

NOT FOR CONSTRUCTION

HAND DRAWN
STRUCTURAL ENGR
EXAMPLE PLAN

- FRAMING NOTES:**
1. JOISTS ARE DESIGNED TO BE CONTINUOUS IN SOME AREAS. I-JOIST MANUFACTURER TO STOP AND START JOISTS WHERE SHOWN ON PLAN TO ALLOW FOR CONTINUOUS ACTION.
 2. I-JOIST SUPPLIER TO CONTACT ENGINEER OF RECORD FOR JOIST APPROVAL IF JOISTS DIFFER FROM THOSE SPECIFIED ON PLANS.
 3. ALL LOAD BEARING HEADERS SHALL BE (2)2X8 SPF#2 UNLESS NOTED OTHERWISE
 4. ALL WALLS UP TO 10'-2" TALL SHALL BE A MINIMUM OF 2X4 SPF#2 @ 16" o.c. UNLESS NOTED OTHERWISE ON THE PLAN.
 5. WHERE DIMENSIONS ARE NOT INDICATED, BEAMS THAT RUN PARALLEL TO FLOOR JOISTS ARE INTENDED TO ALIGN UNDER LOAD BEARING WALLS (SEE THE ARCHITECTURAL PLANS FOR DIMENSIONS TO WALLS)
 6. RIM BOARDS AND BANDS PARALLEL TO FLOOR FRAMING TO BE DOUBLED. DBL JOISTS OR CRIPPLES WALLS TO BE INSTALLED BETWEEN STACKING LOAD BEARING WALLS TO TRANSFER LOADING.
 7. STUD SUPPORT AT EACH END OF BEAMS/HEADERS UNLESS NOTED OTHERWISE

2x LUMBER	=	SAME AS NUMBER PLIES FOR BEAMS; 1 FOR HEADERS
LVL, PSL, GLU-LAM	=	3
STEEL BEAM	=	5

8. ALL POINT LOADS FROM ROOF BRACES, JACK STUDS, AND BEAM SUPPORTS MUST BE SUPPORTED WITH SOLID BLOCKING AND/OR STUDS EQUAL TO THE NUMBER OF STUDS ABOVE ALL THE WAY DOWN TO THE FOUNDATION (1 STUD/2X4 BLOCK MINIMUM). (RIM BOARDS AND I-JOIST BLOCKING SHALL NOT BE CONSIDERED AS AN ACCEPTABLE MEANS OF SUPPORT UNDER POINT LOADS FROM LVL AND STEEL BEAMS OR WHERE SQUASH BLOCKS "S.B." ARE INDICATED)

9. NUMBER OF KING STUDS BASED ON OPENING WIDTH:

2x4 WALL	
LESS THAN 4'-9"	= 1 KING
4'-9" TO 6'-0"	= 2 KINGS
6'-0" TO 8'-0"	= 3 KINGS
8'-0" TO 10'-1"	= 4 KINGS
OVER 10'-1"	= SEE PLAN

2x6 WALL	
LESS THAN 4'-9"	= 1 KING
4'-9" TO 10'-0"	= 2 KINGS
GREAT THAN 10'-0"	= SEE PLAN

10. ALL FRAMING MEMBERS TO BE SPF#2 OR SYP#2 UNLESS NOTED OTHERWISE
11. FASTEN ALL TRIPLE PLY LVLS TOGETHER WITH TWO ROWS OF 5" LONG FLATLOK OR SIMPSON SDS SCREWS @ 16" o.c. AND FOUR PLY LVLS WITH TWO ROWS OF 6" FLATLOK SCREWS @ 16" o.c. UNLESS NOTED OTHERWISE ON THE PLANS. THE SCREWS SHALL BE LOCATED A MINIMUM OF 2" AND A MAXIMUM OF 3" FROM THE TOP OR BOTTOM OF THE BEAM.
12. DOUBLE JOISTS CAN BE SEPARATED BY UP TO 3/4" TO ALLOW FOR PASSAGE OF PLUMBING PIPES AND ELECTRICAL WIRES.
13. WOOD BEAMS SHALL BE SUPPORTED BY METAL HANGERS OF ADEQUATE CAPACITY WHERE FRAMING INTO BEAMS OR LEDGERS. THE FOLLOWING HANGER SCHEDULE MAY BE USED UNLESS NOTED OTHERWISE ON THE PLAN. (HANGERS WITH EQUIVALENT CAPACITIES TO THOSE LISTED BELOW ARE ALSO ACCEPTABLE)
- | MEMBER SIZE | SIMPSON HANGERS |
|--------------------------------|-----------------|
| (2) 2X8 | LUS 28-2 |
| (2) 2X10, (2) 2X12 | LUS 210-2 |
| (3)-2X10, (3)-2X12 | LUS 210-3 |
| (2) 1 1/2" X 9 1/2" LVL | HUS 410 |
| (2) 1 1/2" X 11 1/2" - 14" LVL | HUS 412 |
| (2) 1 1/2" X 16" - 24" LVL | HUS 410 |
| ALL TRIPLE LVLS | HHUS 5.50/10 |
14. FILL ALL OF THE HOLES IN BEAM HANGERS WITH 16d X 3 1/2" COMMON NAILS (3/4" X 0.162") OR 16d X 3 1/2" (2 1/2" X 0.162") NAILS UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. DO NOT BEND OR MODIFY THE HANGER OR USE INAPPROPRIATE FASTENERS. DO NOT USE 10d X 1 1/2" "HANGER NAILS" UNLESS OTHERWISE NOTED ON THE PLANS OR IN SITUATIONS WHERE ONLY 1 1/2" OR LESS OF WOOD IS PROVIDED TO NAIL INTO.
15. CONTRACTOR RESPONSIBLE FOR ALL WATERPROOFING AND FLASHING.

BRACED WALL LINE NOTE:

THIS STRUCTURE HAS BEEN ANALYZED FOR LATERAL LOADING USING CONTINUOUSLY SHEATHED 5/8" OSB WALL SHEATHING USING 8d NAILS AT 6" o.c. ALONG EDGES AND 12" o.c. AT INTERMEDIATE FRAMING. BLOCK AND NAIL ALL PANEL EDGES.

WHERE BRACED WALLS DO NOT MEET THE PRESCRIPTIVE REQUIREMENTS OF SECTION R602.10 OF THE CODE, IT HAS BEEN ANALYZED BY ENGINEERING ANALYSIS INCORPORATING ENGINEERED LATERAL BRACING ELEMENTS WHERE NEEDED TO MEET THE INTENT OF THE CODE. SEE PLANS FOR ALL NOTES AND DETAILS.

LINTELS SUPPORTING MASONRY VENEER

SEE TABLE R703.8.3.1 FOR SIZE OF "LOOSE" STEEL LINTEL FOR SPANS UP TO 10'.

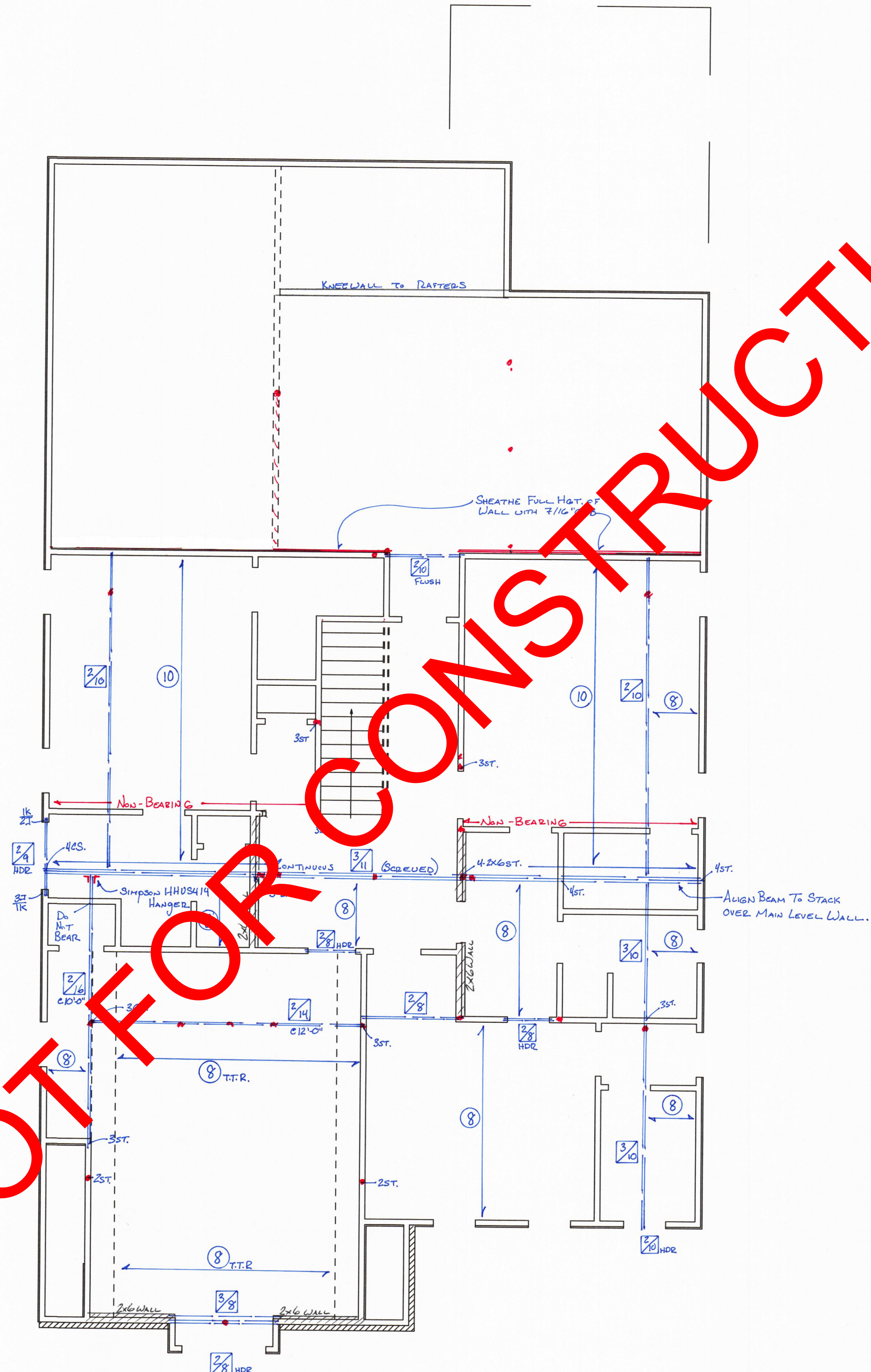
FOR SPANS GREATER THAN 10' (OR WHERE SHOWN ON PLANS BY "ATTACHED LINTEL" NOTE) FASTEN L4"x4"x1/2" STEEL ANGLE TO WOOD HEADER WITH 1/2"x4" LAG SCREWS @ 16" o.c. EXTEND ALL ANGLES 6" PAST OPENING TO BEAR ON MASONRY VENEER AT ENDS.

