



**CLIENT:** Pipedream Industries  
1245 Rum Creek Parkway  
Stockbridge, GA 30281

**Test Report No:** 12772

**Report Date:** October 4, 2021

**SAMPLE ID:** Heavy Duty Undercoating

**SAMPLING DETAIL:** The test materials were submitted directly by the client. The materials were not independently selected for testing.

**DATE OF RECEIPT:** The undercoating was received on September 21<sup>st</sup>, 2021 in good condition.

**TESTING PERIOD:** October 1<sup>st</sup>, 2021

**TESTING LOCATION:** QAI – Medley, Florida, USA

**AUTHORIZATION:** Proposal 21AM08062, signed by Dhaivil Patel, dated August 17<sup>th</sup>, 2021.

**TEST PROCEDURE:** Testing to the following requirements:

- ASTM E119-19, Standard Methods for Fire Tests of Building Construction and Materials (ASTM E119).

**TEST RESULTS:** The Heavy Duty Undercoating met the requirements of ASTM E119 for a 1-hour non-load bearing fire-resistance-rating.

**Prepared By**

**Signed for and on behalf of  
QAI Laboratories, Ltd.**

*Lusinda Delgado*

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Technical Report Writer

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**Introduction:**

This report documents the fire testing conducted by QAI Laboratories for a Heavy Duty Undercoating that was applied to a non loadbearing wall.

Testing was performed in accordance with ASTM E119. The wall was evaluated for a 1-hour non-load bearing fire-resistance-rating, on October 1st, 2021.

**Assembly Description:**

**Table 1: Wall Description**

COMPONENT	DESCRIPTION	
<b>Assembly</b>	Size:	3.05 m (10 ft.) high by 3.05 m (10 ft.) wide
	Type:	Heavy Duty Undercoating wall assembly
<b>Framing</b>	Tracks:	150 mm (6 in.) 16 gauge steel
	Studs:	150 mm (6 in.) 16 gauge steel spaced 406 mm (16 in) on center
<b>Sheathing</b>	Drywall	12mm (1/2 in.) gypsum board
<b>Interior and Exterior Face</b>	Type:	Heavy Duty Fire Resistant Encapsulate Undercoating
	Manufacture:	Pipedream Industries
	Product:	Heavy Duty Undercoating
	Coat Thickness:	46 microns (dry)
	Fasteners:	1 3/4" bugle head (flat head) drywall screws spaced 12mm (1/2 in.) on center
<b>Insulation</b>	Type:	Roclwood Insulation
	Product:	Comfortbatt R15
	Dimensions:	76 mm (3 in) x 152 mm (6 in) x 3.05 m (10 ft.)
	Density:	> 2 lb/ft <sup>3</sup> (>32kg/m <sup>3</sup> )
	Installation:	Each cavity is filled with a double layer of mineral wood insulation

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### Test Apparatus:

The furnace used in the tests is a full-scale fire burning apparatus with interior dimensions of 3.05 m (10 ft.) in height, 3.05 m (10 ft.) in width, and 0.91 m (3 ft.) in depth.

Temperatures within the furnace were monitored using nine thermocouples (TCs). The temperatures are controlled by adjusting fuel to the furnace burners to conform to the time/temperature curve specified by the test standards. Temperature measurements are recorded by a data acquisition unit (ID# 172) which passes the readings to a computer for graphical display and storage.

Unexposed temperatures were monitored by eight TCs. The TCs were placed on the wall assemblies as outlined in Figures 3 of Appendix A. The temperatures were recorded continuously for the duration of the tests, and the temperature rise data are provided graphically in Figure 4, and 5 in Appendix A.

The wall assembly was mounted in a vertical steel test frame. The test frame was then rolled up to the furnace and secured by clamps.

Two pressure taps are installed along the longitudinal center line of the test assemblies. The pressure taps are each attached and monitored by Omega PX274-05D1 pressure transducers (ID# Pressure T1). The furnace pressure is controlled by adjusting a damper in the furnace exhaust stack. The furnace pressure was recorded continuously for the duration of the test.



