<table>
<thead>
<tr>
<th>Time</th>
<th>Monday, July 13, 2020</th>
<th>Tuesday, July 14, 2020</th>
<th>Wednesday, July 15, 2020</th>
<th>Thursday, July 16, 2020</th>
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<tbody>
<tr>
<td>10:00 AM</td>
<td>Digital Content &amp; Communications 10:45 - 11:15, Burzynski</td>
<td>Code Compliance Interface 11:00 - 12:00 Cadena/Hull/Younkin</td>
<td>Wetting Curves 11:00 - 12:00, Hawn</td>
<td>RP-4 Ballast Requirement 11:00 - 12:00 Ober/Taykowski</td>
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<td>10:45 AM</td>
<td>Codes &amp; Standards 12:30 - 1:45 Ober</td>
<td>DORA Listing Service 12:30 - 1:30 Malpezzi</td>
<td>DORA Rules for Fire &amp; Impact 12:45 - 1:15, O'Neal</td>
<td>Code Official Training 12:30 - 1:00, Chamberlain</td>
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<td>11:00 AM</td>
<td>IA-1 11:30 - 12:00, Childs</td>
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<td>Tony Crimi Luncheon Speaker 12:00 - 12:45</td>
<td>D6878 Considerations for Revision 1:15 - 1:45, Sanborn</td>
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<td>Code Development 2:00 - 3:00 Hickman</td>
<td>Air Intrusion 1:45 - 2:30, Janni</td>
<td>Air Barrier Details 2:45 - 3:15, Janni</td>
<td>Tech Committee 2:00 - 3:00 Bates</td>
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AGENDA

I. Call to Order
   A. Burzynski

II. Roll Call & Reading of SPRI Antitrust Statement

III. Website & Content:
    Discussion of any needed updates to website

IV. DORA:
    Discuss digital promotion of DORA - What can we do using the website and SPRI digital platform to drive more traffic to DORA and educate specifiers about DORA

V. Adjournment
AGENDA

I. Call to Order
II. Roll Call & Reading of the SPRI Antitrust Statement
III. Review of wording in sections 4.2
IV. Review RFP responses received to this point
V. Action Items and Assignments
VI. Adjournment
SPRI
Code and Standards Task Force
July 13, 2020
12:30 p.m.

AGENDA

I. Call to Order R. Ober

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review Task Force Objectives

IV. Codes
   a. ICC
   b. California
   c. EPA

V. Industry Associations
   a. ACC
   b. ASHRAE
   c. CEC
   d. CRRC
   e. IIBEC
   f. RICOWI

VI. Standards
   a. ANSI activity
   b. ASTM activity
   c. SPRI Standards

VII. Adjournment
AGENDA

I. Call to Order

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review Task Force Objectives

IV. ICC Group B Code/2021 Code Update

V. Discussion of 2020 plans to prepare for next ICC code change cycle (2024 edition)

VI. ASHRAE update

VII. Florida update

VIII. Adjournment
SPRI
Code Compliance Interface Task Force
SPRI Webex Meeting
July 14, 2020
11:00 a.m.

AGENDA

I. Call to Order
L. Cadena/L. Hull/E. Younkin

II. Roll Call & Reading of SPRI Antitrust Statement

III. Discuss any issues Miami-Dade applicants have faced as a result of Miami-Dade’s (1) FM Construction & Extension Policy or (2) Data Release Policy

IV. Discuss recent policy change by Texas Department of Insurance (TDI) for their low slope roof evaluation reports (RC listings).

V. Revisit April meeting notes

VI. Adjournment
MINUTES

Call to Order
The meeting was called to order at 10:30 a.m. EDT by Task Force Co-chair Lynsey Hull. The SPRI Antitrust Statement was read.*

Roll Call
Those present were: Chris Mader, OMG Roofing Products
Eric Younkin, Soprema, Inc. Rick Martelon, Johns Manville Corporation
Warren Barber, National Gypsum Steve Moskowitz, Atlas Roofing Corporation
Justin Bates, H.B. Fuller Construction Products Ron Reed, Intertek
Luis Cadena, NEMO|etc Andrew Reynolds, Benchmark, Inc.
Todd Corley, Siplast CJ Sharp, ICP Building Solutions Group
Joan Crowe, AIA, GAF Jenny Sherwin, Firestone Building Products Co
Mike Dansch, Sika Sarnafil Kurt Sosinski, Tremco, Inc.
Heather Estes, GAF Emily Standard, PRI
Carl Flieler, Canadian General Tower Limited Todd Taykowski, Firestone Building Products Co
Amanda Hickman, The Hickman Group Ryan VanWert, Duro-Last Roofing, Inc.
Mike Hubbard, Firestone Building Products Co Steve Wadding, Polyglass USA, Inc.
Lynsey Hull, NEMO|etc
Joseph Kalwara, Firestone Building Products Co
Brendan Knapman, ROCKWOOL
Mikael Kuronen, Georgia-Pacific Gypsum LLC
Norbert Lash, H.B. Fuller Construction Products

Staff present was:
Randy Ober, SPRI Technical Director
Linda King, SPRI Managing Director

Review of Past Topics and Miami Dade Response
The following items were discussed:

- Luis Cadena summarized the January 2020 topics discussed with Miami-Dade (attached);
- Miami-Dade (MD) stated that a change request made by SPRI and ARMA together would help.
- Mr. Younkin followed-up with Chadwick Collins and is awaiting a response; and
- The Task Force believes the following points are the highest priorities for the SPRI membership:
  - A Checklist for Low Slope Roofing Notices of Acceptance (NOAs);
    - Mr. Cadena and Emily Standard will review the published forms and edit the checklist to present to Jorge Acebo for input and implementation on what is needed for roofing NOAs; and
    - The Task Force will work with ARMA for support of the SPRI proposal.

*SPRI Antitrust Statement: SPRI complies with antitrust laws and requires participants in its programs to comply with antitrust laws. Discussions which could affect competitive pricing decisions or other competitive factors are forbidden. There may be no discussions of pricing policies or future prices, production capacity, profit margins or other factors that may tend to influence prices. In discussing technical issues, care should be taken to avoid discussing potential or planned competitive activities. Members and participants should be familiar with the SPRI Antitrust Policy and act in conformity with it.
o Mr. Hull placed a call to Mr. Acebo regarding 3rd party evaluations and will work with him to determine the use of 3rd party lab extension data;
  ▪ MD is hesitant to accept 3rd party data and needs to understand the International Standards Organization (ISO) certifications in this process.

o Mr. Younkin, Ms. Standard, and Jenny Sherwin will draft a proposal/letter that will provide opportunities to minimize the NOA application timeline:
  ▪ Removing the quota for the number of NOAs worked on each week will eliminate jumping from one to another to meet weekly requirements that will likely help speed up process; and
  ▪ The Task Force will investigate and propose alternative ways to streamline process.

Adjournment
There being no further business, the meeting adjourned at 11:30 a.m. EDT.

Submitted       Luis Cadena, Lynsey Hull, and Eric Younkin, Task Force Co-chairs

These minutes were reviewed by SPRI Legal Counsel.
Meeting Date: 01/09/2020

Meeting Notes

<table>
<thead>
<tr>
<th>TOPICS &amp; ACTION ITEMS:</th>
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<tr>
<td>TOPIC #:</td>
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<tr>
<td>TOPIC:</td>
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</table>
| INITIAL COMMENTS: | 1. Section B.5.c of Miami-Dade’s [General Submittal Information](#) states “Tests over 10 years old require verification testing for NOA renewal”.
   a) Example: A NOA, which expires in 2022, holds a physical properties test (PPT) report dated 07/2009 and undergoes a REV in 2019.
   b) Miami-Dade (H. Pacheco) confirmed on 02/08/2019 that Section B.5.c is accurate and that PPT reports, currently 11 yrs old, would not be an issue in the REV
2. Checklist – RENEWAL (ROOFING) allows the use of “verification testing” for test reports older than 10 years at time of renewal.
   Note 3 states that full set of tests would be required “if new conditions are introduced”.
   a) This has been interpreted as Miami-Dade allowing verification tests in lieu of full-scale test reports over the 10-yr mark. |

Meeting Comments:  
BY: JA
COMMENT: There is some leeway – if revision is only used to incorporate new uplift systems.
New physical properties test (PPT) reports will be required to replace >10-yr old reports, during a revision, only if there is any cause for concern (example: specification, formulation change, manufacturing location).

BY: JA
COMMENT: Verification testing does not apply for PPT of roofing membranes and components.
Verification testing is used towards Wind Uplift programs.

Summary:  
BY: LC
COMMENT: As per Item 1.b and J. Acebo’s response, Miami-Dade’s revision process will not affect the validity of PPT report(s) over the 10-yr mark IF the report(s) does not show any areas of concern as noted by J. Acebo

<table>
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<tr>
<th>MEETING NOTES</th>
<th>MEETING DATE: 01/09/2020</th>
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<tbody>
<tr>
<td>ATTENDANCE:</td>
<td>J. Acebo, H. Pacheco, F. Semino Miami-Dade County (RER)</td>
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<td>L. Cadena, L. Hull Nemo etc.</td>
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<td></td>
<td>E. Younkin SOPREMA</td>
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<td>M. Albert Polyglass USA</td>
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<td>E. Standard PRI-CMT</td>
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<td>C. Mader OMG</td>
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**SPRI - Code Compliance Interface Task**

*Force*

**RE: Miami-Dade Meeting Notes**

Meeting Date: 01/09/2020

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<tr>
<th>TOPIC #:</th>
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<tbody>
<tr>
<td>TOPIC:</td>
<td>Updated process for Miami-Dade published check lists</td>
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| INITIAL COMMENTS: | 1. NOA Template – Previously discussed to show the general public the desired format to submit supporting data  
2. Checklist – RENEWAL (ROOFING) said to be providing upon request. Should form part of Miami-Dade published checklist. |

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<tr>
<th>MEETING COMMENTS:</th>
<th>BY:</th>
<th>COMMENT:</th>
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<tbody>
<tr>
<td>AT</td>
<td></td>
<td>Miami-Dade needs to discuss with ‘boss’ to create a ROOFING specific checklist/publish section.</td>
</tr>
<tr>
<td>JA</td>
<td></td>
<td>Ideas brought up by SPRI (NOA Template) are considered, but pushed back by higherups</td>
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<tr>
<th>SUMMARY:</th>
<th>BY:</th>
<th>COMMENT</th>
</tr>
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<tbody>
<tr>
<td>LC</td>
<td></td>
<td>To follow up with Miami-Dade prior to next meeting to obtain update for updating ROOFING specific checklist/publish section.</td>
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<th>TOPIC #:</th>
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<tr>
<td>TOPIC:</td>
<td><em>Data Release &amp; FM Extension Policy – Report Reissuance</em></td>
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| INITIAL COMMENTS: | 1. Various limitations against re-issuance of reports from manufacturers to applications. Suggestion is for SPRI to prepare a template for a **Data Release form** for review/use my Miami-Dade.  
2. What came from FM/Miami-Dade conversation? |

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<th>MEETING COMMENTS:</th>
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| JA                |     | FM did talk with Miami-Dade and offered to release FM PLA. On Nov 15 FM was notified that Miami-Dade will not accept FM PLA(s).  
  • Miami-Dade to accept Revision Report or re-issued FM report. |
| JA                |     | Data release forms – county attorney office would need to get involved. |
| JA                |     | FM letter to summarize primary report data for PLA accepted. With copy of primary report. |

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<th>SUMMARY:</th>
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<th>COMMENT</th>
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| LC       |     | **FM Constructions and Extensions**: Per the above comments, Miami-Dade may accept a signed FM letter (summarizing extended systems) and a copy of the primary report as an alternate to a FM Revision Report or re-issued FM report.  
  **Manufacturer’s Data Release**: Clarified report re-issuance tied to Data Release Policy, as outlined under 09/2019 exchange with Miami-Dade. |
### Topic 4

**TOPIC:** TAS 103-20, ASTM D1623, foam on tile

**INITIAL COMMENTS:** LC Proposal to minimize foam-on-tile testing

**MEETING COMMENTS:**

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<tr>
<td>AT</td>
<td>Will need testing for each facility if revisions come in year by year.</td>
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<tr>
<td>AT</td>
<td>A proposal should be submitted for ‘new’ product/facilities</td>
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<tr>
<td>JA</td>
<td>How do exposed underlayments preform to D1623?</td>
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**SUMMARY**

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<tr>
<td>LC</td>
<td>Miami-Dade to review a formal Proposal for Review to minimize ASTM D1623 scope for products manufactured in multiple locations.</td>
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### Topic 5

**TOPIC:** FM Conclusions vs 3rd Party Conclusions

**INITIAL COMMENTS:**

**MEETING COMMENTS:**

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<tr>
<td>MA</td>
<td>How come FM is allowed to make extensions in conclusion w/o data, but a 3rd party lab cannot?</td>
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<tr>
<td>JA</td>
<td>FBC code allows FM Approvals to extend per chapter 1515.1.1.</td>
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There have been examples for 3rd party testing to aid 1 applicant, but not another with data.

FM Approvals has shown to be more conservative and historically Miami-Dade has accepted FM conclusions.

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<td>AT</td>
<td>Has to be a Miami-Dade approved lab. Miami-Dade does not look at certification entities</td>
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<tr>
<td>JA</td>
<td>Public can work on a code change to allow 3rd party evaluations for parties that meet specific requirements - List of approved evaluation entities</td>
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- Next code cycle is next year

**SUMMARY**

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<td>LC</td>
<td>SPRI to discuss options and process to update FL code.</td>
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SPRI
DORA Listing Service Task Force
Online Webex Meeting
July 14, 2020
12:30 p.m.

