





**STRUCTURAL NOTES**  
**PSU ST. HELENS COURT - ROOF SEISMIC UPGRADE**  
**VLMK JOB #20130215**

**DIVISION 1 - GENERAL**

- A. GENERAL**
- A.1. THESE NOTES SET MINIMUM STANDARDS FOR CONSTRUCTION. THE DRAWINGS GOVERN OVER THE GENERAL NOTES TO THE EXTENT SHOWN.
- A.2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON DRAWINGS AND IN FIELD. COORDINATE LOCATIONS OF OPENINGS THROUGH FLOORS, ROOFS AND WALLS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. NOTIFY VLMK CONSULTING ENGINEERS (VLMK) OF ANY DISCREPANCIES OR IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN OR NOTED.
- A.3. CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY SUPPORT PRIOR TO COMPLETION OF VERTICAL AND LATERAL LOAD SYSTEMS. VLMK HAS NOT BEEN RETAINED TO PROVIDE ANY SERVICES RELATED TO JOB SITE SAFETY PRECAUTIONS, OR TO REVIEW THE MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES FOR THE CONTRACTOR TO PERFORM WORK. UNLESS WE ARE SPECIFICALLY RETAINED AND COMPENSATED TO DO OTHERWISE, OUR WORK IS LIMITED TO THE DESIGN OF WORK DESCRIBED ON OUR DRAWINGS FOR THIS PROJECT.
- A.4. WHERE REFERENCE IS MADE TO ASTM, AISC, ACI OR OTHER STANDARDS, THE LATEST ISSUE SHALL APPLY.
- A.5. INSPECTION AND/OR JOB SUPERVISION IS NOT PROVIDED BY VLMK.
- A.6. ALL WORK SHALL BE IN STRICT COMPLIANCE WITH THE 2009 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE STATE OF OREGON (2010 OREGON STRUCTURAL SPECIALTY CODE) AND ALL OTHER STATE AND LOCAL BUILDING REQUIREMENTS THAT APPLY.
- A.7. DESIGN CRITERIA:
- A.7.a. ROOF LIVE LOADS (PER IBC 1603.1.2)
- |         |        |
|---------|--------|
| MINIMUM | 25 PSF |
|---------|--------|
- A.7.b. ROOF SNOW LOAD (PER IBC 1603.1.3)
- |                                  |        |
|----------------------------------|--------|
| FLAT-ROOF SNOW LOAD (Pf)         | 25 PSF |
| SNOW EXPOSURE FACTOR (Ce)        | 1.0    |
| SNOW LOAD IMPORTANCE FACTOR (Ib) | 1.0    |
| THERMAL FACTOR (Ct)              | 1.0    |
- A.7.c. WIND LOAD (PER IBC 1603.1.4)
- |                                     |        |
|-------------------------------------|--------|
| BASIC WIND SPEED (3-SECOND GUST)    | 95 MPH |
| WIND IMPORTANCE FACTOR (Iw)         | 1.0    |
| OCCUPANCY CATEGORY                  | II     |
| WIND EXPOSURE                       | B      |
| INTERNAL PRESSURE COEFFICIENT (GCp) | ±0.18  |
- A.7.d. EARTHQUAKE DESIGN DATA (PER IBC 1603.1.5)
- |  |                                    |
|--|------------------------------------|
| SEISMIC UPGRADE CRITERIA (VOLUNTARY UPGRADE) | ASCE - 41                          |
| BUILDING LATERAL LOADS AND DIAPHRAGM         | ASCE - 41                          |
| LIFE-SAFETY PERFORMANCE OBJECTIVE            |                                    |
| MAPPED SPECTRAL RESPONSE ACCELERATIONS       | Ss = 99.1%, S1 = 42.6%             |
| MODIFICATION FACTORS                         | C1 = C2 = 1.0                      |
| RESPONSE SPECTRUM ACCELERATION               | Sa = 0.9                           |
| EFFECTIVE MASS FACTOR                        | Cm = 0.8                           |
| ANALYSIS PROCEDURE USED                      | LINEAR STATIC PSEUDO-LATERAL FORCE |
- OUT-OF-PLANE WALL ANCHORAGE AND CROSS-TIES ASCE - 7
- |                                |                          |
|--------------------------------|--------------------------|
| SEISMIC IMPORTANCE FACTOR (Ie) | 1.0                      |
| OCCUPANCY CATEGORY             | II                       |
| SITE CLASS                     | D                        |
| SPECTRAL RESPONSE COEFFICIENTS | Sds = 72.9%, Sd1 = 44.7% |
| SEISMIC DESIGN CATEGORY        | D                        |
- A.8. THESE DRAWINGS HAVE BEEN PREPARED SOLELY FOR USE IN THE CONSTRUCTION OF THE PSU ST. HELENS COURT ROOF SEISMIC UPGRADE. PROJECT LOCATED IN PORTLAND, OREGON. POSSESSION OF THESE DRAWINGS DOES NOT GRANT A LICENSE TO CONSTRUCT OR FABRICATE THE WHOLE, OR PARTS OF THIS PROJECT IN OTHER LOCATIONS.
- A.9. PROVIDE SHOP DRAWINGS FOR ALL STRUCTURAL PRODUCTS DELIVERED TO THE PROJECT. VLMK WILL REVIEW AND MARK-UP A MAXIMUM OF THREE COPIES OF SUBMITTALS OR WILL ACCEPT ELECTRONIC SUBMITTALS IN .PDF FORMAT. SUBMITTALS WILL BE STAMPED AND RETURNED TO THE GENERAL CONTRACTOR WITHIN TWO WEEKS. FAX SUBMITTALS WILL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL. ALL SUBMITTALS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ENGINEER. UNLESS OTHERWISE INDICATED, SHOP DRAWINGS SHALL BE PROVIDED ON THE FOLLOWING:
- A.9.a. STRUCTURAL STEEL AND MISCELLANEOUS STEEL.

**DIVISION 2 - SITE WORK: NOT USED**

**DIVISION 3 - CONCRETE AND REINFORCING: NOT USED**

**DIVISION 4 - MASONRY: NOT USED**

**DIVISION 5 - METAL**

- A. GENERAL**
- A.1. ALL STRUCTURAL MEMBERS TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISC STANDARDS.
- A.2. ALL BIDDER DESIGN STRUCTURAL SYSTEMS TO INCLUDE PLANS AND CALCULATIONS STAMPED BY AN ENGINEER REGISTERED IN THE GOVERNING JURISDICTION.
- A.3. UNLESS OTHERWISE NOTED, CONTRACTOR WILL BE REQUIRED TO PROVIDE A SEPARATE PERMIT FOR BIDDER DESIGN STRUCTURAL SYSTEMS.
- B. MATERIALS**
- B.1. ALL STEEL PLATE, ANGLES, CHANNELS, ETC. TO BE ASTM A36 TYPICAL UNLESS OTHERWISE NOTED.
- B.2. STRUCTURAL TUBING TO BE ASTM A500 GRADE B (Fy = 46 KSI RECTANGULAR, Fy = 42 KSI ROUND).
- B.3. STEEL PIPE ASTM A53 (Fy = 35 KSI), TYPE E OR S, OR ASTM A501 (Fy = 36 KSI).
- B.4. UNLESS OTHERWISE NOTED, BOLTS TO BE A325N FOR STEEL TO STEEL CONNECTIONS.
- B.5. ANCHOR BOLTS AND WOOD CONNECTIONS TO BE A307. PROVIDE STANDARD PLATE WASHERS UNDER ALL BOLT HEADS AND NUTS IN CONTACT WITH WOOD.
- B.6. ANCHOR RODS TO BE ASTM 1554, GRADE 36 UNLESS OTHERWISE NOTED.
- B.7. LAG BOLTS IN WOOD TO BE SAE J429 GRADE 1 WITH MINIMUM DIMENSIONS MEETING ANS/ASME B.18.2.1.

- C. DRILLED ANCHOR BOLTS:**
- ADHESIVE ANCHORS**
- | BASE MATERIAL | PRODUCT                        | I.C.C.#  |
|---------------|--------------------------------|----------|
| CONCRETE      | SIMPSON SET-XP ADHESIVE ANCHOR | ESR-2508 |
- EXPANSION ANCHORS:**
- | BASE MATERIAL | PRODUCT                   | I.C.C.#  |
|---------------|---------------------------|----------|
| CONCRETE      | HILTI KWIK BOLT TZ ANCHOR | ESR-1917 |
- C.1. OTHER ANCHORS ARE ACCEPTABLE ONLY WITH PRIOR WRITTEN APPROVAL OF ENGINEER. INSTALL ALL ANCHORS PER MANUFACTURER'S INSTRUCTIONS. PROVIDE MINIMUM EMBEDMENT AND SPACING UNLESS NOTED OTHERWISE ON DRAWINGS. SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS. ALSO NOTE ADDITIONAL TESTING REQUIREMENTS IN SPECIAL INSPECTION PROGRAM.
- D. WELDING**
- D.1. ALL WELDS TO BE MADE BY CERTIFIED WELDERS TO AWS STANDARDS WITH E70XX ELECTRODES. CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE MEANS AND METHODS OF CONSTRUCTION THEY ANTICIPATE EMPLOYING ON THE PROJECT. SOME WELDS SHOWN AS SHOP WELDS MAY NEED TO BE FIELD WELDS TO AID ERECTION.

**DIVISION 6 - WOOD**

- A. ROUGH CARPENTRY**
- A.1. LUMBER SPECIES AND GRADES TO BE AS FOLLOWS UNLESS OTHERWISE SHOWN ON DRAWINGS:
- |   |                             |
|---|-----------------------------|
| JOISTS, BEAMS & STRINGERS:                                      | DOUGLAS FIR #2              |
| 6 INCH NOMINAL AND GREATER:                                     | DOUGLAS FIR #1              |
| BLOCKING, BRIDGING AND MISCELLANEOUS:                           | DOUGLAS FIR #2              |
| 2x STUDS:   | DOUGLAS FIR #2              |
| LEDGERS, PLATES, ETC. IN CONTACT WITH CONCRETE, AND WOOD CURBS: | PRESSURE TREATED HEM FIR #2 |
| POSTS, COLUMNS (SAWN):  | DOUGLAS FIR #1              |
- ROOF SHEATHINGS:**
- APA RATED SHEATHING, EXPOSURE 1, CONFORMING TO APA PERFORMANCE STANDARD PS 1-95 AND EXCEPT NER-10R. SEE DRAWINGS FOR REQUIRED THICKNESS OF SHEATHING AND/OR SPAN RATING. INSTALL ROOF SHEATHING WITH LONG DIMENSION PERPENDICULAR TO SUPPORTS UNLESS OTHERWISE NOTED. USE SPACERS TO PROVIDE 1/8 INCH END AND EDGE JOINTS (1/4 INCH FOR JUMBO PANELS) WHENEVER SHEATHING IS EXPOSED TO WET WEATHER. FILL ANY JOINT SPACING OVER 3/8 INCH UNLESS OTHERWISE APPROVED BY ENGINEER. BLOCK ROOF SHEATHING WHERE NOTED ON DRAWINGS.
- TIMBERSTRAND (L.S.L.):**
- ALL LSL SHALL BE MANUFACTURED BY ILEVEL.  
 COLUMNS/HEADERS/RIMS/STUDS:  
 -Fb = 1700 PSI, E = 1,300,000 PSI, FcII = 1400 PSI, Fv = 400 PSI
- A.2. CONNECTORS:**
- A.2.a. TIE STRAPS, FRAMING ANCHORS, HANGERS, STIRRUPS, COLUMN CAPS, COLUMN BASES, ETC., TO BE SIMPSON AS DETAILED, OR AS APPROVED.
- A.2.b. FULLY FASTEN ACCORDING TO MANUFACTURER'S SCHEDULE USING LARGEST SIZE SHOWN.
- A.2.c. ALL BEAMS AND JOISTS NOT BEARING ON ANOTHER MEMBER TO CONNECT WITH 'U' TYPE HANGERS UNLESS OTHERWISE NOTED ON DRAWINGS.
- A.2.d. NAILING: ALL NAILS SPECIFIED IN THE DRAWINGS TO BE "COMMON" NAILS UNLESS OTHERWISE NOTED. ALL NAILING SHALL COMPLY WITH IBC TABLE 2304.9.1, NAILING SCHEDULE. OBTAIN ENGINEER'S APPROVAL OF ALL PROPRIETARY NAILING SYSTEMS.
- A.2.e. NAILS AT ROOF AND WALL DIAPHRAGMS TO BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING. CHECK AND RESINK IF NEEDED, IMMEDIATELY BEFORE ROOFING.
- A.2.f. CORROSION PROTECTION:
- A.2.f.a. CONFIRM REQUIRED CORROSION PROTECTION FOR HARDWARE AND FASTENERS WITH SPECIFIC RECOMMENDATIONS FROM PRESSURE TREATING MANUFACTURER OR HANGER MANUFACTURER (USE MOST CONSERVATIVE) FOR SPECIFIC WOOD TREATMENTS USED.
- A.2.f.b. MINIMUM CORROSION PROTECTION ON METAL CONNECTORS EXPOSED TO THE ENVIRONMENT OR PRESSURE TREATED LUMBER TO BE PER ASTM A653 CLASS 185 (SIMPSON ZMAX) OR ASTM A123.
- A.2.f.c. FASTENERS FOR PRESSURE TREATED LUMBER MUST BE MINIMUM HOT-DIP GALVANIZED, STAINLESS STEEL, SILICON BRONZE OR COPPER.
- A.2.f.d. HOT-DIP GALVANIZED HARDWARE AND FASTENERS MUST COMPLY WITH ASTM A153, STAINLESS STEEL FASTENERS TO BE TYPE 304 OR TYPE 316.
- A.2.f.e. HARDWARE AND FASTENERS USED TOGETHER MUST BE THE SAME TYPE (E.G. HOT-DIP GALVANIZED NAILS WITH HOT-DIP GALVANIZED HANGERS).
- A.3. DELIVERY AND STORAGE: ALL LUMBER AND SHEATHING DELIVERED TO THE SITE, SHALL BE STACKED OR STORED OFF THE GROUND AND PROPERLY PROTECTED AGAINST WEATHER.
- A.4. NOTIFY ENGINEER FOR OBSERVATION OF ROOF SHEATHING NAILING. OBTAIN ENGINEER'S APPROVAL PRIOR TO STARTING ROOF INSTALLATION. SEE STRUCTURAL OBSERVATION NOTES FOR ADDITIONAL REQUIREMENTS.
- A.5. CUTTING AND NOTCHING OF JOISTS NOT ALLOWED, EXCEPT AS SPECIFICALLY DETAILED IN DRAWINGS.

**CODE REQUIRED SPECIAL INSPECTION AND MATERIALS TESTING PROGRAM (2009 IBC)**

CONCRETE:	COMMENTS	DURATION	INSPECTION AGENCY
REINFORCING IN EXISTING CONCRETE WALLS	SEE NOTE 6A		
EXISTING CONCRETE STRENGTH	SEE NOTE 6B		
DRILLED-IN ADHESIVE ANCHORS, RODS AND DOWELS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION	PER ICC EVALUATION REPORT. SEE NOTE 7 FOR ADD'L TESTING	C	TESTING LAB
DRILLED-IN EXPANSION/WEDGE ANCHORS IN CONCRETE (UNLESS OTHERWISE NOTED ON DRAWINGS)	PER ICC EVALUATION REPORT	P	TESTING LAB

**STRUCTURAL WELDING AND HIGH-STRENGTH BOLTING:**

MATERIAL VERIFICATION OF STRUCTURAL STEEL, DECKING, HIGH STRENGTH BOLTS, NUTS AND WASHERS, ANCHOR RODS, AND WELD FILLER MATERIALS	DURATION	INSPECTION AGENCY
SINGLE PASS FILLET WELDS 5/16" AND SMALLER	P	TESTING LAB
HIGH STRENGTH A325N AND A490N BOLT INSTALLATION	P	TESTING LAB

**WOOD:**

ROOF DIAPHRAGM SHEATHING, NAIL SPACING AND BLOCKING	DURATION	INSPECTION AGENCY
WALL ANCHORAGE AND STRAPPING	P	TESTING LAB

**APPROVED FABRICATORS:**

CERTIFICATE OF COMPLIANCE MUST BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD, FOR ALL OFF SITE FABRICATION SUCH AS STRUCTURAL STEEL, OPEN-WEB STEEL JOISTS AND GIRDERS, GLU-LAMS, AND PRE-CAST CONCRETE	DURATION	INSPECTION AGENCY
	P	TESTING LAB

**STRUCTURAL OBSERVATION:**

EXTERIOR WALL ANCHORAGE AND DIAPHRAGM BLOCKING (PRIOR TO FIRST COVER)	DURATION	INSPECTION AGENCY
AT COMPLETION OF ROOF DIAPHRAGM NAILING, INCLUDING PARAPET BRACING (PRIOR TO ROOFING COVER)	P	ENGINEER

**STRUCTURAL OBSERVATION NOTES:**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF RECORD A MINIMUM OF 24 HOURS IN ADVANCE OF REQUIRED OBSERVATIONS. APPROVAL BY THE MUNICIPAL INSPECTOR DOES NOT PRECLUDE OBSERVATION BY THE ENGINEER OF RECORD AND APPROVAL BY THE ENGINEER OF RECORD DOES NOT PRECLUDE THE INSPECTION PROCESS BY THE MUNICIPAL INSPECTOR AND ANY OTHER CODE REQUIREMENTS FOR INSPECTION.
- UPON COMPLETION OF WORK THE STRUCTURAL OBSERVER SHALL SUBMIT A REPORT TO OWNER AND BUILDING OFFICIAL WITH WET STAMP AND SIGNATURE ATTESTING TO THE VISUAL OBSERVATIONS MADE. THE REPORT SHALL IDENTIFY ANY REPORTED DEFICIENCIES WHICH HAVE NOT BEEN RESOLVED.

**SPECIAL INSPECTION PROGRAM NOTES:**

- DURATION REFERS TO TIME AND FREQUENCY OF INSPECTION FOR THE PORTIONS OF WORK INDICATED. C = CONTINUOUS INSPECTION IN WHICH THE SPECIAL INSPECTOR IS ON SITE AT ALL TIMES, OBSERVING THE WORK REQUIRING SPECIAL INSPECTION. P = PERIODIC INSPECTION IN WHICH THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT THE WORK REQUIRING SPECIAL INSPECTION IS IN CONFORMANCE WITH APPROVED PERMIT DRAWINGS AND SPECIFICATIONS.
- THE INSPECTION AGENCIES ARE AS FOLLOWS:  
 ENGINEER: VLMK ENGINEERS  
 TESTING LAB: TO BE DETERMINED
- TESTING LAB SHALL PERFORM INSPECTIONS OF ALL PORTIONS OF WORK DESIGNATED IN THE PROGRAM. THE SELECTED INSPECTION AGENCY SHALL BE AN ACCREDITED, APPROVED SPECIAL INSPECTION AGENCY EMPLOYED BY THE OWNER OR OWNER'S AGENT, NOT THE CONTRACTOR OR SUB CONTRACTOR, PER I.B.C. SECTION 1704.1. THE SPECIAL INSPECTOR'S DUTIES REGARDING THE PORTIONS OF WORK ARE DESCRIBED IN CHAPTER 17 OF THE I.B.C. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- PRIOR TO THE BEGINNING OF CONSTRUCTION, THE ARCHITECT (OR ENGINEER) SHALL CALL A PRE-CONSTRUCTION MEETING WITH THE ARCHITECT, ENGINEER, BUILDING OFFICIAL, CONTRACTOR AND SPECIAL INSPECTORS TO REVIEW THE SPECIAL INSPECTION REQUIREMENTS. THE STRUCTURAL OBSERVATION REQUIREMENTS SHALL ALSO BE DISCUSSED DURING THIS MEETING.
- DUTIES OF THE SPECIAL INSPECTOR TO INCLUDE, BUT ARE NOT LIMITED TO:  
 A. ACKNOWLEDGE THE SPECIAL INSPECTION PROGRAM AND THE SPECIAL INSPECTION AND TESTING AGREEMENT, PROVIDED BY THE LOCAL JURISDICTION.  
 B. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE WITH THE APPROVED PERMIT DRAWINGS AND SPECIFICATIONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER AND TO THE BUILDING OFFICIAL.  
 C. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, ARCHITECT, ENGINEER, CONTRACTOR AND (OTHER DESIGNATED PARTIES), IN A TIMELY MANNER, AS ESTABLISHED AT THE PRE-CONSTRUCTION MEETING.  
 D. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED, AND WHETHER THE WORK IS IN GENERAL CONFORMANCE WITH THE APPROVED PERMIT DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE.
- DUTIES OF THE CONTRACTOR INCLUDE, BUT ARE NOT LIMITED TO:  
 A. NOTIFY THE SPECIAL INSPECTOR THAT THE WORK IS READY FOR INSPECTION AT LEAST 24 HOURS BEFORE SUCH INSPECTION.  
 B. ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT HAS BEEN OBSERVED AND INDICATED TO BE IN CONFORMANCE BY THE SPECIAL INSPECTOR AND APPROVED BY THE BUILDING OFFICIAL.  
 C. PROVIDE THE SPECIAL INSPECTOR WITH ACCESS TO APPROVED PERMIT DRAWINGS AND SPECIFICATIONS AT THE JOB SITE.  
 D. MAINTAIN AT THE JOB SITE, COPIES OF ALL REPORTS SUBMITTED BY THE SPECIAL INSPECTOR.
- TESTS OF EXISTING CONCRETE WALLS:  
 A. DETERMINE TYPICAL EXISTING CONCRETE WALL REINFORCING USING NON-DESTRUCTIVE METHODS. NOTE THAT WALLS WERE BOARD FORMED AND HAVE EMBEDDED TIE BARS.  
 1. PARAPET WALLS. TYPICAL BAR SPACING AND APPROXIMATE SIZE (IF PRESENT). TEST AT (3) LOCATIONS MINIMUM, INCLUDING FRONT GABLE PARAPETS.  
 2. GROUND LEVEL NORTH WALL. TYPICAL BAR SPACING AND APPROXIMATE SIZE (IF PRESENT). TEST AT (2) LOCATIONS MINIMUM.  
 B. ESTIMATE EXISTING CONCRETE STRENGTH USING NON-DESTRUCTIVE METHODS.  
 1. PARAPET WALLS, (3) LOCATIONS MINIMUM, INCLUDING (1) GABLE PARAPET.  
 2. GROUND LEVEL NORTH WALL, (2) LOCATIONS MINIMUM.
- ADHESIVE ANCHORS IN CONCRETE TO BE INSTALLED AND TESTED AS FOLLOWS:  
 A. ADHESIVE ANCHORS TO BE INSTALLED BY PERSONNEL CERTIFIED FOR ADHESIVE ANCHOR INSTALLATION, OR ON-SITE TRAINING SHALL BE PROVIDED BY MANUFACTURER'S REPRESENTATIVE. PROVIDE DOCUMENTATION OF CERTIFICATION OR TRAINING PRIOR TO BEGINNING ANCHOR INSTALLATION.  
 B. FIVE PERCENT OF ANCHORS TO BE TESTED IN TENSION TO A LOAD OF 4000# (CONCRETE). HOLD LOAD FOR 5 MINUTES. TEST REPORT TO INCLUDE:  
 1. TEST LOCATIONS  
 2. BOLT MOVEMENT/ELONGATION  
 3. EMBEDMENT DEPTH  
 4. APPLIED LOAD  
 C. IF FAILURES OCCUR, ADDITIONAL TESTS, OF MULTIPLE SUCCESSIVE ANCHORS, WILL BE REQUIRED AT CONTRACTORS EXPENSE.

**SEISMIC UPGRADE SUMMARY**

THESE DRAWINGS AND ATTACHED STRUCTURAL CALCULATIONS ARE PROVIDED FOR A VOLUNTARY SEISMIC UPGRADE OF THE ROOF DIAPHRAGM AND ASSOCIATED WALL ANCHORAGE FOR PSU'S BLACKSTONE RESIDENCE HALL.

ORIGINAL DRAWINGS FOR THE STRUCTURE COULD NOT BE LOCATED, THOUGH WE UNDERSTAND THAT THE BUILDING WAS BUILT IN 1928. BASED ON OUR OBSERVATIONS AND LIMITED INVESTIGATION OF THE STRUCTURE, AS-BUILT ROOF FRAMING PLANS HAVE BEEN CREATED FOR THIS UPGRADE. BUILDING CONSTRUCTION IS UNDERSTOOD TO INCLUDE THE FOLLOWING: CAST-IN-PLACE, BOARD FORMED EXTERIOR CONCRETE WALLS. BRICK VENEER IS PRESENT ON (3) SIDES. INTERIOR FRAMING HAS WOOD FLOORS WITH SHEATHING OVER 2X JOISTS, AND TIMBER BEAMS AND POSTS. THE ROOF IS FRAMED WITH 2X CEILING JOISTS SUPPORTING INTERMEDIATE 2X PONY WALLS, ADDITIONAL 2X JOISTS AND STRAIGHT SHEATHING. THE BUILDING IS 'U' SHAPED WITH A LONG NARROW COURTYARD.

VLMK HAS PROVIDED STRUCTURAL CALCULATIONS AND DRAWINGS TO UPGRADE STRUCTURAL DEFICIENCIES FOR THE FOLLOWING ELEMENTS USING A LIFE-SAFETY PERFORMANCE OBJECTIVE WITH THE NOTED DESIGN CRITERIA.