**Figure 1: Full Scale Furnace**



### Test Conditions:

The Heavy Duty Undercoating wall assembly outlined in Table 1 was constructed in a full-scale moveable steel test frame. A ceramic fiber gasket was used to maintain an air seal between the furnace and the wall assemblies.

The pressure of the furnace was monitored throughout the tests.

Prior to the fire endurance tests the test assemblies were moved into position in front of the furnace and the pilot burners were ignited. The fire endurance tests were initiated after igniting the burners. The temperature inside the furnace was controlled to follow the standard time/temperature curve within the limits described in the test standards.

After the fire endurance tests, the assemblies were subjected to the impact, erosion, and cooling effects of a hose stream as described in the test standard. The pressure and duration of the hose stream test were 207 kPa (30 PSI) and 32 sec/m<sup>2</sup> (0.6 sec/ft<sup>2</sup>).

### Test Requirements:

- I. The test specimen has withstood the fire-resistance test without passage of flame or gasses hot enough to ignite cotton waste, for a period equal to that for which the classification is desired.
- II. The specimen has withstood the fire and hose stream test without passage of flame, or gasses hot enough to ignite cotton waste, or of passage of water from the hose stream. The test specimen shall be considered to have failed the hose stream test if an opening develops that permits a projection of water from the stream beyond the unexposed surface during the time of the hose stream test.
- III. Transmission of heat through the wall or partition during the fire resistance test shall not raise the temperature on its unexposed surface more than 139°C (250°F) above its initial temperature.
- IV. The temperature end point of the fire-resistance period shall be determined by the average of the measurements taken at individual points; except that if a temperature rise 30% in excess of the specified limit, 165°C (330°F), occurs at any one of these points, the remainder shall be ignored and the fire-resistance period judged as ended.



**Test Results:**

**Observations**

**Table 2: Test Observations - Wall Assembly**

Test Time (min)	Unexposed	Exposed
00:01	Start test	Start test
9:24	No change	No change
15:20	No change	No change
24:50	No change	No change
38:10	No change	Cracking noise
46:16	No change	Center of wall caught of fire igniting the entire assembly
54:10	Rise in temperature	Entire assembly on fire
60:01		Test discontinued

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### Unexposed Temperature Rise

The maximum individual temperature limit of 325°F (181°C) and the maximum average temperature limit of 250°F (139°C) were reached during the fire endurance tests. See table 4 for details.

Test	Max. Allowable Individual Temp.	Max. Individual Temp. Reached	Max. Allowable Avg. Temp.	Max. Avg. Temp. Reached
Wall Assembly	210°C (410°F)	173°C (343°F)	168°C (335°F)	150°C (302°F)

### Hose Stream Test

The hose stream test was conducted for 60 seconds. After the hose stream duration, there were no through penetrations in the assembly.

### Conclusions:

QAI performed testing in accordance with ASTM E119 for a 1-hour non-load bearing fire-resistance-rating on a Heavy Duty Undercoating on a wall system.

The Heavy Duty Undercoating test assembly met the requirements for use as a 1-hour non-load bearing fire-resistance-rated assembly, when constructed as described in Table 1.

