BUILDING SAFETY PROFESSIONALS OF SOUTHWESTERN IDAHO
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COLLABORATIVE INTERPRETATION AND/OR DETERMINATION OF THE PROVISIONS OF THE STATE MANDATED BUILDING CODES

April 2019

Adopted International Residential Code (IRC)

General Topic: Fastener Type and Application for Use for Single Family Residential Shear Panels

Consigning Jurisdictions: To be Determined

Fastener Use Defined: To provide a prescriptive guideline for fastener requirements for wood structural panel wall sheathing, less than 10'-0" in height, for single family residential construction.

Construction Practices:

Purpose: Fasteners for Residential Vertical Shear Wall Assemblies:

A. Required Fasteners.

1. Fasteners for exterior wood structural panel wall sheathing shall meet the requirements of Table 602.3(3); of the adopted International Residential Code.

Exemptions:

1. 7/16" (OSB) exterior wood structural panel wall sheathing under 10'-0" in height may be fastened with 14,15, or 16 Gauge x 1 1/2" staples where all the following requirements are met.

2. Walls with shear panels fastened by staples may not exceed 10'-0" in height without providing an engineered structural design.

3. Staples shall be installed per the requirements of ICC-ES Evaluation Report # ESR1539.
   - i. Provide a panel edge fastener spacing of 3" and a panel field spacing of 6".
   - ii. Staples shall have a 7/16" minimum crown width and must be installed with the crown parallel to the long dimension of the wood stud framing member.
   - iii. Staples must be driven flush with the surface of the sheathing and not below the surface of the sheathing.

References:

- ICC-ES Evaluation Report – ESR1539 revised 01/16/2019, subject to renewal 07/2020.
- Performance Engineers Opinion Letter Dated April 3, 2019

PERFORMANCE ENGINEERS
1102 N FRANKLIN BLVD. NAMPA, ID 83687 PH 208.475.0040 FAX 208.498.4241

April 3, 2019

RE: Patrick Sullivan
City of Nampa
Division of Building Safety & Facilities Development
411 3rd Street S.
Nampa, Idaho 83642
PE Job #2019-07227

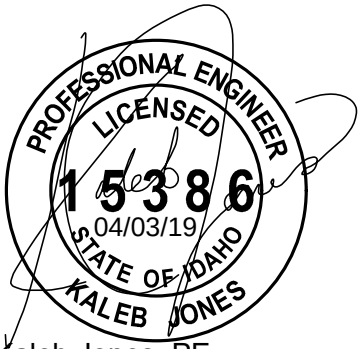
To whom it may concern,

Comparing the values of the 8d nails (used to fasten 7/16" wall sheathing in current IRC compliant 'WSP' braced wall panels to wall studs) to the staples specified in Table 8 of the ICC-ES ESR-1539 (clipped and attached below), halving the spacing requirements for staples will yield the same (or greater) fastener shear values.

Therefore, we are in agreement with the code interpretation that staples (14 to 16 gage, 7/16" minimum crown, 1" minimum penetration into studs, & driven flush with the wall sheathing surface in accordance with ICC-ES ESR-1539) at 3" on center at panel edges & 6" on center in the intermediate studs are a viable replacement for the 8d nails (edge spacing of 6" on center) in the 'WSP' prescriptive braced panels. Also, we believe this is a viable option for walls up to 12' tall. Studs over 10' tall must still be engineered, but prescriptive braced walls are adequate for walls up to 12' tall (see IRC Chapter 6).

Please contact me with any comments/questions/concerns. Thank you.

Sincerely,



Kaleb Jones, PE

Attached: Table 8 from Page 14 of the ICC ESR-1539 Report

TABLE 8—ALLOWABLE SHEAR FOR WIND OR SEISMIC LOADING FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE AND RATED SHEATHING (plf)[1,2,3,4,5,6,7,8,9,10,11]

NOMINAL NAIL DIAMETER (inch) or STAPLE GAGE (Nails must be smooth and must be carbon steel (bright or galvanized))	MINIMUM NOMINAL FASTENER LENGTH (inches)		SEISMIC				WIND			
			Fastener Spacing at Panel Edges (inches)				Fastener Spacing at Panel Edges (inches)			
	Panels Applied Directly to Framing	Panels Applied Over 1/2 inch or 5/8 inch Gypsum Sheathing	6	4	3	2	6	4	3	2
3/8-inch Nominal Panel Thickness										
0.148	2	—	220	320	410	530	305	445	575	740
	—	2 1/2	260	380	490	640	365	530	685	895
0.135	2	—	220	320	410	530	305	445	575	740
	—	2 1/2	230	335	430	560	320	465	600	785
0.131	1 3/4	—	220	320	410	530	305	445	575	740
	—	2 1/4	200	300	390	510	280	420	545	715
0.120	1 3/4	—	185	270	345	450	260	375	485	625
	—	2 1/2	170	255	330	430	235	355	460	605
0.113	1 3/4	—	200	300	390	510	280	420	545	715
	—	2 1/4	150	225	295	385	210	315	410	540
14, 15, 16 Gage	1 1/2	—	140	210	280	360	195	295	390	505
14, 15, 16 Gage	—	2	140	210	280	360	195	295	390	505
7/16-inch Nominal Panel Thickness										
0.148	2 1/2	—	240	350	450	585	335	490	630	820
	—	2 1/2	260	380	490	640	365	530	685	895
0.135	2	—	240	350	450	585	335	490	630	820
	—	2 1/2	230	335	435	565	320	465	605	790
0.131	2	—	240	350	450	585	335	490	630	820
	—	2 1/2	215	315	410	535	305	440	570	745
0.120	2	—	205	300	385	495	285	415	535	695
	—	2 1/2	185	270	345	455	260	375	485	635
0.113	2	—	185	265	345	445	255	375	480	625
	—	2 1/2	165	240	310	405	230	335	435	570
14, 15, 16 Gage	1 1/2	—	155	230	310	395	215	320	435	555
14, 15, 16 Gage	—	2	140	210	280	360	195	295	390	505
15/32-inch Nominal Panel Thickness										
0.148	2	—	310	460	600	770	435	645	840	1075
	—	2 1/2	260	380	490	640	365	530	685	895
0.135	2	—	275	405	530	680	385	570	740	950
	—	2 1/2	230	335	430	565	320	465	605	790
0.131	2	—	260	380	490	640	365	530	685	895
	—	2 1/2	215	315	410	535	305	440	570	745
0.120	2	—	220	325	420	545	310	450	585	765
	—	2 1/2	185	270	350	455	260	375	490	635
0.113	2	—	200	290	375	490	280	405	525	685
	—	2 1/2	165	245	315	410	235	340	440	575
14, 15, 16 Gage	1 1/2	—	170	255	335	430	240	355	470	600
14, 15, 16 Gage	—	2	140	210	280	360	195	295	390	505
19/32-inch Nominal Panel Thickness										
0.148	2 1/4	—	340	510	665	870	475	715	930	1215
0.135	2 1/4	—	300	450	590	770	420	635	825	1075
0.131	2 1/4	—	285	430	560	735	400	600	785	1025
0.120	2 1/4	—	245	370	485	635	345	520	675	885
0.113	2 1/4	—	225	335	440	575	315	470	615	800
14, 15, 16 Gage	1 3/4	—	185	280	375	475	260	390	525	665

See page 14 for footnote explanations.