TIERRA

June 21, 2017

American Infrastructure & Development, Inc.
3810 Northdale Blvd., Suite 170
Tampa, Florida 33624

Attn: Mr. Michael Cummings mcummings@aidinc.com

RE: Report of Spray Applied Fire Resistive Material – SFRM (Report No. 1)
Terminal Area Improvements – Phase 3, Gates 7 to 10 Terminal Addition
St. Pete - Clearwater International Airport (PIE), Pinellas County Florida
Airport Contract No: AP-68-H
Tierra Project No: 6111-16-085

Mr. Cummings:

A representative of Tierra Inc. (our sub-consultant Ardaman & Associates) made a site visit to the above referenced project on June 15, 2017. During our site visit, our representative performed thickness and density determinations of the spray applied fire resistive materials (SRFM) used in structural steel members at the project.

Thickness measurements were taken at various locations. Each thickness measurement was performed in general accordance with the ***Standard Test Method for Thickness and Density of Sprayed Fire-Resistive Materials to Structural Members (ASTM E605).***

The thickness measurements were obtained from the Therma Seal Insulation submittal dated 5/26/2017. Two tests were obtained from column locations, three from beam locations and four from the underside of the steel deck. The results of the thickness testing are shown on the attached Ardaman & Associates reports.
According to the ASTM Method the actual, measured thickness is corrected during calculation as follows:

1. The maximum thickness used in the average calculation is limited to ¼" above the required thickness.
2. Any single thickness recorded that is less than 25% of the required thickness results in a failure for the entire test sample.

Most of the tests passed with the following exceptions:

1. Underside of the steel deck: The test representing the area bounded by Lines B to C and Lines 3 to 4. The overall average thickness passed however one individual making up the average was more than 25% below the required thickness.
2. Beam: Bounded by Lines B to C and Lines 4 to 5. The overall average passed however 6 individual readings which made of the average were more than 25% below the required thickness.
3. Beam: Bounded by Lines 3 to 4 and south of Line E. The overall average failed and 9 individual readings which made of the average were more than 25% below the required thickness.

During this visit six bulk samples of SFRM were collected from various locations to determine the density of the samples. The collection and testing of the sample were performed as per the ***Standard Test Method for Thickness and Density of Sprayed Fire-Resistive Materials to Structural Members (ASTM E605).*** The attached Tierra report form details the dry density test results.

According the specification section cited in the attached report the minimum required dry density is 15 pcf. All test results exceeded the minimum specified value.

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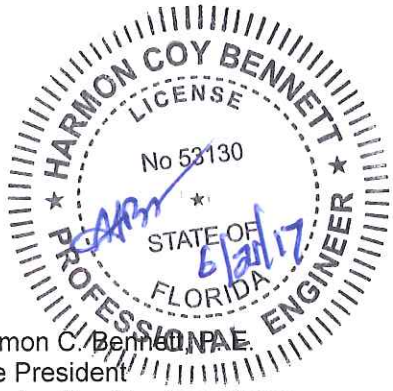
Please do not hesitate to contact this office if you have any questions or require further information concerning this report.

Respectfully submitted,

TIERRA INC.

Manuel J. Valdes
Construction Services Manager

Attachments: Copies of reports



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ARDAMAN & ASSOCIATES, INC.
3925 COCONUT PALM DRIVE, SUITE 115
TAMPA, FLORIDA 33619
(813) 620-3389, FAX (813) 628-4008

REPORT OF SPRAYED FIRE-RESISTIVE MATERIALS THICKNESS

Project Name:	St. Petersburg/Clearwater Airport Terminal Expansion Ph III	Date Tested:	6/15/2017
Project Location:	Pinellas County, Florida	Tested By:	M Shirkey
File Number:	16-54-9705	Lab Number:	N/A
Client Name:	Tierra	Report No.:	2

MEMBER SPRAYED: Columns

Required Thickness 5/8 in.
Required Thickness - 25% 8/16 in.
Required Thickness + 1/4" 14/16 in.

