FOUNDATION GENERAL NOTES:

1. GENERAL:
A. THIS FOUNDATION HAS BEEN DESIGNED AS A SOIL SUPPORTED STIFFENED GRID TYPE BEAM AND SLAB FOUNDATION; AND AS SUCH, WILL MOVE WITH THE SOILS UPON WHICH IT BEARS.
B. CONTRACTOR IS TO VERIFY ALL DIMENSIONS, DROP AREAS, FLOOR PENETRATIONS, AND BLOCK OUT LOCATIONS WITH THE ARCHITECT'S FLOOR PLAN.
C. CONTRACTOR SHALL VERIFY ANY DEVIATION FROM THE INFORMATION ON THIS FOUNDATION DESIGN WITH ENGINEER OF RECORD.
D. THE CONTRACTOR SHALL NOT PLACE ANY CONCRETE UNTIL ENGINEER OF RECORD HAS CONDUCTED A PRE-POUR INSPECTION AND HAS GIVEN APPROVAL TO PLACE THE CONCRETE.
E. CONTRACTOR IS TO CALL ENGINEER OF RECORD IF FOUNDATION REQUIRES MULTIPLE CONCRETE POURS OF THREE (3) OR MORE.
F. CONTRACTOR SHALL FURNISH THE LABOR, MATERIALS, EQUIPMENT AND SUPERVISION NECESSARY TO PERFORM ALL WORK SHOWN ON PLANS AND SPECIFICATIONS.
G. IT IS THE RESPONSIBILITY OF THE BUILDER/CONTRACTOR TO NOTIFY THE HOMEOWNER OF THE IMPORTANCE OF ITEMS 2C AND 2D BELOW AND OF THE LIMITATIONS AS EXPRESSED IN ITEM NO. 1 ABOVE. NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED.

2. FOUNDATION SITE PREPARATION & FINISH:
A. AREA OF FOUNDATION IS TO BE CLEARED AND GRUBBED OF ALL DELETERIOUS AND ORGANIC MATERIALS DOWN TO A SOLID BASE.
B. PROVIDE A VAPOR BARRIER BENEATH THE FLOOR SLAB BY USING A WATERPROOFING MEMBRANE OF 10 MIL POLYETHYLENE. THE MEMBRANE SHALL BE TAPED AT ALL SPLICES AND TEARS. THE MEMBRANE SHALL EXTEND TO WITHIN 6-INCHES OF THE BOTTOM OF THE BEAM TRENCHES.
C. POSITIVE DRAINAGE AWAY FROM THE PERIMETER OF THE FINISHED FOUNDATION MUST BE PROVIDED. THE TOP OF THE FOUNDATION SLAB SHOULD BE A MINIMUM OF 8-INCHES ABOVE THE FINISHED GRADE. THE GROUND ADJACENT TO THE FOUNDATION SHOULD SLOPE AWAY A MINIMUM OF 6-INCHES IN THE FIRST 5-FEET.
D. ANY TREES PLANTED AFTER PLACEMENT OF THE FOUNDATION SHOULD BE PLANTED NO CLOSER TO THE FOUNDATION THAN ONE-HALF THE POTENTIAL HEIGHT OF THE TREE.
E. ALL AIR CONDITIONING CONDENSER DRAIN LINES SHOULD DISCHARGE A MINIMUM OF 5-FEET FROM THE PERIMETER OF THE FOUNDATION.

3. CONCRETE:
A. CONCRETE TO BE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS, AND SHALL BE IN ACCORDANCE ACI 301. CEMENT SHALL BE TYPE 1 AND FLY ASH (IF USED) SHALL BE MONEX RESOURCES CLASS C. IF FLY ASH IS USED, IT SHALL NOT EXCEED 20% OF THE TOTAL AMOUNT OF FLY ASH AND CEMENT USED BY WEIGHT. NO AIR ENTRAINMENT OR CALCIUM CHLORIDE SHALL BE USED. CONTRACTOR SHALL SATISFY HIMSELF THAT THE MIX DESIGN IS ACCEPTABLE FOR IT'S INTENDED PURPOSE.
B. CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH ACI 302.1R. FINISH TOLERANCE SHALL BE IN ACCORDANCE WITH ACI 117. A MINIMUM SET OF TWO TEST CYLINDERS FOR 28-DAY COMPRESSIVE STRENGTH TESTS ARE RECOMMENDED TO BE PERFORMED IN ACCORDANCE WITH ASTM C42.
C. PLACE 1/2" X 10" EMBEDMENT ANCHOR BOLTS FOR ALL SILL PLATES ON EXTERIOR WALLS NOT EXCEEDING 4-0" O.C. AND A MINIMUM OF 2 ANCHOR BOLTS PER WALL AND NOT FARTHER THAN 12-INCHES FROM WALL ENDS.

4. GRADE BEAMS:
A. ALL GRADE BEAM DEPTHS MAY BE REDUCED WHEN BEARING ON SOLID UNFRAGMENTED ROCK. ROUGHEN THE ROCK SURFACE A MINIMUM OF 3" AND MAINTAIN A MINIMUM OF 8" ABOVE THE GRADE. FOR DOWNSLOPING EXTERIOR BEAMS MORE THAN 5% GRADE, REMOVE A 10" DIAMETER BOULDER EVERY 4' TO PROVIDE ADDITIONAL ROUGHNESS AND ENGAGEMENT TO THE HILL.
B. FOR GRADE BEAMS WITH DEPTHS EQUAL TO OR IN EXCESS OF 36-INCHES, INCREASE THE AMOUNT OF REINFORCING STEEL BY ADDING TWO- #4 BARS HORIZONTALLY EVERY 18-INCHES OF VERTICAL. IF THE EXTERIOR GRADE BEAMS EXCEED 8-FEET IN DEPTH, SEE DETAIL 16 PER THIS DRAWING.

5. REINFORCING STEEL:
A. REINFORCING BARS SHALL BE NEW BILLET STEEL, DEFORMED BARS, CONFORMING TO ASTM A615 GRADE 60.
B. LAPS AND SPLICES PER TABLE 1 THIS SHEET
C. ALL BARS TO BE SUPPORTED IN THE FORMS AND SLAB WITH CHAIRS OR WIRE BOLSTERS, AND SHALL BE TIED AT EVERY OTHER INTERSECTION.
D. ALL BARS SHALL HAVE A MINIMUM CLEAR COVER OF 3-INCHES FROM THE BOTTOM AND SIDES OF THE BEAMS. SLAB REINFORCEMENT SHALL BE IN MID PLANE.
E. CORNER REINFORCING BARS: TWO CORNER BARS AT EACH CORNER OF THE PERIMETER GRADE BEAM/WALL, AS PER DETAIL 14, AND FOUR CORNER BARS AT THE INTERSECTION OF ALL INTERIOR GRADE BEAMS WITH THE PERIMETER GRADE BEAM/WALL, AS PER DETAIL 13.
F. STIRRUP ANCHOR HOOKS SHALL NEVER BE CUT WITHOUT THE AUTHORIZATION OF THE ENGINEER. IF STIRRUPS ARE TOO LONG, THEY MAY BE BENT IN THE DIRECTION OF THE BEAM.

6. CONSTRUCTION:
A. FOR ALL SLAB DROPS GREATER THAN 36-INCHES, THE CONTRACTOR SHALL CONSTRUCT A FRENCH DRAIN SYSTEM OF CAPACITY SUFFICIENT TO INTERCEPT AND TRANSPORT WATER FROM BENEATH THE FOUNDATION TO A POINT AWAY FROM THE FOUNDATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THE DIRECTION OF FLOW AND POINT OF DISCHARGE TO DAYLIGHT. DISCHARGE OUTLET TO BE A MINIMUM OF 5-FEET AWAY FROM FOUNDATION. SOLID WALL PIPE MAY BE USED OUTSIDE OF FOUNDATION. WRAP ALL PERFORATED PIPE WITH MIRAFI N-SERIES FILTER FABRIC.
B. ALL FOUNDATIONS THAT ARE TO HAVE A FILL DEPTH GREATER THAN 2-FEET BELOW BOTTOM OF INTERIOR GRADE BEAM SHALL MEET ONE OF THE FOLLOWING:
1. INTERIOR GRADE BEAMS MAY BE DEEPENED TO MAINTAIN 2-FEET MAXIMUM DEPTH OF FILL BELOW BOTTOM OF BEAM. INTERMEDIATE BARS PER NOTE 4-B SHALL BE ADDED IF REQUIRED.
2. IF BEARING ON SOLID ROCK – 14-INCHES DIA. PIERS, FORMED WITH SONO-TUBES, SHALL BE PLACED AT ALL INTERIOR BEAM INTERSECTIONS. PIERS ARE TO BE REINFORCED WITH A MINIMUM OF FOUR-#4 VERTICAL BARS WITH #3 TIES @ 12-INCHES O.C. VERTICALLY. REFER TO DETAIL 15.
3. IF EARTH SUPPORTED – SELECT FILL EQUAL TO TXDOT NO. 2 BASE SHALL BE COMPACTED TO A MINIMUM 95-PERCENT MODIFIED PROCTOR PER ASTM D-1557. FILL IS TO BE PLACED IN 8-INCH LIFTS AND TESTED BY A SOILS TESTING LAB.
4. ALTERNATIVELY, IF EARTH SUPPORTED – CRUSHED LIMESTONE BASE FILL WITH 100% PASSING 1 1/2-INCH SIEVE, AND 0% PASSING NO. 4 SIEVE, CAN BE PLACED WITHOUT COMPACTION. BEFORE INSTALLATION OF BASE FILL, FILTER FABRIC SUCH AS MIRAFI N-SERIES IS TO BE PLACED OVER EXISTING EARTH.
C. WHERE PIPES PASS THROUGH BEAMS, INCREASE BEAM SIZE AT PIPE PENETRATIONS TO MAINTAIN MINIMUM BEAM WIDTH AND HEIGHT. PLACEMENT OF OVERSIZED DIAMETER SLEEVES IS ALSO RECOMMENDED.
D. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM THE SLAB PERIMETER DURING CONSTRUCTION.
E. CONCRETE SHALL NOT BE PLACED ON SOILS THAT HAVE BEEN DISTURBED BY RAINFALL OR SEEPAGE, AND ALL BEARING SURFACES SHALL BE FREE OF LOOSE SOIL, PONDED WATER, AND DEBRIS PRIOR TO PLACING THE CONCRETE.

SOILS INFORMATION

DESIGN LEVEL	SOIL TYPE	P.I.	BY	DATE
E	CLAY	---		

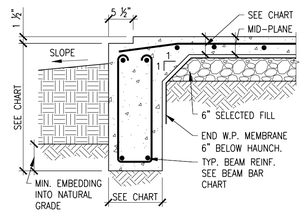
BEAM AND SLAB INFORMATION

BEAM WIDTH	EXT. BEAM DEPTH	EXT.BM. DEPTH IN GRADE	INT. BEAM DEPTH	BEAM BARS	STIRRUP EXT. BEAM	STIRRUP INT. BEAM	PAD BARS	SLAB THICKNESS
12"MIN.	36"MIN.	12"MIN.	30"MIN.	2-#6 TOP 2-#6 BOT.	#3 @18"O.C.	#3 @18"O.C.	#3 @12"O.C.	4"

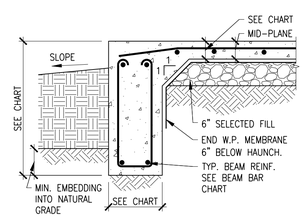
TABLE 1 REBAR SPLICE DISTANCES (INCHES) FOR 3000 PSI CONCRETE

BAR SIZE	BEAM TOP BARS	OTHER BARS
3	22	17
4	29	22
5	36	28
6	43	33
7	63	48
8	72	55
9	81	62

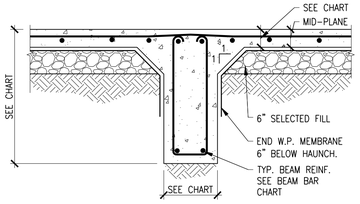
FOUNDATIONS ON EXPANSIVE CLAY SUBGRADES ARE SUBJECT DIFFERENTIAL SETTLEMENT AND MOVEMENT WITH CHANGES TO MOISTURE CONTENT OF THE SOILS UNDER THE FOUNDATION. THESE MOVEMENTS ARE EXPECTED TO STAY WITHIN INDUSTRY ACCEPTED RANGES. HOWEVER, SOIL IMPROVEMENT BY REMOVAL OF THE TOP 5' OF SOIL, TO 5' OUT FROM THE BUILDING PERIMETER AND REPLACING IT WITH LOW PLASTICITY SELECT FILL CAN MITIGATE SOME OF THE FOUNDATION MOVEMENT. THE DEPTH OF SOIL REPLACEMENT IS THE OWNER'S DECISION BASED ON AN EVALUATION OF THE RISK



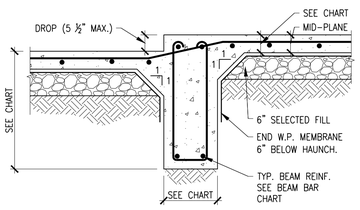
1 SECTION — SCALE: 3/4"=1'-0"
EXTERIOR BEAM W/BRICK LUG



