

**GENERAL:**

- Structural drawings shall be used in conjunction with the architectural, mechanical, electrical and shop drawings, and specifications.
- Unless otherwise noted, sections, details, notes, materials, and methods shown on drawings are to be considered typical for all similar conditions.
- In the event of a conflict between plans, specifications, and details, the Structural Engineer shall be notified immediately for clarification.
- The general contractor must field verify and review all existing framing for coordination with newly detailed structural assemblies. For the purpose of preparing these drawings, the engineer has assumed all walls and framing are plumb, level, align vertically and horizontally and all members are sound. Depending on conditions encountered, it may be necessary to modify the design. The G.C. must notify the Structural Engineer (SE) of varying conditions prior to beginning construction.
- All dimensions, elevations, and conditions must be verified in the field by the Contractor. Any discrepancies between these drawings and as-built conditions shall be brought to the attention of the Structural Engineer before proceeding with any work.
- The structure has been designed to be self-supporting and stable after the work shown on these drawings has been completed. The contractor shall be responsible for the stability of the structure prior to the completion of work including, but not limited to, jobsite safety, all shoring, bracing, erection methods, erection sequence, and forms required during construction. Temporary supports required for stability during all intermediate stages of construction shall be designed, furnished, and installed by the Contractor.
- The Contractor shall provide and maintain shoring and bracing supports as required to preserve stability and prevent movement, settlement, or collapse of adjacent construction to remain.
- All shoring and bracing shall be designed and certified by a professional engineer licensed in the jurisdiction of the project. Submittals to the Structural Engineer of all shoring and bracing for review and approval are required prior to the start of construction.
- Shop drawings shall be submitted to the Structural Engineer (see each section for specific items and requirements). Fabrication shall not proceed until a satisfactory review is received. The Contractor is proceeding at their own risk if failure to do so. Erection shall be executed from final reviewed shop drawings only.
- Items noted on drawings as "by others" or "designated for design by others" indicates design and supply of structural items not by TFM. These items are a designated design item that shall be submitted for approval. See Deferred Submittals.
- These plans were prepared under the supervision of a licensed professional engineer. TFMoran Inc. assumes no liability as a result of any changes or non-conformance with these plans except upon the written approval of the Engineer of Record.
- TFMoran Inc. assumes no liability for work performed without an acceptable program of testing and inspection as approved by the Engineer of Record.
- Reproduction of structural drawings for shop drawings is not permitted. Electronic drawings files will not be provided to the Contractor unless a transfer agreement has been completed between the Structural Engineer and the Contractor.
- All work shall comply with the building codes referenced on these drawings.
- Do not scale drawings. Contact the Architect or Structural Engineer for dimensions not specifically shown.

**CODE:**

- 2018 International Building Code as amended, altered, or deleted by the provisions of the New Hampshire State Building Code.
- 2018 International Existing Building Code as amended, altered, or deleted by the provisions of the New Hampshire State Building Code.

**DESIGN LOADS:**

- ROOF SNOW LOAD:**
  - Risk Category: II
  - Ground Snow Load, Pg: 50 psf
  - Snow Load Importance Factor, Is: 1.0
  - Snow Exposure Factor, Ce: 1.0
  - Thermal Factor, Ct: 1.1
  - Flat Roof Snow Load, Pf: 38.5 psf
  - Drifting, sliding, and unbalanced snow loads: Per ASCE-7
- RAIN LOADS:**
  - Rain Loads: Per ASCE-7
- ROOF LIVE LOAD:**
  - Roof live load: 20 psf MIN
- DEAD LOAD:**
  - Roof: 20 psf
- WIND DESIGN DATA:**
  - Wind loads determined using ASCE-7 Envelope Procedure for Low-Rise Buildings.
  - Risk Category: II
  - Basic Design Wind Speed, V: 123 mph
  - Allowable Stress Design Wind Speed, Vasd: 95.3 mph
  - Wind Exposure Category: B
  - Internal Pressure Coefficient: 0.18
  - Components and Cladding Design Wind Pressure:

Zone Per ASCE-7	MAX Positive (20 ft²)	MAX Negative (20ft²)
1 & 2E	16.0 psf	38.7 psf
2n, 2r & 3e	16.0 psf	54.1 psf
3r	16.0 psf	60.7 psf
4	26.0 psf	28.3 psf
5	26.0 psf	34.0 psf