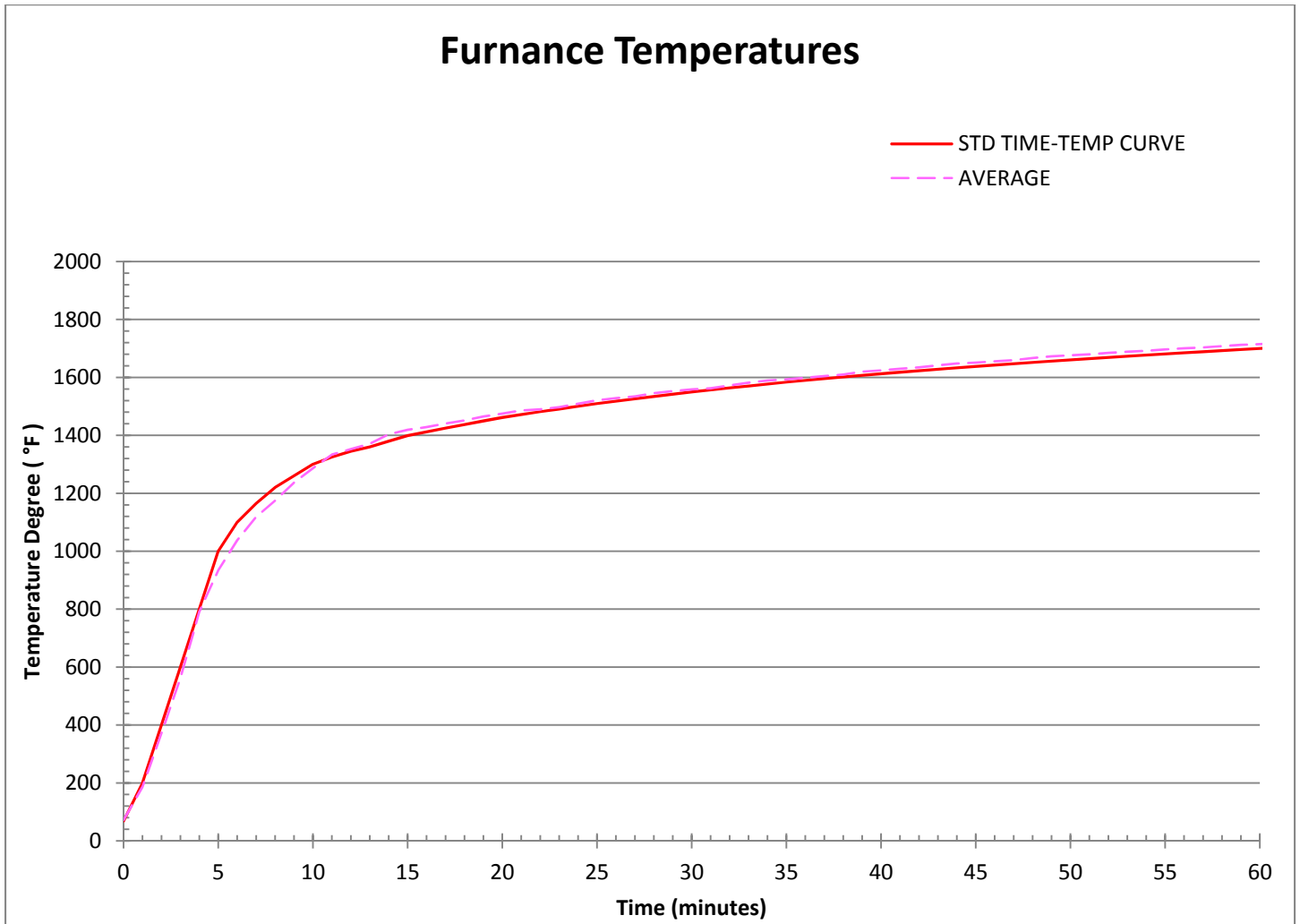


## APPENDIX A

Page	Title
9	Wall Assembly Furnace Time Temperature Curve
10	Wall Assembly Thermocouple Locations
11	Wall Assembly Unexposed Time Temperature Curves
12	Wall Assembly Max Unexposed Time Temperature Curve

