



TEST REPORT

REPORT NUMBER: 101847435MID-005
ORIGINAL ISSUE DATE: March 27, 2015

EVALUATION CENTER
Intertek Testing Services NA Inc.
8431 Murphy Drive
Middleton, WI 53562

RENDERED TO

DKS STEEL DOOR & FRAME SYSTEMS
2142 TUBEWAY AVENUE
COMMERCE, CA 90040

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PRODUCTS EVALUATED:
24" x 24" Louver Kit

EVALUATION PROPERTY:
90 Minute Positive Pressure Fire Endurance

Report of Testing DKS Steel Door & Frame Systems' louver kit for compliance with the applicable requirements of the following criteria: UL 10C (2009) "Fire Tests of Door Assemblies".

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1 Introduction

The Middleton, Wisconsin fire testing laboratory of Intertek Testing Services NA (Intertek)/Warnock Hersey conducted a Vertical Fire Test for DKS Steel Door & Frame Systems. The test sample(s) were received at the laboratory on March 18, 2015 in good condition. This report gives the results of the evaluation of the fire resistance properties of 24x24 louver kit. The test results described in this report are limited to the submitted items.

The test was conducted at positive pressure in accordance with UL 10C (2009) *“Positive Pressure Fire Tests of Door Assemblies”*.

2 Test Samples And Assembly Description

The test doors were sampled by an Intertek representative, and submitted by the client.
 Sample ID# MID1503101214-001

Assembly 1

Door	Size/Configuration	Nominal door size: 3'0" x 6'8". 18 gauge skin, vertically stiffened. Opening framed with (2) piece channels. Rough opening for louver kit is 24.13" x 24.13"
Frame	Size/Configuration	Nominal frame size:3'0" x 6'8"
	Material	16 gauge steel, UL 63.
	Wall Type	8" CMU (Concrete Masonry Units)
Hardware	Anchors	Wire Masonry
	Latch Set	Simulated.
Louver	Hinges	(3) Simulated hinges
		DKS Steel Door & Frame Systems' 24" x 24" Louver kit. 160°F fusible link.

3 Test Installation and Procedures

The test assembly was installed per the installation instructions of the door and frame manufacturer in a fire rated wall constructed in a furnace frame. The average door clearances to the frame were measured and recorded within the allowable limit as follows (unit: inches):

Assembly 1

<u>Top</u>	<u>Hinge Stile</u>	<u>Latch Stile</u>	<u>Bottom</u>
0.100	0.100	0.100	0.375

After positioning the assembly frame over the furnace opening, the burners were ignited and a timer started. Temperatures within the furnace were monitored using thermocouples and the data recorded. The burners were controlled to keep the furnace temperatures within the allowable limits specified in the test standards. These temperature data are included in this report.

Periodic observations were made of the exposed and unexposed surfaces of the test assembly during the fire endurance test. These observations are included in this report.

A pressure tap was installed through the furnace wall adjacent to the test assembly at the top of the door to measure furnace pressure. The neutral pressure plane within the furnace was maintained at a theoretical height of 40 inches above the sill as specified in the test standard. These pressure data are included in this report.

Immediately after the Fire Endurance Test, the assembly frame was moved into position for a Hose-Stream Test. The exposed surface of the test assembly was subjected to the impact, erosion, and cooling effects of a hose stream described in the test standard.

The following test equipment was used to collect and monitor test conditions.

<u>Mid-scale Test Equipment</u>	<u>Inventory Number</u>	<u>Measurement Uncertainty</u>	<u>Calibration Date</u>
Omega Data Acquisition System	1163	±2°F at 95% C. L.	5/9/14
Pressure Transducer	1314	±0.005" w.c. at 95% C.L.	9/17/14
Pressure Transducer	1315	±0.005" w.c. at 95% C.L.	9/17/14
Magnehelic differential pressure gauge	1121	±0.005" w.c. at 95% C.L.	12/3/14
Magnehelic differential pressure gauge	1122	±0.005" w.c. at 95% C.L.	12/3/14
Water pressure gauge	1186	Grade C	4/16/14
Infrared gun	875	±2°F	NA
Accusplit Timer	611	±0.001% (over 3hr. period)	7/30/14

4 Testing and Evaluation of Results

4.1. Observations, March 19, 2015

TIME	EXPOSED FACE
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00:00	Burners ignited.
90:00	Test stop.

TIME	UNEXPOSED FACE
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00:00	Assembly tight to frame.
03:29	Light smoke form perimeter of louver.
15:00	No significant change.
30:00	No significant change.
45:00	No significant change.
60:00	No significant change.
75:00	No significant change.
90:00	Test stop.

4.2. Door Deflection

Door deflection relative to the frame, where applicable, was monitored throughout the test. The door deflection did not exceed the allowable limit of 1 times the door thickness and thus met the requirements of the test standard.

4.3. Flaming and Penetration

During the fire exposure period there was no flaming at the louver of the assembly in excess of that allowed by the standard. The assembly met the criteria of the test standard for flaming and penetration.

4.4. Hose-Stream Test Observations and Results

A Hose-Stream Test was conducted for 20 seconds based on a total assembly area of 13.3 square feet and a required duration of 1.5 seconds per square foot of assembly area at 30 psi.

At the conclusion of the Hose-Stream test, there were no through openings, louver remained in the opening. The assembly met the criteria of the test standards for Hose-Stream.