Location	D-3								
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F	Field	Adjusted	P/F	Field	Adjusted	P/F
1	1 4/16	14/16	P						
	1 8/16	14/16	P						
2	14/16	14/16	P						
	1	14/16	P						
3	1 4/16	14/16	P						
	1 8/16	14/16	P						
4	1 12/16	14/16	P						
	2	14/16	P						
5	2	14/16	P						
	2 4/16	14/16	P						
6	1 8/16	14/16	P						
	1 12/16	14/16	P						
7	1 8/16	14/16	P						
	1 8/16	14/16	P						
8	1 8/16	14/16	P						
	1 6/16	14/16	P						
9	1 10/16	14/16	P						
	1 8/16	14/16	P						
10	1 6/16	14/16	P						
	1 8/16	14/16	P						
11	1 4/16	14/16	P						
	1 4/16	14/16	P						
12	1 4/16	14/16	P						
	1 4/16	14/16	P						
Average Value		14/16	Pass						
Individual Reading - Pass/Fail			Pass						
COMMENTS									

MEMBER SPRAYED: Beams

Required Thickness 5/16 in.
Required Thickness - 25% 4/16 in.
Required Thickness + 1/4" 9/16 in.

Location	Bounded by Lines B to C and Lines 4 to 5			Bounded by Lines B to C and west of Line 3					
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F *	Field	Adjusted	P/F *	Field	Adjusted	P/F *
1	2/16	2/16	F	12/16	9/16	P			
	2/16	2/16	F	14/16	9/16	P			
2	12/16	9/16	P	1	9/16	P			
	12/16	9/16	P	1 8/16	9/16	P			
3	4/16	4/16	P	6/16	6/16	P			
	2/16	2/16	F	8/16	8/16	P			
4	4/16	4/16	P	1 4/16	9/16	P			
	4/16	4/16	P	1 2/16	9/16	P			
5	1	9/16	P	1	9/16	P			
	12/16	9/16	P	1 8/16	9/16	P			
6	4/16	4/16	P	1 4/16	9/16	P			
	2/16	2/16	F	1 8/16	9/16	P			
7	2/16	2/16	F	1 8/16	9/16	P			
	2/16	2/16	F	1 2/16	9/16	P			
8	14/16	9/16	P	1	9/16	P			
	12/16	9/16	P	1 8/16	9/16	P			
9	4/16	4/16	P	1	9/16	P			
	4/16	4/16	P	14/16	9/16	P			
Average Value		5/16	Pass		9/16	Pass			
Individual Reading - Pass/Fail			Fail			Pass			
COMMENTS									

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REPORT OF SPRAYED FIRE-RESISTIVE MATERIALS THICKNESS

Project Name:	St. Petersburg/Clearwater Airport Terminal Expansion Ph III	Date Tested:	6/15/2017
Project Location:	Pinellas County, Florida	Tested By:	M Shirkey
File Number:	16-54-9705	Lab Number:	N/A
Client Name:	Tierra	Report No.:	1

MEMBER SPRAYED: Underside of Decking

Required Thickness 1/2 in.
Required Thickness - 25% 6/16 in.
Required Thickness + 1/4" 12/16 in.

Location	Bounded By Lines A to B and Lines 5 to 6			Bounded By Lines B to C and Lines 5 to 6			Bounded By Lines A to B and Lines 4 to 5		
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F	Field	Adjusted	P/F	Field	Adjusted	P/F
1	8/16	8/16	P	8/16	8/16	P	6/16	6/16	P
	8/16	8/16	P	1	12/16	P	6/16	6/16	P
2	10/16	10/16	P	12/16	12/16	P	6/16	6/16	P
	3*8	12/16	P	10/16	10/16	P	8/16	8/16	P
3	8/16	8/16	P	12/16	12/16	P	12/16	12/16	P
	8/16	8/16	P	1	12/16	P	1	12/16	P
4	6/16	6/16	P	8/16	8/16	P	14/16	12/16	P
	8/16	8/16	P	14/16	12/16	P	14/16	12/16	P
5	8/16	8/16	P	12/16	12/16	P	14/16	12/16	P
	6/16	6/16	P	6/16	6/16	P	1	12/16	P
6	10/16	10/16	P	14/16	12/16	P	1	12/16	P
	8/16	8/16	P	14/16	12/16	P	1 6/16	12/16	P
7									
8									
9									
10									
11									
12									
Average Value	8/16		Pass	11/16		Pass	10/16		Pass
Individual Reading - Pass/Fail			Pass			Pass			Pass
COMMENTS									

MEMBER SPRAYED: Underside of Decking

Required Thickness 1/2 in.
Required Thickness - 25% 6/16 in.
Required Thickness + 1/4" 12/16 in.

