



Test Report

*Residential
fire test*

ITS Intertek Testing Services

Intertek Testing Services NA, Inc.

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October 30, 2000

Mr. Robert Martin
Reddi-Wall Inc.
1075 Rochester Rd.
Oakland, MI 48363

Subject: ITS Letter Report No. J20022860-231

Dear Mr. Martin:

A pilot scale (48" high x 72" wide) vertical fire test was conducted at Intertek Testing Service NA Inc. (ITS) of Middleton, Wisconsin on October 30, 2000 to investigate the possibility for 120 minute fire rating of a wall. The results described in this report are limited to the submitted test assembly.

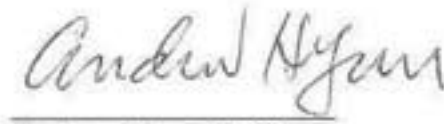
The 48" high x 72" wide foam insulated concrete wall (Reddi-Wall), as described herein, complied with ASTM E119-95a "*Standard Test Methods of Fire Tests of Building Construction and Materials*", CAN/ULC-S101, NFPA 251 (1999), UBC Standard 7-1 (1997) and UL 263 (1997) for a 2 hour rating.

If you have any questions or if we may be of further assistance, please do not hesitate to contact Andrew Hyun at (608) 836-4400.

Sincerely yours,

Reviewed by,


Mark Wegner
Engineering Technician


Andrew Hyun, Ph.D.
Project Manager

INTRODUCTION

The Middleton Wisconsin fire testing laboratory of Intertek Testing Services NA (ITS)/Warnock Hersey conducted a pilot scale vertical fire test. This report gives the results of the evaluation of a fire resistance property. The test results described in this report are limited to the tested items.

The test was conducted in accordance with ASTM E119-95a "*Standard Test Methods of Fire Tests of Building Construction and Materials*", CAN/ULC-S101, NFPA 251 (1999), UBC Standard 7-1 (1997) and UL 263 (1997).

TEST MATERIAL

WALL: A 48" high x 72" wide wall consisting of 10" wide polystyrene honeycomb blocks stacked in a staggered pattern. The blocks were secured by screws spaced 9" to 11" apart into the 3/4" x 3/4" steel vertical track that is spaced 10" on center and anchored into the concrete. A piece of 1/2" thick steel rebar was placed into each horizontal column and into every vertical column. The wall was filled with concrete and covered with a layer of 5/8" Type X gypsum on both sides. Secured with 3-1/2" drywall screws spaced 3" from the top and bottom of the wall, and 12" apart in the body of the wall into the same 3/4" x 3/4" steel vertical track as the blocks. All joints and screw heads were taped and treated with joint compound.

TEST PROCEDURE

After positioning the test assembly to cover the furnace opening, the burners were ignited and a timer started. Temperatures within the furnace were monitored using thermocouples attached to the data logger (Inventory #326). The burners were controlled to keep the furnace temperatures within the allowable limits specified in the test standards.

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

Pressure taps were installed through the furnace wall adjacent to the top of the test assembly. The pressure taps were attached to the pressure gauge (Inventory #93).

Immediately after the Fire Endurance Test, the test assembly was moved into position for a Hose Stream (Inventory #372) 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 standards.

FIRE ENDURANCE TEST OBSERVATIONS**FIRE ENDURANCE**

<u>TIME</u> (min:sec)	<u>EXPOSED FACE</u>
00:00	Furnace ignited.
03:44	Gypsum panel paper ignited.
24:30	Joint compound starting to peel off of the drywall joint.
26:00	Drywall starting to crack horizontally at the upper and lower right hand side.
32:30	Horizontal crack on the upper left side. Other cracks now approximately 1/16" wide. Vertical drywall joint exposed.
45:00	Drywall joint expanded to 3/16", but no flaming from it. No change in size of horizontal cracks.
50:00	Flaming from bottom of drywall joint.
56:00	Steady flaming extending along the bottom of the wall.
60:00	Test stopped.

<u>TIME</u> (min:sec)	<u>UNEXPOSED FACE</u>
00:00	Ambient temperature = 59 °F.
30:00	No change.
60:00	Test stopped.

HOSE STREAM TEST OBSERVATION

A Hose Stream Test was conducted for 15 seconds at 30 psi. Test assembly passed hose stream test with no through opening and allowable movement limits.

