



**Friday, January 13**

	Komatke D	Komatke A	Komatke B
8:00 AM	Codes & Standards 8:00 - 9:00		
8:15 AM			
8:30 AM			
8:45 AM			
9:00 AM	Code Development 9:00 - 10:00 Hickman	PVC Environmental 9:00 - 10:00 Stanley	
9:15 AM			
9:30 AM			
9:45 AM			
10:00 AM	VOC Reg Monitoring 10:15 - 11:00 Bates	Digital Content & Communications 10:00 - 10:30 Montoya	Internal Positive Pressure 10:30 - 11:00
10:15 AM			
10:30 AM		VR-1 Review 10:45-11:15 Darsch	
10:45 AM			
11:00 AM	DORA™ Listing 11:00 - 12:00 Ennis	Education 11:30 - 12:00 Chamberlain	Code Compliance 11:15 - 11:45 Cadena/Younkin
11:15 AM			
11:30 AM			
11:45 AM			
12:00 PM	<b>Lunch</b> Komatke C		
12:15 PM			
12:30 PM			
12:45 PM			
1:00 PM	Rooftop Attachments 1:00 - 1:30 Blasini	D6878 TPO Considerations 1:00 - 1:30 Sanborn	MPO-1 Standard Development 1:30 - 2:15 Childs/Shyti
1:15 PM			
1:30 PM	Lightning Protection 1:30 - 2:00 Van Dam	VF-1 1:30 - 2:00 Mader	
1:45 PM			
2:00 PM	Technical Committee 2:15-3:15 O'Neal		
2:15 PM			
2:30 PM			
2:45 PM			
3:00 PM			

SPRI  
Codes and Standards  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
8:00 a.m.



## AGENDA

- I. Call to Order M. Ennis
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Codes
- IV. Industry Associations
- V. Standards
  - A. ANSI activity
  - B. ASTM activity
  - C. SPRI standards

### **Task Force Objective:**

– *Mike Ennis, SPRI*

The objectives of the Codes & Standards Task Force are to provide timely and pertinent information on Codes & Standards that may affect the sale and use of sheet membrane roofing systems and the components used in those systems. The Task Force will respond promptly to issues relating to Codes and Standards based on the consensus of the SPRI membership. As of January 2014, the Cool Roof Codes update will be provided in the Codes & Standards meeting.

SPRI  
Code Development  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
9:00 a.m.



#### AGENDA

- I. Call to Order A. Hickman
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review Code Development Task Force Objectives
- IV. Adjournment

**Task Force Objective:**

– *Amanda Hickman, SPRI*  
*start date 10/2010      budget: \$0*

The objective of the Code Development Task Force is to develop and advocate for safe, technically correct, and easily enforced code language while also promoting the goals of the SPRI's membership.

SPRI  
VOC Reg Monitoring  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
10:15 a.m.



## AGENDA

- I. Call to Order J. Bates / H.B. Fuller
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Rule 1168 Update
  - a. Summary of Rule 1168 approved by SCAQMD Governing Board on 11/4/22
  - b. Review vote and comments from meeting
- IV. Updates on revisions to LEED's VOC definition
- V. Canadian VOC Regulation Update
- VI. Other VOC issues
- VII. Adjournment

*–Justin Bates, H.B. Fuller*

*start date 01/2017 budget: \$0*

The mission of this Task Force is to monitor, inform, and address any VOC changes that could affect the roofing market in ways that are in compliance with SPRI's Antitrust policy.

SPRI  
DORA™ Listing Service  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
11:00 a.m.



#### AGENDA

- I. Call to Order M. Ennis
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Steering Committee Update
- IV. Adjournment

SPRI  
Rooftop Attachments  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
1:00 p.m.



## AGENDA

- I. Call to Order D. Blasini
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review Status of White Paper
- IV. Discuss any Editorial Actions Needed from the Task Force
- V. Open Discussion on White Paper Promotion/Education
- VI. Vote to Disband Task Force
- VII. Adjournment

### **Task Force Objective:**

– Daniel Blasini, Anchor Products, Stephen Childs, OMG Roofing Products, Jodi Thomas, TruFast  
start date 10/2021      budget: \$0

The objectives of this Task Force create a guidance document on how to attach rooftop equipment.

SPRI  
Lighting Protection  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
1:30 p.m.



#### AGENDA

- |      |   |            |
|------|---|------------|
| I.   | Call to Order                                   | B. Van Dam |
| II.  | Roll Call & Reading of SPRI Antitrust Statement |            |
| III. | Review Code update – approved language in 2024  | A. Hickman |
| IV.  | Discuss Issue with Florida Outreach to LPI      | A. Hickman |
| V.   | Mind Mapped LPI White Paper                     |            |
| VI.  | Adjournment                                     |            |

SPRI  
Technical Committee  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
2:15 p.m.



## AGENDA

- |       |   |                 |
|-------|---|-----------------|
| I.    | Call to Order   | J. O'Neal       |
| II.   | Roll Call & Reading of SPRI Antitrust Statement                                 |                 |
| III.  | Minutes: Vote on approval of the minutes of the October 2022 meeting (attached) |                 |
| IV.   | Review of Completed Objectives  | O'Neal          |
| V.    | Review of SPRI Task Force Process Document                                      | O'Neal          |
| VI.   | Task Force Reports  |                 |
|       | a. Code Development   | A. Hickman      |
|       | b. Codes & Standards  | M. Ennis        |
|       | c. Code Compliance  | Cadena/Younklin |
|       | d. D6878 TPO Considerations for Revision  | W. Sanborn      |
|       | e. DORA™ Listing Service  | M. Ennis        |
|       | f. Environmental PVC  | S. Stanley      |
|       | g. Internal Positive Pressure   |                 |
|       | h. Lightning Protection   | B. Van Dam      |
|       | i. MPT-1 Standard Development   | Childs/Shyti    |
|       | j. Rooftop Attachments  | D. Blasini      |
|       | k. VF-1 Revision  | C. Mader        |
|       | l. VOC Regulatory Monitoring  | J. Bates        |
|       | m. VR-1 Revision  | M. Darsch       |
| VII.  | New Business  |                 |
| VIII. | Adjournment   |                 |



SPRI  
Technical Committee  
Doubletree at Raleigh-Durham Airport  
Durham, NC  
October 18, 2022

## Minutes

### Call to Order

Technical Director Mike Ennis called the meeting to order at 3:00 p.m. ET .The SPRI Antitrust Statement was read.\*

