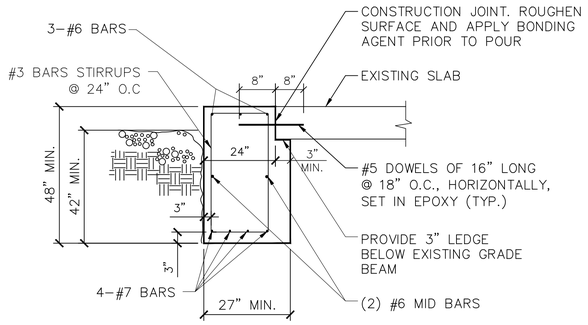
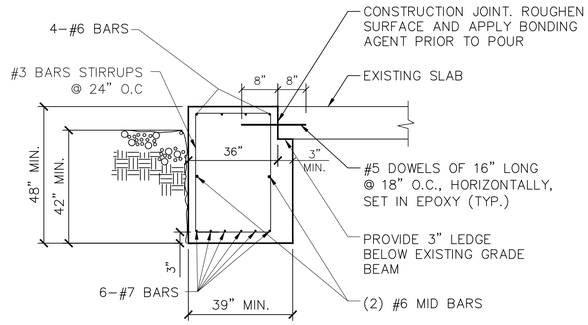
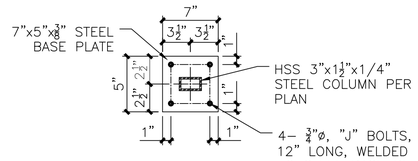


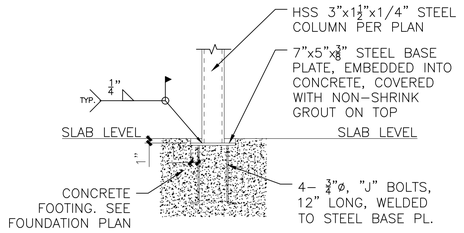
SECTION 1–1
N.T.S



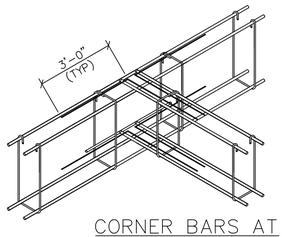
SECTION 2–2
N.T.S



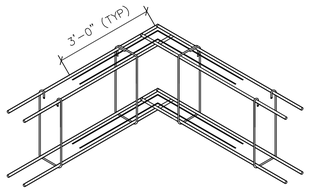
PLAN VIEW
SCALE: N.T.S.



DETAIL 'A'
STEEL COLUMN/BASE PLATE
SCALE: N.T.S.



CORNER BARS AT EXT. & INT. BEAM INTERSECTIONS
N.T.S



CORNER BARS AT ALL EXTERIOR CORNERS
N.T.S

NOTE:
Contractor shall not use these plans to layout forms. Contractor shall verify all dimensions, areas, drops, slopes, and details with those of the architectural plans and report any discrepancies to the Engineer/Architect in writing, prior to the start of construction. The purpose of the Foundation plan is to locate and identify the Structural elements only.

Foundation Movement: This foundation has been designed with the assumption that movement can be tolerated within the allowable limits set forth in applicable building codes and specifications.

NOTE:
These drawings are intended to show only structural foundation plans and details. Refer appropriate drawings from other disciplines such as architectural, mechanical, plumbing, electrical and civil for the design, location and size of drops, openings, sleeves, driveways, patios, pools, etc.

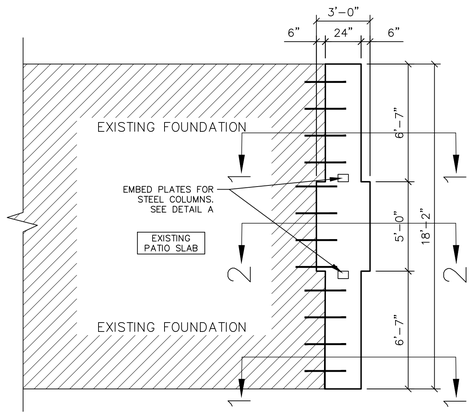
NOTE:
These foundation design plans are null and void and Universal Structural Engineers accepts no responsibility of the construction of this foundation without an approved pre–pour inspection provided by this office prior to concrete placement.

