



**TEST REPORT**

**ASTM E84-09**

**SURFACE BURNING  
CHARACTERISTICS  
OF BUILDING MATERIALS**

Report No. 3171245SAT-003A Rev.1

**Type 5GP Cementitious Fireproofing**

June 8, 2009

Prepared for:  
Southwest Fireproofing Products Co.  
5119 Edith Blvd.Ne  
Albuquerque, NM 87107

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**ABSTRACT**

Test Specimen:	Type 5GP Cementitious Fireproofing		
Test Standard:	ASTM E84-09		
Test Date:	May 07, 2009		
Test Sponsor:	Southwest Fireproofing Products Co.		
Test Results:	FLAME SPREAD INDEX	=	0
	SMOKE DEVELOPED INDEX	=	0
		=	N/A ft. Beyond Burners Centerline

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Teodoro Alvarado Jr  
E84 Operator

June 8, 2009

Reviewed and approved:

Miguel Zamarripa  
Project Manager

June 8, 2009



## I INTRODUCTION

This report describes the results of the ASTM E84-09 Standard Test Method for SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, a method for determining the comparative surface burning behavior of building materials. This test is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

The purpose of the method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

“The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support. This method may not be appropriate for obtaining comparative surface burning behavior of some cellular plastic materials. Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.”

This test method is also published under the following designations:

ANSI 2.5  
NFPA 255  
UBC 8-1 (42-1)  
UL 723

*This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.*

## II PURPOSE

The ASTM E84-09 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from tests of fiber cement board and select grade red oak flooring. The test specimen surface (18 inches wide and 24 feet long) is exposed to a flaming fire exposure during the 10 minute test duration, while flame spread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration materials.

The furnace is considered under calibration when a 10 minute test of red oak decking will pass flame out the end of the tunnel in five minutes, 30 seconds, plus or minus 15 seconds. Fiber cement board forms the zero point for both flame spread and smoke developed indexes, while the red oak flooring smoke developed index is set as 100.

## III DESCRIPTION OF TEST SPECIMEN

Specimen Identification:	Type 5GP Cementitious Fireproofing
Date Received:	3/27/2009
Date Prepared:	3/27/2009
Conditioning (73°F & 50% R.H.):	41 days
Specimen Width (in):	24
Specimen Length (ft):	24
Specimen Thickness:	1.3400-in.
Material Weight:	N/A oz./sq. yd
Total Specimen Weight:	216-lbs.
Adhesive or coating application rate:	N/A

### Mounting Method:

The specimen was self-supporting and was placed directly on the inner ledges of the tunnel.

### Specimen Description:

The test specimen was described by the client as the "Type 5GP Cementitious Fireproofing received in bags with Underwriters Laboratories Inc. Labels. The Type 5GP was mixed with water and spray applied at the Intertek Laboratories to cement board Provided by Intertek with observation by laboratory personnel. Mixing and spraying used typical job site equipment and job experienced workmen. The samples were left with Intertek personnel for curing, conditioning and testing". The specimen consisted of (5) 5-ft. long x 24-in. wide x 1.3400-in. thick, panels. The specimen was identified by the client as "Type 5GP Cementitious Fireproofing." The samples were received in good condition.

**IV TEST PROCEDURE**

The tests were conducted in accordance with the procedures outlined in the American Society for Testing and Materials ASTM E84-09. The self-supporting specimens were placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board was placed on top of the test sample between the sample and the tunnel lid. After the tests, the samples were removed from the tunnel, examined and disposed of.

The test was conducted on 5/7/2009, and not witnessed by any third parties.

**V TEST RESULTS**

The test results, computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table. In recognition of possible variations and limitations of the test method, the results are computed to the nearest number divisible by five, as outlined in the test method for smoke developed index results greater than 200 the calculated value is rounded to the nearest 50 points.

*While no longer a part of this standard test method, the Fuel Contributed Value has been computed, and may be found on the computer printout sheet in the Appendix.*

Test Specimen	E84 (10 Minute) Flame Spread Index	E84 (10 Minute) Smoke Developed Index	NFPA 703 (30Minute) ft
Fiber Cement Board	0	0	N/A
Red Oak Flooring		100	N/A
Type 5GP Cementitious Fireproofing	0	0	N/A

The data sheets are included in the Appendix. These sheets are actual print-outs of the computerized data system which monitors the ASTM E84-09 apparatus, and contain all calibration and specimen data needed to calculate the test results.



## VI OBSERVATIONS

During the test, the specimen was observed to behave in the following manner: sample never ignited. The test continued for the 10:00 duration.

After the test the specimen was observed to be damaged as follows:

The panels were discolored from 0-ft. -4.5-ft. and no visible damage was seen from 4.5-ft. -24-ft.