### Roll Call

*Those present were:*

Mike Ennis, SPRI  
Justin Bates, HB Fuller  
Keith Berg, CertainTeed LLC  
Daniel Blasini, Anchor Products, LLC  
Adam Burzynski, Carlisle Construction Materials  
Scott Carpenter, SFS  
Brian Chamberlain, CCM  
Stephen Childs, OMG Roofing Products  
Todd Corley, Siplast  
Michael Darsch, Sika  
Brian Davis, GAF  
John Doyle, Flex Membrane  
Nick Eschhofen, Trufast  
Heather Estes, GAF  
Carl Flieler, Element Materials Technology  
Tony Fuller, National Gypsum  
Bob Griffiths, Holcim  
Colin Griswold, OMG Roofing Products  
David Hawn, DRH  
George Howell, Martin Marrietta  
Al Janni, Duro-Last  
Joel King, IB Roof Systems  
Norbert Lash, HB Fuller  
Bob LeClare, ATAS  
Paul Linton, Hickman Edge Systems  
Christopher Mader, Blue Ridge Fiberboard  
Rick Martelon, Johns Manville  
Walter McIntosh, Holcim  
Christopher Meyer, FiberTite

Martin Moesgaard, Metal-Era  
Rick Montoya, Acme Cone Company  
Steve Moskowitz, Atlas Roofing Corporation  
Randy Ober, Consultant  
Hayden O'Brien, Canadian General Tower  
Karan Patel, Holcim  
Zach Priest, PRI \_CMT  
Brian Randall, National Gypsum  
Robert Reel, HB Fuller  
Kevin Reinheimer, SFS  
Andrew Reynolds, Benchmark, Inc.  
Jim Rubenacker, Sika Sarnafil  
Vincent Sandman, Holcim  
Jordan Scott, Canadian General Tower  
Kurt Sosinski, Tremco CPG Inc  
Joel Stanley, Anchor Products, LLC  
Shawn Stanley, optional  
Michelle Sluga, UL Solutions  
Sid Teachey, IB Roof Systems  
Paul Terry, HB Fuller Construction Adhesives  
Jodi Thomas, Trufast  
Brad Van Dam, MTL Holdings  
Ryan Van Wert, FiberTite - Seaman Corporation  
Diana Vitiritti, SITURA Inc.  
Steven Wadding, Polyglass USA Inc  
Dan Wise, Intertek

*Staff present:*

Linda King, Managing Director  
Carl Silverman, Legal Counsel

\*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.

## **DORA™ Directory**

Technical Director Mike Ennis reported that the SPRI Strategic Planning Committee is recommending that the SPRI Board establish a seven-person steering committee to solicit information from listing companies and users and to develop recommendations for direction to move the program forward.

## **Task Force Reports**

*Code Development chair Amanda Hickman reported the following:*

- ICC codes 2024 editions currently under development;
  - Proposed changes will be reviewed during two technical hearings;
  - The code process is almost complete pending the final vote;
  - Florida Code is adopting an update; and
  - UL is proposing a new standard on flashing.

*Codes and Standards chair Mike Ennis reported the following:*

The full presentation has been posted to the Members Only section of the SPRI website.

*D6878 TPO Considerations for Revisions Randy Ober reported the following:*

ASTM has balloted the proposed change and received 8 negatives;and  
The negatives have not yet been resolved.

*ES-1 Revision chair Martin Moesgaard reported that:*

- The ballot is scheduled to close at the end of the day, October 18;
- All votes received to-date have been affirmative;
- If negatives are received, the Task Force will prepare responses; and
- Should the results be unanimously in favor, the final paperwork will be submitted to ANSI and the Task Force disbanded.

*Flexible PVC chair Shawn Stanley reported that:*

- The Task Force objective has been expanded to include the proposed banning by the EPA;
- All the Task Force objectives are being submitted to the SPRI Board for approval; and
- Other industry organizations, such as NRCA, CFFA, and the Vinyl Insitute have requested that they work together to create a document in response to the proposed EPA actions.

*Lightning Protection chair Brad Van Dam reported that:*

- Tyler Baumert of A/C Lightning and Brett Peifer of Mr. Lightning were thanked for their assistance in preparing the language that was approved by Code;
- The language will need to be updated before 2024;
- The development of an attachment detail guidance document is being considered; and
- A number of industry partners will assist in the development of a white paper which will be discussed further at the January Task Force meeting.

*NT-1 Revision chair David Hawn reported that:*

- The standard has been approved and is being prepared for publication; and
- The Task Force was disbanded.

*Rooftop Attachments co-chair Jodi Thomas reported that:*

- The white paper, written by Curt Lipscom, was reviewed and approved by the Task Force;

- A grammatical and editorial review will be provided; and
- In January, the Task Force will discuss if there should be a follow-up objective such as an AIA presentation or the writing of a blog.

On motion duly made, the Technical Committee, without objection, accepted the Task Force recommendation to approve the white paper and present it to the SPRI Board for approval.

*RP-14 Revision chair Chris Mader reported that:*

- The document was approved by ANSI In July and is being prepared for publication;
- There is extraneous information in the document that was relevant in previous versions of the standard, but is no longer needed; and
- The Task Force will immediately initiate a new canvass to clean up the document and recanvass it for approval.

*VF-1 Revision chair Chris Mader reported that:*

- There was a weak response to the call for canvass participants; and
- Additional participants are being sought before the first ballot is opened.

*VOC Regulatory Monitoring chair Justin Bates reported:*

- The Task Force reviewed the changes being balloted by SCAQMD;
- The timing of the banning of Tcbf is unknown;
- Using weight to determine metrics is being considered; and
- There is currently a Canadian Adhesive Survey for VOCs that SPRI Members can participate in.

*VR-1 Revision chair Mike Darsch reported that:*

- The standard is scheduled for re-approval or re-affirmation; and
- It is being reviewed for any necessary edits such as the required plantings and rewording of the coverage requirements.

*Website/Digital Content & Communication chair Rick Montoya reported that:*

- The critical items identified by the audit have been performed;
- Less critical items will be considered at a later date;
- The Committee will begin working with outside providers to prepare research and to write blog content; and
- The writing expense will be funded through the Promotion Committee budget for the balance of this fiscal year.

*Education Committee chair Brian Chamberlain reported that:*

- The Wind Design Seminar had 48 attendees;
- The survey results will be shared in January;
- The Committee is considering adding internal pressure and PVC membrane into the presentation; and
- How to provide content to architectural schools is being discussed.

*DORA Rule for Adding Fire and Impact Technical Director Mike Ennis reported that:*

On motion duly made, the SPRI Technical Committee, without objection, approved the recommendation to disband the DORA Rule for Adding Fire and Impact Task Force and to create a new task force to implement fire listings to the DORA Directory.

The Task Force requested that the DORA Steering Committee provide direction regarding the impact of hail vs. foot traffic.

**New Business**

*Air Handling*

It was suggested that a Task Force be created to create a white paper about the impact of air handling on the roof assembly. Three SPRI Member Companies volunteered to serve on this Task Force: OMG Roofing Products, Carlisle Construction Materials and Dedicated Roof & Hydro Solutions.