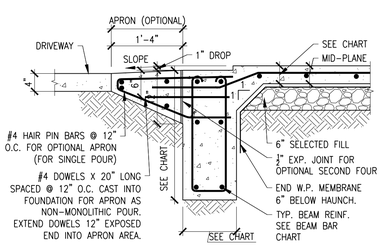
2 SECTION — SCALE: 3/4"=1'-0"
EXTERIOR BEAM – NO BRICK LUG



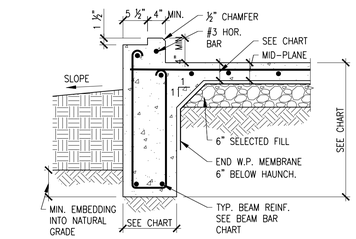
3 SECTION — SCALE: 3/4"=1'-0"
TYPICAL INTERIOR BEAM DETAIL



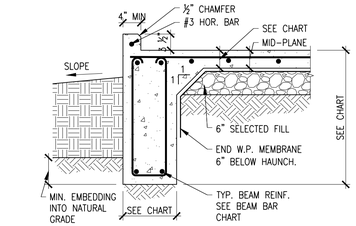
4 SECTION — SCALE: 3/4"=1'-0"
DROPS 5 ½" OR SMALLER



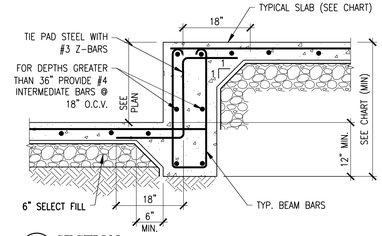
5 SECTION — SCALE: 3/4"=1'-0"
GARAGE RAMP DETAIL



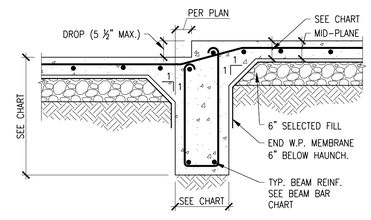
6 SECTION — SCALE: 3/4"=1'-0"
EXTERIOR BEAM W/BRICK LUG



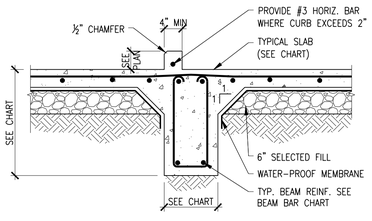
7 SECTION — SCALE: 3/4"=1'-0"
EXTERIOR BEAM W/BRICK LUG



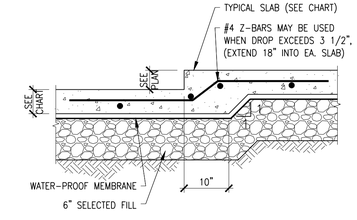
8 SECTION — SCALE: 3/4"=1'-0"
FOR DROPS 6"-35 1/2"



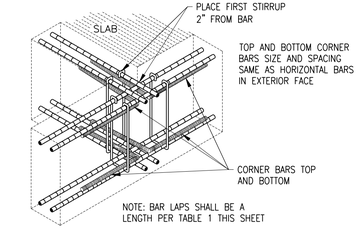
9 SECTION — SCALE: 3/4"=1'-0"
DROPS IN BEAM AREA UP TO 5 ½" OR SMALLER



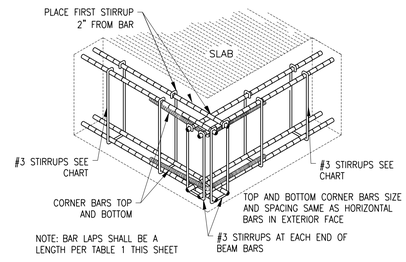
11 SECTION — SCALE: 3/4"=1'-0"
CURB @ BEAM



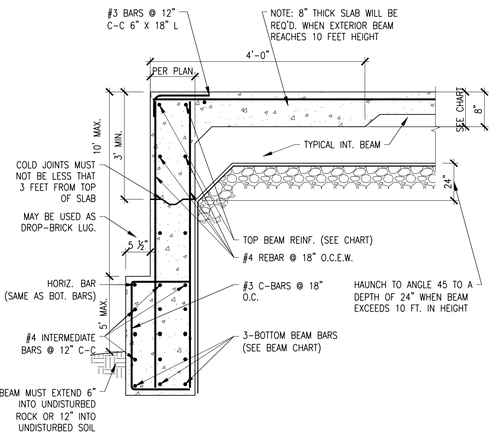
12 SECTION — SCALE: 3/4"=1'-0"
DROPS IN BEAM AREA UP TO 5 ½" OR SMALLER



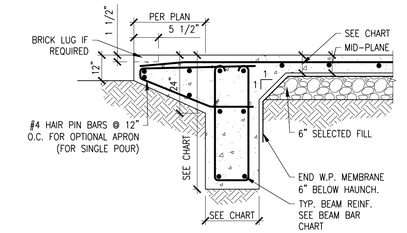
13 DETAIL — SCALE: 3/4"=1'-0"



14 DETAIL — SCALE: 3/4"=1'-0"

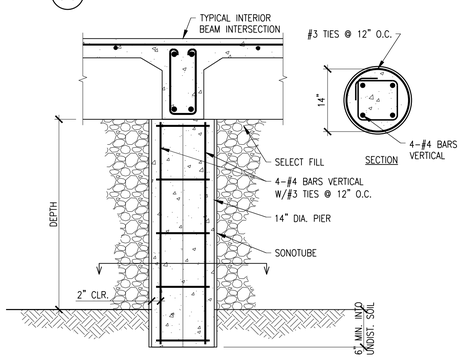


16 TYP. DEEP BEAM — SCALE: 3/4"=1'-0"
DEEP BEAMS 10-15 FEET DEEP



17 SECTION — SCALE: 3/4"=1'-0"
CANTILEVER DETAIL

10 TYP. DROP LUG — SCALE: 3/4"=1'-0"
EXTERIOR DROP BRICK/ROCK LUGS



15 TYP. BEAM INTERSECT PIER — SCALE: 3/4"=1'-0"
RECOMMENDED WHEN DEPTH EXCEEDS 2'-0"

NO.	DESCRIPTION	DATE	APPR.

REVISIONS

FILE:

SEAL:

STATE OF TEXAS
JOSÉ I. VILLARREAL
91208
LICENSED
PROFESSIONAL ENGINEER

Villarreal Design Group, LLC
Jose@VillarrealDesign.com
Texas Firm 12109
(210) 725-6100

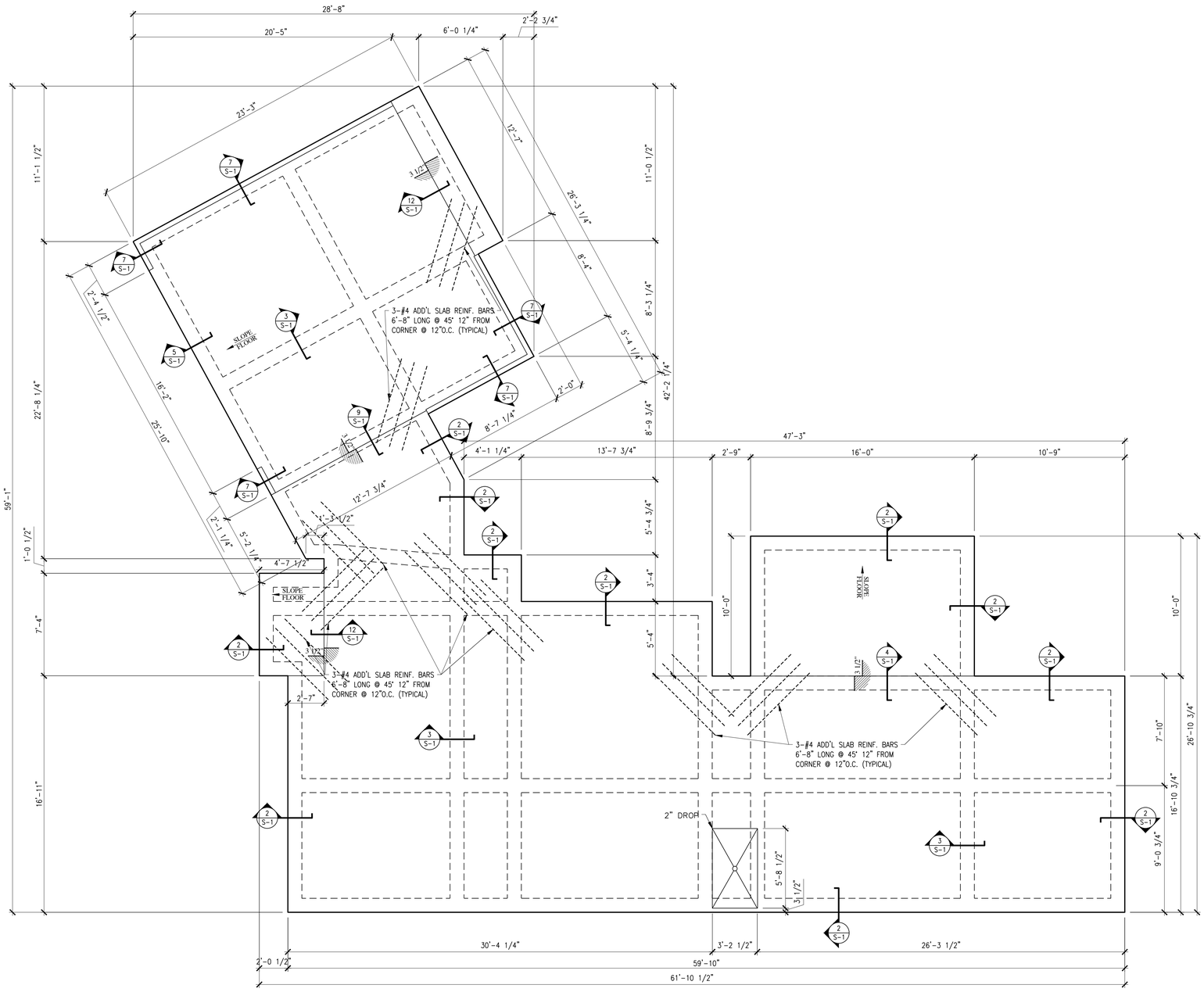
SHEET TITLE:

FOUNDATION DETAILS

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET:
S-1
OF 8



FOUNDATION PLAN

Scale: 1/4"= 1'-0"

REVISIONS

NO.	DESCRIPTION	DATE	APPR.

FILE:

SEAL:

STATE OF TEXAS
JOSÉ I. VILLARREAL
91208
LICENSED PROFESSIONAL ENGINEER

Villarreal Design Group, LLC
Jose@VillarrealDesign.com
Texas Firm 12109
(210) 725-6100

SHEET TITLE: FOUNDATION PLAN

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET:

S-2

OF 8

DESIGN CRITERIA NOTES

1. THE INTENDED DESIGN STANDARDS (LATEST EDITION) AND/OR CRITERIA ARE AS FOLLOWS:

GENERAL INTERNATIONAL RESIDENTIAL/BUILDING CODE 2021 EDITION
WOOD AITC
WOOD TRUSSES TPI

2. DESIGN LOADS

DEAD LOADS
ROOF 10 PSF – COMPOSITION SHINGLE OR METAL
LIVE LOADS
FLOORS 40 PSF
ROOF 20 PSF
CEILING JOIST 10 PSF
3. SNOW LOAD : 5PSF
4. WIND LOAD : 115MPH APPLIED PER I(B/R)C I = 1.0 EXPOSURE "B"
5. SEISMIC : SEISMIC CATEGORY "A"

ROUGH CARPENTRY

1. ALL WOOD FRAMING MATERIAL SHALL BE SURFACE DRY AND USED AT 19% MAXIMUM MOISTURE CONTENT. ALL FRAMING LUMBER SHALL BE NO. 2 SOUTHERN YELLOW PINE (SYP) OR BETTER.

2. ALL LOAD BEARING PARTITIONS SHALL RECEIVE A DOUBLE 2X TOP PLATE AND LAPPED AT CORNERS.

3. ALL EXTERIOR AND LOAD BEARING WALLS SHALL BE 2X4 @ 16" O.C. UNLESS ARCHITECTURAL DRAWINGS ARE SHOWING 2X6 STUD WALLS OR IT IS 3 STORY BUILDING. FOR 3 STORY BUILDING EXTERIOR AND LOAD BEARING WALLS ON THE FIRST FLOOR SHALL BE 2X6 @ 16" O.C. OR DOUBLE 2X4 STUDS @ 16" O.C.

4. ALL PARTITIONS SHALL BE BRACED ON THE TOP AT INTERVALS NOT EXCEEDING 6 FEET ON CENTER.

5. ALL MULTIPLE GIRDERS, BEAMS AND JOISTS SHALL BE GANG NAILED.

6. ALL FRAMING EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.

7. PREFABRICATED METAL JOIST HANGERS, HURRICANE CLIPS, HOLD-DOWN ANCHORS, AND OTHER ACCESSORIES SHALL BE MANUFACTURED BY "SIMPSON STRONG TIE" OR APPROVED EQUAL.