NOTE:
THIS FOUNDATION HAS BEEN DESIGNED BASED ON THE ASSUMPTION THAT THE BUILDING PAD SHALL BE PREPARED AS RECOMMENDED IN THE GEO–TECHNICAL REPORT, FOR THIS PROJECT.

NOTE:
ALL EXTERIOR GRADE BEAMS MUST BE FOUNDED AT LEAST 42" BELOW NATURAL, UNDISTURBED SOILS, UNLESS NOTED OTHERWISE.

BEAM SCHEDULE

BEAM LABEL	DEPTH (D) (MIN.)	BEAM STEEL		BEAM WIDTH
		TOP	BOTTOM	
1–1	48"	#6	#7	24"
2–2	48"	#6	#7	36"



FOUNDATION PLAN
SCALE: 1/4"=1'–0"

NOTES
FOR TYPICAL SLAB ON GRADE DETAILS, SEE S1.1

Design Codes:

This foundation is designed in accordance with, but not limited to, the latest editions of the International Residential Code and the International Building Code (if applicable) and other applicable local codes and standards.

Site Preparation:

1) Site preparation and foundation support are to be provided as specified in the soils investigation report or as noted herein, whichever is more stringent.

2) Site grading and drainage around the foundation shall be maintained at all times during construction in such a manner that surface or ground water will not collect around or within the footprint of the foundation. This is critical during the period immediately after concrete placement and prior to tendon stressing (if applicable). If unusual amounts of water continue to appear on the site, the geo–technical engineer should be contacted for corrective action.

3. Select fill (also called structural fill) shall be in accordance with the geo–technical report.

4. There shall be a minimum of 6" clearance between the top of the foundation and/or brick ledge and final grading, including landscaping. h) Soil removed from grade beam trenches may not be used as part of the pad fill in the foundation area.

5. Trees: The soils at this site could be expansive. Remove existing tree trunks/roots and replace with compacted fill. Trees should not be planted closer than 20 feet to the foundation. If trees are located within 20 feet of the foundation, a root barrier shall be installed.

6. Site Grading: Surface water shall be directed away from the foundation at a minimum slope of 5% within 10 feet of foundation. No ponding of surface water shall be allowed within 10 feet of the foundation before, during, or after construction.

7. Perimeter Grade Beams: Perimeter grade beams shall be embedded the minimum depth shown in the geo–technical report or the foundation plans, whichever is greater, but in no case shall perimeter grade beams be embedded less than 12" below the UNDISTURBED SOILS.

8. Solid Rock: If solid rock is encountered during trenching operation, grade beam depth may be reduced to 12" minimum. Bottom of beams must be founded minimum 1" into solid rock. Weathered and fractured shale is not considered solid rock and must be penetrated to full beam depth or to solid rock below.

9. Foundation Movement: The foundation has been designed with the assumption that movement can be tolerated within the allowable limits set forth in applicable building codes and specifications.

CONCRETE NOTES:

1. Compressive Strength: All concrete shall have a minimum 28–day compressive strength of 3000 psi with a 4" to 6" slump for the slab and a 3" to 5" slump for the piers. Compressive strength for basement walls shall have a minimum 28–day compressive strength of 3000 psi with a 4" to 6" slump.

2. Aggregate Size: Maximum aggregate size shall be 1 ½".

3. Concrete Placement: All mixing, transportation, placing, and curing of concrete shall comply with ACI–318, current edition. Do not place concrete less than two days prior to a freeze unless protective measures are taken. Concrete shall be placed when temperatures are at a minimum of forty degrees Fahrenheit (40°F) and rising unless protective measures are taken as specified by the concrete supplier. If ambient temperatures will reach above sixty degrees Fahrenheit (60°F), the entire slab surface shall be additionally cured by keeping it wet for a minimum of 72 hours, commencing the morning after concrete placement.