It was noted that the SPRI Task Force Process document has been approved and is now the guidance document for the development and function of SPRI Task Forces. A copy is attached to these minutes.

**Adjournment**

There being no further business, the meeting adjourned at 4:05 p.m. ET.

Submitted: Mike Ennis, Technical Director

*These minutes have been reviewed by SPRI Legal Counsel.*

## **SPRI Task Force Process**

### **SPRI Task Force Charging Statement:**

The SPRI Board of Directors (BOD) implements supervision, control, and direction of the affairs of SPRI including its committees, task forces and publications; determines SPRI's policies and programs or changes therein; implements SPRI's purposes and objectives; and supervises the disbursement of SPRI's funds.

### **SPRI Task Force General Information:**

Task Forces are created generally in one of two ways:

1. A minimum of three SPRI Member Companies must express interest in exploring an issue. The Technical Committee chair, Technical Director and Executive Director shall be informed of the Member Companies' request to form a new task force to explore the issue in question. The Technical Committee chair announces the formation of a new task force [TF\*] at the next quarterly meeting, solicits input, and records Member Companies interest in participating. One preliminary meeting, dedicated to discussing future activities of the proposed new TF, is permissible at the quarterly meeting. The Technical Committee chair announces the formation of the TF at the BOD meeting. Upon BOD approval, the TF is created under the Technical Committee. An appropriate announcement is made, and a time slot is allocated for the TF to meet at SPRI's next quarterly meeting.
2. A new task force may also be created directly by request of the BOD, with a clear and concise statement of objective(s) to be provided. The BOD must ensure that there are no less than three Member Companies participating.

### **Conduct in Task Force Meetings:**

All task force meetings (including TF meetings) shall be conducted in accordance with SPRI Bylaws, applicable SPRI policies, and pursuant to the current edition of Roberts Rules of Order Newly Revised ("Roberts Rules" or "RONR").

### **Keep the Main Thing the Main Thing - Developing a Statement of Objective(s):**

- a. A TF shall develop a clear and concise statement of objective(s) to present to the BOD not later than the second SPRI meeting following its creation. The objective(s) to be presented should include either a health & safety, economic, or general statement of justification, and an explanation of why and how the TF will advance the best interests of SPRI and its Member Companies and/or the roofing industry. The TF's statement of objective(s) shall also contain an expected completion date (preferably to include month & year). This statement of objectives shall be presented by the Technical Committee to the BOD for its approval. The

\*TF refers to a new task force

BOD may also vote to extend timelines for the TF to pursue the objective(s). BOD feedback to the TF will generally be provided and in writing.

- b. The subsequent work of the TF shall be focused on accomplishing the approved objective(s) as have been articulated in the clear, concise statement to the BOD.
- c. If funds are, or can be expected to become, required to complete objective(s), the TF shall develop and deliver - through the Technical Committee to the BOD - project milestones before SPRI funds are committed to the TF project.
- d. Any revisions to the statement of objective(s) or project milestones shall be considered and approved by the BOD. BOD feedback to the TF will generally be provided and in writing.
- e. Beyond d., above, as to Vendor/Test/Third Party Needs - Proposal Development & Review (if applicable), the TF chair shall:
  - i. Develop a list of testing, or other outside needs, required to accomplish the TF task - to be approved in the TF meeting;
  - ii. Develop an outline for proposal development to procure the agreed upon testing, or other outside needs, required to accomplish the TF task – to include an estimated budget if possible – all to be approved in the TF meeting;
  - iii. Develop a potential vendor list capable of delivering the outside or third-party results/services identified in item [ii] above - to be approved in the TF meeting;
  - iv. Present the outline and proposed vendor list for Technical Committee review and authorization to proceed - to include developing a request for proposal (RFP) if applicable, and in all cases to SPRI counsel for legal review; and
  - v. Forward the work product and recommendations resulting from items [i-iv], above, in a clear, concise and timely manner to the Technical Committee.

### **Conduct of Task Force Chair:**

**Pre-meeting:** TF meeting agenda shall be submitted to SPRI staff in advance of the next meeting and conference call, preferably with not less than fourteen days' notice.

### **Day of Meeting:**

- a. After a TF meeting “roll call” is completed, and the SPRI antitrust statement is read, an attendance sheet shall be circulated, with each attendee’s signature thereon confirming his/her commitment to abide by SPRI’s Antitrust Policy.
- b. TF participation is open to all SPRI Member Companies, their members and representatives, and SPRI staff and other SPRI-approved attendees, if any. TF meeting voting shall be conducted per “Conduct in Task Force Meetings”, above.
- c. The statement of objective(s) and milestones (as applicable) shall be presented at the beginning of each TF meeting.

### **Task Force Meeting Communications:**

- a. The TF chair, or designee, shall provide minutes along with the attendance sheet to SPRI staff for publication on the “Members Only” section of the SPRI website.
- b. The TF chair shall provide a summary of TF progress and milestones, and may review its objective(s), to the Technical Committee at SPRI’s quarterly meetings.

### **Completion of TF Objective(s):**

- a. Once the TF has completed its objective(s), an announcement will be made at the next SPRI Technical Committee meeting to that effect. The Technical Committee will communicate the TF’s progress, and its request to disband, and approval from the Technical Comm, if appropriate. The BOD shall then consider and vote to approve the TF’s “disbandment”, if deemed appropriate.
- b. If a TF is unable to complete the objective(s), or intermediate milestones, as applicable, the progress of the TF shall be reported to the BOD by the Technical Committee at the next meeting.
- c. A new task force or “successor TF”, with a revised statement of objective(s), may be considered and approved by the Technical Committee, if such is considered to be appropriate, which approval may be presented to the BOD from the Technical Committee, for consideration and approval by the BOD, if warranted.
- d. If so, the BOD may create a new task force or “successor TF”, with the process of its creation including consideration of milestones, timelines, funding, RFPs, etc., to be repeated, once again.

### **SAMPLE SPPI STATEMENT OF OBJECTIVE(S) (below)**

#### **The objective(s) of this SPPI Task Force are:**

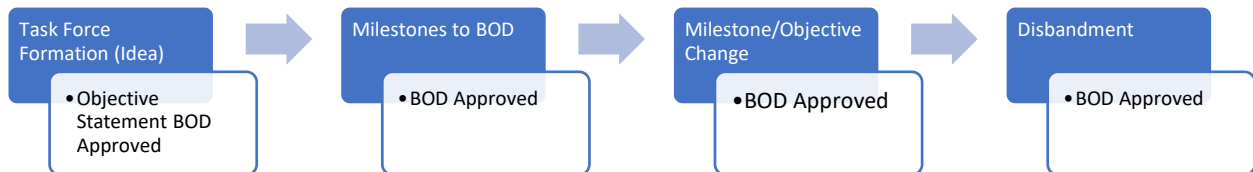
1. To define and improve the process for SPRI task forces to deliver BOD-approved and funded deployments; and
2. The SPPI Task Force shall discuss, define, and deliver an improved “stage gate process” for SPRI to utilize in its creation and implementation of new task forces.

