This report covers thermal tests carried out on two (2) hollow metal frame and panel assemblies submitted by the client.

Each assembly consisted of a 46-1/2" wide by 36" high (1180 x 915mm) 16 gage formed steel frame split into two equal halves by a central mullion.

Two (2) 20" wide by 32-3/4" high (510 x 830mm) by 1-3/4" (45mm) thick 18 gage hollow metal door panels were fitted into the two (2) openings. One (1) of the assemblies was thermally broken using a P.V.C. thermal break and incorporated foam filled hollow metal door panels, the other was not thermally broken and used paper honeycomb core hollow metal door panels. (see TDS S06(2))

The thermally broken frame was weatherstripped around the openings with foam type weatherstripping. The profiles of the thermally broken frame are shown on the enclosed Fleming sketches. (See TDS S06(3)).

The assemblies were installed into a 5-1/2" (140mm) thick insulated wood panel which served to divide the halves of an environmental chamber.

The interior was cooled to -25°F (-32°C) while the exterior side was maintained at +72°F (+22°C).

Twenty two (22) thermocouples were installed to monitor the warm side surface temperatures. Interior and exterior air temperatures were monitored by two (2) thermocouples. The thermocouples were connected to a twenty four (24) channel Honeywell Universal Multipoint Recorder which sampled the output of each thermocouple at a rate of five (5) times per hour. Monitoring of the recorder printout was used to establish that interior and exterior temperatures had reached steady state conditions.

Interior surface temperatures obtained under stable conditions of -25°F (-32°C) exterior air temperature and +75°F (+24°C) interior air temperature are shown on TDS S06(2).

The minimum temperature occurring on the thermally broken assembly was +43°F (+6°C). From a standard psychrometric chart, it was determined that this temperature corresponded to a relative humidity of 36% at +72°F (+22°C).

The lowest temperature on the non-thermally broken frame was +37°F (+3°C) and on the door panels +32°F (0°C). This would correspond to relative humidities of 28% and 22% respectively.

The Standard for Insulated Steel Doors with Frame allows a temperature difference of 30°F (17°C) between the average interior surface temperature of the doors and the lowest surface temperature of the frame per 100°F (56°C) temperature difference between interior and exterior air temperatures. The thermally broken assembly tested has a difference of 13°F (7°C) and therefore meets the requirement. It must be realized, however, that results using a full scale door and frame complete with hardware would be slightly different due to size increase and the addition of hardware.

Originally Signed by

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<table>
<thead>
<tr>
<th>Outside Air Temperature</th>
<th>Inside Air Temperature</th>
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<tr>
<td>-25°F (-32°C)</td>
<td>+72°F (+22°C)</td>
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Thermally Broken Frame with PolyS Door

Standard Frame with Honeycomb Core Door
TECHNICAL DATA SHEET

THERMAL TESTING
THERMALLY BROKEN FRAME
AND POLYSTYRENE DOOR

Front Section
Thermal Break
Back Section

Jamb Depth
"A"
4 3/4
5 3/4
6 3/4

Soffit
"B"
1 1/4
2 1/4
3 1/4

Mullion Front
20 Gage Mullion Clip
Mullion Back

Fleming
Door Products
ASSA ABLOY

ARCHITECTURAL
MANUAL
TECHNICAL DATA SHEET

THERMAL TESTING
THERMALLY BROKEN FRAME
AND POLYSTYRENE DOOR

Topic Number : S06
Sheet Number : 3
Date Issued : May '00

"A"

15/16

15/16

1 9/16

"B"