8. PREFABRICATED LVL'S, GLULAMS, AND PSL HEADERS AND BEAMS SHALL BE MANUFACTURED BY "TRUS JOIST MacMILLAN CORP." OR APPROVED EQUAL. MINIMUM BENDING STRESSES SHALL BE AS FOLLOWS:

LVL'S = 2,600 PSI
PSL'S = 2,900 PSI
GLULAMS = 2,400 PSI

9. ALL PLATES, ANCHORS, NAILS, BOLTS, NUTS, WASHERS AND OTHER HARDWARE EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED.

10. INSTALL ALL BLOCKING NECESSARY FOR ATTACHING ALL FINISHES, GYPSUM WALLBOARD, CABINETRY , ETC.

11 ATTACH WOOD SILL PLATES FOR EXTERIOR WALLS AND SHEAR WALLS TO FOUNDATIONS WITH 1/2" ANCHOR BOLTS AT 5'-0" O.C. MAXIMUM SPACING WITH AT LEAST 2 BOLTS PER PLATE.

12. INSTALL COLUMNS AT ALL LINTELS, BEAMS, HEADERS EQUAL TO THE WIDTH OF THE BEAM. ALL MEMBERS WITH SPANS LESS THAN 5 FOOT SHALL HAVE SINGLE JACK STUDS.

13. ATTACH WALL AND ROOF SHEATHING TO FRAMING WITH 8d NAILS AT 12" O.C. INTERMEDIATE SUPPORTS AND 6" O.C. EDGE SUPPORTS.

14. THE CONTRACTOR SHALL INSURE THAT ALL LOADS AND REACTIONS FROM BEAMS, BEARINGS WALLS, COLUMNS, ETC. ARE CONTINUOUSLY SUPPORTED TO THE FOUNDATION.

15. ALL FLOOR SHEATHING SHALL BE A MINIMUM 3/4" TONGUE AND GROOVE SHEATHING GLUED AND NAILED AT 6" O.C. WITH 8d NAILS.

16. FLOOR DECK SHALL BE 3/4" T&G APA RATED SHEATHING WITH MINIMUM SPAN INDEX OD 48/24. NAIL PLYWOOD TO FRAMING MEMBERS WITH 10d NAILS AS FOLLOWS:

FLOOR ZONE: FIRST 8' FROM SHEARWALLS – OTHERS

PANEL EDGES	4" O.C.	6" O.C.
PANEL FIELD	6" O.C.	6" O.C.

17. FOR METAL AND COMPOSITE SHINGLE ROOFING PLYWOOD ROOF DECKING SHALL BE 15/32"OSB AND FOR CLAY AND CONCRETE ROOFING PLYWOOD ROOF DECKING SHALL BE 5/8" OSB APA RATED CD INTERIOR WITH EXTERIOR GLUE. NAIL PLYWOOD TO FRAMING WITH 6d NAILS AS FOLLOWS:

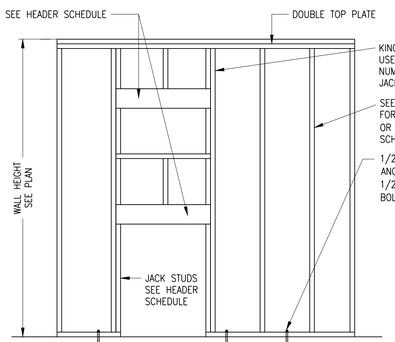
ROOF ZONE: FIRST 5' FROM END – FIRST 4' FROM EDGE & RIDGE – OTHERS & SHEAR WALLS

PANEL EDGES	4" O.C.	6" O.C.	6" O.C.
PANEL FIELD	6" O.C.	6" O.C.	6" O.C.

18. TAPERED END CUTS SHALL MEET MANUFACTURERS REQUIREMENTS.

19. NOTCHING OF PREFABRICATED LUMBER SHALL NOT BE PERMITTED. WEB HOLES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

20. PORCH COLUMNS TO BE ANCHORED IN GALVANIZED POST BASES BEAMS TO BE CONNECTED TO POSTS WITH METAL STRAPS ALL RAFTERS AT OPEN PORCH TO RECEIVE WIND CLIPS, 1 PER RAFTER.

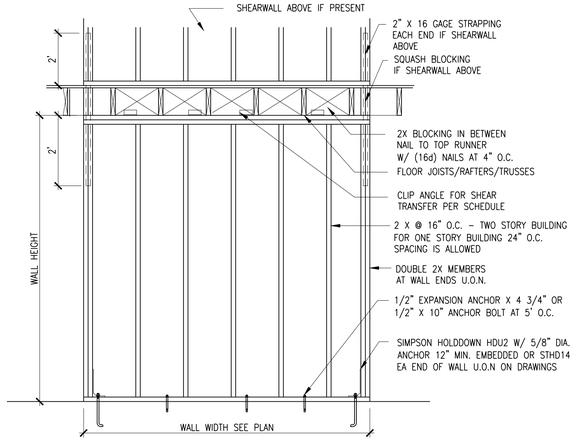


TYPICAL TALLWALL DETAIL

NO SCALE

TALL WALL SCHEDULE		
SECTION	SPACING	MAX HEIGHT
2X6	16" O.C.	10'-0"
2X6	12" O.C.	12'-0"
2X6	8" O.C.	14'-0"
2X6	6" O.C.	19'-6" *
2X6	4" O.C.	21'-0" *
2X8	16" O.C.	15'-0"
2X8	12" O.C.	16'-5"
2X8	8" O.C.	15'-5"
2X8	4" O.C.	29-6" **

* BASED ON ALLOWABLE DEFLECTION OF H/240 PER IRC TABLE R301.7, NOT USING STUCCO BRITTLE FINISHES
** BASED ON ALLOWABLE DEFLECTION OF H/180 PER IRC TABLE R301.7, USING EIFS EXTERIOR OR NON BRITTLE FINISH



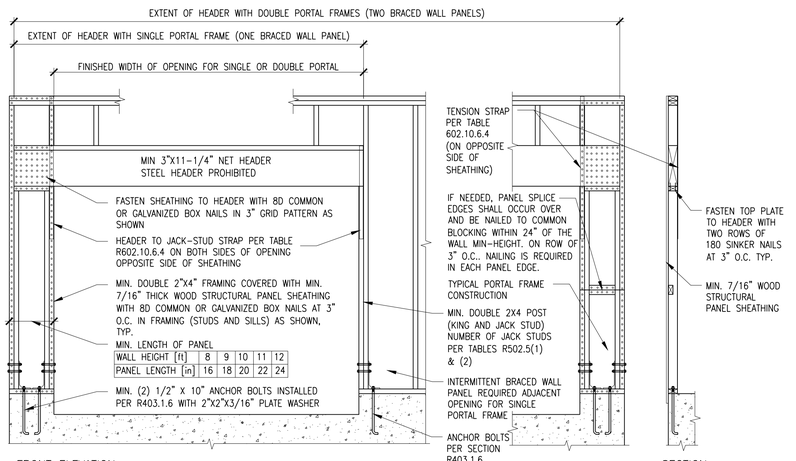
NOTE: WALL HEIGHT/WALL WIDTH < 3.5

TYPICAL BRACED WALL DETAIL

NO SCALE

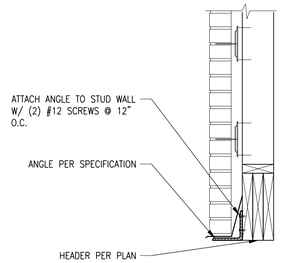
SHEAR WALL SCHEDULE								
ALLOWABLE LOAD	MARK/TYPE	DESCRIPTION*	NO. OF SIDES	SILL BOLTING	SHEAR TRANSFER	SILL NAILING	ALT. SHEAR TRANSFER	IRC METHOD
150 PLF	A	1/2" GYP. BOARD @ INT. FACE BLOCKED W/ 6D COOLER NAILS @ 4" O.C. AND 1/2" GYP. SHEATHING @ EXT. FACE BLOCKED W/ 5D COOLER NAILS @ 4" O.C. (ALL SUPPORTS EA. FACE NAILED @ 4" O.C.)	TWO	1/2"@@ 60" O.C.	A35F @ 18"	16D @ 6" O.C.	A35 @ 20"	GB
175 PLF	B	1/2" GYP. BOARD BLOCKED W/ 6D COOLER @ 4" O.C. (ALL SUPPORTS NAILED @ 4" O.C.) OR 1X4 LET-IN BRACING OR SIMPSON RCWB ROLLED COMPRESSION WALL BRACING	TWO	1/2"@@ 60" O.C.	A35F @ 15"	16D @ 3" O.C.	A35 @ 17"	GB
280 PLF	C	1/2" PLYWOOD STRUCT. 1 BLOCKED W/ 8DNAILS @ 6" O.C. AT EDGES OR RED T-PLY STAPLED @ 3" O.C., 6"IN THE FIELD OR METAL LET IN BRACING PER DETAIL	ONE	1/2"@@ 60" O.C.	A35F @ 21"	16D @ 7 " O.C.	A35 @ 19"	WSP
560 PLF	D	1/2" PLYWOOD STRUCT. 1 BLOCKED W/ 8D NAILS @ 6" O.C. EDGES	TWO	1/2"@@ 18" O.C. OR 5/8"@@ 27" O.C.	A35F @ 10"	16D @ 3 1/2" O.C.	A35 @ 9"	WSP

1. NAIL ALL PANELS 12" O.C. AT INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. (ALL PANEL EDGES SHALL BE BLOCKED.)
2. SHEATHING AT ONE SIDED WALLS MAY BE PLACED ON EITHER FACE OF STUDS. PLACE ON EXTERIOR FACE AT EXTERIOR WALLS. PLACE ON GUEST ROOM SIDE AT INTERIOR WALLS.

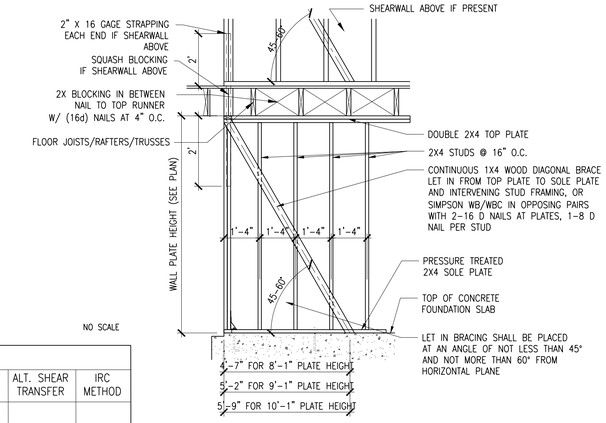


PORTAL FRAME DETAIL

NO SCALE



STEEL LINTEL SCHEDULE		
OPENING SIZES	LINTEL SIZE	MIN. END BEARING
UP TO 5'	L6X4X5/16 LLV	6"
5' – 7'	L6X4X3/8 LLV	6"
7' – 8'	L6X4X7/16 LLV	6"
8' – 10'	L6X4X7/16 LLV	6"
10' – 12'	L6X4X7/16 LLV	6"
12' – 14'	L6X4X7/16 LLV	6"
14' – 16'	L6X4X7/16 LLV	6"
16' – 18'	L6X4X7/16 LLV	6"



NO SCALE

TYPICAL LET IN BRACING DETAIL

NO SCALE

HANGER SCHEDULE		
MEMBER	HANGER	REACTION (LBS)
(1) 2x'S	HU SERIES	500 MIN.
(2) 2x10	HU210-2	1,650
(2) 2x12	HU212-2	2,145
(3) 2x10	HU210-3	1,875
(3) 2x12	HU212-3	2,145
3.5X9.25	HUS410	1,860
3.5x11.875	HUS412	2,510
3.5x14	HU416	2,680
3.5x16	HHUS410	5,190
3.5x18	HGUS414	11,180
5.25X9.25	HU5.31/9	1,875
5.25x11.875	HHUS5.5/10	5,190
5.25x14	HHUS5.5/10	5,190
5.25x16	HHUS5.5/10	5,190
5.25x18	HGUS5.5/14	11,180
TJI'S	IUT SERIES	730 MIN
TRUSSES	H SERIES	
* THESE HANGERS ARE TO BE USED UNLESS OTHERWISE NOTED ON PLAN		
* ALL HANGERS ARE SIMPSON STRONG TIE.		

