Intertek

TEST REPORT

ASTM E84-09

SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

Report No. 3171245SAT-016A Rev.1

Type 7GP Cementitious Fireproofing

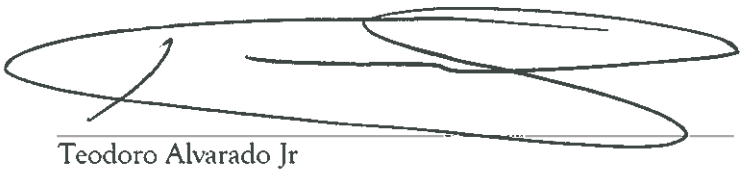
June 8, 2009

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

Intertek Testing Services NA, Inc.
16015 Shady Falls Road
Elmendorf, TX 78112
(voice) 210-635-8100
(fax) 210-635-8101
www.intertek-etlsemko.com

ABSTRACT

Test Specimen:	Type 7GP 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



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 7GP 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:	1.4500-in.
Material Weight:	N/A oz./sq. yd
Total Specimen Weight:	245-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 7GP Cementitious Fireproofing received in bags with Underwriters Laboratories Inc. Labels. The Type 7GP 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 1.4500-in. thick, panels. The specimen was identified by the client as "Type 7 GP 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 7GP 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

Client: SOUTHWEST FIREPROOFING
Date: 5-7-09
Project Number 3171245SAT-016A Rev.1
Test Number: 2
Operator: TA/AM

Specimen ID: "TYPE 7-3P CEMENTITION FIREPROOFING, CEMENT BOARD PRODUCT
" THE SPECIMEN WAS SELF-SUPPORTING.

TEST RESULTS

FLAMESPREAD INDEX: 0

SMOKE DEVELOPED INDEX: 0

SPECIMEN DATA . . .

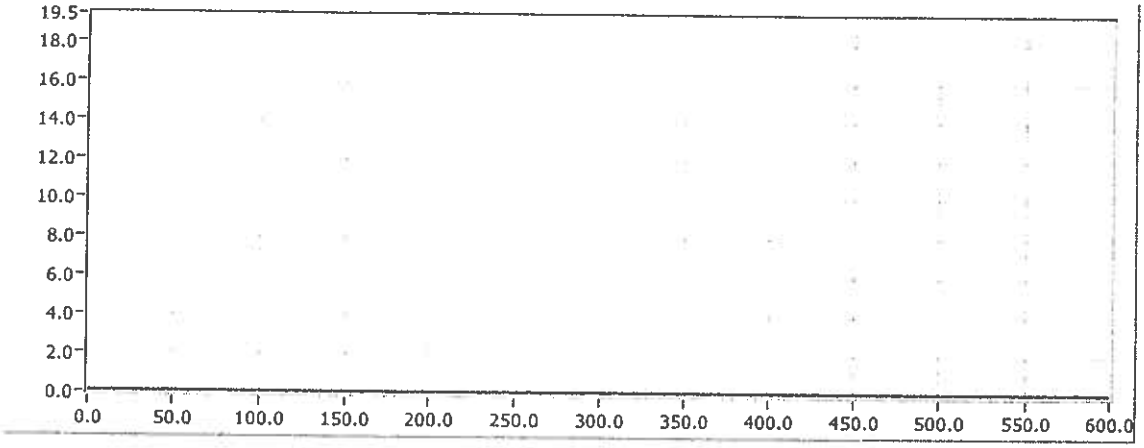
Time to Ignition (sec): 0
Time to Max FS (sec) 0
Maximum FS (feet) 0 0
Time to 980 F (sec) Never Reached
Time to End of Tunnel (sec) Never Reached
Max Temperature (F): 592
Time to Max Temperature (sec): 600
Total Fuel Burned (cubic feet): 50 99