# **APPENDIX**

## **ASTM E84-09**

### **Data Sheets**

# ASTM E84-09

Client: SOUTHWEST FIRE PROOF INC  
Date: 5-7-09  
Project Number: 3171245SAT-003A Rev.1  
Test Number: 1  
Operator: TA/AM  
Specimen ID: TYPE 5 GP CEMENTITIOUS FIRE-PROOFING, CEMENT BOARD  
PRODUCT THE SPECIMEN WAS SELF-SUPPORTING

## TEST RESULTS

FLAMESPREAD INDEX: 0  
SMOKE DEVELOPED INDEX: 0

## SPECIMEN DATA

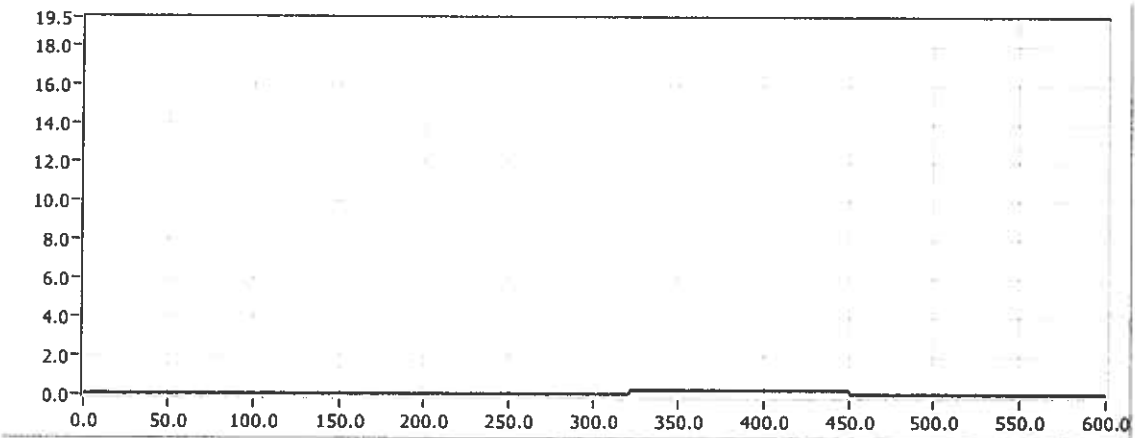
Time to Ignition (sec): 0  
Time to Max FS (sec): 327  
Maximum FS (feet): 0.3  
Time to 980 F (sec): Never Reached  
Time to End of Tunnel (sec): Never Reached  
Max Temperature (F): 587  
Time to Max Temperature (sec): 547  
Total Fuel Burned (cubic feet): 50.94  
  
FS\*Time Area (ft\*min): 1.6  
Smoke Area (%A\*min): 0.8  
Unrounded FSI: 0.8

## CALIBRATION DATA

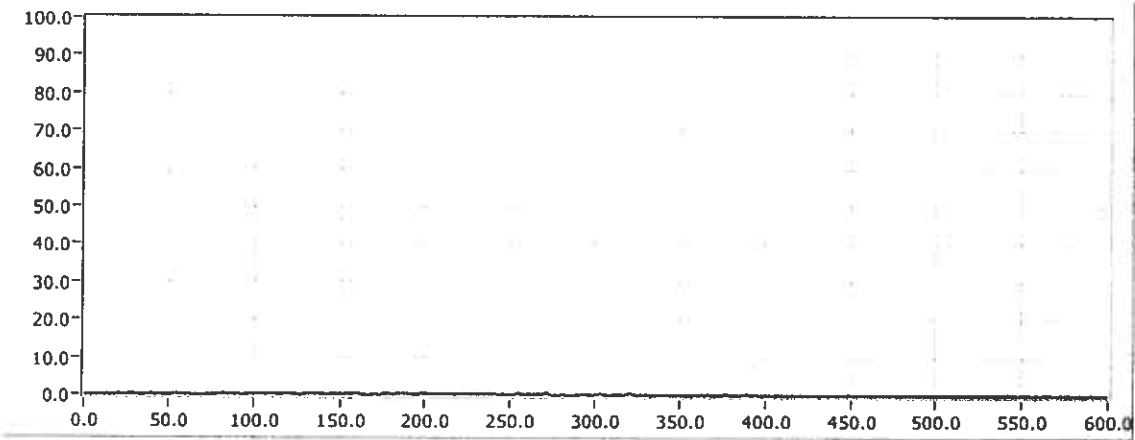
Time to Ignition of Last Red Oak (Sec): 39.0  
Red Oak Smoke Area (%A\*min): 111.0



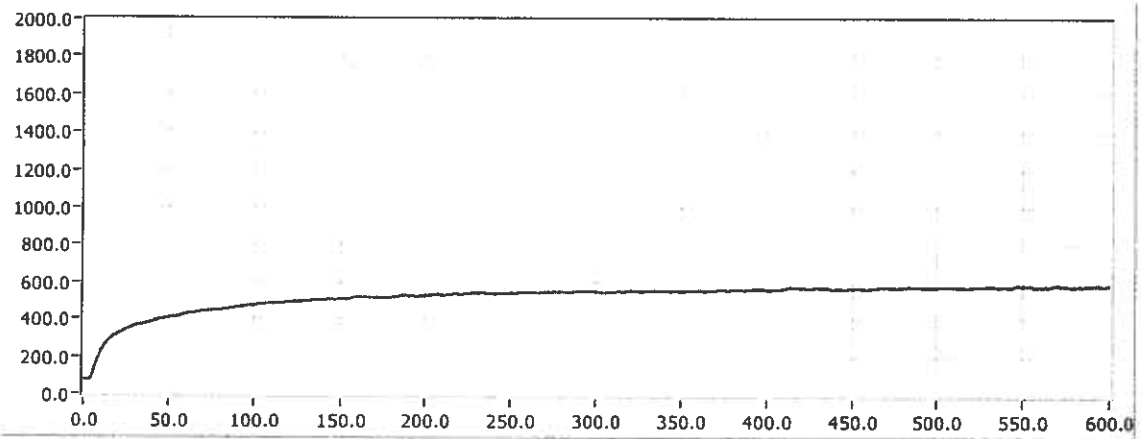
FLAME SPREAD (ft)