HEADER SCHEDULE		
	MAXIMUM SPAN	
SIZE	ONE STORY B.R.	TWO STORY B.R.
2-2x6	3'-6"	2'-5"
2-2x8	4'-5"	3'-2'
2-2x10	5'-5"	3'-10"
2-2x12	6'-3"	4'-5"
* THESE HEADER SIZES ARE TO BE USED UNLESS OTHERWISE NOTED ON PLAN		
* ALL MATERIAL TO BE NO.2 S.P.		
* NUMBER OF STORIES BELOW ROOF LEVEL (B.R.)		
* USE (2) JACK STUDS FOR 2X12 (1) JACK STUD FOR OTHERS. KING STUDS NO. EQUALS JACK STUD		

BEAM SCHEDULE		
MARK	SIZE	JACK STUDS
L1	(2) 1 3/4" X 11 1/4" LVL	(2) 2 X 4/6
L2	(2) 1 3/4" X 14" LVL	(2) 2 X 4/6
L3	(2) 1 3/4" X 16" LVL	(2) 2 X 4/6
L4	(2) 1 3/4" X 18" LVL	(3) 2 X 4/6
L5	(3) 1 3/4" X 11 1/4" LVL	(2) 2 X 6
L6	(3) 1 3/4" X 14" LVL	(2) 2 X 6
L7	(3) 1 3/4" X 16" LVL	(2) 2 X 6
L8	(3) 1 3/4" X 18" LVL	(3) 2 X 6
L9	(3) 1 3/4" X 20" LVL	(4) 2 X 6

NAILING SCHEDULE	
CONNECTIONS	NAILING
1. JOIST TO SILL OR GIRDER, TOENAIL	3-8D
2. BRIDGING TO JOIST, TOENAIL EA END	2-8D
3. 1"X6" SUBFLOOR OR LESS TO EA JOIST, FACE NAIL	2-8D
4. WIDER THAN 1"X6" SUBFLOOR TO EA JOIST, FACE NAIL	3-8D
5. 2" SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL	2-16D
6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	16D @ 16" OC
7. TOP PLATE TO STUD, END NAIL	2-16D
8. STUD TO SOLE PLATE	4-8, TOENAIL OR 2-16D, END NAIL
9. DOUBLE STUDS, FACE NAIL	16D @ 24" OC
10. DOUBLE TOP PLATES, FACE NAIL	16D @ 16" OC
11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	2-16D
12. CONTINUOUS HEADER, TWO PIECES	16D @ 16" OC ALONG EA EDGE
13. CEILING JOIST TO PLATE, TOENAIL	3-8D
14. CONTINUOUS HEADER TO STUD, TOENAIL	4-8D
15. CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL	3-16D
16. CEILING JOIST TO PARALLEL RAFTERS, FACE NAIL	3-16D
17. RAFTER TO PLATE, TOENAIL	3-8D
18. 1" BRACE TO EA STUD AND PLATE, FACE NAIL	2-8D
19. 1"X8" SHEATHING OR LESS TO EA BEARING, FACE NAIL	2-8D
20. WIDER THAN 1"X8" SHEATHING TO EA BEARING, FACE NAIL	3-8D
21. BUILT-UP CORNER STUDS	16D @ 24" OC
22. BUILT-UP GIRDER AND BEAMS	20D @ 32" OC AT TOP AND BOTTOM AND STAGGERED 2-20D @ EA ENDS AND AT EA SPLICE
23. TRUSS TO PLATE, TOENAIL	3-16D

REVISIONS

NO.	DESCRIPTION	DATE	APPR.

FILE:

SEAL:

STATE OF TEXAS
JOSÉ I. VILLARREAL
91208
LICENSED PROFESSIONAL ENGINEER

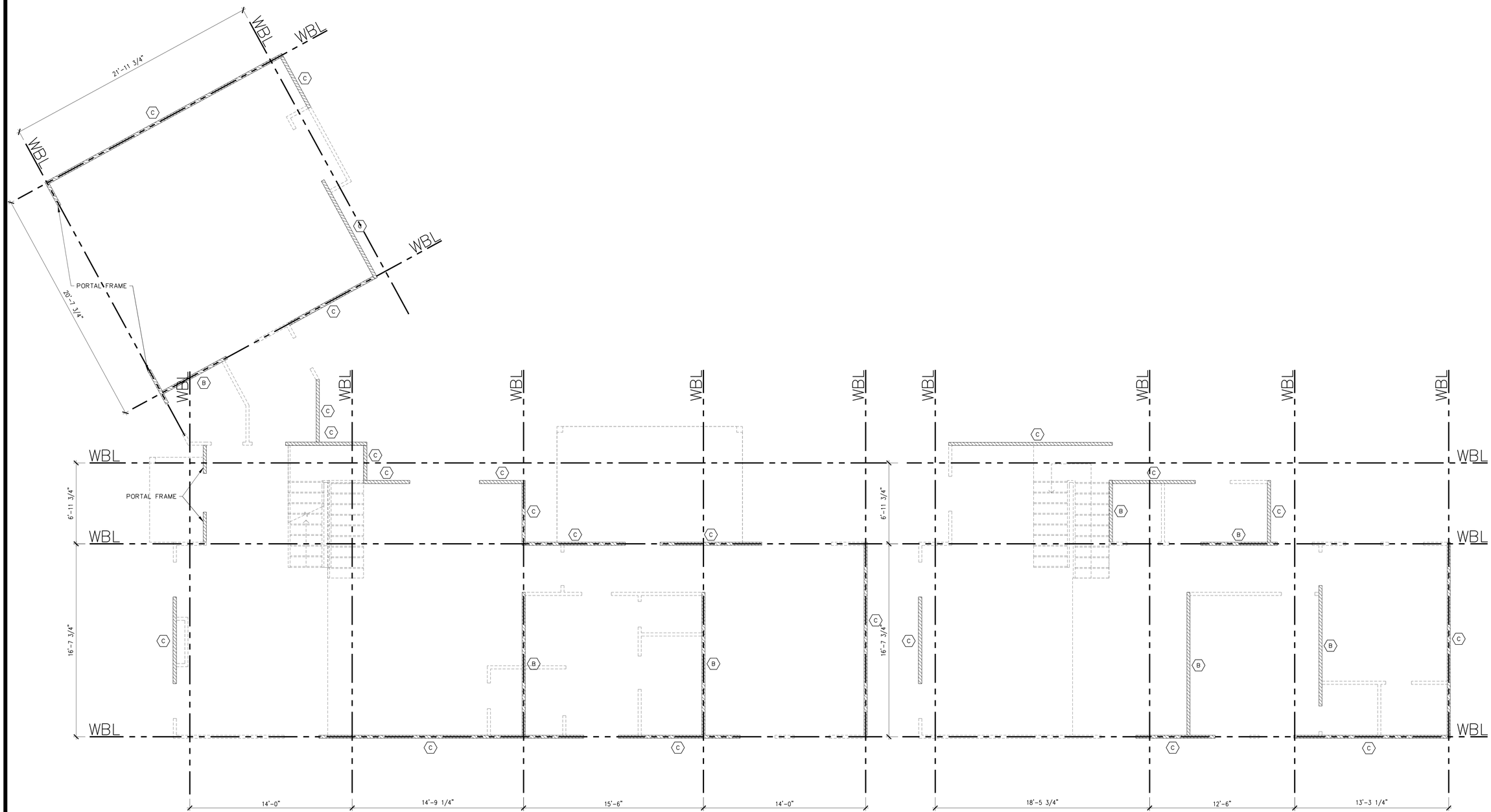
Villarreal Design Group, LLC
Jose@VillarrealDesign.com
Texas Firm 12109
(210) 725-6100

SHEET TITLE: DETAILS

NEW RESIDENCE
HEATH CIRCLE . C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET:
S-3
OF 8



FIRST FLOOR WIND BRACING PLAN
Scale: 1/4"= 1'-0"

SECOND FLOOR WIND BRACING PLAN
Scale: 1/4"= 1'-0"

REVISIONS

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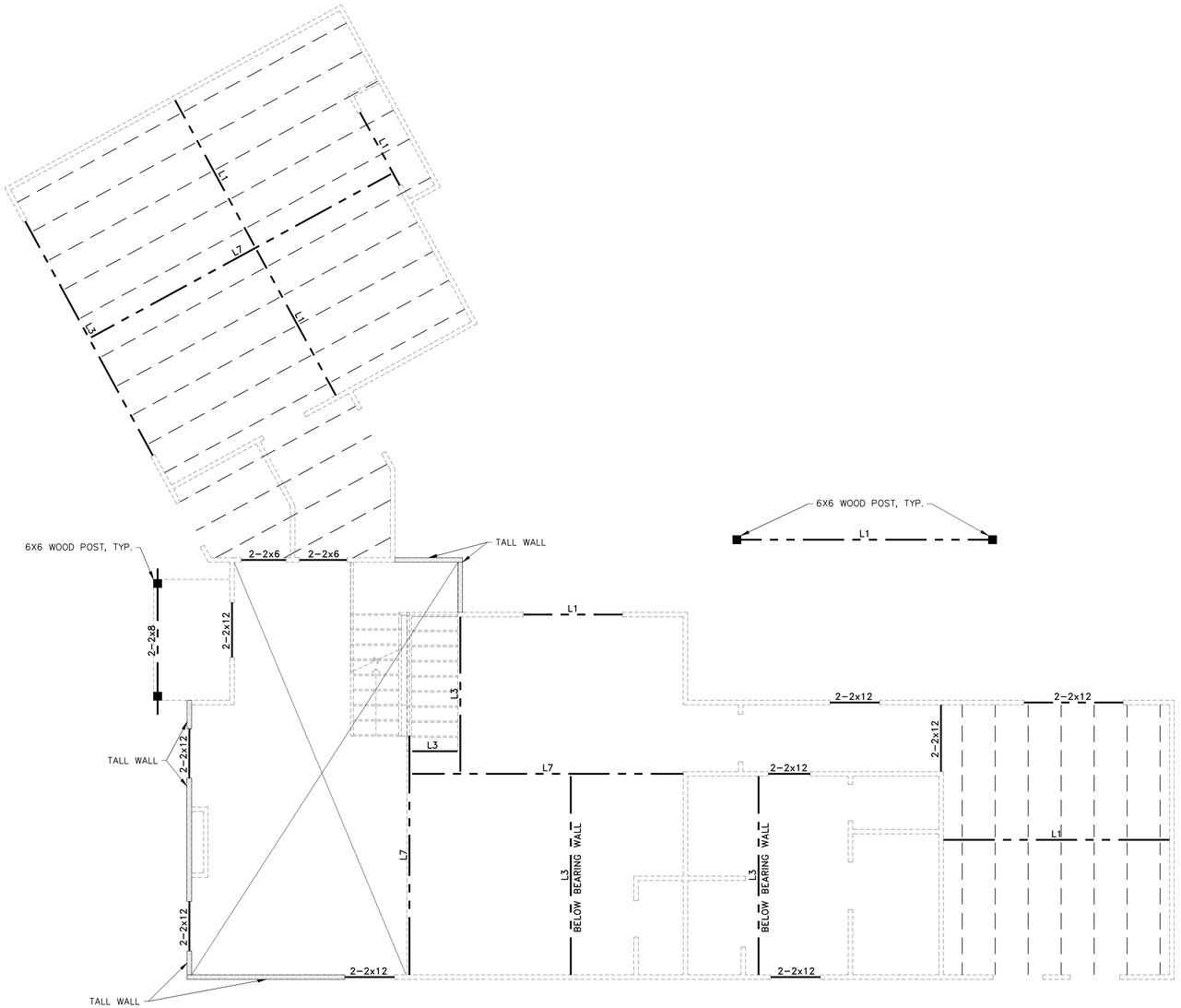
SHEET TITLE: WIND BRACING PLANS

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET:
S-4
OF 8



FIRST FLOOR CEILING PLAN

Scale: 1/4"= 1'-0"

ALL CEILING JOISTS TO BE 2X6 @ 24" O.C.