FS*Time Area (ft*min): 0 6
Smoke Area (%A*min): 0 5
Unrounded FSI: 0 3

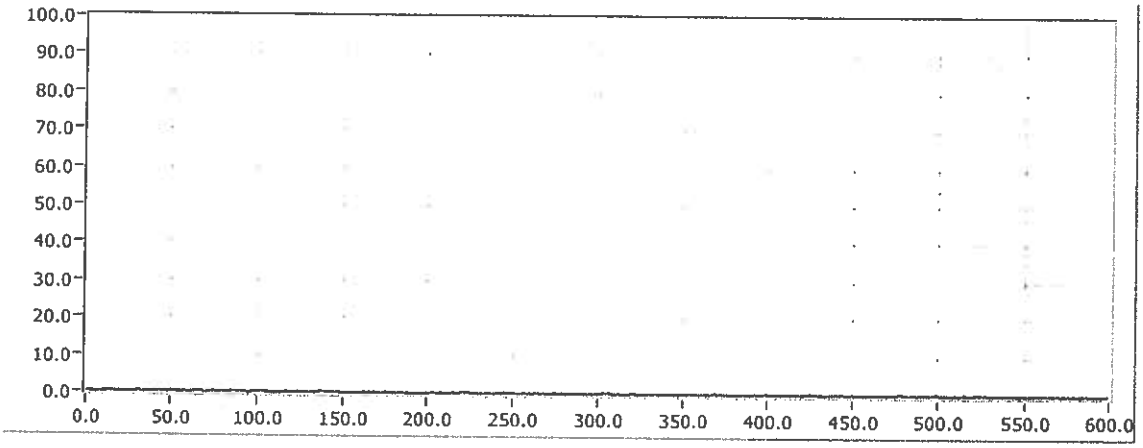
CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec) 39 0
Red Oak Smoke Area (%A*min) 111 0

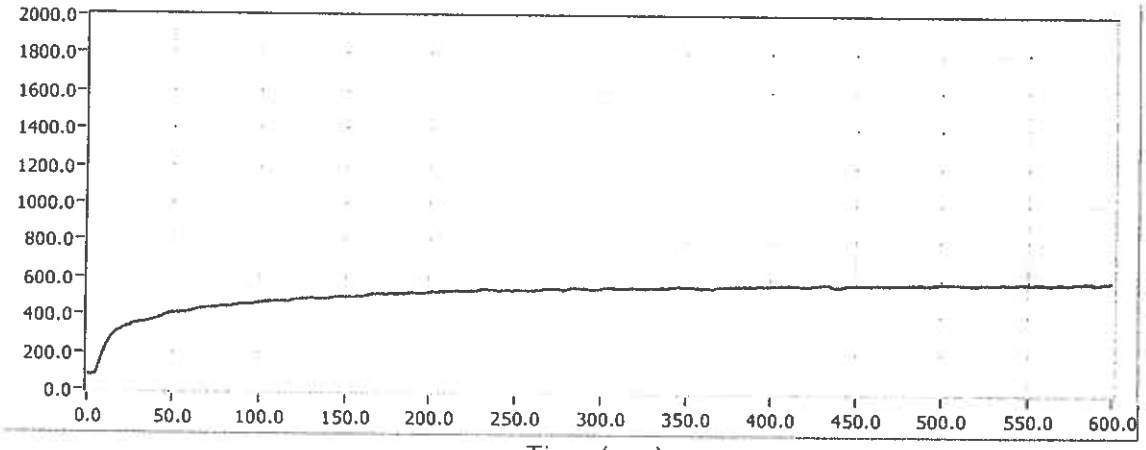
FLAME SPREAD (ft)



Smoke (%A)



Temperature (°F)



Time (sec)

600

REPORT

Intertek Testing Services NA, Inc.

1717 Arlingate Lane COLUMBUS, OHIO 43228

PROJECT NO.: 3171245 DATE: August 21, 2009

REPORT NO.: 3171245COL-002

RENDERED TO:
Southwest Fireproofing Products Co
5119 Edith Blvd NE
Albuquerque, NM 87107

STANDARD REFERENCED AND TEST METHOD:

AC 23-03 (2008): Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials, Section 3.2.6 referencing ASTM G21-96 (2002): Resistance to Synthetic Polymeric Materials to Fungi, Section 6.4.1 through 6.4.7 and 9.3 (referenced).