FIGURE 1 · TIME-TEMPERATURE and PRESSURE CURVE

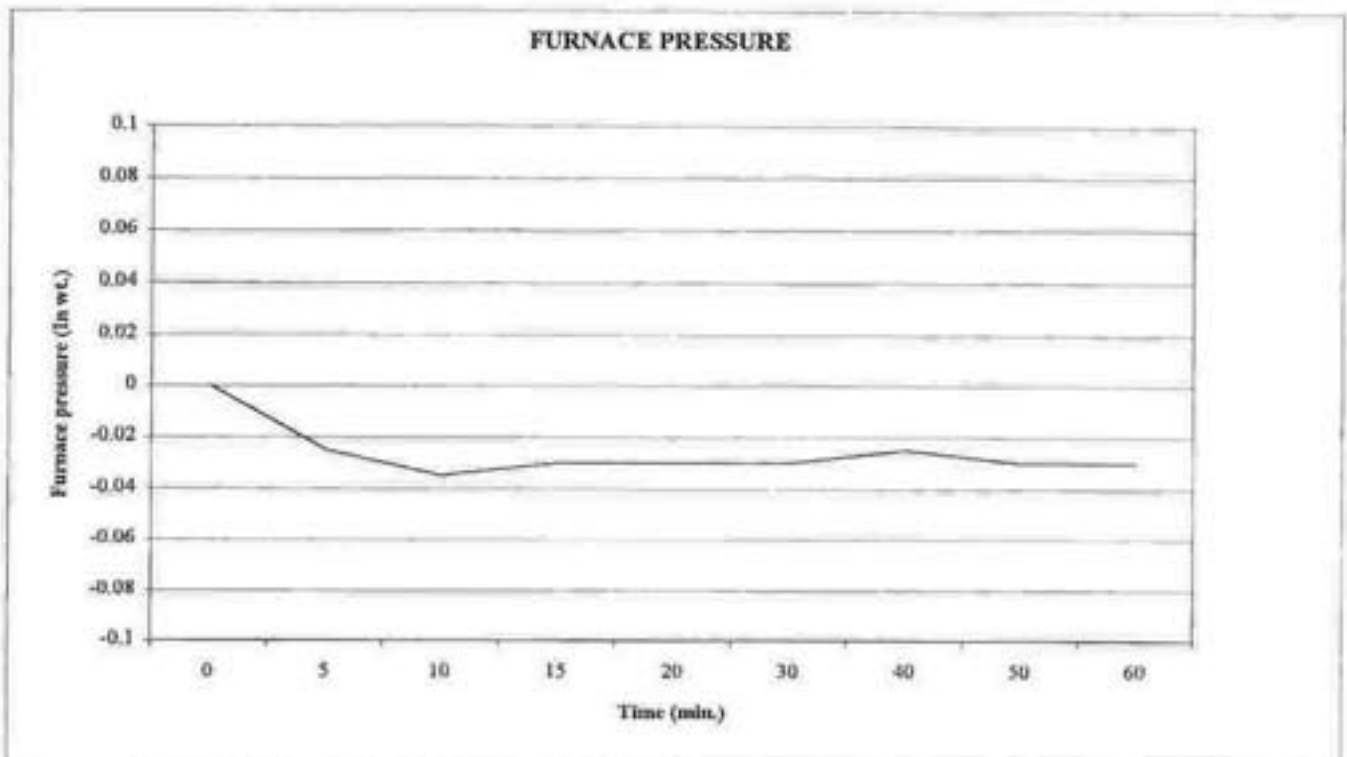
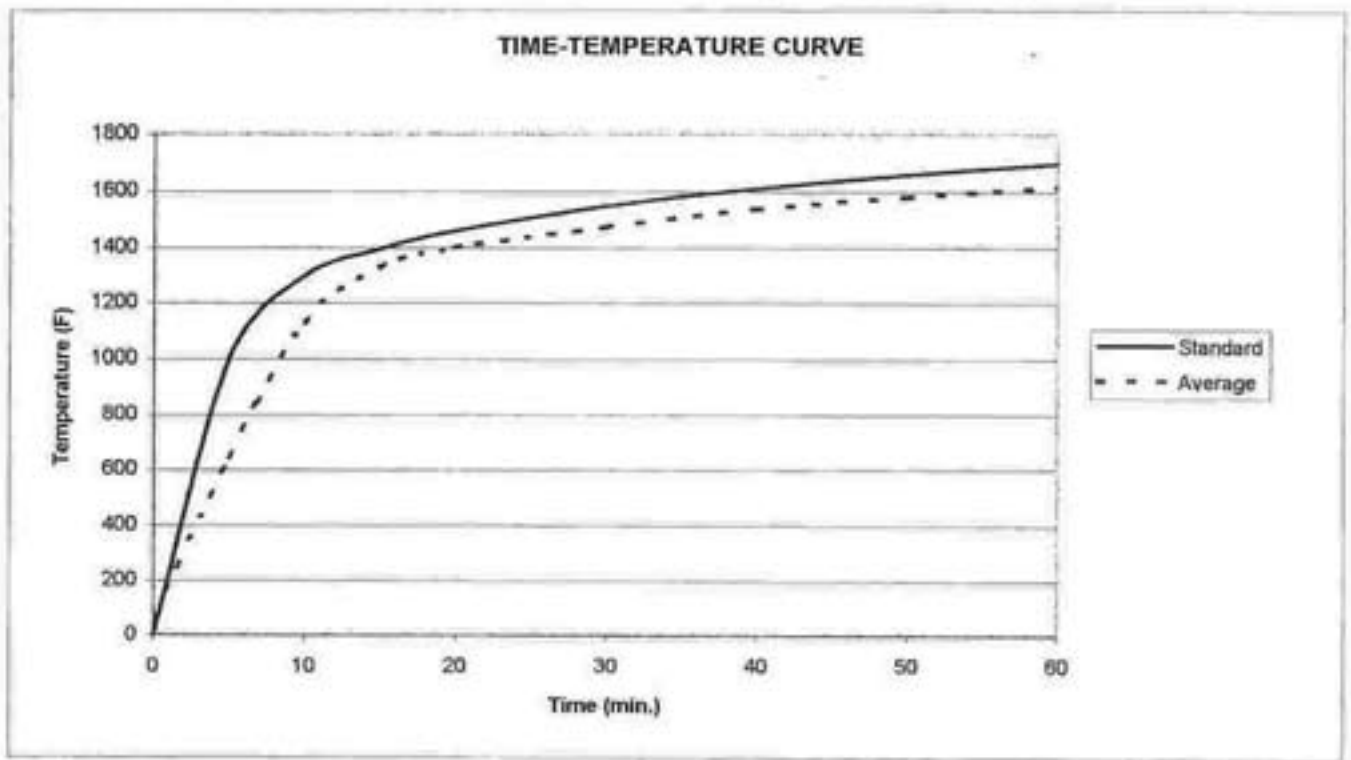