SUPPORT ALL BRICK CLIMBS PER DETAIL ON PLANS OR R703.8.2 AND FIGURE 703.8.2.1

- PLAN LEGEND:**
- J - JACK STUD
K - KING STUD
ST - STUD
CS - CRIPPLE STUD
SB - SQUASH BLOCK
DBL - DOUBLE JOIST
UNO - UNLESS NOTES OTHERWISE
- BEAM DESIGNATION:**
- | # OF PLIES | BEAM SIZE | 8 = 2x8 SPF#2 OR SYP#2 | 9 = 1 1/2" X 9 1/2" LVL | 18 = 1 1/2" X 18" LVL |
|------------|-----------|--------------------------|---------------------------|-----------------------|
| | | 10 = 2x10 SPF#2 OR SYP#2 | 11 = 1 1/2" X 11 1/2" LVL | 20 = 1 1/2" X 20" LVL |
| | | 12 = 2x12 SPF#2 OR SYP#2 | 14 = 1 1/2" X 14" LVL | 24 = 1 1/2" X 24" LVL |
| | | | 16 = 1 1/2" X 16" LVL | |
- (14) - 14" PRI-40 I-JOISTS AT 19.2" o.c.
(8) - 2x8 SPF#2 OR SYP#2 JOISTS AT 16" o.c.
(10) - 2x10 SPF#2 OR SYP#2 JOISTS AT 16" o.c.
(6) - 2x6 SPF#2 OR SYP#2 JOISTS AT 16" o.c.

- PLAN LEGEND:**
- FOUNDATION STRAP** - FOR CRAWLSPACE FOUNDATIONS, SECURE TO RIM BOARD WITH VERTICAL SIMPSON LSTA24 STRAP OR 24" LONG CS18 (MIN.) COIL STRAP.
- OSB BRACE WALL** - CONTINUOUSLY SHEATHED ONE SIDE OF INTERIOR WALL (FULL HEIGHT) WITH 5/8" OSB FASTENED TO STUDS WITH 8d NAILS @ 4" o.c. ALONG PANEL EDGES AND 12" o.c. IN FIELD. SEE PLANS FOR CONNECTION DETAILS.

NOT FOR CONSTRUCTION



FRAMING NOTES:

- "T.T.R." INDICATES "TIE (CEILING JOIST) TO RAFTER WITH FOUR 3"x0.131" NAILS
- ALL LOAD BEARING HEADERS SHALL BE (2)2X8 SPF#2 UNLESS NOTED OTHERWISE
- ALL WALLS UP TO 10'-2" TALL SHALL BE A MINIMUM OF 2X4 SPF#2 @ 16" o.c. UNLESS NOTED OTHERWISE ON THE PLAN.
WALLS BETWEEN 10'-2" AND 13'-2" TALL SHALL BE A MINIMUM OF 2X6 SPF#2 @ 16" o.c. UNLESS NOTED OTHERWISE ON THE PLAN. TALLER WALLS ARE SPECIFICALLY NOTED ON THE PLAN.
- STUD SUPPORT AT EACH END OF BEAMS/HEADERS UNLESS NOTED OTHERWISE**
2x LUMBER = SAME AS NUMBER PLIES FOR BEAMS; 1 FOR HEADERS
LVL, PSL, GLU-LAM = 3
STEEL BEAM = 5
- ALL POINT LOADS FROM ROOF BRACES, JACK STUDS, AND BEAM SUPPORTS MUST BE SUPPORTED WITH SOLID BLOCKING AND/OR STUDS EQUAL TO THE NUMBER OF STUDS ABOVE ALL THE WAY DOWN TO THE FOUNDATION (1 STUD/2X4 BLOCK MINIMUM) (RIM BOARDS AND I-JOIST BLOCKING SHALL NOT BE CONSIDERED AS AN ACCEPTABLE MEANS OF SUPPORT UNDER POINT LOADS FROM LVL AND STEEL BEAMS OR WHERE SQUASH BLOCKS "S.B." ARE INDICATED
- NUMBER OF KING STUDS BASED ON OPENING WIDTH:**
2x4 WALL
LESS THAN < 5'-0" = 1 KING
5'-0" TO 6'-0" = 2 KINGS
6'-0" TO 8'-0" = 3 KINGS
8'-0" TO 10'-0" = 4 KINGS
OVER 10'-0" = SEE PLAN
2x6 WALL
LESS THAN < 5'-0" = 1 KING
5'-0" TO 10'-0" = 2 KINGS
GREAT THAN > 10'-0" = SEE PLAN
- ALL FRAMING MEMBERS TO BE SPF#2 OR SYP#2 UNLESS NOTED OTHERWISE
- WOOD BEAMS SHALL BE SUPPORTED BY METAL HANGERS OF ADEQUATE CAPACITY WHERE FRAMING INTO BEAMS OR LEDGERS. THE FOLLOWING HANGER SCHEDULE MAY BE USED UNLESS NOTED OTHERWISE ON THE PLAN: (HANGERS WITH EQUIVALENT CAPACITIES TO THOSE LISTED BELOW ARE ALSO ACCEPTABLE)

MEMBER SIZE	SIMPSON HANGERS
(2) 2X8	LUS 28-2
(2) 2X10, (2) 2X12	LUS 210-2
(2) 2X10, (3) 2X12	LUS 210-3
(2) 12" X 8" LVL	HUS 410
(2) 12" X 11 1/2" - 14" LVL	HUS 412
(2) 12" X 16" - 24" LVL	HHUS 410
ALL TRIPLE LVLS	HHUS 5.50/10

- FILL ALL OF THE HOLES IN BEAM HANGERS WITH 16d x 3 1/2" COMMON NAILS (3/4" x 0.162") OR 16d x 3 1/2" (3/4" x 0.162") NAILS UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. DO NOT BEND OR MODIFY THE HANGER OR USE INAPPROPRIATE FASTENERS. DO NOT USE 16d x 1 1/2" "HANGER NAILS" UNLESS OTHERWISE NOTED ON THE PLANS OR IN SITUATIONS WHERE ONLY 1 1/2" OR LESS OF WOOD IS PROVIDED TO NAIL INTO.
- CONTRACTOR TO PROVIDE 22"x30" MIN. ACCESS TO ATTIC AREAS MORE THAN 400 SF.
- CONTRACTOR RESPONSIBLE FOR ALL WATERPROOFING AND FLASHING.
- SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS.

BRACED WALL LINE NOTE:

THIS STRUCTURE HAS BEEN ANALYZED FOR LATERAL LOADING USING CONTINUOUSLY SHEATHED 7/8" OSB WALL SHEATHING USING 8d NAILS AT 6" o.c. ALONG EDGES AND 12" o.c. AT INTERMEDIATE FRAMING. BLOCK AND NAIL ALL PANEL EDGES.

WHERE BRACED WALLS DO NOT MEET THE PRESCRIPTIVE REQUIREMENTS OF SECTION R602.10 OF THE CODE, IT HAS BEEN ANALYZED BY ENGINEERING ANALYSIS INCORPORATING ENGINEERED LATERAL BRACING ELEMENTS WHERE NEEDED TO MEET THE INTENT OF THE CODE. SEE PLANS FOR ALL NOTES AND DETAILS.

LINTELS SUPPORTING MASONRY VENEER
SEE TABLE R703.8.3.1 FOR SIZE OF "LOOSE" STEEL LINTEL FOR SPANS UP TO 10'.
FOR SPANS GREATER THAN 10' (OR WHERE SHOWN ON PLANS BY "ATTACHED LINTEL" NOTE) FASTEN L4"x4"x8" STEEL ANGLE TO WOOD HEADER WITH P10"x4" LAG SCREWS @ 16" o.c. EXTEND ALL ANGLES 6" PAST OPENING TO BEAR ON MASONRY VENEER AT ENDS.
SUPPORT ALL BRICK CLIMBS PER DETAIL ON PLANS OR R703.8.2 AND FIGURE 703.8.2.1

PLAN LEGEND:

J - JACK STUD
K - KING STUD
ST - STUD
CS - CRIPPLE STUD
SB - SQUASH BLOCK
DBL - DOUBLE JOIST
UNO - UNLESS NOTES OTHERWISE

BEAM DESIGNATION:

# OF PLIES	BEAM SIZE
8 = 2x8 SPF#2 OR SYP#2	9 = 12"x24" LVL
10 = 2x10 SPF#2 OR SYP#2	11 = 12"x18" LVL
12 = 2x12 SPF#2 OR SYP#2	14 = 12"x14" LVL
	18 = 12"x12" LVL
	20 = 12"x20" LVL
	24 = 12"x24" LVL
	16 = 12"x16" LVL

(6) - 2x6 SPF#2 OR SYP#2 JOISTS AT 16" o.c.
(8) - 2x8 SPF#2 OR SYP#2 JOISTS AT 16" o.c.
(10) - 2x10 SPF#2 OR SYP#2 JOISTS AT 16" o.c.