AGENDA

I. Call to Order
J. Malpezzi

II. Roll Call & Reading of the SPRI Antitrust Statement

III. Participation Overview

IV. Program Developments / Discussion
   a. Impact
   b. Fire
   c. Insulation board size requirement for adhesive attachment

V. Developing / Outstanding Topics
   a. Reverification process for current assemblies
   b. Expired RCM plant QC documentation
   c. “Spec Sheet” printout for specific Dora assemblies

VI. New Features

VII. Analytics

VIII. Outreach & Education

IX. Adjournment
AGENDA

I. Call to Order

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review of the original objectives

IV. Update on board meeting to approve testing at ORNL

V. Discussion on disbanding the Task Force Group

VI. Any new business

VII. Adjournment
AGENDA

I. Call to Order

II. Roll Call & Reading of SPRI Antitrust Statement

III. Update from Adam Ugliuzza (Intertek) (ABAA)
    a. Review the comments and changes to details from ABAA

IV. Any new business

V. Adjournment
AGENDA

I. Call to order

II. Roll Call & Reading of SPRI Antitrust Statement

III. Discuss status of report

IV. Adjournment
Measured Properties of Substrate Materials Used in Low Slope Membrane Roofs

Author(s): F. Shyti, N. Holcroft and A. Baskaran
Report No.: A1-016072
Report Date: May 20, 2020
Contract No.: A1-016072
Agreement Date: July 27, 2018
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Executive Summary

**Background:** In the 1980’s the US Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) set out to determine the thermal resistance ratio for a number of commonly used materials at that time (Tobiasson et al, 1987). This set of data determined the amount of moisture a material could absorb before losing 20% of its original thermal resistance (R) value. SPRI Inc. membership approached the National Research Council Canada (NRCC), via a request for proposal (“RFP”), to update the existing properties of the substrate materials that are commonly used in low slope membrane roof assemblies.

**Objective:** To develop a robust experiential dataset showing the effect of moisture content on the thermal and mechanical performance on an up-to-date (2018-2019) list of substrate materials provided by SPRI.

**Measurement Lab:** All experiments were carried out at the NRCC’s lab. NRCC is one of the world’s leading labs with expertise in characterization of building materials, which develops standard test methods, maintains and enhances a unique hydrothermal material property database, and is published by ASHRAE. It is also a national calibration laboratory. To maintain quality and reproducibility, none of the testing were outsourced.

**Material Requirement:** Figure 1 lists all the materials to be tested and their respective categories. In total, there were 21 substrate materials selected by SPRI that are commonly used in low slope membrane roofing. These materials are grouped into four categories as follows:

1. Insulation;
2. Gypsum;
3. Wood products; and
4. Concrete.

As per the SPRI-RFP dated: January 31, 2017 and March 5, 2018, most of the materials required to perform the testing were supplied in sufficient quantity by SPRI Members. Materials purchased by NRCC in consultation with SPRI are also marked in Figure 1. The materials were supplied from limited sources per product group and were used to prepare random test specimens. Testing the same type of materials from other sources can possibly cause

---

variations in the reported data. The data within this report does not represent the performance of an entire product category.

**Test Condition:** Materials were exposed (Figure 2) and tested to various simulated temperature and relative humidity conditioning. As specified in the RFP, the two conditions respectively “50% RH 44°F” and “60% RH 90°F” represent the winter and summer climatic conditions for Zone 3 (ASHRAE). Five classical properties (moisture content, thermal resistance, compressive strength, flexural strength, and fastener plate pull through) were measured. Requirements for the two project specific test conditions marked as “VD-48hrs” and “TRR 80” are explained in Appendix 7. Thus, the present approach was synchronized with the SPRI – RFP.

**Sample Preparation:** Figure 3 shows an overview of the present approach including test conditions, number of measurements made for each material property, and standards that were used. Summations of the number of specimens in each group and total number of measurements demonstrate the robustness of this project in the data production. Sample dimensions used for various property measurements and number of specimens were listed for each test based on the issued and accepted statement of work. For some of the measured properties, sample dimensions can impact the reported data. In other words, property variations can exist due to selected sample sizes for the lab testing vs field core cut sample sizes.

**Project Updates:** Project progresses were presented to SPRI memberships in 2019 and 2020 (01/18, 04/16, 07/16, 11/22, 01/10, 03/09 and 04/077). SPRI Members’ comments and reviews were incorporated into this report. A standalone document was also submitted along with this final report tabulating how the membership comments were addressed.

**Reporting:** This report contains all of the measured data in tabular format. The data for each property is presented as follows:

- Appendix 1: Moisture Content;
- Appendix 2: Thermal Resistance;
- Appendix 3: Compressive Strength;
- Appendix 4: Flexural Strength; and
- Appendix 5: Fastener Plate Pull through.

Each appendix presents the respective standards used for each material type, sample dimensions and number of specimens used for testing. Each appendix is also concluded with tabulated measured data and remarks.
NRCC in consultation with SPRI developed an experimental procedure for the determination of the fastener plate pull through the substrate material which was applied consistently for all substrate materials. This test protocol labelled as “NRCC – FPPT” is documented in Appendix 6. As well, there is no consensus-based procedure for adding moisture into materials via vapour drive, therefore, NRCC in consultation with SPRI developed a procedure (Appendix 7) based on the methodology described in (Tobiasson et al, 1987)\(^1\).

SPRI produced, “SPRI Tables” which were extracted from the NRC Report to create a simplified look up format from this R&D project. SPRI intends to publish these Tables, and this report describing the materials used and procedures followed as the data was procured. The SPRI tables and this reporting are for use by industry practitioners, solely intended to assist with the evaluation of moisture content in roof substrate materials extracted from constructed roof assemblies.
Figure 1. Common substrate materials used in low slope roofing
Figure 2. Material properties and test conditions simulated for each measured property
Figure 3. Flow diagram showing standards referenced, test conditions and number of measurements per test method
Appendix 1
Moisture Content
Standards Used

**Insulation:**
- ASTM C303-05a “Standard Test Method for Dimensions and Density of Preformed Block and Board–Type Thermal Insulation”

**Gypsum:**

**Wood:**
- ASTM D2395-14 “Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials” (Method A)

**Concrete:**
- Same as insulation.

Samples and Conditioning

Table 1-1. Sample size and number of specimens - Moisture Content

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Insulation</th>
<th>Gypsum</th>
<th>Wood</th>
<th>Lightweight Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inch)</td>
<td>0.5 and 1</td>
<td>0.5</td>
<td>1/2 and 5/8</td>
<td>1</td>
</tr>
<tr>
<td>Width (inch)</td>
<td>4</td>
<td>12</td>
<td>1.6</td>
<td>5</td>
</tr>
<tr>
<td>Length (inch)</td>
<td>6</td>
<td>16</td>
<td>1.6</td>
<td>6</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>5</td>
<td>4</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1-2. Test Condition for Moisture Property

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Temperature</th>
<th>Relative Humidity</th>
<th>ASHRAE Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 1</td>
<td>44° ±4°F</td>
<td>50 ±2%</td>
<td>Winter</td>
</tr>
<tr>
<td>TC 2</td>
<td>75° ±4°F</td>
<td>90 ±2%</td>
<td>N/A</td>
</tr>
<tr>
<td>TC 3</td>
<td>90° ±4°F</td>
<td>60 ±2%</td>
<td>Summer</td>
</tr>
</tbody>
</table>
Measured Data and Remarks

The size and number of specimens tested for the Moisture Content can be seen in Table 1-1. The test conditions were reached using a climate chamber (Table 1-2). As specified in the RFP, the two conditions respectively (TC1 and TC3) “50% RH 44˚F” and “60% RH 90˚F” represent the winter and summer climatic conditions for Zone 3 (ASHRAE). To obtain the dry mass, the specimens were initially dried either at 220°F or 140°F depending on the material type until the change in mass was less than 0.1% of the specimen mass over 24 hours for three successive days. The materials were then left in each condition (TC1, TC2, and TC3) until the change in mass was less than 0.1% over 24 hours. The results for the insulation materials can be seen in Table 1-3 and Table 1-4 for gypsum, wood and concrete. The results for the moisture content are shown as a weight percentage (wt/wt%). During the report review, the cement board has been reclassified to the gypsum group while maintaining its sample size as 4 x 6 inches.
Table 1-3. Moisture content measured data - Insulation

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50% RH 44°F</th>
<th>90% RH 75°F</th>
<th>60% RH 90°F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MC (%)</td>
<td>MC (%)</td>
<td>MC (%)</td>
<td></td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>ASTM C 726-05</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>EPS I</td>
<td>ASTM C 578-07 (Type I)</td>
<td>0.9</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>EPS VIII</td>
<td>ASTM C 578-07 (Type VIII)</td>
<td>0.6</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>ASTM C 552-17</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Perlite board I</td>
<td>ASTM C 728-05 (Type 1)</td>
<td>2.1</td>
<td>4.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Perlite board II</td>
<td>ASTM C 728-05 (Type 2)</td>
<td>2.0</td>
<td>4.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Fiberboard II</td>
<td>ASTM C 208-95 (Type II Grade 1)</td>
<td>6.9</td>
<td>14.1</td>
<td>7.4</td>
</tr>
<tr>
<td>Polyiso II Class 1</td>
<td>ASTM C 1289-07 (Type II class 1)</td>
<td>3.2</td>
<td>6.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Polyiso II Class 2</td>
<td>ASTM C 1289-07 (Type II class 2)</td>
<td>0.8</td>
<td>1.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Polyiso II Class 4</td>
<td>ASTM C 1289-07 (Type II class 4)</td>
<td>0.8</td>
<td>1.7</td>
<td>1.1</td>
</tr>
<tr>
<td>XPS IV</td>
<td>ASTM D 578 (Type IV)</td>
<td>0.3</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>SPUF II</td>
<td>ASTM C 1029-05a (Type II)</td>
<td>1.3</td>
<td>3.1</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Table 1-4. Moisture content measured data – Cement Board, Gypsum, Wood, and Concrete

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50% RH 44˚F MC (%)</th>
<th>90% RH 75˚F MC (%)</th>
<th>60% RH 90˚F MC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Board</td>
<td>ASTM C 1325-18</td>
<td>2.3</td>
<td>5.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Gypsum - Green</td>
<td>ASTM C 1396-14</td>
<td>1.5</td>
<td>15.9</td>
<td>15.6</td>
</tr>
<tr>
<td>Gypsum - White</td>
<td>ASTM C 1396-14</td>
<td>2.0</td>
<td>17.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Gypsum Fiber</td>
<td>ASTM C 1278</td>
<td>2.0</td>
<td>15.7</td>
<td>14.7</td>
</tr>
<tr>
<td>Glass Mat Gypsum</td>
<td>ASTM C 1177-13</td>
<td>1.5</td>
<td>16.4</td>
<td>16.2</td>
</tr>
<tr>
<td>Plywood</td>
<td>PS-1 Plywood</td>
<td>8.6</td>
<td>15.6</td>
<td>9.2</td>
</tr>
<tr>
<td>OSB</td>
<td>ASTM D 7033</td>
<td>7.3</td>
<td>14.3</td>
<td>8.1</td>
</tr>
<tr>
<td>Lightweight cellular concrete</td>
<td>ASTM C869/C869M-11</td>
<td>6.8</td>
<td>13.4</td>
<td>12.8</td>
</tr>
<tr>
<td>Vermiculite concrete</td>
<td>ASTM C 332</td>
<td>8.0</td>
<td>17.9</td>
<td>17.0</td>
</tr>
</tbody>
</table>
Appendix 2
Thermal Transmission
Standards Used

Insulation:

Gypsum:

Wood:
- N/A

Concrete:
- Same as insulation.

Samples and Conditioning

Table 2 - 1. Sample size and number of specimens - Thermal Transmission

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Insulation</th>
<th>Gypsum</th>
<th>Wood</th>
<th>Lightweight Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inch)</td>
<td>0.5 and 1</td>
<td>0.5</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Width (inch)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Length (inch)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2 - 2. Test conditions for Thermal Transmission Property

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Temperature</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 1</td>
<td>75 ± 2°F</td>
<td>50 ± 2%RH</td>
</tr>
<tr>
<td>TC 2</td>
<td>75 ± 2°F</td>
<td>90 ± 2%RH</td>
</tr>
<tr>
<td>TC 3</td>
<td>VD-48hrs</td>
<td></td>
</tr>
<tr>
<td>TC 4</td>
<td>TRR-80</td>
<td></td>
</tr>
<tr>
<td>TC 5</td>
<td>220° ± 4°F or 140° ± 4°F</td>
<td>Oven dry</td>
</tr>
</tbody>
</table>
Measured Data and Remarks

The test conditions for thermal resistance measurements differs from that of the conditions simulated for the moisture content property. (Table 1.2 vs Table 2.2). TC1 and TC2 were achieved using a climate chamber. TC3 and TC4 were achieved by following the methodology outlined in Appendix 7. The oven dry values were obtained after the specimens were dried at 220° ±4° or 140°±4° F depending on the material type until the change in mass was less than 0.1% of the specimen mass over 24 hours for three successive days.

After each test condition was reached, the specimens were wrapped in a thin plastic film with a negligible thickness to maintain the moisture content. To take into consideration any moisture loss or gain that could have occurred during the test period, weight measurements were taken both before and after testing. The average value was used when determining the experimental moisture content. The specimens were tested at a mean temperature of 75 ±2°F. Based on the RFP, the wood thermal transmission was not required, and it has not been included in this report. Due to the non-destructive nature of the test, the same specimens were used for all conditions. The test was performed in static mode using a heat flow meter by following a testing sequence of: TC1, TC5, TC2, TC3, and TC4.

For “VD-48hrs” and “TRR-80”, the materials had a very high moisture content, which in early testing proved to be problematic due to moisture migrating to the cold plate during the test. Preliminary tests were conducted, and it was found that reversing the heat flow from the conventional approach (top plate to have the high temperature and the bottom the low temperature) provided more accurate results (Valovirta & Vinha, 2004)². Reversing the heat flow direction for TC3 and TC4 avoids cycles of condensation and evaporation on the top plate. This eliminates inconsistent and erroneous data results.