Smoke (%A)



Temperature (°F)



Time (sec)

600

**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**  
Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ASTM E937: Standard Test Method for Corrosion  
of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural  
Members

**Report of Testing 5GP cementitious fireproofing for compliance with the  
applicable requirements of the following criteria: *ASTM E937: Standard  
Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material  
(SFRM) Applied to Structural Members***

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## 2 Introduction

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 5GP cementitious fireproofing. Testing was conducted in accordance with ASTM E 937-93 (Reapproved 2005) Corrosion of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members. Results are reported in accordance with the ASTM Standard specified above.

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek technical personnel observation at the Intertek Evaluation Center. Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The SFRM was applied in accordance with the manufacturer's published instructions and were representative of application in the field. The dry fireproofing material as removed from bags was mixed with water to produce a coherent pumpable slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table. The product was prepared and conditioned for testing in the as sprayed surface condition. No finishing techniques such as tamping, troweling, surface sealing or similar operations were made.

Product	Substrate of Application
Type 5GP	Bare, coated and galvanized steel plates per ASTM E 937

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## 4 Testing and Evaluation Methods

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The samples cured for 30 days at nominal conditioning levels.

### 4.1. TEST STANDARD – E937

The substrates were twelve each 12-gauge plates measuring 8" x 8", four sheets were in each set of bare, shop coated and galvanized. Samples I and III of each set were conditioned for 240 hours and samples II and IV of each set were conditioned for 240 hours. The fireproofing thickness was 3/4" +/- 1/8". The samples were handled with special care to accommodate safe handling.

Each sheet of each set was weighed to the nearest 0.1 g and recorded as IA, IIA, IIIA and IVA. The edges and the sides opposite the fireproofing of each sheet were protected with a suitable coating. The sprayed fire-resistive material and protective coating were removed from the steel sheets identified as I and III from each set. All surface rust was removed from I and III of each set with a wire brush and cleaned with solvent. Sheets I and III of each set were weighed and recorded as Ib and IIIb. The remaining sheets, specimens II and IV of each set, were placed in the temperature humidity cabinet and kept at 95 +/- 3 0F and a 95 +/- 3% relative humidity for 240 hours. After 240 hours elapsed, the specimens were removed from the cabinet. The surface rust, sprayed fire-resistive material and protective coating were removed with a wire brush and cleaned with solvent. The sheets were weighed to the nearest 0.1 g and recorded as IIb and IVb.

### 4.2. TEST STANDARD 2 - ASTM E 605

Thickness of the applied material was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The density of the material was determined from separate sample plates prepared at the same time as the test samples by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

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## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

Initial weights of the four test plates in each of the three sets, final weights of two of the test plates in each set (sets I and III), and final weights of the other two test plates in each set (sets II and IV) were determine as specified in the standard. Data for Southwest Fireproofing Type 5GP are tabulated below. The fireproofing was applied at a thickness of 3/4 inch and density of 14.06 pcf. The weight loss of each set expressed in g/ mm<sup>2</sup> is tabulated below.

#### E937 – Corrosion of Steel

	<i>Initial Weights (g)</i>			<i>Final Weights (g)</i>		
	<b>Bare</b>	<b>Coated</b>	<b>Gal. Steel</b>	<b>Bare</b>	<b>Coated</b>	<b>Gal. Steel</b>
<b>I</b>	802.9	801.6	822.9	800.7	800.8	822.5
<b>II</b>	798.7	813.4	822.9	797.1	812.7	821.5
<b>III</b>	801.2	805.6	828.6	799.3	805.2	828.0
<b>IV</b>	797.3	814.5	816.3	796.2	813.8	815.4

	<i>Average Weight Loss (g/mm<sup>2</sup>)</i>		
	<b>Bare</b>	<b>Coated</b>	<b>Gal. Steel</b>
<b>I</b>	0.0000533	0.0000194	0.0000097
<b>II</b>	0.0000388	0.0000170	0.0000339
<b>III</b>	0.0000460	0.0000097	0.0000145
<b>IV</b>	0.0000266	0.0000170	0.0000218

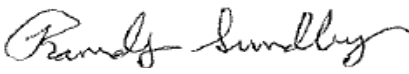
## 6 Conclusion


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Intertek has conducted testing for Southwest Fireproofing Products Co. on 7GP, 5GP, 5MD and 7HD cementitious fireproofing. Testing was conducted in accordance with ICC-ES, following the standard methods of AC 23: *Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials* as detailed in ASTM E937: *Standard Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members*. This evaluation began April 14, 2009 and was completed September 21, 2009.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