4. Concrete Temperature: In no case will the placement of concrete having a temperature in excess of ninety degrees Fahrenheit (90°F) be permitted.

5. Vibration: Concrete shall be mechanically vibrated in exterior and interior grade beams, particularly around tendon anchorages and in deep excavations. A minimum of two operable mechanical vibrators shall be onsite prior to pour.

6. Vapor Retarder: A minimum 10–mil thick polyethylene vapor retarder sheeting shall be placed directly below the concrete; lap joints a minimum of 6" and seal with duct tape or other tape approved for such use by its manufacturer.

7. Continuous Pour: Concrete shall be placed in a continuous pour, unless otherwise approved by engineer in writing. In no case shall adjacent concrete be placed more than 30 minutes apart in order to prevent the formation of a cold joint. If an unplanned delay and possible cold joint occurs for any reason, vibrate the fresh concrete and contact the engineer promptly for instructions on how to proceed.

8. Anchor Bolts: Anchor bolts shall be a minimum of ½" diameter x 10" long J–bolt or approved equal, minimum two J–bolts per sole (bottom) plate per ASTM F–1554 Grade 55 with washers and nuts shall be embedded a minimum of 7" into concrete. Anchor bolts shall be spaced a maximum of 4'–0" o.c. and located within 12" from the ends of each plate section.

9. Shrinkage Cracks: This foundation may sustain normal temperature and shrinkage cracks as a result of the concrete curing process.

CONVENTIONAL REINFORCEMENT NOTES:

1. Grade: #3 rebar and smaller shall conform to ASTM A615 Grade 40 or higher, and #4 rebar and larger shall conform to ASTM A615 Grade 60 or higher and shall be detailed and installed per ACI–318 latest edition.

2. Coverage: The following shall be the minimum reinforcement concrete coverage (including tendons): a) Concrete cast against and permanently exposed to earth ..... 3" b) Concrete exposed to earth or weather: No. 6 through No. 18 bars....2" & No. 5 bar, W31 or D31 wire, and smaller .... 1½" c) Concrete not exposed to weather or in contact with ground 1½".

3. Chairs: Bottom rebar in grade beams shall be supported on rebar chairs at a maximum of 6'–0" spacing. Rebar chairs for the slab shall be spaced a maximum of 4' on center each way such that the reinforcing steel is located 1/3 the distance from the top of the slab.

4. Lap: Continuous reinforcing shall be lapped a minimum of 50 bar diameters. Splices shall be tied at the both ends of the splice.

UNIVERSAL
STRUCTURAL ENGINEERS, LLC
4414 CENTERVIEW DR., SUITE 136
SAN ANTONIO, TX 78228
PH.: (210) 437 3175
TBPE FIRM REGISTRATION#: F–18467

STATE OF TEXAS
WAYNE LEAKE
133083
LICENSED
PROFESSIONAL ENGINEER

Wayne Leake III
HENRY WAYNE LEAKE III, P.E.
01/30/2024
DATE

CUSTOM PATIO REMODEL
LEHRCO PROFESSIONAL REMODELERS
FOUNDATION DESIGNS

P.I. = 33
ADDRESS: 315 W SUMMIT AVE.
LOT: 11 BLOCK: 6 N.C.B.:
SUBDIVISION:
CITY: SAN ANTONIO, TX
COUNTY: BEXAR

JOB#. = USE23–456
DRAWN BY: WL
CHECKED BY: RC
DATE: 01–12–24

REVISION 1: REVISED BEAM DETAILS
BY: WL
DATE: 01–30–24

REVISION 2:
BY:
DATE:

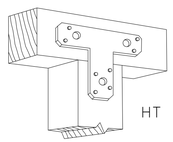
S1.0

LEGEND

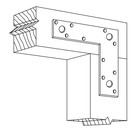
ROOF RAFTER ———————

WOOD BEAM - - - - - - - - - -

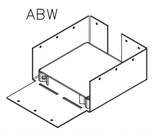
WOOD HEADER — — — — — —



SIMPSON COLUMN STRAP–"T"



SIMPSON COLUMN STRAP –"L"



SIMPSON POST BASE

NOTE:

ALL RAFTERS ARE 2X12 S.P #2 @ 16" O.C, U.N.O.

