David Mezger Engineering LLC

Tel: Cell 913-481-3774
Office 816-736-4043

212 NE Circle Dr
Kansas City, MO 64116

Email:
mezgerde@gmail.com

DME

October 13, 2022

City of Lee's Summit, Building Inspection

Re: Review comments for 4816 NE Freehold Ct.

Dear Sirs,

Item 6 of the subject review comments asks for verification of the attachment method for the deck support beam to the house. The builder has advised that the framers used a Simpson HUC210-3Z concealed flange joist hanger to connect the beam to the frame wall on the corner of the house. An analysis of the beam (copy attached) indicates a 1458# factored load at the hanger. Page 105 of the Simpson-Strong Tie Catalog (copy attached) lists the allowable floor load capacity of this hanger at 2680#. The use of this hanger is a satisfactory attachment method.

Sincerely,

David E. Mezger P.E.

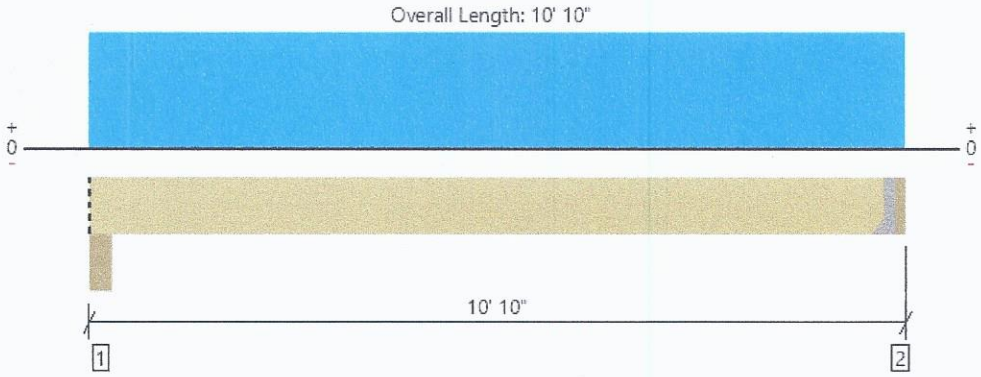
FORTEWEB

MEMBER REPORT

PASSED

Level, Floor: Drop Beam

3 piece(s) 2 x 12 SP No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1404 @ 10' 7 1/2"	3814 (1.50")	Passed (37%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1148 @ 9' 8 1/4"	5906	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3612 @ 5' 5 3/4"	5933	Passed (61%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.068 @ 5' 5 3/4"	0.343	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.092 @ 5' 5 3/4"	0.515	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Column - SPF	5.50"	5.50"	1.50"	399	1096	1495	Blocking
2 - Hanger on 11 1/4" SPF beam	2.50"	Hanger[1]	1.50"	387	1071	1458	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

STATE OF MISSOURI
DAVID E. MEZGER
PE-2018009531
PROFESSIONAL ENGINEER
10/13/22

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	10' 8" o/c	
Bottom Edge (Lu)	10' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	HU210-3	2.50"	N/A	18-10dx1.5	10-10d	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 10' 7 1/2"	N/A	12.8	--	
1 - Uniform (PSF)	0 to 10' 10" (Front)	5'	12.0	40.0	Default Load

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
David Mezger David Mezger Engineering LLC (913) 481-3774 mezgerde@gmail.com	

Weyerhaeuser

10/13/2022 6:03:38 PM UTC
ForteWEB v3.4, Engine: V8.2.2.122, Data: V8.1.3.0
File Name: DME

Face-Mount Hangers — Solid Sawn Lumber (DF/SP)

SIMPSON Strong-Tie

These products are available with additional corrosion protection. For more information, see p. 14.