### INTERTEK

Reported by:   
Randy Sundby  
**Project Engineer, Construction Products**

Reviewed by:   
Rhonda Byrne  
**Operations Manager**

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Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
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## APPENDIX A

### Test Data



**Test: Corrosion of Steel by Spray Fire-Resistive Material (SFRM) Applied to Structural Members**

Test Date: Room Temp Corrosion on 4.23.09 Humidified Corrosion on 4.30.09

Client: Southwest Fireproofing

Project #: 3171245

Product: 5GP

Date of Manufacture: Prepared on 3.3.09

Test Standard(s): ASTM E937-93 (2005) - *Standard Test Method for Corrosion of Steel by SFRM Applied to Structural Members*

Conditioning: Samples I & III: 20 days at 68 ± 9°F and a Relative Humidity < 60 %

Samples II & IV: 240 hours at 95 ± 3°F and a Relative Humidity of 95 ± 3%

Equipment: Scale: Ohaus Scout Pro 4001 - MID Asset #1120 (Calibration due 11/18/09)

Conditioning: Cincinnati Sub-Zero Z32+ Environmental Chamber - MID Asset #1059 (Cal. due 11/10/09)

Area of Sheet: 64 in<sup>2</sup> 41290.24 mm<sup>2</sup>

	Initial Weights (g)			Final Weights (g)		
	Bare	Coated	Gal. Steel	Bare	Coated	Gal. Steel
I	802.9	801.6	822.9	800.7	800.8	822.5
II	798.7	813.4	822.9	797.1	812.7	821.5
III	801.2	805.6	828.6	799.3	805.2	828.0
IV	797.3	814.5	816.3	796.2	813.8	815.4

	Average Weight Loss (g/mm <sup>2</sup> )		
	Bare	Coated	Gal. Steel
I	0.0000533	0.0000194	0.0000097
II	0.0000388	0.0000170	0.0000339
III	0.0000460	0.0000097	0.0000145
IV	0.0000266	0.0000170	0.0000218



## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 23, 2009	Original

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**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**

Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ICC-ES AC 23: Acceptance Criteria for Spray-  
Applied and Intumescent Mastic Coating Fire-Protection Materials  
ASTM E 859-93 (Reapproved 2006) Air Erosion of Sprayed Fire-Resistive  
Materials

**Report of Testing 5GP cementitious fireproofing for compliance with the applicable requirements of the following criteria: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in. ASTM E 859-93 (Reapproved 2006) Air Erosion of Sprayed Fire-Resistive Materials**

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## **2 Introduction**

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP cementations fireproofing. Testing was conducted in accordance with ASTM E 859-93 (Reapproved 2006) Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

## **3 Test Samples**

---

### **3.1. SAMPLE SELECTION**

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek technical personnel observation at the Intertek Evaluation Center.

Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### **3.2. SAMPLE AND ASSEMBLY DESCRIPTION**

The SFRM was applied in accordance with the manufacturer's published instructions and were representative of application in the field. The dry fireproofing material as removed from bags was mixed with water to produce coherent pump able slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table. The product was prepared and conditioned for testing in the as sprayed surface condition. No finishing techniques such as tamping, toweling, surface sealing or similar operations were made.

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Product	Substrate of Application
Type 5GP	Rigid plates per ASTM E 859

## 4 Testing and Evaluation Methods

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The samples cured for 30 days at nominal conditioning levels.

### 4.1. TEST STANDARD 1 –ASTM E859

The substrate was a rigid plate to cover a 4 square foot duct opening with a minimum 2 inch edge overlap. The sample was cured and dried to a constant weight. The fireproofing thickness is 3/4" +/- 1/8". The sample was handled with special care to avoid damage to the fireproofing surface.

After following the procedure for E605 (below), the first sample was measured to determine the thickness and density. The collecting filter was dried at 120f for one hour, weighed and placed in the apparatus. The second sample was placed into the duct opening so the face of the sample and inside face of the duct are flush and in the same plane. The tube was placed 4-in. from the upstream edge of the sample at the center line of the duct and 2-in. below the top side of the duct. The blower was maintained at a velocity of 20 ft/sec. At 1, 6 and 24 hours, the blower was stopped. The collecting filter was removed, folded and dried at 120f. The test was continued until a constant weight was reached.

### 4.2. TEST STANDARD 2 –ASTM E605

Thickness of the duplicate sample was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The density of the materials on the duplicate sample was determined by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

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## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

#### E859 – Air Erosion

A weight of the collecting filter before and after each test period is tabulated below along with the accumulative weight gains and the tested specimen thickness and density. Calculation of sample weight loss per square foot is not specified in the ASTM Standard, but was added at the sponsors request to provide information specified in ICC-ES AC23. Test results are tabulated below.

