

**STRUCTURAL
CALCULATIONS**

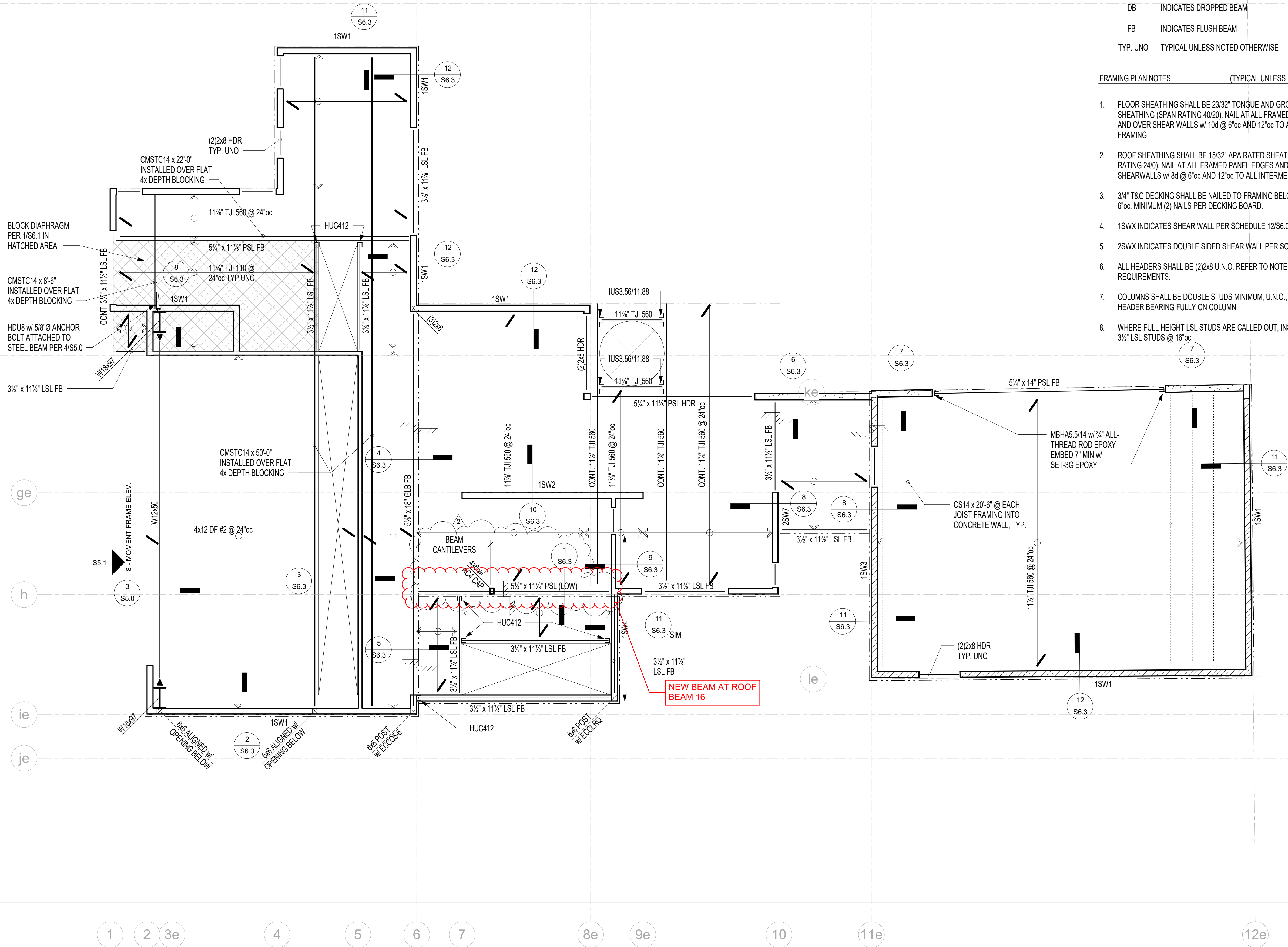
Nestler-Spare Residence
8265 SE 61st St.
Mercer Island, WA 98040

