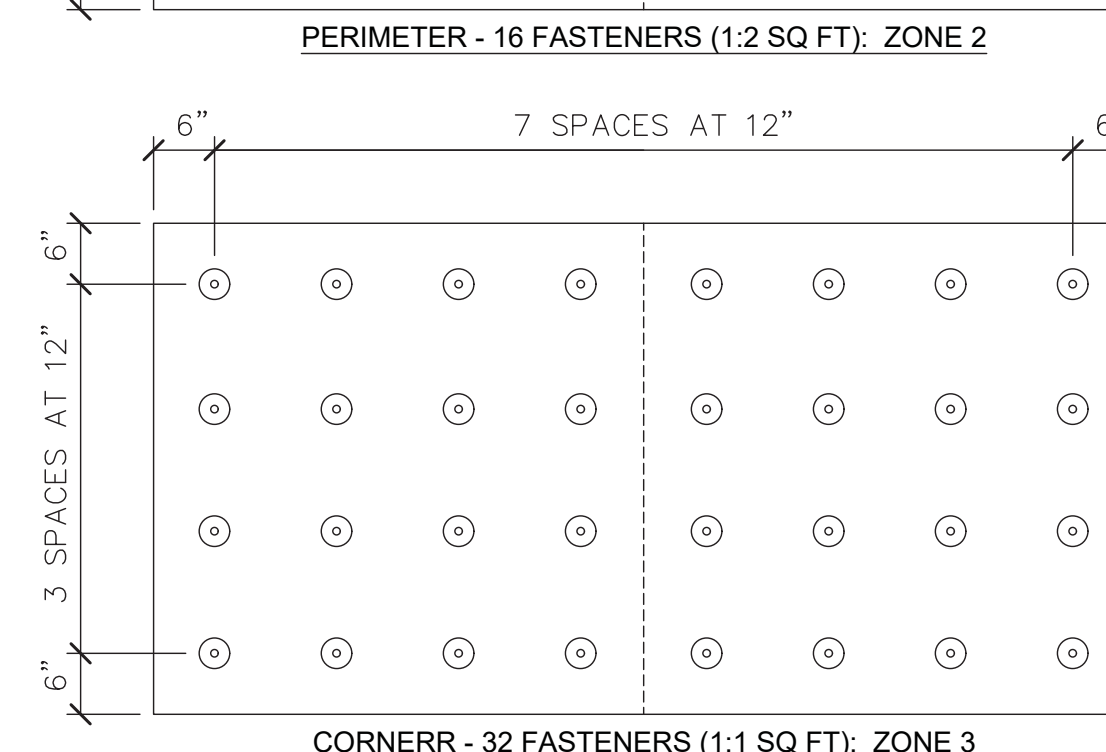
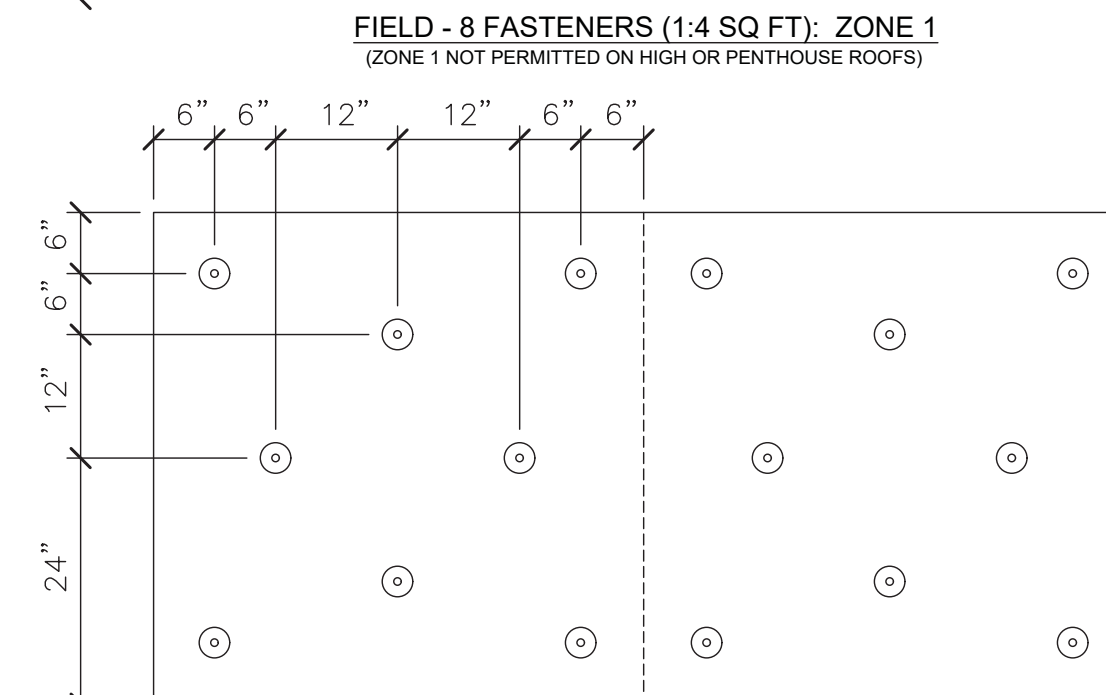
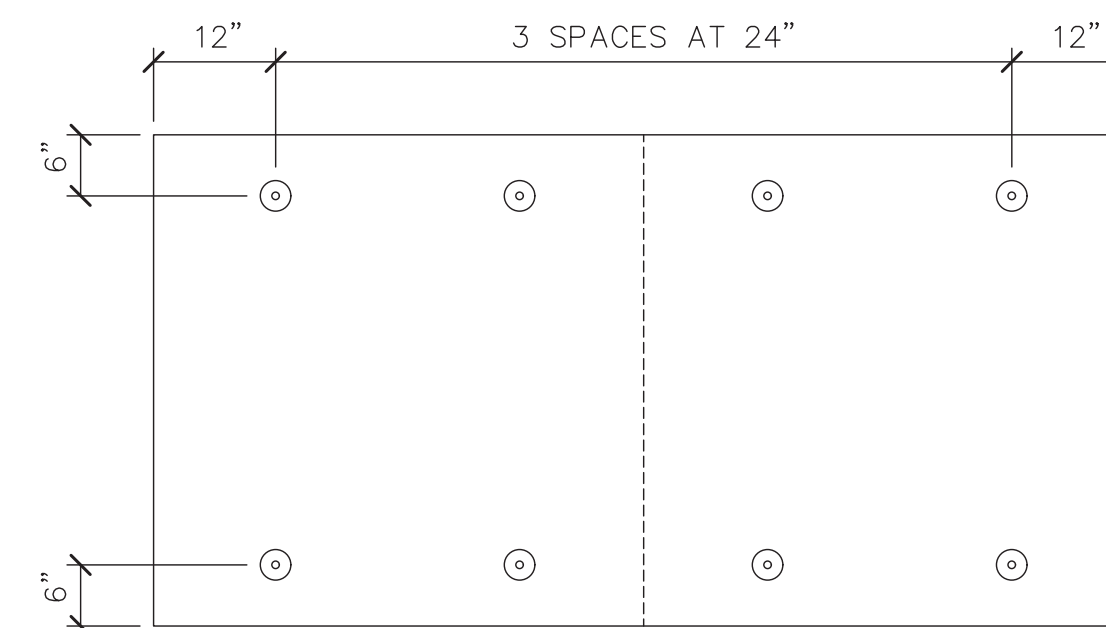