Type 5GP Filter weights	Weight prior to test (g)	Weight after 1hour (g)	Weight prior to test (g)	Weight after 6 hours (g)	Weight prior to test (g)	Weight after 24 hours (g)	Thickne ss (in.)	Density (lbs/ft3)
Original test	11.465	11.487	11.482	11.499	11.499	11.499	0.75	14.06
Weight gain	NA	0.022	NA	0.017	NA	0	NA	NA
Accumulative weight gain	NA	0.022	NA	0.039	NA	0.039	NA	NA
Sample weight loss g/sq.ft.	NA	0.006	NA	0.009	NA	0.009	NA	NA

## 6 Conclusion

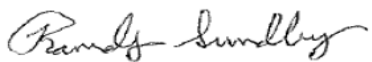
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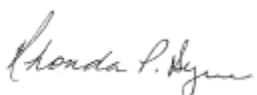
Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP cementations fireproofing. Testing was conducted in accordance with ASTM E 859-93 (Reapproved 2006) Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

Reported by:   
Randy Sundby  
**Project Engineer, Construction Products**

Reviewed by:   
Rhonda Byrne  
**Operations Manager**

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Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
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## APPENDIX A

### Test Data

## ASTM E859 DATA SHEET

Project #: 3171245 Client: SWF  
Date: 4-14-09 Tech/Reviewer: RS/JT  
Sample: 5GP Temp: 73°F, 35% R.H.  
Scale (# 1045 ) cal due date: 2-4-10

Thickness of SFRM: 3/4 in minimum

Density of SFRM: 14.06 (lbs/ft<sup>3</sup>)

Weight of dried filter prior to test (grams): 11.465

Weight of dried filter after 1 hour (grams): 11.487

Weight of dried filter prior to test (grams): 11.482

Weight of dried filter after 6 hours (grams): 11.499

Weight of dried filter prior to test (grams): 11.499

Weight of dried filter after 24 hours (grams): 11.499

If the collecting filter continues to show a weight gain at 24 hours, continue the test, making measurements every 24 hours until a constant weight is reached.

---



## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 23, 2009	Original

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**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**  
Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E761: Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members.

**Report of Testing 5GP cementitious fireproofing for compliance with the applicable requirements of the following criteria: ICC-ES AC 23: *Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials* as detailed in ASTM E761: *Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members.***

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6	CONCLUSION .....	6

---

## 2 Introduction

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 5GP cementitious fireproofing. Testing was conducted in accordance with ASTM E 761 - 92 (Reapproved 2005) Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members. This evaluation began April 14, 2009 and was completed October 27, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

## 3 Test Samples

---

### 3.1. SAMPLE SELECTION

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek observation at the Intertek Evaluation Center.

Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The dry fireproofing material as removed from bags was mixed with water to produce a coherent pumpable slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table.

Product - Bag No.	Net material weight (lbs)	Water added (lbs)	Substrate of Application
Type 5GP - Bag 3	47	90	Steel plates per ASTM E 761

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## **4 Testing and Evaluation Methods**

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The samples cured for 30 days at nominal conditioning levels.

### **4.1. TEST STANDARD 1 – ASTM E761**

The substrate was a 16 gauge galvanized steel sheet measuring 7" x 24". The sample was conditioned at 72 hours at a room temperature of 68 +/- 18°F followed by oven drying at 110 +/- 10°F at humidity not exceeding 60% until a constant weight was reached. The fireproofing thickness is a minimum of 3/4" with a variation of thickness less than or equal to +/- 1/8". The surface was evened on opposite ends of the sample for testing.

The load (bearing block) of 0.1 psi was applied perpendicular to the face of the sample. The initial thickness, the distance between the plane bearing surface of the assembly and the steel plane, was recorded. The sample was compressed until a deformation of 10% or ultimate load was reached.

### **4.2. TEST STANDARD 2 – ASTM E605**

Thickness of each sample was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The densities of the tested materials were determined by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

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## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

#### E761 – Compressive Strength

Test results including the compressive load, compressive strength, maximum extension, mode of failure at two locations. One at each end of the sample. The density of the sample was determined at the mid section. Results are tabulated below.

	<b>Compressive Load (lbf)</b>	<b>Maximum extension (in)</b>	<b>Mode of failure</b>	<b>Thickness (in.)</b>	<b>Density (lbs/ft<sup>3</sup>)</b>
<b>5 GP (1)</b>	903.40900	.08899	Maximum extension	1	13.27
<b>5 GP (2)</b>	945.34799	.08906	Maximum extension	1	13.27



## 6 Conclusion

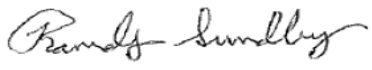
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The average compressive strength of the two determinations is 25.7 pounds per square inch. This equates to 3,701 pounds per square foot which exceeds the 750 psf requirement of ICC-ES AC23 acceptance criteria for this physical property.

Intertek has conducted testing for Southwest Fireproofing Products Co. Type 5GP cementitious fireproofing. Testing was conducted in accordance ASTM E 761 - 92 (Reapproved 2005) Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members. This evaluation began April 14, 2009 and was completed October 27, 2009.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

### INTERTEK

Reported by:   
Randy Sundby  
**Project Engineer, Construction Products**

Reviewed by:   
Rhonda Byrne  
**Operations Manager**

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Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
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## APPENDIX A

### Test Data

## ASTM E761 DATA SHEET

Project #: 3171245

Client: SWF

Date: 10/27/09

Tech/Reviewer: Randy

Sample: .5GP

Temp: 74.2 F

Thickness of SFRM: 1 inch.

