Compression Behavior of Corrugated Veneer Ties on Insulation

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Abstract:

Insulation is being used over sheathing in residential construction due to energy concerns. Tests were performed on corrugated veneer ties on reflective insulation and extruded polystyrene (XPS) insulation to determine the effect of the insulation on the compressive strength of the tie. Reflective insulation should be limited to 1/8 in. (3.2 mm) thick. Thicker insulations result in a reduction in strength of the corrugated tie, even when the reflective insulation was compressed during the installation of the corrugated tie. Type IV (25 psi, 0.172 MPa) extruded polystyrene (XPS) insulation did not have sufficient strength for the corrugated tie to be directly attached to the insulation. Placing washers underneath the tie to increase the bearing area resulted in acceptable performance. Different thicknesses and sizes of sheet metal and plastic were tried under the corrugated tie. The strength generally was comparable to corrugated ties directly on oriented strand board OSB, and with lower stiffnesses. There was generally minimal damage to the insulation with sheet materials.

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