TRR-80 is the moisture content required by each material to reduce the thermal resistance by 20%. It is calculated using the following equation, where TRR=80:

\[
TRR = 100 \times \frac{Wet\ R-value}{Dry\ R-value}.
\]

² Valovirta, I., & Vinha, J. (2004). Water Vapor Permeability and Thermal Conductivity as a function of Temperature and Relative Humidity. ASHRAE.
The “Dry R-Value” of the materials was known and the “Wet R-Value” was calculated. The amount of moisture required to achieve the calculated “Wet R-value” was estimated. Each of the materials was conditioned using the vapor drive method until the estimated moisture content required to reach TRR-80 was achieved. The specimens were tested and it was verified to see if the amount of moisture absorbed was enough to allow the materials to reach their calculated “Wet R-value”. This process was repeated continuously until a value very close to TRR-80 was reached. Note that the thermal transmission TRR-80 moisture content was used to condition materials for the determination of the compressive strength, flexural strength and fastener plate pull through at “TRR-80”. The measured data for insulation materials can be seen in Table 2-3 and for gypsum and concrete in Table 2-4. The thermal transmissions were reported, without taking into account the mass transfer, in ft²°Fh/BTU.
Table 2 - 3. Thermal transmission measured data – Insulation

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50% RH 75 °F</th>
<th>90% RH 75°F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
<th>Oven Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>ASTM C 726</td>
<td>3.8</td>
<td>3.8</td>
<td>1.4</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td>EPS I</td>
<td>ASTM C 578 (Type I)</td>
<td>3.6</td>
<td>3.5</td>
<td>3.4</td>
<td>3.0</td>
<td>3.6</td>
</tr>
<tr>
<td>EPS VIII</td>
<td>ASTM C 578 (Type VIII)</td>
<td>3.7</td>
<td>3.7</td>
<td>3.6</td>
<td>3.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>ASTM C 552</td>
<td>10.1</td>
<td>10.1</td>
<td>10.1</td>
<td>9.8**</td>
<td>10.1</td>
</tr>
<tr>
<td>Perlite board I</td>
<td>ASTM C 728 (Type 1)</td>
<td>2.7</td>
<td>2.6</td>
<td>1.7</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Perlite board II</td>
<td>ASTM C 728 (Type 2)</td>
<td>2.2</td>
<td>2.1</td>
<td>1.4</td>
<td>1.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Fiberboard II</td>
<td>ASTM C 208 (Type II Grade 1)</td>
<td>1.5</td>
<td>1.4</td>
<td>1.3</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Polyiso II Class 1</td>
<td>ASTM C 1289 (Type II class 1)</td>
<td>5.4</td>
<td>5.3</td>
<td>4.9</td>
<td>4.4</td>
<td>5.5</td>
</tr>
<tr>
<td>Polyiso II Class 2</td>
<td>ASTM C 1289 (Type II class 2)</td>
<td>5.4</td>
<td>5.4</td>
<td>4.8</td>
<td>4.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Polyiso II Class 4</td>
<td>ASTM C 1289 (Type II class 4)</td>
<td>1.3</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1**</td>
<td>2.4</td>
</tr>
<tr>
<td>XPS IV</td>
<td>ASTM D 578 (Type IV)</td>
<td>5.2</td>
<td>5.1</td>
<td>4.6</td>
<td>4.5</td>
<td>5.2</td>
</tr>
<tr>
<td>SPUF II</td>
<td>ASTM C 1029 (Type II)</td>
<td>5.2</td>
<td>5.1</td>
<td>4.4</td>
<td>4.0</td>
<td>5.3</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology. **Note: Due to long duration of the conditioning process to reach TRR80, data are reported at TRR90.
### Table 2 - 4. Thermal transmission measured data – Cement Board, Gypsum, and Concrete

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50% RH 75 °F</th>
<th>90%RH 75°F</th>
<th>VD-48 hrs*</th>
<th>TRR-80*</th>
<th>Oven Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
<td>R-Value</td>
</tr>
<tr>
<td>Cement Board</td>
<td>ASTM C 1325</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Gypsum - Green</td>
<td>ASTM C 1396</td>
<td>0.7</td>
<td>0.6</td>
<td>0.3</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Gypsum - White</td>
<td>ASTM C 1396</td>
<td>1.1</td>
<td>0.8</td>
<td>0.4</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Gypsum Fiber</td>
<td>ASTM C 1278</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Glass Mat Gypsum</td>
<td>ASTM C 1177</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Lightweight cellular</td>
<td>ASTM C 869/C869M</td>
<td>0.9</td>
<td>0.8</td>
<td>0.5</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>concrete</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vermiculite concrete</td>
<td>ASTM C 332</td>
<td>1.1</td>
<td>0.9</td>
<td>0.4</td>
<td>0.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology.*
Appendix 3
Compressive Strength
Standards Used

Insulation:

Gypsum:

Wood:
- ASTM D3501-05a “Standard Test Methods for Wood-Based Structural Panels in Compression” (Method B)

Concrete:

Samples and Conditioning

Table 3 - 1. Sample size and number of specimens - Compressive Strength

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Insulation</th>
<th>Gypsum</th>
<th>Wood</th>
<th>Lightweight Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inch)</td>
<td>0.5 and 1</td>
<td>0.5</td>
<td>1/2 and 5/8</td>
<td>2</td>
</tr>
<tr>
<td>Width (inch)</td>
<td>6</td>
<td>2.4 Ø†</td>
<td>7.5</td>
<td>2</td>
</tr>
<tr>
<td>Length (inch)</td>
<td>6</td>
<td>15</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>5</td>
<td>9</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note: Circular specimens with specified diameter

Table 3 - 2 Test conditions for Compressive Strength Property

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Temperature</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 1</td>
<td>75 ±2°F</td>
<td>50 ±2%RH</td>
</tr>
<tr>
<td>TC 2</td>
<td>75 ±2°F</td>
<td>90 ±2% RH</td>
</tr>
<tr>
<td>TC 3</td>
<td>VD-48hrs</td>
<td></td>
</tr>
<tr>
<td>TC 4</td>
<td>TRR-80</td>
<td></td>
</tr>
</tbody>
</table>
Measured Data and Remarks

Test conditions (TC1 to TC 4) for the compressive strength were achieved similar to that of the thermal transmission. The compressive test is destructive nature. Therefore a different set of specimens were used for each test condition. Also, the oven dry values for TC1 and TC2 were estimated. Specimens were tested immediately after the test conditioning was completed. For insulation materials the standard specifies a loading rate ranging from 0.01 inch/min to 0.5 inch/min. Based on this as well as the individual material standards, the following loading rates were selected to be used: cellular glass (0.01 inch/min); cement board (0.1 inch/min); perlite board (0.05 inch/min); fiber board (0.05 inch/min); and all other insulation materials (0.1 inch/min). The loading rate for the concrete was selected in accordance with ASTM C513-11 and ASTMC165-07 to be 0.05 inch/min. The measured results can be seen in Table 3-3 for the insulation materials and Table 3-4 for the gypsum, wood and concrete. During the report review, the cement board has been reclassified to the gypsum group while maintaining its sample size as 6 x 6 inches.
Table 3. Compressive strength measured data - Insulation

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F</th>
<th>90%RH 75 °F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>ASTM C 726</td>
<td>28</td>
<td>20</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>EPS I</td>
<td>ASTM C 578 (Type I)</td>
<td>15</td>
<td>15</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>EPS VIII</td>
<td>ASTM C 578 (Type VIII)</td>
<td>20</td>
<td>20</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>ASTM C 552</td>
<td>76</td>
<td>75</td>
<td>74</td>
<td>73**</td>
</tr>
<tr>
<td>Perlite board I</td>
<td>ASTM C 728 (Type 1)</td>
<td>55</td>
<td>41</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Perlite board II</td>
<td>ASTM C 728 (Type 2)</td>
<td>65</td>
<td>66</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>Fiberboard II</td>
<td>ASTM C 208 (Type II Grade 1)</td>
<td>18</td>
<td>11</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Polyiso II Class 1</td>
<td>ASTM C 1289 (Type II class 1)</td>
<td>27</td>
<td>25</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Polyiso II Class 2</td>
<td>ASTM C 1289 (Type II class 2)</td>
<td>31</td>
<td>29</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Polyiso II Class 4</td>
<td>ASTM C 1289 (Type II class 4)</td>
<td>90</td>
<td>84</td>
<td>60</td>
<td>60**</td>
</tr>
<tr>
<td>XPS IV</td>
<td>ASTM D 578 (Type IV)</td>
<td>33</td>
<td>32</td>
<td>28</td>
<td>27</td>
</tr>
<tr>
<td>SPUF II</td>
<td>ASTM C 1029 (Type II)</td>
<td>23</td>
<td>20</td>
<td>29</td>
<td>33</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology; **Note: Due to long duration of the conditioning process to reach TRR80, data are reported at TRR90.
Table 3 - 4. Compressive strength measured data – Cement Board, Gypsum, Wood, and Concrete

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F</th>
<th>90%RH 75 °F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
</tr>
<tr>
<td>Cement Board</td>
<td>ASTM C 1325</td>
<td>1265</td>
<td>1148</td>
<td>1260</td>
<td>1153</td>
</tr>
<tr>
<td>Gypsum - Green</td>
<td>ASTM C 1396</td>
<td>748</td>
<td>700</td>
<td>600</td>
<td>587</td>
</tr>
<tr>
<td>Gypsum - White</td>
<td>ASTM C 1396</td>
<td>500</td>
<td>400</td>
<td>200</td>
<td>395</td>
</tr>
<tr>
<td>Gypsum Fiber</td>
<td>ASTM C 1278</td>
<td>780</td>
<td>730</td>
<td>685</td>
<td>698</td>
</tr>
<tr>
<td>Glass Mat Gypsum</td>
<td>ASTM C 1177</td>
<td>900</td>
<td>850</td>
<td>789</td>
<td>792</td>
</tr>
<tr>
<td>Plywood</td>
<td>PS-1 Plywood</td>
<td>3400</td>
<td>2352</td>
<td>2280</td>
<td>3385</td>
</tr>
<tr>
<td>OSB</td>
<td>ASTM D 7033</td>
<td>1153</td>
<td>790</td>
<td>600</td>
<td>1150</td>
</tr>
<tr>
<td>Lightweight cellular</td>
<td>ASTM C 869/C869M</td>
<td>973</td>
<td>875</td>
<td>658</td>
<td>881</td>
</tr>
<tr>
<td>Vermiculite concrete</td>
<td>ASTM C 332</td>
<td>751</td>
<td>652</td>
<td>500</td>
<td>655</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology.
Appendix 4
Flexural Strength
Standards Used

**Insulation:**
- ASTM C203-05 “Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation”

**Gypsum:**

**Wood:**
- ASTM D3043-00 “Standard Test Methods for Structural Panels in Flexure”

**Concrete:** Same as insulation.

Samples and Conditioning

Table 4 - 1. Sample size and number of specimens - Flexural Strength

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Insulation</th>
<th>Gypsum</th>
<th>Wood</th>
<th>Lightweight Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inch)</td>
<td>0.5 and 1</td>
<td>0.5</td>
<td>1/2 and 5/8</td>
<td>1</td>
</tr>
<tr>
<td>Width (inch)</td>
<td>4</td>
<td>12</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Length (inch)</td>
<td>12</td>
<td>16</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>4</td>
<td>4</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4 - 2. Test conditions for Flexural strength Property

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Temperature</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 1</td>
<td>75 ±2°F</td>
<td>50 ±2%RH</td>
</tr>
<tr>
<td>TC 2</td>
<td>75 ±2°F</td>
<td>90 ±2%RH</td>
</tr>
<tr>
<td>TC 3</td>
<td>VD-48hrs</td>
<td></td>
</tr>
<tr>
<td>TC 4</td>
<td>TRR-80</td>
<td></td>
</tr>
</tbody>
</table>
Measured Data and Remarks
Test conditions (TC1 to TC 4) for the flexural strength were achieved similar to that of the compressive strength. For insulation materials and the concrete the standard does not specify a specific loading rate. Based on this as well as individual material standards, the following loading rates were selected to be used: cellular glass (0.17 inch/min); cement board (1.67 inch/min); perlite board (2 inch/min); all other insulation materials (1.67 inch/min); and for concrete (2 inch/min). For wood materials the standard does not specify a specific loading rate. Based on this as well as individual material standards, a loading rate of 0.29 inch/min was selected to be used. The measured results can be seen in Table 4-3 for the insulation materials and Table 4-4 for the gypsum, wood and concrete. During the report review, the cement board has been reclassified to the gypsum group while maintaining its sample size as 4 x 12 inches.
Table 4 - 3. Flexural strength measured data - Insulation

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F</th>
<th>90%RH 75 °F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>ASTM C 726</td>
<td>55</td>
<td>23</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>EPS I</td>
<td>ASTM C 578 (Type I)</td>
<td>31</td>
<td>30</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>EPS VIII</td>
<td>ASTM C 578 (Type VIII)</td>
<td>39</td>
<td>37</td>
<td>41</td>
<td>37</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>ASTM C 552</td>
<td>89</td>
<td>92</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>Perlite board I</td>
<td>ASTM C 728 (Type 1)</td>
<td>41</td>
<td>29</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Perlite board II</td>
<td>ASTM C 728 (Type 2)</td>
<td>43</td>
<td>42</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Fiberboard II</td>
<td>ASTM C 208 (Type II Grade 1)</td>
<td>248</td>
<td>159</td>
<td>39</td>
<td>108</td>
</tr>
<tr>
<td>Polyiso II Class 1</td>
<td>ASTM C 1289 (Type II class 1)</td>
<td>111</td>
<td>85</td>
<td>80</td>
<td>104</td>
</tr>
<tr>
<td>Polyiso II Class 2</td>
<td>ASTM C 1289 (Type II class 2)</td>
<td>200</td>
<td>202</td>
<td>196</td>
<td>203</td>
</tr>
<tr>
<td>Polyiso II Class 4</td>
<td>ASTM C 1289 (Type II class 4)</td>
<td>445</td>
<td>455</td>
<td>245</td>
<td>245**</td>
</tr>
<tr>
<td>XPS IV</td>
<td>ASTM D 578 (Type IV)</td>
<td>70</td>
<td>72</td>
<td>76</td>
<td>71</td>
</tr>
<tr>
<td>SPUF II</td>
<td>ASTM C 1029 (Type II)</td>
<td>41</td>
<td>46</td>
<td>60</td>
<td>58</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology; **Note: Due to long duration of the conditioning process to reach TRR80, data are reported at TRR90.
### Table 4 - 4. Flexural strength measured data – Cement Board, Gypsum, Wood, and Concrete

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F</th>
<th>90%RH 75 °F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
<td>Strength (psi)</td>
</tr>
<tr>
<td>Cement Board</td>
<td>ASTM C 1325</td>
<td>1182</td>
<td>1091</td>
<td>1069</td>
<td>979</td>
</tr>
<tr>
<td>Gypsum - Green</td>
<td>ASTM C 1396</td>
<td>1539</td>
<td>1471</td>
<td>605</td>
<td>587</td>
</tr>
<tr>
<td>Gypsum - White</td>
<td>ASTM C 1396</td>
<td>408</td>
<td>274</td>
<td>133</td>
<td>278</td>
</tr>
<tr>
<td>Gypsum Fiber</td>
<td>ASTM C 1278</td>
<td>1085</td>
<td>790</td>
<td>235</td>
<td>423</td>
</tr>
<tr>
<td>Glass Mat Gypsum</td>
<td>ASTM C 1177</td>
<td>669</td>
<td>666</td>
<td>628</td>
<td>626</td>
</tr>
<tr>
<td>Plywood</td>
<td>PS-1 Plywood</td>
<td>8481</td>
<td>3347</td>
<td>2765</td>
<td>8486</td>
</tr>
<tr>
<td>OSB</td>
<td>ASTM D 7033</td>
<td>111</td>
<td>76</td>
<td>37</td>
<td>105</td>
</tr>
<tr>
<td>Lightweight cellular</td>
<td>ASTM C 869/C869M</td>
<td>253</td>
<td>141</td>
<td>109</td>
<td>137</td>
</tr>
<tr>
<td>Vermiculite concrete</td>
<td>ASTM C 332</td>
<td>296</td>
<td>161</td>
<td>133</td>
<td>153</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology.*
Appendix 5
Fastener Plate Pull Through
Standards Used

- NRCC – FPPT: Standard Test Method for Fastener Plate Pull Through

Samples and Conditioning

Table 5 - 1. Sample size and number of specimens - Fastener Plate Pull Through

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Insulation</th>
<th>Gypsum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inch)</td>
<td>0.5 to 1</td>
<td>0.5</td>
</tr>
<tr>
<td>Width (inch)</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Length (inch)</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>5*</td>
<td>5*</td>
</tr>
</tbody>
</table>

*Note: For the TC 3 and TC 4 test conditions, 3 specimens were tested due to conditioning demand of large sample size.