- STRENGTHEN THE EXISTING STRAIGHT SHEATHED DIAPHRAGM BY PROVIDING A PLYWOOD DIAPHRAGM OVERLAY AND NEW DIAPHRAGM CHORDS. (ASCE 41-06 DESIGN CRITERIA)
- ANCHOR EXTERIOR WALLS TO THE ROOF DIAPHRAGM WITH CONTINUOUS BUILDING CROSS TIES AND DEVELOPMENT OF SUB-DIAPHRAGMS. (ASCE 7-05 DESIGN CRITERIA)
- BRACE TALL PARAPET WALLS WHERE REQUIRED (ASCE 7-05 DESIGN CRITERIA)

20130215 20130215-S10.dwg 01 Nov 2013 - 8:55 am mikel

NO.	DATE	REVISIONS

REGISTERED PROFESSIONAL ENGINEER  
 VLMK CONSULTING ENGINEERS  
 3933 SW Kelly Avenue • Portland • Oregon 97239-4393  
 503.222.4453  
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**PSU ST. HELENS COURT**  
**ROOF REPLACEMENT & SEISMIC UPGRADE**  
 1131 SW MONTGOMERY STREET  
 PORTLAND, OREGON 97201

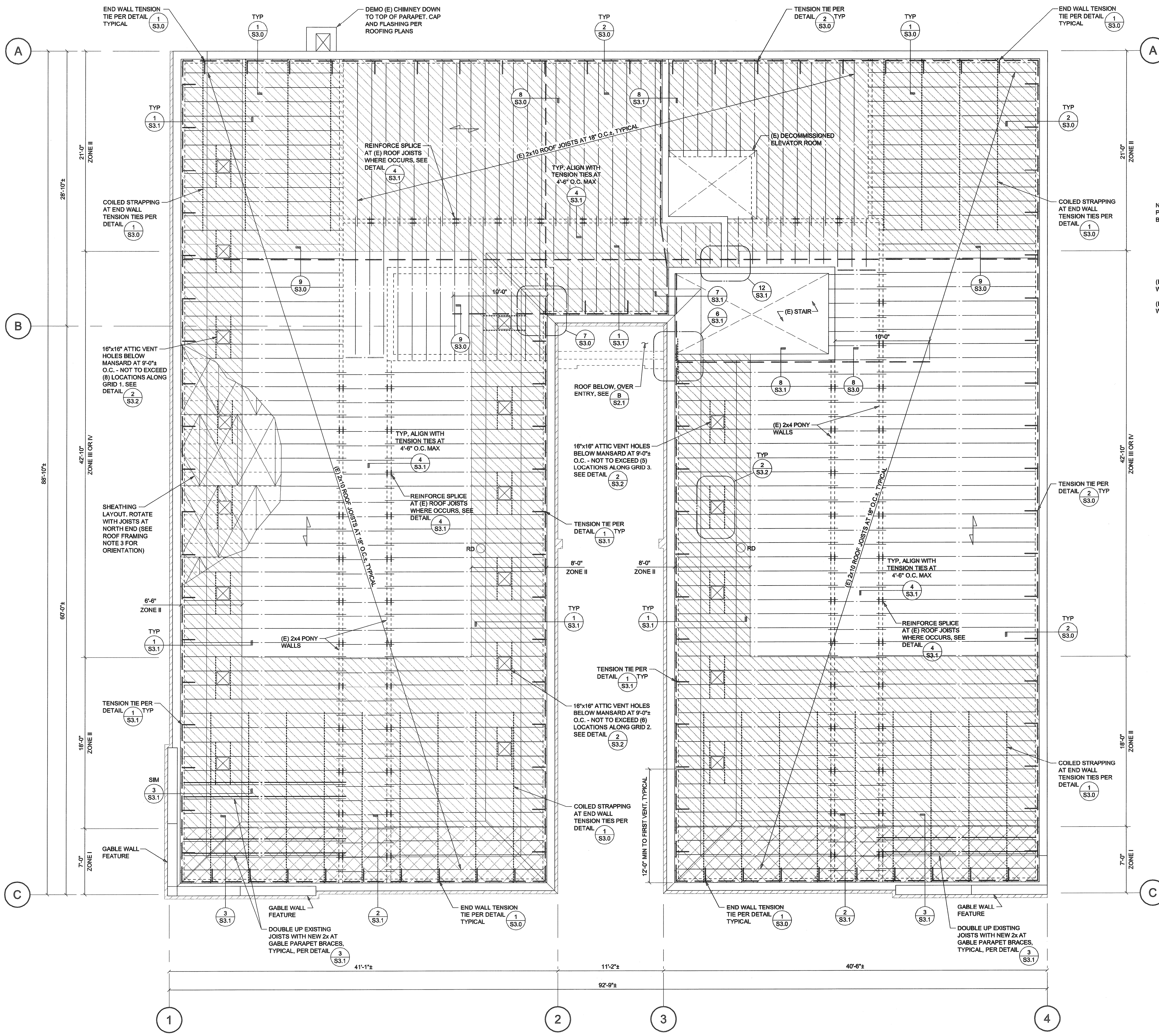
**STRUCT. NOTES & SPECIAL INSPCT.**

DATE: OCTOBER 2013

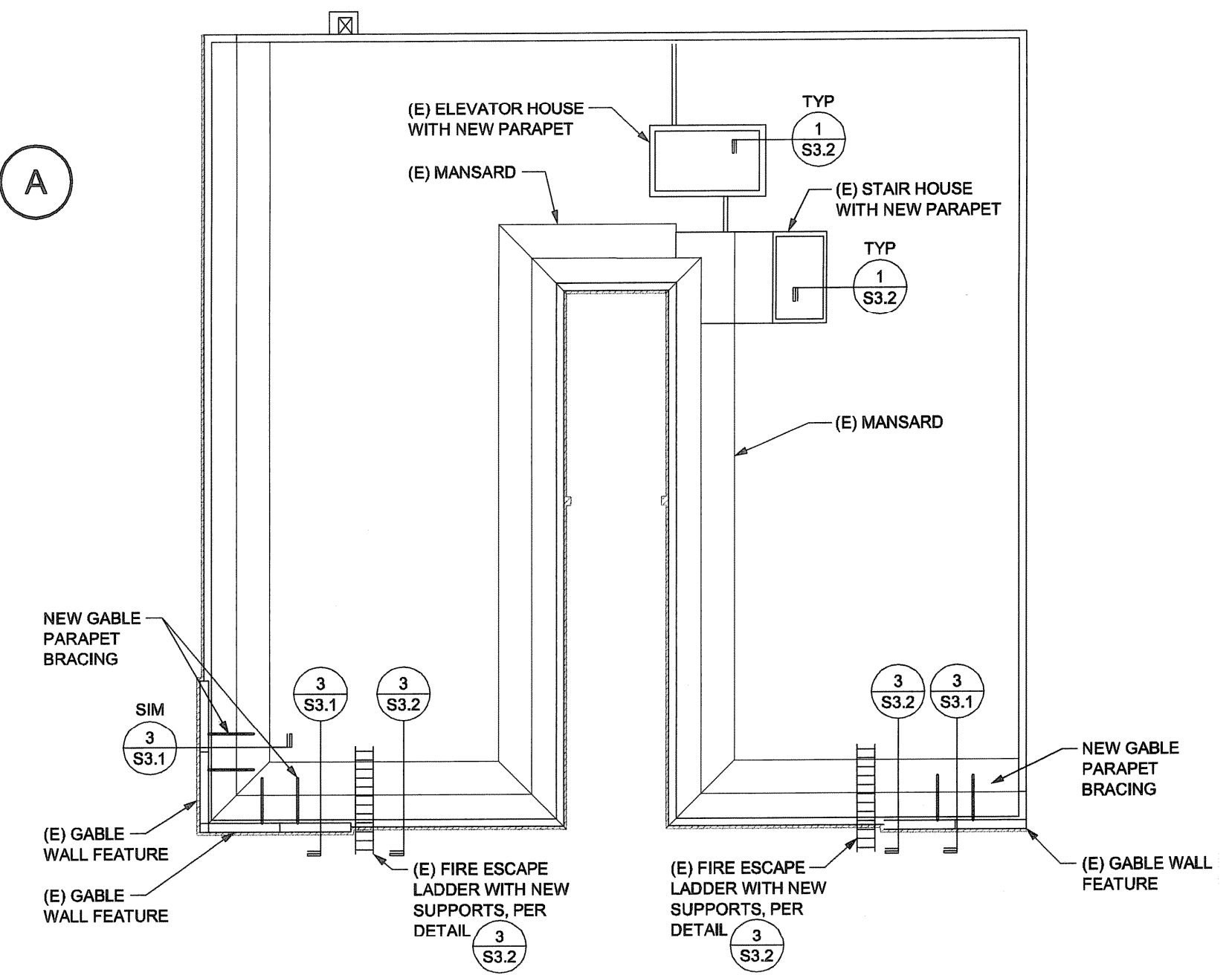
SCALE	PROJ. NO.
NOTED	20130215
DRAWN	CHECKED
M.L.	TCN
SHEET NO.	

**S1.0**  
 OF





**A** **S2.0** **ROOF FRAMING PLAN**  
3/16" = 1'-0"



**B** **S2.0** **MISC. BRACING PLAN**  
1/16" = 1'-0"

**ROOF FRAMING LEGEND:**

- (E) EXISTING CONDITION
- (N) NEW CONDITION
- EXISTING 9" CONCRETE WALL
- EXISTING 9" CONCRETE WALL WITH BRICK VENEER
- EXISTING STRUCTURAL BEARING PONY WALL BELOW
- (N) LEDGER AND/OR CHORD PER DETAILS (1) S3.0 AND (2) S3.1
- SPAN OF EXISTING 1" x 8" STRAIGHT SHEATHING
- RD LOCATION OF EXISTING ROOF DRAIN (VERIFY)
- (N) COILED STRAPPING, SEE (1) S3.0 AND (2) S3.1 FOR ADDITIONAL INFORMATION
- (N) TENSION TIE, SEE (3) S3.0, (1) S3.1 AND (2) S3.1 FOR ADDITIONAL INFORMATION

**ROOF FRAMING NOTES:**

1. DIMENSIONS SHOWN FOR THE EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY DIMENSIONS BEFORE RELYING ON THEM.
2. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING.
3. PLACE NEW PLYWOOD SHEATHING OVER EXISTING STRAIGHT SHEATHING AS FOLLOWS:  
PROVIDE APA RATED EXPOSURE 1 PLYWOOD WITH A MINIMUM THICKNESS OF 1/2" AND A MINIMUM SPAN RATING OF 32/16. ORIENT STRONG AXIS OF SHEATHING PERPENDICULAR TO EXISTING 2x JOIST SUPPORT BELOW.
4. RIP SHEATHING TO ACCOMMODATE (E) JOIST SPACING OR PROVIDE 2x FLAT BLOCKING AT SHEATHING EDGES AS REQ'D.
5. SEE ROOF DIAPHRAGM FASTENER SCHEDULE FOR ATTACHMENT REQUIREMENTS. SOLID BLOCK ALL DIAPHRAGMS AS INDICATED.

ROOF DIAPHRAGM FASTENER SPACING SCHEDULE						
ZONE	BOUNDARY EDGES	CONTINUOUS PANEL EDGES	OTHER PANEL EDGES	FIELD	SYMBOL	BLOCKING
I	3" (FHSD)	2"	3"	12"	[Symbol]	2x4 FLAT LSL SEE NOTE B
II	3" (FHSD)	2"	3"	12"	[Symbol]	2x4 FLAT
III	4" (FHSD)	4"	6"	12"	[Symbol]	2x4 FLAT
IV	4" (FHSD)	2 1/2" STAPLES	4" STAPLES	12"	[Symbol]	(E) STRAIGHT SHEATHING

**SCHEDULE NOTES:**

- A. FASTENERS:**
- SHEATHING TO WOOD: (TYPICAL) 10d COMMON OR GALVANIZED BOX NAILS. MINIMUM FASTENER PENETRATION OF 1 1/2" INTO THE FRAMING MEMBER AND BLOCKING IS REQUIRED.
  - OR- SIMPSON "WSNLT" COLLATED WOOD SCREWS (ESR-1472) MINIMUM FASTENER PENETRATION OF 1 1/4" INTO THE FRAMING MEMBER AND BLOCKING IS REQUIRED.
  - SHEATHING TO WOOD: (ZONE IV ONLY) 1 1/2" 16 GA STAPLES WITH A MINIMUM CROWN WIDTH OF 7/16". INSTALL WITH CROWNS PARALLEL TO THE LONG DIMENSION OF THE FRAMING MEMBERS.
  - SHEATHING TO STEEL: (BOUNDARY LEDGER ANGLE) SIMPSON "FHSD" COLLATED SELF-DRILLING SCREWS, #8 SHANK DIA x 1 1/4" LONG (FHSD11450818).
- B. MINIMUM 3" NOMINAL WIDTH OF NAILED FACE AT ADJOINING PANEL EDGES AND BOUNDARIES. PROVIDE ADDITIONAL 3x FRAMING PARALLEL TO (E) 2x JOISTS AT PANEL EDGES AND 1 1/2" x 3 1/2" FLAT LSL BLOCKING PERPENDICULAR TO (E) JOISTS AT PANEL EDGES.**

REGISTERED PROFESSIONAL ENGINEER  
TRENT C. NAGLE  
OREGON LICENSE # 356  
EXPIRES: 12/31/14

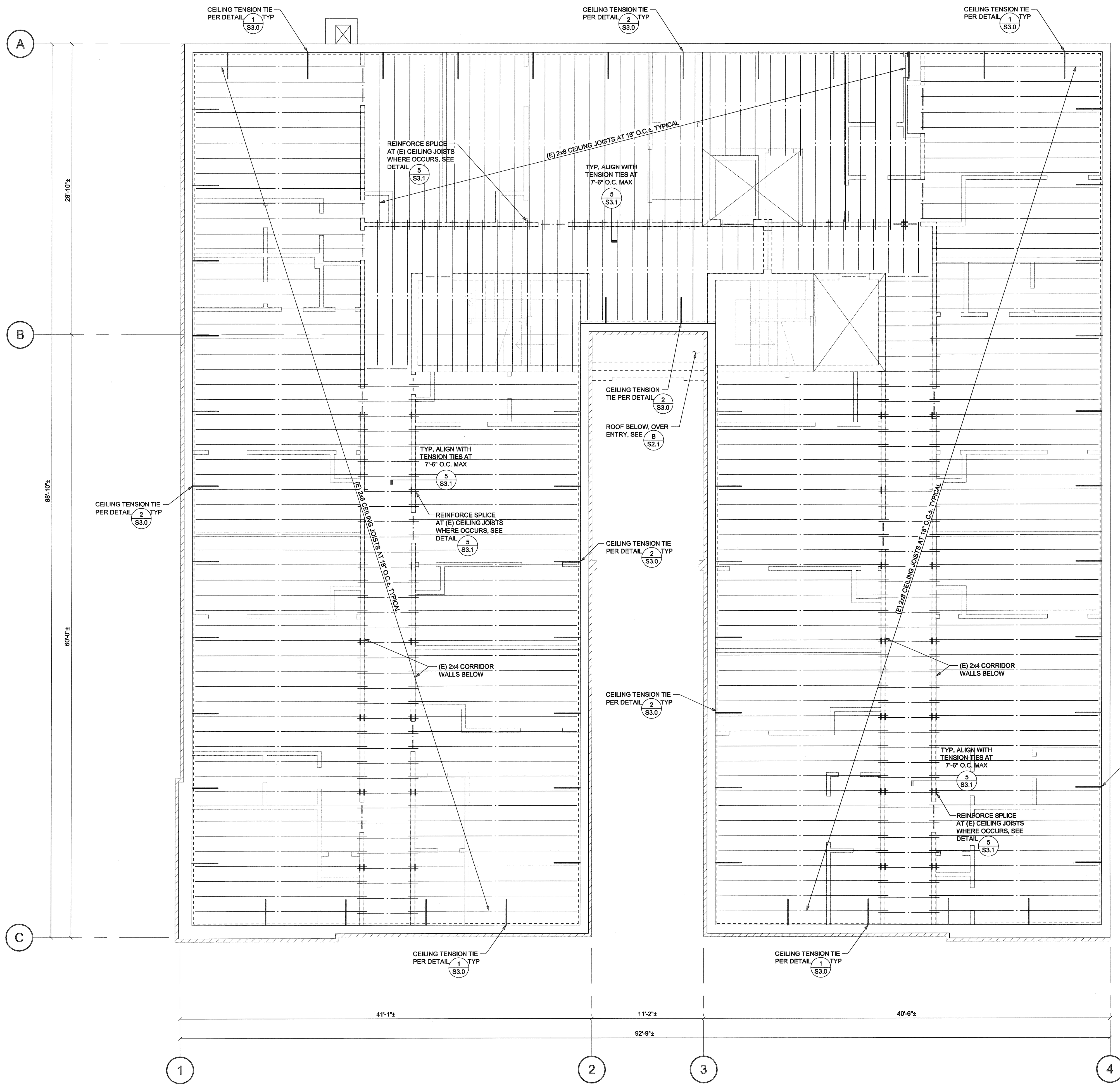
**VLMK CONSULTING ENGINEERS**  
3933 SW Kelly Avenue • Portland • Oregon 97239-4393  
www.vlmk.com

**PSU ST. HELENS COURT**  
ROOF REPLACEMENT & SEISMIC UPGRADE  
1131 SW MONTGOMERY STREET  
PORTLAND, OREGON 97201

DATE	OCTOBER 2013
SCALE	NOTED
PROJ. NO.	20130215
DRAWN	M.J.L.
CHECKED	TCN

**S2.0**  
OF



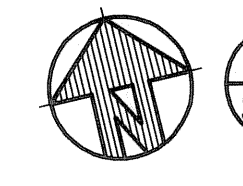
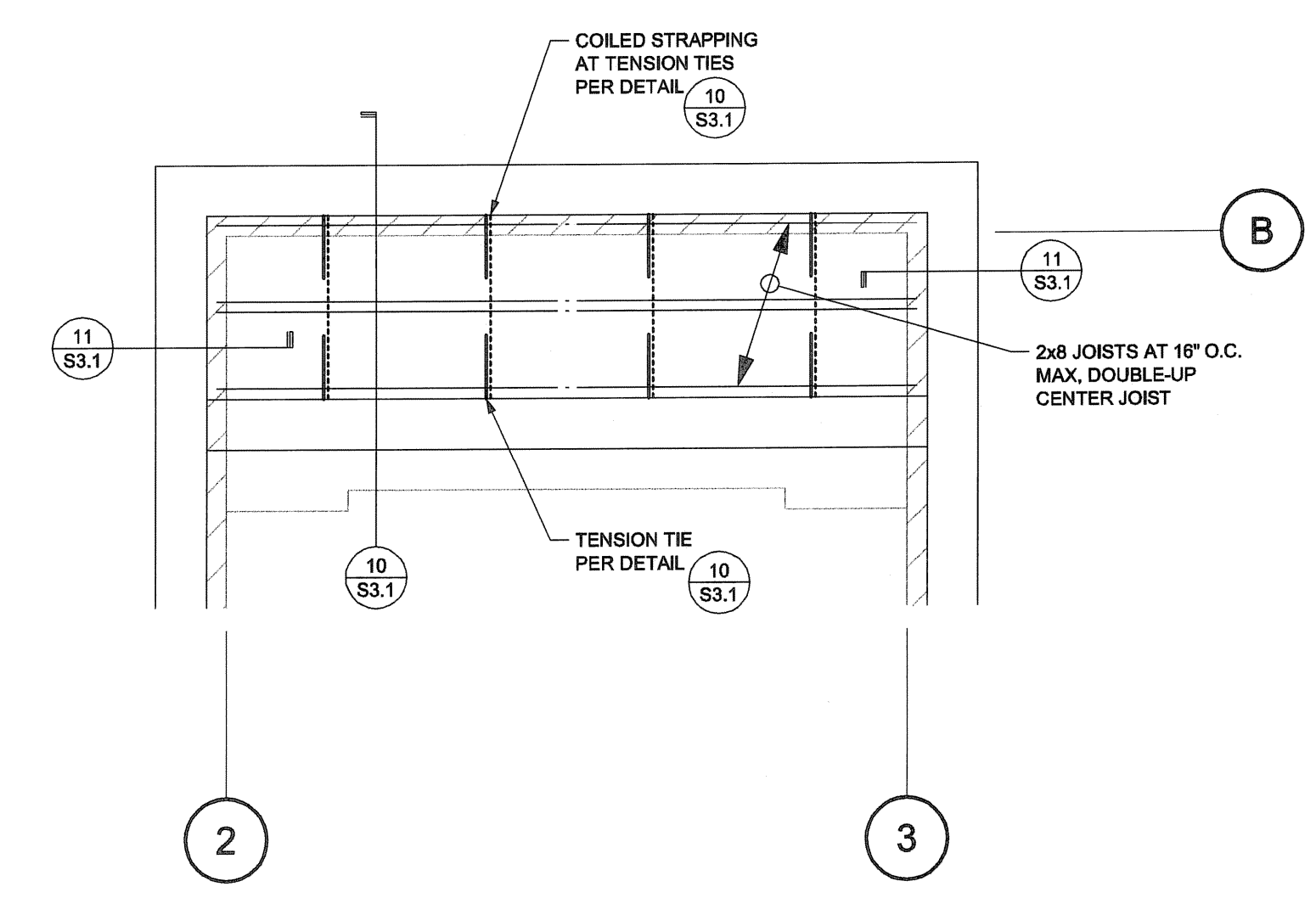


**CEILING FRAMING LEGEND:**

- (E) EXISTING CONDITION
- (N) NEW CONDITION
- EXISTING 9" CONCRETE WALL
- EXISTING 9" CONCRETE WALL WITH BRICK VENEER
- EXISTING STRUCTURAL BEARING WALL OR BEAM BELOW
- (N) TENSION TIE, SEE 1 (S3.0) AND 2 (S3.0) ADDITIONAL INFORMATION

**CEILING FRAMING NOTES:**

1. DIMENSIONS SHOWN FOR THE EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY DIMENSIONS BEFORE RELYING ON THEM.
2. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING.

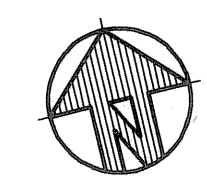


**B ENTRY ROOF FRAMING PLAN**

3/8" = 1'-0"

**ENTRY ROOF FRAMING NOTES:**

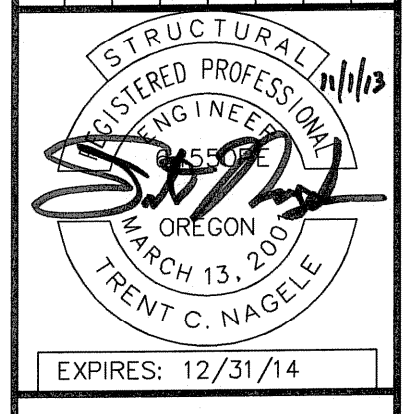
1. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING.
2. ENTRY ROOF SHEATHING TO BE APA RATED EXPOSURE I SHEATHING WITH MINIMUM SPAN RATING OF 32/16 AND A MINIMUM THICKNESS OF 5/8".
3. ENTRY ROOF NAILING TO BE 10d COMMON OR GALVANIZED BOX NAILS. NAIL AT 6" O.C. AT ALL SUPPORTED PANEL EDGES AND AT 12" O.C. IN FIELD. BLOCKING IS NOT REQUIRED.



**A CEILING FRAMING PLAN AT ROOF**

3/16" = 1'-0"

NO.	DATE	REVISIONS



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 3933 SW Kelly Avenue • Portland • Oregon 97239-4393  
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 503-273-4453  
 503-246-9263  
 vlmk@vlmk.com  
 www.vlmk.com