ALL CEILING TO BE 9'-0" HIGH U.O.N. ON DRAWINGS

REVISIONS

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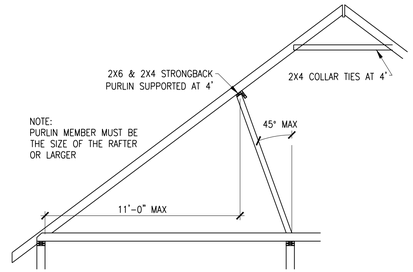
SHEET TITLE: FIRST FLOOR CEILING PLAN

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

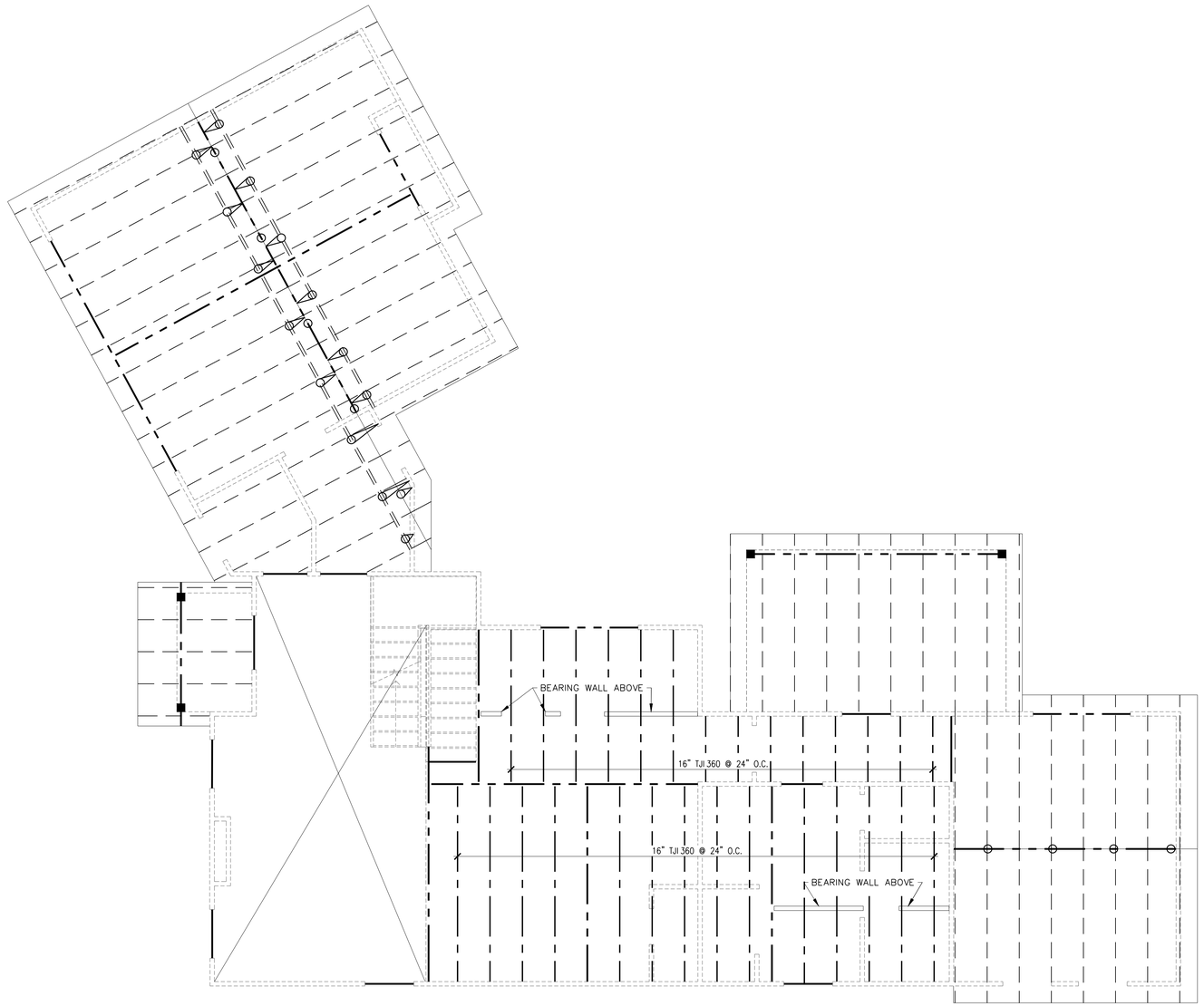
SHEET:

S-5
OF 8



PURLIN SUPPORT FOR
2X6 RAFTERS @ 24"

SIMILAR CONFIGURATION FOR LARGER RAFTERS WITH THE SUPPORT DISTANCE EQUAL TO ALLOWABLE SPAN



2ND FLOOR AND LOWER ROOF FRAMING PLAN
Scale: 1/4"= 1'-0"
ALL RAFTERS TO BE 2X6 @ 24" O.C. U.O.N
ALL VALLEY BEAMS TO BE (2) 2X8 U.O.N

REVISIONS

NO.	DESCRIPTION	DATE	APPR.

FILE:

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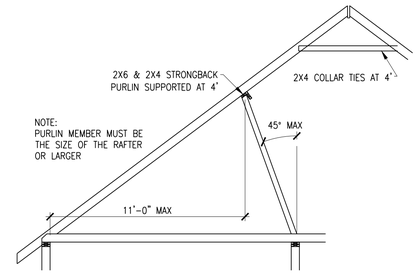
SHEET TITLE:
2ND FLOOR AND LOWER ROOF FRAMING PLAN

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

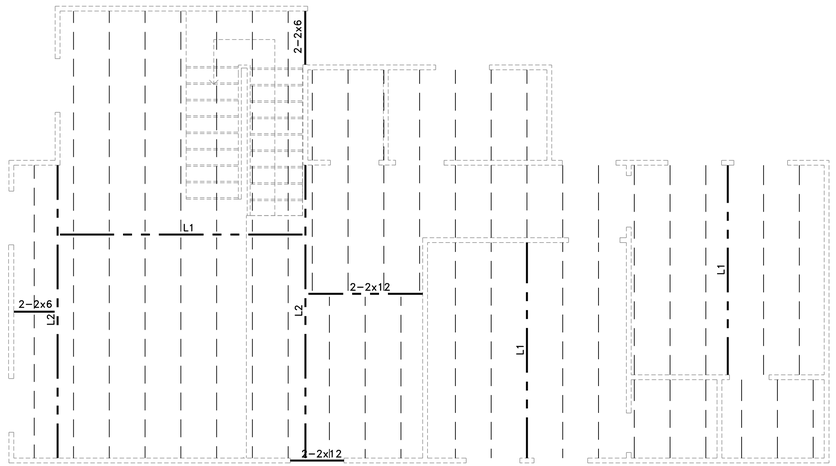
JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET:
S-6
OF 8



PURLIN SUPPORT FOR 2X6 RAFTERS @ 24"

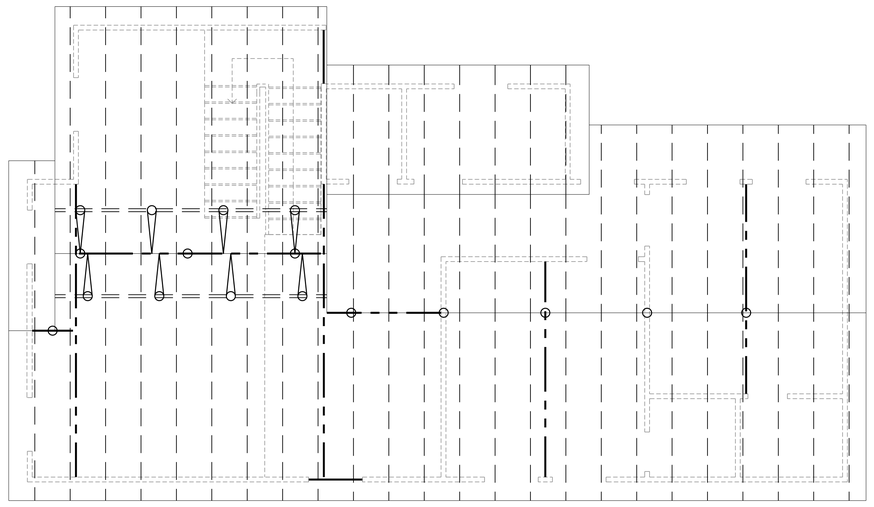
SIMILAR CONFIGURATION FOR LARGER RAFTERS WITH THE SUPPORT DISTANCE EQUAL TO ALLOWABLE SPAN



SECOND FLOOR CEILING PLAN

Scale: 1/4"= 1'-0"

ALL CEILING JOISTS TO BE 2X6 @ 24" O.C.
ALL CEILING TO BE 9'-0" HIGH U.O.N. ON DRAWINGS



UPPER ROOF FRAMING PLAN

Scale: 1/4"= 1'-0"

ALL RAFTERS TO BE 2X6 @ 24" O.C. U.O.N
ALL VALLEY BEAMS TO BE (2) 2X8 U.O.N

REVISIONS

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SHEET TITLE: FRAMING PLANS

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HEATH CIRCLE - C
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JOB NO:	23-424
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DESIGNER:	MR
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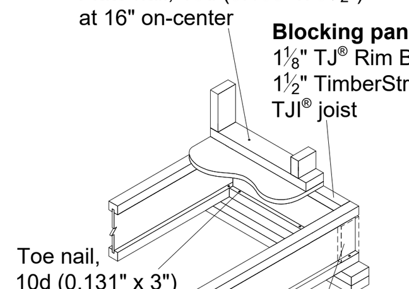
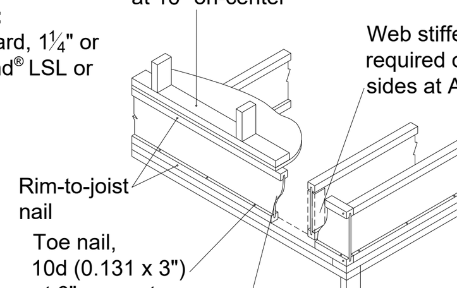
DRAWN:	MR

SHEET:
S-7
OF 8

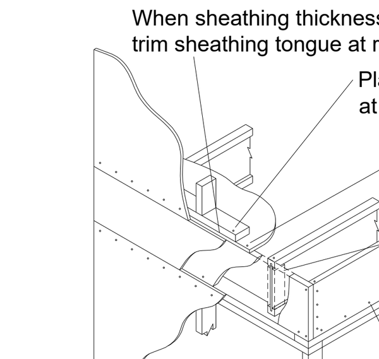
JOIST DETAILS



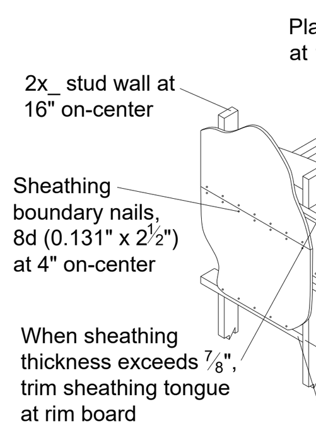


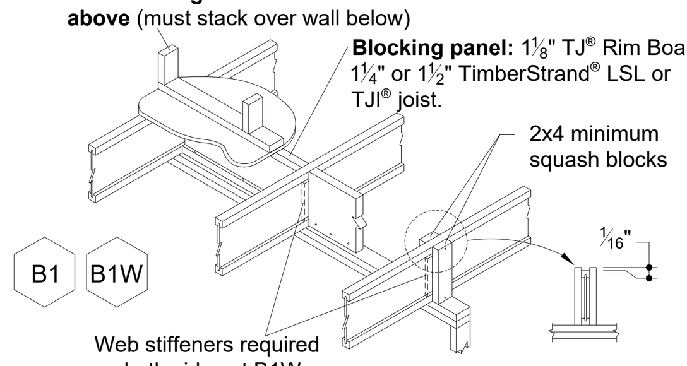
Must have 1¾" minimum joist bearing at ends. Attach rim joist per A3 detail.

* For additional installation specifications see Rim Board Details and Installation in *Weyerhaeuser Installation Guide for Floor and Roof Framing,* TJ-9001.

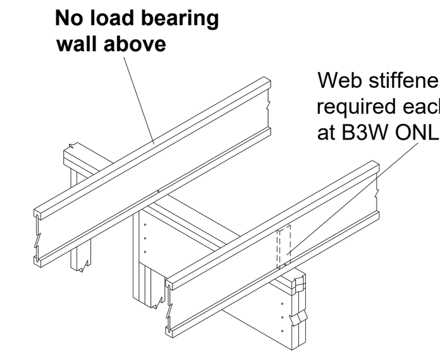


* For additional installation specifications see Rim Board Details and Installation in *Weyerhaeuser Installation Guide for Floor and Roof Framing,* TJ-9001.