### **SAMPLE SPPI STAGE GATE MILESTONE STATEMENT OF PROCESS (below):**

#### **The milestones this Task Force aspires to undertake and to report progress back to the SPRI BOD quarterly are:**

1. Research and review existing SPRI task force process and operations for improvement opportunities;
2. Deliver an improved process and operations recommendation document by Q3 meeting 2022 for BOD approval; and
3. Disband SPPI Task Force upon BOD approval of a new and improved process.

### **SAMPLE SPPI STEP DOWN**





SPRI  
PVC Environmental  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
9:00 a.m.



## AGENDA

- I. Call to Order S. Stanley
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review the email sent to LBC and hold an open discussion how to best make contact
- IV. Update on the new EPA intent to designate PVC as a hazardous material  
As of 12/29/2022: SPRI has not heard from the EPA on how they are leaning toward the petition.
- V. Other Topics – Volunteers to research reports on all Phthalates as endocrine disrupters
- VI. Adjournment

### **Task Force Objectives (Draft)**

*Shawn Stanley, IB Roof*

*Created 07/2022      Budget - \$0*

### **The objective of the Environmental PVC Task Force**

- To collaborate with interested industry parties to remove flexible PVC roofing membranes from the Red List.
- Educate Living Building Challenge and LEED to acknowledge and differentiate flexible PVC roofing materials from other PVC uses types and categories.
- Explore alternate offsets or trade-offs to resolve Red List exceptions.
- Combat possible regulations on a national level that are biased against flexible PVC roofing membranes.

SPRI  
Digital Content & Communications  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
10:00 a.m.



#### AGENDA

- I. Call to Order R. Montoya
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Website update status
- IV. Blog Topics and Schedule
- V. Adjournment

SPRI  
VR-1 Review  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
10:45 a.m.



## AGENDA

- I. Call to Order M. Darsch
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Discuss proposed changes to the Standard (attached)
- IV. Review of precavass list (attached)
- V. Adjournment

**Draft Task Force Objective:**

*start date 10/2022 budget: \$0*

The objective of the VR-1 Review Task Force is to review the current ANSI approved document, make edits if necessary and canvass for either reaffirmation or approval.



**ANSI/SPRI VR-1 2018**  
**Procedure for Investigating Resistance to Root  
or Rhizome Penetration on Vegetative Roofs**

Approved June 11, 2018

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**Disclaimer**

This standard is intended for use by architects, engineers, roofing contractors, and owners of low-slope roofing systems. SPRI, its members and employees do not warrant that this standard is proper and applicable under all conditions.

## 1.0 Purpose of This Standard

This standard is intended for testing the resistance of the *root barrier* component used in vegetative roof assemblies to normal *root* or *rhizome* penetration.

## 2.0 Scope

The test described in this standard has been developed to evaluate plant growth and the ability of a *root barrier* to resist normal *root* or *rhizome* penetration. This test is based on the FLL "Procedure for Investigating Resistance to *Root* Penetration at Green Roof Sites." The FLL procedure was developed in Germany and is based on findings and testing experience of evaluations of various materials over a number of years. This test is intended to build on this experience and provide an equivalent evaluation protocol for North American test sites.

This procedure includes testing of the *root barrier*, seams, edges and all methods of attachment. The test standard excludes any component material within the vegetative roof assembly not being exposed to *roots* or *rhizomes*.

The test is intended to evaluate the *root barrier's* resistance as a physical barrier. *Root barriers* based on chemical inhibitors may be evaluated using this procedure; however, it should be noted that the procedure is not suitable for evaluating long-term chemical stability or long-term performance of these barriers.

The findings for any *root barrier* which has been tested shall not apply with plants with strong *root* or *rhizome* growth (e.g. Bamboo or Chinese Reed varieties). When using such plants, additional measures shall be taken and special care shall be specified by the designer of record.

The test procedure does not evaluate waterproofing ability, environmental compatibility, or long-term stability (i.e. temperature changes, UV light, microbial attack, etc.) of the *root barrier*. (See C2.0)

## 3.0 Definitions

All words defined within this section are italicized throughout the standard. The following definitions are used in this document:

### 3.1 Root Barrier

Any material intended to prevent penetration of *root* or *rhizome* growth.

### 3.2 Trial Container

A container with specified minimum dimensions to be used for the growing of plants, the examination of the *roots* or *rhizomes*, and where the installed *root barrier* will be tested. (See 5.4)

### 3.3 Growth Media

An engineered formulation of inorganic materials including but not limited to, heat-expanded clays, slates, shales, aggregate, sand, perlite, vermiculite, as well as organic materials including but not limited to, compost worm castings, coir, and peat. The formulation and installation of *growth media* with the *trial container* shall offer water and air management properties to promote plant growth. It shall be given fertilization for optimum development of the test plants. (See 5.7 and 5.8) The *growth media* shall be in direct contact with the *root barrier* to be tested.

### 3.4 Root or Rhizome

Since the evaluation differentiates between *roots* or *rhizomes*, a reliable determination of these subterranean plant organs is indispensable. The following indications serve as a basis for the evaluation:

- ▶ *Roots* vary in thickness and show several branches. Leaves never form, and *roots* are not hollow. (See 4.1 *Pyracantha Coccinea* "Orange Charmer" and Figure 1)
- ▶ *Rhizomes* expanding in the *growth media* show a regular thickness of approximately 0.79 in (20 mm) and few branches. They are divided into

different sections with knots forming the boundaries between the sections. Around the knots inconspicuous small leaves surrounding the stem as well as thin *roots* have formed. In between the knots the couch grass *rhizomes* are hollow (See 4.1 *Elymus Repens* “Couch Grass” or “Quack Grass” and Figure 1)

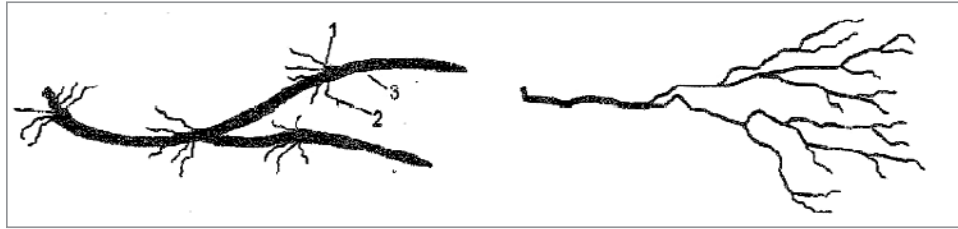


Figure 1: Schematic representation Of “Couch Grass” *rhizome* (left) with knots (1), *roots* (2) and leaves (3). “Orange Charmer” *root* (right).