HAND DRAWN
STRUCTURAL ENGINEERING.
EXAMPLE PLAN

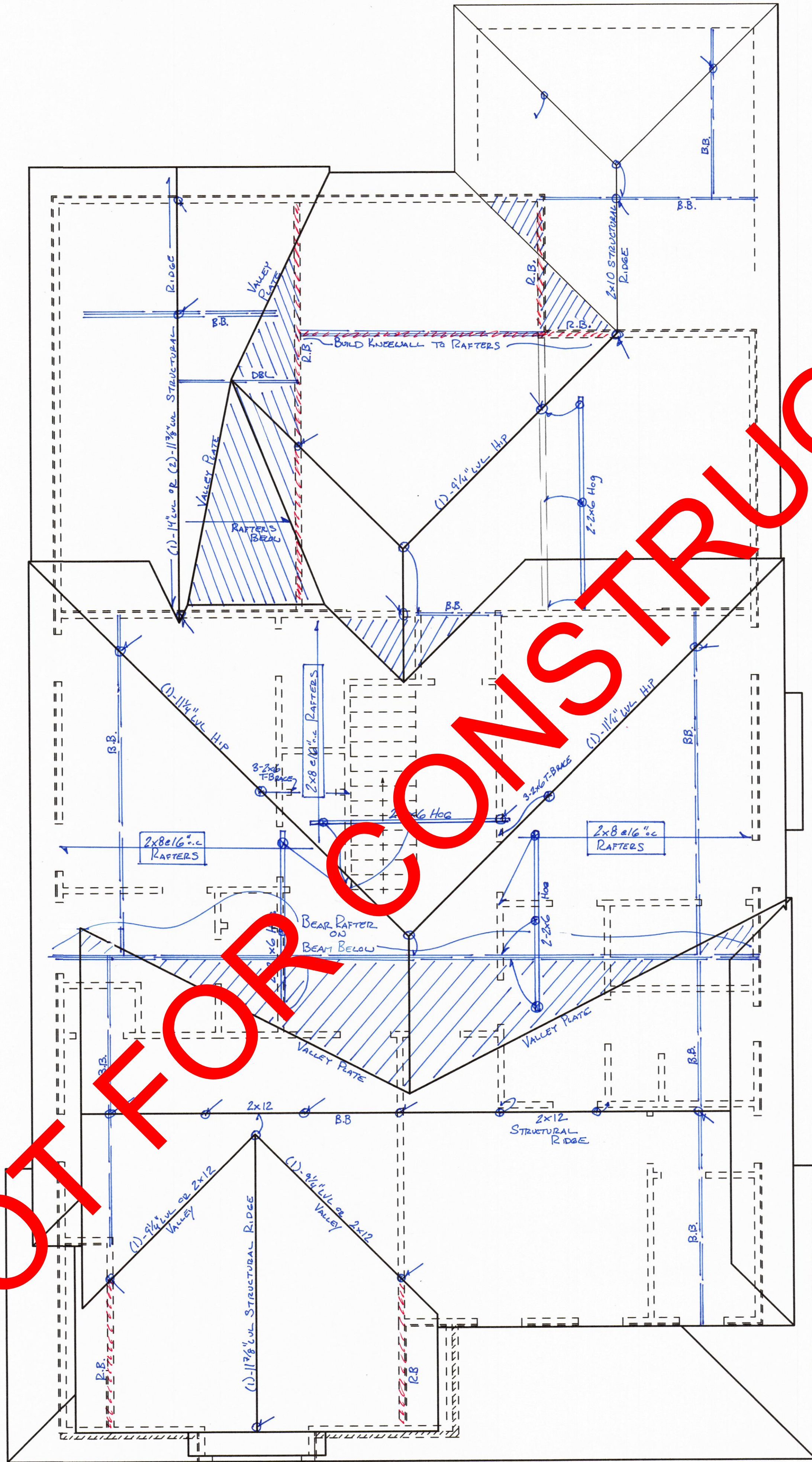
SEAL FOR STRUCTURAL ONLY

For structural questions:
Chad Ritter, PE
(704)-999-3867

2nd Floor &
Attic Framing

S3

NOT FOR CONSTRUCTION



ROOF CONSTRUCTION NOTES:

- ALL RAFTERS SHALL BE 2X6 SPF#2 @ 16" o.c. UNLESS NOTED OTHERWISE
- ALL HIP, VALLEYS, AND RIDGES ARE 2X10 SPF#2 UNLESS NOTED OTHERWISE
- ALL SHADED OR HATCHED AREAS INDICATE ROOF OVERBUILDS
- STRUCTURAL RIDGE** - FASTEN ALL RAFTERS INTO THE STRUCTURAL RIDGE BEAMS WITH:
* (3) 3"X 0.131" TOE-NAILS FOR SPANS UP TO 8 FT.
* (3) 3"X 0.131" TOE-NAILS AND A BEVELED 2x LEDGER, OR SIMPSON A34 OR L50 ANGLE OVER 8 FT.
- IN ADDITION TO THE CODES FASTENER SCHEDULE, UNLESS NOTED OTHERWISE ON THE PLAN, INSTALL SIMPSON H2.5A HURRICANE CLIPS AT THE ENDS OF THE RAFTERS WHERE THEY BEAR ON THE WALL PLATE @ 48" o.c. INSTALLING OVER WALL SHEATHING IS ACCEPTABLE.
AT OPEN FRAMED ROOFS, SUCH AS PORCHES, INSTALL HURRICANE CLIPS AT EACH RAFTER.
- ALL "HOGS" SHALL BE COMPOSED OF TWO 2X6'S. THE BOARDS SHALL BE FASTENED TOGETHER AT THEIR ENDS WITH 3"X0.131" NAILS AT 4" ON CENTER TO FORM AN "L" SHAPE.
- RAFTERS MAY BE SPLICED OVER HOGS. SPLICE RAFTER HOGS ONLY AT A ROOF BRACE.
- ALL ROOF BRACES MUST HAVE A STUD FROM PLATE THROUGH ALL FLOORS TO THE FOUNDATION OR SUPPORTING BEAM BELOW.
- FRAME OPENING IN ROOF SYSTEM FOR BALLOON FRAMED STUDS OR MASONRY FORMING CHIMNEYS WITH DOUBLE MEMBERS. CHIMNEY FRAMING IS **NOT** TO BE SUPPORTED BY ROOF FRAMING
- ROOF BRACES UNDER 7'-0" ARE 2-2X4 NAILED WITH 3"X 0.131" NAILS @ 6" o.c. VERTICALLY FROM TOP TO BOTTOM. BRACES LONGER THAN 7'-0" SHALL CONSIST OF (2) 2X6 T-BRACES. BRACES LONGER THAN 12 FT. MUST BE BRACED HORIZONTALLY IN TWO DIRECTIONS AT MID-HEIGHT.
- CONNECT BOTTOMS OF ALL BRACES THAT ARE NOT WITHIN 26" FROM VERTICAL TO BEAMS OR WALLS WITH ONE SIMPSON A34 BRACKET, OTHERWISE CONNECT WITH FOUR 3"X 0.131" TOENAILS.

ROOF PLAN LEGEND:

BB - BEAM BELOW
RB - RAFTERS BEAR ON WALL BELOW
⊗ INDICATES LOCATION OF ROOF BRACE POINT AT RAFTER LEVEL.
→ ARROW AWAY FROM THE BRACE POINT INDICATES DIRECTION OF ROOF BRACE TO PARTITION, BEAM, OR OTHER BRACE POINT BELOW.
⊗→ ARROW INTO BRACE POINT INDICATES A VERTICAL OR ALMOST VERTICAL ROOF BRACE TO PARTITION, BEAM, OR OTHER BRACE POINT BELOW.

RAFTER BAND - SECURE 2X BAND (ONE SIZE LARGER THAN RAFTER) TO HOUSE STUDS/BAND WITH 3-16D NAILS AT 16" o.c. SECURE EACH RAFTER TO BAND WITH 3-8D TOENAILS AND SUPPORT WITH SIMPSON A34 OR L50 SIDE ANGLE OR BEVELED 2x LEDGER.

HOG - (2) 2X6 HOG INSTALLED AGAINST RAFTERS.

RAFTER HOG DETAIL

WHEN >26" (2V-1H) ATTACH ROOF BRACE WITH SIMPSON A34 BRACKET AT BASE

RAFTER

HOG

ROOF BRACE
(2) 2X4 ≤ 7 FT.,
(2) 2X6 > 7 FT.