Studio Diaa
3125 Eastlake Ave E, Suite C
Seattle, WA 98102

June 9, 2025



ae
b
c
de
e
f
ge
h
ie
je



FRAMING PLAN LEGEND

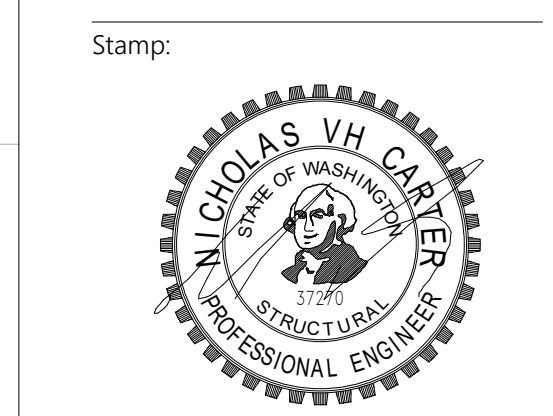
- WALLS BELOW
- COLUMNS BELOW
- HANGER
- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES DETAIL X ON SHEET SX.XX
- FRAMING SPAN AND EXTENTS
- INDICATES DROPPED BEAM
- INDICATES FLUSH BEAM
- TYP. UNO - TYPICAL UNLESS NOTED OTHERWISE

FRAMING PLAN NOTES (TYPICAL UNLESS NOTED OTHERWISE)

1. FLOOR SHEATHING SHALL BE 23/32" TONGUE AND GROOVE APA RATED SHEATHING (SPAN RATING 40/20). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 10d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING
2. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING (SPAN RATING 24/0). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEARWALLS w/ 8d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING.
3. 3/4" T&G DECKING SHALL BE NAILED TO FRAMING BELOW WITH 10d @ 6"oc. MINIMUM (2) NAILS PER DECKING BOARD.
4. 1SWX INDICATES SHEAR WALL PER SCHEDULE 12/S6.0.
5. 2SWX INDICATES DOUBLE SIDED SHEAR WALL PER SCHEDULE 12/S6.0.
6. ALL HEADERS SHALL BE (2)2x8 U.N.O. REFER TO NOTE 5 FOR SUPPORT REQUIREMENTS.
7. COLUMNS SHALL BE DOUBLE STUDS MINIMUM. U.N.O., WITH BEAM OR HEADER BEARING FULLY ON COLUMN.
8. WHERE FULL HEIGHT LSL STUDS ARE CALLED OUT, INSTALL 1.3E 1 1/2" x 3 1/2" LSL STUDS @ 16"oc.

Copyright:
This drawing and all copyright therein are the sole and exclusive property of STUDIO D&A LLC. Reproduction or use of this drawing in whole or in part by any means in any way whatsoever without the prior written consent of STUDIO D&A LLC is strictly prohibited.

Revision: Date:
MERCER ISLAND BUILDING PERMIT REV 1 03.28.25
MERCER ISLAND BUILDING PERMIT REV 2 06.10.25



Consultants:

Project:
NS Residence
project no. 2401
8265 SE 61st St
Mercer Island, WA 98040

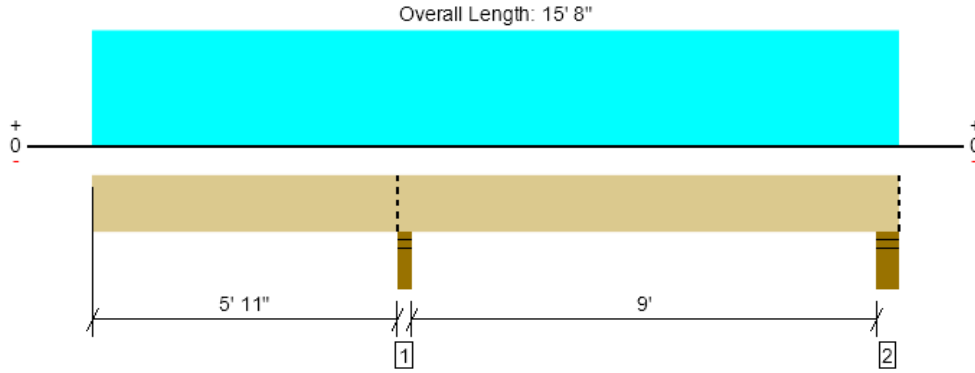
Drawing Title:
Roof Framing Plan

Date: June 9, 2025
Issued For: Permit Comments #2
Drawn By:
Checked By:
Scale: As indicated
Sheet No.:

