

PBS SIPs USED AS SHEAR WALLS

Premier Building Systems has recently completed the conversion of legacy evaluation reports PFC-5002 and NER-633 to ESR-1882. This conversion shows that PBS SIPs are in compliance with the 2006 International Building Code (IBC) and the 2006 International Residential Code (IRC).

A statement in the condition of use section of the ESR-1882 code report has been added by ICC-ES that did not appear in either PFC-5002 or NER-633. That statement is:

“When used as shear walls under the IBC or IRC, the panels are recognized for use in Seismic Design Categories A, B and C.”

The reason this statement appears in the report is that ICC-ES is in a quandary as to how to evaluate SIPs for use as shear walls in Seismic Zones D, E and F. As such, they have chosen not to evaluate SIPs for Zones D, E and F until they have clear, industry consensus, on the direction for testing requirements. According to ICC-ES this does not preclude the use of SIPs for shear walls in these seismic areas but rather engineering is required for the design.

The PBS Technical Center has prepared this technical bulletin and a Technical Information Packet for use by code officials and engineers who have questions about using PBS SIPs as shear walls in seismic areas designated D, E and F.

The Technical Information Packet contains two test reports from the APA on cyclic shear wall testing conducted on PBS SIPs, and a comparative analysis from the APA on PBS SIPs and stick framed shear walls stating that the APA recommends PBS SIP shear walls should be designed with the same seismic design coefficients as light-frame walls sheathed with wood structural panels rated for shear resistance. Namely that the Response Modification Coefficient, $R = 6.5$; the System Over strength Factor, $\Omega_o = 3$; and the Deflection Amplification Factor, $Cd = 4.0$. Also included in the Technical Information Packet is the detail PBS-005a to help clarify where to apply the mastic and SIP Tape in designed shear wall applications for seismic areas designated D, E and F.

A summary of the comparative analysis plots are shown on the following pages. The walls were tested following the Sequential Phase Displacement SPD protocol, which is clearly described in APA Reports T2003P-63 and T2004P-17. The hysteretic response of the walls can be seen in the following Figures 3-5. The hysteretic plots show a backbone curve, as well as an equivalent energy elastic-plastic (EEEP) curve, as defined by ASTM E-2126.

Please contact your PBS Sales Rep or the Technical Center to obtain your copy of the Technical Information Packet.

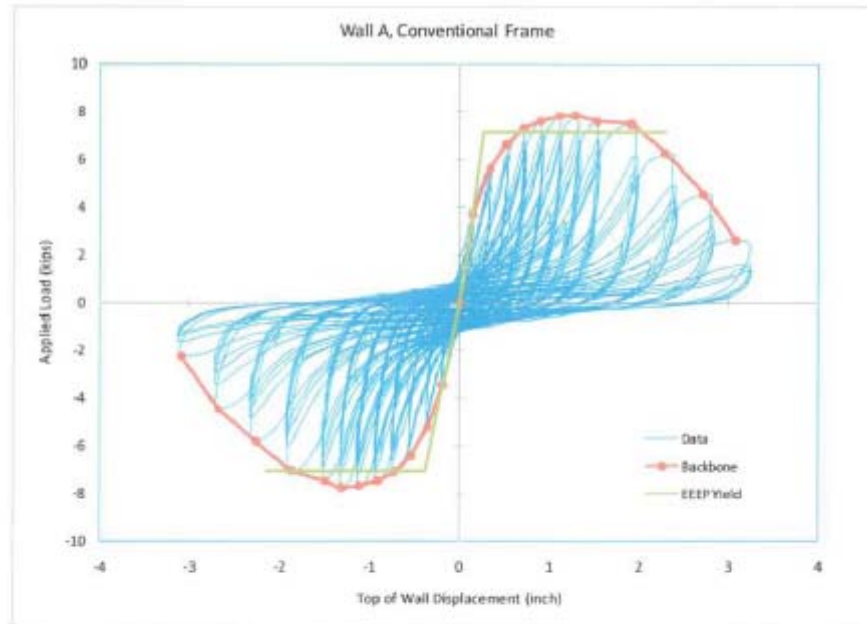


Figure 3. Cyclic response for conventionally framed wall.