NOTE: This structure has been designed as an enclosed building as defined in ASCE-7. All exterior wall glazing shall be impact resistant or protected with an impact-resistant covering meeting the requirements of the International Building Code referenced on this sheet.
- EARTHQUAKE DESIGN DATA:**
  - Risk Category: II
  - Seismic Importance Factor, Is: 1.0
  - 0.2s Mapped Spectral Response Acceleration, Ss: 0.363g
  - 1.0s Mapped Spectral Response Acceleration, S1: 0.079g
  - 0.2s Spectral Response Coefficient, Sds: 0.365g
  - 1.0s Spectral Response Coefficient, Sd1: 0.126g
  - Site Class: D (Assumed)
  - Seismic Design Category: C

Earthquake Design for Existing Buildings:  
Not required since the proposed additions, alterations do not increase the force in any structural element by more than 5 percent nor do they decrease the strength of any structural element to less than required by the building code for new structures.

**WOOD:**

- Work shall be in accordance with the applicable American Wood Council, ANSI / AF&PA, "National Design Specification for Wood Construction (NDS)" including "Design Values for Wood Construction", National Forest Products Association.
- New wood for structural use shall have a moisture content as specified in the "National Design Specification for Wood Construction."
- Wood construction shall conform to applicable IBC, Chapter and Section for "Conventional Light-frame Construction."
- Sheathing panels shall be marked with the American Plywood Association (APA) trademark and shall meet the latest U.S. Product Standard PS 1 or APA PRP-108 Performance Standards.
- Framing for walls, joists, rafters beams and headers shall be Spruce-Pine-Fir (SPF) No. 1/ No. 2, unless noted. Dimensioned lumber represents nominal sizes. See minimum properties below.
- Wood exposed to the weather or in contact with concrete or masonry shall be pressure treated (P.T.) Southern Pine No. 1, unless noted. See minimum properties below:
- Laminated Veneer Lumber (LVL) members shall be 1.9E Trus Joist Microlam LVL as manufactured by Weyerhaeuser or approved equivalent. See minimum properties below:
- Parallel Strand Lumber (PSL) members shall be 2.0E (Beam) or 1.8E (Columns) Trus Joist Parallam PSL as manufactured by Weyerhaeuser or approved equivalent. See minimum properties below.

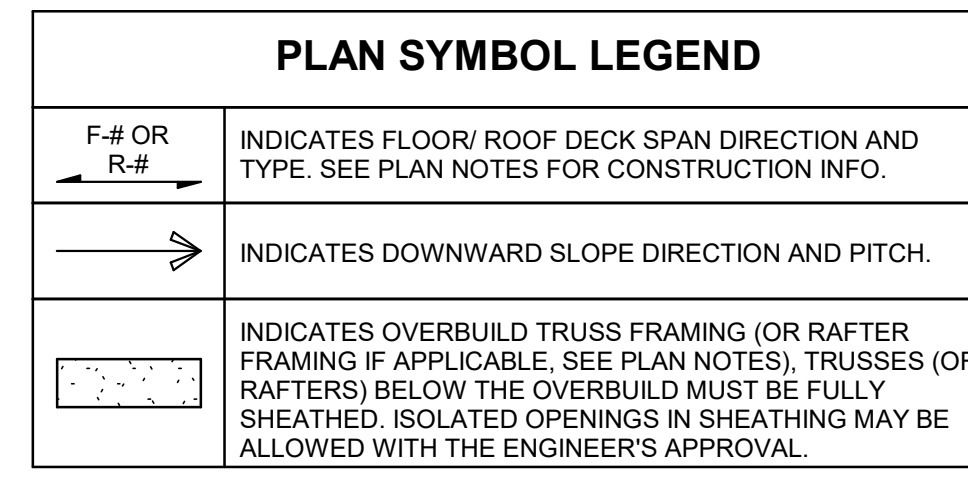
Species / Material	Min. Design Values		
	E (psi)	Fb (psi)	Fv (psi)
Spruce-Pine Fir (SPF) No. 1/ No. 2:	1.4e6	875	135
Southern Pine (SP) No. 1:	1.4e6	1,100	175
Laminated Veneer Lumber (LVL) 1.9E members:	1.9e6	2,600	285
Parallel Strand Lumber (PSL) 2.0E (Beams):	2.0e6	2,900	290
Parallel Strand Lumber (PSL) 1.8E (Columns):	1.8e6	2,400	190