ANGLE

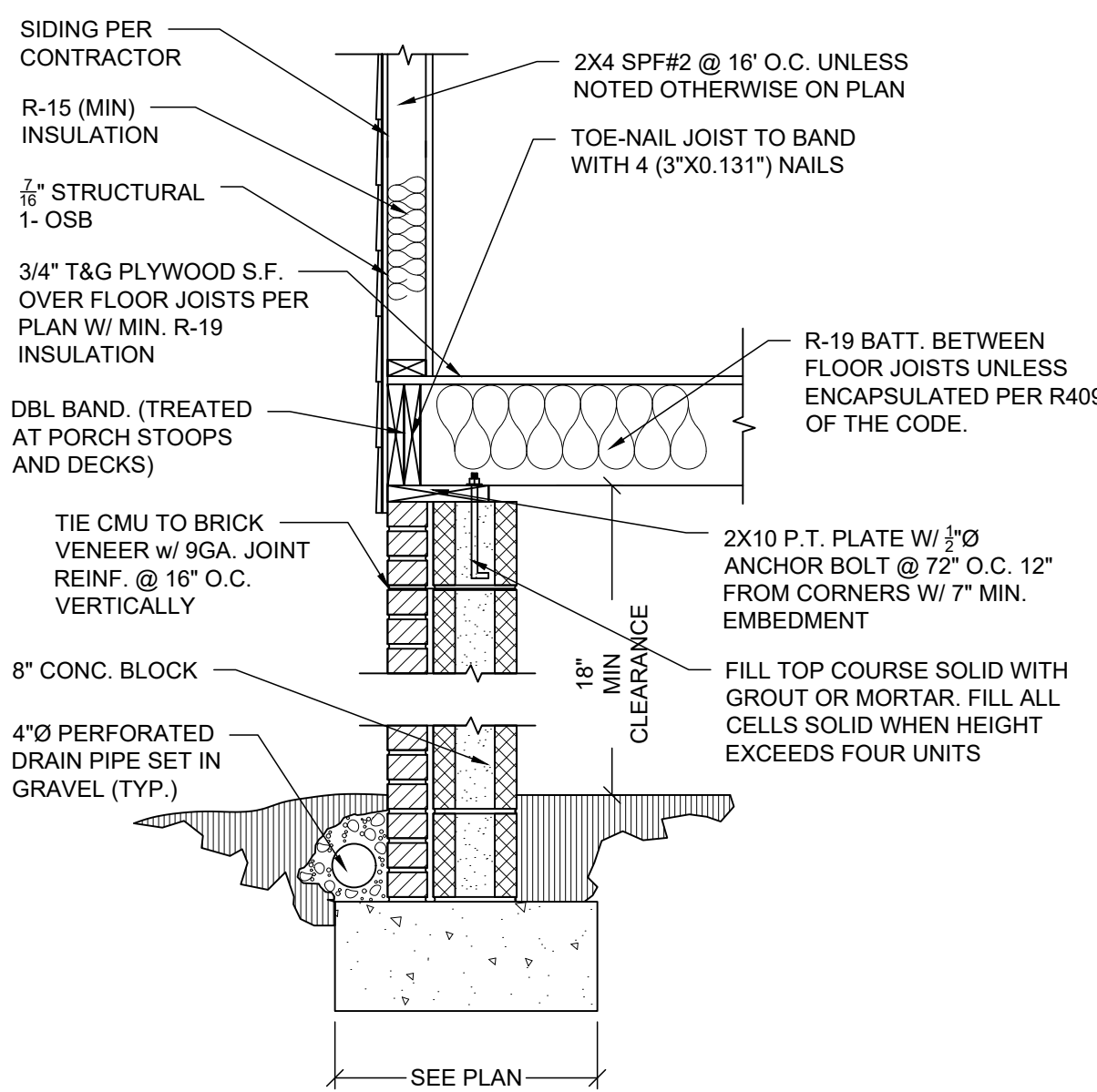
HAND DRAWN
STRUCTURAL ENGINEERING.
EXAMPLE PLAN

SEAL FOR STRUCTURAL ONLY

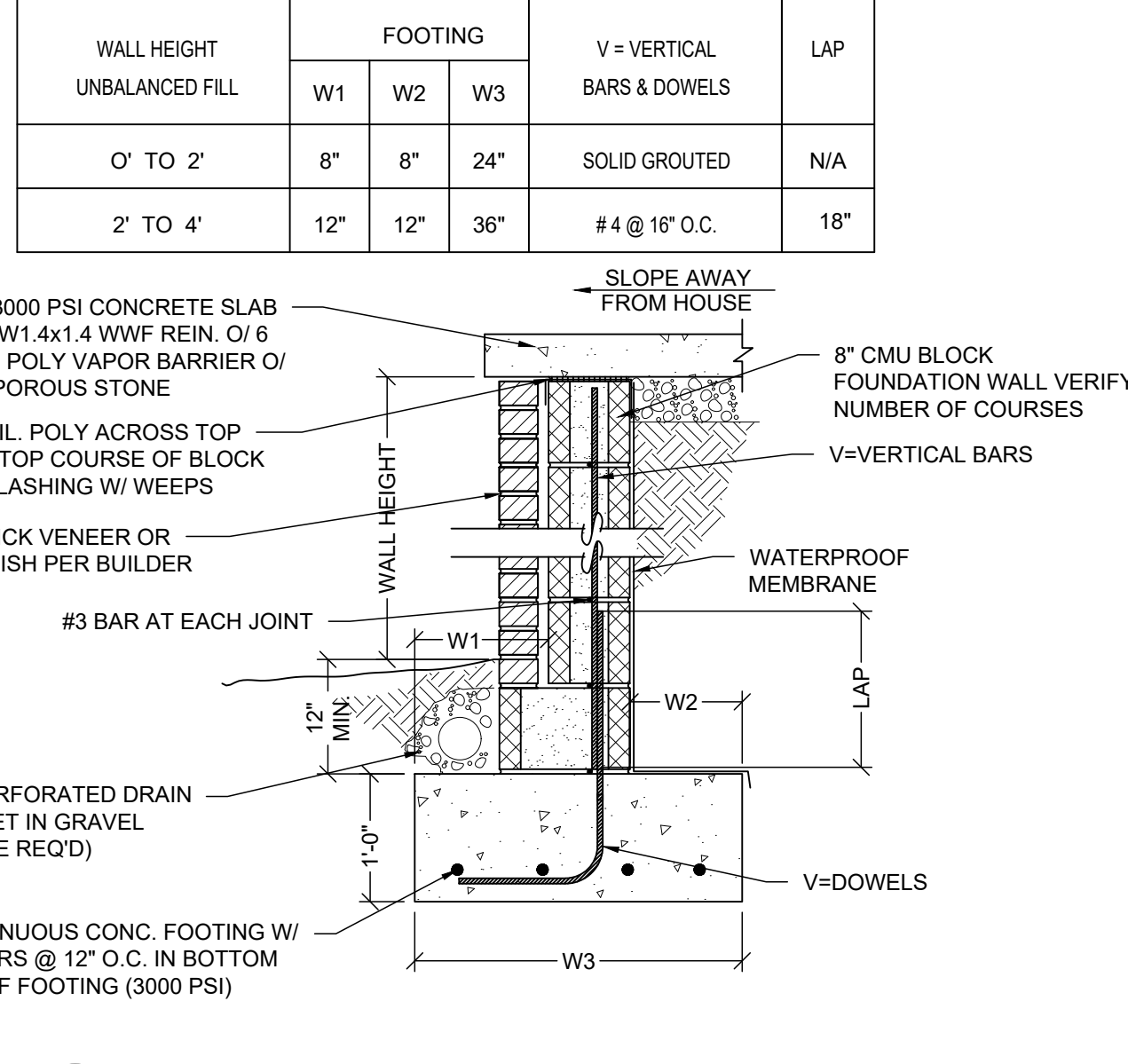
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Roof Framing