DESIGN LOADS

1. DEAD LOADS:
   - FLOORS 10 PSF
   - ROOF 10 PSF
   - CEILING 5 PSF
2. LIVE LOADS:
   - FLOORS 40 PSF
   - ROOF 20 PSF
   - CEILING 10 PSF

GENERAL NOTES:

1. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL REFERENCE ONLY. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED BY DIRECT SCALING OF THE DRAWING.
2. THE BUILDER/CONTRACTOR SHALL VERIFY THE LAYOUT OF THE STRUCTURAL FRAMING PLANS WITH THE FINAL ARCHITECTURAL PLANS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN WRITING PRIOR TO CONSTRUCTION.
3. THESE FRAMING DESIGN PLANS ARE NULL AND VOID AND UNIVERSAL STRUCTURAL ENGINEERS ACCEPTS NO RESPONSIBILITY OF THE CONSTRUCTION OF THIS STRUCTURE WITHOUT AN APPROVED FRAMING REVIEW PROVIDED BY THIS OFFICE PRIOR TO COVERING THE STRUCTURAL MEMBERS.
4. THE MINIMUM STRENGTH AND GRADE OF ALL SPECIFIED BEAMS SHALL BE AS FOLLOWS:
   a. DIMENSIONAL LUMBER – S.Y.P. #2
   b. LVL BEAMS – 3100Fb 2.0E VERSA-LAM, OR EQUAL
   c. GLULAM BEAMS – 24F SOUTHERN PINE 1.8E
5. WALLS SHALL BE CONTINUOUSLY SHEATHED WITH 15/32" OSB PANELS, FROM BOTTOM OF SILL PLATE TO TOP OF TOP PLATE.
6. SILL PLATES OF EXTERIOR WALLS TO BE ANCHORED AT 48" SPACING. ATTACH ANCHORS TO SILL PLATES WITH NUTS AND WASHERS
7. EXTERIOR STUDS TO BE 2"X NOMINAL OF S.P.F. STUD GRADE, SPACED 16" TYPICAL. FOR WALLS HAVING A PLATE HEIGHT OF 12' OR GREATER, THE GRADE OF THE STUD MATERIAL MUST BE #2 OR BETTER, AND MUST BE SHEATHED WITH 15/32" THICK OSB OR PLYWOOD PANELS.
8. ROOF SHALL BE SHEATHED WITH 19/32" OSB PANELS, WITH EDGE CLIPS.
9. RAFTERS SHALL BE CONNECTED TO TOP PLATE AND RIDGE BEAM WITH SIMPSON CONNECTORS.
10. WALL SHEATHING SHALL BE NAILED WITH 8d COMMON NAILS AT FOLLOWING SPACING:
    a. 4" ALONG TOP AND SILL PLATES
    b. 4" ALONG STUD EDGES
    c. 12" INTERIOR STUDS
11. INSTALL BLOCKING SAME SIZE AS THE STUDS AT ALL HORIZONTAL SHEATHING PANELS FOR SHEATHING ATTACHMENT.
12. ALL STRUCTURAL BEAMS SHALL BEAR ON STUD PACKS W/ THE SAME NUMBER OF PLIES AS THE BEAM, U.N.O.
13. HIP, VALLEY AND RIDGE RAFTERS SHALL BE 2" NOMINALLY DEEPER THAN THE RAFTERS THAT FRAME INTO THEM UNLESS NOTED OTHERWISE (U.N.O.).
14. SPANS OF CEILING JOISTS AND ROOF RAFTERS SHALL COMPLY WITH THE TABLES FOUND IN THE INTERNATIONAL RESIDENTIAL CODE.
15. REFER TO THE DOOR/WINDOW HEADER SCHEDULE ON S2.0 FOR HEADER SIZES NOT SHOWN ON PLAN.