**Note: For Mineral Wool, SPRI supplied 2” thick specimens (11” x 11”)

Table 5 - 2. Test conditions for Fastener plate pull through Property

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Temperature</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 1</td>
<td>75 ±2°F</td>
<td>50 ±2% RH</td>
</tr>
<tr>
<td>TC 2</td>
<td>75 ±2°F</td>
<td>90 ±2% RH</td>
</tr>
<tr>
<td>TC 3</td>
<td>VD-48hrs</td>
<td></td>
</tr>
<tr>
<td>TC 4</td>
<td>TRR-80</td>
<td></td>
</tr>
</tbody>
</table>

Measured Data and Remarks

Test conditions (TC1 to TC 4) for the fastener plate pull through were achieved similar to that of the Thermal Transmission. A consistent test protocol was followed for all materials as discussed in the Appendix 6. Since the test is destructive nature, a different set of specimens were used for each test condition and tested immediately after test conditioning was completed. The combination of fastener and plate were installed right after the conditioning process was completed. The data obtained from TC1 (50%RH, 75°F) can be used as a reproducible benchmark. The measured results can be seen in Table 5-3 for the insulation materials and Table 5-4 for the gypsum. The materials under the wood and concrete groups were excluded from this property evaluation.
Table 5 - 3. Fastener plate pull through measured data - Insulation

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F</th>
<th>90%RH 75 °F</th>
<th>VD-48hrs*</th>
<th>TRR-80*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Break Load (lbf)</td>
<td>Break Load (lbf)</td>
<td>Break Load (lbf)</td>
<td>Break Load (lbf)</td>
</tr>
<tr>
<td>Mineral Wool</td>
<td>ASTM C 726</td>
<td>184</td>
<td>175</td>
<td>150</td>
<td>167</td>
</tr>
<tr>
<td>EPS I</td>
<td>ASTM C 578 (Type I)</td>
<td>65</td>
<td>72</td>
<td>67</td>
<td>69</td>
</tr>
<tr>
<td>EPS VIII</td>
<td>ASTM C 578 (Type VIII)</td>
<td>60</td>
<td>61</td>
<td>59</td>
<td>60</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>ASTM C 552</td>
<td>130</td>
<td>129</td>
<td>131</td>
<td>131**</td>
</tr>
<tr>
<td>Perlite board I</td>
<td>ASTM C 728 (Type 1)</td>
<td>79</td>
<td>50</td>
<td>25</td>
<td>58</td>
</tr>
<tr>
<td>Perlite board II</td>
<td>ASTM C 728 (Type 2)</td>
<td>215</td>
<td>88</td>
<td>67</td>
<td>69</td>
</tr>
<tr>
<td>Fiberboard II</td>
<td>ASTM C 208 (Type II Grade 1)</td>
<td>145</td>
<td>105</td>
<td>55</td>
<td>119</td>
</tr>
<tr>
<td>Polyiso II Class 1</td>
<td>ASTM C 1289 (Type II class 1)</td>
<td>156</td>
<td>136</td>
<td>130</td>
<td>134</td>
</tr>
<tr>
<td>Polyiso II Class 2</td>
<td>ASTM C 1289 (Type II class 2)</td>
<td>245</td>
<td>244</td>
<td>240</td>
<td>247</td>
</tr>
<tr>
<td>Polyiso II Class 4</td>
<td>ASTM C 1289 (Type II class 4)</td>
<td>162</td>
<td>160</td>
<td>136</td>
<td>136**</td>
</tr>
<tr>
<td>XPS IV</td>
<td>ASTM D 578 (Type IV)</td>
<td>118</td>
<td>122</td>
<td>125</td>
<td>123</td>
</tr>
<tr>
<td>SPUF II</td>
<td>ASTM C 1029 (Type II)</td>
<td>111</td>
<td>132</td>
<td>121</td>
<td>134</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology; **Note: Due to long duration of the conditioning process to reach TRR80, data are reported at TRR90.
Table 5 - 4. Fastener plate pull through measured data – Cement Board and Gypsum

<table>
<thead>
<tr>
<th>Material</th>
<th>Applicable Material Standard</th>
<th>50%RH 75 °F Break Load (lbf)</th>
<th>90%RH 75 °F Break Load (lbf)</th>
<th>VD-48hrs* Break Load (lbf)</th>
<th>TRR-80* Break Load (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Board</td>
<td>ASTM C 1325</td>
<td>330</td>
<td>315</td>
<td>300</td>
<td>290</td>
</tr>
<tr>
<td>Gypsum - Green</td>
<td>ASTM C 1396</td>
<td>300</td>
<td>270</td>
<td>98</td>
<td>196</td>
</tr>
<tr>
<td>Gypsum - White</td>
<td>ASTM C 1396</td>
<td>193</td>
<td>156</td>
<td>60</td>
<td>147</td>
</tr>
<tr>
<td>Gypsum Fiber</td>
<td>ASTM C 1278</td>
<td>362</td>
<td>283</td>
<td>180</td>
<td>210</td>
</tr>
<tr>
<td>Glass Mat Gypsum</td>
<td>ASTM C 1177</td>
<td>180</td>
<td>240</td>
<td>178</td>
<td>201</td>
</tr>
</tbody>
</table>

*Note: Refer to Appendix 7 for methodology.
Appendix 6
Fastener Plate Pull Through –
“NRCC – FPPT”
NRCC-FPPT: Standard Test Method for Fastener Plate Pull Through

1. Scope

1.1 This test method provides a laboratory procedure for determining the load required to perform a fastener plate pull through on substrate materials.

1.2 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Summary of Test Method

2.1 The test consists of installing a fastener plate and fastener in the middle of the specimen. The specimen is clamped on a movable holder and once the fastener is fixed the specimen is pulled upwards uniformly by applying a tensile loading.

3. Significance and Use

3.1 This method can be useful in determining the fastener plate pull through load. This pull through data can be used to determine component swapping influence on a system for wind uplift testing.

4. Test Apparatus

4.1 The test apparatus consists of a movable metal frame which holds the specimen. The metal frame has 4 clamps that clamp the edges of the specimen. The frame is pulled upwards uniformly by applying a tensile loading.

4.2 The fastener is fixed by a clamp that is located at the bottom of the apparatus.

4.3 The setup can be seen in Figure 6-1.

5. Test Specimens

5.1 The test specimens' dimensions were set to be 14” x 14”.

6. Test Procedure

6.1 Place fastener plate in the center of the specimen and install the fastener.

6.2 Place specimen in the movable frame and clamp it at four edge locations.

6.3 Fix the fastener in place using a rigid clamp.

6.4 The frame is pulled upwards uniformly by applying a tensile loading at a rate of 2 inch/min.
7. Report

7.1 Report the following information:

7.1.1 Complete description of the test specimen including the dimensions and weight of the specimen.

7.1.2 Record the peak pull through load.

8. Precision and Bias

8.1 The repeatability relative standard deviation has not been determined because it is greatly dependent upon the nature of the material and its variations.

9. Keywords

9.1 fastener plate, fastener, pull through.

Figure A.6 - 1. Fastener plate pull through apparatus
Appendix 7
Vapor Drive Methodology – “NRCC – VD”

1. Scope

1.1 This test method provides a laboratory procedure for adding moisture to materials using the vapor drive apparatus.

1.2 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Reference Document


3. Summary of Test Method

3.1 The test consists of placing a specimen on top of a copper bottom container, which is filled with distilled water and located in a heat flow meter. The top and bottom plate of the heat flow meter are set at different temperatures and the temperature gradient will cause the vapor to be driven into the material.

4. Significance and Use

4.1 This method can be useful in determining the effect of moisture in materials. The temperature gradient allows moisture to be added even in those materials that do not absorb moisture through the process of conditioning using a climate chamber or submersion into water.

5. Test Apparatus

5.1 The test apparatus consists of a heat flow meter and a copper bottom container. The top plate of the heat flow meter is set at a low temperature while the bottom plate is set at a high temperature. Inside the heat flow meter, a copper-based container is placed. The setup can be seen in Figure A7-1.

6. Test Specimens

6.1 Prepare test specimens in accordance with the standard that applies to the material that will be tested after the vapor drive is complete.
7. Test Procedure

7.1 Place the test specimen onto the copper bottom container which contains distilled water.

7.2 Place the copper bottom container along with the specimen in the heat flow meter such that the copper bottom container is on top of the hot plate and the top of the specimen is in contact with the cold plate of the heat flow meter.

7.3 Set the top plate of the heat flow meter at a low temperature (39˚F) and the bottom plate at a high temperature (104˚F).

7.2 Remove test specimen from apparatus periodically, remove excess moisture from the surface using a paper towel.

7.3 Weigh the test specimen and continue the process until the desired moisture content is achieved.

8. Report

8.1 Report the following information:

8.1.1 Complete description of the test specimen including the dimensions, weight of the specimen before and after the vapor drive, and time required to achieve the required amount of moisture content.

8.1.2 Report the moisture content at VD-48hrs, representing the amount of moisture the material gained after being in the vapor drive apparatus for 48 hours.

8.1.3 Report the moisture content at TRR-80, representing the amount of moisture the material gained after being in the vapor drive apparatus until the moisture content caused a 20% drop in R-value.

9. Precision and Bias

9.1 The repeatability relative standard deviation has not been determined because it is greatly depended on the nature of the material and its variations.

10. Keywords

10.1 vapor drive, moisture content
Figure A.7 - 1. Vapor drive apparatus
AGENDA

I. Call to order

II. Roll call & reading of SPRI Antitrust Statement

III. Goal of Committee reminder

IV. Update to the DORA Guidelines document

V. Discuss Fire Classification difficulty of multiple component approvals

VI. Adjournment
AGENDA

I. Call to Order C. Mader

II. Roll Call & Reading of SPRI Antitrust Statement

III. Address and review comments on the current draft of BPT-1
   a. Thanks to everyone that has provided feedback on the draft

IV. Adjournment
AGENDA

I. Call to Order
II. Roll Call & Reading of SPRI Antitrust Statement
III. PCBTF Update
IV. Rule 1168 Technology Assessment
V. Other VOC issues
VI. Adjournment
SPRI
RP-4 Revision Ballast Requirement Task Force
Webex Online Meeting
July 16, 2020
11:00 a.m.

AGENDA

I. Call to Order
   R. Ober/T. Taykowski

II. Roll Call & Reading of SPRI Antitrust Statement

III. Summary of June 9th Conference Call
   a. Adding Jay Crandell’s method for ballast design on roofs greater than 150-ft to Commentary Section of RP-4
   b. Prepare draft of Jay Crandell’s methods and calculations

IV. Review Commentary Draft
   a. Discussion
   b. Edits
   c. Final Draft

V. Adjournment
1.0 Introduction

1.1 Scope

This Standard provides basic requirements and procedures for determining the dynamic pull-through performance of substrate board materials, stress plates, fasteners, or various combinations of these components, on a comparative basis.

1.2 Reference Documents

1.2.1 The Florida Building Code Application Standards TAS 117(B) Test Procedure for Dynamic Pull-Through Performance of Roofing Membranes over Fastener Heads or Fasteners with Metal Bearing Plates

1.3 Significance and Use

1.3.1 Roof assemblies are tested for wind uplift resistance in accordance with various Standards, such as ANSI/FM 4474, or Florida Building Code TAS 114, or UL 1897. Each assembly is made up of various components. The test procedure in this Standard is useful in qualifying new components for tested roofing assemblies, determining criticality of components for new roof assembly testing, or other such applications.

1.3.2 This test procedure is used to determine the dynamic pull-through performance of substrate board materials when fastened with individual fasteners having integral or separate seam plates and exposed to cumulative loading.
2.0.2.0 General Information
2.1 Definitions

All words defined within this section are italicized throughout the standard

ANSI
American National Standards Institute

Board Stock
Insulation materials commonly used in commercial flat roofing that are manufactured into square or rectangular sheets with a core of, e.g., polycysocyanurate/polyurethane, expanded polystyrene, extruded polystyrene, wood fiber, gypsum, APA-rated OSB, asphalt/glass, glass-based, mineral wool, or perlite, etc. The number of board stock layers and the position of the product within the assembly determine whether it will be classified as an insulation, cover board or thermal barrier. The boards are manufactured into square or rectangular sheets.

Cover Board
A cover board is a board stock product commonly used as the top layer in multi-layer insulation systems. A cover board has a core or top facer material of polycysocyanurate/polyurethane, expanded polystyrene, extruded polystyrene, wood fiber, gypsum, APA-rated OSB, asphalt/glass, glass-based, mineral wool, or perlite, etc. to protect the underlying materials from potential rooftop hazards.

Fastener
A mechanical securement component used alone or in conjunction with a stress distributor to secure various components of the roofing materials to the roof deck.

Roof Assembly
A system of interacting roofing components, including the roof deck, designed to insulate and weatherproof against various forces or threats, e.g., wind uplift, hail, foot traffic, water, fire, etc.