FIGURE A

Anchoring wall over standard footing

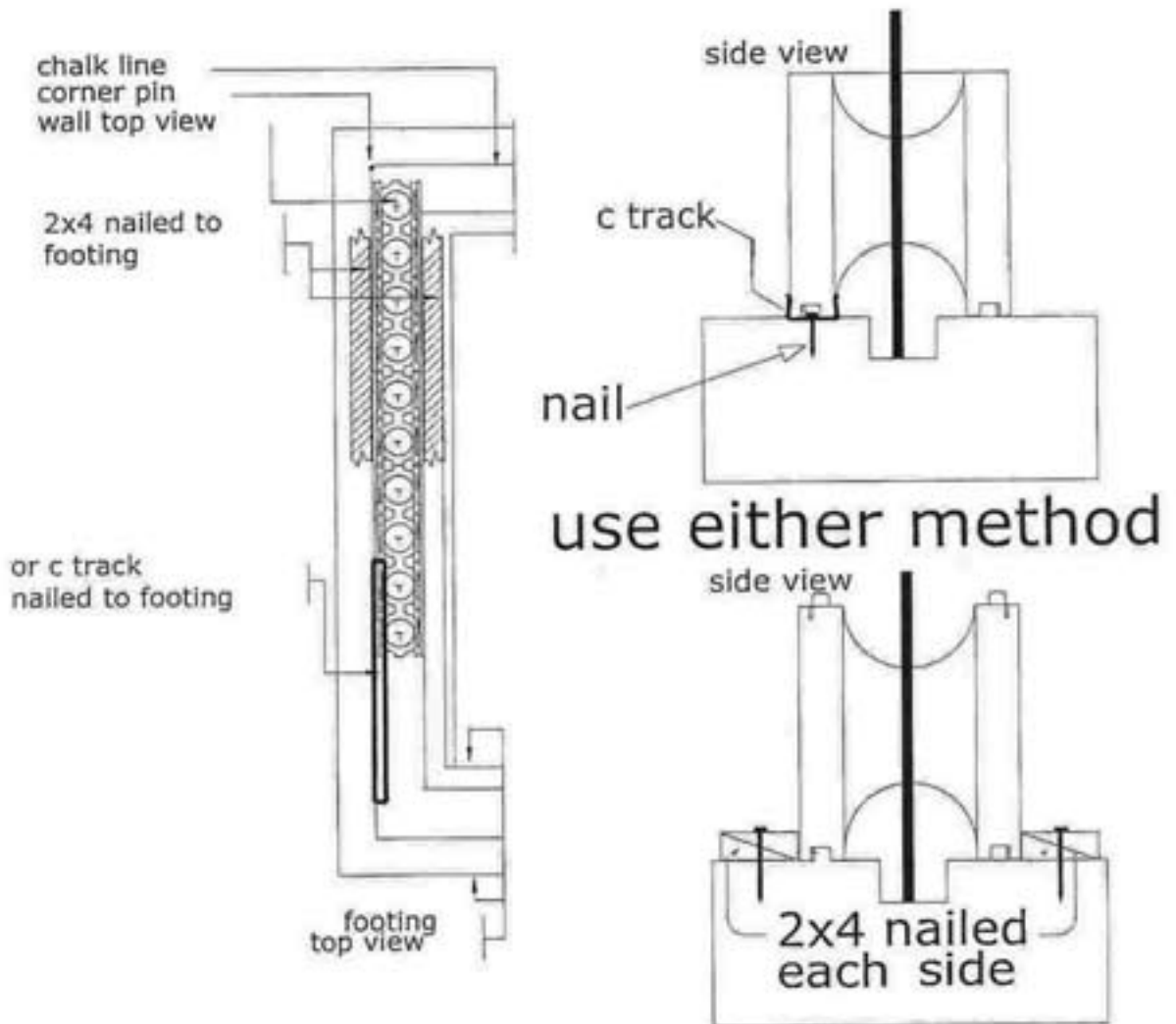


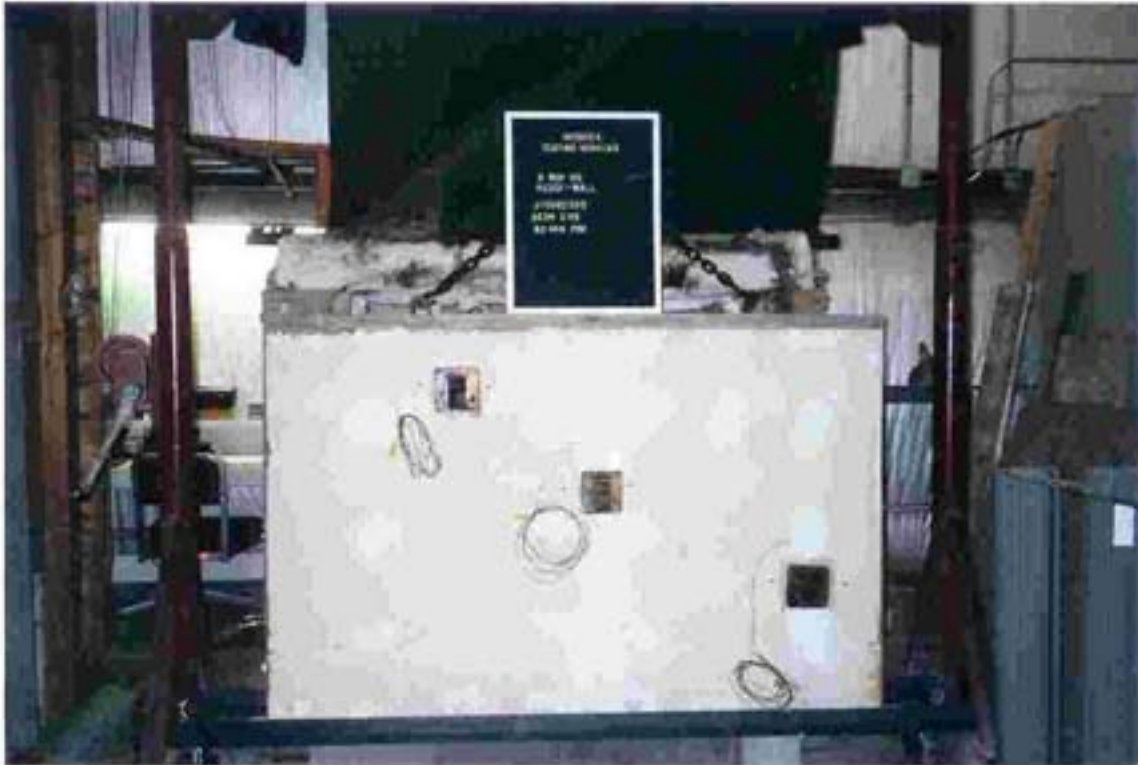
TABLE 1. UNEXPOSED SURFACE TEMPERATURE RISE

<u>Time(min)</u>	Ambient temperature = 59 °F		
	Thermocouple Location		
	<u>#1</u>	<u>#2</u>	<u>#3</u>
10	10° F	7° F	4° F
20	15° F	5° F	5° F
30	18° F	5° F	5° F
40	21° F	5° F	5° F
50	23° F	5° F	6° F
60	24° F	5° F	5° F

Note: #1: In open field, top right hand corner.
#2: On tape gypsum panel joint, center of assembly.
#3: On steel reinforcing stud, lower left corner.

PHOTOGRAPHS

BEFORE TEST



FIRE ENDURANCE



AFTER HOSE STREAM TEST





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