Condition	Pressure Treatment	Min. Retention	AWPA Category	
			UC1	UC2
Interior Construction: (Wood not exposed to weather, in contact with concrete or masonry)	CCA, ACQ-C,D	.25	UC2	UC2
	CA-B	.1	UC2	UC2
	MCA-C	.05	UC2	UC2
Above Ground, exterior construction: (Beams, joists and stringers not in contact with the ground)	CCA, ACQ-C,D	.25	UC3B	UC3B
	CA-B	.1	UC3B	UC3B
	MCA-C	.05	UC3B	UC3B
Ground Contact, fresh water; (Posts and members exposed to weather and in ground contact)	CCA, ACQ-C,D	4	UC4A	UC4A
	CA-B	.21	UC4A	UC4A
	MCA-C	.15	UC4A	UC4A

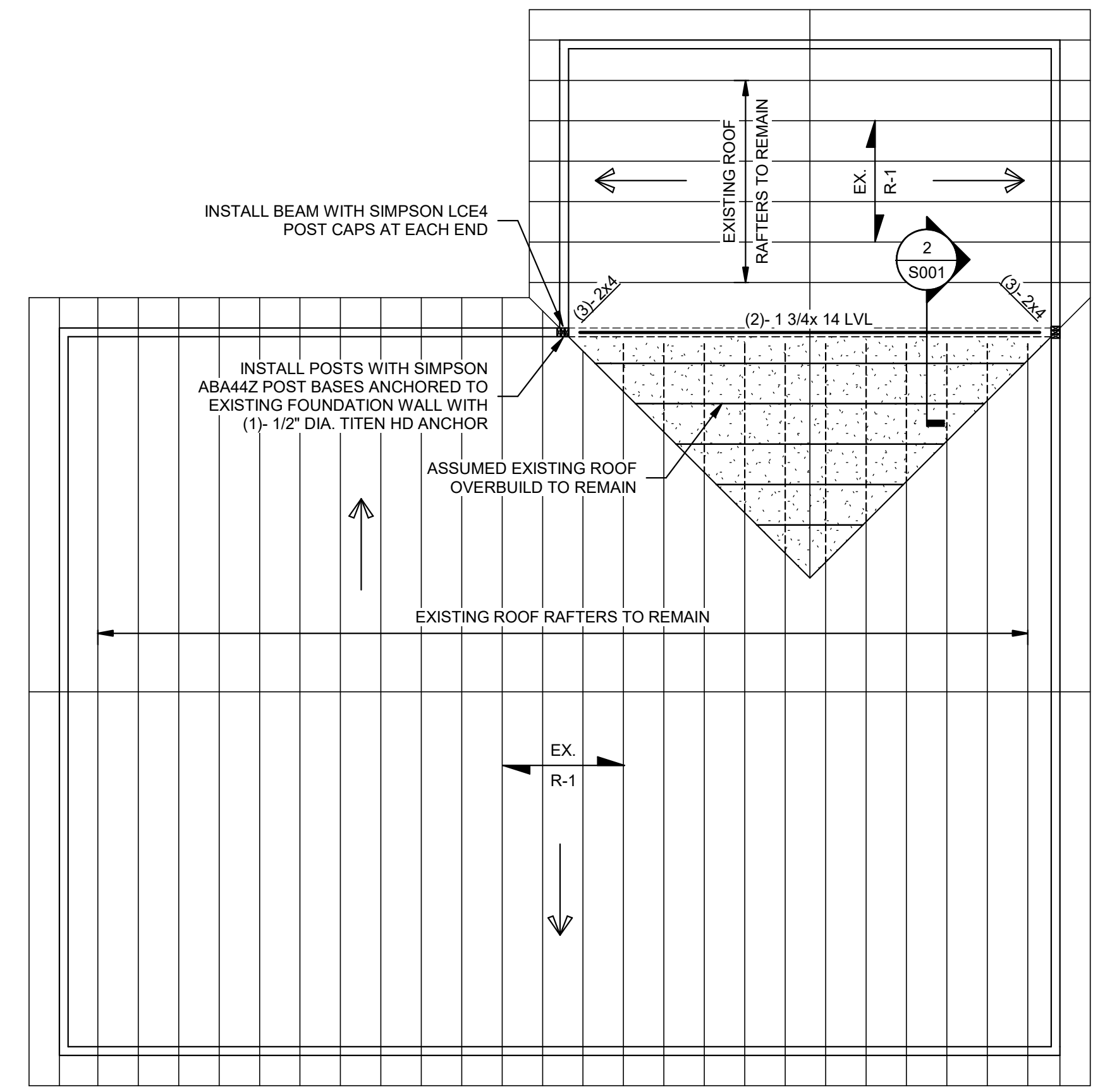
**Treated Sheathing**  
Chromated Copper Arsenate (CCA), Alkaline Copper Quaternary (ACQ), Copper Azole (CA) and Micronized Copper Azole (MCA)  
Field treat cut ends of P.T. wood with Copper Naphthenate preservative such as Copper-Greene.