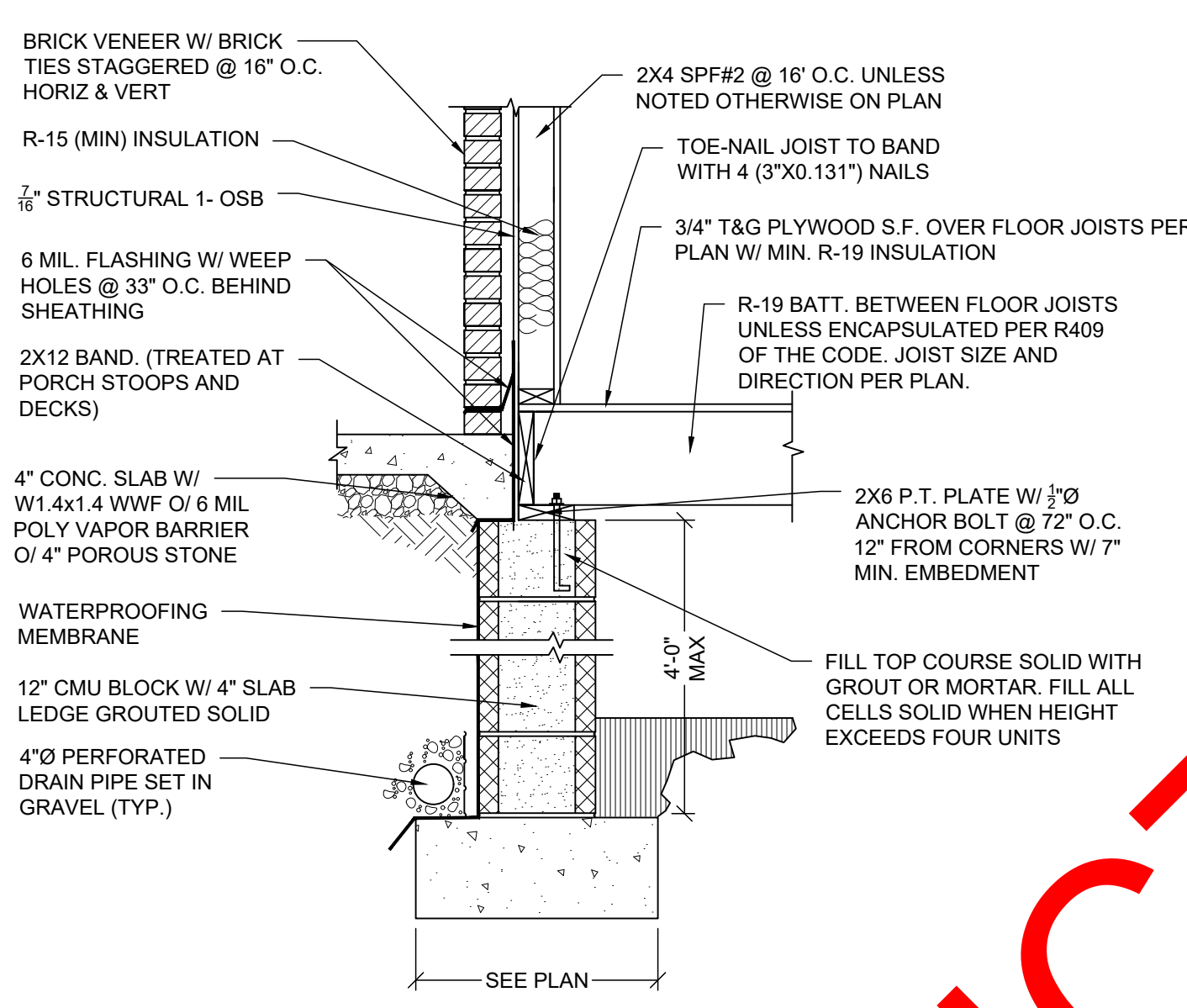
S4



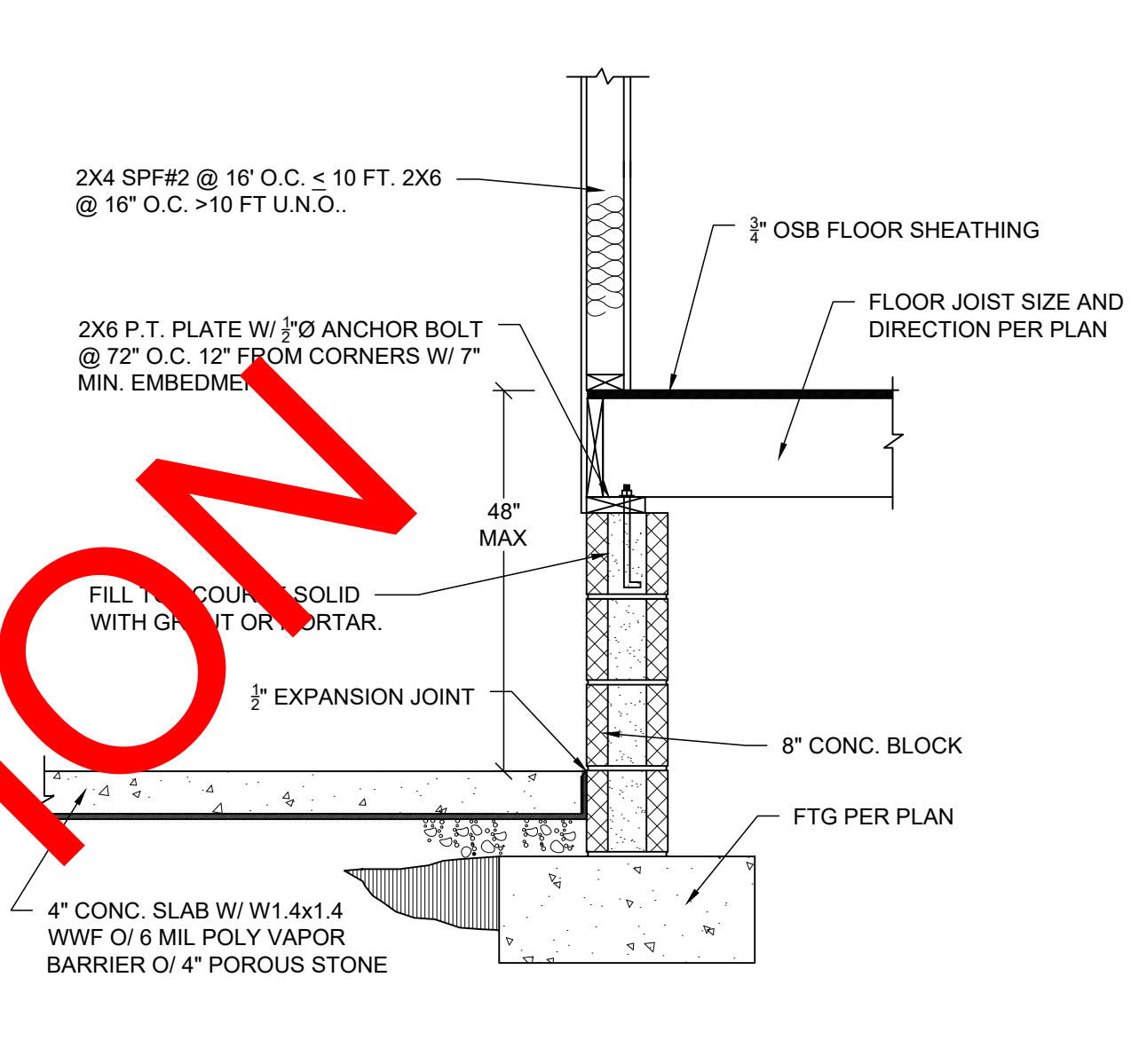
1 TYPICAL PERIMETER FOUNDATION WALL



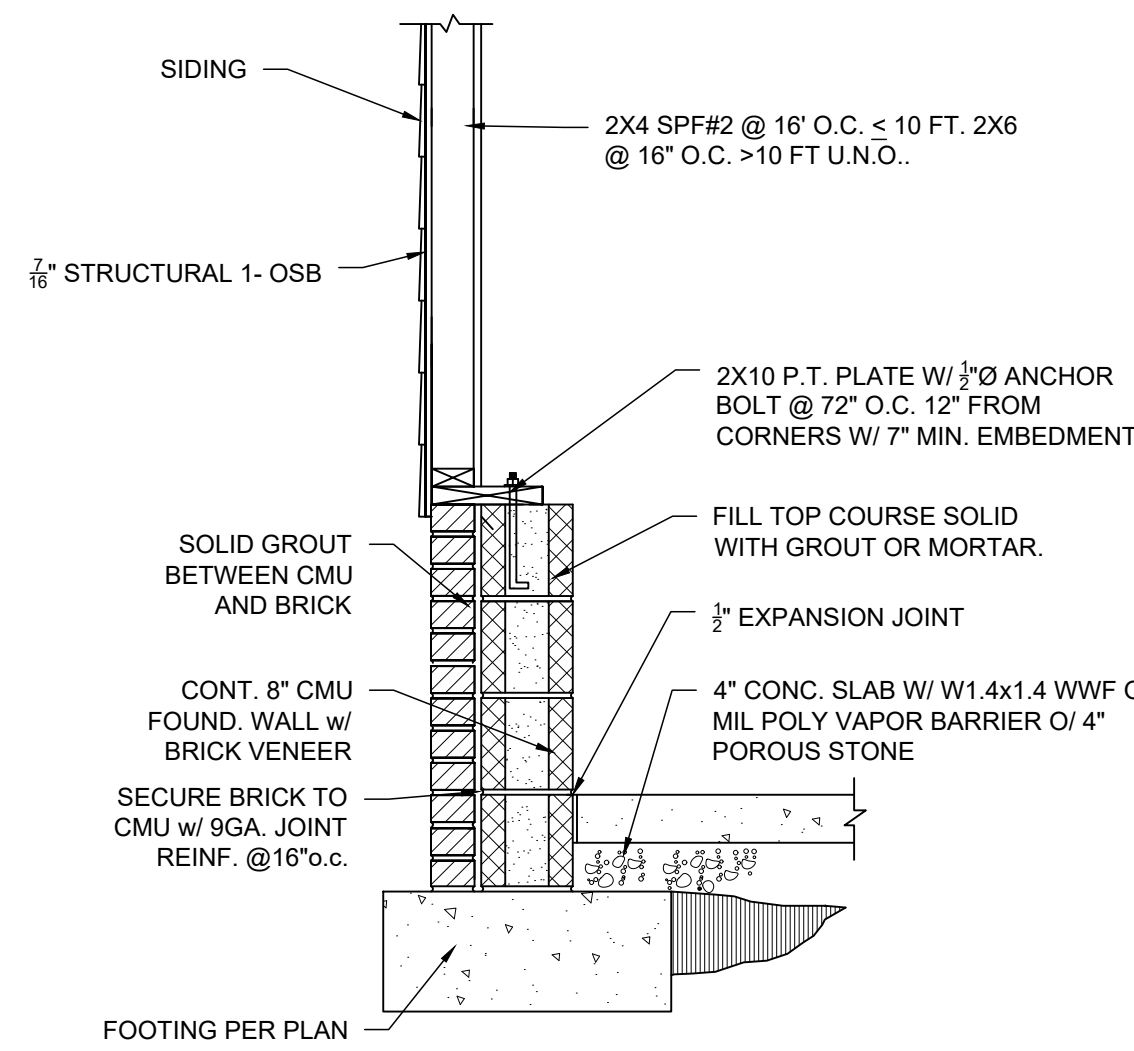
2 END OF TERRACE (BRICK)