5 Conclusion

Assembly 1: The 3'0" x 3'8" vertically stiffened door with 24" x 24" louver kit, as described herein, complied with UL 10C (2009) "Positive Pressure Fire Tests of Door Assemblies" for a 90 minute rating with Hose-Stream.

This report does not automatically imply product certification. Products must bear the Warnock Hersey registered certification mark to demonstrate compliance.

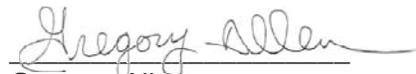
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APPENDIX A

Test Data and Photographs

FIGURE 1 - TIME-TEMPERATURE CURVE

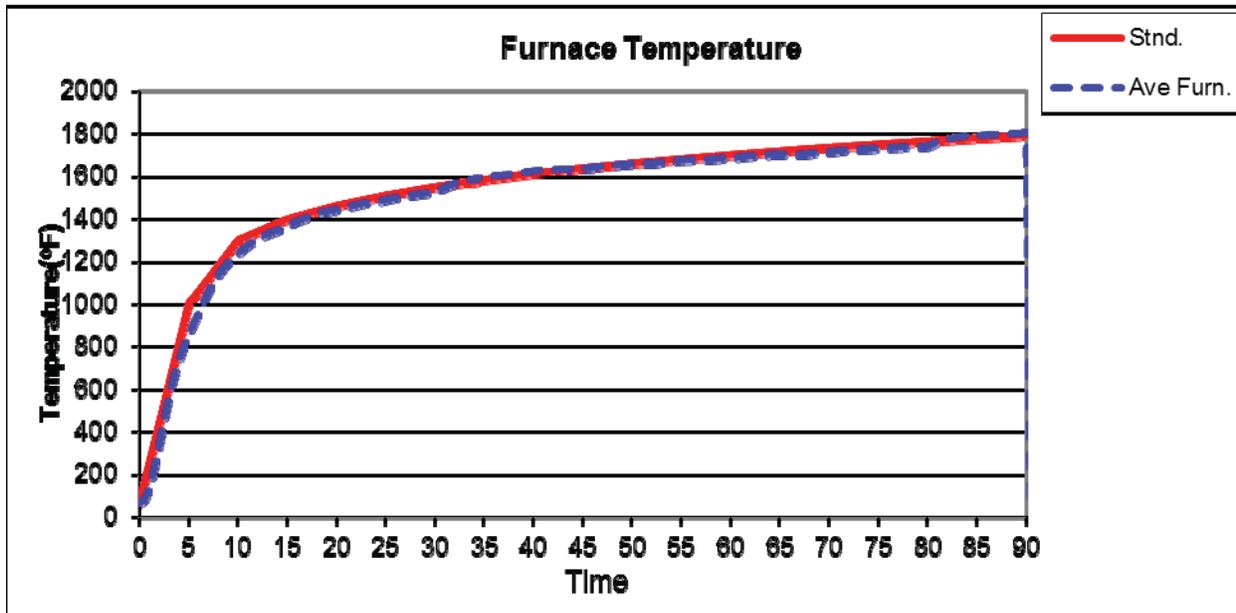
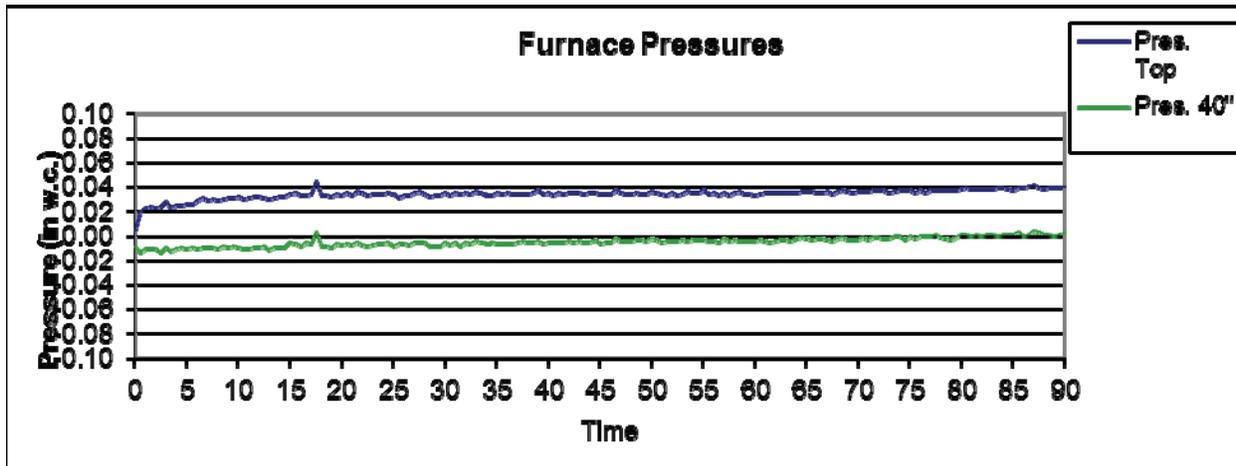


FIGURE 2 - FURNACE PRESSURES



**PHOTOGRAPHS
BEFORE TEST**



FIRE ENDURANCE TEST



HOSE-STREAM TEST





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REVISION SUMMARY

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