AUTHORIZATION:

The test was authorized by Phil Wright; A representative from Southwest Fireproofing Products Co.

GENERAL DESCRIPTION:

The tests performed were AC 23-03 (2008): Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials, Section 3.2.6 referencing ASTM G21-96 (2002): Resistance to Synthetic Polymeric Materials to Fungi, Section 6.4.1 through 6.4.7 and 9.3 (referenced)conducted at the Intertek microbiology lab in Columbus. The samples were received on July 6, 2009. The samples are currently in production. The cementitious fireproofing samples Type 7GP were tested for their ability to resist contaminants when exposed to *Aspergillus niger* (ATCC # 9642), *Penicillium pinophilum* (ATCC # 11797), *Chaetomium globosum* (ATCC # 6205), *Gliocadium virens* (ATCC # 9645) and *Aureobasidium pullulans* (ATCC # 15233). Three samples of each of the material were exposed to the fungi.

TEST DESCRIPTION

Samples:

1. For visual evaluation three specimens were inoculated, unless otherwise specified by client
2. Sufficient amount of nutrient-salts agar was poured into sterile containers based on size of specimens. Once agar was solidified, specimens were placed on agar
3. The surface of the agar/specimen was inoculated with the spore suspension by spraying suspension over the specimens so that the entire surface is moistened with spore suspension
4. The test specimens were covered and incubated at 28 to 30°C with a relative humidity of 85%, for 28 days.
5. Specimens were periodically checked for growth during the incubation period; tests may be terminated early for any specimen showing a visual rating of 2 or greater prior to the 28 days
6. After 28 days a growth rating scale of 0-4 based on ASTM G-21-96 is taken. See table below.

7. If any growth is detected, pictures are taken of the growth and placed into a comprehensive report

8. The acceptance criteria is no growth rating higher than trace growth or a rating of 0

Observed Growth on Specimens (Sporulating or Non-sporulating or Both)	Rating	Comments
None	0	Devoid of microbial growth. Surface exhibiting no chemical, physical or structural change. Note 1
Traces of Growth (less than 10%)	1	Scattered, sparse or very restricted microbial growth. Appearance on surface minor or inhibited. Surface exhibiting no chemical, physical or structural change. Note 1
Light Growth (10 to 30%)	2	Intermittent infestation. Loosely spread microbial colonies on surface/moderate growth. Includes continuous filamentous (cobwebby) growth extending over the entire surface. Surface exhibiting no chemical, physical or structural change
Medium Growth (30 to 60%)	3	Substantial amount of microbial growth. Surface exhibiting chemical, physical and structural change
Heavy Growth (60% to complete coverage)	4	Massive microbial growth. Surface decomposed or rapidly deteriorating
Notes	1	A rating of 0 or 1 needs to be confirmed using a microscope since non-sporulating growth may not be seen without the aid of a microscope. The report should indicate the magnification power of the microscope

All samples receiving a growth rating of 1 or higher are automatic failures.

CALIBRATED EQUIPMENT:

Calibrated Equipment	Manufacturer	Identification Number	Calibration Date	Calibration Due
Micropipette	Fisher Scientific	CE 1141	03/07/08	03/07/09
Environmental Chamber	Darwin	CE 1159	09/25/08	09/25/09
Digital Hygrometer	Fisher Scientific	CE 1158	09/25/08	09/25/09
Balance	Ohaus	CE 1143	06/05/09	09/05/09
Auticlave	Napco	CE 1126	03/10/09	03/10/10

REPORT NO.: 3171245COL-002 DATE: August 11, 2009

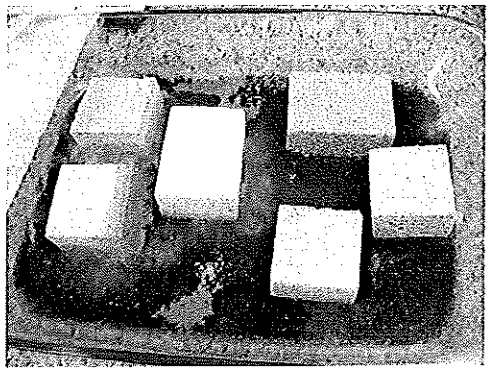
RESULTS:
The negative control showed no signs of growth.