**PSU ST. HELENS COURT**  
**ROOF REPLACEMENT & SEISMIC UPGRADE**  
 1131 SW MONTGOMERY STREET  
 PORTLAND, OREGON 97201

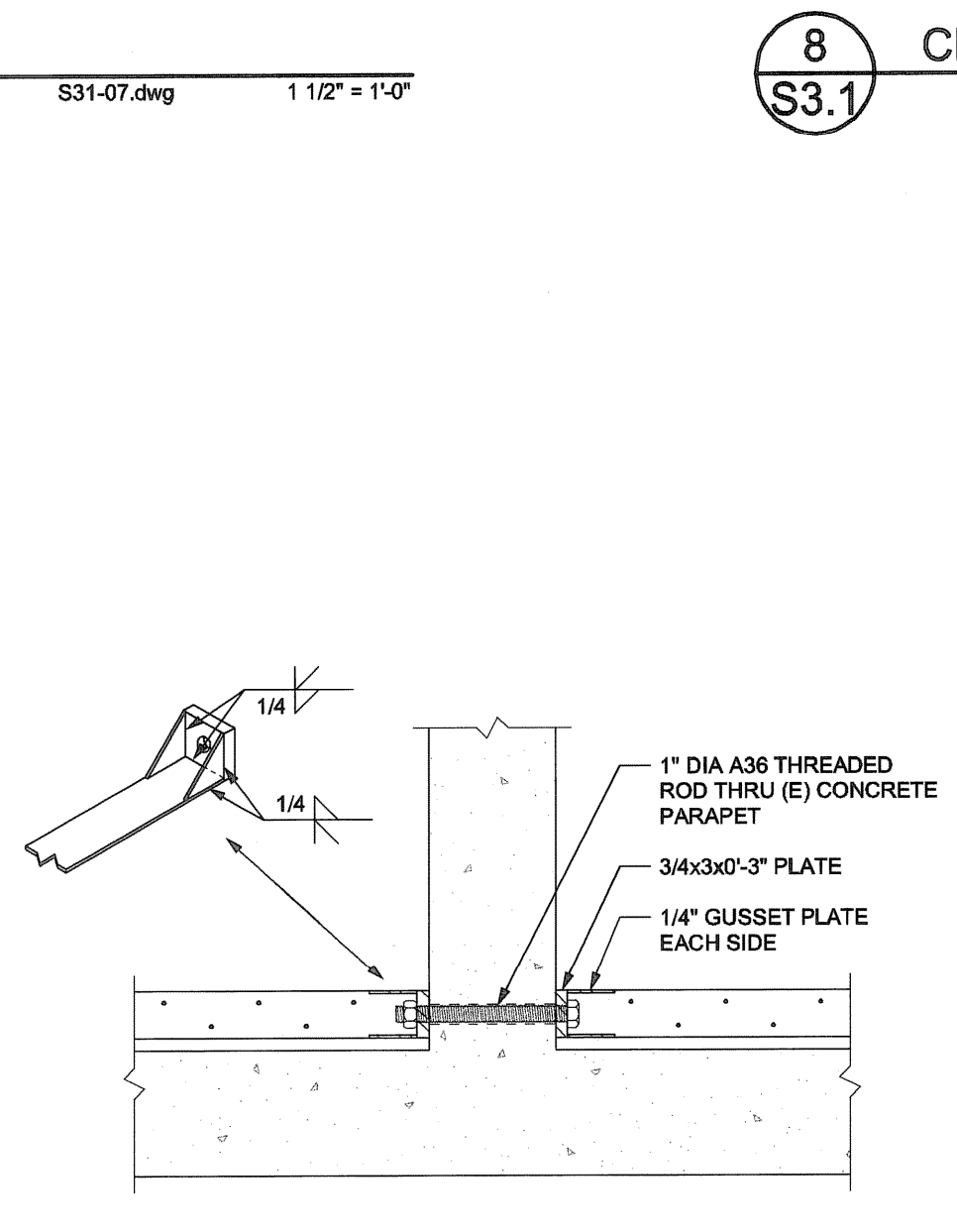
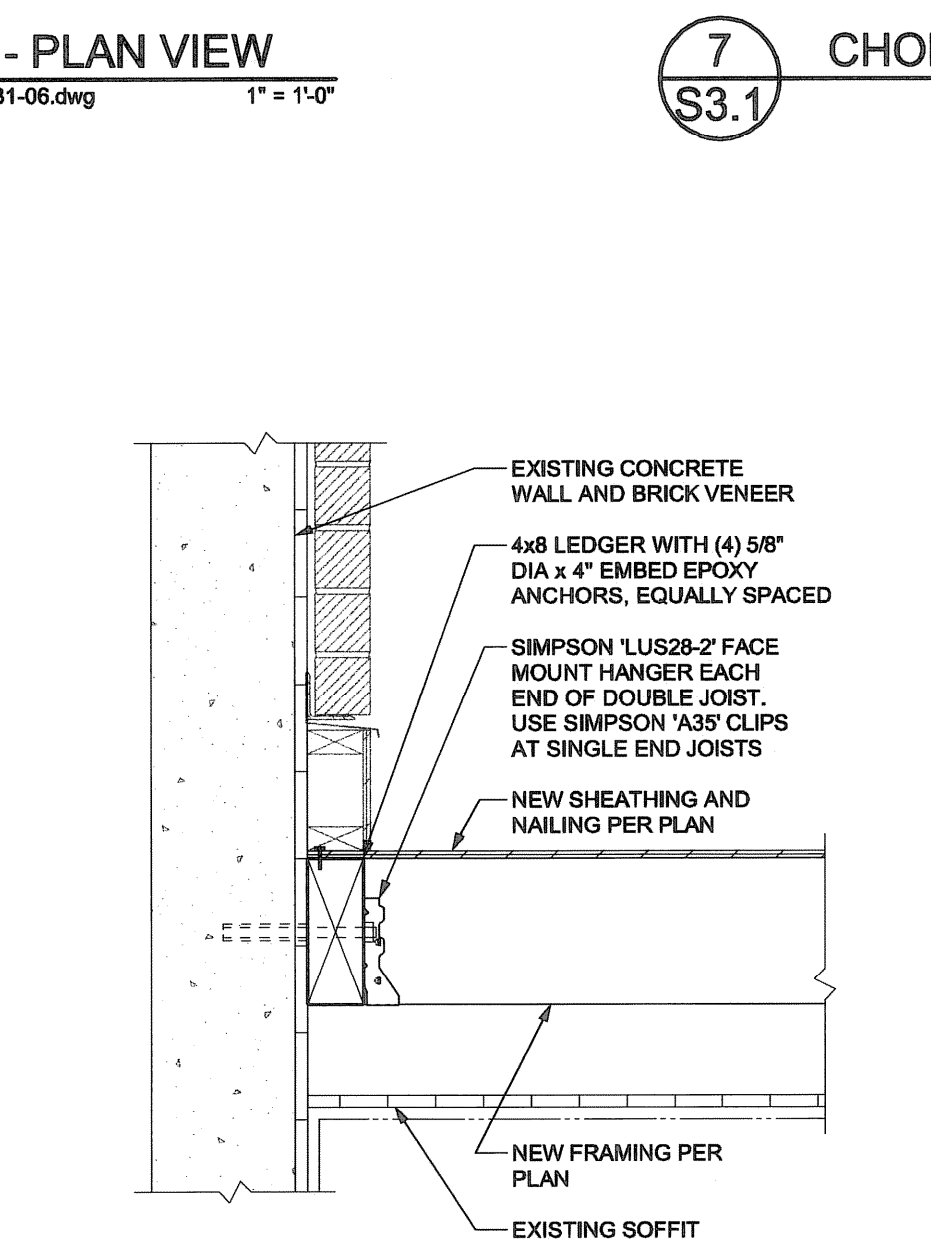
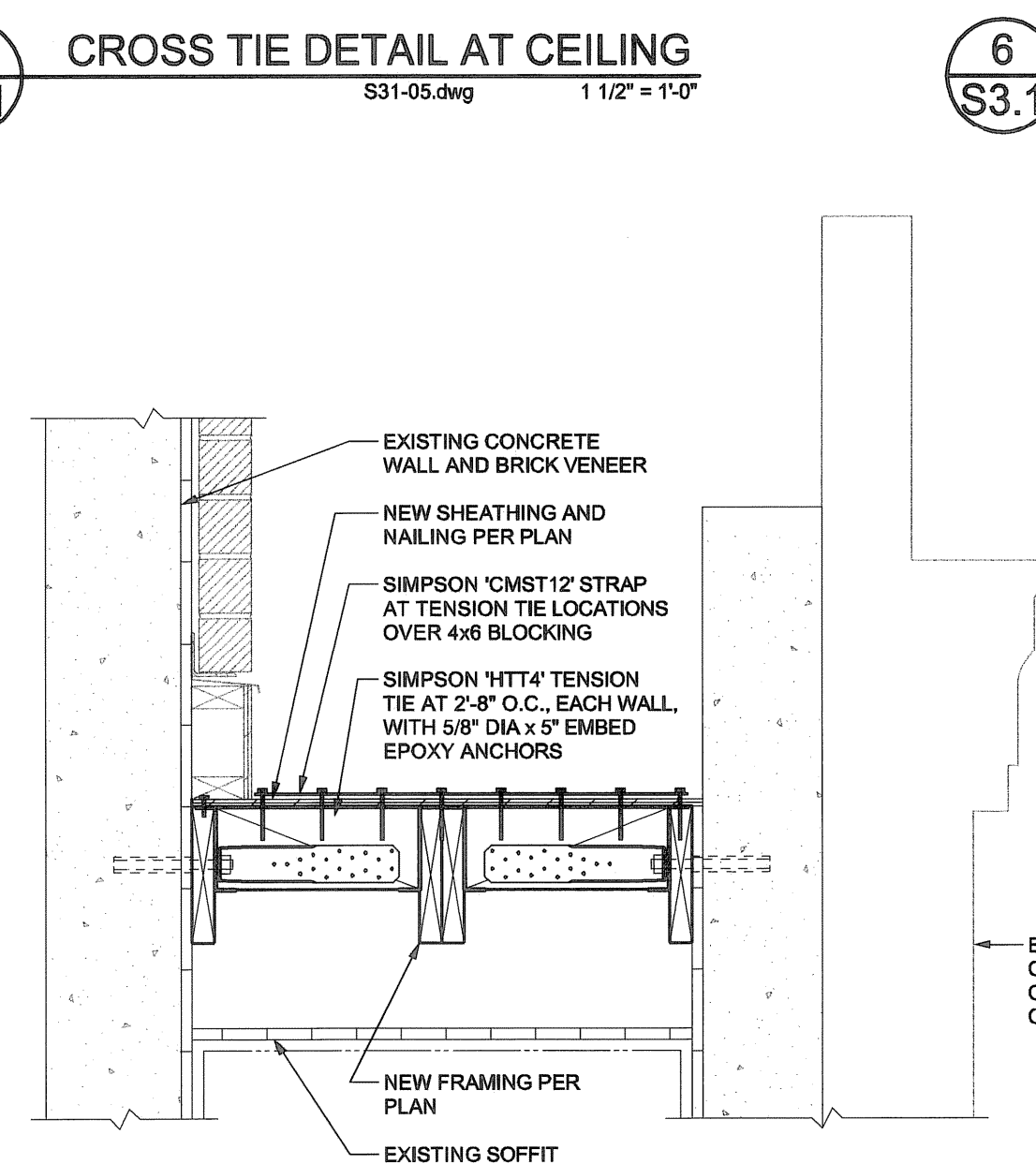
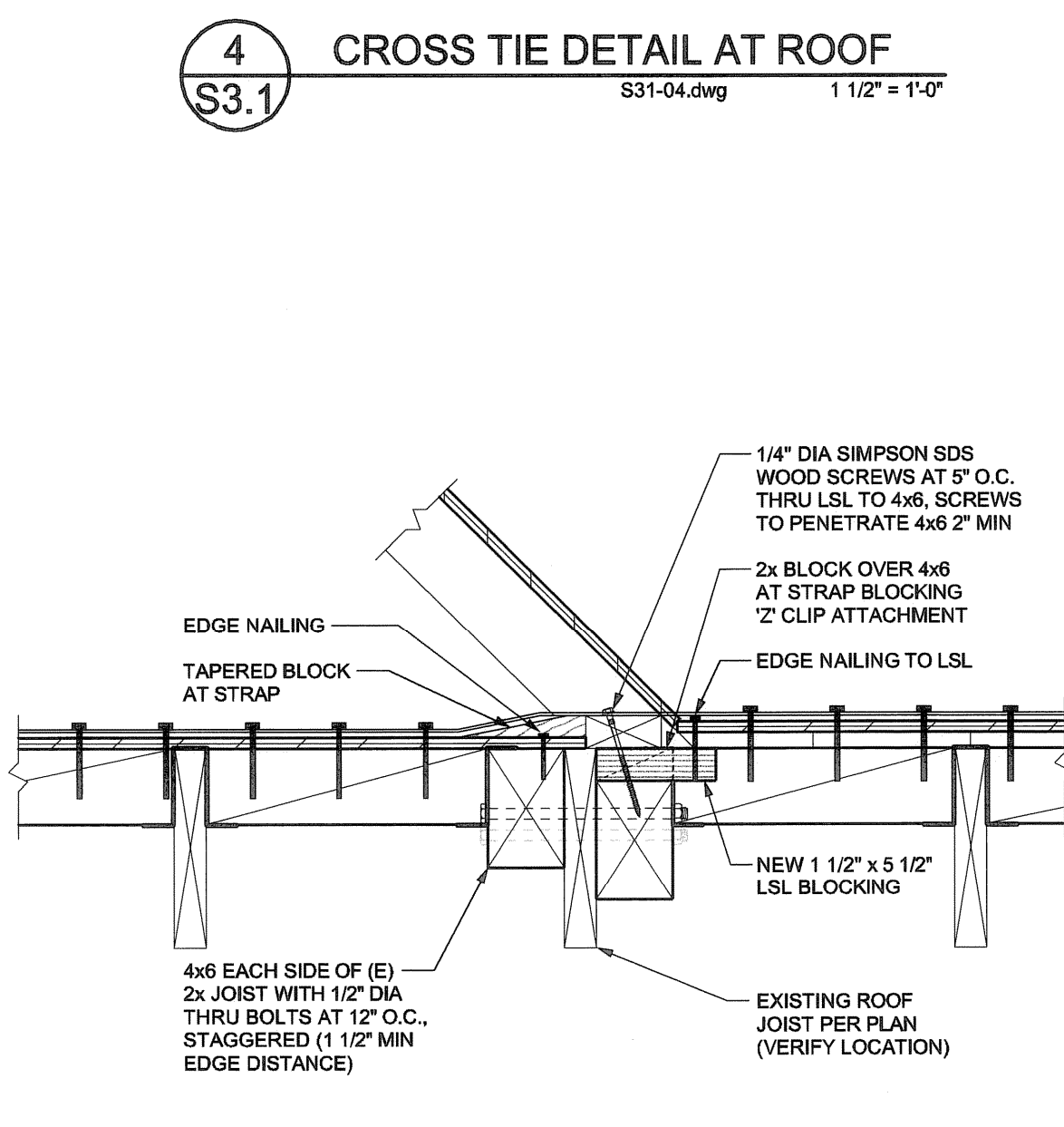
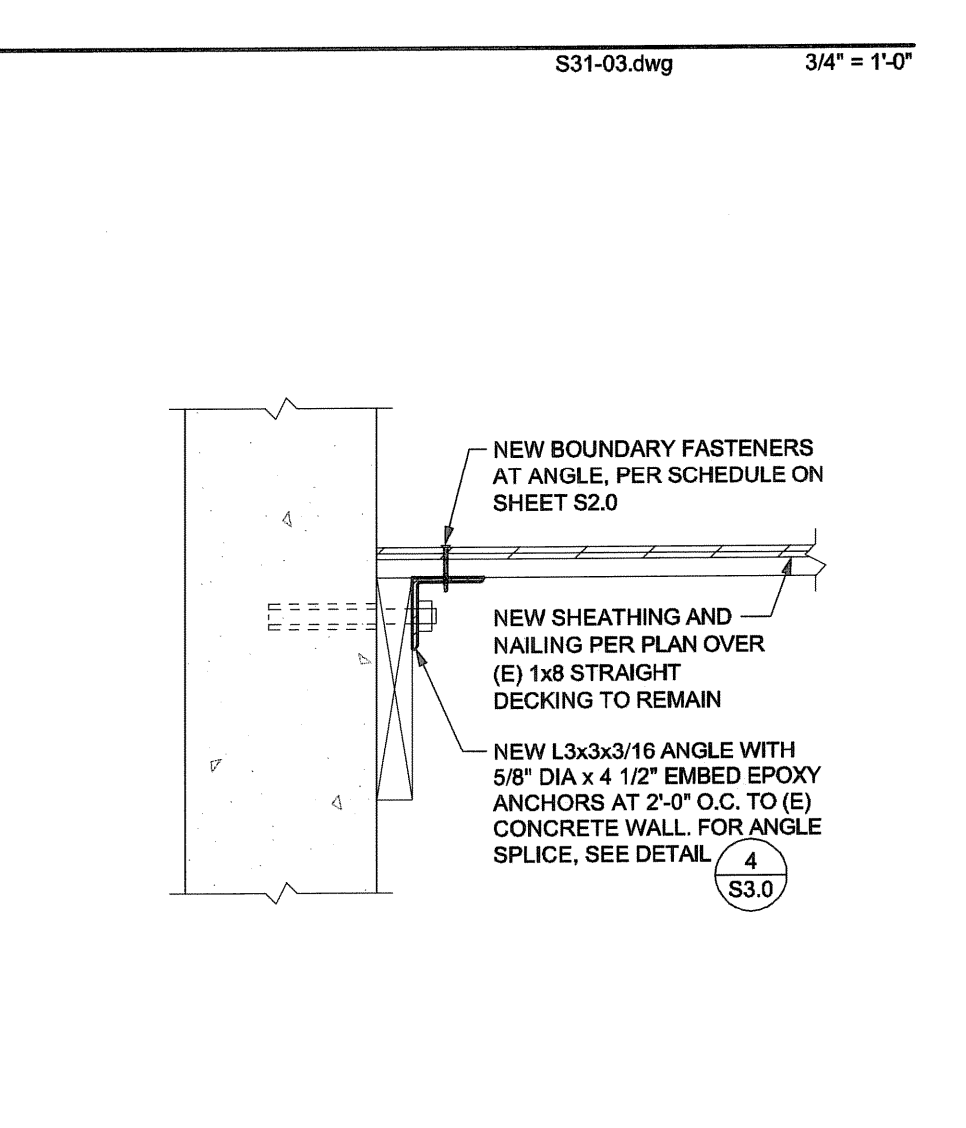
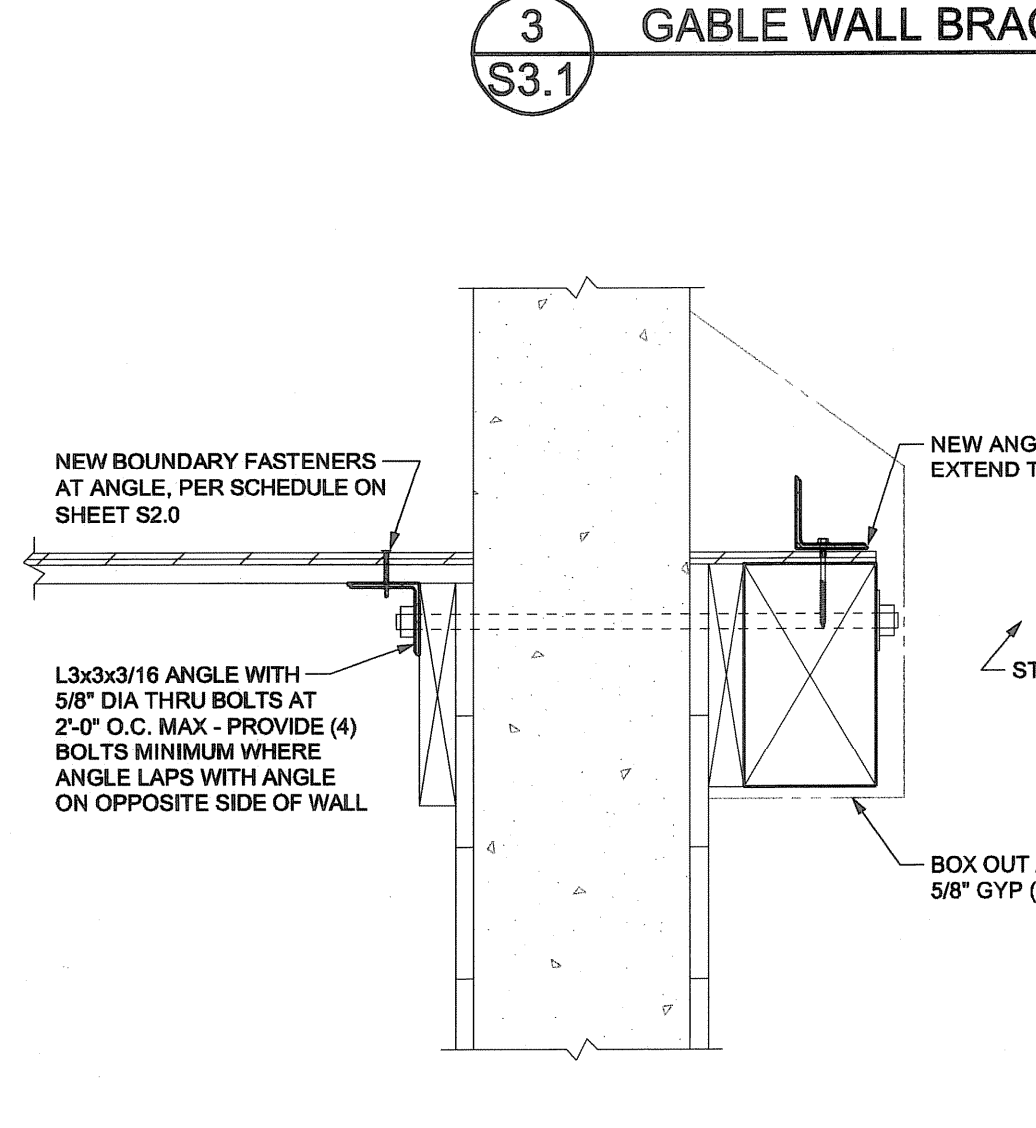
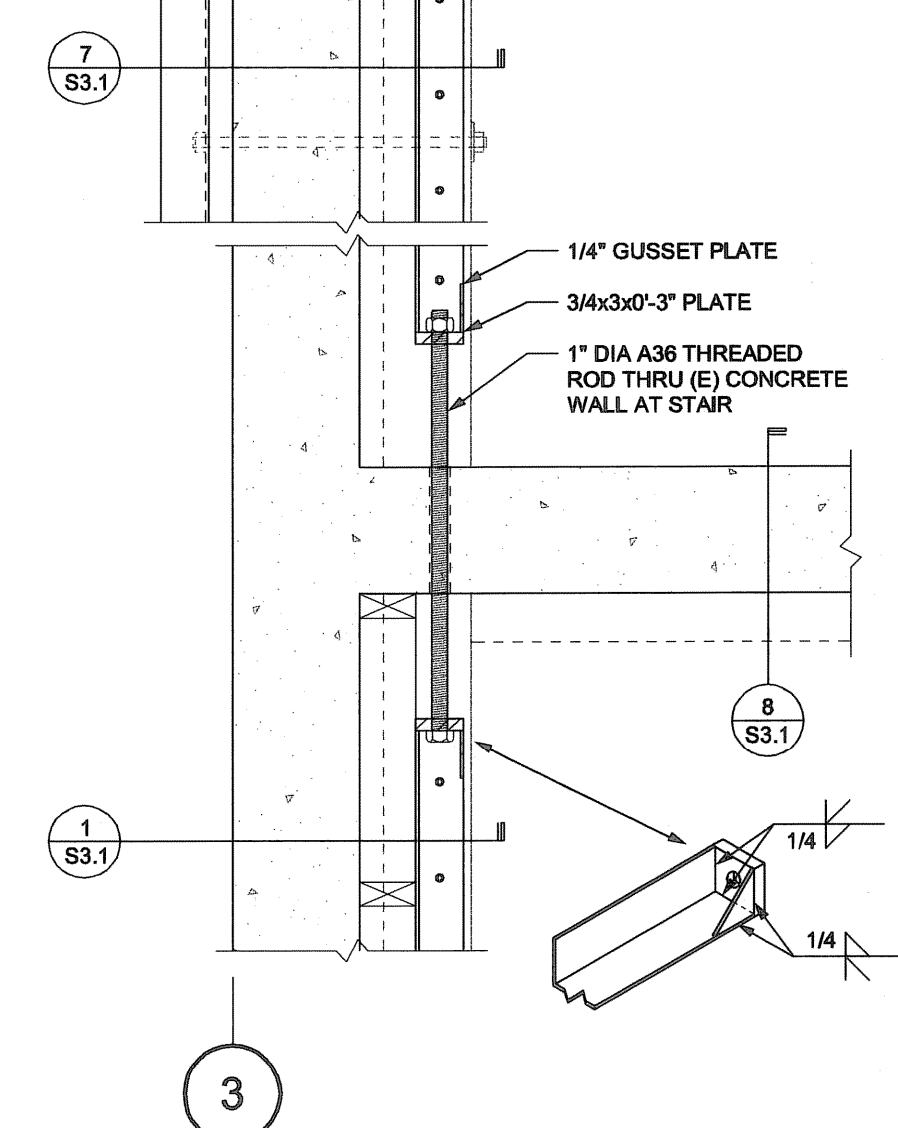
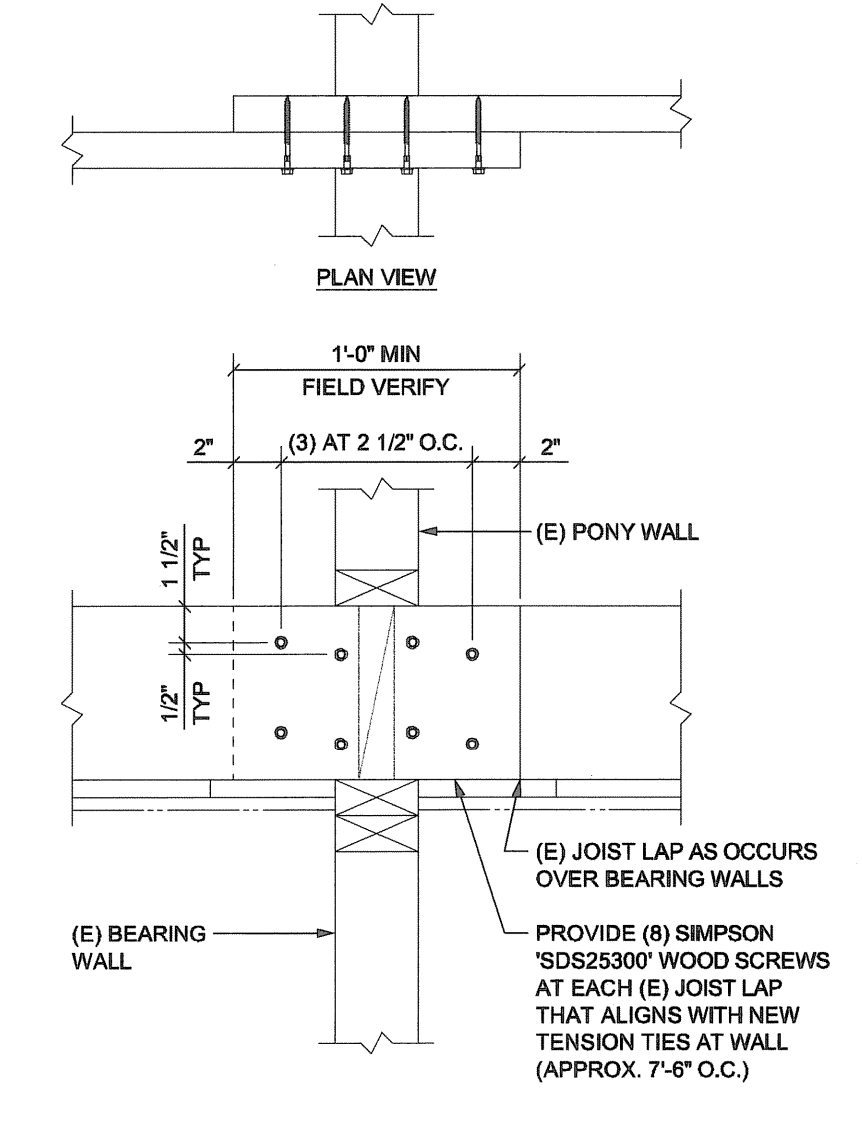
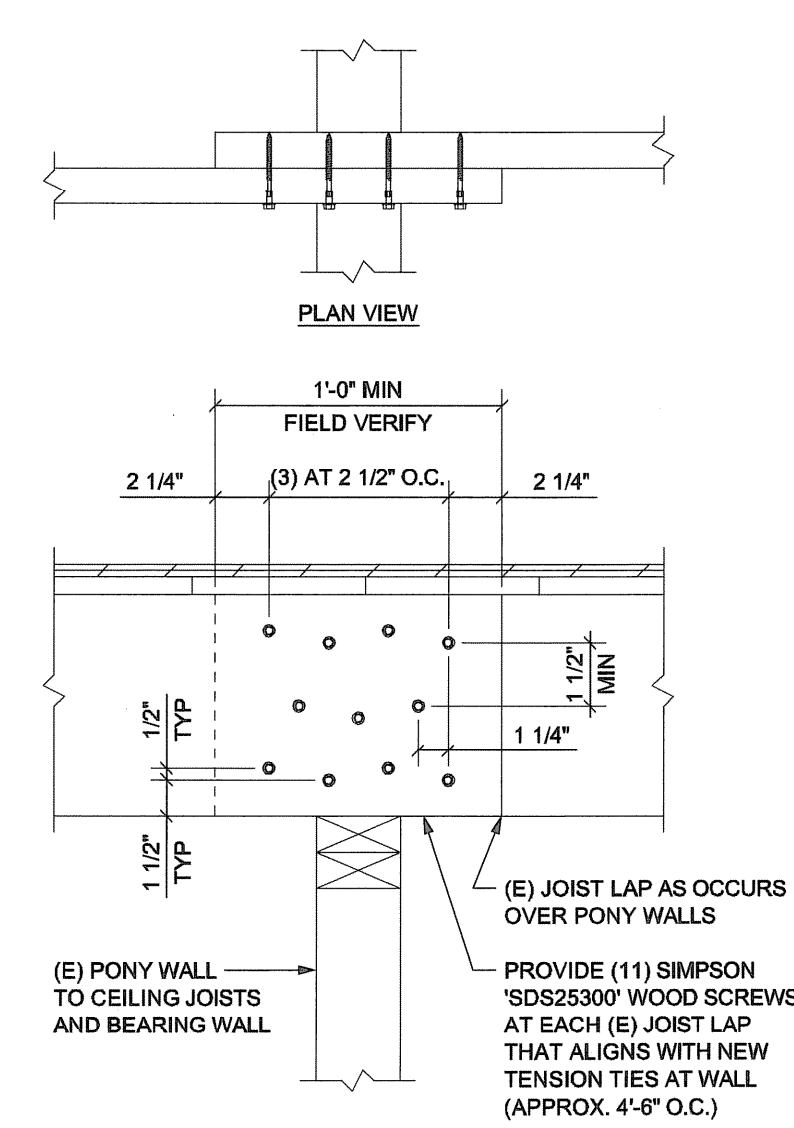
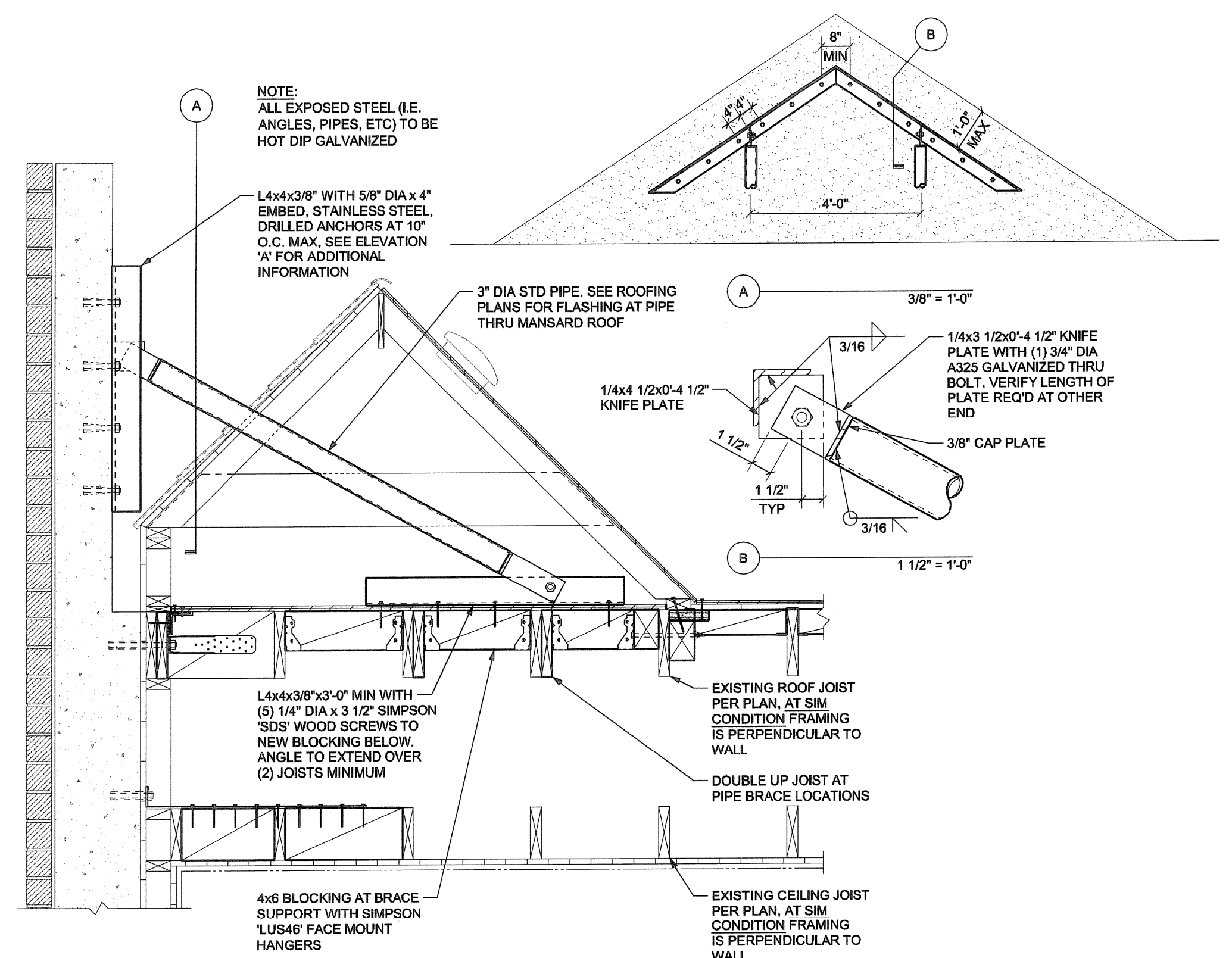
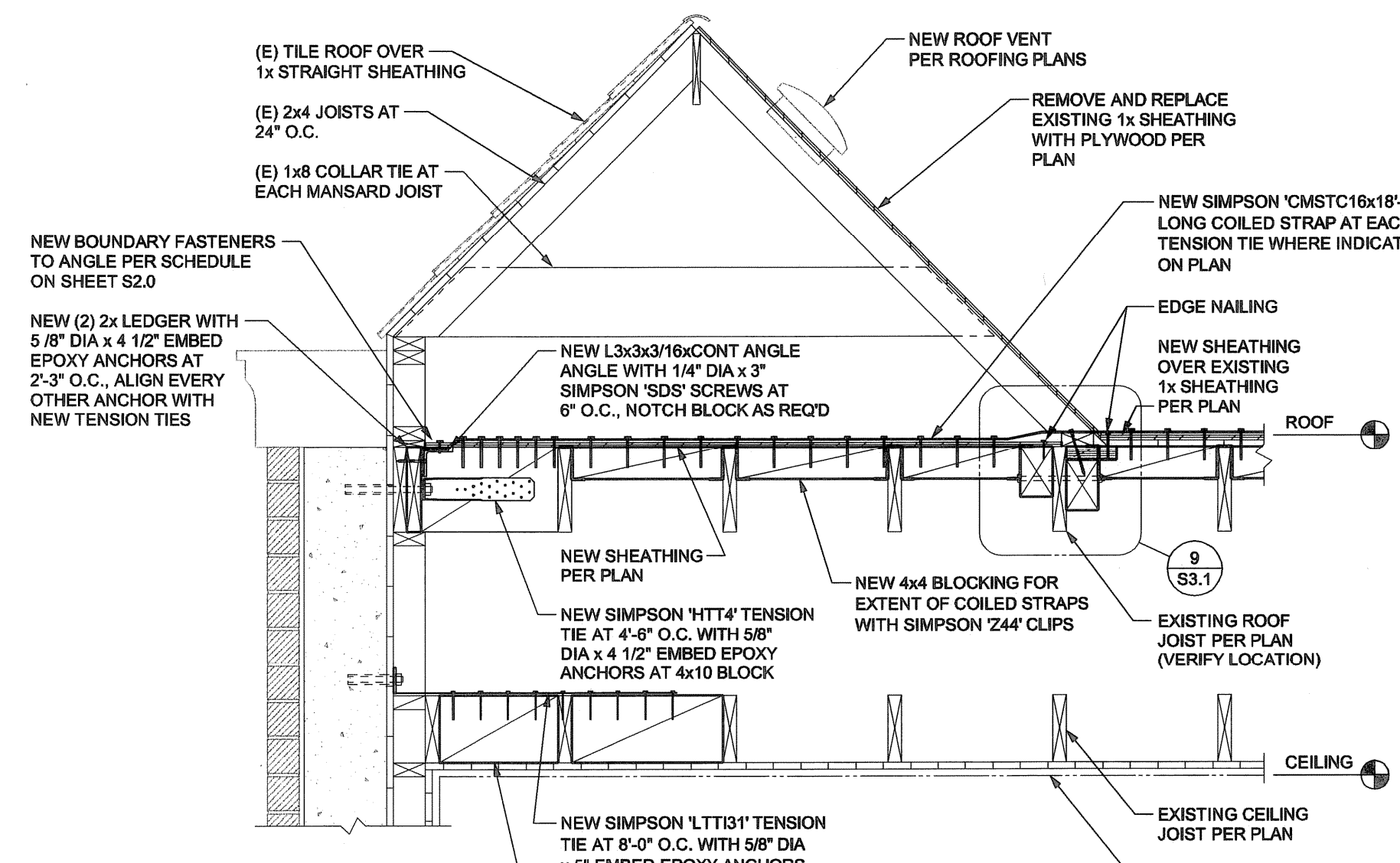
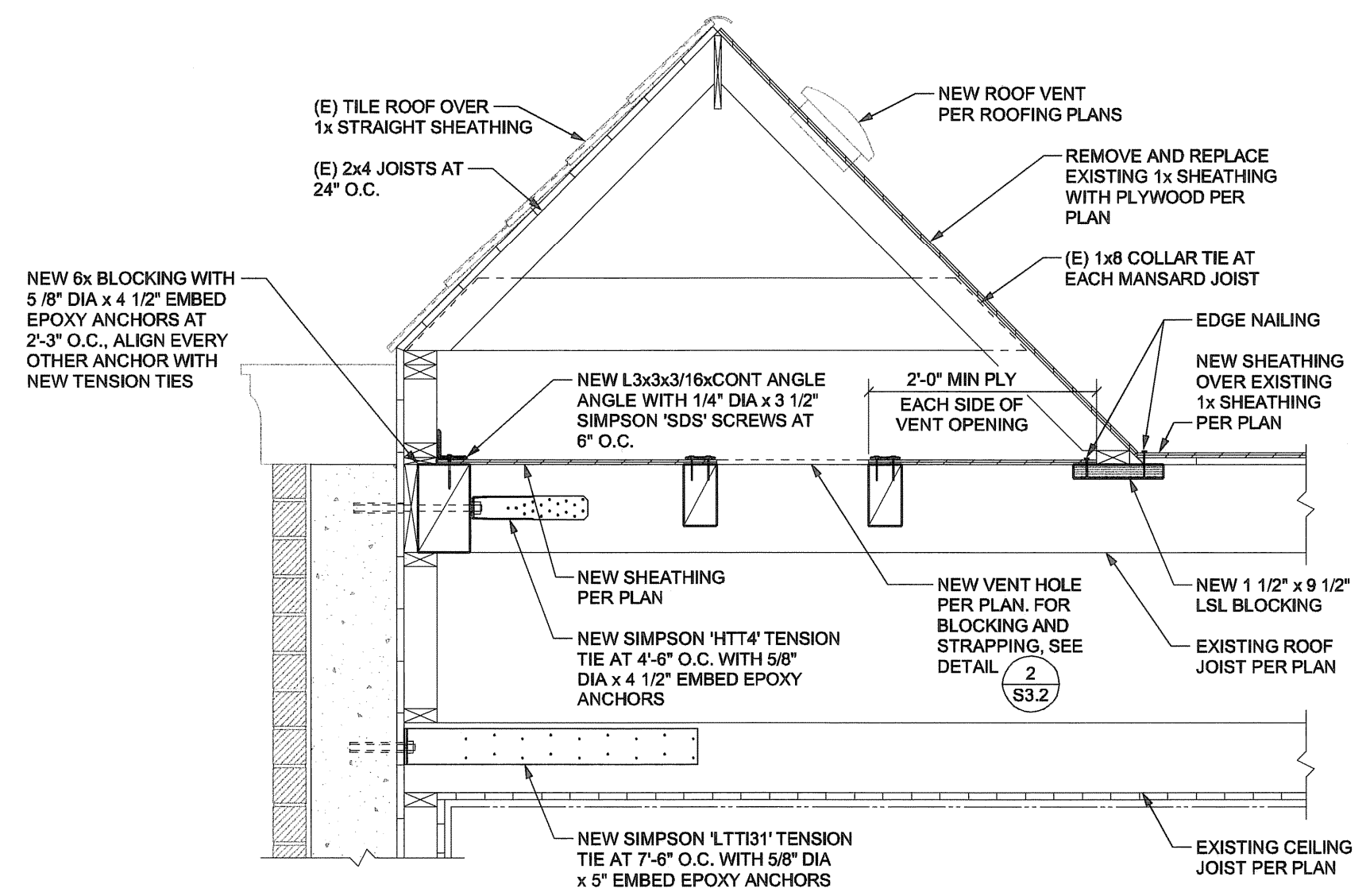
**CEILING/ROOF FRAMING PLAN**