Density of SFRM: 13.27 (lbs/ft<sup>3</sup>)

Mode of Failure: Maximum Extension

	Compressive load at Maximum Compressive extension (lbf)	Maximum Compressive extension (in)
1	903.40900	0.08899
2	945.34799	0.08906



## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 27, 2009	Original

---

**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**  
Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E760: Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members

**Report of Testing 5GP cementitious fireproofing for compliance with the applicable requirements of the following criteria: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E760: Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members**

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6	CONCLUSION .....	6

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## 2 Introduction

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 5GP cementitious fireproofing. Testing was conducted in accordance with ASTM E 760 - 92 (Reapproved 2005) Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek observation at the Intertek Evaluation Center.

Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The dry fireproofing material as removed from bags was mixed with water to produce a coherent pumpable slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table.

Product - Bag No.	Net material weight (lbs)	Water added (lbs)	Substrate of Application
Type 5GP - Bag 1	45.5	87	Concrete deck assembly per ASTM E 760

---

## 4 Testing and Evaluation Methods

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The samples cured for 30 days at nominal conditioning levels.

### 4.1. TEST STANDARD 1 – ASTM E760

The substrate was a cellular deck assembly with concrete topping and a galvanized flat surface. The sample was conditioned at a standard temperature and humidity until cured and dry. The fireproofing thickness is 3/4" minimum per criteria. The sample was handled with special care to avoid impact before testing due to its size and weight.

The specimen was placed on the test supports with the sprayed fire-resistive material as the lower surface and the concrete as the upper surface. The 60-lb. leather bag filled with shot was hoisted to a height of 4 ft, measured from the upper face of the specimen to the bottom of the bag. The bag was dropped, thus applying an impact load once to the middle of the upper face of the specimen.

### 4.2. TEST STANDARD 2 – ASTM E605

Thickness of each sample was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The densities of the tested materials were determined by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

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## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

#### E760 – Effect of Impact on Bonding

Prior to testing, the fireproofing was inspected for general appearance and condition. It was firm and monolithic with no observable defects. After testing, specimen had no change in appearance. Test results are tabulated below.

Sample Tested	Fireproofing Thickness (in.)	Density (lbs/ft <sup>3</sup> )	Appearance after testing
5 GP	0.75	14.7	No change in appearance No spalling, delamination or cracking

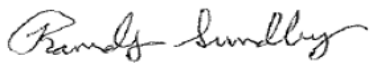
## 6 Conclusion


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Intertek has conducted testing for Southwest Fireproofing Products Co. on 5GP cementitious fireproofing. Testing was conducted in accordance with ICC-ES, following the standard methods of AC 23: *Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials* as detailed in ASTM E760: *Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members*. This evaluation began April 14, 2009 and was completed September 21, 2009.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

### INTERTEK

Reported by:   
Randy Sundby  
**Project Engineer, Construction Products**

Reviewed by:   
Rhonda Byrne  
**Operations Manager**

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Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
Page 7 of 9

## APPENDIX A

### Test Data

## ASTM E760 DATA SHEET

Project #: 3171245

Client: SWF

Date: 4/13/09

Tech/Reviewer: Randy

Sample: .5GP

Temp: 73.9 F

Weight of bag (Asset # 1137): 60 lbs

Cal. Due date: N/A

Thickness of SFRM: 3/4 in minimum

Density of SFRM: 14.74 (lbs/ft<sup>3</sup>)

Place the specimen on the test supports with the SFRM as the lower surface and the concrete as the upper surface.

Hoist the impact bag to a height of 4 feet (1.2 m) as measured from the upper face of the specimen to the bottom of the impact bag.

Apply an impact load once to the middle of the upper face of the specimen by dropping the impact bag.

Describe the final physical condition and appearance of the SFRM after impact: Appearance did not change.

Note any spalling, delamination, cracking: No Cracking, spalling, delamination

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## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 23, 2009	Original

---

**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**

Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E759: Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members

**Report of Testing 5GP cementitious fireproofing for compliance with the applicable requirements of the following criteria: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E759: Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members**

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## 2 Introduction

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 5GP cementitious fireproofing. Testing was conducted in accordance with ASTM E 759-92 (Reapproved 2005) Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek observation at the Intertek Evaluation Center.

Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The dry fireproofing material as removed from bags was mixed with water to produce a coherent pump able slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table.

Product - Bag No.	Net material weight (lbs)	Water added (lbs)	Substrate of Application
Type 5GP - Bag 2	46.5	88	Cellular roof deck assembly per ASTM E 759

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## 4 Testing and Evaluation Methods

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The samples cured for 30 days at nominal conditioning levels.