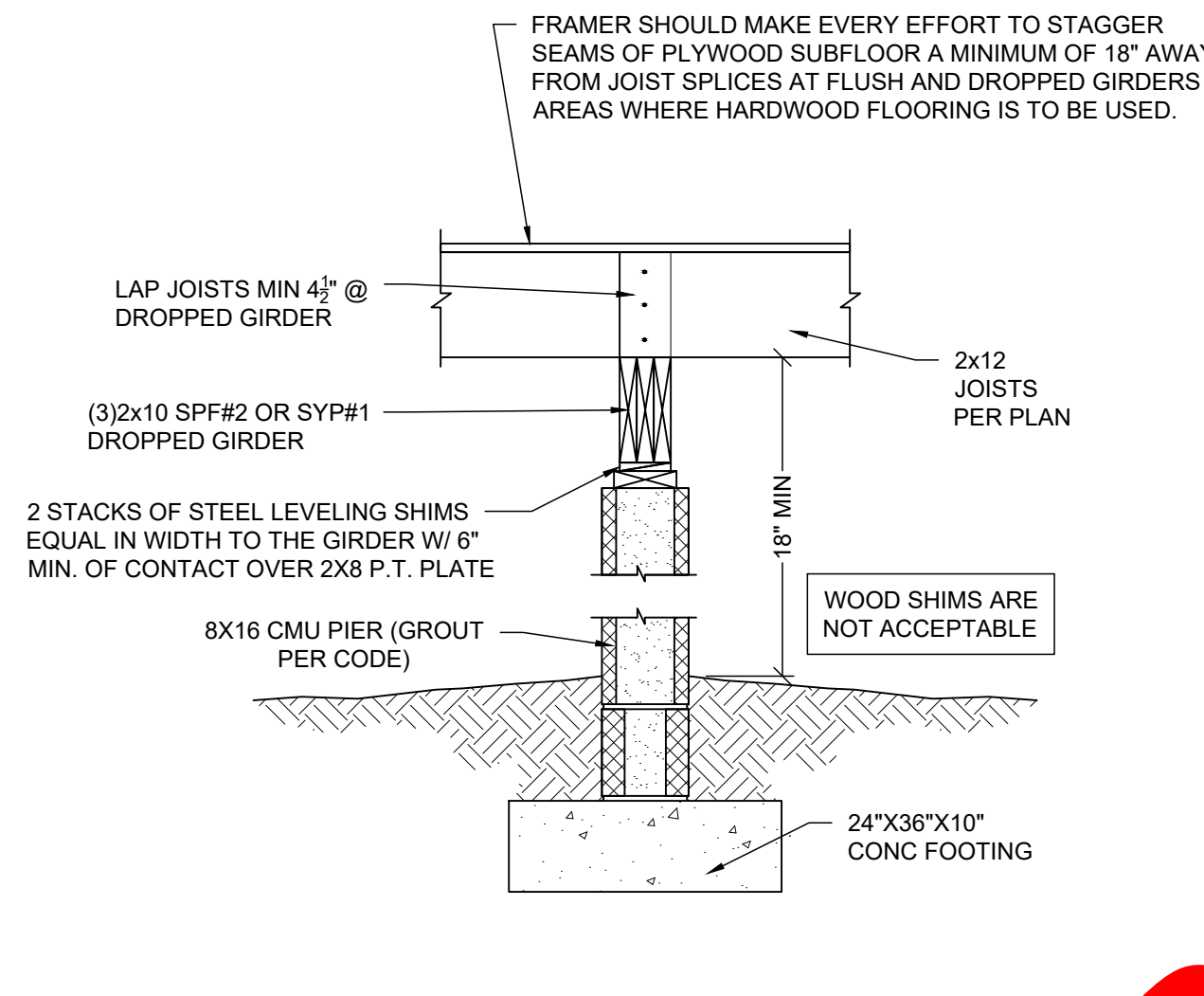
3 HOUSE TO PORCH



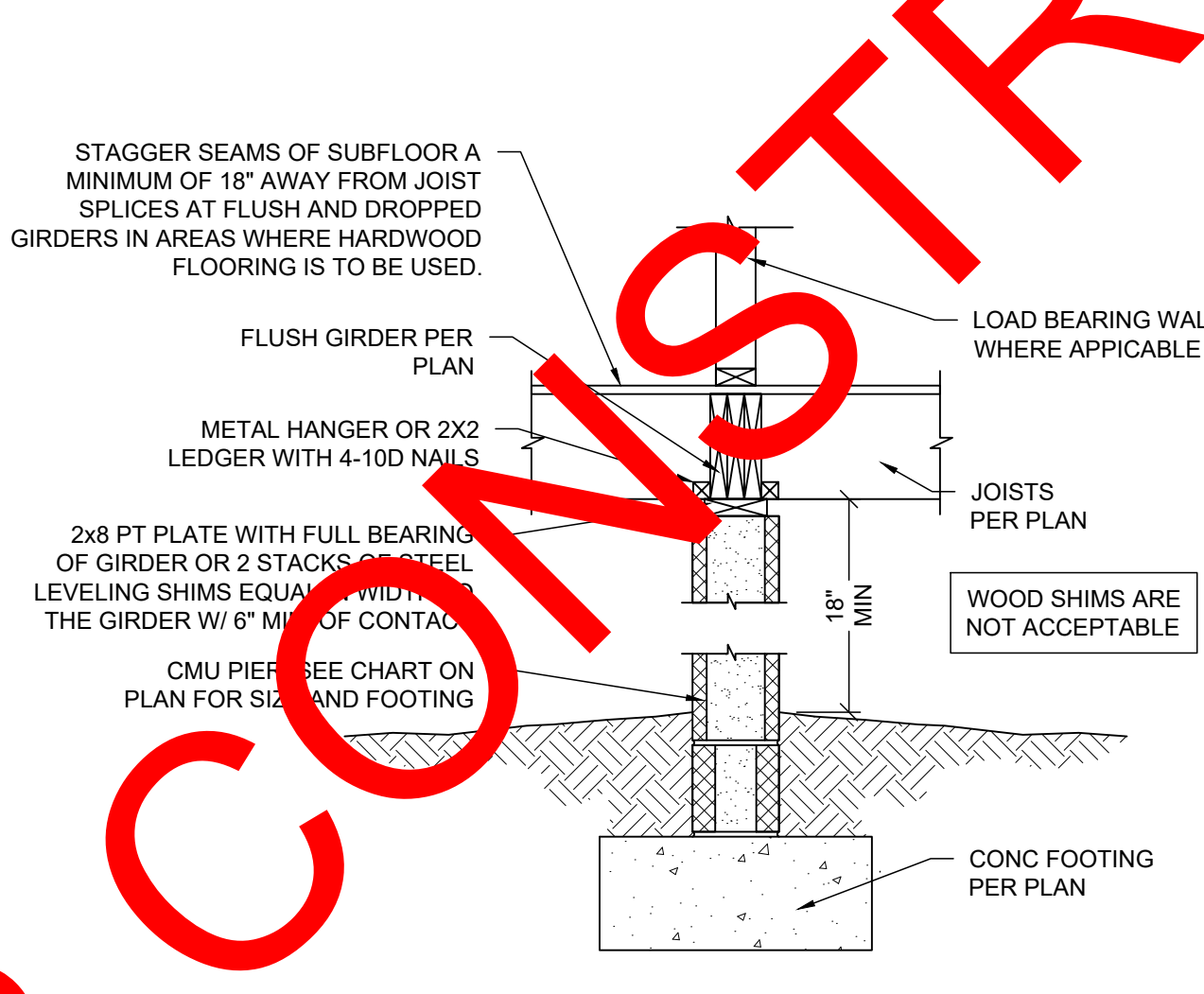
4 HOUSE TO GARAGE W/ 2X12 JOISTS



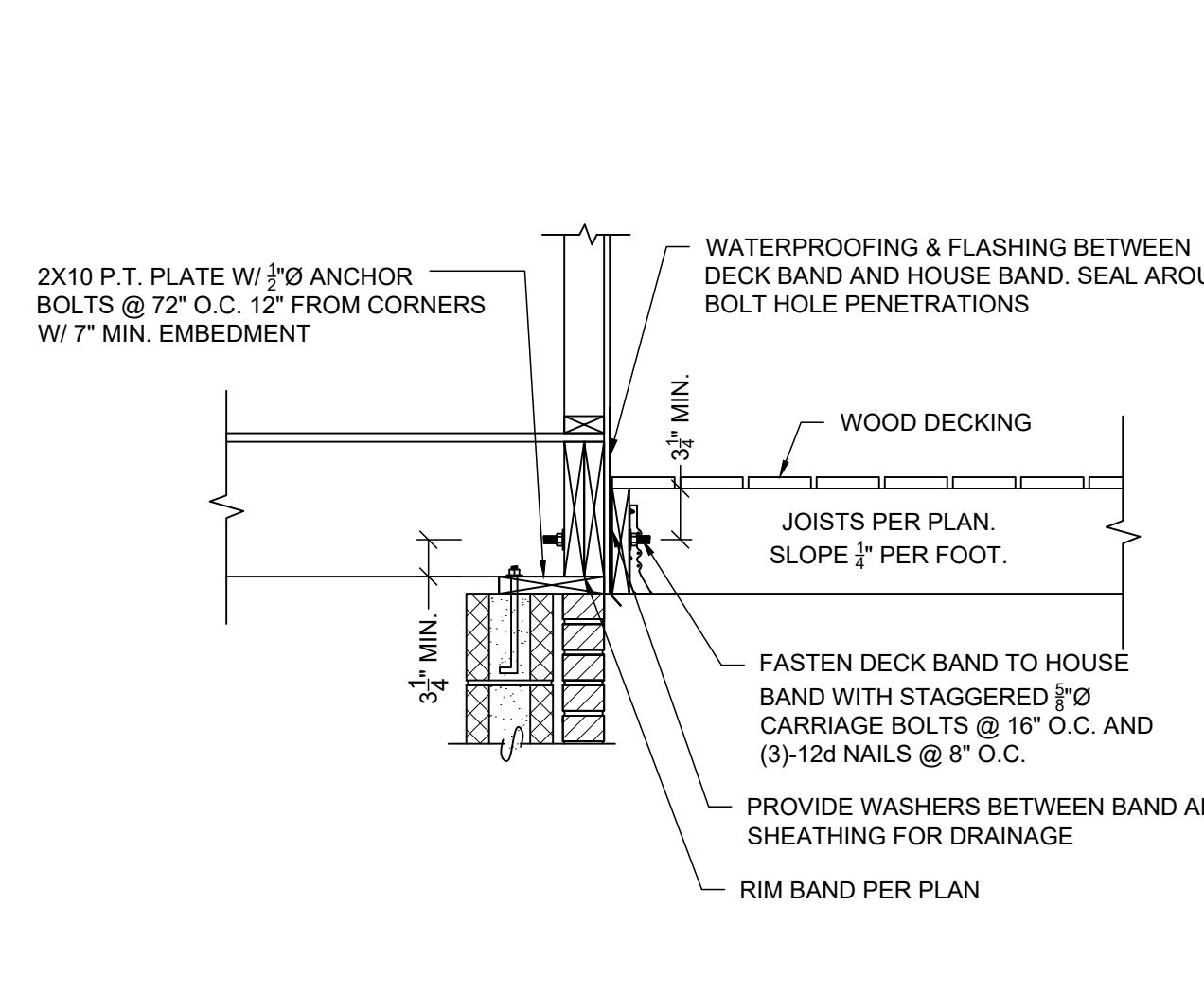
5 GARAGE WALL WITH SIDING



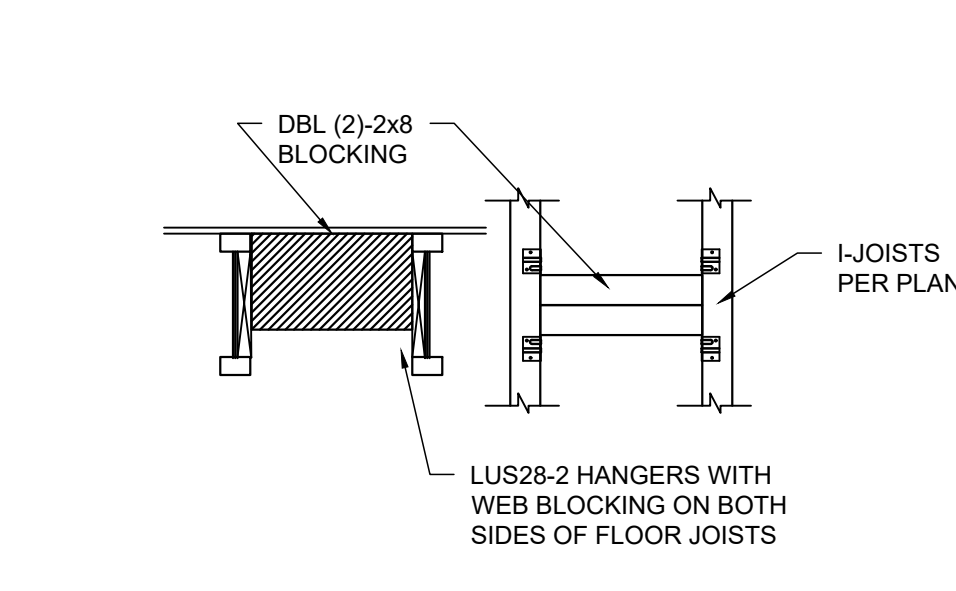
6 3-2X10 DROPPED GIRDER



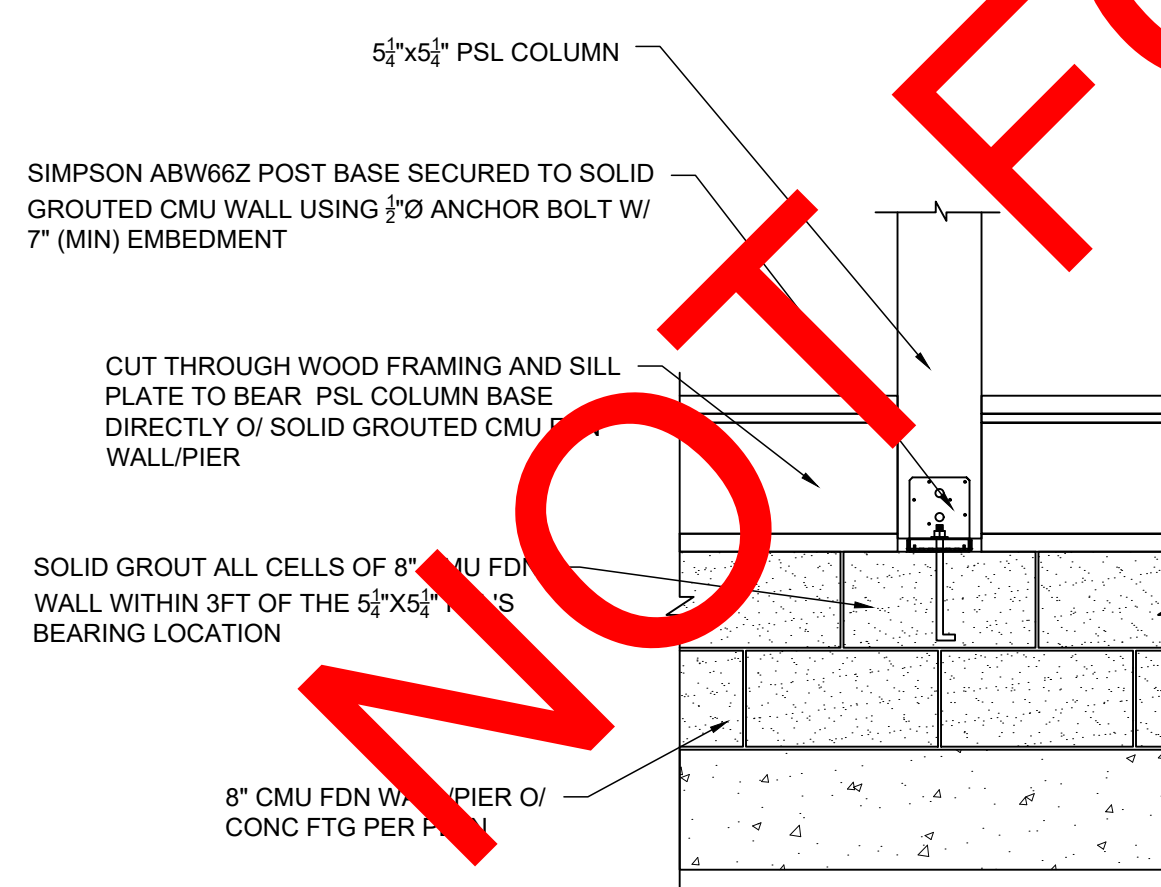
7 FLUSH GIRDER OVER CMU PIER