DATE	OCTOBER 2013
SCALE	PROJ. NO.
NOTED	20130215
DRAWN	CHECKED
M.J.L.	TCN
SHEET NO.	
<b>S2.1</b>	
OF	









NO.	DATE	REVISIONS

STRUCTURAL ENGINEER  
REGISTERED PROFESSIONAL  
TRENT C. NASELE  
MARCH 13, 2008  
EXPIRES: 12/31/14

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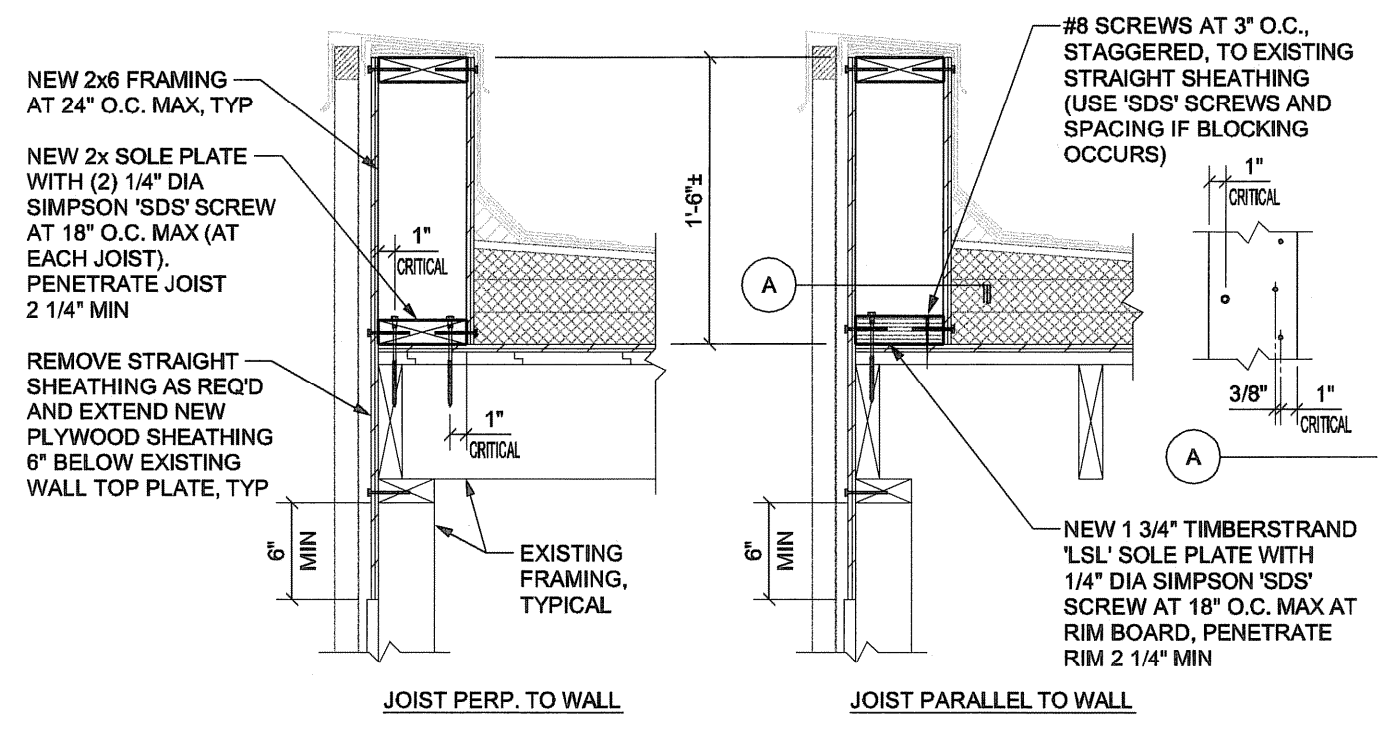
ROOF FRAMING DETAILS

DATE	OCTOBER 2013
SCALE	PROJ. NO.
NOTED	20130215
DRAWN	CHECKED
MJL	TCN
SHEET NO.	S3.1

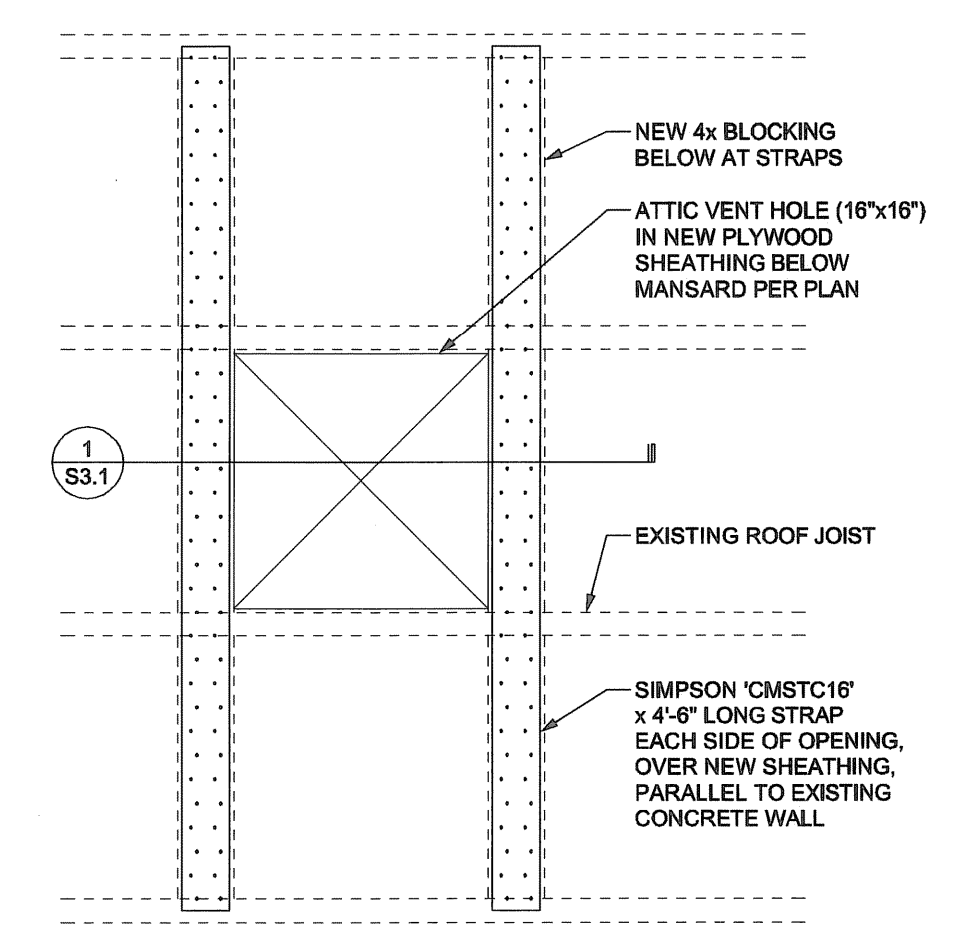
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PERMIT SET 10-31-13

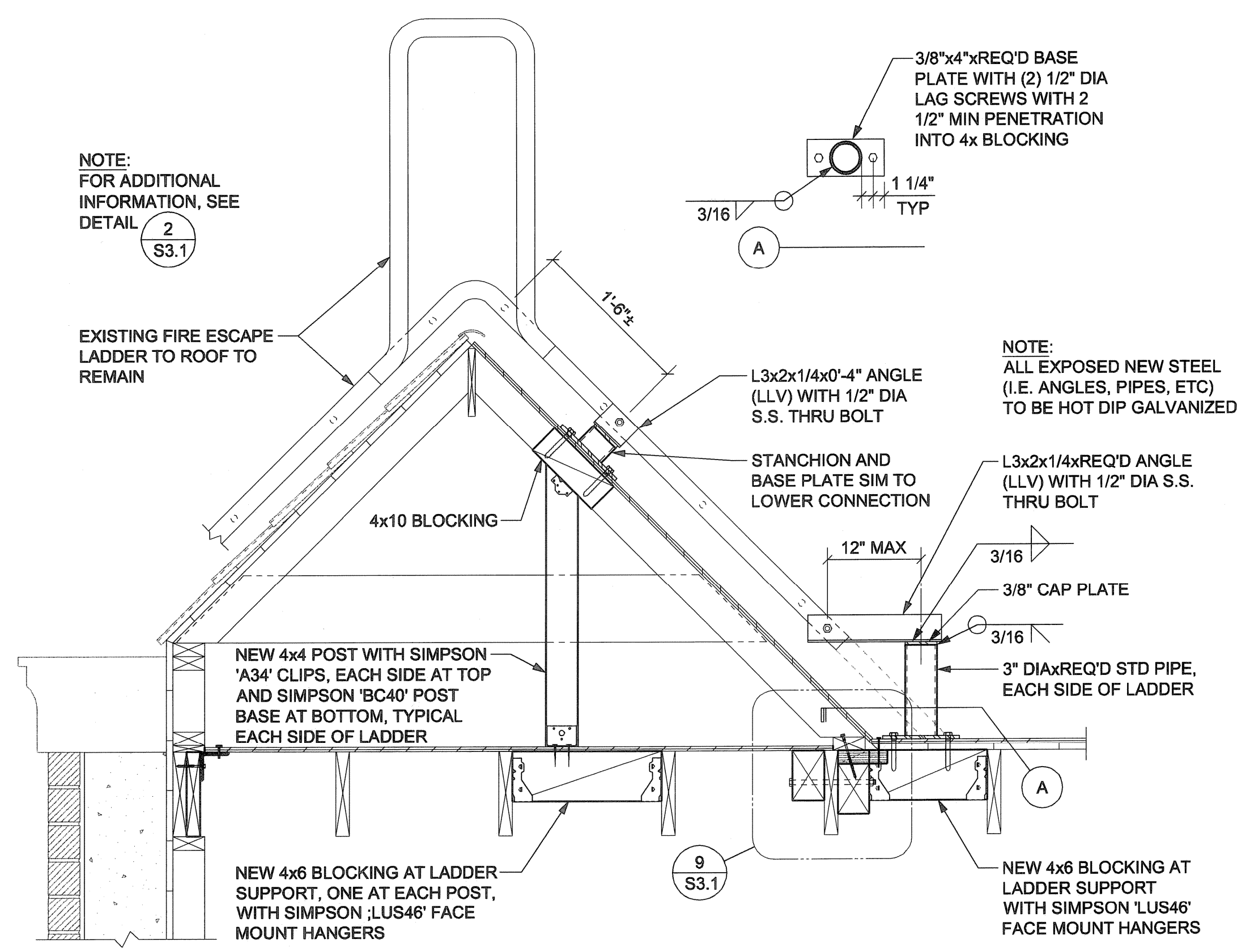




**1**  
S3.2  
**NEW PARAPET DETAIL**  
S32-01.dwg 1" = 1'-0"



**2**  
S3.1  
**ATTIC VENT OPENING DETAIL**  
S32-02.dwg 1" = 1'-0"



**3**  
S3.2  
**FIRE ESCAPE LADDER SUPPORT DETAIL**  
S32-03.dwg 3/4" = 1'-0"

NO.	DATE	REVISIONS

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 P 503.222.4453 F 503.248.2263 E tnmk@vlmk.com www.vlmk.com

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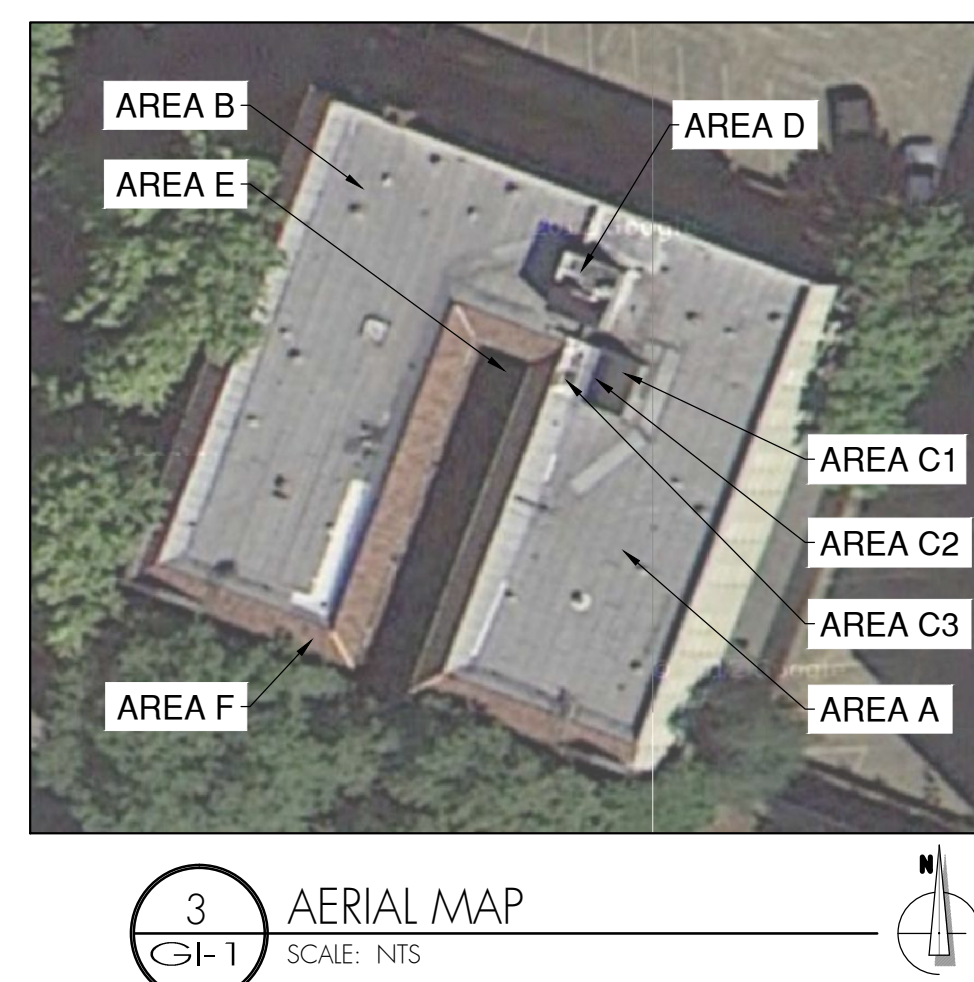
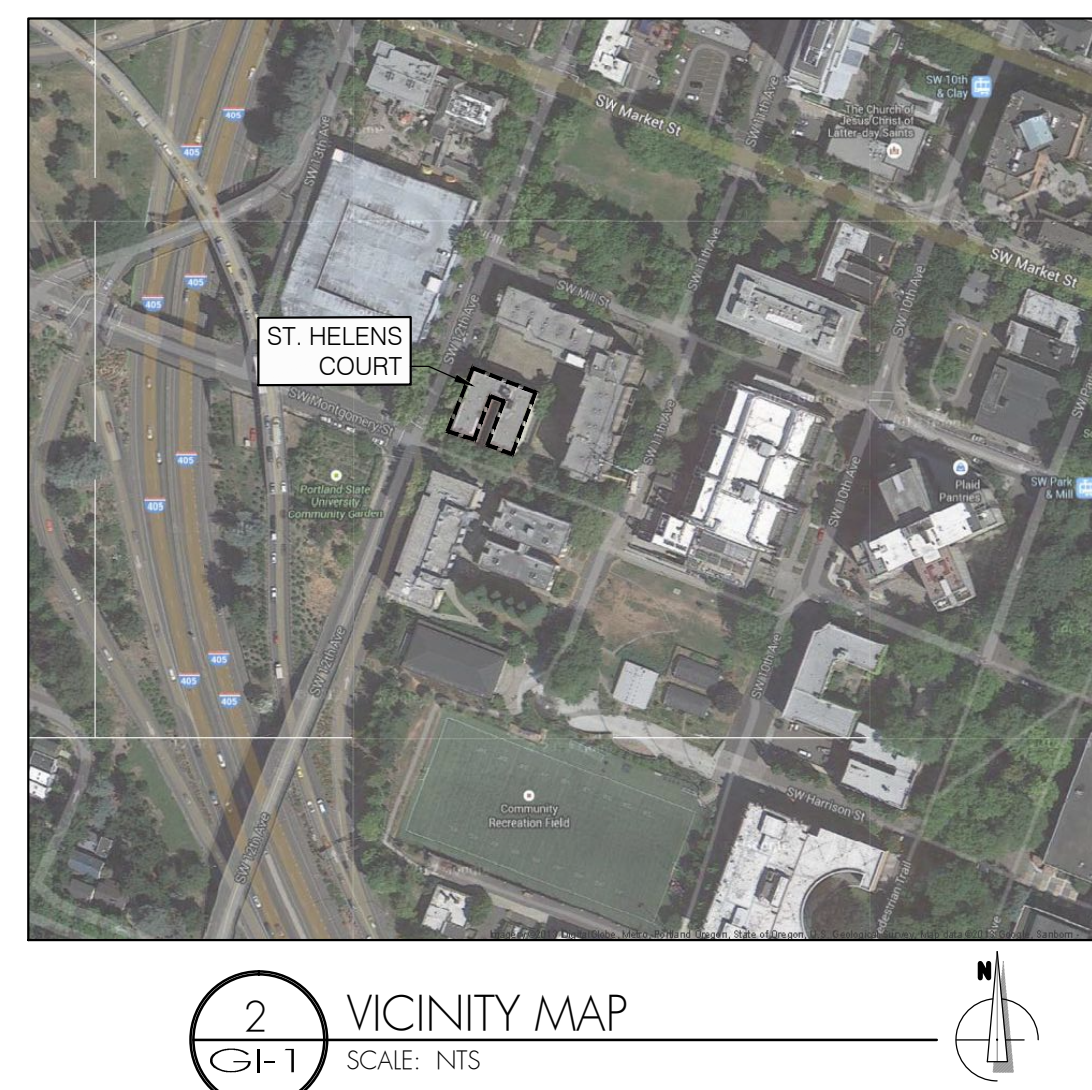
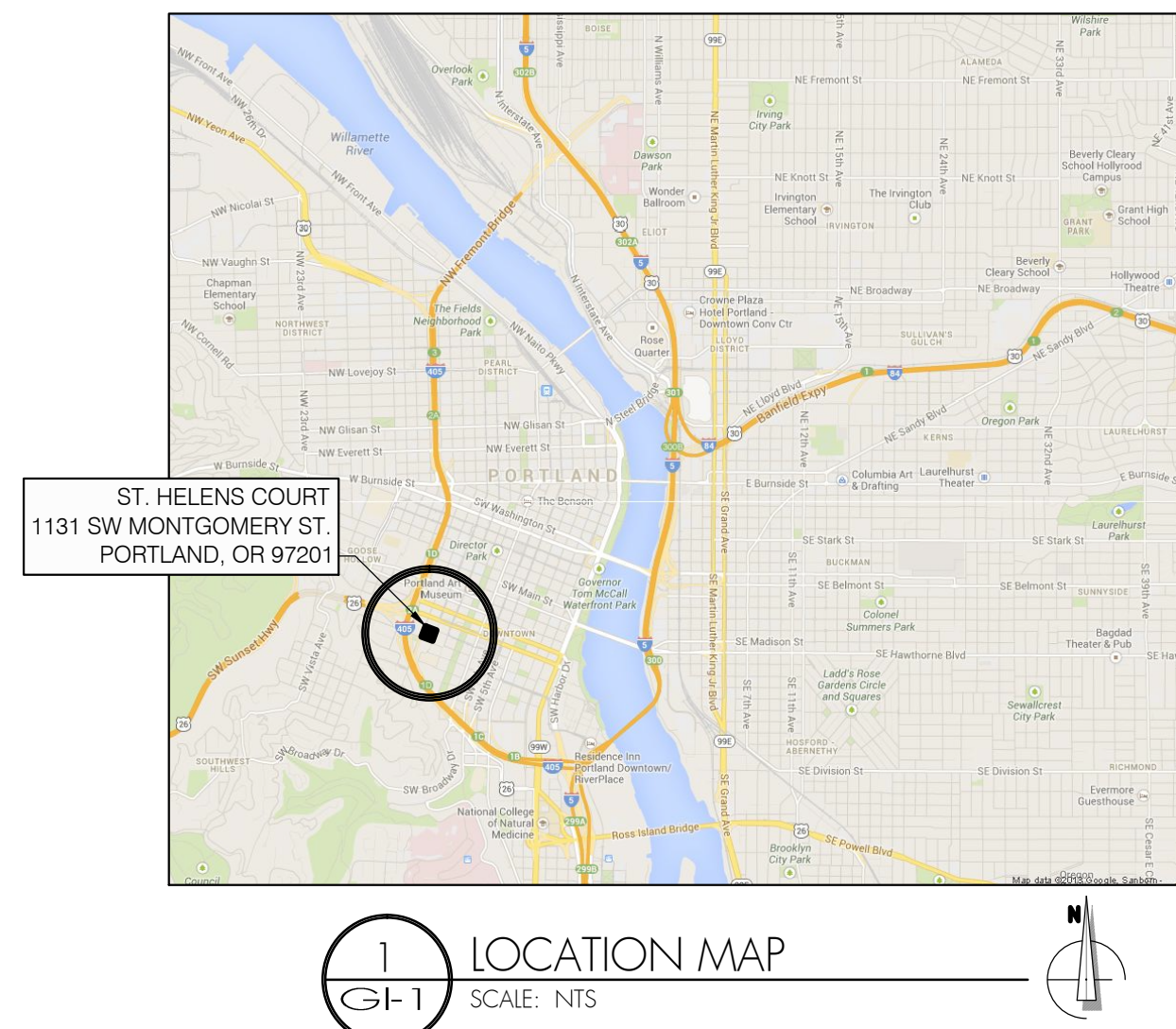
**ROOF FRAMING DETAILS**