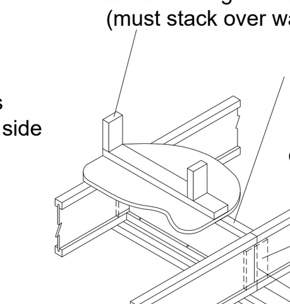


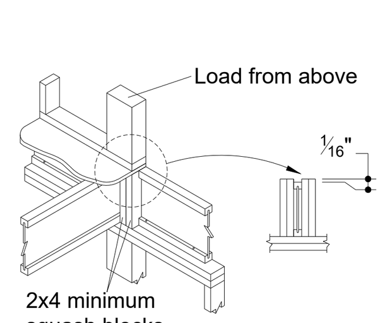


Blocking panels may be required with braced/shear walls above or below — see detail B1

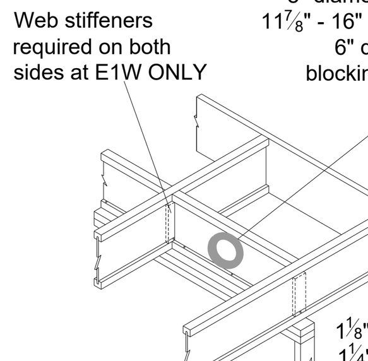


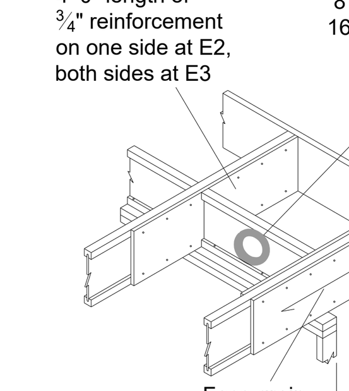
Blocking panels may be required with braced/shear walls above or below — see detail B1

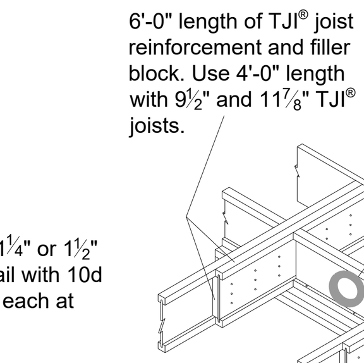




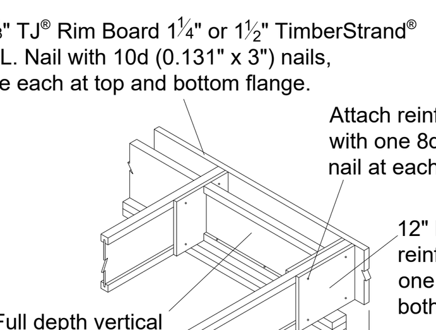
Use 2x4 minimum squash blocks to transfer load around TJI® joist

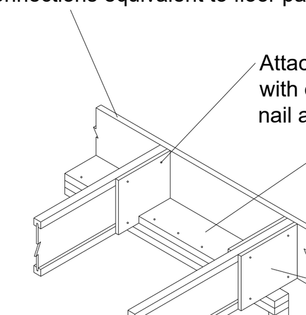


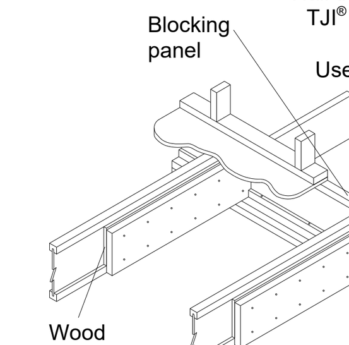




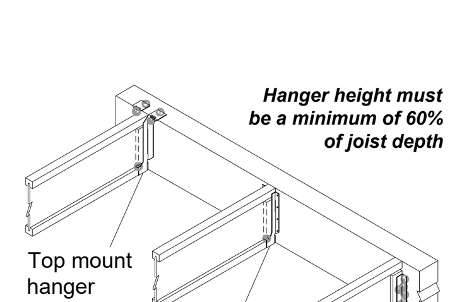
Not for use with 3½" TJI® joist flange widths

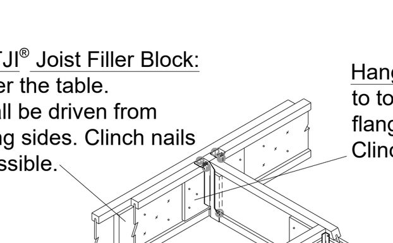




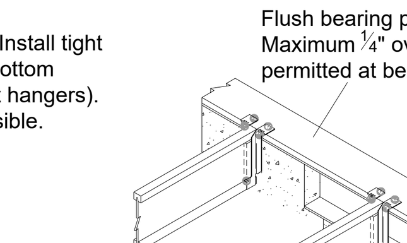


F1 applies to uniformly loaded joists only.

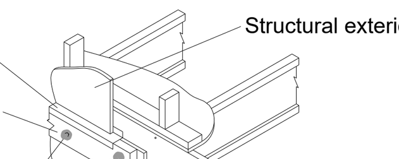




With top mount hangers, backer block required only for downward loads exceeding 250 lbs or for uplift conditions. For nailing requirements see page 5, TJ - 9001, *Weyerhaeuser installation Guide for Floor and Roof Framing, TJ-9001.*



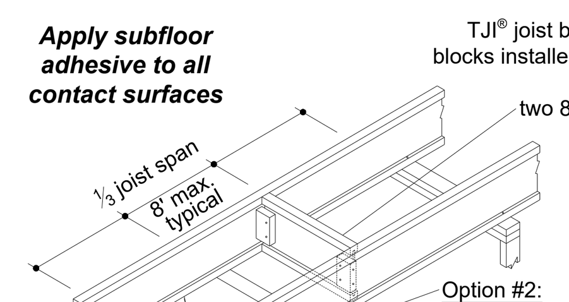
EXTERIOR DECK ATTACHMENT



Rim Board Material	Fastener Allowable Load(2) (lbs/bolt): ½" lag bolt	½" Through bolt	½" Through bolt with Air Space
1⅛" TJ® Rim Board (3)	480	695	615(4)
1 ¼" TimberStrand® LSL	610	725	
1 ½" TimberStrand® LSL	675	725	

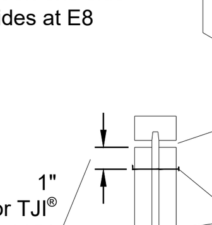
(1) Corrosion-resistant fasteners required for wet-service applications.
(2) Allowable load determined in accordance with ASTM D7672.
(3) 1⅛" TJ® Rim Board is allowed with joist depths ≤16" only.
(4) Maximum ½" shimmed air space.

Apply subfloor adhesive to all contact surfaces



When specified on the layout, one of the bracing options above is required

WEB STIFFENER ATTACHMENT



* With point load from above, and no support below, install web stiffener tight to top flange (gap at bottom flange)

TJI® Joist Series	Depth (in.)	Minimum Web Stiffener Size	Nailing Requirements: Type	Number Nails: End	Intermediate
110 210 230 & 360	All All All	⅝" x 2⁵⁄₁₆"(1) ¾" x 2⁵⁄₁₆"(1) ⅞" x 2⁵⁄₁₆"(1)	8d (0.113" x 2½")	3	3
560	All	2x4(2)	16d (0.135" x 3½")	3	3
560D	18" 20" 22"(3) 24"(3)	2x4(2)	16d (0.135" x 3½")	4 5 6 6	4 5 11 13

(1) PS1 or PS2 sheathing, face grain vertical
(2) Construction grade or better
(3) Web stiffeners are always required for 22" and 24" TJI® 560D Joists

FASTENING of FLOOR PANELS

Guidelines for Closest On-Center Spacing per Row

Nail Size	TJI®(1)(2) 110, 210, and 230	TJI® 360 and 560	Rim Board: 1⅛" TJ® Rim Board	TimberStrand® LSL 1¼"	TimberStrand® LSL 1½"	1¾" TimberStrand® LSL or wider	Microllam® LVL	Parallam® PSL
8d (0.113" x 2½"), 8d (0.131" x 2½")	4"	3"	6"	4"	3"	3"	4"	4"
10d (0.148"x 3"), 12d (0.148"x 3¼")	4"(3)	4"(3)	6"	4"	3"	3"	5"	4"
16d (0.162"x 3½")	6"	6"	16"(4)	6"(5)	6"(5)	6"(6)	8"(4)	6"

(1) Stagger nails when using 4" on-center spacing and maintain ⅜" joist and panel edge distance. One row of fasteners is permitted (two at abutting panel edges) for diaphragms. Fastener spacing for TJI® joists in diaphragm applications cannot be less than shown in table. When fastener spacing for blocking is less than spacing shown above, rectangular blocking must be used in lieu of TJI® joists.
(2) For non-diaphragm applications, multiple rows of fasteners are permitted if the rows are offset at least ½" and staggered.
(3) With 10d (0.148" x 1½") nails, spacing can be reduced to 3" on-center for light gauge steel straps.
(4) Can be reduced to 5" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).
(5) Can be reduced to 4" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).
(6) Can be reduced to 3½" on-center if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).

- Recommended nailing is 12" on-center in field and 6" on-center along panel edge. Fastening requirements on engineered drawings supersede recommendations listed above.
- Maximum nail spacing for TJI® joists is 18" on-center.
- 14 ga. staples may be substituted for 8d (0.113" x 2½") nails if minimum penetration of 1" into the TJI® joist or rim board is achieved.
- To minimize splitting, maintain edge distance and row spacing of 2½ x nail diameter or ⅜", whichever is greater.
- Nailing rows must be offset at least ½" and staggered.
- For recommended nailing and adhesives, see INSTALLATION RECOMMENDATIONS on page 2 of the *Weyerhaeuser Installation Guide for Floor and Roof Framing, TJ-9001.*

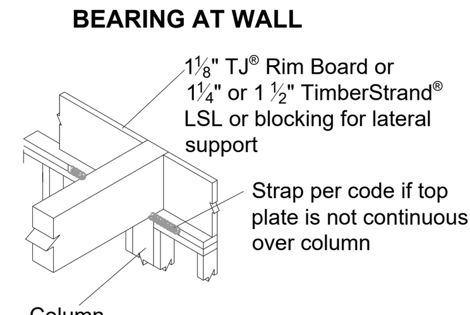
FILLER and BACKER BLOCK SIZES

TJI® Joists		110	110	210	210	230 or 360	230 or 360	360	560	560	560	560D
Depth		9½"-11⅞"	14"-16"	9½"-11⅞"	14"-16"	9½"-11⅞"	14"-16"	18"-20"	11⅞"	14"-16"	18"-20"	22"-24"
Filler Block (1) (Detail H2)		2x6	2x8	2x6 + ⅜" sheathing	2x8 + ⅜" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	2x12 + ½" sheathing	Two 2x6	Two 2x8	Two 2x12	Four ¾" x 15" sheathing
Cantilever Filler (Detail E4)		2x6 4'-0" long	2x10 6'-0" long	2x6 + ⅜" sheathing 4'-0" long	2x10 + ⅜" sheathing 6'-0" long	2x6 + ½" sheathing 4'-0" long	2x10 + ½" sheathing 6'-0" long	Not applicable	Not applicable			
Backer Block (1) (Detail F1 or H2)		⅝" or ¾"		¾" or ⅞"		⅞" or 1" Net			2x6	2x8	2x12	Two ¾" x 15" sheathing
Nail Size	Filler	(0.131" x 3")							(0.131" x 3½")			
Nail Size	Backer	(0.131" x 3")							(0.131" x 3")			
Nail Quantity(2)	Filler	15							32			50
Nail Quantity(2)	Backer	15							15			15

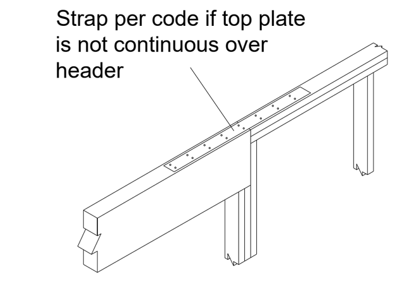
(1) If necessary, increase filler and backer block height for face mount hangers and maintain ⅛" gap at top of joist; see detail W. Filler and backer block dimensions should accomodate required nailing without splitting (12" minimum for backer blocks and 24" minimum for filler blocks).
(2) Clinch nails when possible.

BEAM DETAILS

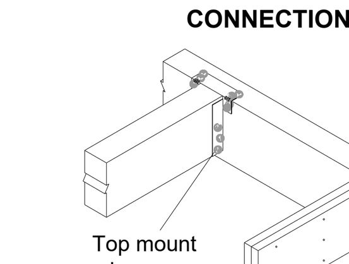
BEARING AT WALL



BEARING FOR DOOR OR WINDOW HEADER

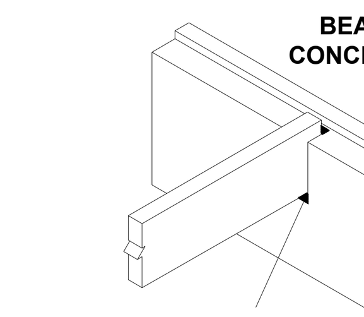


BEAM TO BEAM CONNECTION

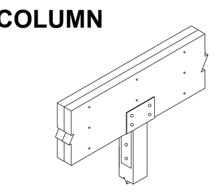


See current Weyerhaeuser literature for framing connectors

BEARING AT CONCRETE WALL



BEARING AT COLUMN



Verify column capacity and beam bearing length. See current Weyerhaeuser literature.

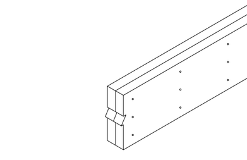
Multiple-Member Connections for Top-Loaded Beams

Fastener Installation Requirements

Piece Width	# of Plies	Fastener Type(1)	Min. Length	# Rows	O.C. Spacing	Location
1¾"	2	10d nails	3"	3(2)	12"	One side
		12d-16d nails	3 ¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	
	3	10d nails	3"	3(2)	12"	Both sides
		12d-16d nails	3 ¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	Both sides
			5"			One side
	4	10d nails(3)	3"	3(2)	12"	One side (per ply)
		12d-16d nails(3)	3 ¼"	2(2)		
		Screws	5" or 6"	2	24"	Both sides
			6 ¾"			One side
3½"	2	Screws	5" or 6"	2	24"	Both sides
			6 ¾"			One side
		½" bolts	8"	2	24"	-

(1) 10d nails are 0.128" diameter; 12d-16d nails are 0.148" - 0.162" diameter; screws are SDS, SDW, USP WS, or TrussLOK®
(2) An additional row of nails is required with depths of 14" or greater.
(3) When connecting 4-ply members, nail each ply to the other and offset nail rows by 2" from the rows in the ply below.

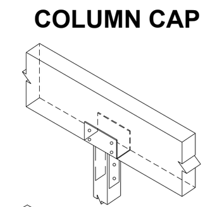
When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.