Location	Bounded By Lines B to C and Lines 3 to 4								
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F *	Field	Adjusted	P/F *	Field	Adjusted	P/F *
1	6/16	6/16	P						
	4/16	4/16	F						
2	6/16	6/16	P						
	6/16	6/16	P						
3	14/16	12/16	P						
	12/16	12/16	P						
4	12/16	12/16	P						
	14/16	12/16	P						
5	8/16	8/16	P						
	14/16	12/16	P						
6	12/16	12/16	P						
	12/16	12/16	P						
7									
8									
9									
Average Value	10/16		Pass						
Individual Reading - Pass/Fail			Fail						
COMMENTS									

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REPORT OF SPRAYED FIRE-RESISTIVE MATERIALS THICKNESS

Project Name:	St. Petersburg/Clearwater Airport Terminal Expansion Ph III	Date Tested:	6/15/2017
Project Location:	Pinellas County, Florida	Tested By:	M Shirkey
File Number:	16-54-9705	Lab Number:	N/A
Client Name:	Tierra	Report No.:	3

MEMBER SPRAYED: Columns

Required Thickness 9/16 in.
Required Thickness - 25% 7/16 in.
Required Thickness + 1/4" 13/16 in.

Location	B-6								
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F	Field	Adjusted	P/F	Field	Adjusted	P/F
1	1 8/16	13/16	P						
	1 8/16	13/16	P						
2	2	13/16	P						
	1 4/16	13/16	P						
3	1 8/16	13/16	P						
	1 4/16	13/16	P						
4	1 8/16	13/16	P						
	1 8/16	13/16	P						
5	1 4/16	13/16	P						
	1 4/16	13/16	P						
6	2	13/16	P						
	1 12/16	13/16	P						
7	1	13/16	P						
	1 8/16	13/16	P						
8	1 4/16	13/16	P						
	1 2/16	13/16	P						
9	1 8/16	13/16	P						
	1 4/16	13/16	P						
10	1 2/16	13/16	P						
	1 8/16	13/16	P						
11	1 8/16	13/16	P						
	1 4/16	13/16	P						
12	1	13/16	P						
	1	13/16	P						
Average Value	13/16		Pass						
Individual Reading - Pass/Fail			Pass						
COMMENTS									

MEMBER SPRAYED: Beams

Required Thickness 11/16 in.
Required Thickness - 25% 8/16 in.
Required Thickness + 1/4" 15/16 in.

Location	Bounded by Lines 3 to 4 and south of Line E								
	Readings			Readings			Readings		
Reading No.	Field	Adjusted	P/F *	Field	Adjusted	P/F *	Field	Adjusted	P/F *
1	8/16	8/16	F						
	6/16	6/16	F						
2	12/16	12/16	P						
	14/16	14/16	P						
3	12/16	12/16	P						
	8/16	8/16	F						
4	2/16	2/16	F						
	4/16	4/16	F						
5	1	15/16	P						
	1	15/16	P						
6	4/16	4/16	F						
	8/16	8/16	F						
7	8/16	8/16	F						
	8/16	8/16	F						
8	1 6/16	15/16	P						
	2	15/16	P						
9	1	15/16	P						
	11/16	11/16	P						
Average Value	10/16		Fail						
Individual Reading - Pass/Fail			Fail						
COMMENTS									

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CLIENT: **Mr. Michael Cummings**
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DATE: **06/19/17**

PROJECT: **St. Petersburg-Clearwater International Airport**
Terminal Area Improvements, Phase III, Gates 7-10
Airport Contract No: AP-68-H

PROJECT NO: **6111-16-085**

REPORT OF DENSITY OF SPRAYED FIRE RESISTIVE MATERIAL (SFRM)

Based on the project specifications Section 07811, page 6, and paragraph 2.1-C-3;
"Minimum thickness of the SFRM shall be 0.75 inch and the minimum dry density shall be as specified but not less than 15 lb/cu. ft"

The following table indicates the dry density test results:

TEST LOCATION	MEMBER TESTED	DRY DENSITY lbs/cu. ft.
Between Lines B to C and West of Line 3.2	Underside of Deck	25.9
Column at Line D-3	Column Flange	22.3
Beam between Lines B to C; at Line 6	Beam Web	25.5
Between Lines B to C; at Line 6	Underside of Deck	20.3
Column at Line B-6	Column Flange	21.3
Beam between Lines B to C and West of Line 3.2	Beam Web	29.0

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6/21/17

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