DATE	OCTOBER 2013
SCALE	PROJ. NO.
NOTED	20130215
DRAWN	CHECKED
MJL	TCN
SHEET NO.	<b>S3.2</b>



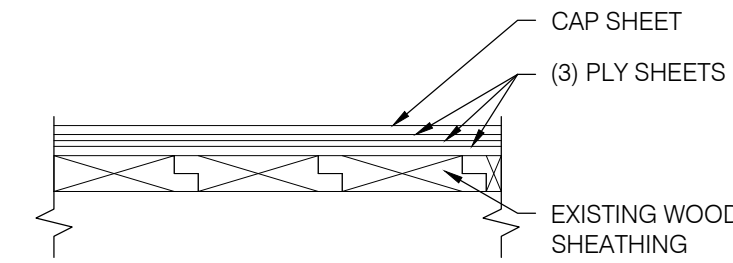
# PSU ST. HELENS COURT ROOF REPLACEMENT PROJECT & SEISMIC UPGRADES

## SITE MAPS

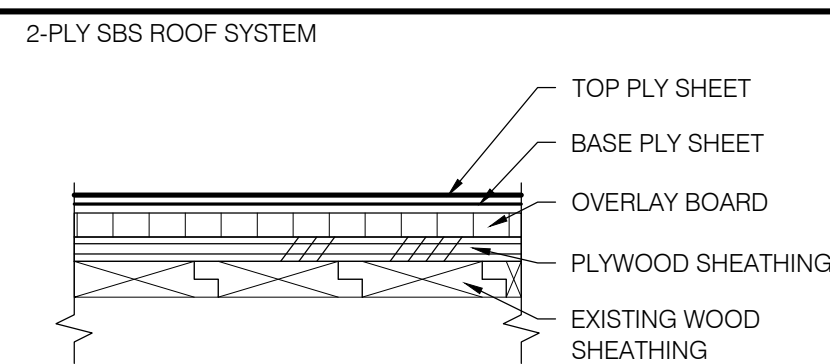


## ROOF ASSEMBLIES

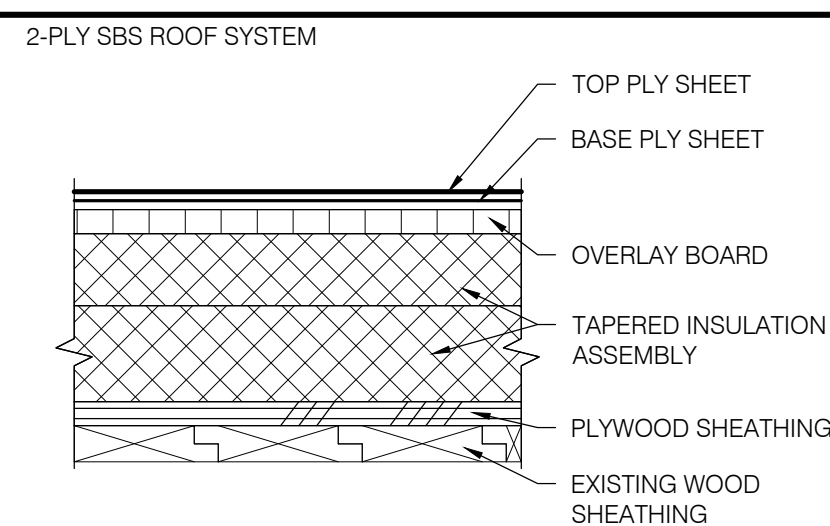
### EXISTING ROOF ASSEMBLY



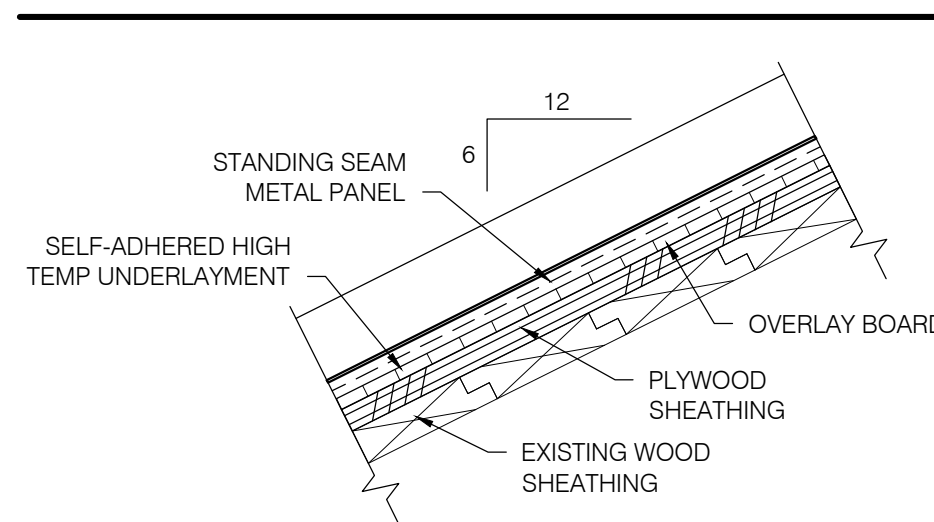
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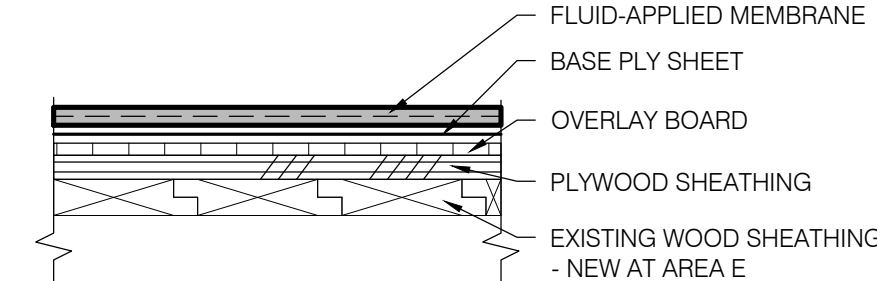
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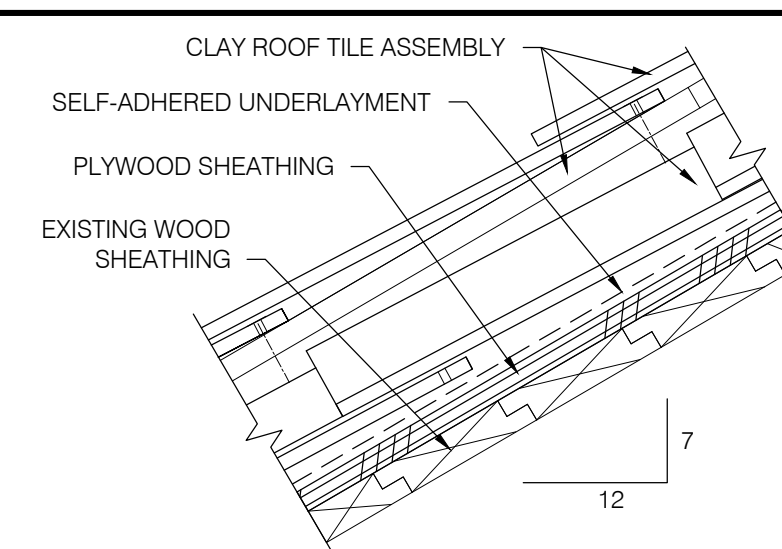
### BASE BID: ROOF AREA C2



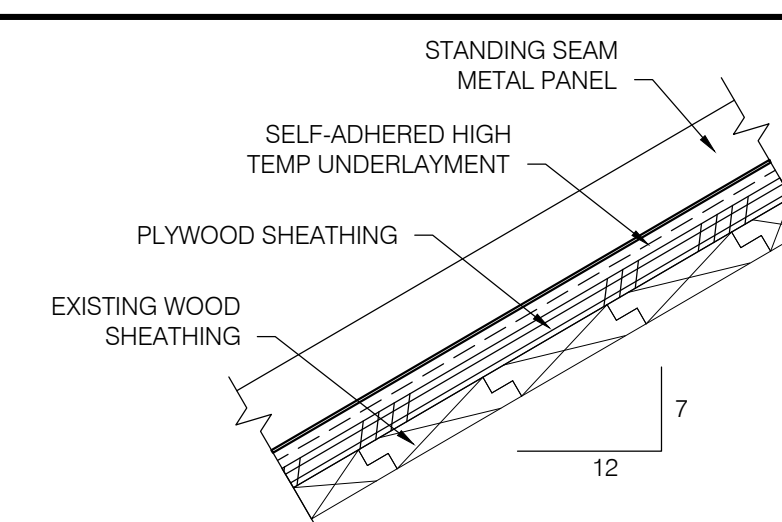
### BASE BID: ROOF AREAS C3 & E



### ALTERNATE NO. 1 - ROOF AREA E



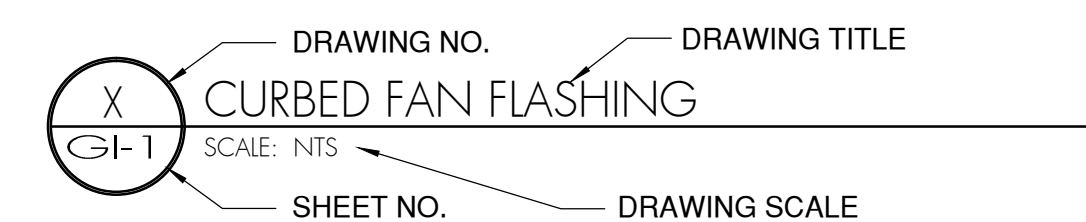
### ALTERNATE NO. 2 - ROOF AREA E



## GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND CONDITIONS OF THE PROJECT, INCLUDING VERIFICATION OF EXISTING ROOF SYSTEM CONSTRUCTION AND MATERIAL.
- CONTRACTOR STAGING AND STORAGE AREAS SHALL BE AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT THE PRE-CONSTRUCTION MEETING. CONTRACTOR SHALL ASSUME A REASONABLE AMOUNT OF STORAGE, AND STAGING SPACE WILL BE MADE AVAILABLE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING BUILDING SURFACES, FINISHES, AND SYSTEMS FROM DAMAGE, DISCOLORATION, ETC., DURING THE COURSE OF ALL CONSTRUCTION ACTIVITIES.
- PERSONAL FALL PROTECTION DEVICES ARE NOT, NOR WILL BE, PROVIDED BY THE OWNER ON ANY ROOF AREA DESIGNATED TO RECEIVE WORK. PERSONAL FALL PROTECTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
- EXISTING MATERIALS AND CONSTRUCTION ARE NOTED ON THE DRAWINGS AS (E), EXISTING, OR EXIST. ALL OTHER NOTATIONS INDICATE NEW MATERIALS, PRODUCTS, AND CONSTRUCTION UNLESS OTHERWISE STATED OR INDICATED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT BUILDING OCCUPANTS AND PASSERS-BY FROM FALLING DEBRIS OR EQUIPMENT. ALL ITEMS REMOVED FROM THE ROOF SHALL BE TRANSPORTED OFF-SITE USING APPROVED AND SAFE METHODS OF OFF-LOADING.
- ROOF ACCESS BY MEANS OF EXTERNAL LIFT, SCAFFOLD, STAIR TOWER, LADDERS OR OTHER DEVICE. CONTRACTORS MUST COORDINATE ACCESS AND STAGING/STORAGE AREAS.
- ALL MECHANICAL, ELECTRICAL AND PLUMBING WORK SHALL BE COMPLETED BY QUALIFIED AND PROPERLY LICENSED MECHANICAL AND ELECTRICAL CONTRACTORS.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREIN OR NOT, AND TO PROTECT UTILITIES FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSES OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THE WORK.
- ALL CONSTRUCTION SHALL CONFORM TO THE 2010 OREGON STRUCTURAL SPECIALTY CODE, AND ALL LOCAL GOVERNING BUILDING CODES AND ORDINANCES.
- ALL PERMITTING, INCLUDING ROAD CLOSURES, PARKING STALLS, SIDEWALK CLOSURES, SCAFFOLD ERECTION, ETC., SHALL BE COORDINATED, OBTAINED, AND PAID FOR BY THE CONTRACTOR.
- THE PROJECT INCLUDES A BASE BID TO REMOVE AND REPLACE THE EXISTING ROOFING AND ASSOCIATED FLASHING MATERIALS ON THE MAIN ROOF AREA AND OTHER SMALLER ROOF AREAS (AREAS A, B, C, D & E). SEISMIC IMPROVEMENTS ARE ALSO SCHEDULED FOR AREAS A & E. THREE (3) ALTERNATE BID ITEMS EXIST FOR THE MANSARD ROOF AREA (AREA F), INCLUDING TWO (2) OPTIONS FOR ROOF REPLACEMENT AND A SCOPE TO REPAIR THE EXISTING GUTTERS. WORK DOES NOT INCLUDE ANY INCREASE IN AREAS OR CHANGES IN OCCUPANCY.

## DRAWING SYMBOLS



DETAIL REFERENCE ON PLAN DRAWINGS  
- SIM. INDICATES SIMILAR CONSTRUCTION  
AS SHOWN ON DETAIL NOTED.



PORTLAND STATE UNIVERSITY  
ST. HELENS COURT  
ROOF REPLACEMENT PROJECT & SEISMIC UPGRADES

SHEET TITLE:  
GENERAL INFORMATION

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THE BAR SCALE IS 2-INCHES IN LENGTH. IF THE  
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Date: OCT. 31, 2013  
Revisions:

Drawn: TVVB  
Check: SIM  
File: R100-Roof\_Plans  
Job: R2918.03

SHEET NUMBER:  
GI-1

### OWNER

Portland State University  
PSU Facilities and Planning  
University Services Building  
617 SW Montgomery Street  
tel: (503) 725-3738  
Contact: Mark Fujii

### ROOF CONSULTANT

Professional Roof Consultants, Inc.  
1108 SE Grand Ave., Suite 300  
Portland, Oregon 97214  
tel: (503) 280-8759  
fax: (503) 280-8866  
Contact: Steven McBride, RRO  
Jose Ponce, RRO

### STRUCTURAL ENGINEER

VLMK Consulting Engineers  
3933 SW Kelly Ave.  
Portland, OR 97239  
tel: (503) 222-4453  
fax: (503) 248-9263  
Contacts: Trent Nagele, PE, SE  
Mike Lundervold, PE

BID SET



**PORTLAND STATE UNIVERSITY  
 ST. HELENS COURT  
 ROOF REPLACEMENT PROJECT & SEISMIC UPGRADES**

SHEET TITLE:  
 ROOF PLAN - ST. HELENS COURT

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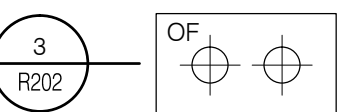
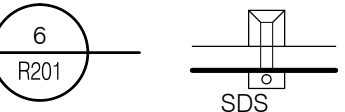
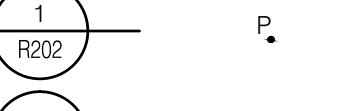











THE BAR SCALE IS 2 INCHES IN LENGTH. IF THE BAR IS NOT 2 INCHES LONG, THIS DRAWING IS NOT TO THE SCALE INDICATED.

Date: OCT. 31, 2013  
 Revisions:

Drawn: TWB  
 Check: SIM  
 File: R100-Roof\_Plans  
 Job: R2918.03

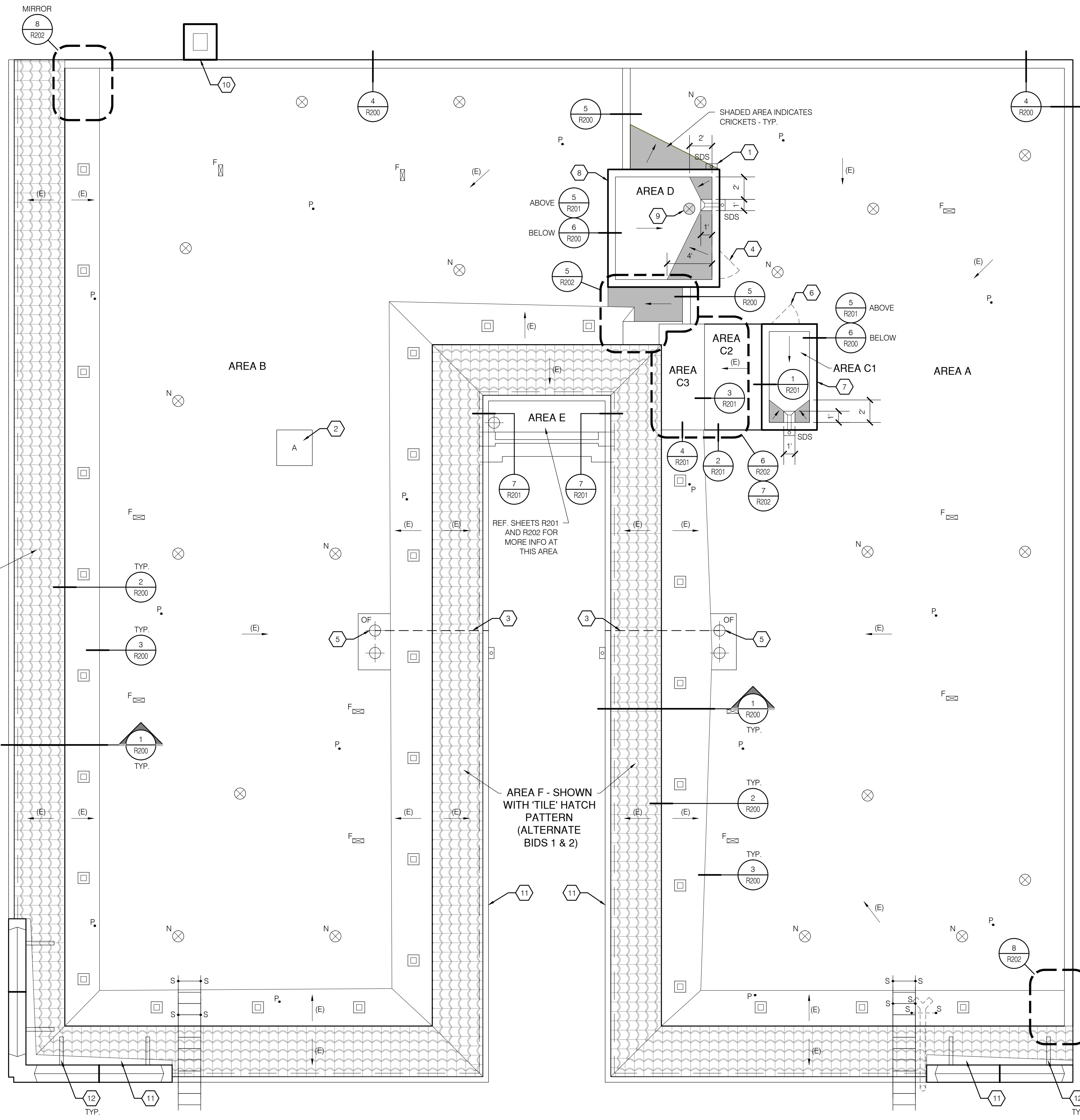
SHEET NUMBER:  
**R100**

**LEGEND**

-  EXISTING ROOF DRAIN & NEW OVERFLOW DRAIN
-  SUMPED THRU-WALL SCUPPER WITH COLLECTION BOX & DOWNSPOUT
-  EXISTING PLUMBING VENT PIPE PENETRATION
-  STRUCTURAL PIPE OR ANCHOR PENETRATION - REFERENCE STRUCTURAL
-  EXISTING FLANGED EXHAUST VENT (LINEAR)
-  FLANGED EXHAUST VENT (ROUND) - BASIS OF DESIGN [FAMCO MFGR 24] GALV. GLOBE VENT WITH FLANGED BASE
-  EXISTING FLANGED EXHAUST VENT (ROUND) - REPLACE WITH NEW - BASIS OF DESIGN [FAMCO MFGR 24] GALV. GLOBE VENT WITH FLANGED BASE
-  MANSARD ROOF VENT
-  EXISTING ABANDONED CURB - TO BE REMOVED & INFILLED - REFERENCE STRUCTURAL
-  EXISTING ACCESS DOOR - FLASH PERIMETER
-  EXISTING FIRE ESCAPE LADDER - MODIFY AT SUPPORT LOCATIONS - REFERENCE STRUCTURAL
-  INDICATES DIRECTION OF EXISTING STRUCTURAL SLOPE
-  INDICATES DIRECTION OF TAPERED INSULATION
-  SHADED AREAS INDICATE LOCATIONS WHERE TAPERED INSULATION CRICKETS ARE REQUIRED FOR SLOPE TO DRAIN

**KEY NOTES**

- 1 DEMOLISH EXISTING LEADER BOX AND DOWNSPOUT.
- 2 DEMOLISH ABANDONED CURB - INFILL DECK HOLE WITH FRAMING, COVER WITH SHEATHING TO ESTABLISH FLUSH SURFACE WITH ADJACENT EXISTING SHIPLAP SHEATHING.
- 3 OVERFLOW DRAIN LINE SHOWN DASHED - REFERENCE DETAIL 1/R200.
- 4 REMOVE EXISTING WOOD DOOR, PERFORM NECESSARY REPAIRS TO ROUGH OPENING AND INSTALL NEW STEEL DOOR TO FIT INTO EXISTING ROUGH OPENING. INSTALL SHEET METAL FLASHING AND TRIM REQUIRED TO INCORPORATE DOOR WITH NEW METAL WALL PANEL SYSTEMS.
- 5 NEW OVERFLOW DRAINS AND ASSOCIATED PIPING TO BE PLUMBED OUT TO BUILDING EXTERIOR. REFERENCE DETAIL 1/R200.
- 6 REMOVE EXISTING DOOR AND FRAME AND INSTALL NEW REINFORCED PMMA FLASHING MEMBRANE OVER SHIM TAPERED TO THE EXTERIOR. EXTEND PMMA MEMBRANE A MINIMUM OF 1" INTO BUILDING INTERIOR AND 3" ONTO THE FIELD OF THE ROOF. OVER PMMA FLASHING, INSTALL NEW ONE PIECE STAINLESS STEEL DOOR THRESHOLD FLASHING WITH THREE SIDED END DAMS AND SOLDERED SEAM CONSTRUCTION. FABRICATE TO FORM TO OPENING. SET FLASHING IN CONTINUOUS BEAD OF URETHANE SEALANT AT FRONT AND BACK. RE-INSTALL EXISTING DOOR AND FRAME TO ORIGINAL POSITION, SETTING IN CONTINUOUS BEAD OF URETHANE SEALANT AT FRONT AND BACK. PERFORM NECESSARY REPAIRS TO ADJACENT INTERIOR WALLS AND FINISH TO MATCH. INSTALL SHEET METAL FLASHING AND TRIM REQUIRED TO INCORPORATE DOOR WITH NEW METAL WALL PANEL SYSTEM.
- 7 REMOVE EXISTING WINDOW AND PERFORM NECESSARY REPAIRS TO ROUGH OPENING. INSTALL NEW DOUBLE-PANE, INSULATED, VINYL WINDOW WITH INTEGRATED MOUNTING FLANGE IN ACCORDANCE WITH AAMA 2400-02 METHOD A. INSTALL SHEET METAL FLASHING AND TRIM REQUIRED TO INCORPORATE WINDOW WITH NEW METAL WALL PANEL SYSTEM.
- 8 REMOVE EXISTING WINDOW AND INFILL WALL OPENING WITH FRAMING, COVER WITH SHEATHING TO ESTABLISH FLUSH SURFACE WITH ADJACENT SHIPLAP WALL SHEATHING.
- 9 DEMO EXISTING STATIC VENT - INFILL DECK HOLE WITH FRAMING, COVER WITH SHEATHING TO ESTABLISH FLUSH SURFACE WITH ADJACENT EXISTING SHIPLAP SHEATHING.
- 10 DEMO CHIMNEY TO LEVEL FLUSH WITH PARAPET WALL, CAP HOLE WITH PLYWOOD SHEATHING. WOOD BLOCKING OVER CHIMNEY LOCATION TO BE THINNER THAN ADJACENT PARAPET WALL. WOOD BLOCKING IN ORDER TO CREATE A CONTINUOUS FLUSH CONDITION. EXTEND SELF-ADHERING UNDERLAYMENT AND SHEET METAL COPING CAP TO COVER DECOMMISSIONED CHIMNEY.
- 11 ALTERNATE [3] - REPAIR EXISTING GUTTER SYSTEM AT CLAY TILE ROOF FASCIA AND BEHIND CONCRETE FACADE WITH NEW FLUID-APPLIED FLASHING OVER EXISTING GUTTER SEAMS AND TERMINATIONS.
- 12 NEW GABLE WALL BRACING, REFERENCE STRUCTURAL DRAWINGS. COORDINATE WORK WITH OTHER TRADES INVOLVED. REMOVE EXISTING CLAY ROOF TILE & UNDERLAYMENT AS NECESSARY TO ACCOMPLISH SCOPE OF WORK. ENSURE PENETRATION THROUGH ROOF DECK IS TIGHT WITH NO GAPS BETWEEN PENETRATION AND DECKING GREATER THAN 1/8". SET TILE ASIDE FOR REINSTALLATION. FLASH SUPPORT PENETRATION WATERTIGHT WITH FORMED LEAD FLASHING & STORM COLLAR - SEAL WATERTIGHT. REPLACE UNDERLAYMENT & RE-INSTALL CLAY ROOF TILE. BROKEN CLAY ROOF TILE TO BE REPLACED TO MATCH EXISTING.