#### 4.0 Test Plant Growth

##### 4.1 Plants

- ▶ ***Pyracantha Coccinea***: “Orange Charmer” a woody ornamental plant species which under greenhouse conditions shows an all-year round growth suitable for the test.
- ▶ ***Elymus Repens* (aka *Agropyron Repens*)**: “Couch Grass or Quack Grass”, an indigenous grass with slow-growing *rhizomes*, a common weed species found on many roofs with a moderately aggressive rhizomatous growth habit and which also grows sufficiently all-year under the given testing conditions.

##### 4.2 Classification of Plant Growth Coverage Performance

Plant growth coverage shall be visually evaluated monthly with the following scale:

- Inadequate: <60% surface coverage
- Moderate: 60–75% surface coverage
- Adequate: >75% surface coverage

##### 4.3 Plant Growth Coverage

Within 3 months of the onset of the test, plant growth coverage of the media shall be in excess of 60% of the surface, and there shall be evidence of new growth and plant *roots* or *rhizomes* shall be visible at the bottom of the control containers. Plant growth coverage shall remain dense (>75% surface coverage and a dense mat of *roots* or *rhizomes* at the bottom of the control containers) throughout the remainder of the test procedure (Figure 2). If <60% plant growth coverage is not attained after 3 months terminate and restart the test, or wait until 60–75% coverage is attained. The test duration shall be extended to account for the delay in achieving 60–75% coverage. This condition shall be noted in the test report. *Root* or *rhizome* surface coverage shall be determined using the methodology presented in Section 6.1.

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 Vegetative Roofs

Approved  
 June 11, 2018

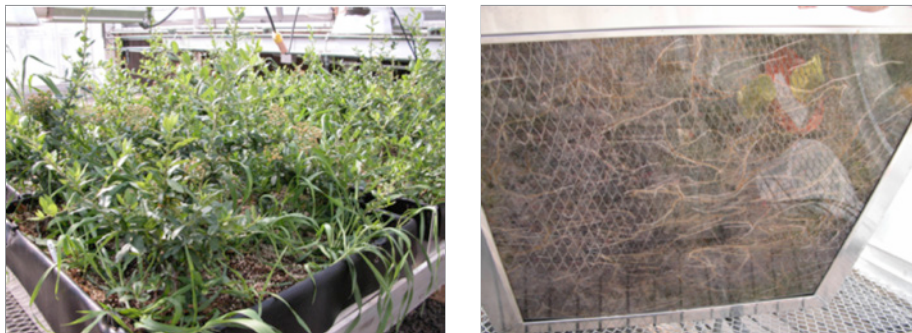


Figure 2: Adequate healthy plant growth (>75% coverage) in a trial container and dense root mat visible at the bottom of a control container.

## 5.0 Testing Procedure

### 5.1 Description of the Procedure

The test shall be conducted in a climate-controlled greenhouse with environmental conditions maintained to promote continuous year-round growth of *Pyracantha* or *Elymus*. The standard procedure is 2 years to ensure 24 months of active plant growth. Test periods longer than 24 months may be warranted to evaluate long-term stability of radicide materials. Plant growth procedures at individual test sites shall be modified based on local environmental conditions to ensure aggressive plant growth. However, in no instance shall the test have duration of less than 21 months after the requisite 60% *root* or *rhizome* surface coverage is achieved (See 4.3). Any modification from the standard procedure and the reason for the modification shall be noted in the test report.

Plants installed in a commercial greenhouse or nursery *growth media* in the *trial containers* with dense planting, moderate fertilization and modest watering obtain the desired vigorous growth and high *root* or *rhizome* pressure for evaluation. (See Sections 5.4, 5.6, 5.7 and 5.8).

At the evaluation at the end of the trial, the *growth media* shall be removed from the container and the *root barrier* shall be examined to detect *root* or *rhizome* penetration or adhesion (See 6.3). Control samples of any *root barrier* tested shall be saved and stored in a dark location at an average temperature of 77°F (25°C) ± 5° for comparative examination at the end of the trial.

### 5.2 Testing Location

A greenhouse equipped with heating and ventilation facilities shall be provided. The heating system shall be set to 65°F (18°C) ± 5° during the daylight hours and 60°F (15°C) ± 5° at night. Ventilation set points shall be 75°F (24°C) ± 5° during the daylight hours and 70°F (21°C) ± 5° at night. Maximum daylight or night temperature shall not exceed 122°F (50°C) ± 5° or be above 104°F (40°C) ± 5° for more than 1 hour. Minimum daylight or night temperature shall not be less than 45°F (7°C) ± 5°. Adequate space shall be provided to ensure that all containers can be accessed to be evaluated and maintained.

Supplemental lighting shall be used to augment natural light where winter day length or light intensity results in less than 6 moles per square meter per day monthly average irradiance between 400 and 700 nm. Sufficient supplemental light shall be applied to bring the daily total irradiance to a minimum of 6 moles per square meter per day. This shall be accomplished by using indoor plant grow lights. Lights shall use a minimum 7200°K full spectrum bulb which promotes overall plant growth. This can be obtained by high CRI fluorescent lamps or Metal Halide to better stimulate average North Sky. Lights shall be placed no more than 2 ft (0.6 m) from the plant material in the *trial containers*. Lights shall operate on 12-hour cycles until natural lighting conditions improve.

### 5.3 Test Duration

Following setup, the test shall run for a minimum of 24 months of equivalent plant growth.

### 5.4 Trial Containers

*Trial containers* shall provide adequate space to install the *root barrier* to be used. The minimum internal dimensions of the containers used in the trial shall not be less than 32 in x 32 in x 10 in (800 mm x 800 mm x 250 mm). (See C5.4)

*Trial containers* shall be fitted with transparent bases (e.g., acrylic glass) so that *root* or *rhizome* penetration can be detected even during the test phase without interfering with the *growth media*. (Figure 3)

For each *root barrier* to be tested, six *trial containers* shall be used. In addition, per experimental run—regardless of the number of *root barriers* to be tested—three control containers (without any *root barrier*) shall be provided.



**Figure 3:** Sample trial container. Note the interior metal fold to support the clear Plexiglas base.

**5.5 Root Barrier to be Tested**

The *root barrier* shall be supplied and installed in the *trial containers* per the manufacturer's specifications and shall contain seams or joints as shown in Attachment 1 and Attachment 2. The *root barrier* shall be laid according to Section 5.11. Liquid coating *root barriers* shall be applied according to Section 5.11.1.