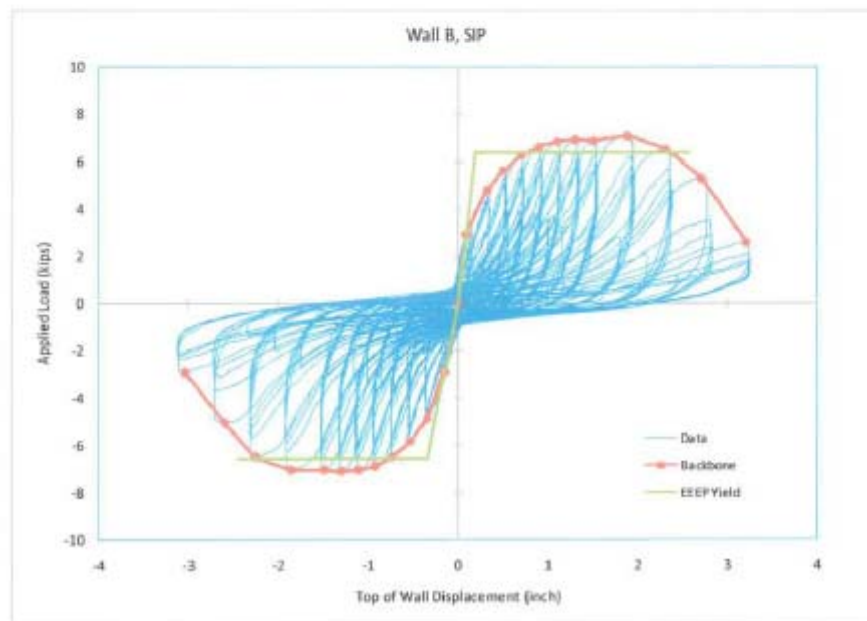


Figure 4. Cyclic response for SIPs wall.

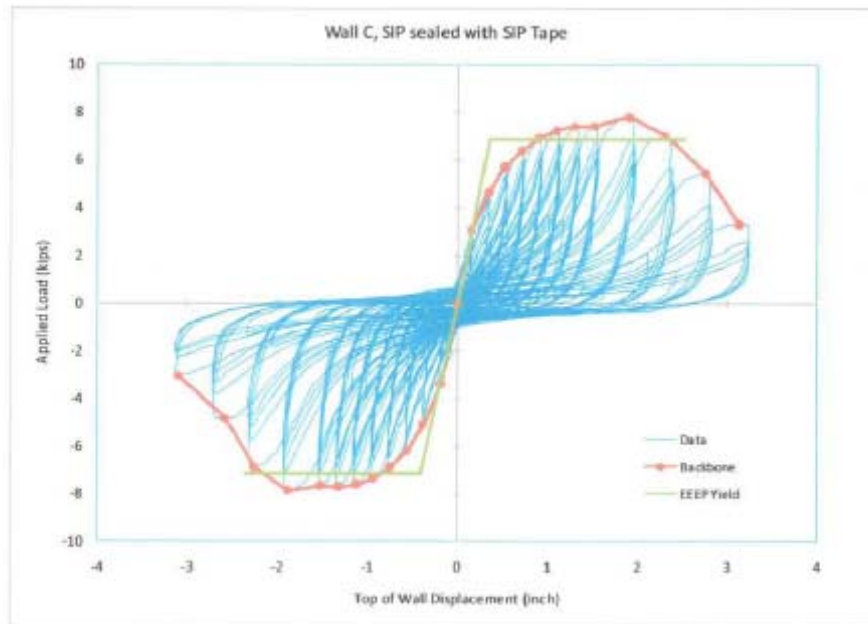


Figure 5. Cyclic response for SIPs wall sealed with SIP tape.