**1** ROOF PLAN - ST. HELENS COURT  
 SCALE: 3/16" = 1'-0"

BID SET



**PORTLAND STATE UNIVERSITY  
ST. HELENS COURT  
ROOF REPLACEMENT PROJECT & SEISMIC UPGRADES**

SHEET TITLE:  
DETAILS

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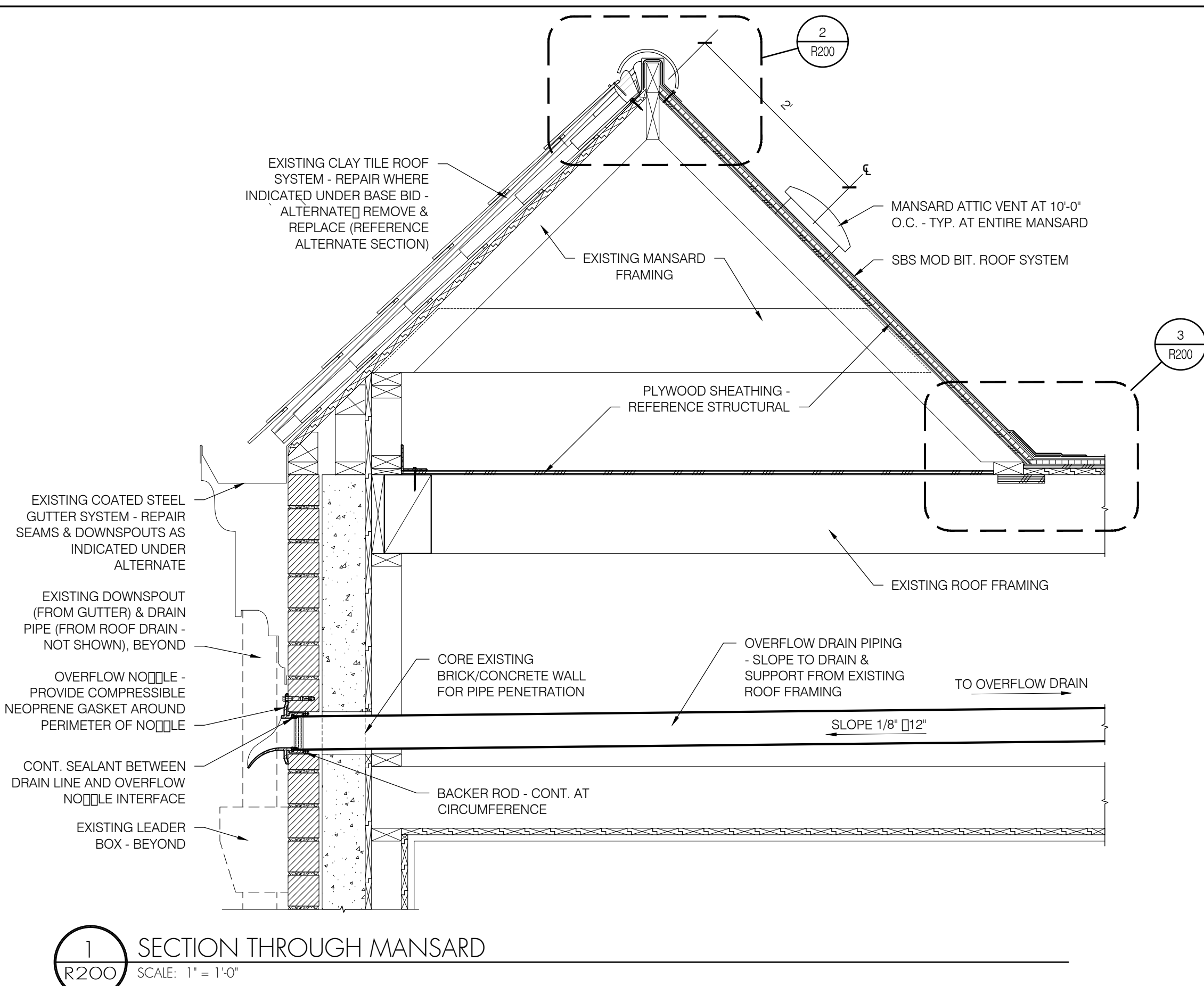
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Date: OCT. 31, 2013  
Revisions:

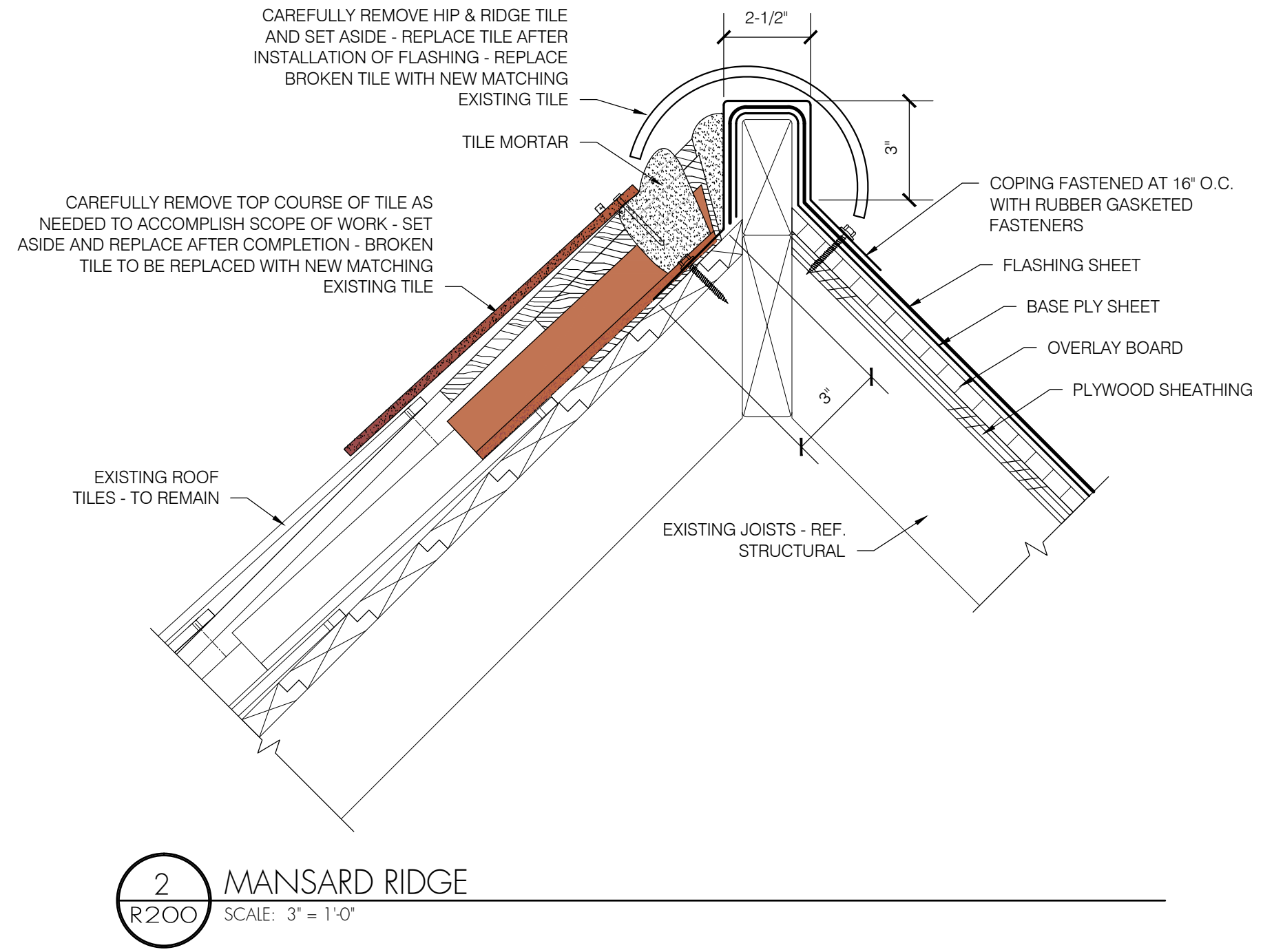
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Job: R2918.03

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**R200**

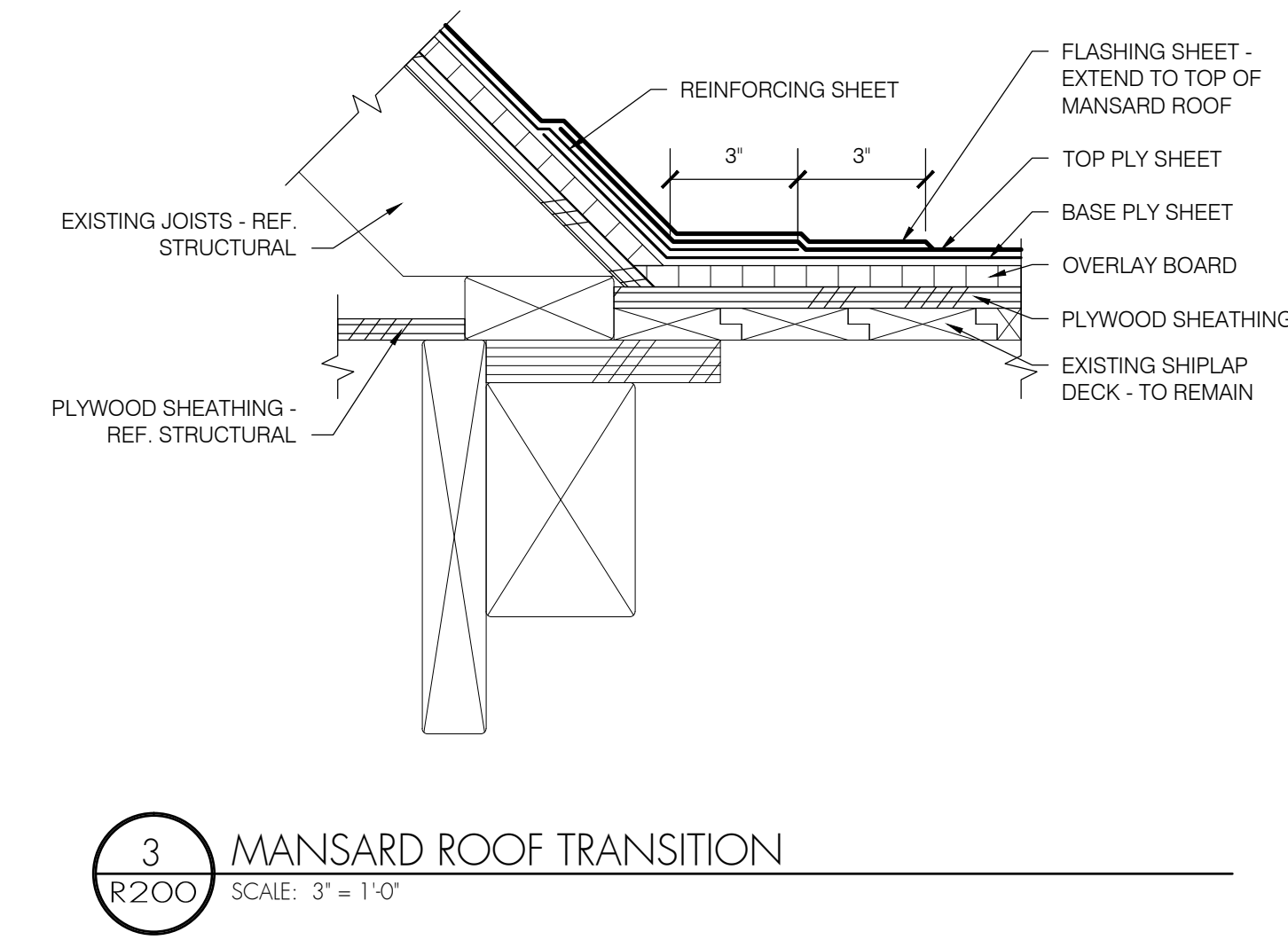
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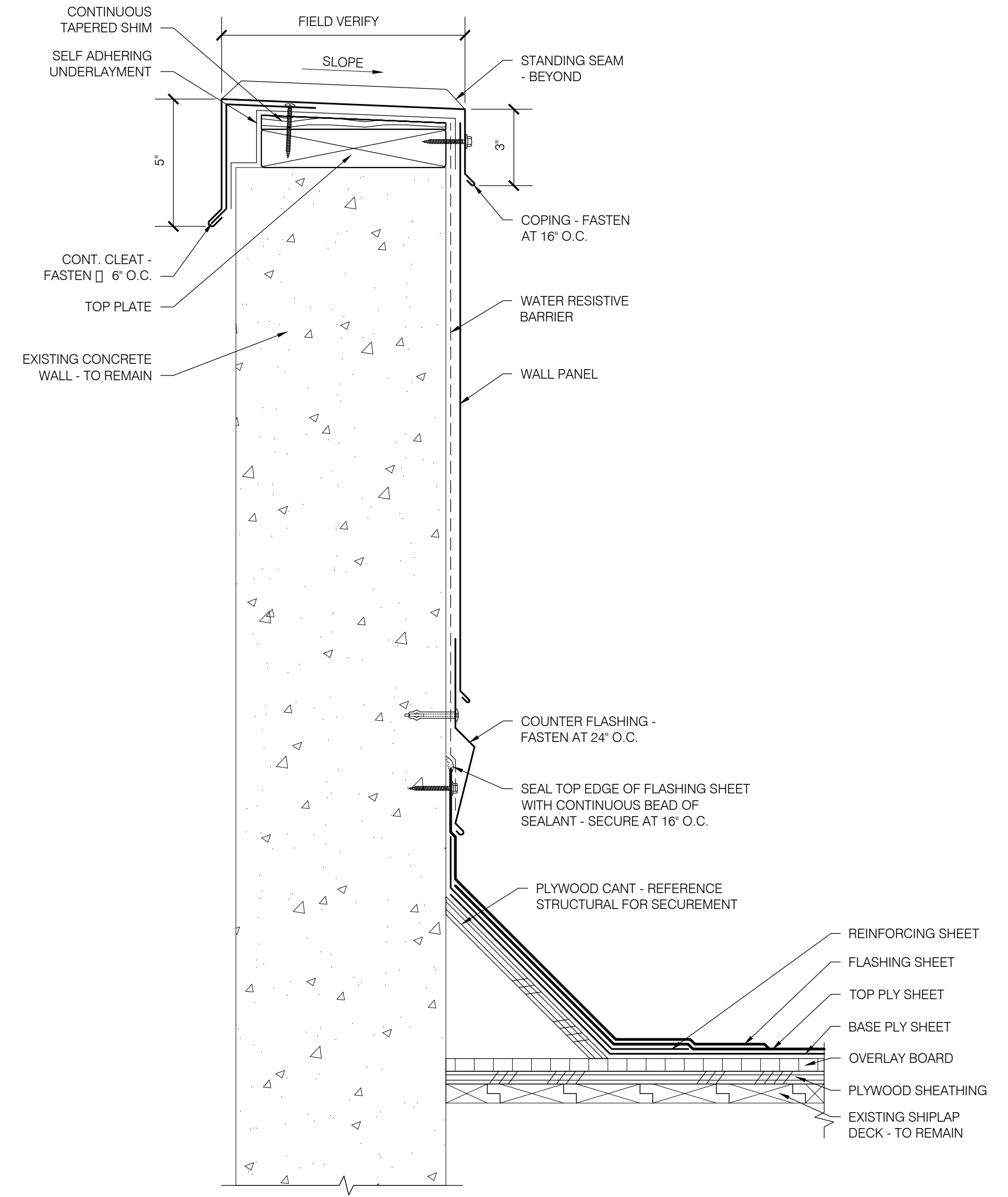
**1** SECTION THROUGH MANSARD  
SCALE: 1" = 1'-0"



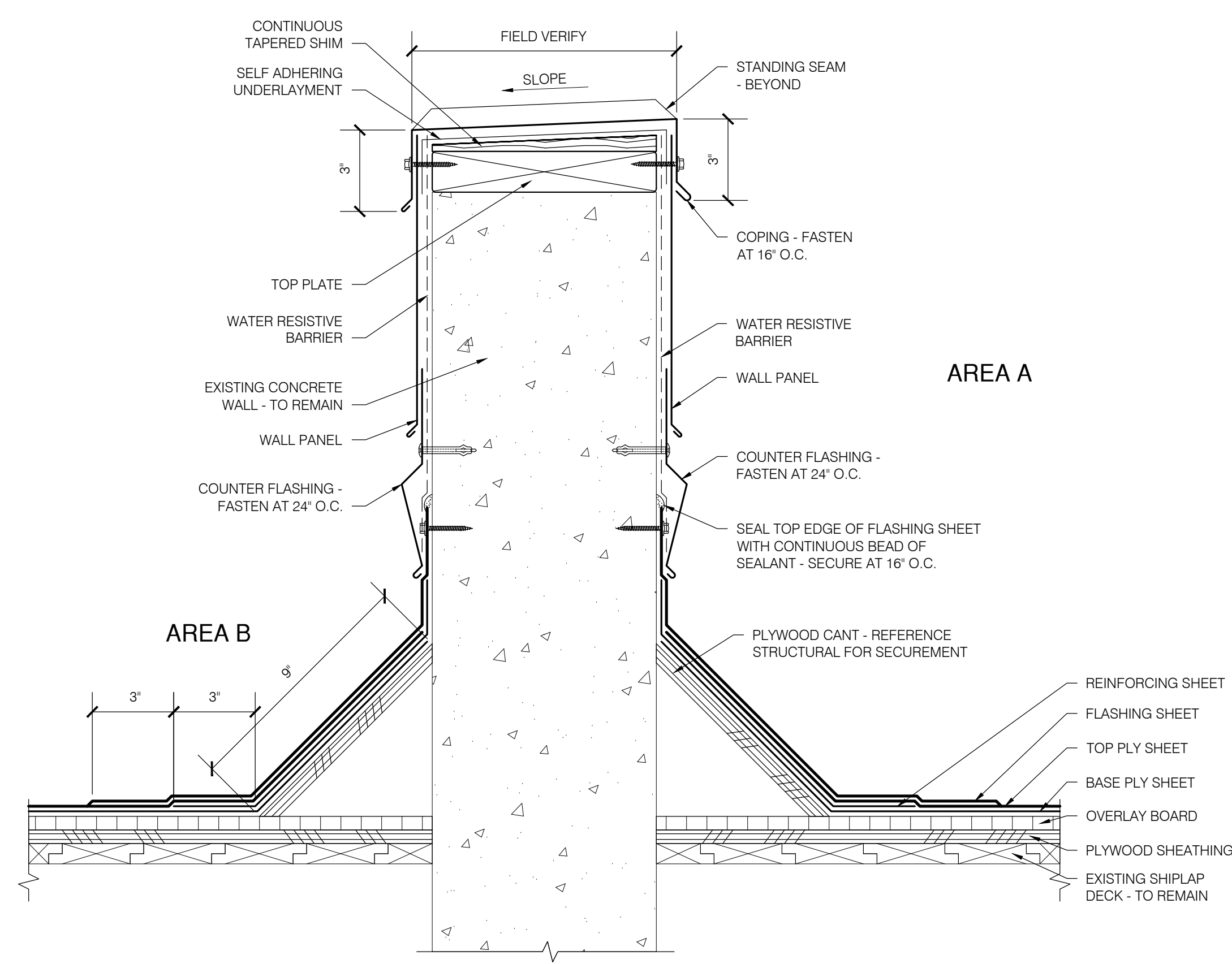
**2** MANSARD RIDGE  
SCALE: 3" = 1'-0"



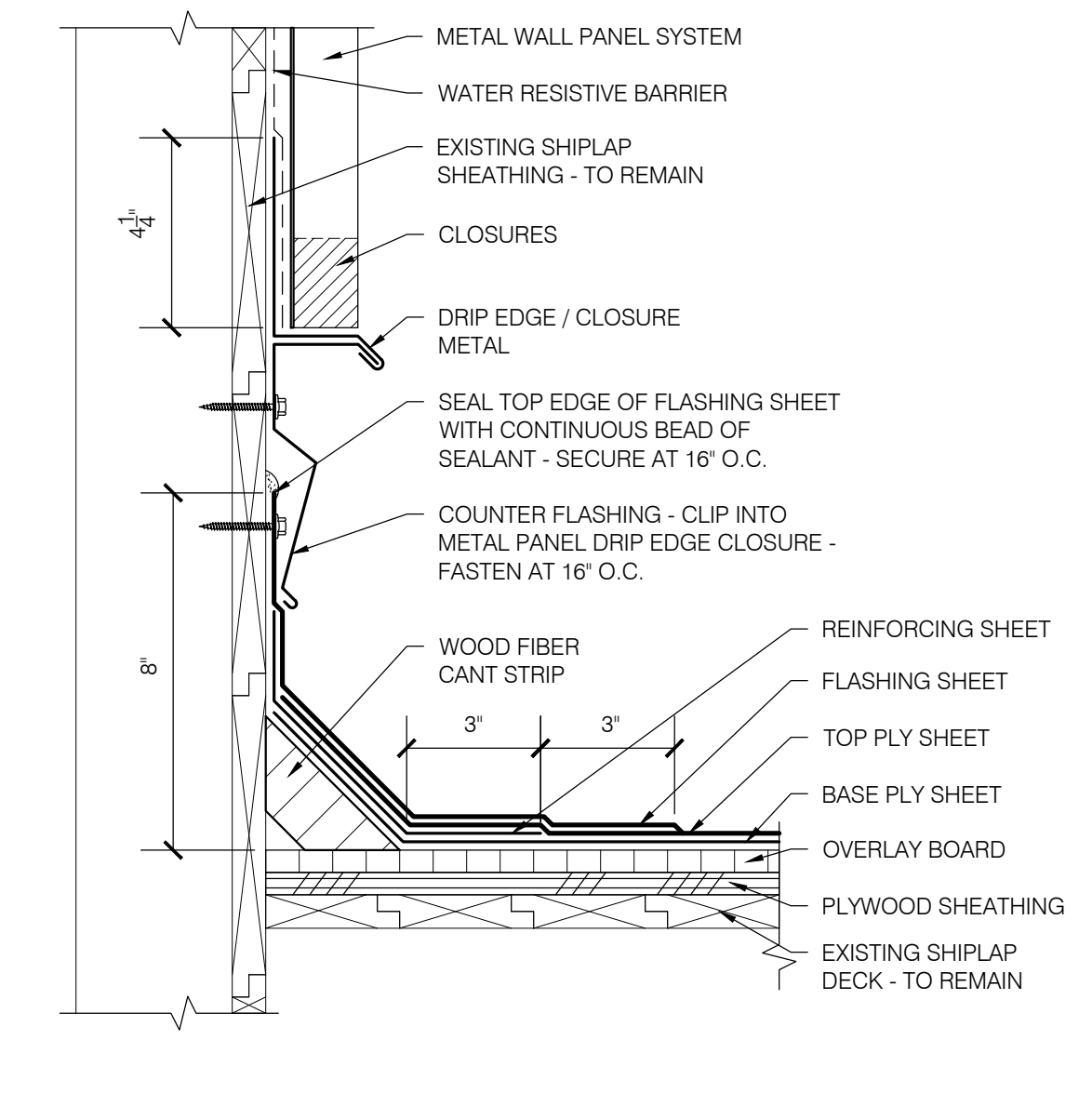
**3** MANSARD ROOF TRANSITION  
SCALE: 3" = 1'-0"



**4** PARAPET WALL - ROOF AREAS A & B  
SCALE: 3" = 1'-0"



**5** SEPARATION WALL BETWEEN ROOF AREAS A & B  
SCALE: 3" = 1'-0"



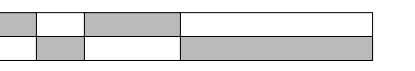
**6** WALL BASE - STAIR TOWER & ELEVATOR ROOM  
SCALE: 3" = 1'-0"



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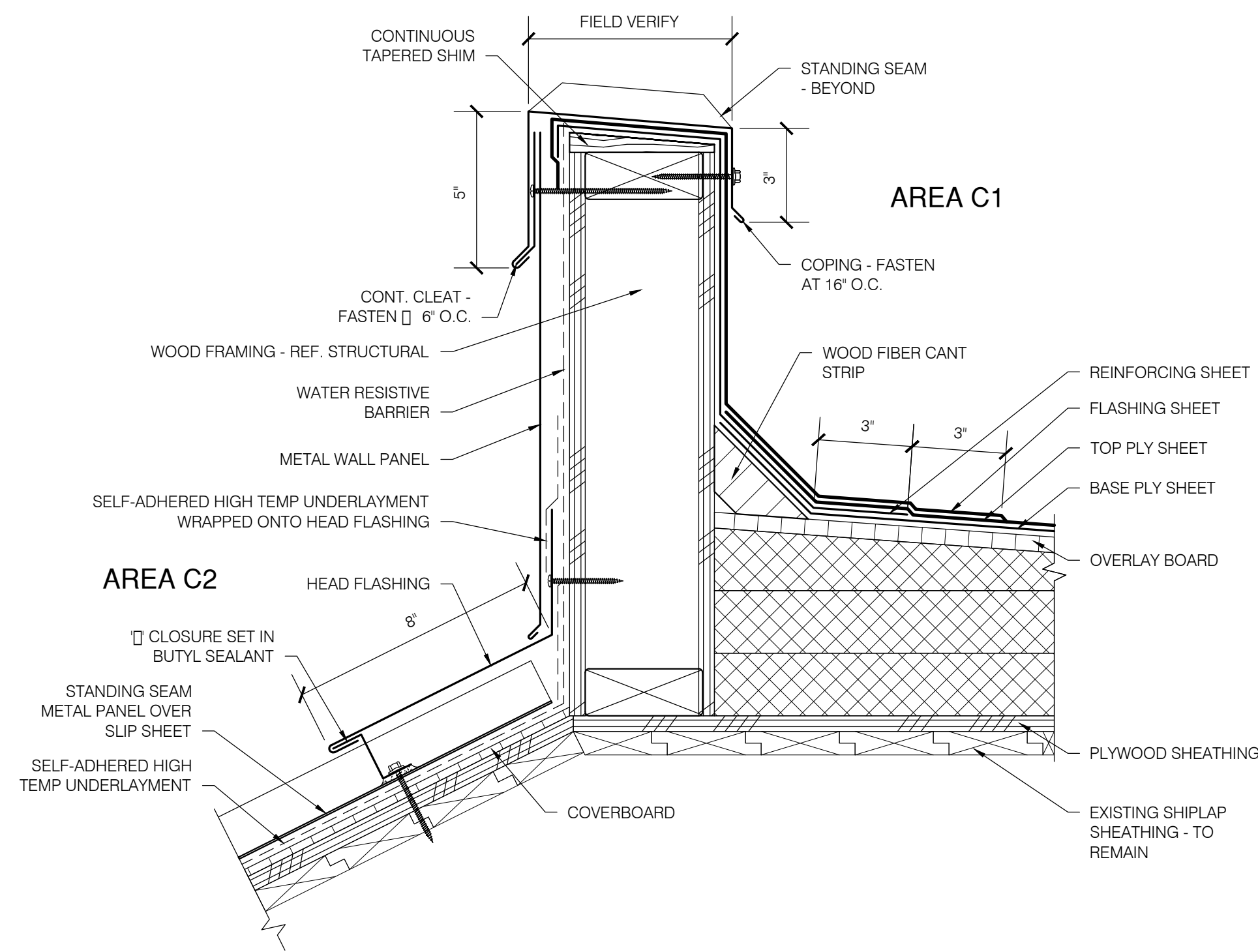
THE BAR SCALE IS 2 INCHES IN LENGTH. IF THE  
BAR IS NOT 2 INCHES LONG, THIS DRAWING IS  
NOT TO THE SCALE INDICATED.