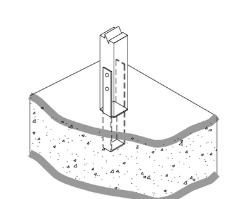
Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"

COLUMN DETAILS

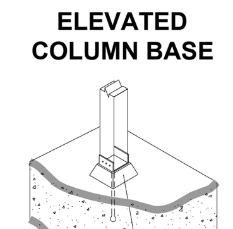
BEAM ON COLUMN CAP



COLUMN BASE

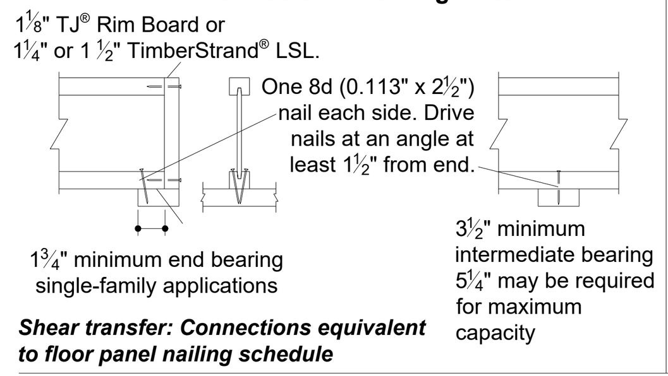


ELEVATED COLUMN BASE



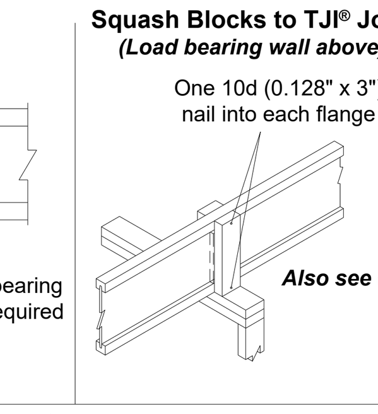
NAILING AT BEARING (FLOOR)

TJI® Joist to Bearing Plate

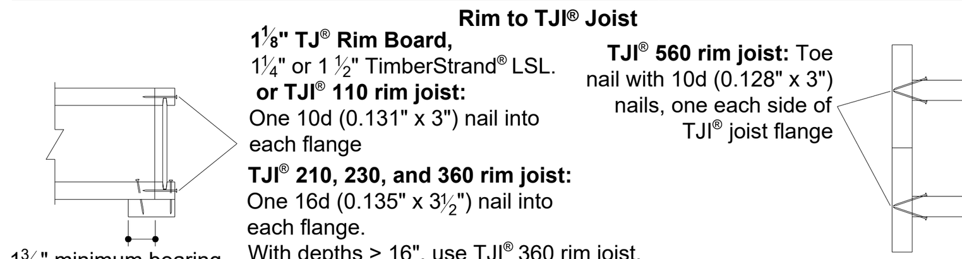


Shear transfer: Connections equivalent to floor panel nailing schedule

Squash Blocks to TJI® Joist
(Load bearing wall above)

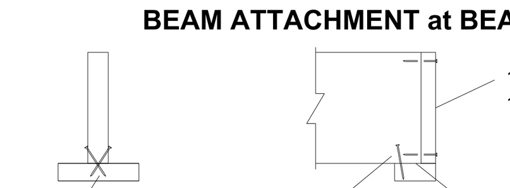


Rim to TJI® Joist

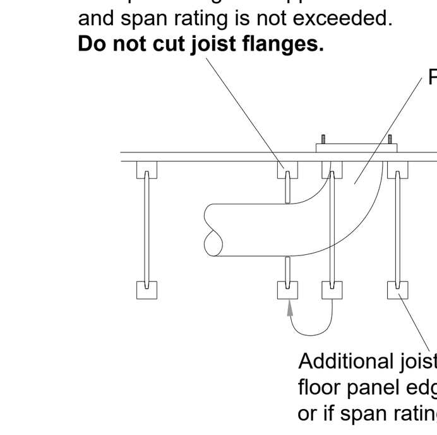


Locate rim board joint between joists.

BEAM ATTACHMENT at BEARING

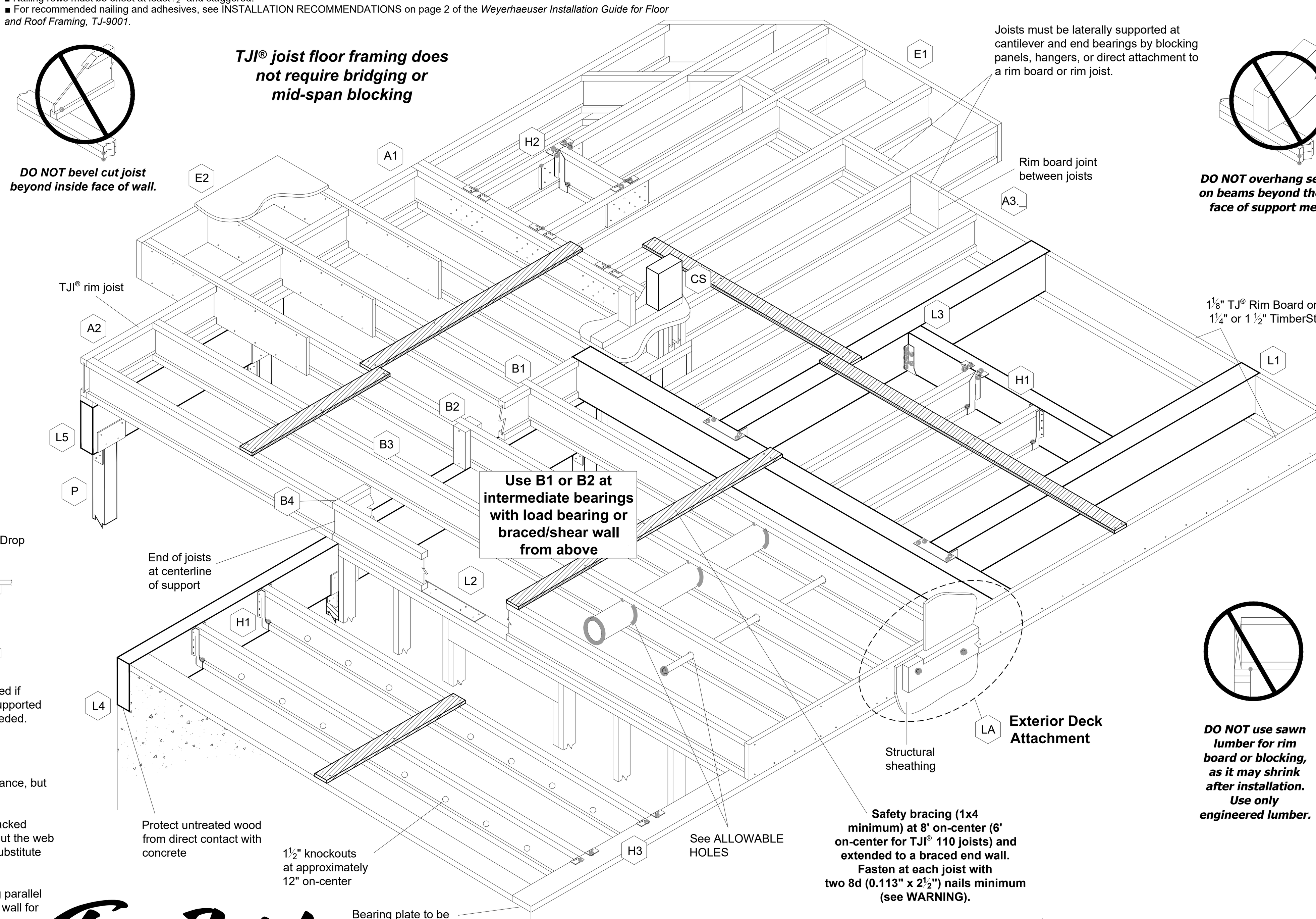


See framing plan (if applicable) or Weyerhaeuser *Installation Guide for Floor and Roof Framing, TJ-9000.* For minimum end and intermediate bearing lengths.



INSTALLATION TIPS

- Subfloor adhesive will improve floor performance, but may not be required.
- Squash blocks and blocking panels carry stacked vertical loads (details B1 and B2). Packing out the web of a TJI® joist (with web stiffeners) is not a substitute for squash blocks or blocking panels.
- When joists are doubled at non-load bearing parallel partitions, space joists apart the width of the wall for plumbing or HVAC.
- Additional joist at plumbing drop (see detail).



ALLOWABLE HOLES - TJI® Joists

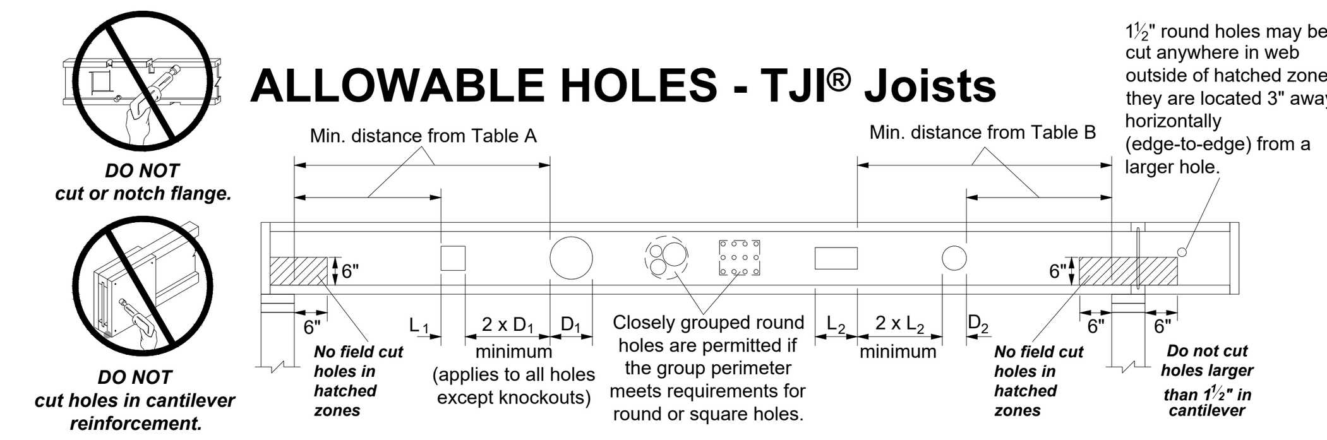


Table A - End Support

Minimum distance from edge of hole to inside face of nearest end support

JOIST DEPTH	TJI®	Round 2"	3"	4"	5"	6½"	7"	8⅞"	11"	13"	Square/Rect. 2"	3"	4"	5"	6½"	7"	8⅞"	11"	13"
9½"	110	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"					1'-0"	1'-6"	2'-6"	3'-6"	4'-6"				
	210	1'-0"	1'-6"	2'-6"	3'-0"	5'-6"					1'-0"	2'-0"	2'-6"	4'-0"	5'-0"				
	230	1'-6"	2'-0"	2'-6"	3'-6"	5'-6"					1'-0"	2'-0"	3'-0"	4'-6"	5'-0"				
	360	1'-6"	2'-0"	3'-0"	4'-0"	6'-0"					1'-6"	2'-6"	3'-6"	5'-0"	5'-6"				
	560	1'-6"	2'-6"	3'-6"	5'-0"	7'-0"					2'-0"	3'-0"	4'-0"	5'-6"	6'-0"				
11⅞"	110	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	5'-6"			1'-0"	1'-6"	2'-0"	2'-6"	4'-6"	5'-0"	6'-0"		
	210	1'-0"	1'-6"	2'-0"	2'-0"	3'-0"	3'-6"	6'-0"			1'-0"	1'-6"	2'-6"	3'-0"	5'-0"	5'-6"	6'-6"		
	230	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	6'-6"			1'-0"	2'-0"	2'-6"	3'-6"	5'-6"	5'-6"	7'-0"		
	360	1'-6"	2'-0"	3'-0"	3'-6"	4'-6"	5'-0"	7'-0"			1'-6"	2'-6"	3'-6"	4'-6"	6'-6"	6'-6"	7'-6"		
	560	1'-6"	2'-6"	3'-0"	4'-0"	5'-6"	6'-0"	8'-0"			2'-6"	3'-6"	4'-6"	5'-6"	7'-0"	7'-6"	8'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-0"	5'-6"		1'-0"	1'-0"	1'-6"	2'-0"	3'-6"	4'-0"	6'-0"	8'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-6"	6'-0"		1'-0"	1'-0"	2'-0"	2'-6"	4'-0"	4'-6"	6'-6"	8'-6"	
	230	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	2'-6"	4'-0"	7'-0"		1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	7'-0"	9'-0"	
	360	1'-0"	1'-0"	1'-6"	2'-6"	3'-6"	4'-0"	5'-6"	8'-0"		1'-0"	1'-6"	2'-6"	4'-0"	6'-0"	6'-6"	8'-0"	9'-6"	
	560	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	6'-6"	9'-0"		1'-6"	3'-0"	4'-0"	5'-0"	7'-0"	7'-6"	9'-0"	10'-0"	
16"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	5'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-0"	3'-0"	5'-6"	7'-6"	10'-0"
	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	3'-6"	6'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	6'-6"	8'-0"	11'-0"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	3'-0"	4'-0"	7'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	7'-0"	9'-0"	11'-0"
	360	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	2'-6"	4'-6"	6'-6"	9'-0"	1'-0"	1'-0"	1'-6"	3'-0"	5'-0"	5'-6"	9'-0"	10'-0"	11'-6"
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-0"	7'-6"	10'-0"	1'-0"	2'-0"	3'-0"	4'-6"	6'-6"	7'-0"	10'-0"	11'-0"	12'-0"
		4"	6"	7"	8"	10"	12"	14¾"	16¾"		4"	6"	7"	8"	10"	12"	14¾"	16¾"	
18"	360	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	5'-6"	9'-6"			1'-0"	3'-0"	4'-6"	6'-0"	10'-0"	11'-0"	13'-6"		
	560	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	7'-0"	10'-6"			2'-0"	5'-0"	6'-6"	8'-0"	11'-0"	12'-0"	14'-0"		
20"	360	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	7'-0"	10'-0"		1'-0"	1'-6"	3'-0"	4'-6"	8'-0"	11'-6"	13'-6"	15'-6"	
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	8'-6"	11'-0"		1'-0"	3'-6"	5'-0"	7'-0"	10'-6"	13'-0'	14'-6"	15'-6"	