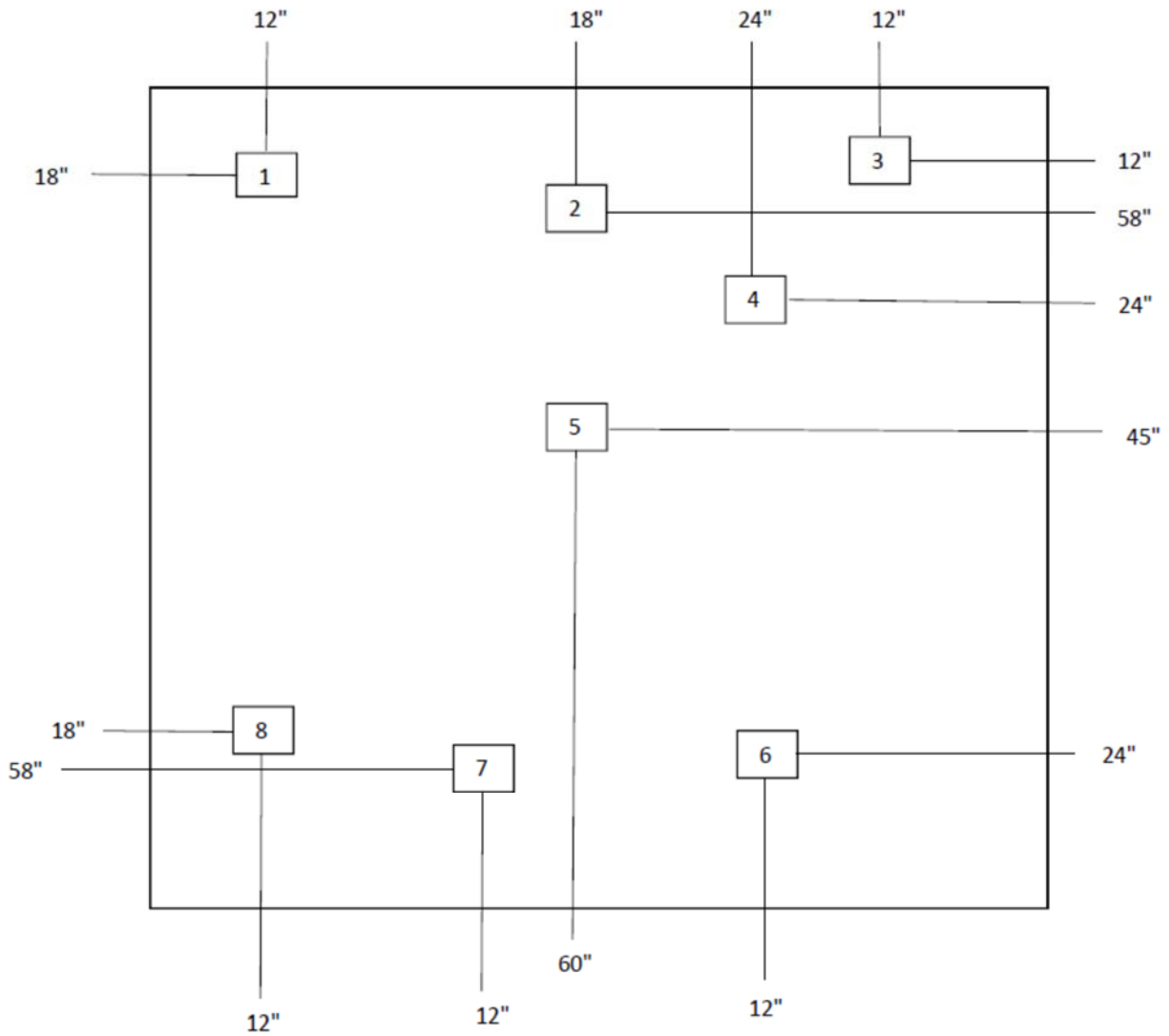
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