

Via Email:

11 February 2008

Mr. Bryan Brusman  
Executive Vice President  
Ray-Core Inc.  
P.O. Box 2013  
Idaho Falls, Idaho

Re: Ray-Core Wall Panel Testing  
WJE No. 2008.0133.0

Dear Mr. Brusman:

Wiss, Janney, Elstner Associates, Inc. (WJE) has conducted three tests each on 3-1/2 inch thick Ray-Core Structural Insulated Panels (SIPS) provided by Ray-Core Inc. in accordance with the Compressive Load Test and Transverse Load Test procedures specified in ASTM E72-05, *Standard Test Methods of Conducting Strength Tests of Panels for Building Construction*. The purpose of this letter is to provide a brief summary of the testing that was performed on the SIPS and the strengths obtained from the testing.

The SIPS were delivered to our structural laboratory prefabricated. Each SIP measured 92-5/8 inches tall and 49-1/2 inches wide on average. The SIPS consisted of two 2x4 wall studs in the middle and two 2x4 half-studs at each end. The stud spacing was 16 inches center to center and the space between the studs was filled with polyurethane foam. Other building materials were added to the SIPS to simulate actual construction conditions. One half-stud was attached to each of the half-studs at the ends of the SIPS using liquid nails adhesive and 16 penny nails spaced at 8 inches center to center. A single 2x4 bottom plate and a double 2x4 top plate were then installed. A 1/2 inch sheet of oriented strand board (OSB) that measured 4 feet by 8 feet was installed on one side of the SIPS. The OSB was attached to the wall studs and the top and bottom plates using 16 penny nails, whose spacing varied between 8 inches and 12 inches.

The compressive load test set-up is shown in Figures 1 and 2. The transverse load test set-up is shown in Figure 3. The compressive and transverse strengths of the specimens are presented in Tables 1 and 2, respectively.

**Table 1. Compressive Strength of 3-1/2" Ray-Core SIPS**

Specimen No	Strength (lbs)*†
1	40,040
2	31,940
3	34,670
* The strength values include the weight of the testing rig, which was measured to be approximately 300 pounds.	
† The reported strengths are only representative of the construction of the tested SIPS and the test configuration.	

**Table 2. Transverse Strength of 3-1/2" Ray-Core SIPS**

Specimen No.	Strength (lbs) *†‡
4	6,850
5	7,000
6	8,320

\* The strength values include the weight of the testing rig, which was measured to be approximately 500 pounds.  
† The reported strengths are only representative of the construction of the tested SIPS and the test configuration.  
‡ The reported strengths are for the tests conducted on SIPS with the OSB on the tension side.

Please do not hesitate to contact me if you have questions or need assistance in the future.

Very truly yours,

**WISS, JANNEY, ELSTNER ASSOCIATES, INC.**



A. Koray Tureyen  
Senior Associate, P.E., Ph.D.

## FIGURES



*Figure 1. Side view of compressive load test set-up.*



*Figure 2. Front view of compressive load test set-up.*



*Figure 3. Transverse load test set-up.*