Stress Plate
A specially designed washer metal or plastic disk that is used in conjunction with a fastener to secure board stock, cover board, or thermal barrier materials to roof decks.

Substrate
The surface upon which a component is applied. (e.g. board stock may be the substrate for a stress plate or the structural deck may be the substrate for insulation.)
Thermal Barrier
A rigid board stock product commonly used as the base layer in insulation systems to protect the above components from internal fire by slowing the temperature rise to the roof system during an interior building fire and to delay involvement of the roof system in the fire. A thermal barrier layer must be the bottom board stock layer of gypsum, mineral wool or perlite.

Ultimate Failure Load
The peak at which the test sample is no longer able to withstand the application of increased force application. This includes pull through of the fastener head or stress plate in the substrate, fracture of the substrate around the fastener head, stress plate, or fastener stem, or breakage of the fastener, fastener head, or stress plate or permanent deformation of the stress plate in excess of 1/4-inch (6.3 mm).

Dynamic Pull-Through Value
Mean load capacity obtained at failure. This value is determined by subjecting the test specimen to a cumulative load until failure occurs.

2.2 Apparatus
2.2.1 A tensile test machine that loads with a constant rate of extension.
2.2.2 A load cell for measuring the applied load.
2.2.3 A gauge for measuring deflection or deformation.
2.2.4 The holding device must be an open area of 12-inch by 12-inch (114 mm by 114 mm) or 18-inch by 18-inch (457 mm by 457 mm).

2.3 Sampling
2.3.1 All specimens shall be provided directly from the respective manufacturer and be tested as received.
2.3.2 See Appendix A for sampling size information.

3.0 BPT-1 Procedure
3.1 Sample Setup
3.1.1 The substrate board shall be cut to a size that is appropriate for a substrate holding device.
3.1.2 The stress plate and/or fastener shall be installed in a consistent manner through the middle of the substrate board.

3.2 Test Setup
3.2.2 The test sample is installed and secured in a tensile test machine, in preparation for a load to be applied perpendicular to the substrate board.
3.1.2.1 It is acceptable to statically secure the substrate securement fixture and move the fastener, or to statically secure the fastener and move the substrate securement fixture.

3.2.2.2 The tensile test machine shall be calibrated within 12 months of the date of testing, in accordance with a standard that is traceable to a nationally recognized source.

3.1.3 Dynamic pull-through testing shall be conducted in a room with controlled temperature and humidity, 73°F (23 ± 2°C) and RH 50 percent unless otherwise stated.

3.2.3 Test Method

3.2.3.2 The sample is tested to ultimate failure, so ensure adequate personal protective equipment is available and in use, such as eye protection.

3.2.3.3 Force is exerted perpendicular to the plane of the substrate board at a speed of 2.0 in./min (50 mm/min).

3.3.3 The ultimate failure load observed for each test sample is recorded.

3.3.5 A minimum of five specimens shall be tested.

4.0 Reporting:

4.1 Name and address of manufacturer or supplier of the tested object

4.2 Name or other identification marks of the tested object

4.3 Description of the tested object

4.4 Conditioning of the test specimens, environmental data during the test (temperature, pressure, RH, etc.)

4.5 Identification of the test equipment and instruments used.

4.6 Any deviations from the test method

4.7 Test results and Dynamic Pull-Through Value

4.8 Mode of failure

Commented [ESS]: TAS 117B 6.3.5

Commented [EM6]: TAS 117(B) 7.1
Appendix A – Commentary

This Commentary consists of explanatory and supplementary material with the intent of helping test labs, system designers, and other interested parties in applying the preceding Standard.

This Standard does not provide requirements for sample sizing. Factory Mutual FM Approvals requires a sample size of three (n=3) for their purposes and The Florida Building Code Application Standards TAS 117(B) requires a sample size of fourteen (n=14) for their purposes, but other jurisdictions may require larger different sample sizes. It is the responsibility of the interested parties to determine their needs as it pertains to sample sizes.

This Standard is intended to be a basis of practical comparative testing for roof system components that are within the scope of this Standard. Acceptable applications include, but aren’t limited to:

1) Determination of most critical component combinations
   a. Prior to full scale roof assembly testing, it’s reasonable to perform small scale testing in accordance with this standard to determine the most critical component combinations. Using the most critical component combinations in full scale roof assembly testing would allow all comparatively tested components to be included in the tested assembly.

2) Inclusion of new or revised components into existing roof assemblies
   a. Should a manufacturer need to change a particular product, or release a new product, it’s reasonable to perform comparative small scale testing in accordance with this standard to determine if the new components perform as well or better than the existing components.
AGENDA

I. Call to Order

II. Roll Call & Reading of SPRI Antitrust Statement

III. Discuss options about 2020 SPRI Wind Presentation

IV. Presentation review for updates

V. Adjournment
AGENDA

I. Call to Order
II. Roll Call & Reading of SPRI Antitrust Statement
III. Update on the ASTM ILS testing program
IV. Discussion of the fleece back hail resistance testing
V. Adjournment
SPRI
Technical Committee
Online Webex Meeting
July 16, 2020
2:00 p.m.

AGENDA

I. Call to Order

J. Bates

II. Roll Call & Reading of SPRI Antitrust Statement


III. Minutes
Vote on approval of the minutes of the April 2020 meeting (attached)

IV. Task Force Reports

A. Air Barrier Details
   A. Janni

B. Air Intrusion
   A. Janni

C. Ballast Requirements
   R. Ober/T. Taykowski

D. BPT-1
   C. Mader

E. Code Development
   A. Hickman

F. Codes & Standards
   R. Ober

G. Code Compliance Interface
   E. Younkin/L. Hull

H. Code Official Training
   B. Chamberlain

I. D6878 TPO Considerations for Revision
   W. Sanborn

J. DORA® Listing Service
   J. Malpezi

K. DORA Rule for Adding Fire & Impact
   J. O’Neal

L. IA-1 Revision
   S. Childs

M. IBHS Training (no meeting)
   M. Darsch

N. Very Severe Hail FAQ (no meeting)
   J. Schwetz

O. VOC Regulatory Monitoring
   J. Bates

P. Website/Digital Content & Communication
   A. Burzynski

Q. Wetting Curves
   D. Hawn

VI New Business

VII. Adjournment
Call to Order
The Technical Committee Meeting was called to order at 1:18 p.m. EDT by Technical Committee Chair Justin Bates. The SPRI Antitrust Statement was read.*

Roll Call
Those present were:
Justin Bates, H.B. Fuller Construction Products
Warren Barber, National Gypsum
Bas Baskaran, National Research Council of Canada
Keith Berg, CertainTeed LLC
Scott Carpenter, SFS Group USA
Brian Chamberlain, Carlisle Construction Materials
Stephen Childs, OMG Roofing Products
Stan Choiniere, StanCConsulting
Joan Crowe, AIA, GAF
Mike Darsch, Sika Sarnafil
Phillip David, IB Roof Systems
Brian Davis, GAF
Heather Estes, GAF
Carl Flieler, Canadian General Tower Limited
Mike Giangiaco, Flex Membrane Int’l Corp.
Frank Greco, IKO Industries Ltd
David Hawn, Dedicated Roof & Hydro-Solutions
Mike Hubbard, Firestone Building Products Co
Joseph Kalwara, Firestone Building Products Co
Brendan Knapman, ROCKWOOL
Derek Krueger, Trufast
Norbert Lash, H.B. Fuller Construction Products
Bob LeClare, ATAS International, Inc.
Chris Mader, OMG Roofing Products
Joe Malpezzi, Carlisle Construction Materials
Rick Martelon, Johns Manville Corporation
Saverio Marzella, ROCKWOOL
Steve Moskowitz, Atlas Roofing Corporation
Jim Pieczynski, Blue Ridge Fiberboard, Inc
Brian Randall, National Gypsum
Ron Reed, Intertek
Bob Reel, H.B. Fuller Construction Products
William Sanborn, Johns Manville Corporation
John Schachtner, Intertek
Joe Schwetz, Sika Sarnafil
Jenny Sharp, ICP Building Solutions Group
Flonja Shyti, National Research Council Canada
Dwayne Sloan, UL LLC
Michelle Sluga, UL LLC
Kurt Sosinski, Tremco, Inc.
Emily Standard, PRI
Todd Taykowski, Firestone Building Products Co, LLC
Sid Teachey, USG Corporation
Ryan VanWert, Duro-Last Roofing, Inc.
Tom Verrill, Blue Ridge Fiberboard, Inc.
Steve Wadding, Polyglass USA, Inc.
Eric Younkin, ICP Building Solutions Group

Staff present:
Randy Ober, SPRI
Carl Silverman, Esq., SPRI Legal Counsel

Discussion
On motion duly made, the minutes of the January 2020 Technical Committee meeting were approved as distributed.

*SPRI Antitrust Statement: SPRI complies with antitrust laws and requires participants in its programs to comply with antitrust laws. Discussions which could affect competitive pricing decisions or other competitive factors are forbidden. There may be no discussions of pricing policies or future prices, production capacity, profit margins or other factors that may tend to influence prices. In discussing technical issues, care should be taken to avoid discussing potential or planned competitive activities. Members and participants should be familiar with the SPRI Antitrust Policy and act in conformity with it.
Task Force Reports

1. Air barrier details - Task Force Chair Al Janni reported:
   a. Comments were received from three SPRI Member Companies;
   b. These will be forwarded to Adam Ugliuzza at ABBA; and
   c. Additional comments were brought up during discussion at the Task Force meeting and will also be sent to ABBA.

2. Air Intrusion - Task Force Chair Al Janni did not report (no meeting).

3. Ballast Requirements – Task Force Chair Randy Ober reported the following items:
   a. Jay Crandell’s method to determine proper parapet height and ballast size for buildings over 150 feet was not balloted through ASCE due to push back from a few organizations. Adding this method to the RP-4 standard within a Commentary section will be pursued after revising the verbiage since content contained in the Commentary section is “non-mandatory”;
   b. Changes to the current RP-4 Commentary, section C5.6, which states that large ballast is not acceptable for buildings over 150 feet in height will be needed; (Only pavers or a 2-inch thick concrete slab);
   c. Mr. Ober will revise the wording on Mr. Crandell’s method and submit to the Task Force for review; and
   d. Mr. Ober will talk to Linda King regarding what exactly is required to make changes to an existing ANSI Standard Commentary section.

4. Code Development - Task Force Chair Amanda Hickman reported the following items:
   a. The Task Force reviewed 2021 ICC code results and next steps;
   b. Discussion of 2020 plans to prepare for next ICC code change cycle (2024 edition);
   c. ASHRAE (90.1 & 189.1) update;
   d. Florida Code update; and
   e. Discussion of Code trends – “Resiliency”.

5. Codes & Standards - Task Force Chair Randy Ober reported the following items:
   a. 33ksi steel deck is being replaced by 40ksi as the base line per the Steel Deck Institute;
   b. Factory Mutual (FM) 1-28 is adopting components of ASCE Minimum Design Loads for Buildings and Other Structures (ASCE7-16). Four zones were created, and new roof pressure coefficients were added;
   c. NRC has made a proposal to work with SPRI on a program to evaluate the welding characteristics of modified bitumen membrane; and
   d. IBC Chapter 15 re-write committee met to set goals, establish a game plan that identifies the Sections that the committee feels need work and make assignments. Before substantial work may commence, the wording of the 2021 version of the IBC needs to be obtained so efforts are not duplicated by merely editing/revising the “old” code.

6. Code Compliance and Product Approval – Task Force Chair Lyndsay Hull reported the following items:
   a. Luis Cadena, NEMO|etc and Emily Standard, PRI are going to draft a checklist for Miami Dade’s (MD) Notice of Acceptance (NOA) submissions;
   b. This checklist will help companies submit the correct information to MD and will hopefully speed up the approval process;
   c. Third party laboratory testing for NOA submissions was discussed;
   d. Create acceptable timelines for NOA’s; and
   e. The Task Force and ARMA will draft a letter to MD to hopefully help improve MD’s process and influence change.

7. Code Official Training – Task Force Chair Brian Chamberlain reported the following items:
a. Reviewed a list of 15 presentations that SPRI uses for the Wind Design Seminar and EduCode;
b. FM wind approval process will still be presented, but calculations will not be covered; and
c. Discussion occurred regarding the Return on Investment (ROI) on the Wind Design seminar and EduCode. The Task Force believes both are a good resource to use for building officials and provide CEU’s for the SPRI membership.

8. D6878 TPO Considerations for Revision – Task Force Chair Will Sanborn reported the following items:
   a. Fleece adhesion testing was completed, and the data is being compiled by SRI;
   b. This data will then be submitted to ASTM InterLaboratory Services (ILS);
   c. Discussion suggested adding an impact test for fleeceback TPO;
   d. Test data generated by the Task Force over fastener heads was discussed; and
   e. The shape of the head on the dynamic puncture apparatus may be modified to more accurately resemble real world impact.

9. DORA® Listing Service – Task Force Chair Joe Malpezzi reported the following items:
   a. Nate Vail has moved to another company;
   b. 52 companies are now listing with DORA®, 140 products, and 3900 listed assemblies;
   c. The Task Force is continuing to discuss adding fire & impact to DORA®;
   d. Some features were added to the program;
   e. Google Analytics is now being used;
   f. DORA® was presented in MI, IRE & EduCode; and
   g. Intertek is open to providing training during this time when people are confined to their homes.

10. DORA® Rule for Adding Fire & Impact – Task Force Chair Jenny Sherwin reported the following items:
    a. Impact will be added to DORA® initially and fire would come later;
    b. The Task Force is looking for a new Co-Chair;
    c. Amended listing guidelines that added fire and impact, were distributed to the Task Force for review;
    d. The Task Force expressed concern with adding fire to DORA®; and
    e. Members will submit listings for a beta test with Intertek.

11. BPT-1 – Task Force Chair Chris Mader reported the following items:
    a. The Task Force will receive a second draft in 2 to 3 weeks for review;
    b. On motion duly made, the Technical Committee unanimously approved the Task Force recommendation that BPT-1 will, upon completion, be balloted per ANSI requirements;

12. IA-1 Revision – There was no Task Force Meeting, but the following items were reported:
    a. Preview revisions distributed a week ago;
    b. Data required to update Precision and Bias statement; and
    c. A Request for Proposal (RFP) will be distributed to laboratories for testing. (NRC has submitted one proposal).