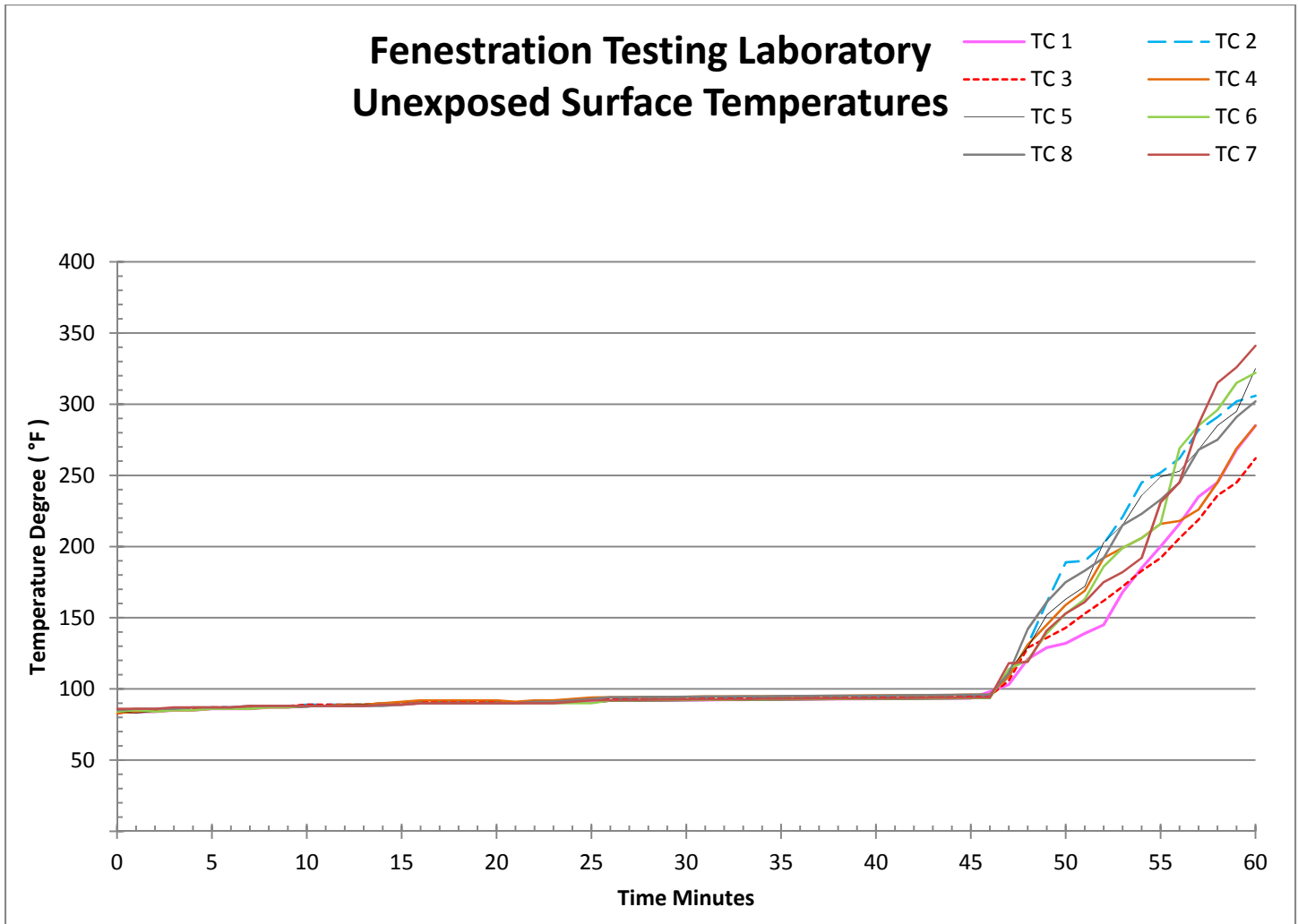
**Figure 2:** Furnace Time Temperature Curve