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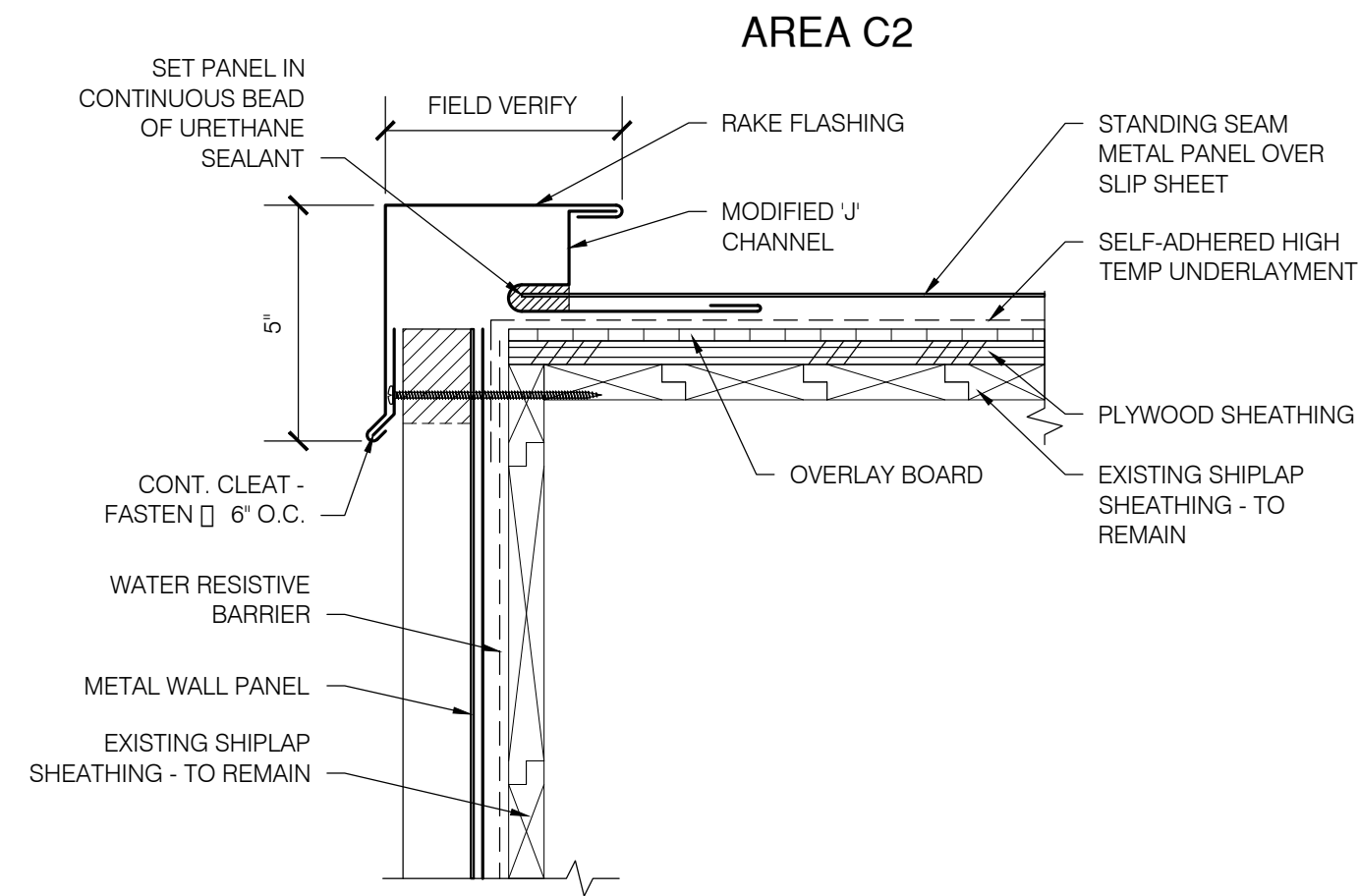
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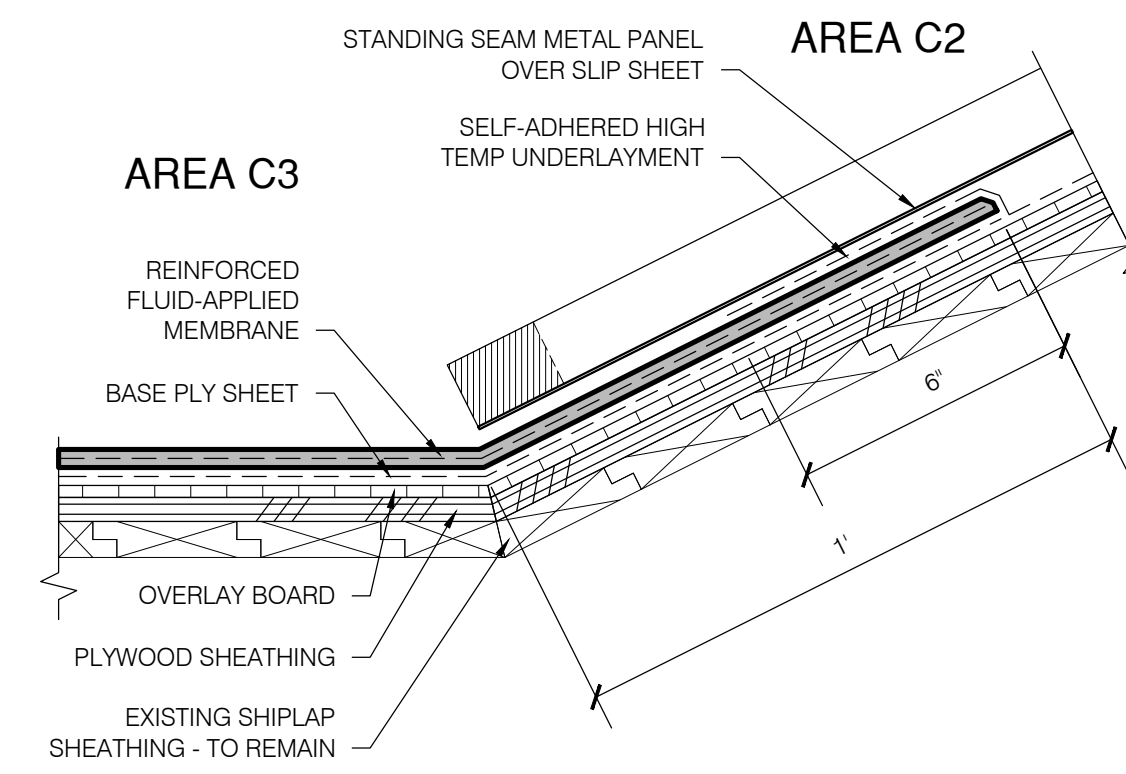
**R201**



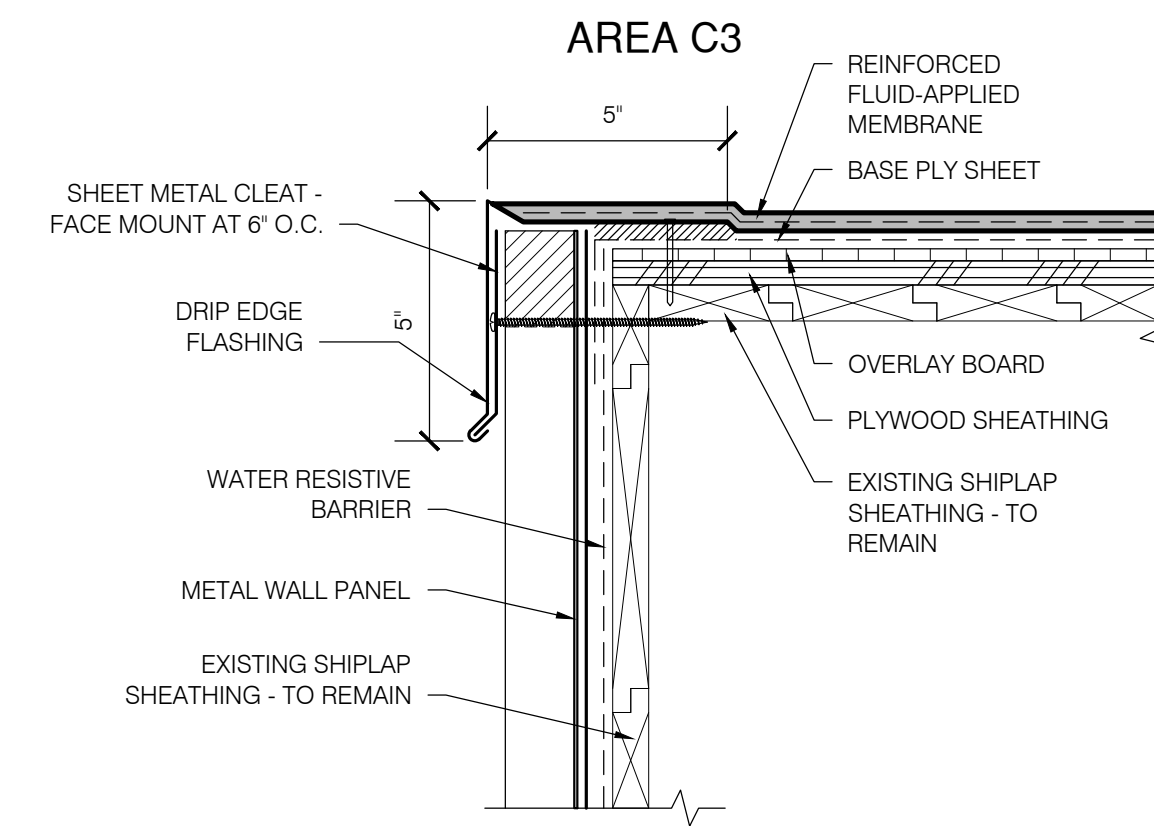
1 PARAPET WALL - ROOF AREA C  
R201 SCALE: 3" = 1'-0"



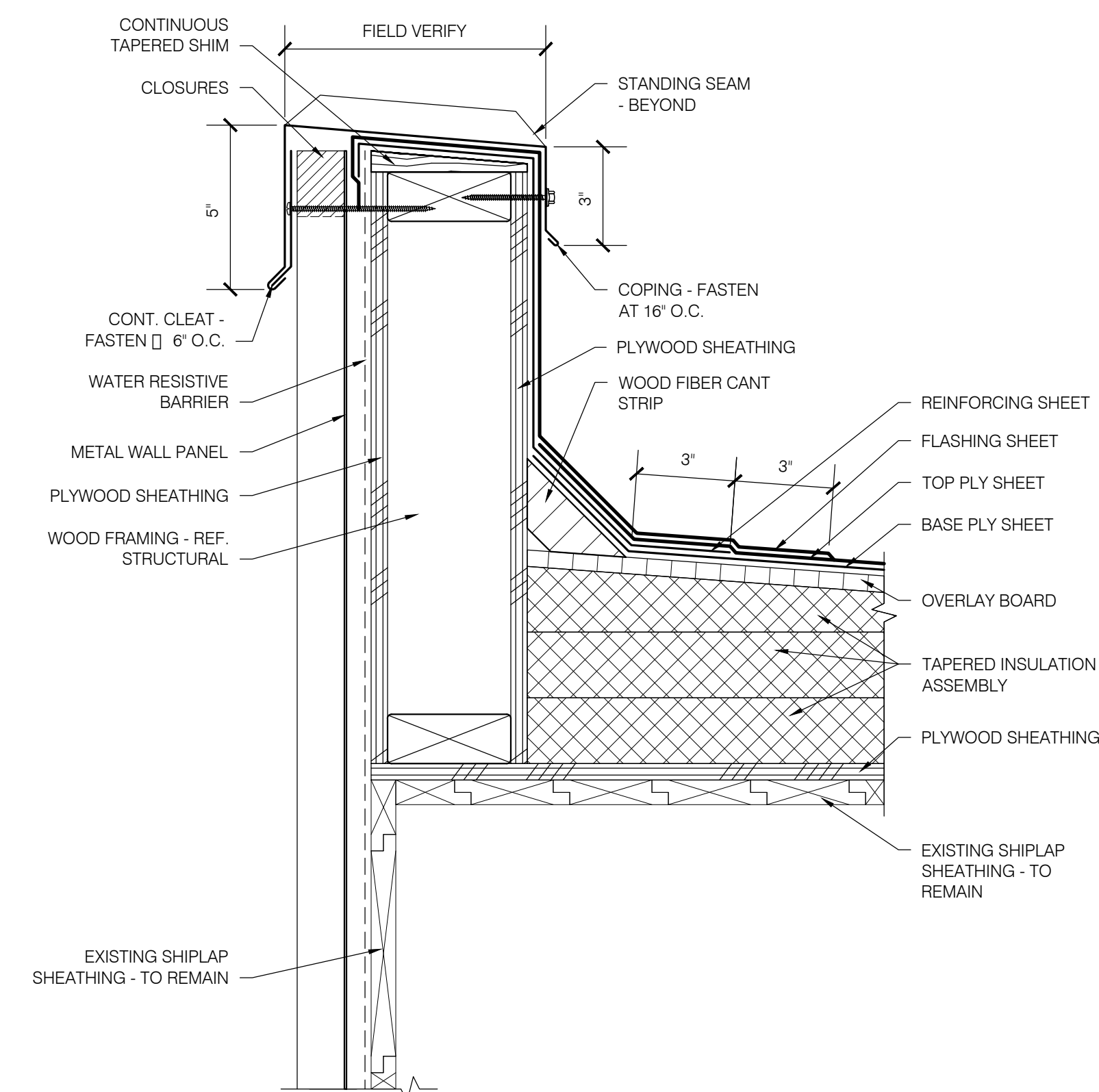
2 RAKE EDGE - ROOF AREA C  
R201 SCALE: 3" = 1'-0"



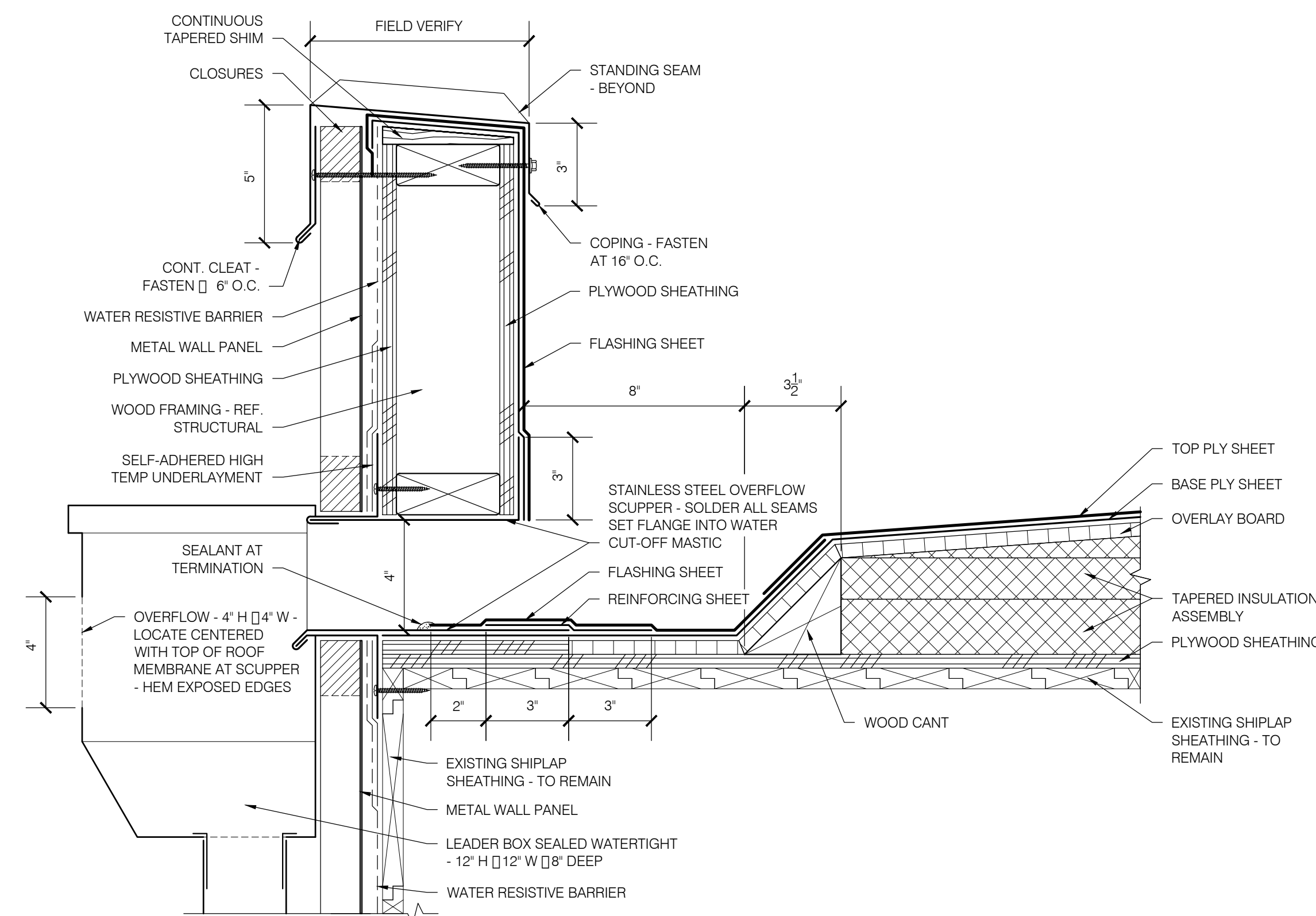
3 STEEP SLOPED TRANSITION - AREA C  
R201 SCALE: 1" = 1'-0"



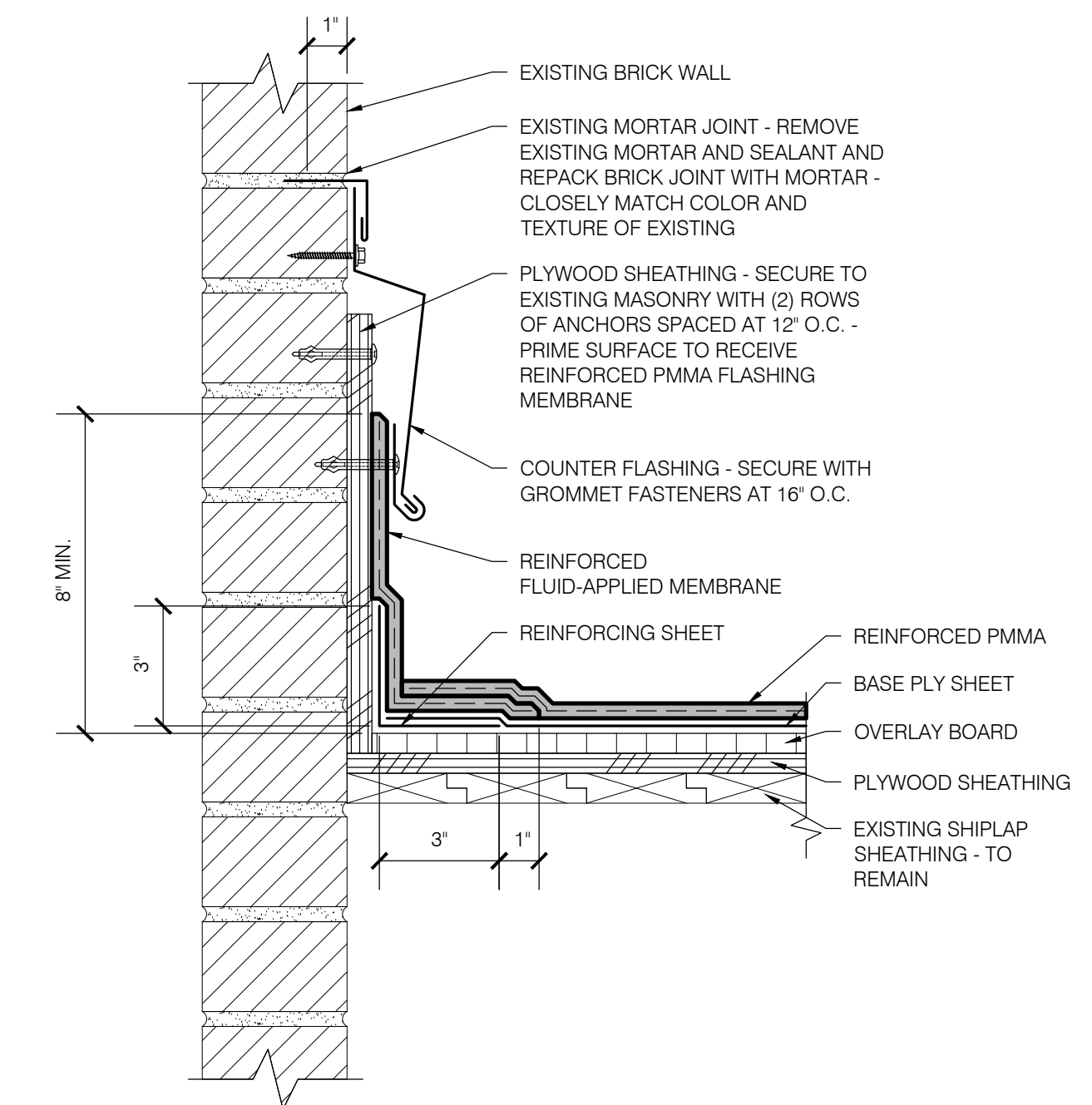
4 DRIP EDGE - ROOF AREA C  
R201 SCALE: 3" = 1'-0"



5 PARAPET WALL - ROOF AREAS C & D  
R201 SCALE: 3" = 1'-0"



6 THRU-WALL SCUPPER - ROOF AREAS C & D  
R201 SCALE: 3" = 1'-0"

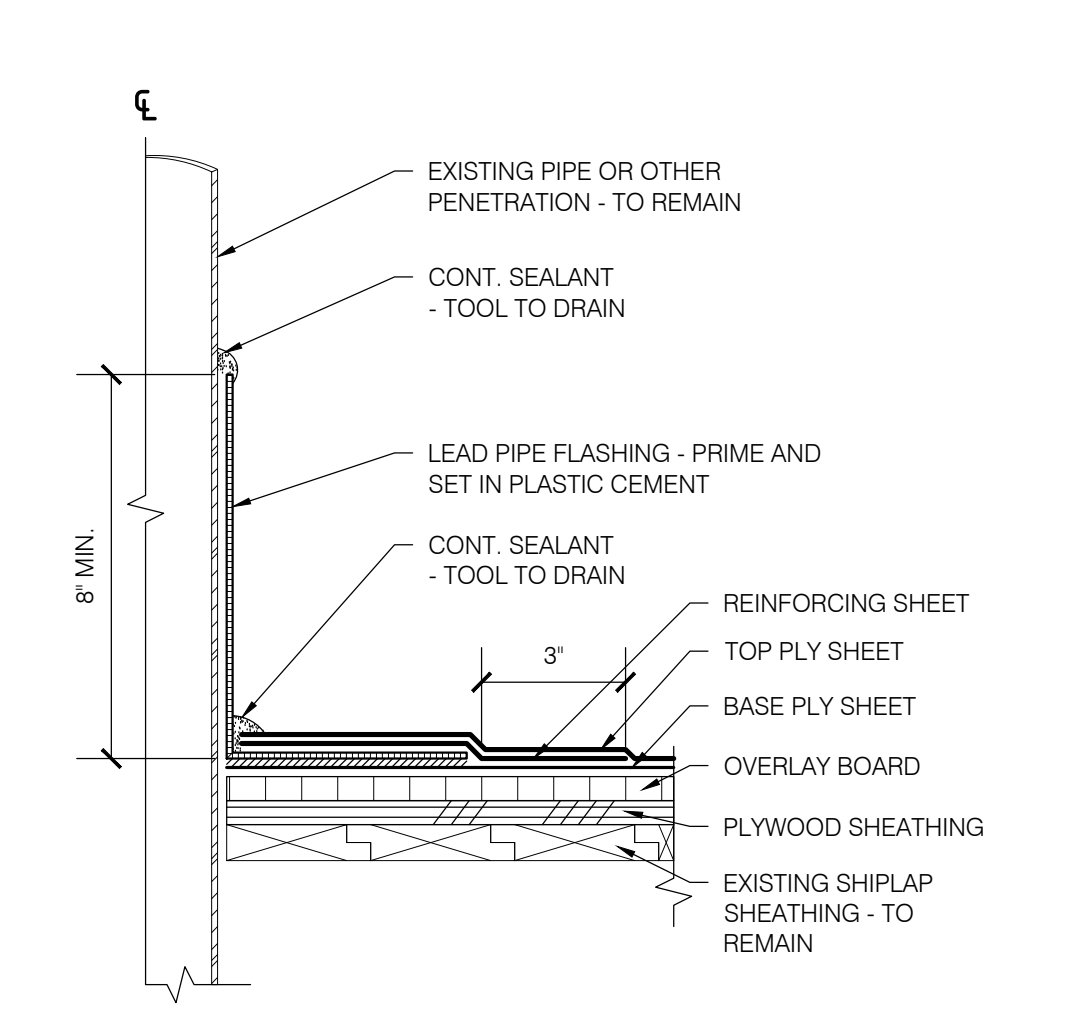


7 BASE FLASHING - ROOF AREA E  
R201 SCALE: 3" = 1'-0"

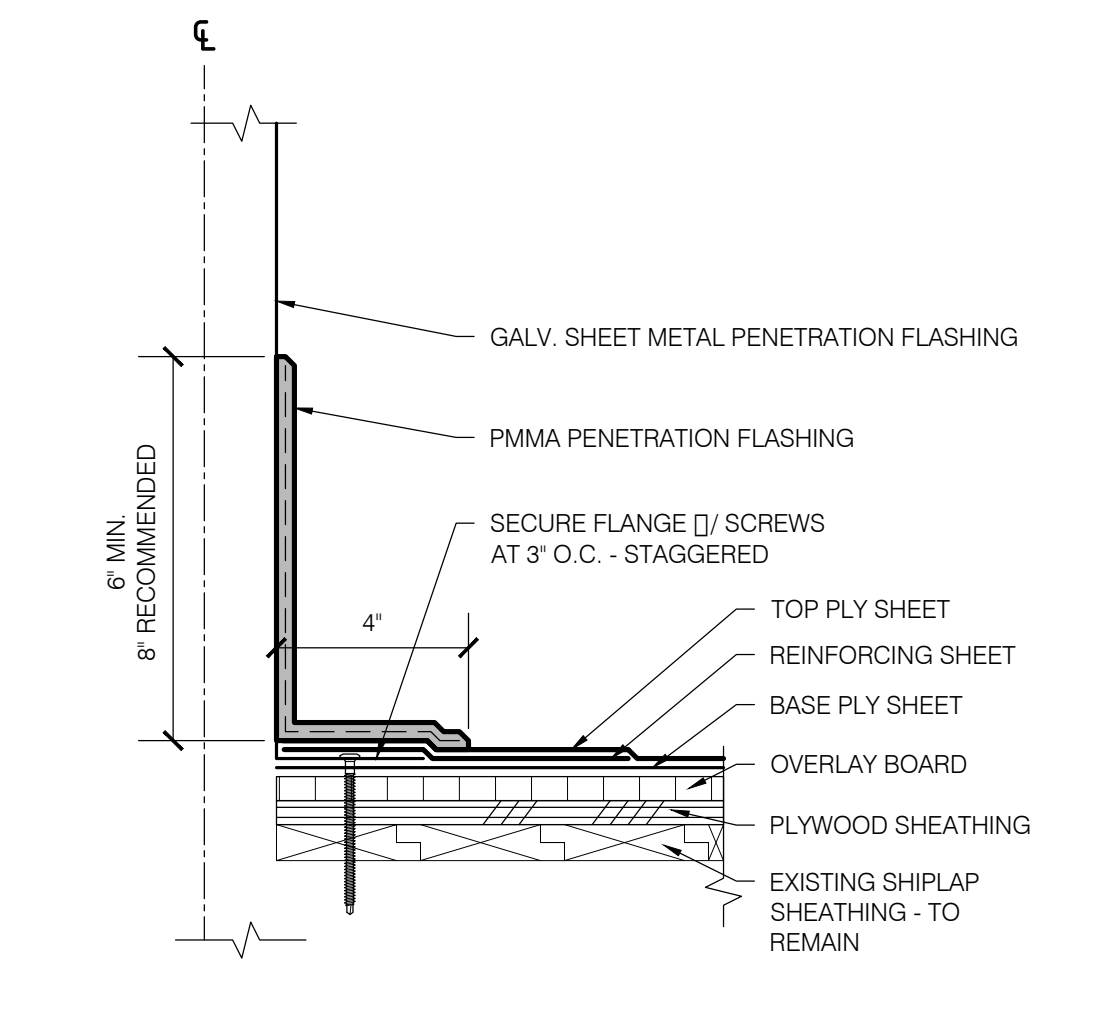
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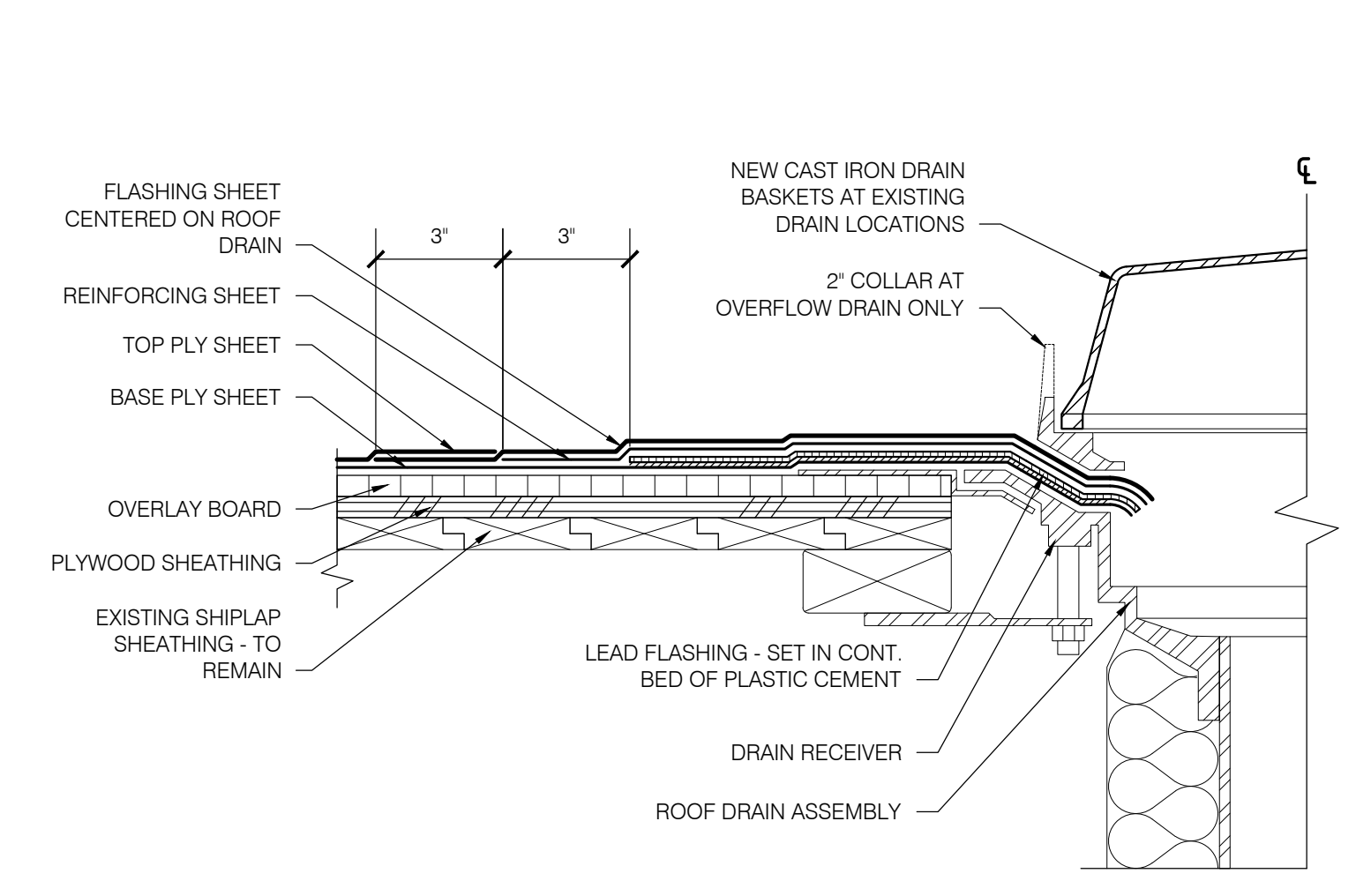
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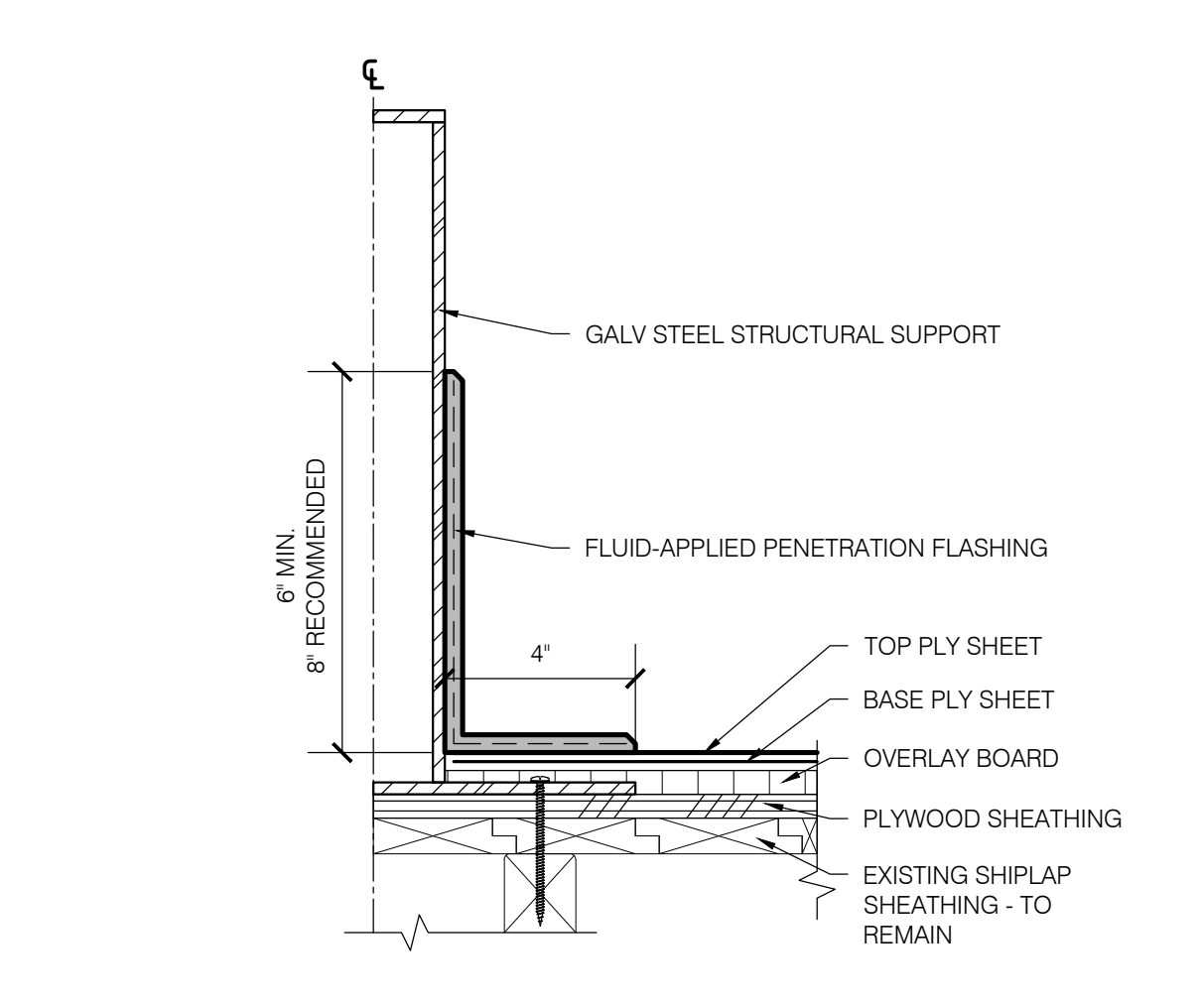
**1 PIPE PENETRATION - TYPICAL**  
 R202 SCALE: 3" = 1'-0"