13. IBHS Training – There was no Task Force Meeting, but the following items were reported: SPRI is waiting for IBHS to finalize the presentation for training of manufacturers’ staff in the Fortified program.

14. VOC Regulatory Monitoring – Task Force Chair Justin Bates reported the following items:
    a. The summary of PCBTF survey was shared with ACA. Justin Bates will meet with ACA to review the survey week of April 13;
    b. California (CA) Scientific Review Panel (SRP) accepted OEHHA Cancer Inhalation Unit Risk Factor (IUR) report. OEHHA will likely make minor edits and release the final IUR report in the next few months;
    c. Once SCAQMD is finalized, OEHHA will proceed with the risk assessment;
d. Technical assessment of 1168 is due in 2022; and
e. The Task Force is looking for additional volunteers to help scope and perform assessment.

15. Wetting Curves - Task Force Chair Dave Hawn reported the following items:
   a. Some additional review and study of the original NRC testing report was conducted and several minor changes made;
   b. Lively discussion ensued and Member companies that have any concern with the test program will express those concerns to Mr. Hawn and/or the entire Task Force; and
   c. Mr. Hawn asked SPRI Members to review the updated NRC report and data.

16. Website/Digital Content & Communication – Task Force Chair Adam Burzynski reported the following items:
   a. Reviewed changes made to standards page on the SPRI website;
   b. The Task Force encourages any Members to submit blog content for the website;
   c. Discussion ensued on how to better promote DORA® on the website; and
   d. Bob Leclare will reach out to Intertek’s marketing department.

New Business
No new business was discussed.

Adjournment
There being no further business, the meeting was adjourned at 1:51 p.m. EDT.

Submitted by: Randy Ober, SPRI Technical Director

These minutes have been reviewed by SPRI Legal Counsel.
SPRI
Board of Directors Meeting
Virtual Meeting
Thursday, July 16
3:15 p.m. EDT

Zoom: Click here to join
Meeting ID: 864 8077 4298/Password: JULY20

Phone: (301) 715-8592 US (Germantown), (312) 626-6799 US (Chicago), (929) 205-6099 US (New York), (253) 215-8782 US (Tacoma), (346) 248-7799 US (Houston), (669) 900-6833 US (San Jose)

I. Call to Order & Welcome

II. Roll Call & Reading of SPRI Antitrust Statement

III. Approval of April meeting minutes (attached)

IV. Financial Report

V. Industry Summit Update

VI. Legal Counsel Report

DORA Dispute

VII. Upcoming Meetings and the COVID-19 impact

A. October 2020

B. January 2021

VIII. Technical Director’s Report

IX. Committee Reports

A. Technical Committee

B. Promotion/Digital Content

Wind Speed Calculator

C. Statistics

Survey of Roof Board and SBS participants

D. Annual Conference

E. Membership

F. Member Services

X. New Business

XI. Adjournment

Meeting Schedule
October 19-21, 2020 at Crowne Plaza, Warwick, RI (Monday – Wednesday)
January 15-17, 2021 at the Westin Cape Coral, FL
April 27-28, 2021 at Crowne Plaza, Warwick, RI (Tuesday – Wednesday) contract pending
Call to Order
President Michael Hubbard called the meeting to order at 2:30 p.m. The SPRI Antitrust Statement was read.*

Roll Call
Those voting Board members present were:
- Justin Bates, H.B. Fuller Construction Products
- Keith Berg, CertainTeed LLC
- Adam Burzynski, Carlisle Construction Materials
- Scott Carpenter, SFS Group USA
- Stan Choiniere, StanCConsulting
- Mike Darsch, Sika Sarnafil
- Phillip David, IB Roof Systems
- Brian Davis, GAF
- Mike Giangiacomo, Flex Membrane Int’l Corp.
- Frank Greco, IKO Industries Ltd
- Mike Hubbard, Firestone Building Products Co
- Al Janni, Duro-Last Roofing, Inc.
- Bob LeClare, ATAS International, Inc.
- Chris Mader, OMG Roofing Products
- Ralph Raulie, Seaman Corporation / FiberTite
- Ron Reed, Intertek
- CJ Sharp, ICP Building Solutions Group
- Kurt Sosinski, Tremco, Inc.

Guests present (listed alphabetically) were:
- Zebonie Sukle, Johns Manville
- Brad Van Dam, Metal-Era Inc.
- Steve Wadding, Polyglass USA, Inc.
- Ken Wolford, Siplast
- Eric Younkin, Soprema, Inc.
- George Howell, Martin Marietta
- Bob Reel, H.B. Fuller Construction Products
- Brandon Reynolds, Carlisle Construction Materials
- John Schachtner, Intertek
- Jenny Sherwin, Firestone Building Products Co
- Tom Verrill, Blue Ridge Fiberboard, Inc.

Staff present were:
- Linda King, SPRI Association Manager
- Randy Ober, Technical Director
- Carl Silverman, Esq., SPRI Legal Counsel

Minutes
On motion duly made, the minutes of the January 2020 meeting of the SPRI Board of Directors was unanimously approved as distributed.

Financial Report
Treasurer Scott Carpenter provided a brief overview of the draft February 2020 financial report noting that this is also the fiscal year-end. SPRI continues to be a financially sound organization with a strong asset position. As the construction industry faces an uncertain future due to the COVID-19 virus’ impact, SPRI leadership will carefully monitor income and expenses in the coming months.

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Industry Summit Update
President Mike Hubbard reported that he has been participating in many industry summit conference calls. The Industry Summit, made up of representatives from ARMA ERA, IIBEX, NRCA, the Tile Roofing Association, SPRI and others, has been actively monitoring responses to the COVID-19 pandemic, providing updates to member organizations and attempting to influence policy at all levels to best represent the interests of the roofing industry. Correspondence has already been sent to the President and state Governors to provide information on the essential need for construction services during this time. The Industry Summit is following the Cybersecurity and Infrastructure Security Agency (CISA) Guidelines on essential critical Infrastructure. Mr. Hubbard noted that this work is ongoing and everchanging as the situation changes. He will continue to provide updates to SPRI as they evolve.

Legal Counsel Report
SPRI Legal Counsel Carl Silverman reported that during the last quarter there have been no legal actions against SPRI, nor has SPRI initiated any legal action against any other entities. His activity during the past quarter included review of the Oak Ridge National Laboratory Technical Collaborative Program proposal, renewal of SPRI’s Workers Compensation insurance policy, review of the updated Wetting Curves research report, monitoring the enhanced DORA trademark approval which is expected to be finalized in April, signing of the various Industry Summit letters, participating in the SPRI Executive Committee discussions regarding the cancellation of the April in-person meetings, extension of the NRCC contract, exploration of the DORA dispute claim regarding Intertek’s reliance on third-party documentation, discussion of independent contractor contracts and review of the NRCA Corona virus impact survey questions. In addition, he provided his regular services of attendance for Board, task force and committee meetings, phone calls, review of reports, correspondence, review of minutes, and contact with SPRI Members, SPRI staff and third parties on various SPRI matters. He reported that the trademark application for protection of the word “DORA” is expected to be approved likely within the next week or two.

Technical Director’s Report
Technical Director Randy Ober provided the attached report with the full details of the Technical Director activity during the last quarter. Mr. Ober noted that he received a proposal from the NRCC for SPRI to participate in a program to evaluate the welding characteristics of Modified Bitumen membrane. NRCC prepared the proposal in response to a presentation given by Mark Graham at the recent Roofing Expo. Mr. Ober was directed to request more information on the proposed scope and objectives of the program and the requested level of SPRI’s participation so that the Technical Committee and the Board could more thoroughly evaluate the request.

Technical Committee Report
On motion duly made, the SPRI Board unanimously accepted the Technical Committee recommendation that SPRI approve the development of the proposed BPT-1 standard and, once approved by the BPT-1 Task Force, canvassed for approval as a American National Standard in accordance with SPRI ANSI procedures.

Technical Committee Chair Justin Bates reported that the Wetting Curves Task Force has received a revised report from NRCC. The report will be posted in the SPRI Member Only area for further review. Additional questions and concerns will be handled by Task Force Chair David Hawn. The VOC Monitoring
Task Force has shared the summary results of its PCBTF survey with ACA. (For a complete summary of the Technical Committee activity, see the Technical Committee meeting minutes.)

Promotion
Chair Bob LeClare noted that SPRI was an exhibitor at the EduCode conference. The initial feedback was that attendee interest level was low. As the code official audience is of great interest to SPRI, the Committee will continue to participate in EduCode unless a more effective method of communication with this audience is identified. The IIBEC convention has been postponed until the fall. The current plan is that SPRI will exhibit at that time. Since the last meeting of the Board, SPRI contracted with freelance writer Andy Lodge to produce an article on Codes for FRSA magazine. There was a reprint of the Mike Ennis article “How Thermoplastic Membranes Changed the Low-Slope Roofing Market” in the February 2020 issue of Construction Specifier magazine.

The SPRI Standards page (https://www.spri.org/standards/) has been updated to improve the user experience. There have been a few new blogs posted, but there continues to be a need for fresh content. Digital Promotion Chair Adam Burzynski noted that there should be more content devoted to DORA. The Committee will work on developing a plan to increase DORA promotion.

Statistics
Chair Phil David reported that the 2020 monthly reports have been distributed in a timely manner. A member reporting issue had delayed the 4th quarter 2019 reports, but that has been resolved.

It was noted that the SPRI statistics manual was distributed to all reporting Members as a reminder of the program procedures. The cover memo was used to remind participants of the guidelines for reporting private label shipments and the definition of products covered in the Roof Board category. The Statistics Committee is considering an update to the Roof Board definition as well as enhancing the program to include product thickness. The Committee is developing a survey to send to the Members to gauge interest in the proposed changes. In addition, the Committee will ask Members about the level of interest in receiving data in quarterly adhered SBS meant to be a covered category. Historically this data was gathered but not reported due to concerns of exposing market share. This is no longer a concern as the use of the product category has expanded significantly and there may be renewed interest in receiving this information.

Annual Conference
Co-chairs Scott Carpenter and Bob Reel reported that 2021 conference will be held at the Westin Cape Coral Marina in Cape Coral, Florida January 15-17. Co-chair Reel noted that a conference call will be scheduled to begin planning the education program.

Membership
Chair Ralph Raulie reported that there were no membership applications for review. It was noted that the efforts of SPRI and the Industry Summit group advocating on behalf of the industry is a significant value for Members.

Member Services
Chair Al Janni reported that the Tony Crimi presentation has been rescheduled for July. It was noted that if in-person meetings are not being allowed in July, a Webex program could be scheduled at any time as a Member Service. The IBHS hail program and the ASCE document discussed at the Code Public Hearing
are potential Member Services programs. The Wind Design Seminar will be presented at the October meetings.

**New Business**
It was reported that SPRI had nominated Randy Ober to serve on the CRRC Board of Directors.

SPRI expressed its thanks to Duro-Last CEO Tom Saeli for taking the time to share with SPRI members the work that Duro-Last has done to switch some of its manufacturing capabilities to the production of personal protection equipment for medical use.

Long-time SPRI Board Member John Greko is scheduled to retire in June. Well wishes can be sent to jgreko@carlisleccm.com. Saverio Marzella, also a long-time volunteer is scheduled to retire in June.

**Adjournment**
There being no further business, the meeting adjourned at 3:40 p.m. EDT

Submitted: Linda King, SPRI Managing Director

These minutes have been reviewed by SPRI Legal Counsel.
Submitted by:  Randy Ober  
Technical Director  
April 7, 2020

The contents below are a summary of industry related issues during the 1st quarter 2020:

**ACC CEU Accreditation Advocacy Network**

- Inaccurate and unscientific AIA & GBCI (Green Business Certification) accredited CEU courses have been reported  
- Contacted these certification agencies and informed them of the issues  
- Sent letters to both agencies requesting a meeting to discuss the situation  
- Met with AIA and they were receptive to whatever help industry could provide  
- AIA receives 33K to 37K presentations to review annually  
- Meeting to occur with GBCI on April 8th

**ANSI**

- Defined “Greenfields” and the planting requirements  
  o Vegetated roofing systems, vegetated terrace systems and planters shall be permitted to meet not more than 50% of the requirement for areas of *biodiverse plantings*.  
- BSR/UL 2218-201x, Standard for Impact Resistance of Prepared Roof Covering Materials  
  o Eliminates measuring depth of depression after impact  
  o Clarifies sample conditioning parameters  
  o Adds statement describing a light source affixed to the top of the drop tube (to visibly show where steel ball will impact)  
  o Clarifies the substrate for the test assembly  
  o Adds an Appendix that provides updated hail fall speeds and impact energies  
- IAPMO (Z) (International Association of Plumbing & Mechanical Officials)  
  o This Standard specifies a test method to determine roof drain systems performance by measuring flow rates based on the water head and the piping configurations specified in this Standard, for drains in sizes NPS-2 to NPS-6.  
- Some other cool stuff  
  o You had to be there to witness!!  
  o Just checking to see if anyone actually reads this report

**ASCE7**

- Jay Crandell’s proposal for designing ballasted single-ply roof systems for buildings over 150 feet in height was not balloted through ASCE
• This proposal may be incorporated into the ANSI/SPRI RP-4 standard as “Commentary” (non-mandatory language)
• A new Task Force was established in SPRI to discuss

ASTM

• ASTM E84 (Steiner Tunnel Test) adding a definition for a “self-supporting specimen”
• ASTM D6878 (TPO membrane) ASTM / SPRI members continue working to add a new “type” of membrane that incorporates a fleece backing
  o Continuing to produce data for fleece adhesion
• ASTM E1918 (Test Method for Measuring Solar Reflectance)
  o A new method will be balloted prior to the June 2020 meeting
  o CRRC is spearheading this effort

California Energy Code & Standards

• Considering increasing roof material reflectance, thermal emittance and SRI requirements for the state (values not yet determined)
• Exceptions for lower reflectivity values if additional R-value is added
• Many cities and counties adopting requirements for electric only construction
Coalition for Accurate Product Labels

- Many states and localities are adopting requirements for different label content
- Difficult for manufacturers to comply with labeling requirements with no standardization
- Bill introduced to US House & Senate “Fair Labeling Act” to establish a federal label requirement

CRRC

- Making changes to the “Random Testing Program”
  - Random samples selected annually is raised from 5% to 7% of all listed products
  - All products that have been rated for 15+ years that have not yet gone through Random Testing are to be selected each program year
  - Thermal emittance allowance increased from ±0.05 of the initial rated value to ±0.10 for products with an initial thermal emittance of 0.30 or more
  - Products with a thermal emittance of less than 0.30 will still be held to the ±0.05 threshold
- Rough Substrates
  - CRRC confirmed through a study that reflectivity over rough surfaces is less than smooth surfaces
  - CRRC will now require all coating products to be retested over “rough” surfaces to maintain current ratings that were originally tested over smooth surfaces
  - If the coating is intended to be applied over only smooth surfaces (such as recoating existing single-ply membranes) no retesting will be required

EduCode

- Event spanned 5 days (SPRI participated in 2 days of the expo)
- Sporadic attendance (during breaks)
- Estimate 50% of attendees were fire & safety
- Explained role of SPRI
- Demonstrated DORA
- Estimate 10 demonstrations to truly interested parties
- Handed out summary of 2021 ICC Code changes
- Estimate 50 people were interested
- No educational presentation this year
- Gave away free “stuff”!!