The positive control showed complete growth over the agar surface. The original number of fungus aerosolized onto the surface was 1.0×10^8 cfu/ml.

Please see following table for rating the material achieved for each microorganism.

Material	*A. niger*	*A. pullulans*	*P. pinophilum*	*G. virens*	*C. globosum*
Type 7GP	0	0	0	0	0

Test Samples



CONCLUSION:

This report documents the performance of the cementitious fireproofing samples Type 7GP's ability to resist fungal contaminants. The microbiological test sample evaluations were conducted at the Intertek laboratory located in Columbus, OH between July 6, 2009 and August 11, 2009 utilizing the test method and acceptance criteria of AC 23-03 (2008): Acceptance Criteria for Spray-Applied and Intumescent Mastic Coating Fire-Protection Materials, Section 3.2.6 referencing ASTM G21-96 (2002): Resistance to Synthetic Polymeric Materials to Fungi, Section 6.4.1 through 6.4.7 and 9.3. The cementitious fireproofing samples Type 7GP does meet the acceptance criteria and does demonstrate the resistance of fungal contamination.

Test Performed by:

Shannon Meier

Shannon Meier
Microbiologist
Columbus Office

Report Approved by:

Ramzi Amawi
Operations Manager
Columbus Office

TEST REPORT

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: 7GP 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 7GP 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*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP 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.

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. 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 7GP - Bag 3	43.5	71	Steel plates per ASTM E 736

4 Testing and Evaluation Methods

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 ℉ followed by oven drying at 110 +/- 10℉ 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 secure the plug, and the plug was placed against the surface of the sprayed fire-resistive material. The cap was supported until the adhesive dried, and any excess adhesive was removed. The sample was placed with the sprayed fire-resistive material 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.

5 Testing and Evaluation Results

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.

The specified 3 1/4 inch bottle screw cap called for by the ASTM Standard Procedure was replaced by the 1 3/8 inch wood disk described in Appendix B of AWCI Technical Manual 12-A for fireproofing having bond strengths exceeding 1,146 psf.

Sample Tested	Applied force (lbf)	Cap diameter (in)	Cohesive Adhesive force (psf)	Mode of failure	Thickness (in.)	Density (lbs/ft3)
7 GP	50.31693	1 3/8	4879	Cohesive	0.75	22.54

6 Conclusion

The Adhesive/Cohesive force at failure of the tested material is 4879 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 7GP cementitious fireproofing. Testing was conducted in accordance 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 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

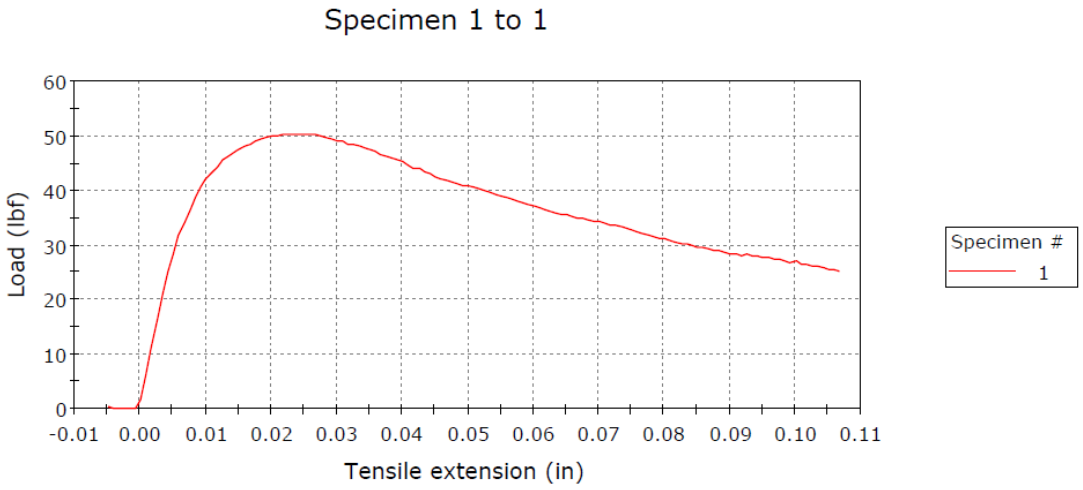
APPENDIX A

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 7GP
Substrate: 16ga Galvanized Steel Sheet, 12"x12"
Fireproofing Thickness: 1/2" to 1"