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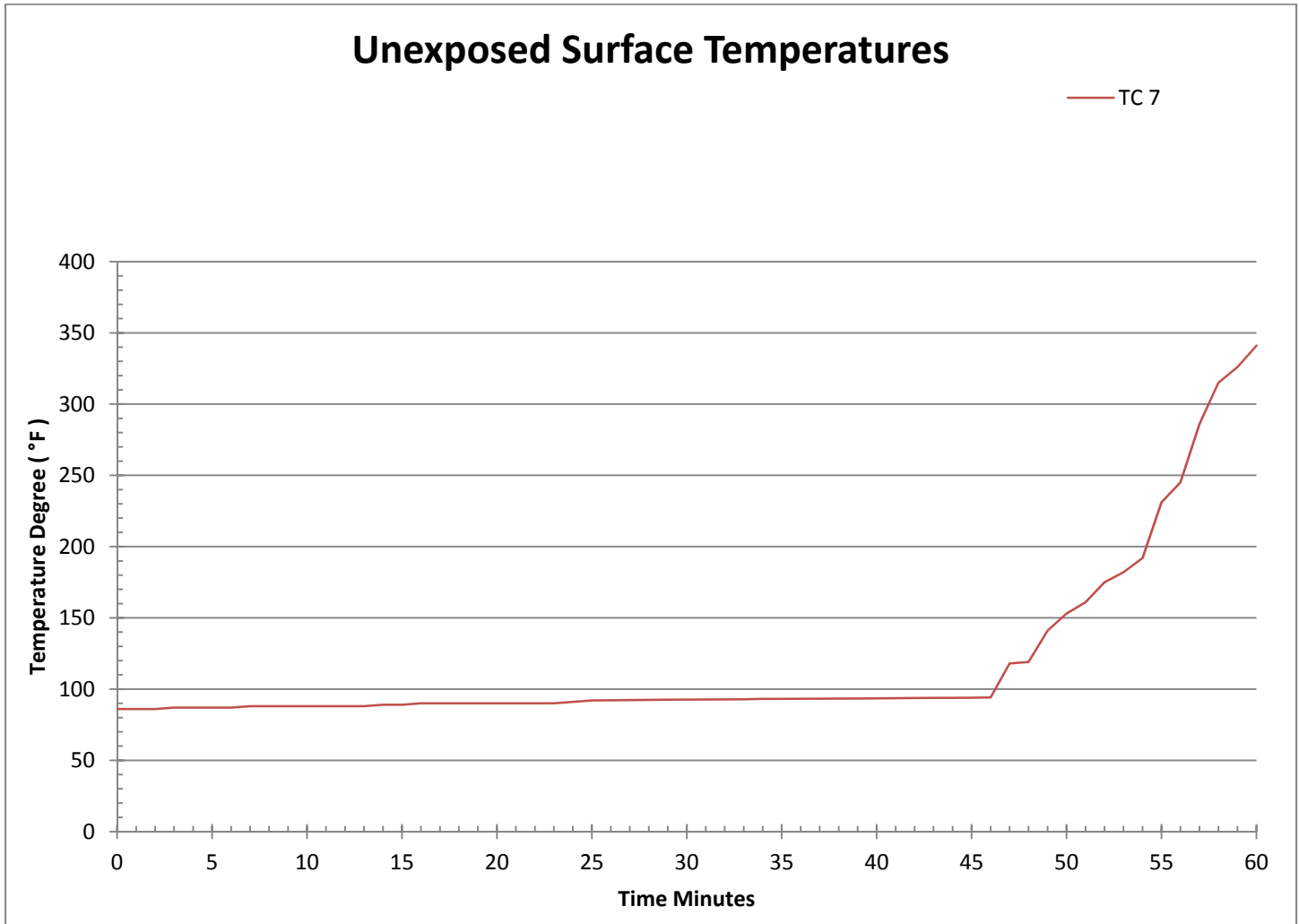
**Figure 3: Wall Assembly – Unexposed Thermocouple Locations**

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**Figure 4:** Unexposed Time Temperature Curves

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**Figure 5: Max Unexposed Time Temperature Curve**

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## APPENDIX B

Page	Title
14-17	Sample Pictures



**Figure 6:** The exposed face of wall assembly prior to testing.



**Figure 7:** The unexposed face of wall assembly prior to testing.



**Figure 8:** The exposed face of wall assembly after the test





**Figure 9:** The exposed face of wall assembly after the hose stream test.