ROOF NOTES:

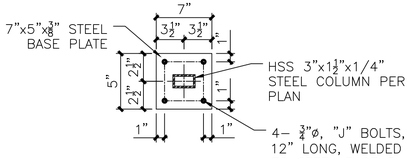
1. ALL LUMBER TO BE #2 SOUTHERN PINE, 19% M.C. U.N.O.
2. ALL HIPS, RIDGES AND VALLEYS TO BE ONE MILL SIZE LARGER THAN THE RAFTERS THEY ARE SUPPORTING U.N.O.
3. TRANSFER ALL LOAD BEARING POINTS TO FOUNDATION UNLESS NOTED OTHERWISE.
4. BRACE (OR) PURLIN ALL RAFTERS TO LOAD BEARING WALLS OR BEAMS, IF SPAN IS GREATER THAN MAX., ACCORDING TO THE 2021 INTERNATIONAL RESIDENTIAL CODE (IRC).
5. ALL RAFTERS SPLICES SHALL BE BRACED.
6. PURLINS ARE TO BE THE SAME DEPTH AS THE RAFTERS THEY ARE SUPPORTING. U.N.O.
7. NAIL ALL CONNECTIONS IN ACCORDANCE WITH 2021 IRC.
8. U.N.O. ALL RAFTERS ARE TO BE 2X12'S #2 SP AT 16" O.C.
9. ALL EXTERIOR OPENINGS TO BE LOAD BEARING.
10. PROVIDE COLLAR TIES AT EVERY OTHER RAFTER SPACING ON ALL RIDGES.

STEEL DESIGN SPECIFICATIONS:

1. THIS DESIGN IS IN ACCORDANCE WITH THE 2021 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE.
2. STRUCTURAL STEEL W-SHAPES SHALL CONFORM TO ASTM A992 GRADE 50.
3. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS, AND OTHER ROLLED MEMBERS SHALL CONFORM TO ASTM A36.
4. RECTANGULAR OR SQUARE HSS MEMBERS SHALL CONFORM TO ASTM A500 GRADE B.
5. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B.
6. ALL STRUCTURAL FRAMING AND CONNECTIONS HAVE BEEN DESIGNED FOR THE FINAL COMPLETED CONDITION AND HAVE NOT BEEN INVESTIGATED FOR POTENTIAL LOADINGS ENCOUNTERED DURING ERECTION AND CONSTRUCTION. ANY INVESTIGATION OF THE STRUCTURAL FRAMING CONNECTIONS FOR ADEQUACY DURING THE ERECTION AND CONSTRUCTION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND JOB SITE SAFETY.

