

The Effect of Foil-faced Foam Sheathing on Wall Moisture

Results of a six-month test performed at Stevens Institute of Technology further support the belief that foil-faced sheathing should not cause moisture problems in walls of houses in cold climates. In fact, the results suggest, as is often suspected, that foam sheathing may *lessen* moisture condensation problems in walls by warming the wall cavity and thus reducing the condensation potential.

Experimental Setup

The study was performed to evaluate the corrosiveness of various insulation materials, but as part of the experiment the researchers built a test panel with two kinds of exterior sheathing — foil-faced isocyanurate foam and plywood. They divided the test panel into chambers that were filled with several brands of cellulose, fiberglass, and rockwool insulation materials. The insulated panel was then placed in an environmental chamber for six months with one side exposed to simulated indoor winter conditions (70°F, 45% rh) and the other side to typical outdoor winter conditions (38°F, 90% rh). No vapor retarder was installed on the warm side of the wall.

80% Less Moisture in the Chambers with Foam Sheathing

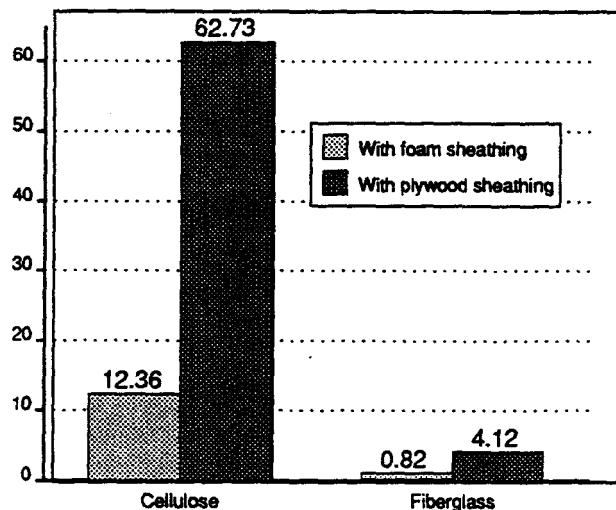


Figure 1 — Moisture absorption by fiberglass and cellulose installation in test panels sheathed with plywood and isocyanurate foam.

For both cellulose and fiberglass insulation, the increase in moisture was 80% less in the chambers with foam sheathing than in the chambers with plywood sheathing. The maximum moisture gain for the cellulose insulation with foam sheathing was 22%; for fiberglass it was just over 1%.

For more information, a copy of the study report, titled "Corrosiveness Testing of Thermal Insulating Materials — A Simulated Field Exposure Study Using a Test Wall," is available from the the National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161; (703)487-4650.