Assembly No. SPH111411-7
sPanels Structural Insulated Wall Panels
for use in Seismic Design.

Report Holder
sPanels Holdings, LLC
2420 Heyrend Way
Idaho Falls, Idaho 83402

Manufacturing Location
sPanels Holdings, LLC
2420 Heyrend Way
Idaho Falls, Idaho 83402

SUBJECT

sPanels Structural Insulated Wall Panels for use in Seismic Design.

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DESIGN

1. **Design Approval.** Where required by the authority having jurisdiction, structures using *sPanels Structural Insulated Panels* (SIPs) shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details and connector details, shall be submitted to the code official when application is made for a permit. The individual preparing such documents shall possess the necessary qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken. Approved construction documents shall be available at all times on the jobsite during installation.

2. **Connection to Structure.** Designed in accordance with accepted engineering practice to transfer racking forces into the wall at the top and out of the wall at the base.

3. **Design Loads.** Design loads to be resisted by the SIPs shall be as required under the applicable building code. Loads on the SIPs shall not exceed the loads noted in ESR-2182.

4. **In-Plane Shear Design.** Shear walls shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided in Table 1. Shear wall chords, hold-downs and connections to transfer shear forces between the wall and surrounding structure shall be designed in accordance with accepted engineering practice.

5. **Seismic Design.** The shear wall configurations in Table 1 are permitted in Seismic Design Categories A, B, C, D, E and F. Such walls shall be designed using the seismic design coefficients and limitations provided in ASCE 7-05 for light-framed walls sheathed with wood structural panels rated for shear resistance (SFRS A13). The assembly shall use the following factors for design: Response Modification Coefficient, $R = 6.5$; System Overstrength Factor, $\Omega_0 = 3.0$; Deflection Amplification Factor, $C_d = 4.0$. The maximum assembly height-to-width ratio is 1:1.

6. **Adhesives and Sealants.** Adhesives and sealants shall not be applied at wood-to-wood or spline-to-facing interfaces in shear walls in Seismic Design Categories D, E and F. Adhesives and sealants may be applied to wood-to-foam or facing-to-foam interfaces. Flexible SIP tape may be applied over panel joints.

7. **Conditions of Use.** Installation complies with this report and the approved construction documents.

This assembly listing is intended to indicate that NTA, Inc. has evaluated data pertaining to the described assembly and has found that when constructed in accordance with this listing the data herein applies. NTA Inc. makes no warranty, either expressed or implied, regarding the product covered by this report.

