**INTRODUCTION:**
In March of 2015 the Wall & Ceiling Conference (WCC) contracted with Intertek laboratories to determine how typical field conditions impact a 1-hour fire rated gypsum board assembly. The assembly was built and tested per ASTM E119, Standard Methods for Fire Test of Building Materials, and included a nominal 1/8 inch vertical gypsum board gap, full height, between two of the 5/8 inch type X gypsum panels. The intent of this test was to determine how the rating of an approved 1-hour wall assembly might be impacted by this condition.

**TEST SAMPLE:**
Framing Members
3 5/8 inch deep, 25EQ (25 GA equivalent) steel studs spaced 24 inches o.c. The top and bottom track were also 25EQ.

Interior and Exterior Cladding
One layer of 4 foot x 10 foot x 5/8 inch ASTM C1396 equivalent type X gypsum board oriented vertically secured using 1 1/4 inch self-drilling drywall screws spaced 8 inches o.c. around the perimeter and 12 inches o.c. in the field. Exposed seams were covered with joint tape, and the tape and fasteners received 2 layers of joint compound.

The 1/8 inch gap was applied to both the exposed and unexposed surfaces to accommodate a symmetrical test result.

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**TESTING AND EVALUATION METHODS:**
The nominal 1/8 inch vertical gap was instrumented by a 24 GA, Type K, fiberglass jacketed thermocouple. The output of the thermocouple and furnace probes was monitored by a 100-channel Yokogawa, Inc., Darwin Data Acquisition Unit. The computer was programmed to scan and record data every 30 seconds. The ambient temperature at the time of the test was 56°F and the humidity was 81% R.H.

The individual temperature rise criteria as listed in the table below was based on the ASTM E119 requirements of 325°F above the initial temperature. 56°F at the start of the test for a maximum allowable temperature rise of 381°F.

**ANALYSIS**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MAX TEMP REACHED (°F)</th>
<th>MAX ALLOWED (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8” Vertical Gap</td>
<td>344</td>
<td>381</td>
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</table>

**CONCLUSION:**
There was no evidence of reduced fire resistance due to the addition of a nominal 1/8 inch vertical gypsum board gap within the tested assembly.

For a full copy of the test report, please visit [www.tsib.org](http://www.tsib.org), click on the library tab under the technical documents tab and select the fire test. For further details and or clarification please do not hesitate to contact TSIB.