Table B - Intermediate or Cantilever Support

Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

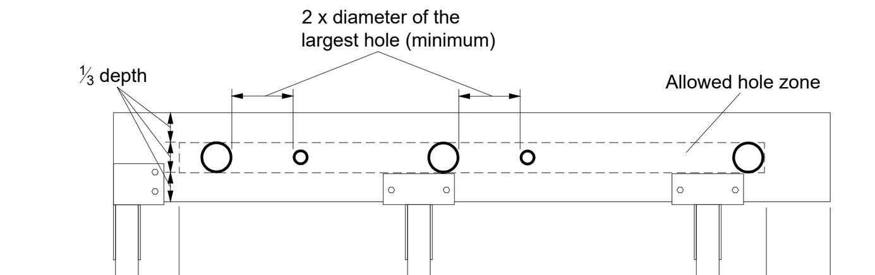
JOIST DEPTH	TJI®	Round 2"	3"	4"	5"	6½"	7"	8⅞"	11"	13"	Square/Rect. 2"	3"	4"	5"	6½"	7"	8⅞"	11"	13"
9½"	110	2'-0"	2'-6"	3'-6"	4'-6"	7'-6"					1'-6"	2'-6"	3'-6"	5'-6"	6'-6"				
	210	2'-0"	2'-6"	3'-6"	5'-0"	8'-0"					2'-0"	3'-0"	4'-0"	6'-6"	7'-6"				
	230	2'-6"	3'-0"	4'-0"	5'-6"	8'-6"					2'-0"	3'-6"	4'-6"	6'-6"	7'-6"				
	360	3'-0"	4'-0"	5'-6"	6'-6"	9'-0"					3'-0"	4'-6"	5'-6"	7'-6"	8'-0"				
	560	3'-6"	5'-0"	6'-0"	7'-6"	10'-0"					4'-0"	5'-6"	6'-6"	8'-0"	9'-0"				
11⅞"	110	1'-0"	1'-0"	1'-6"	2'-6"	4'-0"	4'-6"	8'-6"			1'-0"	1'-6"	2'-6"	4'-0"	7'-0"	7'-0"	9'-6"		
	210	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	9'-0"			1'-0"	2'-0"	3'-0"	4'-6"	8'-0"	8'-0"	10'-0"		
	230	1'-0"	2'-0"	2'-6"	3'-6"	5'-0"	5'-6"	10'-0"			1'-0"	2'-6"	3'-6"	5'-0"	8'-6"	9'-0"	10'-6"		
	360	2'-0"	3'-0"	4'-0"	5'-6"	7'-0"	7'-6"	11'-0"			2'-0"	3'-6"	5'-0"	7'-0"	9'-6"	9'-6"	11'-0"		
	560	1'-6"	3'-0"	4'-6"	5'-6"	8'-0"	8'-6"	12'-0"			3'-0"	4'-6"	6'-0"	8'-0"	10'-6"	11'-0"	12'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-6"	4'-6"	8'-6"		1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	9'-0"	12'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-6"	9'-6"		1'-0"	1'-0"	2'-0"	3'-6"	6'-0"	7'-0"	10'-0"	13'-0"	
	230	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	6'-0"	10'-6"		1'-0"	1'-0"	2'-6"	4'-0"	6'-6"	7'-6"	11'-0"	13'-6"	
	360	1'-0"	1'-0"	2'-0"	3'-6"	5'-6"	6'-0"	8'-6"	12'-6"		1'-0"	2'-0"	4'-0"	5'-6"	9'-0"	10'-0"	12'-0"	14'-0"	
	560	1'-0"	1'-0"	1'-6"	3'-6"	5'-6"	6'-6"	9'-6"	13'-6"		1'-0"	3'-0"	5'-0"	7'-0"	10'-0"	11'-0"	13'-6"	15'-0"	
16"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	8'-6"	1'-0"	1'-0"	1'-0"	1'-0"	3'-6"	4-6"	8'-6"	11'-6"	15'-0"
	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	3'-6"	6'-0"	10'-0"	1'-0"	1'-0"	1'-0"	1'-6"	4'-6"	5'-6"	10'-0"	12'-6"	16'-0"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	4'-0"	6'-6"	11'-0"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	10'-6"	13'-6"	16'-6"
	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	4'-0"	6'-6"	10'-0"	13'-6"	1'-0"	1'-0"	2'-0"	4'-0"	7'-6"	8'-6"	13'-0"	14'-6"	17'-0"
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-6"	7'-0"	11'-0"	15'-0"	1'-0"	1'-0"	3'-6"	5'-6"	9'-0"	10'-0"	14'-6"	16'-0"	18'-0"
		4"	6"	7"	8"	10"	12"	14¾"	16¾"		4"	6"	7"	8"	10"	12"	14¾"	16¾"	
18"	360	1'-0"	1'-0"	1'-6"	3'-0"	6'-0"	9'-0"	14'-6"			1'-0"	4'-0"	6'-6"	9'-0"	14'-6"	16'-6"	19'-0"		
	560	1'-0"	1'-0"	1'-0"	2'-0"	6'-0"	10'-0"	15'-6"			1'-0"	6'-0"	8'-6"	11'-6"	16'-6"	18'-0"	19'-6"		
20"	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"	11'-0"	15'-0"		1'-0"	1'-6"	4'-0"	7'-0"	12'-6"	16'-6"	19'-0"	20'-6"	
	560	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	5'-6"	11'-6"	15'-6"		1'-0"	3'-0"	6'-0"	8'-6"	14'-0"	17'-6"	19'-0"	20'-6"	

Rectangular holes based on measurement of longest side.

- Leave ⅛" of web (minimum) at top and bottom of hole. **DO NOT cut joist flanges.**
- Tables are based on uniform load tables in current design literature.
- For simple span (5' minimum), uniformly loaded joists used in residential applications, one maximum size round hole may be located at the center of the joist span **provided that no other holes occur in the joist.**

ALLOWABLE HOLES - Headers and Beams

1.55E TimberStrand® LSL Headers and Beams



1.55 E TimberStrand® LSL

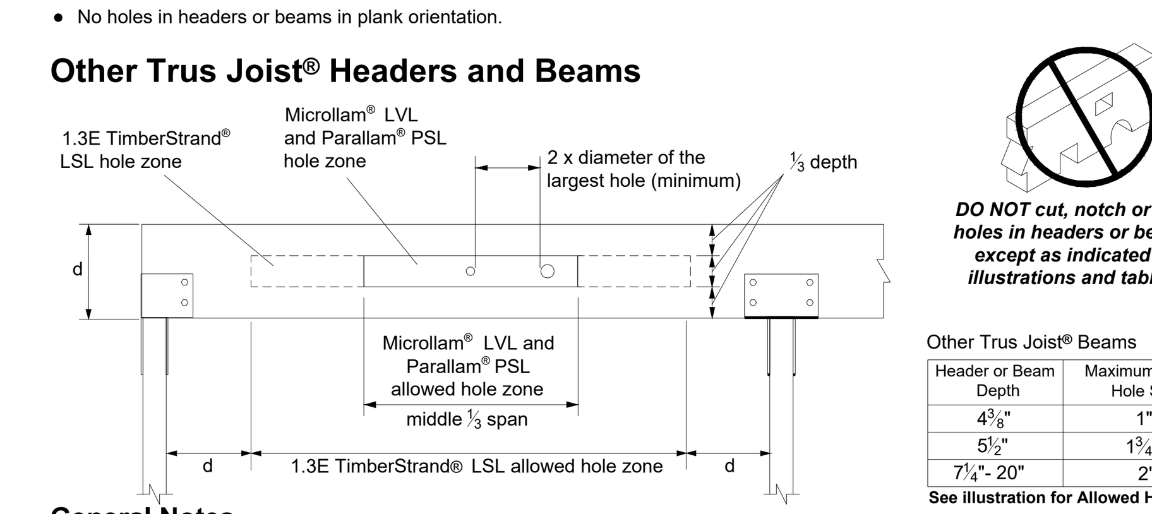
Header or Beam Depth	Maximum Round Hole Size
9¼"-9½"	3"
11¼"-11 ⅞"	3⅝"
14"-16"	4⅝"

See illustration for allowed hole zone

General Notes

- Allowed hole zone suitable for headers and beams with **uniform and/or concentrated loads anywhere along the member**.
- Round holes only
- No holes in headers or beams in plank orientation.

Other Trus Joist® Headers and Beams



Other Trus Joist® Beams

Header or Beam Depth	Maximum Round Hole Size
4⅜"	1"
5½"	1¾"
7¼"- 20"	2"

See illustration for Allowed Hole Zone

General Notes

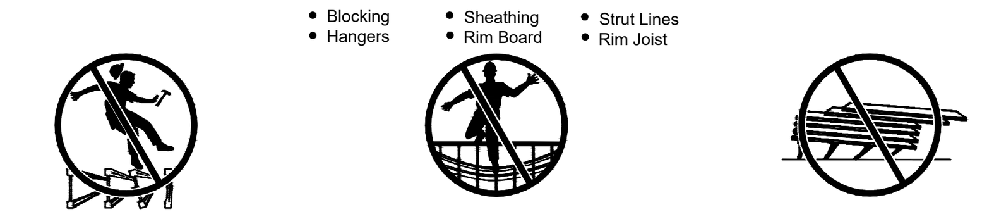
- Allowed hole zone suitable for headers and beams with **uniform loads only.**
- Round holes only
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

WARNING

Joists are unstable until braced laterally

Bracing Includes:

- Blocking
- Hangers
- Sheathing
- Rim Board
- Strut Lines
- Rim Joist



WARNING NOTES:

Lack of proper bracing during construction can result in serious accidents. Observe the following guidelines:

1. All blocking, hangers, rim boards and rim joists at the end supports of the TJI® joists must be completely installed and properly nailed.
2. Lateral strength, like braced end wall or an existing deck, must be established at the ends of the bay. This can also be accomplished by a temporary or permanent deck (sheathing) fastened to the first 4 feet of joists at the end of the bay.
3. Safety bracing of 1x4 (minimum) must be nailed to a braced end wall or sheathed area (as in note 2) and to each joist. Install bracing with 2 - 8d(.0113" x 2.5") nails each joist and end support at 8 ft on center (6 ft for TJI 110 joists). Without this bracing, buckling sideways or rollover is highly probable under light construction loads - such as a worker or one layer of unnailed sheathing
4. Sheathing must be completely attached to each TJI® joist before additional loads can be placed on the system.
5. Ends of cantilevers require safety bracing on both the top and bottom flanges.
6. The flanges must remain straight within 1/2" from true alignment.
7. See www.wy.com/besafe for additional installation information.

Warning: Drilling, sawing, sanding or machining wood products generates wood dust. The paint and/or coating on this product may contain titanium dioxide. Wood dust and titanium dioxide are substances known to the state of California to cause cancer. For more information on Proposition 65, visit wy.com/inform.

Trus Joist® Weyerhaeuser

Weyerhaeuser

SUSTAINABLE FORESTRY INITIATIVE Certified Sourcing

REVISIONS		
NO.	DESCRIPTION	DATE	APPR.

FILE:

SEAL: STATE OF TEXAS — JOSÉ I. VILLARREAL — 91208 — LICENSED PROFESSIONAL ENGINEER

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Texas Firm 12109
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SHEET TITLE: TJI DETAILS

NEW RESIDENCE
HEATH CIRCLE - C
SAN ANTONIO, TX

JOB NO:	23-424
DATE:	10/6/23
DESIGNER:	MR
CHECKED:	JIV, PE
DRAWN:	MR

SHEET: S-8 OF 8