Figure 3-11:
Plan view of a portion of
the building in Figure 3-
10 showing the use of a
corner uplift zone in lieu
of a perimeter uplift zone
on the low-slope roof in the
vicinity of the stair tower



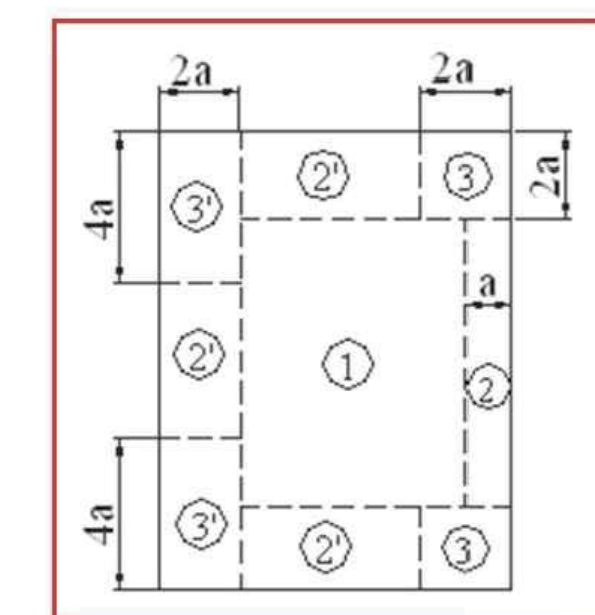
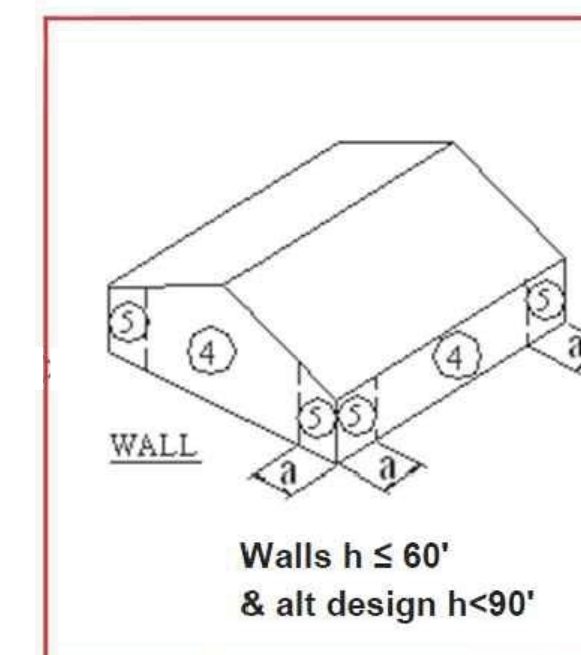
CALCULATIONS

Zone 1	-24.8 psf	T = 99.2 lbs / Screw (8)
Zone 2	-41.7 psf	T = 93.4 lbs / Screw (16)
Zone 3	-62.7 psf	T = 62.7 lbs / Screw (32)
s = 4.2 ft		
#15 XHD Screws with 3" Ins. Plate		
ALLOWABLE FASTENER PULLOUT 230 lbs/Screw		

3 INSULATION FASTENING PER ZONE

N.T.S

Location of C&C Wind Pressure Zones



5 WIND PRESSURE ZONES

N.T.S

4 FEMA ILLUSTRATIONS

N.T.S

<http://www.wbdg.org/ccb/FEMA/fema543.pdf>

DRAWING DATES
NUMBER DATE COMMENTS

• 1 12/11/17 ISSUE FOR BID

DRAWING TITLE
INSULATION FASTENING

SHEET NUMBER

R1.4

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Salvatore R. Granata, P.E., S.E.

Phone: (878) 367-3151
Cell: (770) 301-5817
Toll Free: (877) 346-5125

146 Lee Road 2012
Opelika, AL 36804

Fax: 866-815-4682
sal@scorp.net
salgranata.com



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