Factory Mutual - Roofing Industry Coalition

- ASCE 7 and DS 1-28
  - Oct. 2016 version of DS 1-28 was based on ASCE 7-05.
  - Feb. 2020 revision will maintain the existing DS 1-28 maps and allowable wind speeds (50-100-year MRI’s).
  - New roof pressure coefficients and low slope roof zone dimensions from ASCE 7-16 will be adopted.
  - Will continue to use an Importance Factor (IF) = 1.15 and a Safety Factor (SF) = 2.0 for new construction.
Ratings Calculator in RoofNav was updated to reflect all the DS 1-28 changes for wind pressure ratings.

- Requires increased pressure coefficients for all roof slopes in almost all roof zones.
- Added an elevation factor (Ke), which can be conservatively assumed to be 1.0.
- Roof zone dimensions will change for low slope (<= 7°) roofs.
- Why—an updated review of Boundary Layer Wind Tunnel Test data supported this change to ASCE 7-16.

**Conclusions - Considerations**

- DS 1-28 (Wind Design) now uses pressure coefficients and low slope roof zones from ASCE 7-16
- DS 1-29 (Roof Deck Securement and Above-Deck Roof Components) and 1-31 (Panel Roof Systems) were revised to address zone dimension changes for low slope roofs and prescriptive enhancements for Zones 2 and 3.
- Software revised for Ratings Calculator in RoofNav
- Published February 2020
IBHS

- All joint test programs between SPRI & IBHS are on hold since the test facilities are temporarily shut down
- IBHS is finishing a “Fortified” presentation that will be distributed to the SPRI membership so that they can educate their staff
  - Manufacturers’ staff can then be a resource to their customers who may be inquiring about the program

ICC Chapter 15 Re-write Committee

- Representatives from SPRI, PIMA, ERA, NRCA and ARMA met at IRE to discuss how to make this document more “user-friendly” and accurate
- Assignments were made for each organization to tackle specific sections of the code
- Follow-up meeting held in March to discuss status of assignments
- Need to get the verbiage for the 2021 IBC before work can commence

NERCA

- RI now enforcing requirements for roofers to have a Commercial Roofers License (actually passed 20 years ago)
- NY passed a “Storm Chaser” bill to prevent contractors from performing shoddy work and engaging in price gouging
- NJ State Assembly seeks to establish a Solar Roof Installation Warranty Program
  - The purpose is to provide insurance coverage for commercial building owners who install solar panels on their roofs, but risk losing their warranty coverage against damage to those roofs
  - The bill requires applications to be submitted by building owners at the time of installation of solar photovoltaic equipment on the roof
  - The application fee is to be $1,000 with a maximum claim of $50,000.
- NJ (what a place to be a roofer)
  - NJ Court Finds Employer Must Reimburse for Medical Marijuana Under Workers Comp Rules
PFAS Update

- US Geological Survey is now involved in providing scientific data regarding the amount of contamination in groundwater
  - Testing water from over 600 municipal wells throughout the country beginning in 2018 and ending in 2021
  - Will report findings to the EPA

Roofing Industry Technical Summit

Factory Mutual (FM)

- Lab is shut down so FM is focused on processing reports, proposals, etc
- Approval standards are next on the “to do” list if the lab is not re-opened

International Institute of Building Enclosure Consultants - (IIBEC)

- Convention will be rescheduled in the fall back in Houston
- IIBEC revised Manual of Practices (last update was 2010) - just completed last week
- Will be only available as an interactive PDF (no printed version)
- Codes - IIBEC has initiated a new committee, “Codes & Standards” to allow more focus on these issues within the IIBEC structure

Polyisocyanurate Insulation Manufacturers Association (PIMA)

- Finalizing life cycle assessment report
- Updated EPD’s
- Next step will be to develop EPD for roof coverboards

Steel Deck Institute

- 33ksi deck is going away
- It is like a “unicorn…you hear a lot about it but it really doesn’t exist”...
- 40ksi will now be the base line for steel deck
June 8, 2020

Ms. Linda King  
The Center for Association Management, Inc.  
465 Waverley Oaks Road, Suite 421  
Waltham, MA 02452  

Dear Linda:  

As arranged, we have prepared and enclose a draft of the unaudited balance sheet and other supplementary information of SPRI, Inc. as of May 31, 2020 together with the detailed reports.  

We would appreciate any comments you may have before we issue a final copy of these reports.  

Sincerely,  

Scott  

Scott Goffstein, CPA  

Enclosures
SPRI, INC.

STATEMENT OF FINANCIAL POSITION
AND OTHER SUPPLEMENTARY INFORMATION

AS OF MAY 31, 2020
INDEPENDENT ACCOUNTANTS’ COMPILATION REPORT

To the Board of Directors
SPRI, Inc.
Waltham, Massachusetts

Management is responsible for the accompanying statement of financial position of SPRI, Inc. (a not-for-profit association) as of May 31, 2020 in accordance with accounting principles generally accepted in the United States of America. We have performed a compilation engagement in accordance with Statements on Standards for Accounting and Review Services promulgated by the Accounting and Review Services Committee of the AICPA. We did not audit or review the financial statement nor were we required to perform any procedures to verify the accuracy or completeness of the information provided by management. Accordingly, we do not express an opinion, a conclusion, nor provide any form of assurance on the financial statement.

Accounting principles generally accepted in the United States of America require that the Association’s revenue from membership dues be recognized over the period to which the dues relate. However, in the accompanying financial statement and supplementary information, the Association recognizes the revenue from membership dues in the period in which the organization is entitled to the dues. Management has not determined the effect of this departure on the financial statement and supplementary schedules.

Management has elected to omit substantially all of the disclosures and the statement of cash flows required by accounting principles generally accepted in the United States of America. If the omitted disclosures and statement of cash flows were included with the financial statements, they might influence the user’s conclusions about the Association’s financial position and cash flows. Accordingly, this financial statement is not designed for those who are not informed about such matters.

This report is intended solely for the information and use of the board of directors and management of SPRI, Inc., and is not
intended to and should not be used by anyone other than these specified parties.

To the Board of Directors
SPRI, Inc.
Page 2

Supplementary Information

The supplementary information contained in schedules I, II, III, IV, and V is presented for purposes of additional analysis and is not a required part of the basic financial statements. This information is the representation of management. The information was subject to our compilation engagement, however, we have not audited or reviewed the supplementary information and, accordingly, do not express an opinion, a conclusion, nor provide any form of assurance on such supplementary information.

Waltham, Massachusetts

June 8, 2020
## SPRI, INC.

### STATEMENT OF FINANCIAL POSITION
May 31, 2020

### ASSETS

<table>
<thead>
<tr>
<th>Description</th>
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<td><strong>Cash and Receivables:</strong></td>
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<td>Prepaid Research</td>
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<td>Prepaid Conference</td>
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<td>Other Prepaid Expenses</td>
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<td><strong>Property and Equipment:</strong></td>
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<td>Office Equipment, at cost</td>
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<td>Testing Equipment, at cost</td>
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<td>Less Accumulated Depreciation</td>
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<td>Video, at cost</td>
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### LIABILITIES AND FUND BALANCE

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<th>Description</th>
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<td><strong>Current Liabilities:</strong></td>
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<td>Accounts Payable and Accrued Expenses</td>
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<td>Appropriated Stabilization Fund Balance</td>
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<td><strong>Total Liabilities and Fund Balance</strong></td>
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See Accountants’ Compilation Report.
SUPPLEMENTARY INFORMATION
## RECAP OF OPERATING REVENUE AND EXPENSES

**SCHEDULE I**  
For the quarter ended  
May 31, 2020

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>QUARTER BUDGET</th>
<th>CURR QUARTER</th>
<th>Y-T-D ACTUAL</th>
<th>Y-T-D BUDGET</th>
<th>Y-T-D DIFFERENCE</th>
<th>2020 - 2021 BUDGET</th>
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<tr>
<td>$ 170,012.85</td>
<td>$ 149,052.50</td>
<td>$ 20,960.35</td>
<td>$ 170,012.85</td>
<td>$ 149,052.50</td>
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<td>170,012.85</td>
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<td>855,395.00</td>
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### REVENUES

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<th>BUDGET</th>
<th>DIFFERENCE</th>
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<th>BUDGET</th>
<th>DIFFERENCE</th>
<th>BUDGET</th>
</tr>
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<tr>
<td>DUES AND GENERAL</td>
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<td>$ 20,960.35</td>
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<td>$ 149,052.50</td>
<td>$ 20,960.35</td>
<td>$ 705,395.00</td>
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### EXPENSES

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<th>GENERAL AND ADMIN. (SEE SCHEDULE IV)</th>
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<th>BUDGET</th>
<th>DIFFERENCE</th>
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<td>$ 15,788.63</td>
<td>$ 158,971.62</td>
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### NET SURPLUS (DEFICIT) FROM OPERATING ACTIVITIES

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<th>ACTUAL</th>
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<th>BUDGET</th>
<th>DIFFERENCE</th>
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<tbody>
<tr>
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<td>(25,707.75)</td>
<td>36,748.98</td>
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### NET SURPLUS (DEFICIT) FROM SPECIAL PROJECTS

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<tr>
<th>SPECIAL PROJECTS</th>
<th>ACTUAL</th>
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<td>(1,206.73)</td>
<td>(2,901.25)</td>
<td>1,694.52</td>
<td>(11,605.00)</td>
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### NET SURPLUS (DEFICIT)

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<th>NET SURPLUS (DEFICIT)</th>
<th>ACTUAL</th>
<th>BUDGET</th>
<th>DIFFERENCE</th>
<th>ACTUAL</th>
<th>BUDGET</th>
<th>DIFFERENCE</th>
<th>BUDGET</th>
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<tbody>
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<td>(5,251.00)</td>
<td>$ 9,834.50</td>
<td>(28,609.00)</td>
<td>38,443.50</td>
<td>(5,251.00)</td>
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See Accountants' Compilation Report
### SPRI, INC.

**RECAP OF SPECIAL PROJECTS REVENUES AND EXPENSES**

**Schedule II**

For the quarter ended

May 31, 2020

<table>
<thead>
<tr>
<th>QUARTER ACTUAL</th>
<th>QUARTER BUDGET</th>
<th>CURR QUARTER DIFFERENCE</th>
<th>Y-T-D ACTUAL</th>
<th>Y-T-D BUDGET</th>
<th>Y-T-D DIFFERENCE</th>
<th>2020 - 2021 BUDGET</th>
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</thead>
<tbody>
<tr>
<td>SPECIAL PROJECTS REVENUE:</td>
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<tr>
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<td>$ 223.75</td>
<td>$ 0.00</td>
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<td>223.75</td>
<td>0.00</td>
<td>223.75</td>
<td>(223.75)</td>
<td>895.00</td>
</tr>
</tbody>
</table>

**EXPENSES**

| SPECIAL PROJECTS: | | | | | | |
| 0.00 | 1,875.00 | 1,875.00 | 0.00 | 1,875.00 | 1,875.00 | 7,500.00 |
| 0.00 | 1,250.00 | 1,250.00 | 0.00 | 1,250.00 | 1,250.00 | 5,000.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 577.50 | 0.00 | (577.50) | 577.50 | 0.00 | (577.50) | 0.00 |
| 30.73 | 0.00 | (30.73) | 30.73 | 0.00 | (30.73) | 0.00 |
| 598.50 | 0.00 | (598.50) | 598.50 | 0.00 | (598.50) | 0.00 |
| 1,206.73 | 3,125.00 | 1,918.27 | 1,206.73 | 3,125.00 | 1,918.27 | 12,500.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,206.73 | 3,125.00 | 1,918.27 | 1,206.73 | 3,125.00 | 1,918.27 | 12,500.00 |
| NET SURPLUS (DEFICIT) FROM SPECIAL PROJECTS: | | | | | | |
| $ (1,206.73) | $ (2,901.25) | $ 1,694.52 | $ (1,206.73) | $ (2,901.25) | $ 1,694.52 | $ (11,605.00) |

See Accountants' Compilation Report.
SPRI, INC.

STATEMENT OF CHANGES IN FUND BALANCE
SCHEDULE III
For the quarter ended
May 31, 2020

<table>
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<tr>
<th></th>
<th>UNAPPROPRIATED</th>
<th>APPROPRIATED</th>
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<td>UNREALIZED GAIN (LOSS) ON INVESTMENTS</td>
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<td>NET SURPLUS (DEFICIT) FROM OPERATING ACTIVITIES</td>
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<tr>
<td>NET SURPLUS (DEFICIT) FROM SPECIAL PROJECTS</td>
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<td>BALANCE AT END OF PERIOD</td>
<td>$ 439,929</td>
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See Accountants' Compilation Report.
## DUES AND GENERAL AND ADMINISTRATION

### Schedule IV

For the quarter ended May 31, 2020

See Accountants’ Compilation Report.
### SPRI, INC.