	Maximum Load (lbf)
1	50.31693
Mean	50.31693

REVISION SUMMARY

DATE	SUMMARY
October 23, 2009	Original

TEST REPORT

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: 7GP 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 7GP 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*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP 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

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.

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. 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 7GP - Bag 2	44	71	Cellular roof deck assembly per ASTM E 759

4 Testing and Evaluation Methods

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 - E 605

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

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^3)	Appearance after testing
7GP	0.75	21.86	No change in appearance No spalling, delamination or cracking

6 Conclusion

Intertek has conducted testing for Southwest Fireproofing Products Co. on 7GP 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

APPENDIX A

Test Data

ASTM E759 DATA SHEET

Project #: ___3171245_____ Client: ____SWF_____

Date: _____4/13/09_____ Tech/Reviewer: Randy

Sample: 7GP_____ Temp: ___73.9 F_____

Thickness of SFRM: 3/4 in minimum

Density of SFRM: 21.86 (lbs/ft^3)

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. 7GP 753 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

REVISION SUMMARY

DATE	SUMMARY
October 23, 2009	Original

TEST REPORT

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: 7GP 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 7GP 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*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP 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

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.

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. 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 7GP - Bag 1	43	70.5	Concrete deck assembly per ASTM E 760

4 Testing and Evaluation Methods

The samples cured for 30 days at nominal conditioning levels.

4.1. TEST STANDARD 1 – 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 – 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

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/ft3)	Appearance after testing
7 GP	0.75	21.86	No change in appearance No spalling, delamination or cracking

6 Conclusion

Intertek has conducted testing for Southwest Fireproofing Products Co. on 7GP 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

APPENDIX A

Test Data

ASTM E760 DATA SHEET

Project #: ___3171245_____ Client: ____SWF_____

Date: _____9/21/09_____ Tech/Reviewer: Randy

Sample:.7GP_____ 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: 21.86 (lbs/ft^3)

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 chance.

Note any spalling, delamination, No cracking, No spalling, No delamination

REVISION SUMMARY

DATE	SUMMARY
October 23, 2009	Original

TEST REPORT

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: 7GP 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 7GP 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.*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP 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.

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. 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 7GP - Bag 3	43.5	71	Steel plates per ASTM E 761

4 Testing and Evaluation Methods

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℉ followed by oven drying at 110 +/- 10℉ 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.

5 Testing and Evaluation Results

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.

Sample Number	Compressive Load (lbf)	Compressive Strength (psi)	Maximum extension (in)	Mode of failure	Thickness (in.)	Density (lbs/ft^3)
7 GP (1)	9629.80150	267.5	0.08880	Maximum extension	0.89	22.54
7 GP (2)	10772.19654	299.2	0.08896	Maximum extension	0.89	22.54

6 Conclusion

The average compressive strength of the two determinations is 283.4 pounds per square inch. This equates to 40,810 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 7GP 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

APPENDIX A

Test Data

ASTM E761 DATA SHEET

Project #: ___3171245_____ Client: ____SWF_____

Date: _____10/27/09_____ Tech/Reviewer: Randy

Sample:.7GP_____ Temp: ___74.2 F_____

Thickness of SFRM: 1 inch.

Density of SFRM: 22.54 (lbs/ft^3)

Mode of Failure: Maximum Extension

	Compressive load at Maximum Compressive extension (lbf)	Maximum Compressive extension (in)
1	9629.80150	0.08880
2	10772.19654	0.08896

REVISION SUMMARY

DATE	SUMMARY
October 27, 2009	Original

TEST REPORT

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: 7GP 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 7GP 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*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP cementitious 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.