**5.6 Growth Media**

*Growth media* shall be a greenhouse or nursery product commercially available or composed onsite. When a commercial product is used the manufacturer and lot number shall be recorded. If composed onsite, the formulation shall be recorded. EC and pH will be measured using a standard saturated paste method. (See C5.6)

**5.7 Fertilizer**

Fertilization by liquid feed or slow release fertilizer with complete macro and micro-nutrients shall be used to encourage plant and *root* or *rhizome* growth. Fertilizer shall be applied at the low or moderate rate recommended by the fertilizer manufacturer for containers of the size used to maximize plant growth. Formulations and quantities of fertilizer applied shall be recorded and included in the final report. (See C5.7)

**5.8 Irrigation**

Plants shall be watered with good quality water suitable for greenhouse or nursery crop production. Plants shall be watered as needed based on local environmental conditions to maximize plant growth. Irrigation may be done by hand or by an automated system. In either case plants shall be allowed to dry between irrigation applications, and the *growth media* shall be thoroughly wetted with each irrigation application.

**5.9 Samples and Information Provided by the Manufacturer**

To ensure a clear identification of the tested product, the following information shall be provided by the manufacturer before the test is started: product name, material description, material standards, thickness, surface finish or structure, test certificates, year of manufacture, seaming or jointing procedures (e.g. spacing overlap, seaming technique, seaming agents, type of seam sealing, cover strips over seams, special corner and angle joints), and, if applicable, admixture of biocides (e.g. *root* inhibitors) with details regarding the concentration of the substances.

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Resistance to Root or  
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## 5.10 Preparation and Installation of the Trial Container

*Trial containers* shall be prepared with the following layered superstructure (from bottom to top), plexiglass *trial container* base, *root barrier* to be tested, *growth media*, plantings.

After the installation of the *root barrier* (See 5.11) to be tested, the *trial containers* shall be flood tested for 12–24 hours to ensure the waterproofing of the *trial container*.

The *growth media* shall be added to the *trial container* and compacted to a course depth of 5.9 in  $\pm$  0.39 in (150 mm  $\pm$  10 mm). (See C5.10)

Four pieces of *Pyraecantha Coccinea* per *trial container* of 32 in x 32 in (800 mm x 800 mm) shall be planted equally spread over the entire surface. Also, 0.07 oz (2 g) of seeds or 8–10 *rhizome* plugs of *Elymus Repens* shall be equally sown or planted uniformly in the *growth media* in each container.

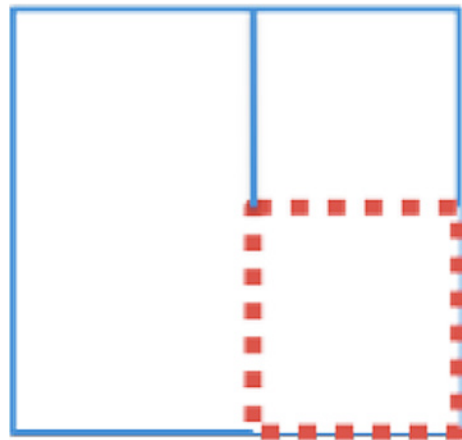
If larger *trial containers* are used, the number of plants and the quantity of seeds or plugs shall be increased so that at least the same plant density is reached.

## 5.11 Application of Root Barrier

Cut out the parts of the *root barrier* to be tested and lay them as required into the *trial containers*. Execute four seams at the corners where the walls meet, two seams along the base at the corners and one T-seam running along the middle. All *root barriers* must be installed per manufacturer's published requirements. (Attachment 1 and Attachment 2).

### 5.11.1 Application of Liquid Coating Root Barrier

The coating shall be brought up to the upper rims of the container walls. Seams or overlaps shall be included in the *trial container* installation for liquid applied materials equivalent to those described in Section 5.11. If the material being tested has minimum and maximum recoat windows, seams shall be created both within and outside the recoat window following the manufacturer's recommended procedures for each and outlined in Figure 4.



**Figure 4:** Seam or overlap pattern for liquid coating root barriers. Solid lines indicate seams and corners created within the recoat window. Dashed line indicates seams created outside the manufacturer's recommended recoat window.

## 5.12 Care of the Plants During the Growth Period

The *growth media* moisture content shall be set according to the needs of the plants by means of top watering onto the *growth media*. The grower at the test site shall visually evaluate water requirements every 1–3 days and irrigate as needed. Sufficient water shall be applied at each irrigation to thoroughly wet the *growth media* and to ensure a good germination and rooting of the plants in the first eight weeks after the greening process.

Dead plants shall be replaced during the first 3 months of the investigation. If during the course of the investigation the losses in terms of plants account for more than 25% of the total plant number installed in more than 2 of the 6 *trial containers* the test shall be terminated and repeated.

Maintain plants to aid in proper growth management. Pruning shall be kept to a minimum because excessive pruning will limit *root* growth. Pruning shall be done equally to both test and control plants. (C5.12)

Insufficient quack grass coverage (< 40% of the surface is covered) shall be improved by up to two units of repeat seeding or by dividing existing plants or adding additional *rhizome* plugs in the first three months of the test.

In case of pest attacks or plant diseases threatening the survival of the plants under testing, appropriate plant protection measures shall be carried out. Pesticide applications if necessary shall be kept to a minimum and the chemical class of the pesticides shall be carefully considered with the *root barrier* manufacturer to avoid the use of materials that might interact with the *root barrier* material.

### **5.13 Preparation and Installation of the Three Control Trial Containers**

Control *trial containers* shall be prepared and installed as described in Section 5.0, but without the installation of the *root barrier* material.

## **6.0 Evaluations**

### **6.1 Evaluation During Testing**

See Section 5.12 for proper irrigation and plant management. Plant damage such as deformations of the leaves or changes of leaf color shall be noted.

Inspection of all *trial containers* (test and control containers) shall be made once a month. This observation shall include visual evaluation of plant cover, plant appearance, new growth, and *root* or *rhizome* surface growth coverage at the bottom of the control *trial containers*. (See 4.2). A digital photograph of all *trial containers* (base and plants) shall be taken during this inspection. (See C6.1)

A formal evaluation of the transparent base of the 6 test *trial containers* shall be conducted in intervals of 6 months to detect for visible *roots* or *rhizomes* penetration.

### **6.2 Premature Test Termination**

If in the course of the test evaluations visible penetrations of *roots* or *rhizomes* into the *root barrier* to be tested is identified, the test shall be terminated. (See 4.6)

If during the test phase more than 25% of the plants are lost, the investigation shall be started anew, i.e., new plantings with new *growth media* shall be carried out.

### **6.3 Evaluation at the End of the Trial**

#### **6.3.1 Evaluation Procedure**

Evaluation commences with a final monitoring of the growth performance of the plants. Above-ground plant biomass for test *trial container* and control *trial container* shall be compared per below instructions.

After the above ground biomass has been removed and evaluated the *trial containers* shall be turned upside down and the *growth media* and *root* or *rhizome* mass removed.