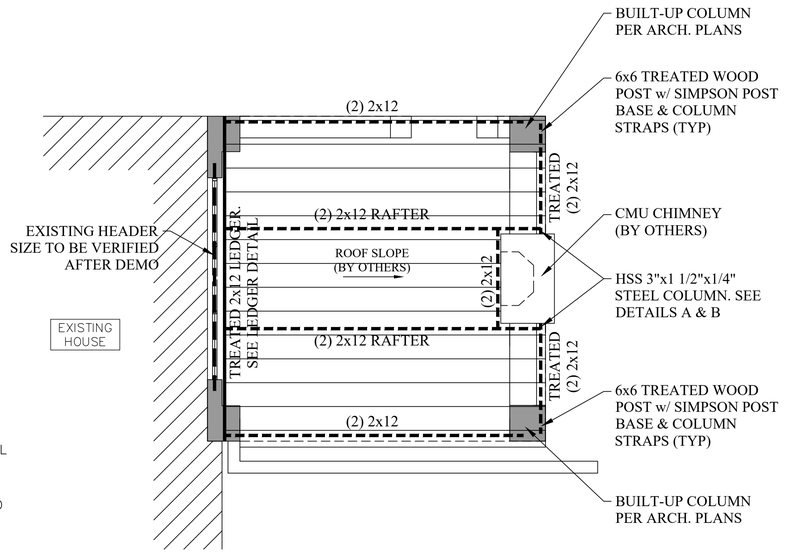
GENERAL NOTES – STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC 'STEEL CONSTRUCTION MANUAL', FOURTEENTH EDITION, AND THE AISC 'CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES', MARCH 18, 2005 EDITION.
2. ALL WELDING SHALL COMPLY WITH AWS D1.1 USING E70XX ELECTRODES. ALL WELDING TO BE DONE BY AWS PREQUALIFIED WELDERS, CERTIFIED FOR WELDS MADE. PROVIDE CONTINUOUS MINIMUM SIZED WELDS PER AISC REQUIREMENTS, UNLESS NOTED OTHERWISE.
3. THE MINIMUM SIZE OF FILLET WELDS SHALL BE AS SPECIFIED IN TABLE J2.4 IN THE AISC 'STEEL CONSTRUCTION MANUAL'.
4. MINIMUM STRENGTH OF WELDED CONNECTIONS: UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL SHOP AND FIELD WELDS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE MEMBER OF THE ELEMENT JOINED. ALL MEMBERS WITH MOMENT CONNECTIONS, NOTED ON THE DRAWINGS, SHALL BE WELDED TO DEVELOP THE FULL FLEXURAL CAPACITY OF THE MEMBER, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
5. BOLTED CONNECTIONS SHALL BE MADE WITH ASTM A325 HIGH STRENGTH BOLTS (MINIMUM 3/4-INCH DIAMETER), U.N.O.
6. COLUMN BASE PLATES SHALL HAVE OVERSIZED HOLES WITH PLATE WASHERS (MINIMUM 3/8-INCH THICK) PROVIDED WITH ANCHOR RODS
7. GROUT UNDER BASE PLATES IN ACCORDANCE WITH THE 'AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES', MARCH 18, 2005 EDITION.
8. CLEAN, PREPARE, AND SHOP PRIME EXTERIOR EXPOSED STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH SSPC STANDARDS SP-1 AND SP-6.
9. CLEAN, PREPARE, AND SHOP PRIME INTERIOR EXPOSED STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH SSPC STANDARDS SP-1 AND SP-3.
10. WHILE THE DESIGN DOCUMENTS MAY REFERENCE OSHA, THEY ARE NOT INTENDED TO SPECIFICALLY IDENTIFY ALL APPLICABLE OSHA REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS.
11. ALL STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER, INCLUDING MASONRY SHELF ANGLES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, UNLESS OTHERWISE NOTED.



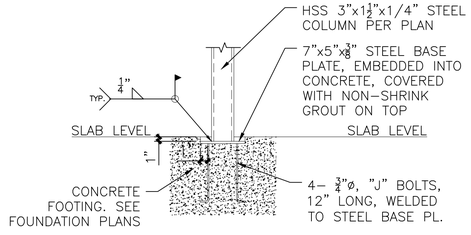
PLAN VIEW

SCALE: N.T.S.



ROOF FRAMING PLAN

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



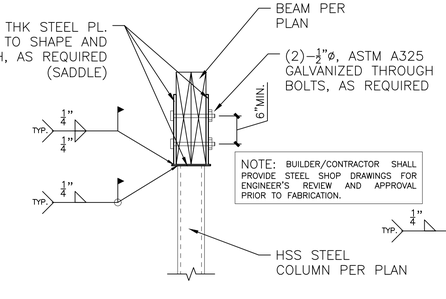
DETAIL 'A'
STEEL COLUMN/BASE PLATE

SCALE: N.T.S.

