Pos-I-Tie® Air and Water Penetration Test Brick Veneer to CMU

Air Infiltration and Water Penetration Testing of a Mock-Up Air Barrier Back-Up Wall Assembly for Compliance with Chapter 13, "Energy Conservation" in the Commonwealth of Massachusetts State Building Code, Effective July 1, 2001.

Test Performed By:
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We report herewith the results of air infiltration and water penetration of a mock-up air barrier back-up wall assembly. The tests were conducted on December 17, 2003 and were witnessed in whole or in part by:
Keith Sportack - Pace Representatives, Inc.
Paul Curtis - Heckmann Building Products Inc.

I. BACKGROUND

A. Air Barrier Back-Up Wall Assembly

The mock-up air barrier back-up wall assembly was constructed in the Thompson & Lichtner laboratory.

1. The 6' x 6' mock-up CMU wall assembly was constructed of 8" CMUs and Type N mortar, with horizontal reinforcing wire installed horizontally at 24" on center, and vertical #9 reinforcing bars located at the ends of the wall and at the center line of the wall with the cells grouted solid.
2. On November 21, 2003, Carlisle Barricoat-S Spray-Applied Rubberized Membrane was applied to the exterior surface of the CMU mock-up wall. The wet mil thickness of the Barricoat was measured to be 80 mils.
3. On December 17, 2003, 2" thick Dow Styrofoam Cavitymate CS was installed on the face of the mock-up wall with 2" long Heckmann Pos-I-Tie® Tapcon wall tie anchors. The wall-tie anchors were set in rows at 16" horizontally and 18" vertically. A total of twelve wall tie anchors were installed in the mock-up wall. All holes for the Pos-I-Tie® anchors were pre-drilled with a 3/16" masonry bit. The Pos-I-Tie® wall tie anchors were installed with the gasketed washer in full contact with the exterior surface of the Dow Styrofoam.

B. Air Barrier Air Leakage Requirements

In Chapter 13, 'Energy Conservation,' in the Commonwealth of Massachusetts State Building Code, which took effect on July 1, 2001, Paragraph 13.04.3, 'Air Leakage,' contains the following requirements:

1. The air barrier is to be continuous, with all joints make airtight.
2. The air barrier shall have an air permebility not to exceed 0.004 cfm per square foot under a pressure differential of 0.3 inches of water (1.57 psf).
3. All penetrations in the air barrier shall be made airtight.

II TEST PROCEDURES

The mock-up air barrier back-up wall assemply was tested for air infiltration in our laboratory chamber for conformance with the requirements contained with the revisions to Paragraph 13.04 in Chapter 13 of the Commonwealth of Massachusetts State Building Code, as described in Item I. B. above.
Testing was performed in accorance with applicable provisions of ASTM: E 283, "Standard Test method for Determining Rate of Air Leakage Through Exterior Windows, Curtainwalls and Doors under Specified Pressure Difference Across the Specimen."

III TEST RESULTS

The following test results were obtained:

Air Infiltration @ 1.57 PSF

Measured Air Leakage 0.0 cfm
Calculated Air Infiltration 0.0 cfm per square foot
Allowable Air Infiltration 0.004 cfm per square foot

The mock-up air barrier wall assembly met the State Code requirements for measurement of air infiltration through the air barrier back-up wall.

IV COMMENTS

The mock-up air barrier back-up wall assembly met the requirements in Chapter 13, 'Energy Conservation,' in the Commonwealth of Massachusetts State Building Code, relative to air leakage through air barrier seams, air barrier membrane, and penetrations in the air barrier made by Heckmann Pos-I-Tie® Brick Veneer Anchors.