In a successful test the entire *growth media* mass will be completely bound together by *roots* or *rhizomes* and will come out of the test *trial container* as a single mass. *Root* or *rhizome* density at the bottom of the containers shall be evaluated when the boxes are disassembled. *Root* or *rhizome* density at the bottom of the test *trial containers* shall be visually compared with *root* or *rhizome* density of the control *trial containers*. Successful plant growth is indicated by a solid mat of *roots* or *rhizomes* at the bottom of the control *trial containers*. *Root* density at the bottom of the control *trial containers* of less than 80% observed indicates poor test conditions and the test shall be repeated.

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Rhizome Penetration on  
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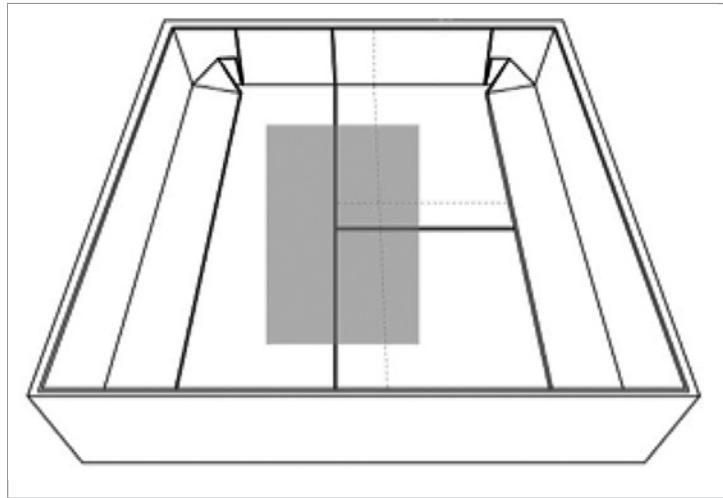
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June 11, 2018

After plant and *root* or *rhizome* evaluations, examine the *root barrier* material for *root* or *rhizome* adhesion or penetration. Wash with garden hose using gentle pressure to remove loose material. Examine remaining material to determine if *roots* or *rhizomes* have adhered to the surface of the *root barrier*. Examine under a 7x magnification microscope to determine if they are surface attached or have penetrated into the *root barrier*. *Root* or *rhizome* ingress or penetration into the *root barrier* shall be recorded in the test report. (See C6.3).

**6.3.2 Test Field Evaluation**

If more than 50 *roots* or *rhizomes* per container are found to have penetrated into but not through the *root barrier*, the evaluation on penetration shall be performed only on a section of the tested material. In this case, the evaluation shall cover at least 2 ft<sup>2</sup> (0.2 m<sup>2</sup>) equivalent to about 20% of the *root barrier* covered with the *growth media*, and shall be performed in the area indicated in (Figure 5). The penetration of *roots* or *rhizomes* into the field of the evaluation area shall be recorded.



**Figure 5:** Evaluation of penetrations into the surface of the root barrier with >50 penetrations per receptacle.

**6.3.3 Test Seam Evaluation**

The penetration of *roots* or *rhizomes* into the overlap area of seams shall be recorded. For retention purposes, samples of the *root barrier* shall be taken. The samples shall be compared to the control samples stored at the initial stage of the testing. (See 5.1)

**6.3.4 Failure Criteria**

A *root barrier* is deemed to have failed if *roots* or *rhizomes* have penetrated through the *root barrier* or seams in the *root barrier* material and are visible at the bottom of the *trial container* (Figure 6).

**Figure 6:** Root penetration on backside of tested root barrier.



#### **6.4 Test report**

Upon termination of the trial, a complete test report shall be prepared. The report shall contain the following information:

- ▶ Details provided by the manufacturer in relation to the *root barrier* under testing. (See 5.9);
- ▶ Description of the preparation of the *trial containers*; and
- ▶ All evaluation results in accordance with Section 6.0.

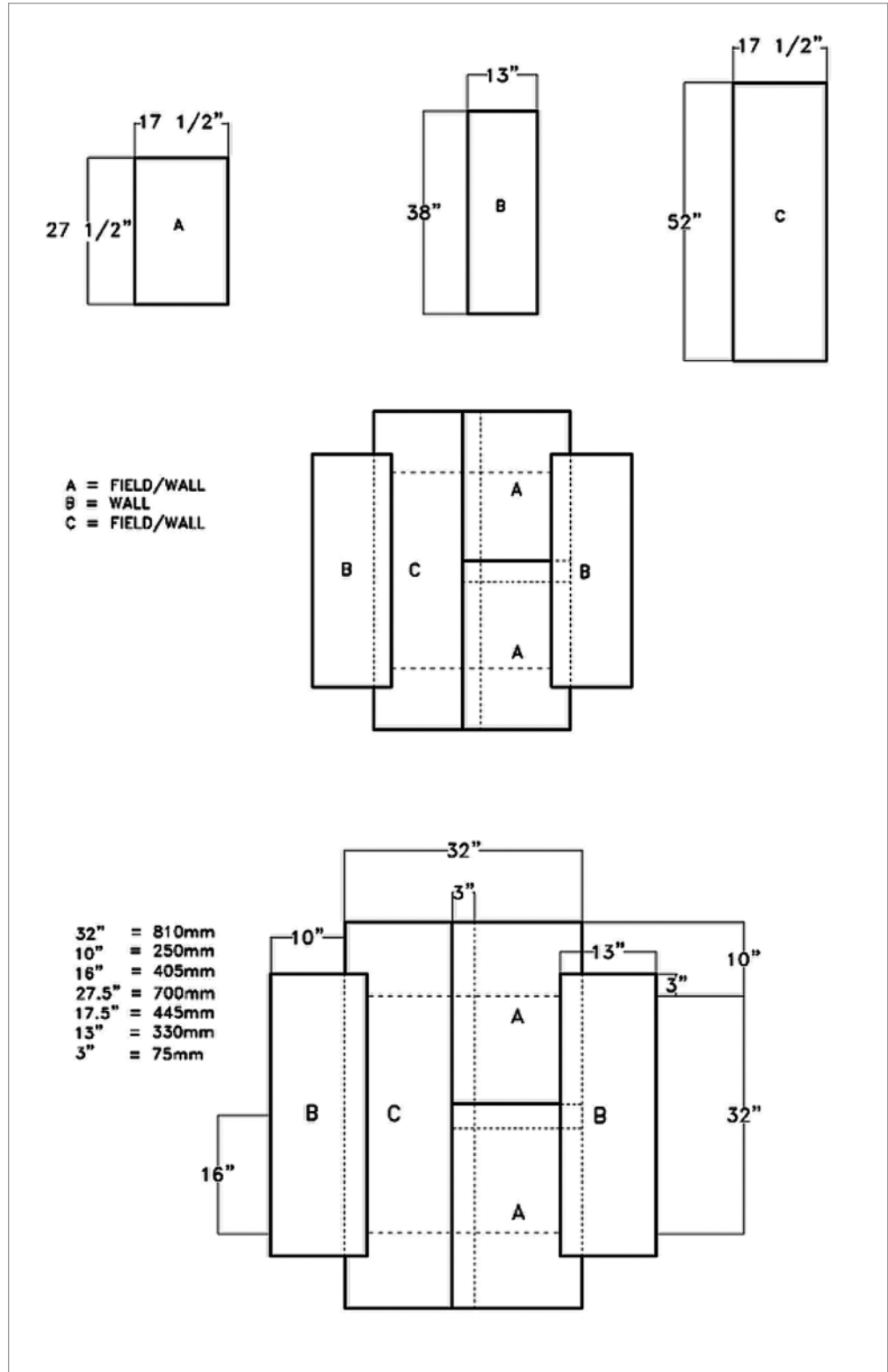
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Rhizome Penetration on  
Vegetative Roofs**