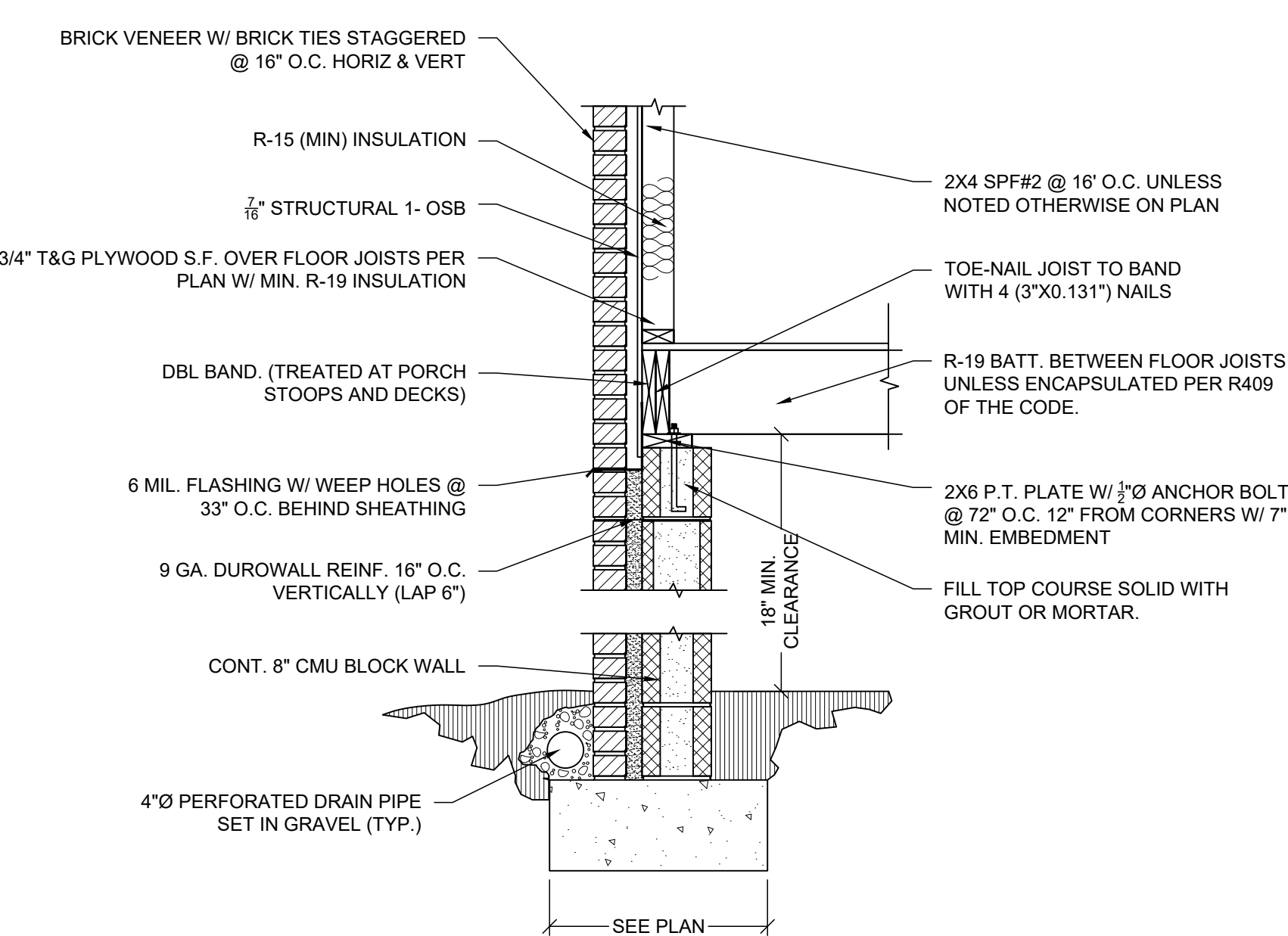
8 DECK CONNECTION



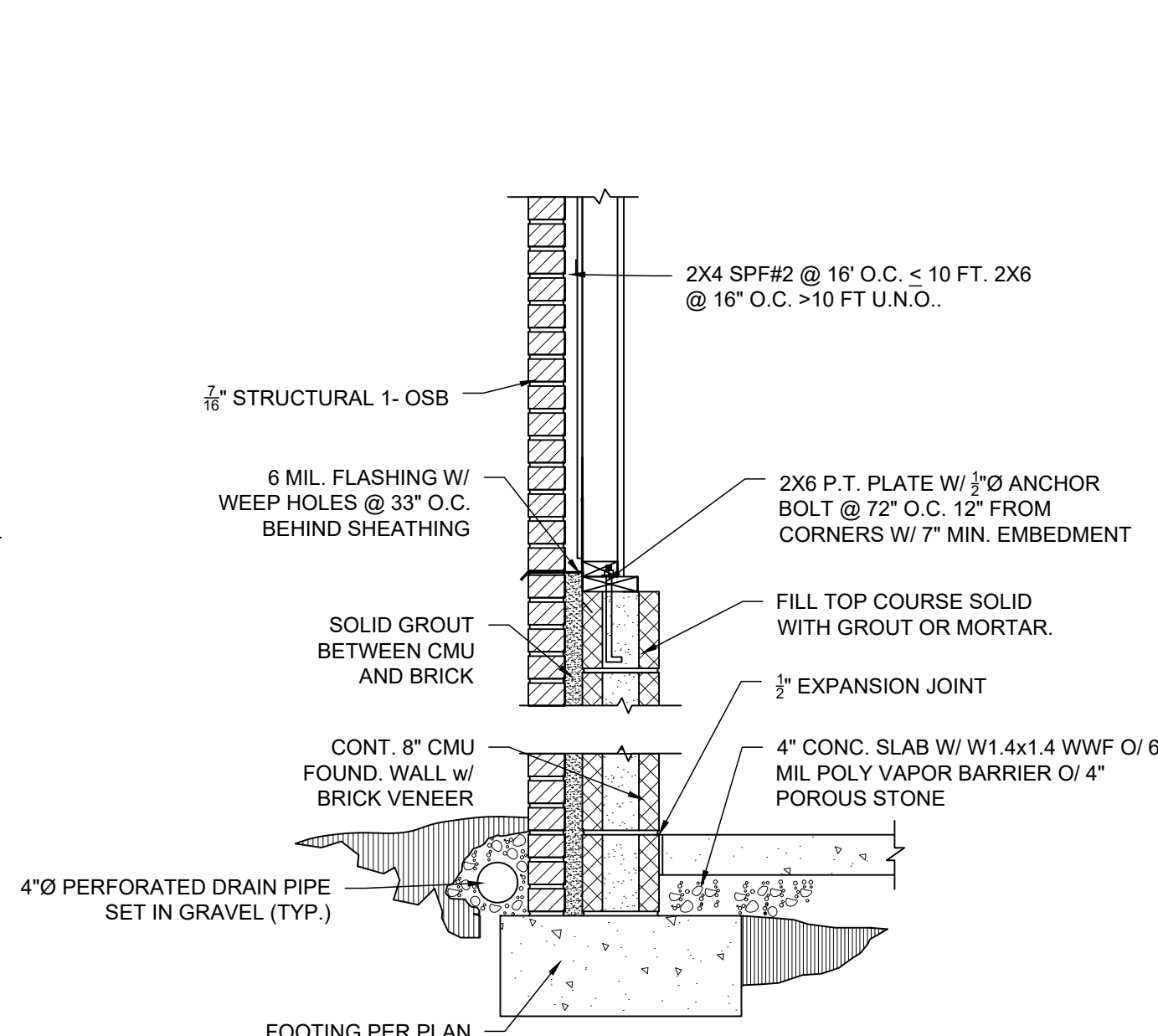
9 DOUBLE BLOCKING BETWEEN I-JOISTS



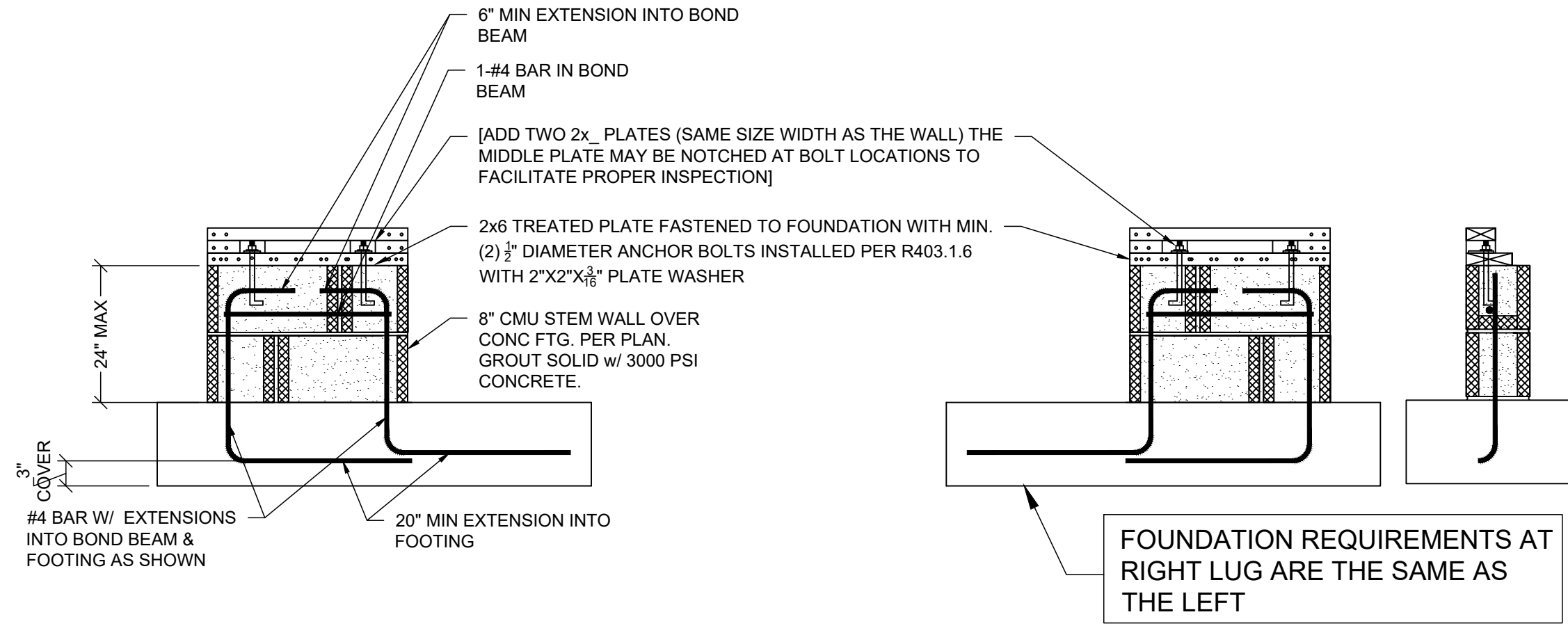
10 5 1/2" x 5 1/4" PSL TO FDN WALL



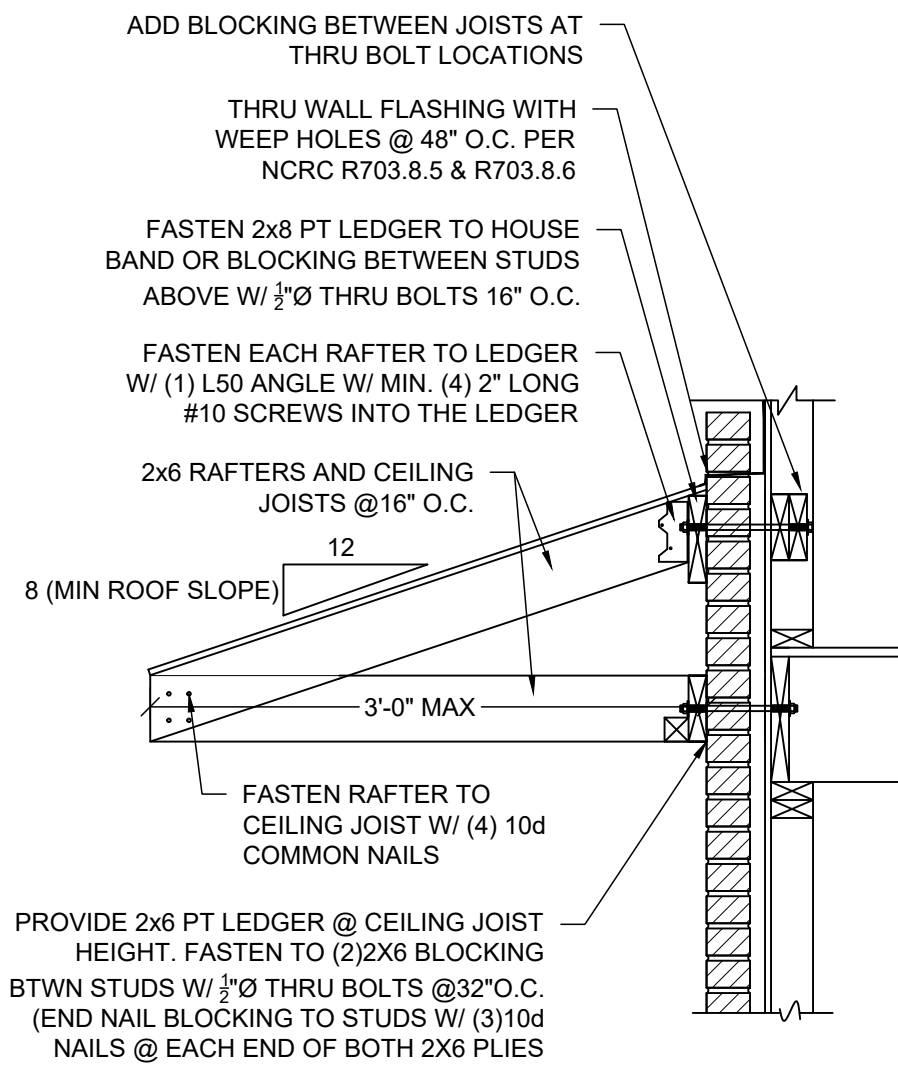
11 TYPICAL PERIMETER FOUNDATION WALL w/ FULL HGT BRICK