HANGER SCHEDULE		
MEMBER	HANGER	REACTION (LBS.)
2x DIMENSIONAL LUMBER		
(1) 2x	HU SERIES	500 MAX.
(2) 2x10	HUS210-2	2,110
(2) 2x12	HUS212-2	2,635
(3) 2x10	HU210-3	2,085
(3) 2x12	HU212-3	2,385
LSL, LVL & PSL: (2) PLY		
3 1/2" x 9 1/4"	HUS410	2,125
3 1/2" x 11 7/8"	HUS412	2,660
3 1/2" x 14"	HU416	2,975
3 1/2" x 16"	HGUS414	13,860
3 1/2" x 18"	HGUS414	13,860
LSL, LVL & PSL: (3) PLY		
5 1/4" x 9 1/4"	HU610	2,085
5 1/4" x 11 7/8"	HHUS5.50/10	5,635
5 1/4" x 14"	HHUS5.50/10	5,635
5 1/4" x 16"	HHUS5.50/10	5,635
5 1/4" x 18"	HGUS5.50/14	13,860

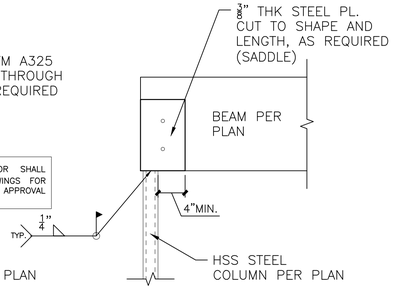
MULTIPLE MEMBER CONNECTORS

For top loaded beams and beams with side loads with less than those shown:			
Plies	Depth	Nailing	Maximum Uniform Load From One Side
(2)–1½" plies	11⅞" & less	2 rows 16d box/sinker nails 12" o.c.	400 plf
	14" – 18"	3 rows 16d box/sinker nails 12" o.c.	600 plf
(3)–1½" plies	11⅞" & less	2 rows 16d box/sinker nails 12" o.c.	470 plf
	14"	3 rows 16d box/sinker nails 12" o.c.	525 plf
	16" – 18"	2 rows ½" dia. bolts (or SDW22500 screws) @ 24" O.C., staggered	375 plf
	20" – 24"	3 rows ½" dia. bolts (or SDW22500 Screws) @ 24" O.C., staggered every 8"	565 plf
(4)–1½" plies & (2)– 3½" plies	18" & less	2 rows ½" dia. bolts (or SDW22634 Screws) @ 24" O.C., staggered	335 plf
	20" – 24"	3 rows ½" dia. bolts (or SDW22634 Screws) @ 24" O.C., staggered every 8"	505 plf



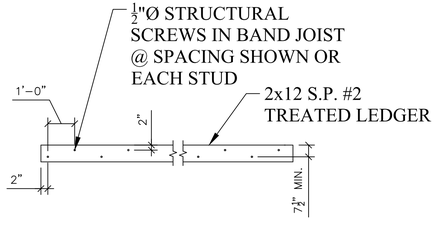
DETAIL 'B'
STEEL COLUMN/WOOD BEAM CONNECTION WITH SADDLE

SCALE: N.T.S.



DETAIL 'C'
STEEL COLUMN/WOOD BEAM CONNECTION WITH SADDLE

SCALE: N.T.S.



LEDGER DETAIL

SCALE: N.T.S.

UNIVERSAL
STRUCTURAL ENGINEERS, LLC
4414 CENTERVIEW DR., SUITE 136
SAN ANTONIO, TX 78228
PH.: (210) 437 3175
TBPE FIRM REGISTRATION#: F-18467

STATE OF TEXAS
WAYNE LEAKE
133083
LICENSED
PROFESSIONAL ENGINEER

Wayne Leake III
HENRY WAYNE LEAKE III, P.E.
01/12/2024
DATE

CUSTOM PATIO REMODEL
LEHRCO PROFESSIONAL REMODELERS
FRAMING DESIGNS

ADDRESS: 315 W SUMMIT AVE.
LOT: 11 BLOCK: 6 N.C.B.:
SUBDIVISION:
CITY: SAN ANTONIO, TX
COUNTY: BEXAR

JOB#: = USE23-456
DRAWN BY: WL
CHECKED BY: RC
DATE: 01-12-24

REVISION 1:
BY:
DATE:

REVISION 2:
BY:
DATE:

S2.0