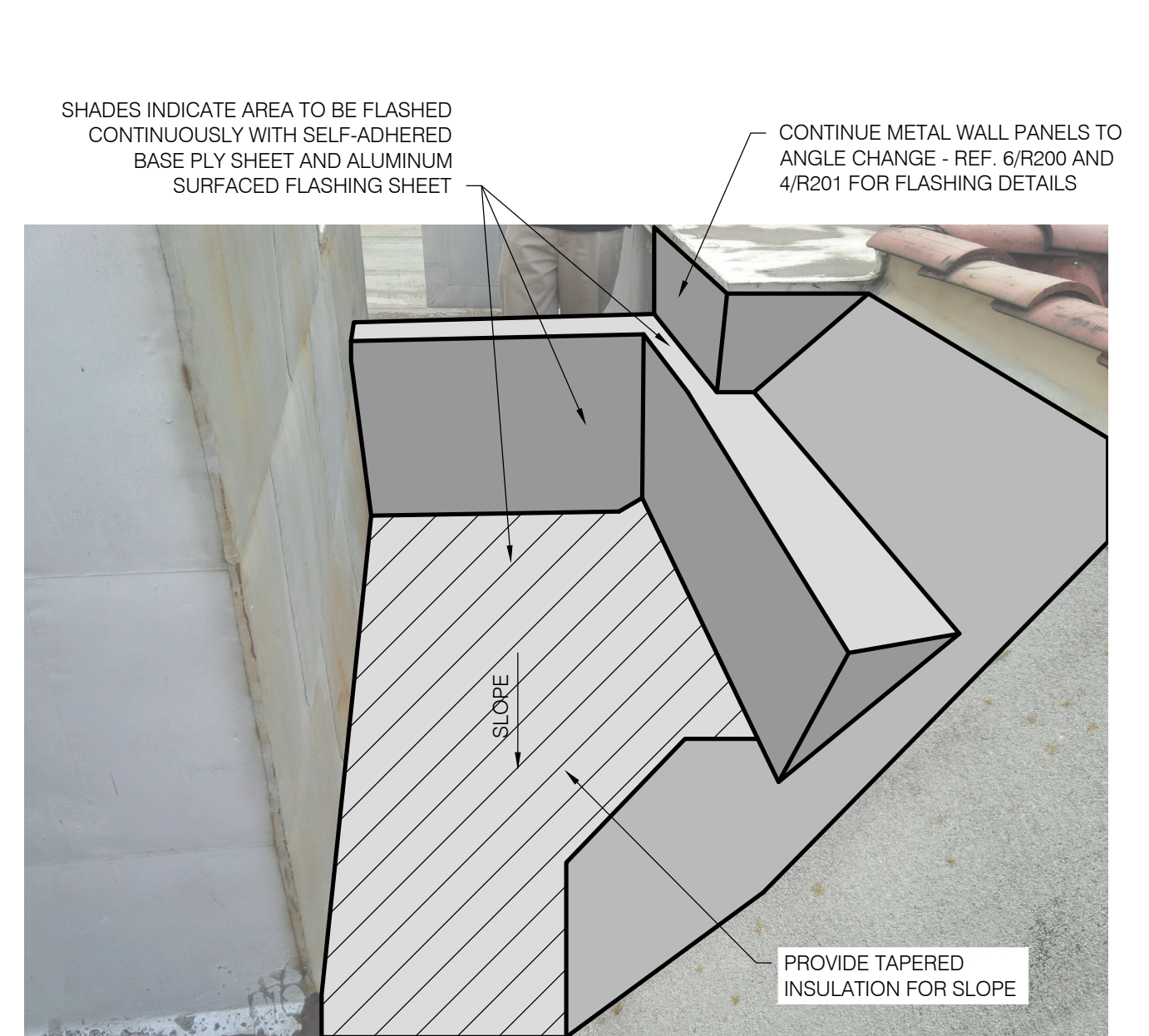
**2 FLANGED PENETRATION - TYPICAL**  
 R202 SCALE: 3" = 1'-0"



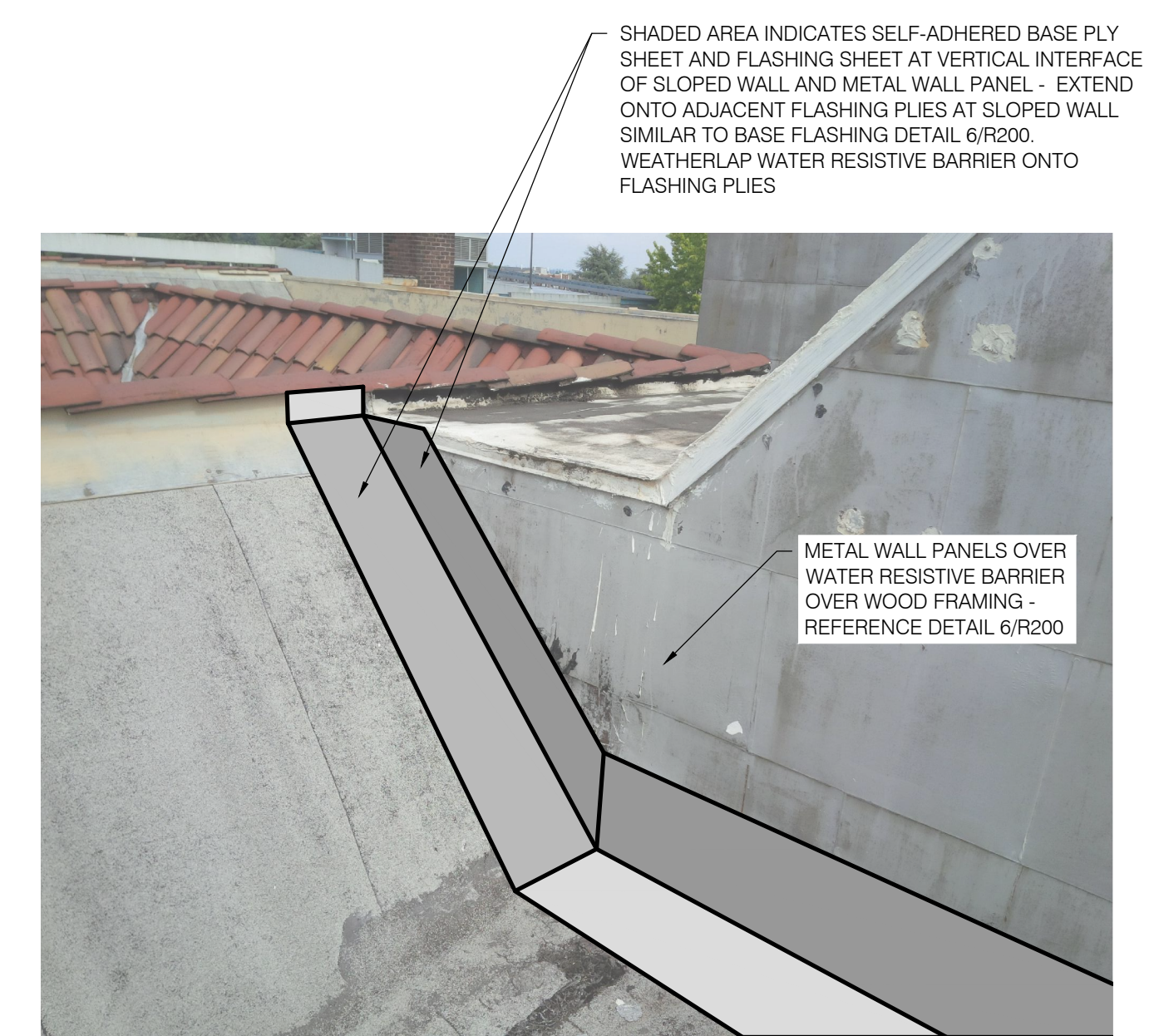
**3 ROOF DRAIN - TYPICAL**  
 R202 SCALE: 3" = 1'-0"



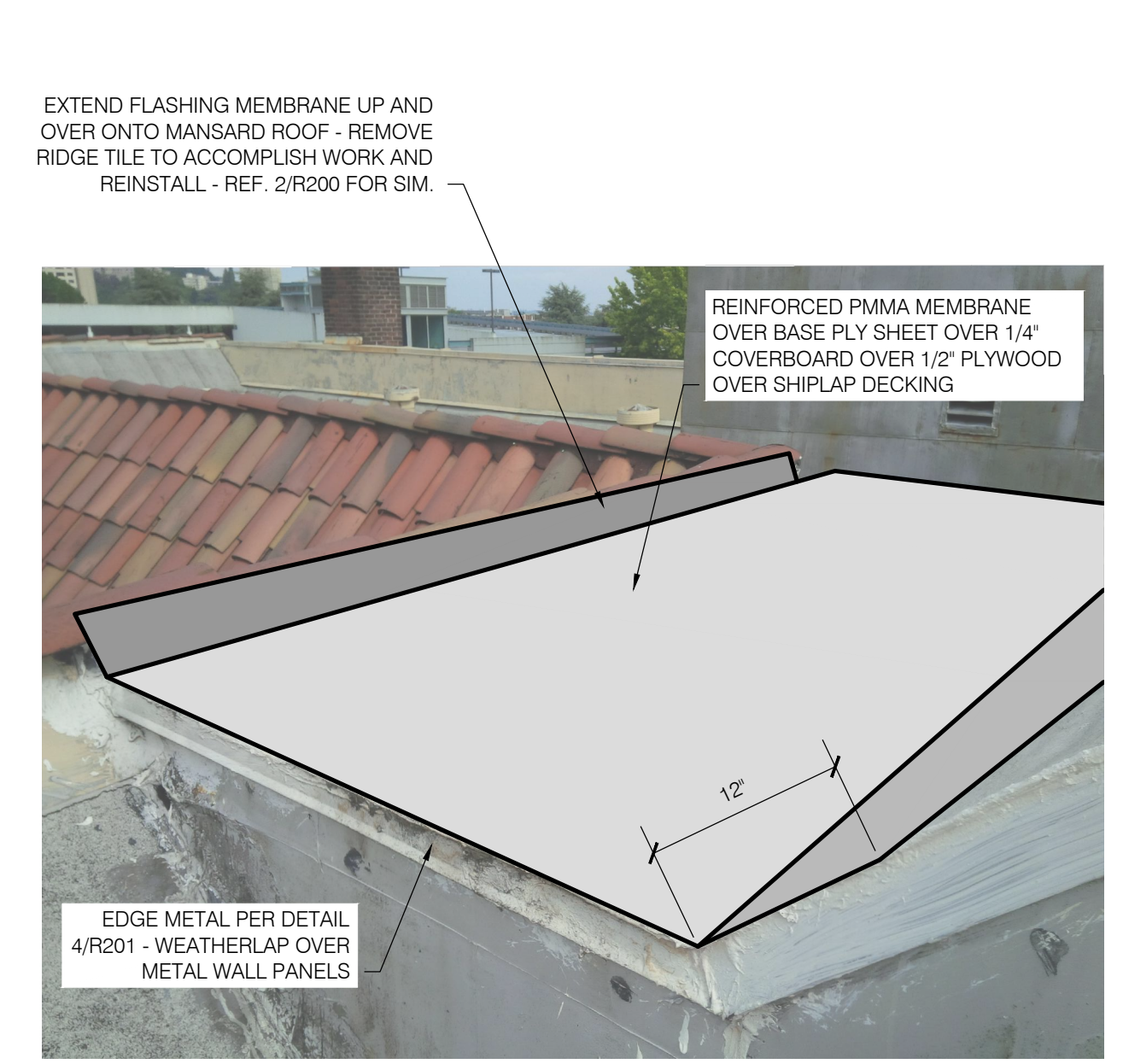
**4 STRUCTURAL SUPPORT FLASHING**  
 R202 SCALE: 3" = 1'-0"



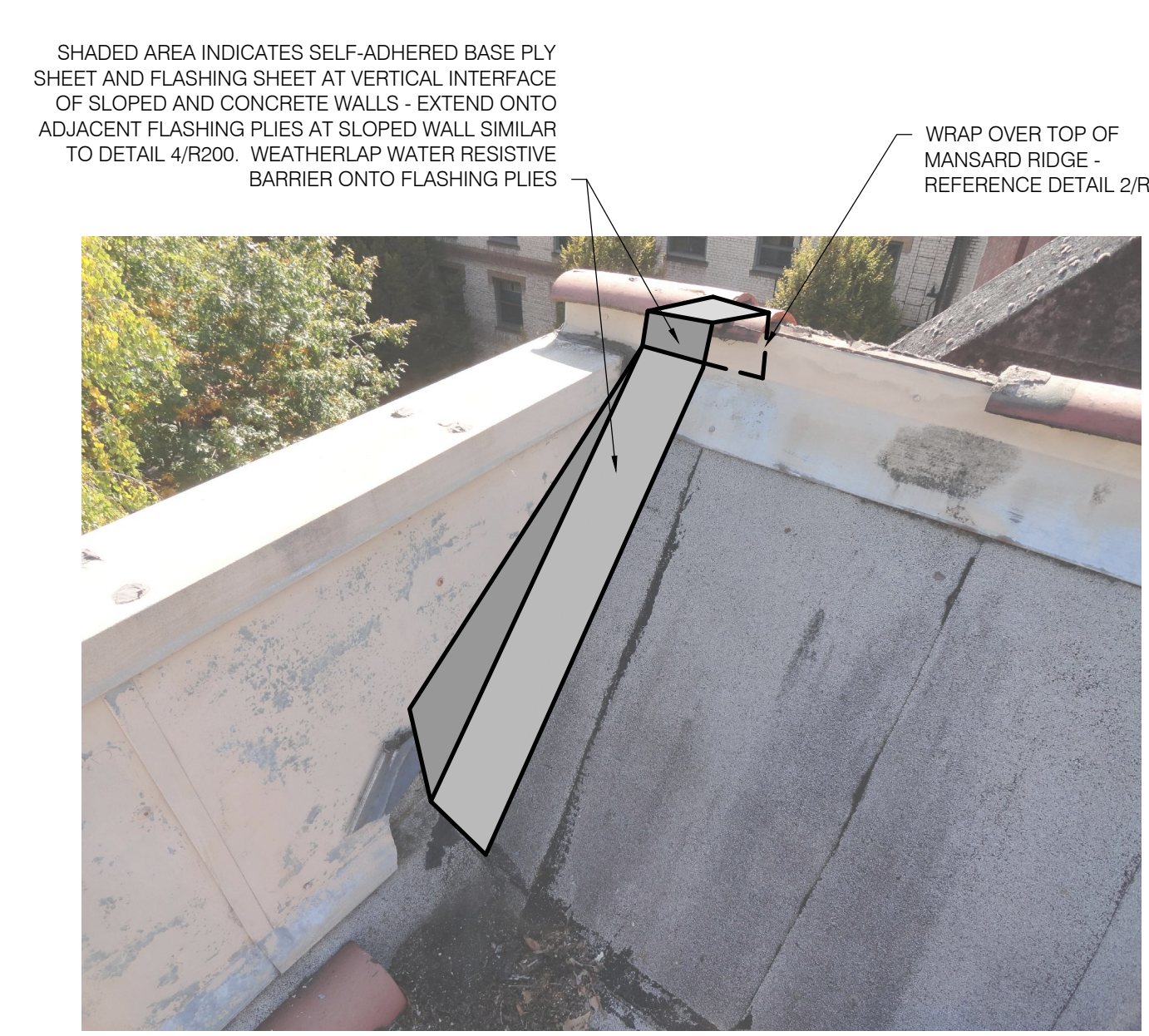
**5 FLASHING ASSEMBLY - AREA B**  
 R202 SCALE: NTS



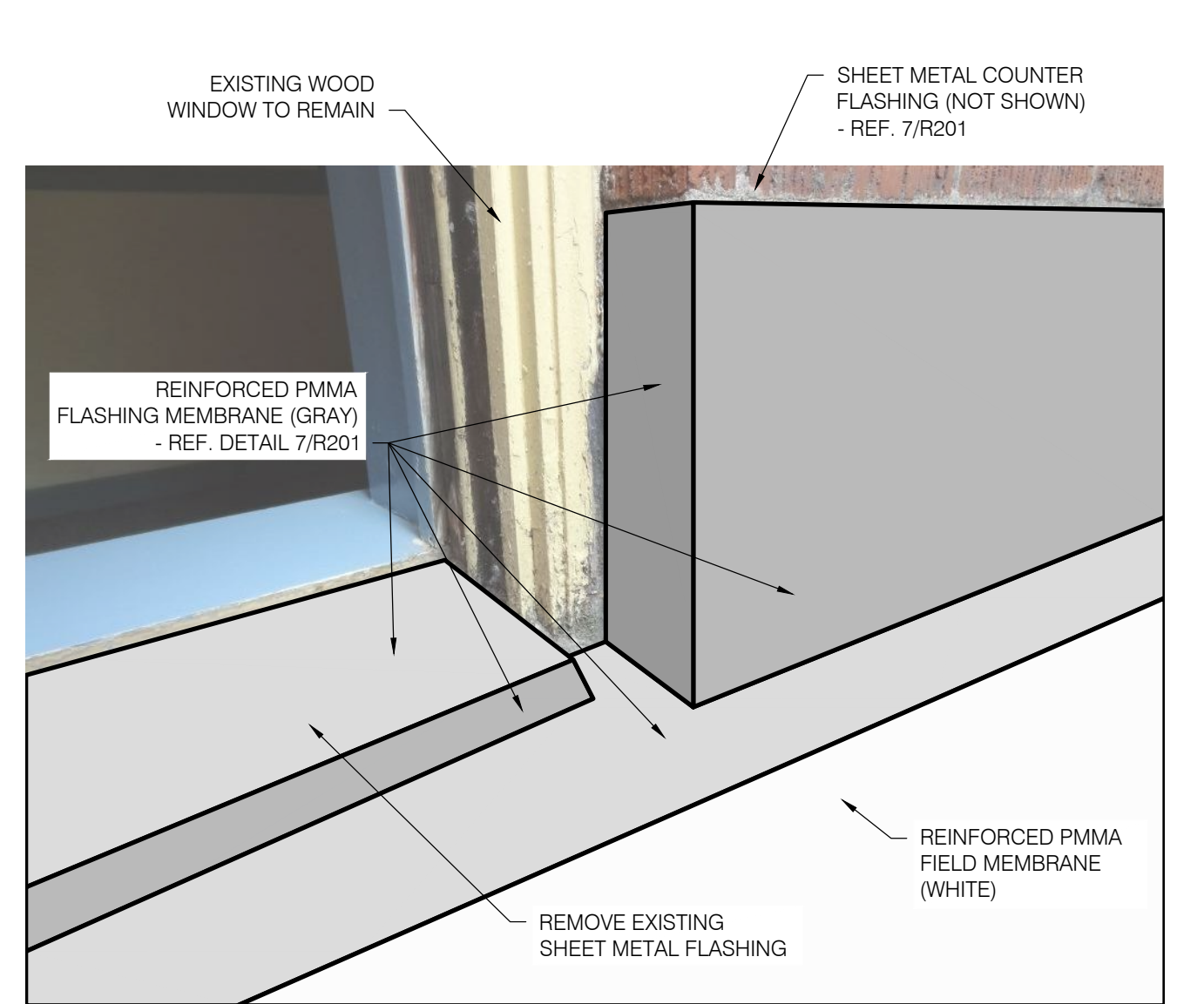
**6 FLASHING ASSEMBLY - BASE OF AREA C**  
 R202 SCALE: NTS



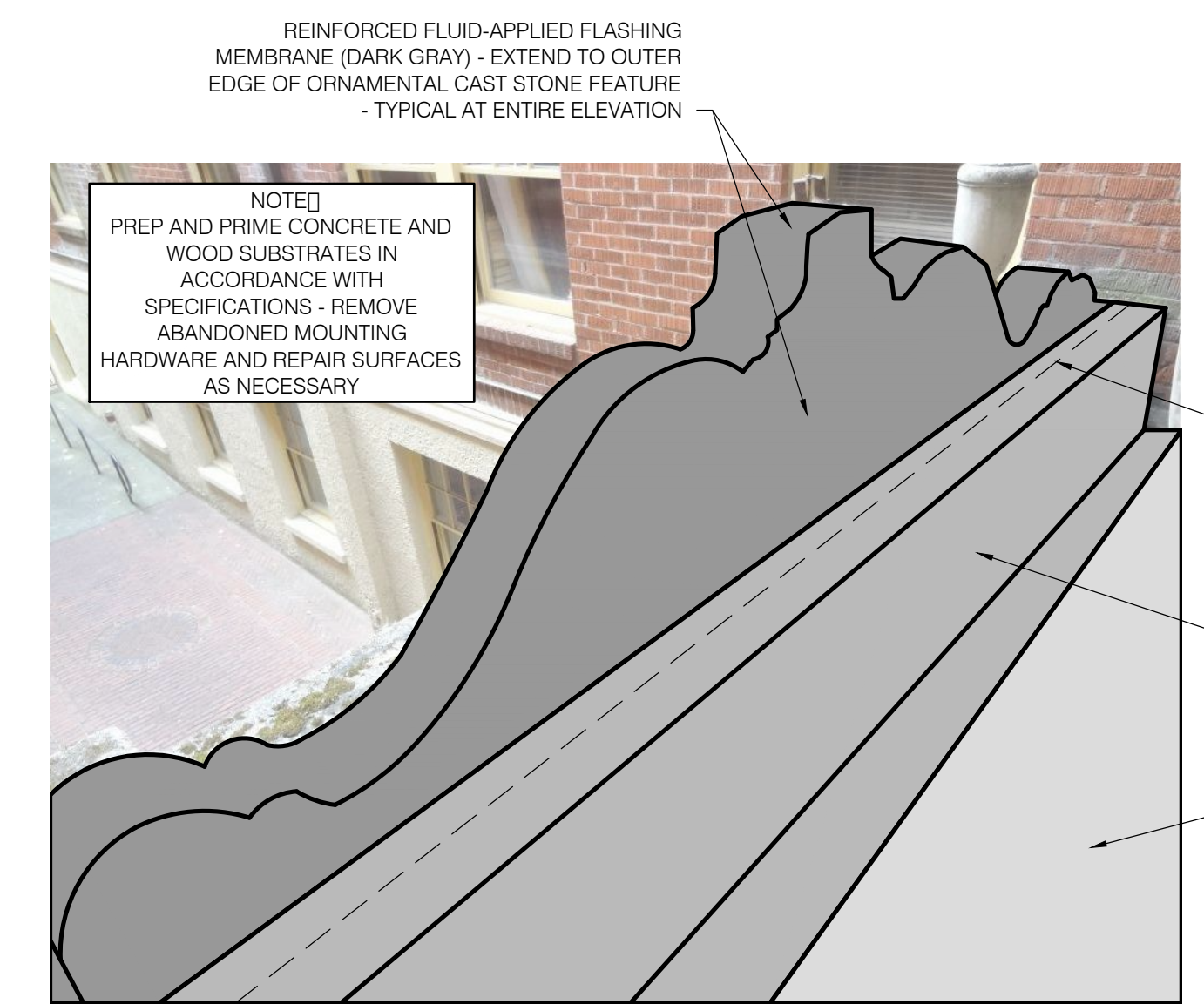
**7 FLASHING ASSEMBLY - AREA C**  
 R202 SCALE: NTS



**8 FLASHING ASSEMBLY - AREAS A & B**  
 R202 SCALE: NTS



**9 FLASHING TRANSITION AT WINDOW - AREA E**  
 R202 SCALE: NTS



**10 FLASHING ASSEMBLY - AREA E - SOUTH WALL**  
 R202 SCALE: NTS

**11 NOT USED**  
 R202 SCALE: NTS

**12 NOT USED**  
 R202 SCALE: NTS

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**R202**

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