

Shear Performance of Hybrid Post and Beam Wall System Infilled with Structural Insulation Panel(SIP)¹

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ABSTRACT

A hybrid post and beam shear wall system with structural insulation panel (SIP) infill was developed as a part of a green home 'Han-green' project through post and beam construction for contemporary life style. This project is on-going at the Korea Forest Research Institute to develop a new building system which improves Korean traditional wet-type building system and stimulates industrialized wood construction practice with pre-cut system. Compared to the traditional wet-type infill wall components, the hybrid wall system has benefits, such as, higher structural capacity, better thermal insulation performance, and shorter construction term due to the dry-type construction. To build up the hybrid wall system, in previous, SIP infill wall components can be manufactured at factory, and then inserted and nailed with helically threaded nails into the post and beam members at site. Shear performance of the hybrid wall system was evaluated through horizontal shear tests. The SIP hybrid wall system showed higher maximum shear strength, initial stiffness, ductility, yield strength, specified strength, and the specified allowable strength than those of post and beam with light-frame wall system. In addition to this, the hybrid wall system can provide speedy construction and structural and functional advantages including energy efficiency in the building system.

Keywords : *Post and beam shear wall, Structural insulational panel, Pre-cut, Infill wall, Horizontal shear test*

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