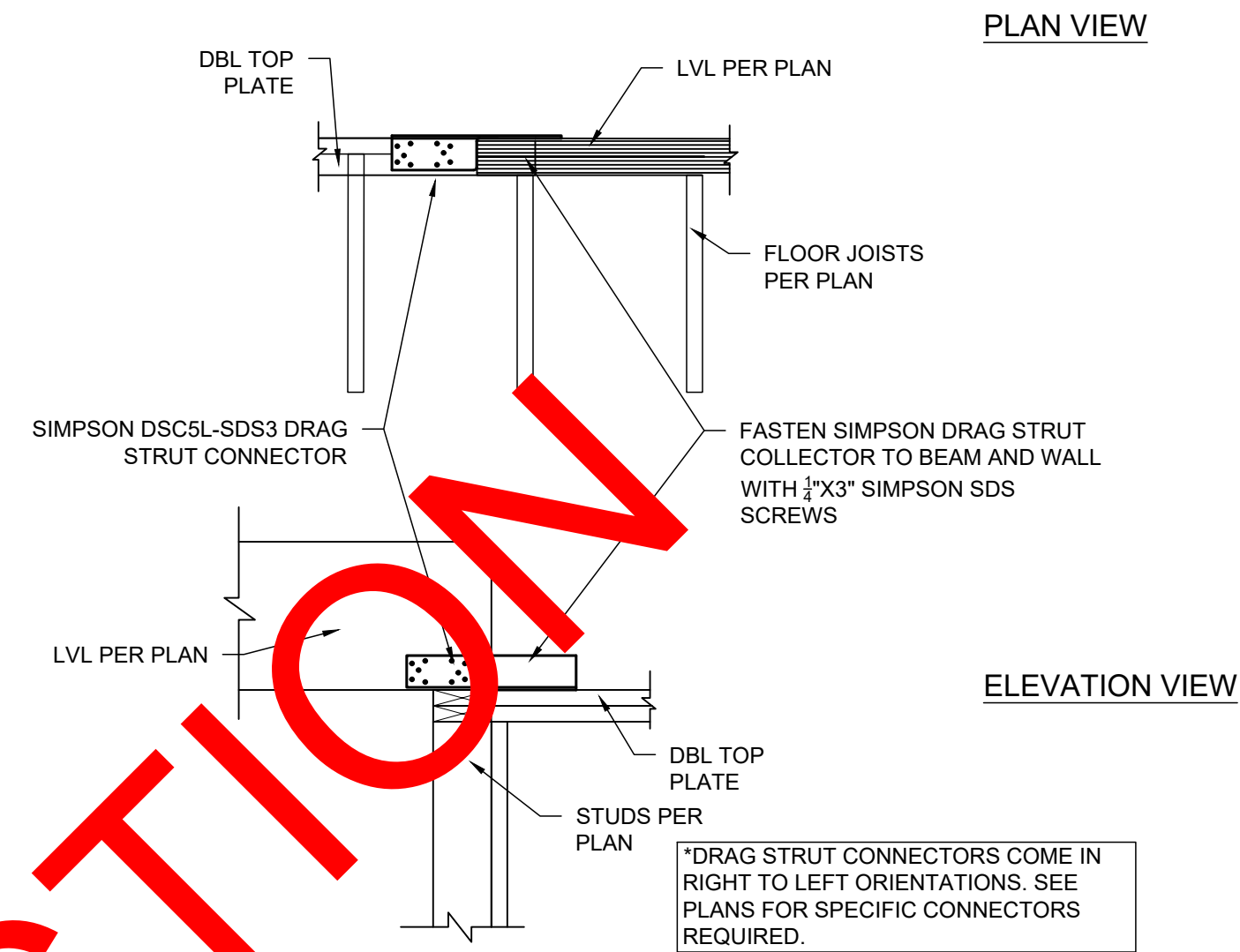
12 GARAGE WALL w/ BRICK VENEER



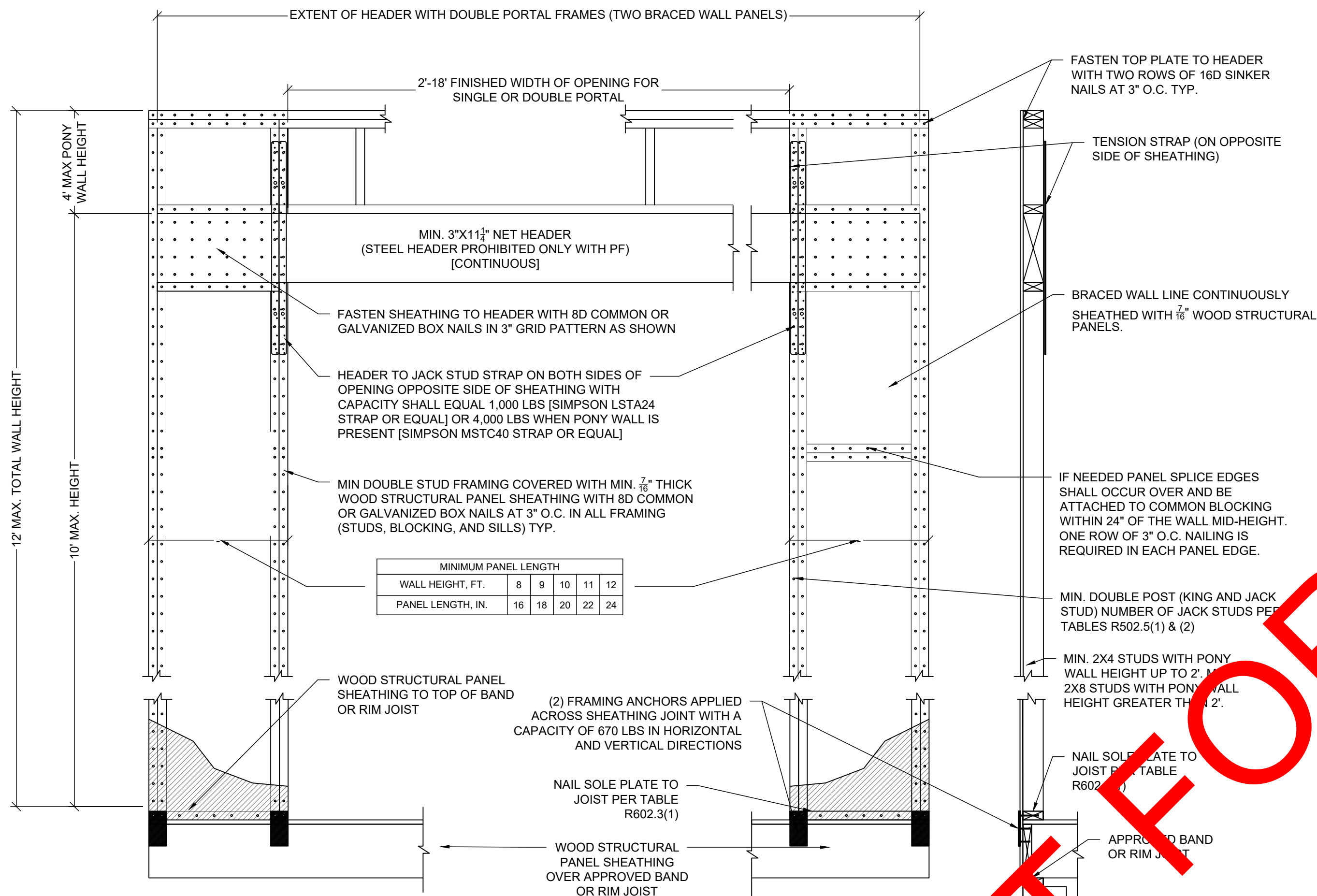
1 PORTAL FRAME CONSTRUCTION
S7 SCALE: 3/8"=1'-0"



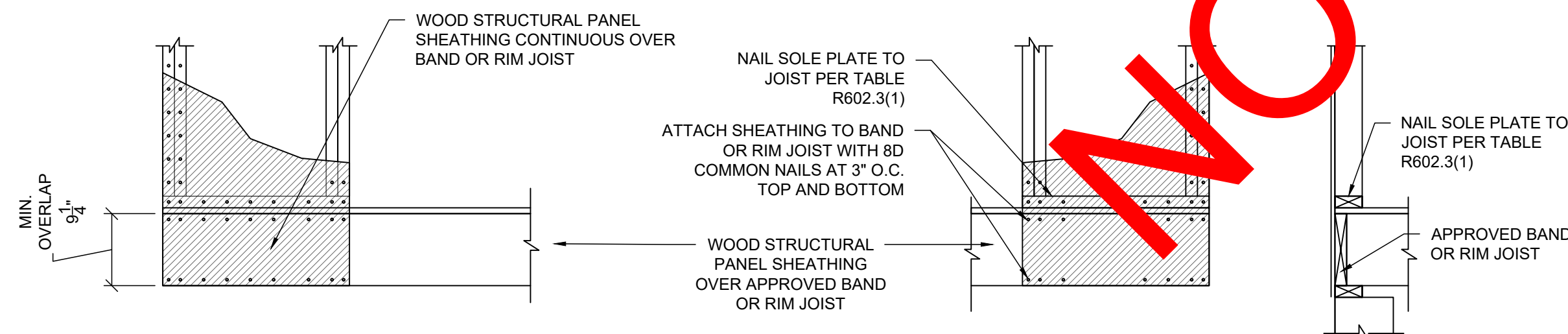
2 CANOPY DETAIL
S6 SCALE: 3/8"=1'-0"



4 DRAG STRUT CONNECTOR DETAIL
S6 SCALE: 3/8"=1'-0"



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION



OVER RAISED WOOD FLOOR - OVERLAP OPTION

3 ENGINEERED PORTAL FRAME CONSTRUCTION
S6 SCALE: 3/8"=1'-0"