SS For stainless-steel fasteners, see p. 21.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.) W	H	B	Min./ Max.	Fasteners (in.) Header	Joist	DF/SP Allowable Loads (lb.) Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Installed Cost Index (ICI)	Code Ref.
Sawn Lumber Sizes														
2x10	LUS28	18	1 9/16	6 5/8	1 3/4	—	(6) 0.148 x 3	(4) 0.148 x 3	1,165	1,100	1,260	1,350	Lowest	IBC, FL, LA
	LU28	20	1 9/16	6 3/8	1 1/2	—	(8) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,110	1,180	1,180	13%	
	LUS210	18	1 9/16	7 13/16	1 3/4	—	(8) 0.148 x 3	(4) 0.148 x 3	1,165	1,335	1,530	1,640	15%	
	LU210	20	1 9/16	7 13/16	1 1/2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,390	1,580	1,615	28%	
	U210	16	1 9/16	7 13/16	2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	990	1,440	1,565	1,565	76%	
	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	985	1,410	1,605	1,735	180%	
	HU210	14	1 9/16	7 1/8	2 1/4	—	(8) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	605	1,190	1,345	1,440	225%	
	HUS210	16	1 5/8	9	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	2,635	5,450	5,795	5,830	450%	
	HGUS210	12	1 5/8	9 1/8	5	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	2,090	9,100	9,100	9,100	*	
DBL 2X10	LUS28-2	18	3 1/8	7	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	Lowest	
	LUS210-2	18	3 1/8	9	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	34%	
	U210-2	16	3 1/8	8 1/2	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	88%	
	HUS210-2	14	3 1/8	9 3/16	2	—	(8) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	3,270	2,110	2,385	2,575	217%	
	HU210-2 / HUC210-2	14	3 1/8	8 5/8	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,085	2,350	2,520	441%	
		14	3 1/8	8 5/8	2 1/2	Max.	(18) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	2,680	3,020	3,250	467%	
	HUCQ210-2-SDS	14	3 1/4	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	
	HHUS210-2	14	3 5/16	9 5/32	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,550	5,705	6,435	6,485	*	
TPL 2X10	LUS28-3	18	4 5/8	6 1/4	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	*	
	LUS210-3	18	4 5/8	8 3/16	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	*	
	U210-3	16	4 5/8	7 3/4	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	*	
	HU210-3 / HUC210-3	14	4 11/16	8 1/16	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,085	2,350	2,520	*	
		14	4 11/16	8 1/16	2 1/2	Max.	(18) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	2,680	3,020	3,250	*	
	HHUS210-3	14	4 11/16	8 7/8	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,405	5,640	6,380	6,485	*	FL
	HGUS210-3	12	4 15/16	9 1/8	4	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	4,095	9,100	9,100	9,100	*	IBC, FL, LA
	HUCQ210-3-SDS	14	4 5/8	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	
QUAD 2x10	HU210-4 / HUC210-4	14	6 1/8	8 3/8	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,345	2,085	2,350	2,520	*	
		14	6 1/8	8 3/8	2 1/2	Max.	(18) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	1,795	2,680	3,020	3,250	*	
	HHUS210-4	14	6 1/8	8 7/8	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,405	5,640	6,380	6,485	*	FL
	HGUS210-4	12	6 5/16	9 1/8	4	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	4,095	9,100	9,100	9,100	*	IBC, FL, LA
2x12	LUS210	18	1 9/16	7 13/16	1 3/4	—	(8) 0.148 x 3	(4) 0.148 x 3	1,165	1,335	1,530	1,640	Lowest	
	LU210	20	1 9/16	7 13/16	1 1/2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,390	1,580	1,615	11%	
	U210	16	1 9/16	7 13/16	2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	990	1,440	1,565	1,565	53%	
	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	985	1,410	1,605	1,735	180%	
	HU212	14	1 9/16	9	2 1/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	1,135	1,490	1,680	1,800	347%	
	HUS210	16	1 5/8	9	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	2,635	5,450	5,795	5,830	378%	
DBL 2x12	LUS210-2	18	3 1/8	9	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	Lowest	
	U210-2	16	3 1/8	8 1/2	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	40%	
	LUS214-2	18	3 1/8	10 5/16	2	—	(10) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	2,110	2,395	2,590	56%	
	HUS210-2	14	3 1/8	9 3/16	2	—	(8) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	3,270	2,110	2,385	2,575	*	
	HUS212-2	14	3 1/8	10 3/4	2	—	(10) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,435	2,635	2,985	3,220	*	
	HU212-2 / HUC212-2	14	3 1/8	10 9/16	2 1/2	Min.	(16) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,385	2,690	2,880	*	
		14	3 1/8	10 9/16	2 1/2	Max.	(22) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	3,275	3,695	3,970	411%	
	HUCQ210-2-SDS	14	3 1/4	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	
TPL 2x12	LUS210-3	18	4 5/8	8 3/16	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	*	
	HU212-3 / HUC212-3	14	4 11/16	9 13/16	2 1/2	Min.	(16) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,385	2,690	2,880	*	
		14	4 11/16	9 13/16	2 1/2	Max.	(22) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	3,275	3,695	3,970	*	
	U210-3	16	4 5/8	7 3/4	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	*	
	HUCQ210-3-SDS	14	4 5/8	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	

See footnotes on p. 108.

Codes: See p. 11 for Code Reference Key Chart