**DUES AND GENERAL AND ADMINISTRATION**

*Schedule IV - Continued*  
*For the quarter ended*  
*May 31, 2020*

<table>
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**TOTAL GENERAL & ADMINISTRATIVE: $174,160.25**  
**Y-T-D TOTAL $142,000.00**

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**TOTAL MEMBERSHIP DUES: $3,391.25**  
**Y-T-D TOTAL $1,250.00**

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**TOTAL BOARD & COMMITTEE: $651.70**  
**Y-T-D TOTAL $11,600.00**

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<td>MEMBERSHIP DIRECTORY</td>
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**TOTAL MEMBERSHIP SERVICES: $912.13**  
**Y-T-D TOTAL $12,700.00**

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**TOTAL PROMOTION PROJECTS: $17,250.00**  
**Y-T-D TOTAL $33,300.00**

### TOTAL OPERATING EXPENSES:

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**Y-T-D TOTAL $699,041.00**

See Accountants’ Compilation Report.
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**REVENUES**

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**EXPENSES**

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**TOTAL FOOD AND BEVERAGE**

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**TOTAL BOARD AND STAFF**

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**TOTAL PROGRAMS AND GENERAL**

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**NET SURPLUS (DEFICIT)**

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Statistics Committee Report

The SPRI Statistics Committee has had multiple discussions regarding the Roof Coverboard report and the reporting of private label product. It is unclear if all private label product is being reported by the SPRI Member that sells the product into the marketplace. Therefore, the Committee has updated the definition of Roof Board and created a short survey to send to the Roof Coverboard participants.

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<tr>
<th>Current Definition</th>
<th>Proposed Definition</th>
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| A non-structural, rigid board stock, used as a component of a commercial roofing assembly, comprised of a core material consisting of (but not limited to) one of the following:  
- Cellulose Wood Fiber  
- Asphalt and filler with a fiberglass facer on one or two sides  
- An APA rated OSB or plywood  
- Mineral wool  
- Mineral fiber  
- Perlite  
- Gypsum with a fiberglass facer embedded in the core-two sides  
- Fiber-reinforced gypsum  
- High density polyisocyanurate with a minimum compressive strength of 100psi  
This definition includes any of the above products that are factory laminated to a thermal roof insulation board (a composite board). | A non-structural, rigid board-stock product of 2” or less thickness, used primarily as the top layer/coverboard in a commercial roofing assembly, as a substrate/thermal barrier for a vapor retarder/temporary roof, or as the top layer in a factory laminated composite board, comprised of a core material consisting of one of the following:  
- Cellulose Wood Fiber  
- Asphalt and filler with a fiberglass facer on one or two sides  
- An APA rated OSB or plywood  
- Mineral wool  
- Perlite  
- Gypsum with a fiberglass facer embedded in the core-two sides  
- Fiber-reinforced gypsum (without facers on two sides)  
- High density polyisocyanurate with a minimum compressive strength of 80 psi  
- Cement board  
- Recycled Cellulose Fiber/Plastic board  
- Other (any such products which do not fit into the categories above)  
Materials are reported in two thickness categories, ¾” or less, and greater than ¾” to 2”.


**Survey questions:**

1. Do you approve or disapprove of the above changes to the current SPRI Roof Coverboard definition?
2. Do you approve of the additional reporting requirements (thickness) as proposed?
   
   a. Is your company have the systems in place to provide thickness data on a monthly (aggregate) and quarterly basis (by state)?
3. As any change will affect comparison to current and previous data, if adopted do you prefer to:
   
   a. delay implementation until start of 2021, or:
   
   b. change within the current year
4. Which Roof Coverboard categories do you currently report shipments for and what thicknesses of products are included?
5. Do you sell a product covered under the Roof Coverboard definition to:
   
   a. A Private Label or System Manufacturer who reports Roof Coverboard shipments to SPRI
   
   b. Non-reporting Private Label or System Manufacturer (per report Parts List) for whom you include totals under your reported shipments
   
   c. Direct Into the marketplace
5. Do you sell and report a composite board product:
   
   a. Whose top coverboard layer falls within the current definition
   
   b. Whose top coverboard layer would fall within the proposed updated definition
   
   c. Whose top coverboard layer is comprised of OSB / Plywood
   
   d. Whose primary use is under low-slope roofs and could be segmented/reported accordingly

*Please note that if the reporting is expanded to include thickness on a monthly and quarterly basis this will increase the cost of the program by $620 per quarter + one-time set-up fee of $400. (current price for the roof board program is $1750/quarter= $7,000/year, proposed new price is $2370/quarter = $9480/year)*

The second part of the survey is regarding the Self-Adhered Meant to be Covered and Self-Adhered Meant to be Exposed categories.

1. Is your company in favor of continuing to report shipments into the Self-Adhered Meant to be Covered and Self-Adhered Meant to be Exposed SBS categories and to begin publishing the data to reporting companies?  (Historical Note: This data has been collected for many years but not reported. When the quarterly report was implemented there were not enough participants in these categories to report the data, which is no longer the case.)
2. Can your shipments of Self-Adhered Meant to Be Covered SBS be differentiated and reported separately for use as self-adhered base ply used in roof membrane systems and metal roof systems in commercial applications; versus self-adhered underlayment typically associated with residential applications (such as Ice and Water underlayment for below tile and shingles)?
3. If not in favor of continuing data collection with publication, should existing collected data be provided to the members except where disclosure concerns exist?
4. What additional Self-Adhered Underlayment categories would you like to see added and are willing to report shipments for:
   
   a. Modified Bitumen based Self-Adhered Air / Vapor Barriers (Film, foil or smooth surfaced)
   
   b. Non-asphalt based self-adhered Air/Vapor Retarder & Barriers (Film, foil or smooth surfaced)
Please note: the addition of the categories in question 2 would impact the cost of the program. It would cost $3,840 per year to add both the SA meant to be covered, and SA meant to be exposed) and this pricing assumes ARI doesn’t collect the data monthly or match the totals (monthly to quarterly). ARI would not add a set-up fee for the two existing self-adhered categories. If SPRI would like to go back and show historical data – that would incur an additional fee.

The current cost for the Membrane program (monthly and quarterly reports) is $1880 per month = $22,560 annual.

Adding SA meant to be covered and SA meant to be exposed would be $2,200 per month = $26,400 annual.

+ $320 per month = $960 per quarter = $3840 per year for each additional category added to the quarterly report only.
The contents below are a summary of industry related issues during the 2nd quarter 2020:

ACC CEU Accreditation Advocacy Network
- Inaccurate and unscientific AIA & GBCI (Green Business Certification) accredited CEU courses have been reported
- Meeting with GBCI on April 8th
  - GBCI is the global certification body for LEED
  - Course first reviewed by “Primary Reviewer”
  - Determine whether course needs to be reviewed by a “Subject Matter Reviewer” (expert outside GBCI)
  - Online courses are like Amazon – Include reviews from others that have taken the course
  - GBCI does not review courses that are presented at conferences
  - Conference organizers are responsible for content
  - GBCI welcomes SPRI members who see an “education” course that is slanted or inappropriate to contact the GBCI
    - Sarah Alexander
    - salexander@gbci.org
    - 202.246.4373

ACC Microplastics
- Canada considering moving ahead with proposal to regulate single-use plastics to reduce exposure of humans to microplastics
- Under the Canadian Environmental Protection Act
- SPRI signed onto an association letter to:
  - The Honourable Mary Ng, MP
  - Minister of Small Business, Export Promotion and International Trade
- CA is also studying the issue
  - On or before July 1, 2020:
    - Adopt a definition of microplastics in drinking water;
On or before July 1, 2021:
- Adopt a standard methodology for testing of microplastics in drinking water;
- Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results;
- Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate;
- Accredit qualified laboratories in California to analyze microplastics in drinking water.

ANSI
- Defined “Greenfields” and the planting requirements – This standard is out for the second public review
  - Vegetated roofing systems, vegetated terrace systems and planters shall be permitted to meet not more than 50% of the requirement for areas of biodiversity plantings.
- FM (FM Approvals)
  - BSR/FM 4474-202x, Evaluation of Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures (revision of ANSI FM 4474-2004 (R2010))
  - SPRI is on the canvass group
  - Technical Director reached out to the SPRI membership for comments
  - Changes to the standard:
    - Requirements regarding permanent deflection of standing seam metal roof systems and a new test method for these systems
    - Reducing the minimum thickness of fiber reinforced cementitious roof decks from 4 inches to ¾ inches
- IAPMO (Z) (International Association of Plumbing & Mechanical Officials)
  - BSR/IAPMO ES1000-202x, Spray-Applied Polyurethane Foam (new standard)
  - This standard provides a method for determining building code compliance for Spray-applied Polyurethane Foam (SPF) used for insulation, roofing, and sealant applications
- SDI (Steel Deck Institute)
  - BSR/SDI SD-202x, Standard for Steel Deck (consolidating the following existing standards):
    - ANSI/SDI C-2017 Standard for Composite Steel Floor Deck - Slabs
    - ANSI/SDI NC-2017 Standard for Non-Composite Steel Floor Deck
    - ANSI/SDI RD-2017 Standard for Steel Roof Deck
- ASSP (ASC A10) (American Society of Safety Professionals)
  - BSR/ASSP A10.24-202X, Roofing Safety Requirements for Low-Sloped Roofs (revision and redesignation of ANSI/ASSE A10.24-2014)
  - This standard establishes safe operating practices for the installation, maintenance, and removal of membrane roofing that is seamed or seamless on low-sloped roofs
- SPRI (Single Ply Roofing Industry)
  - ANSI/SPRI IA-1 2015, Standard Field Test Procedure for Determining the Uplift Resistance of Insulation and Insulation Adhesives over Various Substrates has been revised and is being re-balloted for approval as an American National Standard.
  - The pre-canvass interest survey has been distributed.
ASTM

- ASTM D6878 - Standard for TPO Roofing Membrane
  - ASTM June Committee Week was “virtual” so there was no Task Group meeting conducted
  - Will Sanborn’s SPRI Task Force will be meeting during the SPRI meeting
- At the last several meetings of Task Group D08.20.48-Moisture in Concrete, the concept of developing a standard practice applicable to roofing based upon ASTM F710, “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”
  - The standard was drafted by Dean Craft, ISE Logik, SPRI’s newest member...nice job Dean!!
  - During the balloting process, several Negative votes were received
- Standard Guide for Assessment of Continued Applicability of Reaction to Fire Test Reports Used in Building Regulation
  - ASTM E2989 is a guide intended to help users evaluate the continued applicability of fire test reports associated with reaction to fire tests, especially when the tests have been conducted at some time long in the past.
  - This ballot drew 4 Negative votes
- E60 Sustainability
  - Proposed new standard “Guide for Investment Analysis in Environmentally Sustainable Manufacturing”
  - Proposed New Standard (Resilience of Buildings definition)
- ASTM E1918 (Test Method for Measuring Solar Reflectance)
  - A new method will be balloted for an inclusion as an Annex to the standard
  - CRRC is working with LBNL on the wording

California Energy Code & Standards

- The CEC (CA Energy Commission) proposed changes to Title 24
  - Current requirement = 0.63 Aged SR / 0.75 Thermal Emittance / 75 SRI
  - Proposed requirement = 0.70 Aged SR / 0.75 Thermal Emittance / 85 SRI
- SPRI Technical Director solicited comments from the membership and drafted letter to the CEC
- Response received from Simon Silverberg, on behalf of the California Statewide Utilities Codes and Standards
- SPRI Technical Director working with Ken Kline (SG&H and the Technical Director for the Western States Roofing Contractors Association)
- Ken has been hired by the CEC to review comments and he stated that he agrees with SPRI’s stance
- Los Angeles has a new ordinance for cool roofs on low slope applications

Coalition for Accurate Product Labels

- Many states and localities are adopting requirements for different label content
- Difficult for manufacturers to comply with labeling requirements with no standardization
- Bill introduced to US House & Senate “Fair Labeling Act” to establish a federal label requirement
- No movement with the House Bill during the last quarter
• Board election was a run-off due to a tie between Randy Ober and Wade Shepherd (Boral Roofing). Randy Ober won a Board set thanks to all the help from the SPRI membership. Thanks!!!

• Making changes to the “Random Testing Program”
  o Only products sold to the end user
  o Products sold to a private label account would not be eligible
  o If the “Primary” manufacturer sells to the end user and a private label account and both are selected for random testing then only one would be tested

• Rough Substrates
  o CRRC confirmed through a study that reflectivity over rough surfaces is less than smooth surfaces
  o Those coating products that choose not to be tested will just have some designation under the “Rough Surfaces” column such as “N/A”...still under discussion

• CRRC Board directed the Technical Committee to develop a technical guide describing the variables to take into consideration when estimating the energy savings of a cool roof

• Goal: Educate end-users about the complexity of estimating energy savings

EPA

• Proposal to set % post-consumer recycled content in roofing membranes
  o Fiber (felt) 66 – 100
  o Rubber 12 – 100
  o Plastic / Plastic Rubber Composite 100
  o Summary of letter from SPRI (Technical Director) to EPA
    ▪ Research from a 2004 study
      • No mention of TPO
      • Included Hypalon
      • Obviously outdated
    ▪ Difficult to control quality & consistency of post-consumer product
    ▪ Including a significant % of recycled product in single-ply membrane would reduce the life expectancy of the roof
      • This would result in more roof replacements = more material to the landfill
    ▪ Requested that they reconsider this proposal

Expansion Joint Details

• Technical Director was contacted by a gentleman asking SPRI to consider drafting more complete expansion joint details
  o How to handle when an expansion joint abuts metal edging or a parapet wall
  o How to tie membrane over an expansion joint into an air barrier
  o Should a Task Force be created to study this subject?
Factory Mutual
  - Nothing to report

IBHS
  - Nothing to report

ICC Chapter 15 Re-write Committee
  - Representatives from SPRI, PIMA, ERA, NRCA and ARMA had two conference calls since April to discuss progress
  - Amanda Hickman’s team procured new 2021 IBC Chapter 15 language
  - Next call will be scheduled for the end of July

PCBTF Update
  - OEHHA (CA Office of Environmental Health Hazard Assessment) – we expect OEHHA to release the final cancer risk factor in a couple months, at that point SCAQMD could proceed forward with their assessment.
  - SCAQMD (Southern California Air Quality Management District) – SCAQMD is still busy and will likely not start the PCBTF risk assessment until a Board member or environmental group requests they do so.
  - IARC (International Agency for Research on Cancer) - IARC has classified PCBTF as a Group 2B Carcinogen (“Possibly carcinogenic to humans“)

PFAS Update
  - Many states have now passed legislation regulating PFAS chemicals with limitations much lower than the EPA has set
  - EPA issued a “PFAS Action Plan”
    - Received 120,000 public comments
    - Published new method for testing for PFAS in drinking water
    - Published recommendations for addressing contaminated drinking water
    - Continues to compile and assess human & ecological toxicity information

RICOWI
  - Discussion regarding the WIP & HIP programs
  - Should they continue?
  - How to fund?