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. 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.

Product	Substrate of Application
Type 7GP	Rigid plates per ASTM E 859

4 Testing and Evaluation Methods

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 120℉ 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 120℉. 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.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

E859 – Air Erosion

Weights 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 7GP 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)	Thickness (in.)	Density (lbs/ft3)
Original test	10.578	10.585	10.579	10.586	10.627	10.627	0.75	22.53
Weight gain	NA	0.007	NA	0.007	NA	0.000	NA	NA
Accumulative weight gain	NA	0.007	NA	0.014	NA	0.014	NA	NA
Sample weight loss g/sq.ft.	NA	0.001	NA	0.004	NA	0.004	NA	NA

6 Conclusion

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP cementitious 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.

INTERTEK

Reported by:

Randy Sundby
Project Engineer, Construction Products

Reviewed by:

Rhonda Byrne
Operations Manager

APPENDIX A

Test Data

ASTM E859 DATA SHEET

Project #: ___3171245_____ Client: ___SWF_____

Date: _4-15-09_____ Tech/Reviewer: __RS/JT_____

Sample: _7GP_____ Temp: __73°F, 35% R.H.

Scale (# 1045) cal due date: _2-4-10_____

Thickness of SFRM: 3/4 in minimum

Density of SFRM: 22.53 (lbs/ft^3)

Weight of dried filter prior to test (grams): __10.5784_____

Weight of dried filter after 1 hour (grams): __10.5849___

Weight of dried filter prior to test (grams): __10.5792___

Weight of dried filter after 6 hours (grams): _10.5858__

Weight of dried filter prior to test (grams): __10.6267_____

Weight of dried filter after 24 hours (grams): __10.6267_____

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

DATE	SUMMARY
October 23, 2009	Original

TEST REPORT

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: 7GP cementitious fireproofing
ASTM E937: Standard Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members

Report of Testing 7GP 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*

1 Table of Contents

2 Introduction

Intertek has conducted testing for Southwest Fireproofing Products Co. on Type 7GP 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

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.

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. 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 7GP	Bare, coated and galvanized steel plates per ASTM E 937

4 Testing and Evaluation Methods

The samples cured for 30 days at nominal conditioning levels.

4.1. TEST STANDARD 1 – 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.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

E937 – Corrosion of Steel

	Initial Weights (g)			*Final Weights (g)*		
	Bare	**Coated**	**Gal. Steel**	**Bare**	**Coated**	**Gal. Steel**
I	844.6	819.4	826.7	844.1	819.2	826.0
II	842.7	820.1	825.5	842.2	820.1	824.9
III	802.1	814.3	816.8	801.9	814.3	816.0
IV	1110.7	821.6	800.1	1110.4	821.4	799.4

	Average Weight Loss (g/mm²)		
	Bare	**Coated**	**Gal. Steel**
I	0.0000121	0.0000048	0.0000170
II	0.0000121	0.0000000	0.0000145
III	0.0000048	0.0000000	0.0000194
IV	0.0000073	0.0000048	0.0000170

6 Conclusion

Intertek has conducted testing for Southwest Fireproofing Products Co. on 7GP 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

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:	**7 GP**
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 in² 41290.24 mm²

	Initial Weights (g)			*Final Weights (g)*		
	Bare	**Coated**	**Gal. Steel**	**Bare**	**Coated**	**Gal. Steel**
I	844.6	819.4	826.7	844.1	819.2	826.0
II	842.7	820.1	825.5	842.2	820.1	824.9
III	802.1	814.3	816.8	801.9	814.3	816.0
IV	1110.7	821.6	800.1	1110.4	821.4	799.4

	Average Weight Loss (g/mm²)		
	Bare	**Coated**	**Gal. Steel**
I	0.0000121	0.0000048	0.0000170
II	0.0000121	0.0000000	0.0000145
III	0.0000048	0.0000000	0.0000194
IV	0.0000073	0.0000048	0.0000170

REVISION SUMMARY

DATE	SUMMARY
October 23, 2009	Original