### 4.1. TEST STANDARD 1 – E759

The substrate was a cellular 1 1/2 inch galvanized deck assembly with a flat surface, with no sprayed fire-resistive material applied to an area 13-in from each end of the specimen to allow the steel deck to bear directly on the supports. The sample was conditioned at a standard temperature and humidity until cured and dry. The fireproofing thickness is 3/4-in minimum per criteria. The sample was handled with special care to avoid impact or deflection before testing due to its size and weight.

The sample was placed on the test supports with the sprayed fire-resistive material as the lower surface. The initial reading of the dial micrometer was recorded prior to the application of the load, and deformation was recorded as the load (a bearing block) was applied to the upper face of the specimen.

### 4.2. TEST STANDARD 2 – E605

Thickness of each sample was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The densities of the tested materials were determined by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

---

## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

#### E759 – Effect of Deflection

Prior to testing, the fireproofing was inspected for general appearance and condition. It was firm and monolithic with no observable defects. After deflection of the deck 1/120 of the deck span, the fireproofing had no change in appearance. Observation for cracking is not specified in the ASTM Standard, but was added at the sponsors request to provide information specified in ICC-ES AC23. Test results are tabulated below.

Sample Tested	Fireproofing Thickness (in.)	Density (lbs/ft <sup>3</sup> )	Appearance after testing
5 GP	0.75	14.74	No change in appearance No spalling, delamination or cracking

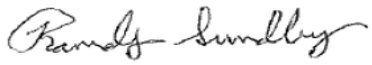
## 6 Conclusion


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Intertek has conducted testing for Southwest Fireproofing Products Co. on 5GP cementitious fireproofing. Testing was conducted in accordance with ICC-ES, following the standard methods of AC 23: *Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials* as detailed in ASTM E759: *Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members*. This evaluation began April 14, 2009 and was completed September 21, 2009.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

### INTERTEK

Reported by:   
Randy Sundby  
**Project Engineer, Construction Products**

Reviewed by:   
Rhonda Byrne  
**Operations Manager**

---



Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
Page 7 of 9

## APPENDIX A

### Test Data

## ASTM E759 DATA SHEET

Project #: 3171245

Client: SWF

Date: 4/13/09

Tech/Reviewer: Randy

Sample: 5GP

Temp: 73.9 F

Thickness of SFRM: 3/4 in minimum

Density of SFRM: 14.74 (lbs/ft<sup>3</sup>)

Place the specimen on the test supports with the SFRM as the lower surface.

Measure the deflection of the specimens and record the deformations as the load is applied.

Apply a vertical center load to the upper face of the specimen by means of a bearing block to develop a deflection of 1/120 of the clear span, that is, 1 inch.

Load applied. 5GP 942 lbs

Describe the final physical condition and appearance of the SFRM after Defection:  
Appearance did not chance.

Note any spalling, delamination, cracking: No Cracking, spalling, delamination

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## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 23, 2009	Original

---

**REPORT NUMBER: 3171245MID-022**  
ORIGINAL ISSUE DATE: October 23, 2009

**EVALUATION CENTER**

Intertek  
8431 Murphy Drive  
Middleton, WI 53562

**RENDERED TO**

**Southwest Fireproofing Products Co.**  
**5119 Edith Blvd. NE**  
**Albuquerque, NM 87107**

PRODUCT EVALUATED: 5GP cementitious fireproofing  
EVALUATION PROPERTY: ICC-ES AC 23: Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials as detailed in ASTM E736: Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

**Report of Testing 5GP cementitious fireproofing for compliance with the applicable requirements of the following criteria: ICC-ES AC 23: *Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials* as detailed in ASTM E736: *Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members***

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6	CONCLUSION .....	6

---



## 2 Introduction

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Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 5GP cementitious fireproofing. Testing was conducted in accordance with ASTM E 736 - 00 (Reapproved 2006) Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The thickness and density of the tested specimens were determined in accordance with ASTM E 605 – 93 (Reapproved 2006) Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

Results are reported in accordance with the ASTM Standard specified above and compared to the conditions of acceptance provided in ICBO Evaluation Service, Inc. publication AC23, "Acceptance Criteria For Spray-Applied Fire-Protection Materials".

## 3 Test Samples

---

### 3.1. SAMPLE SELECTION

The products to be tested arrived by commercial carrier shipment from Southwest Fireproofing Products Co. in factory packed bags with inspection agency labels. The required mixing of materials and spray application to the specified test substrate was performed by the client with Intertek observation at the Intertek Evaluation Center.

Aluminum sulfate hydrate (alum) solution was prepared with 6.39 lbs of alum and 10 lbs of water. The alum was dissolved in water and the solution filtered for injection at nozzle to accelerate gypsum set.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The dry fireproofing material as removed from bags was mixed with water to produce a coherent pump able slurry. The mixed material was transferred to the hopper of a pump and pumped to a spray nozzle at the end of the hose. Alum solution was injected into the slurry within the hose close to the nozzle and the slurry was dispensed through the spray nozzle orifice with air injected through an air stem for dispersion.

The product identification, material weight, mix water used and the substrate of application are identified in the following table.

Product - Bag No.	Net material weight (lbs)	Water added (lbs)	Substrate of Application
Type 5GP - Bag 3	47	90	Steel plates per ASTM E 736

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## 4 Testing and Evaluation Methods

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The samples cured for 30 days at nominal conditioning levels.

