



March 30, 2004
Revised: April 19, 2004

International Materials Inc.
117 1/2 — 54th Street
Newport Beach, CA 92663

Attention: Mr. Carleton Elliot

Dear Sir:

**Re: Reference File No. 3056688 — Covering the Fire Testing of 1 Hour
and 2 Hour Wall
Assemblies that Contain “Sure Board Series 200W”**

SUMMARY OF TEST RESULTS

On March 25, 2004 through March 26, 2004, Intertek Testing Services NA Ltd. conducted full- scale fire tests on a 1 Hour and 2 Hour wall construction for International Materials Inc. The objective of the test was to determine if the wall construction would meet the hourly rating with ‘Sure Board Series 200W’ installed in the assembly. Testing was conducted in accordance with ASTM E-1 19 and UBC 7-1 (1991) under load bearing conditions.

1 Hour Rated Wall Assembly, Tested March 25, 2004

The 1 Hour wall assembly measured 9 ft. in height by 12 ft. in width. It was framed with 3-1/2 in. 20 gauge steel studs, at 24 in. on centers, and corresponding track. 1/2 in. by 1-1/2 in. by 16 gauge steel reinforcing channel was installed through the wiring holes at two wall elevations, and screw fastened to angle brackets at each stud. Each side of the wall was faced with 4 ft. by 9 ft. sheets of “Sure Board 200W’ oriented vertically with vertical joints centered on studs. The steel face of the “Sure Board 200W” was placed against studs and the board fastened with self-drilling and self- tapping screws in accordance with the manufacturer’s instructions. To each face of the wall was applied USG “Sheetrock” 5/8 in. Type X gypsum wallboard, oriented vertically and fastened with bugle head drywall screws, located 12 in. on centers along the center stud and 6 in. on centers around board perimeter. The gypsum wallboard screws did not penetrate into the wall studs but were installed into the ‘Sure Board 200W’ along the edge of the wall studs. The final step was the taping and finishing of the wallboard joints and screw heads with gypsum joint finishing compound.

The wall assembly was loaded to 815 lb. /lineal foot, thermocouples were fastened to the unexposed face, and the wall assembly was subjected to the time/temperature curve for 61 minutes. At the end of the fire test, the assembly was subjected to the standard hose stream test.

The wall assembly met the requirements of both the fire and hose stream test, and the construction is eligible for a 1 Hour fire resistance rating.

2 Hour Rated Wall Assembly, Tested March 26, 2004

The 2 Hour wall assembly was sized and framed identically to the 1 Hour wall. “Sure Board 200W” was placed on one side only of the wall assembly. The fire side was chosen as the fire exposure on the board was expected to be the worst case scenario. The 4 ft. by 9 ft. boards were oriented vertically with the steel side towards the studs, with edge joints centered on wall studs, and fastened in accordance with the manufacturer’s instructions. To each side of the wall was fastened two layers of USG “Sheetrock” 5/8 in. Type X gypsum wallboard. The base layer was oriented vertically and fastened with bugle head drywall screws, located 12 in. on centers. The screws were installed into the “Sure Board 200W”, adjacent to the wall studs. The face layer was installed vertically with edge joints staggered 24 in. from those of the base layer. The face layer was fastened with screws 12 in. on centers in the center of the board and 6 in. on centers around the perimeter of the board. The final step was the taping and finishing of the wallboard joints and screw heads with gypsum joint finishing compound.

The wall assembly was loaded to 815 lbs./lineal foot, thermocouples were fastened to the unexposed face, and the wall assembly was subjected to the time/temperature curve for 125 minutes. At the end of the fire test, the assembly was subjected to the standard hose stream test.

The wall assembly met the requirements of both the fire and hose stream test, and the construction is eligible for a 2 Hour fire resistance rating.

2-Hour Exterior Wall Assembly

The test assembly constructed was an exterior wall assembly. The wall construction consisted of 20 gauge steel stud and track 3-5/8 in. depth. The studs were located 24 in. on center and fastened to the track using 1 in. self-tapping pan-head screws. The horizontal bracing was located at 35 in. and 83 in. from the bottom of the wall assembly, connected to the studs using 20 gauge L brackets, and attached using 1 in. self-tapping screws. The stud was faced on the exterior side with “Sure Board 200W”, orientated vertically and fastened with 3/4 in. self-tapping screws every 4 in. on center around the perimeter and every 6 in. on center to the middle studs. The edge joints were centered on studs.

The sand/cement plaster application is as follows:

A layer of Haltex 30 building paper was applied to the stud face. 1-5/8 in. by 1-5/8 in. stucco wire mesh was applied horizontally with a 4 in. overlap and fastened to the studs using 1 in. self-tapping pan-head screws. A 7/8 in. J-Mold was screwed to the perimeter of the wall assembly. The plaster was a two coat application of sand/cement plaster (Type 10 cement).

Two layers of 5/8 in. thick USG "Sheet rock" Type X gypsum wallboard, oriented vertically with joints staggered between layers, and fastened using 1-5/8 in. drywall screws for the first layer and 3 in. drywall screws to the unexposed side. Drywall tape was applied to all joints in the face layer. A ready mix joint compound was applied to the joints and to the screw heads of the final layer of gypsum, in two coats.

CONCLUSIONS

The wall assemblies described below, containing International Materials Inc. "Sure Board 200W" steel sheets, met the requirements of UBC 7-2, ASTM E119, and CAN/ULC-S101-M89, Standard Test Methods for Fire Tests of Building Construction and Materials, under load-bearing conditions, for 1-Hour and 2-Hour fire ratings.

The single layer gypsum wall assembly (Test No. 1) with "Sure Board 200W" added provided a 1-hour fire resistance rating. The "Sure Board 200W" improved the fire resistance of the wall such that it passed the hose stream test after the full fire test duration. The test superimposed load was 815 lbs./lineal ft.

The double layer gypsum wall assembly (Test No. 2) with "Sure Board 200W" added provided a 2-hour fire resistance rating. The "Sure Board 200W" improved the fire resistance of the wall such that it passed the hose stream test after the full fire test duration. The test superimposed load was 815 lbs./lineal ft.

The double layer gypsum wall assembly with sand/cement plaster (Test No. 3), with "Sure Board 200W" added provided a 2-hour fire resistance rating. The "Sure Board 200W" improved the fire resistance of the wall such that it passed the hose stream test after the full fire test duration. The test superimposed load was 815 lbs./lineal ft. for the first 84 minutes of the test, then gradually reduced to 333 lbs./lineal ft.

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