- Wood to steel and wood to wood bolted connectors shall be made with ASTM A307 bolts with flat washers. Bolt holes in wood shall be 1/32" larger than the bolt. Wood nailers shall be fastened with (2) rows of 1/2" diameter carriage bolts staggered at 2'-0" o.c. unless otherwise noted.
- Shear wall holdown anchor bolts and threaded rods shall be ASTM F1554 Gr. 36 for diameters 3/4" or less. Anchors cast in concrete shall be headed bolts, hooked ("J" type) anchor bolts are not permitted. Provide diameters and dimensions detailed within schedule or as per manufacturer.
- Anchor bolts for wood sill plates to concrete shall be min. ASTM A307 headed or hooked bolts of the diameters and dimensions detailed or noted on the drawings.
- Fastening Schedule: See applicable IBC table "Fastening Schedule" and Typical Detail Sheets for fastening/nailing requirements.
- Top plates: Bearing and exterior wall studs shall be capped with double top plates (unless noted otherwise), installed to provide overlapping at corners and wall intersections with other partitions. End joints in top plates shall be offset no less than 48".
- Wood posts / columns shall have metal cap and base connectors at top and bottom unless otherwise noted.
- The lateral bracing system includes plywood wall and roof sheathing. Contractor shall provide temporary bracing as required to laterally support the structure during construction.
- Provide lateral support at all bearing points and along compression edges at intervals of 24" o.c. or closer.
- Minimum section width = 1 3/4". The 3 1/2", 5 1/4", and 7" members may be combinations of 1 3/4" members. Follow manufacturers guidelines for Multiple Member Connections for side loaded beams.
- Wood Construction Connectors shall be manufactured by Simpson Strong-Tie Co., MiTek Industries, Inc. or approved equal and installed in accordance with the manufacturers recommendations.
- All wood fasteners and hangers in contact with pressure treated (P.T.) lumber are to be stainless steel or hot dipped galvanized (min 2.0 oz/ft²). Hangers located in Ocean/Water Front environments shall be stainless steel.