### 4.1. TEST STANDARD 1 – ASTM E736

The substrate was a 16 gauge galvanized steel sheet measuring 12" x 12". The sample was conditioned at 72 hours at a room temperature of 68 +/- 18 °F followed by oven drying at 110 +/- 10°F at humidity not exceeding 60% until a constant weight was reached. The fireproofing thickness is 1/2" to 1". The sample was restrained to prevent flexing during the test. The hook and pulling force was centered in the cap.

Adhesive was applied at sufficient volume to fill the cap, and the cap was placed against the surface of the sprayed fire-resistive. The cap was supported until the adhesive dried, and any excess adhesive was removed. The sample was placed with the sprayed fire-resistive facing up, and restrained to prevent movement and flexing. A scale with hook was engaged and exerted an increasing force perpendicular to the surface until failure occurred.

### 4.2. TEST STANDARD 2 – ASTM E605

Thickness of each sample was determined by inserting the penetrating pin of the thickness gage perpendicular into the sprayed fire-resistive material. When the pin touched the surface of the substrate, the disk was moved to the surface of the sprayed fire-resistive material with sufficient force to register the average plane. The gage was withdrawn to read the thickness.

The densities of the tested materials were determined by removing all of the in-place material from the substrate within a measured test area of the sample, conditioning the removed material as specified by the Standard and calculating the density from the thickness, area and weight.

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## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

#### E736 – Cohesion / Adhesion

Test results including the applied force, cup diameter, calculated Adhesive/Cohesive force, failure mode and the sample thickness and density are tabulated below. The density of the sample was determined on a second plate sprayed with the same batch of wet material prepared at the same time as the test sample.

Sample Tested	Applied force (lbf)	Cap diameter (in)	Cohesive Adhesive force (psf)	Mode of failure	Thickness (in.)	Density (lbs/ft <sup>3</sup> )
5 GP	29.08618	3 1/4	505.0	Cohesive	0.75 avg	14.7

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## 6 Conclusion

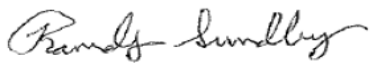
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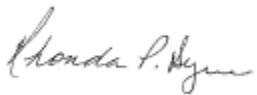
The Adhesive/Cohesive force at failure of the tested material is 505.0 pounds per square foot. This exceeds the 150 psf or 20 times the weight of the fireproofing requirement of ICC-ES AC23 acceptance criteria for this physical property.

Intertek has conducted testing for Southwest Fireproofing Products Co. Type 5GP cementitious fireproofing. Testing was conducted in accordance ASTM E 736 - 00 (Reapproved 2006) Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members. This evaluation began April 14, 2009 and was completed September 21, 2009.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

### INTERTEK

Reported by:   
Randy Sundby  
Project Engineer, Construction Products

Reviewed by:   
Rhonda Byrne  
Operations Manager

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Southwest Fireproofing Products Co.  
Project No. 3171245MID-022

October 23, 2009  
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## APPENDIX A

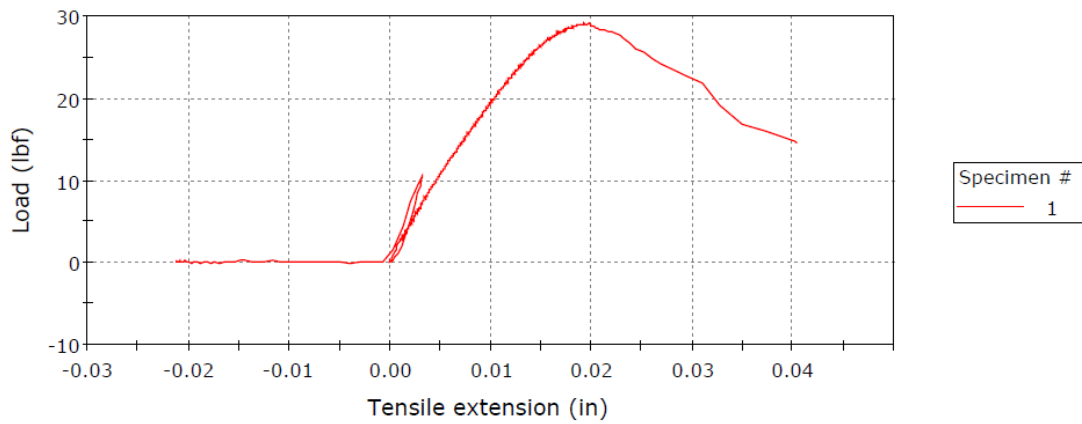
### Test Data

Southwest Fireproofing Products Company  
Project #3171245  
April 15, 2009

ASTM E736: Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

Type 5GP  
Substrate: 16ga Galvanized Steel Sheet 12"x12"  
Fireproofing Thickness: 1/2" to 1"

Specimen 1 to 1



	Maximum Load (lbf)
1	29.08618
Mean	29.08618



## REVISION SUMMARY

<b>DATE</b>	<b>SUMMARY</b>
October 23, 2009	Original

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