1 Roof Framing Plan
1/4" = 1'-0"

Roof Framing, Beam 16

1 piece(s) 5 1/4" x 11 7/8" 2.0E Parallam® PSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	8711 @ 6' 3/4"	11484 (3.50")	Passed (76%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	3766 @ 7' 2 3/8"	13861	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-12625 @ 6' 3/4"	34332	Passed (37%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.193 @ 0	0.404	Passed (2L/754)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.320 @ 0	0.606	Passed (2L/454)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 15' 8"
 System : Roof
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Overhang deflection criteria: LL (2L/360) and TL (2L/240).
- Left cantilever length exceeds 1/3 member length or 1/2 back span length. Additional bracing should be considered.
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - PSL	3.50"	3.50"	2.65"	4009	4702	8711	Blocking
2 - Stud wall - PSL	5.50"	5.50"	1.50"	944	1475	2419	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	15' 8" o/c	
Bottom Edge (Lu)	15' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 15' 8"	N/A	19.5	--	
1 - Uniform (PSF)	0 to 15' 8" (Front)	14' 10"	20.0	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

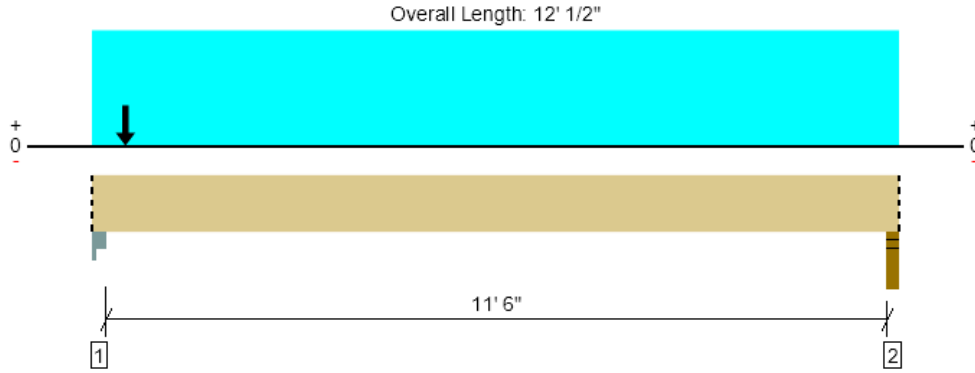
Weyerhaeuser Notes
 Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.
 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



Main Floor Framing, Beam 3

3 piece(s) 1 3/4" x 9 1/4" 2.0E Microllam® LVL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	8888 @ 2"	13781 (3.50")	Passed (64%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2727 @ 1' 3/4"	10611	Passed (26%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	3756 @ 5' 4 13/16"	16806	Passed (22%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.080 @ 5' 9 3/16"	0.294	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.157 @ 5' 8 7/8"	0.587	Passed (L/899)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 12' 1/2"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Column Cap - steel	3.50"	3.50"	2.26"	4319	644	4569	8888	Blocking
2 - Stud wall - HF	3.00"	3.00"	1.50"	535	640	133	1175	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' 1" o/c	
Bottom Edge (Lu)	12' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 1/2"	N/A	14.2	--	--	
1 - Uniform (PSF)	0 to 12' 1/2" (Front)	1' 4"	27.0	40.0	--	Default Load
2 - Uniform (PSF)	0 to 12' 1/2" (Front)	1' 4"	15.0	40.0	--	Default Load
3 - Point (lb)	6" (Front)	N/A	4009	--	4702	Linked from: Beam 16, Support 1

• Side loads are assumed to not induce cross-grain tension.

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	