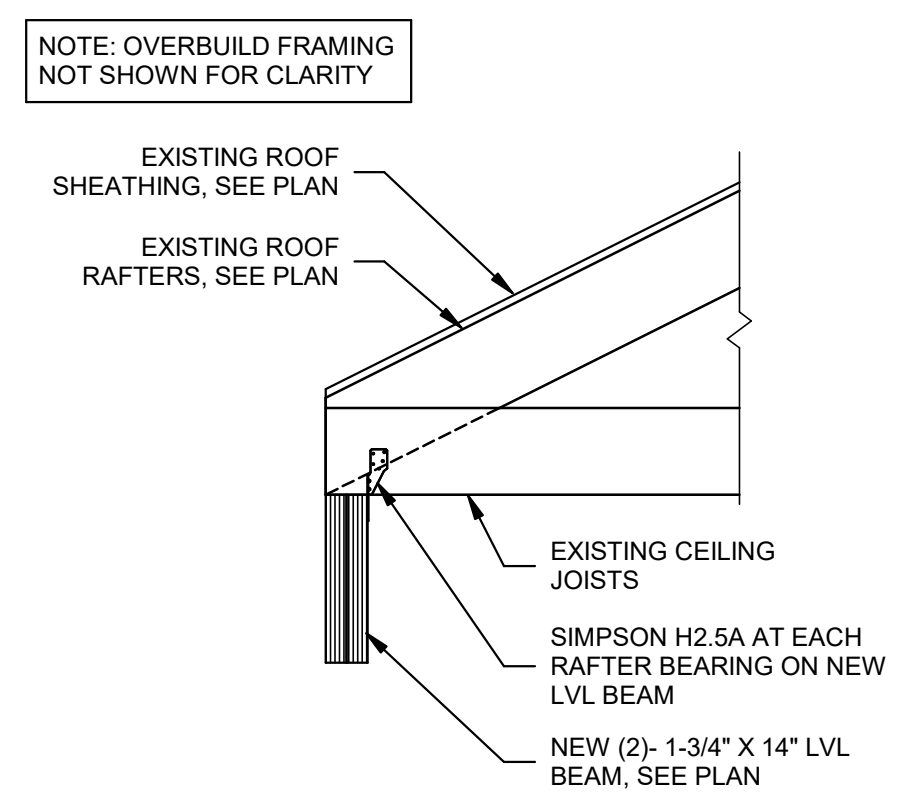


**FRAMING PLAN NOTES**

- DO NOT SCALE THIS DRAWING.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- "R-1" ROOF SHEATHING: EXISTING WOOD SHEATHING.
- EXTERIOR STUD WALL CONSTRUCTION: 2x4 STUDS AT 16" o.c.
- INTERIOR BEARING WALL CONSTRUCTION: 2x4 STUDS AT 16" o.c.
- UNLESS FASTENED WITH HANGERS TO A FLUSH HEADER/BEAM, INSTALL SOLID 2x BLOCKING BETWEEN RAFTERS/ TRUSSES OVER BEARING WALLS OR DROPPED BEAMS.
- PROVIDE JOIST/RAFTER BRIDGING AT 8'-0" O.C. MAX.
- ALL INTERIOR AND EXTERIOR BEARING/SHEAR WALL STUDS TO ALIGN FROM FLOOR TO FLOOR.
- PROVIDE SIMPSON HURRICANE CLIPS AT ALL ROOF JOIST BEARING LOCATIONS SEE DETAILS FOR MORE INFORMATION.



**1 ROOF FRAMING PLAN**  
1/4" = 1'-0"



**2 FRAMING SECTION AT NEW LVL BEAM**  
3/4" = 1'-0"

FASTENER TYPE	FASTENER SPACING	3 1/2" WIDE, 2-PLY	5 1/4" WIDE, 3-PLY	7" WIDE, 4-PLY
		MAX. JOIST SPAN	MAX. JOIST SPAN	MAX. JOIST SPAN
10d (0.128"x3") NAIL	(2) AT 12" o.c. (3) AT 12" o.c.	12'-4"	9'-4"	-
3 1/2" SIMPSON SDS	(2) AT 24" o.c. (2) AT 16" o.c.	22'-8"	17'-0"	-
6" SIMPSON SDS	(2) AT 24" o.c. (2) AT 16" o.c.	34'-0"	25'-6"	-
3 3/8" SIMPSON SDW EWP-PLY	(2) AT 24" o.c. (2) AT 16" o.c.	26'-8"	20'-0"	-
5" SIMPSON SDW EWP-PLY	(2) AT 24" o.c. (2) AT 16" o.c.	40'-0"	30'-0"	-
6 3/4" SIMPSON SDW EWP-PLY	(2) AT 24" o.c. (2) AT 16" o.c.	-	15'-0"	-
			22'-8"	-
			12'-4"	-
			20'-0"	-

NOTE:  
1. SPAN VALUES FOR NAILED PLYS MAY BE DOUBLED FOR 6" o.c. SPACING OR TRIPLED FOR 4" o.c. SPACING.  
2. SPAN VALUES FOR SCREWED PLYS FASTENED AT 24" o.c. MAY BE DOUBLED FOR 12" o.c. FASTENER SPACING.

**3 TYPICAL BUILT-UP LVL BEAM CONNECTION SCHEDULE**  
3/4" = 1'-0"

48 Constitution Drive  
Bedford, NH 03110  
Phone #: (603) 472-4488  
Fax #: (603) 472-9747  
www.tfmoran.com  
TFM Project #: 44774.13

ENGINEER  
STATE OF NEW HAMPSHIRE  
JACOB F. POULIOT  
No. 16309  
LICENSED PROFESSIONAL ENGINEER

REV. #	DESCRIPTION OF REV.	REV. DATE

DELEGATION BUILDING - WALL REMOVAL  
116 NORTH ROAD  
BRENTWOOD, NH 03833  
PREPARED FOR  
ROCKINGHAM COUNTY COMPLEX  
116 NORTH ROAD  
BRENTWOOD, NH 03833  
SCALE: As indicated

DR. BY: JFP    CHK. BY: PES  
PROJECT: 44774.13

ROOF FRAMING PLAN, DETAILS, AND NOTES

**S001**