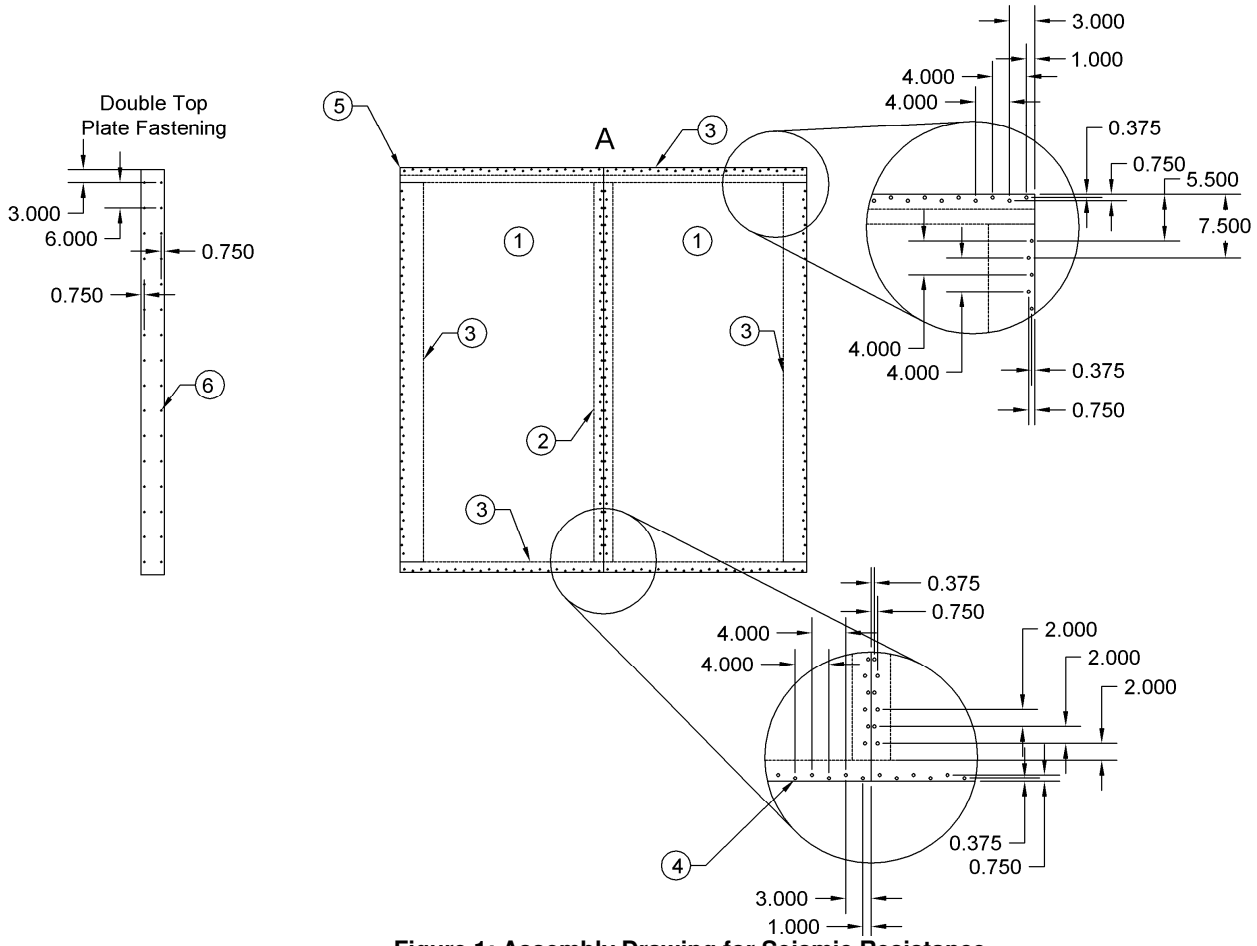


Figure 1: Assembly Drawing for Seismic Resistance

Components:

1. **Structural Insulated Panels.** *sPanel Structural Insulated Panels* consisting of nominal 5-½ in. thick EPS core laminated between two sheets of minimum 7/16 in. thick oriented strand board (OSB). SIP Panels shall bear the ESR-2182 listing mark.

2. **Splines.** *sPanel Structural Insulated Panels* for use in seismic construction are interconnected with OSB (Surface) Splines, 4 in. wide, 7/16 in. thick and the full length of the spline connection.

3. **Chords and Top and Bottom Plates.** *sPanel Structural Insulated Panels* for use in seismic construction shall use #1 Douglas Fir 6x6 Chords, #1 Douglas Fir Double 2x6 Top Plates and a single #1 Douglas Fir 3x6 Bottom Plate.

Note: *sPanel Structural Insulated Panels* shall be fastened in accordance with Figure 1.

4. **8d Nails, 0.131 in. x 2-3/8 in.** applied 4 in. on center around the panel perimeter and on both sides of the spline connection in two staggered rows.

5. **(2) 10d Nails, 0.148 in. x 3 in.** used to end nail the top and bottom plates at each chord.

6. **10d Nails, 0.148 in. x 3 in.** used for double plate 6 in. on center in two rows.

7. **Hold-downs.** (not shown) Designed in accordance with accepted engineering practice to resist design chord forces

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Table 1: Allowable In-Plane Shear Strength (Pounds per Foot) for SIP Shear Walls (Seismic Loads in Seismic Design)[1,2]

Spline Type	Framing Minimum SG[3]	Minimum Facing Connections[2]			Shear Strength (plf)
		Chord[2]	Plate[2]	Spline	
7/16 in. OSB Surface Spline	0.50	0.113" x 2-3/8" nails, Two rows staggered 4 in. o.c., 3/4 in. and 3/8 in. edge distance	0.113" x 2-3/8" nails, Two rows staggered 4 in. o.c., 3/4 in. and 3/8 in. edge distance	0.113" x 2-3/8" nails, Two rows staggered 4 in. o.c., 3/4 in. and 3/8 in. edge distance	1340

[1] Allowable seismic design coefficients are defined in Section 5.
[2] Chords, hold-downs, and connections to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.
[3] Required connections must be made on each side of the panel. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.

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