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June 11, 2018

# Attachments

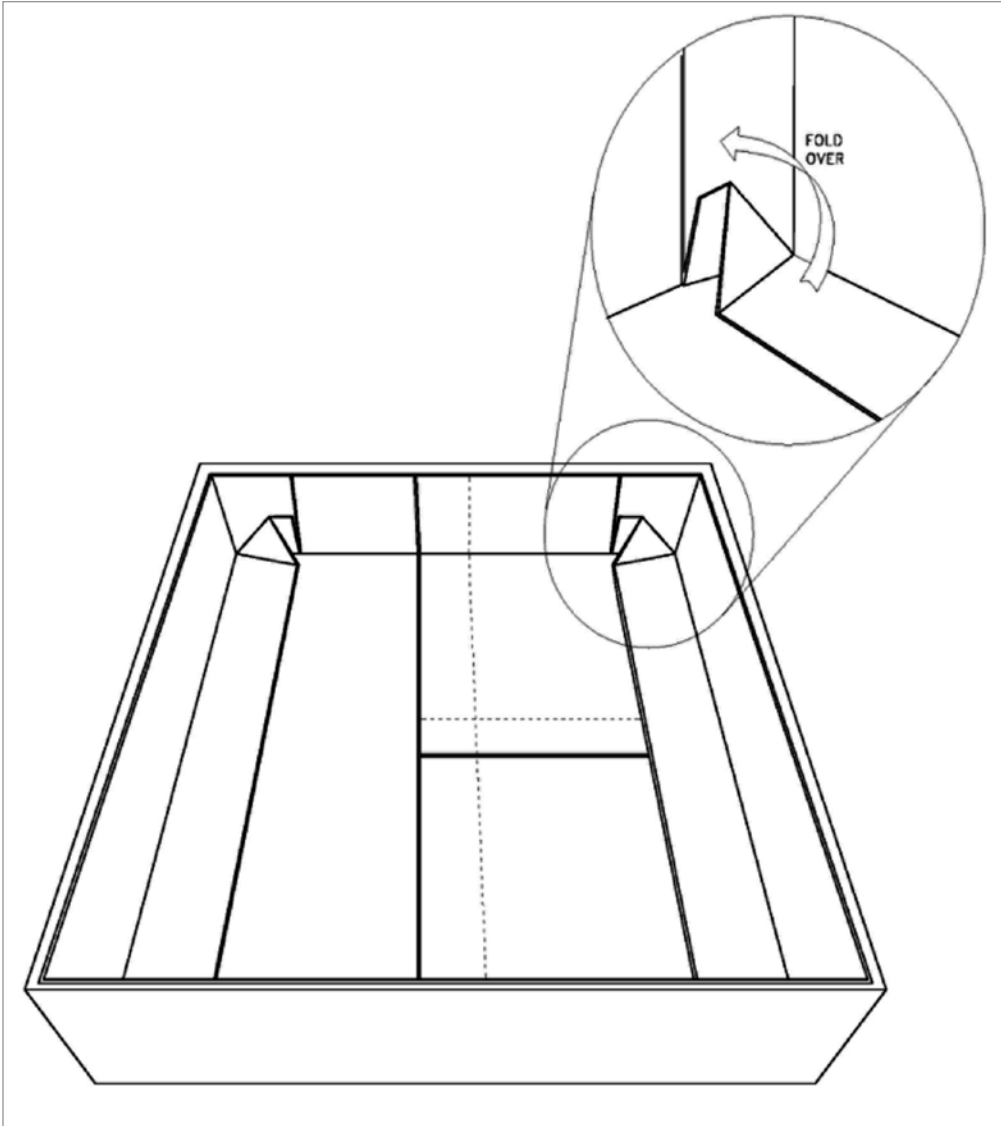
Attachment 1: Layout of the seams in the root barrier to be tested



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**Attachment 2: Trial container corner detail**



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Approved  
June 11, 2018

## Commentary

This Commentary is not a part of ANSI/SPRI VR-1 Procedure for Investigating Resistance to *Root* or *Rhizome* Penetration on Vegetative Roofs. It is included as supplemental information.

This Commentary consists of explanatory and supplementary material designed to assist users in applying the recommended requirements. It is intended to create an understanding of the requirements through brief explanations of the reasoning employed in arriving at these requirements. The following wording shall be included in introduction to the Commentary:

“The information contained in this Commentary is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI’s requirements for an ANS. As such, Commentary may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the standard.”

The sections of this Commentary are numbered to correspond to sections of the standard to which they refer. Since it is not necessary to have supplementary material for every section in the standard itself, there may be gaps in the numbering in the Commentary.

**C2.0** The goal of this test procedure is to maximize *root* or *rhizome* growth in contact with the *root barrier* being tested. The two moderately aggressive and vigorous plant species chosen represent a realistic threat to *root barrier* integrity when well grown. Plant growth procedures described in this test are intended to maximize *root* or *rhizome* growth.

**C5.4** Larger containers may be used if the circumstances under which they are to be installed so require. For example, a larger *trial container* would be needed to evaluate seaming details as they would be installed in the field.

**C5.6** Examples of commercially available *growth media* are Premier Horticulture Pro-Mix BX, Quebec, or other equivalent media. The substrate will require about 23 gal (88 L) per receptacle (taking into account a substrate supply via plant earth-clumps).

**C5.7** An example of commercially available fertilizer is Osmacote Plus 15-9-12 with a release over 6 months.

**C5.10** This corresponds to a substrate volume of 23 gal (88 L) for a receptacle of 32 in x 32 in (800 mm x 800 mm) It is advisable to place the receptacles on stands to facilitate *root* or *rhizome* penetration checks in regular intervals. Keep a minimum distance of 16 in (0.4 m) between and around the different receptacles.

**C5.12** Pruning is limited to side shoots if they are an obstacle to using walkways. Excessive pruning will limit *root* or *rhizome* growth.

**C6.1** To evaluate the *root* or *rhizome* surface growth coverage of the control *trial containers*, a digital photograph may be taken of the transparent base. The photograph can be processed at high contrast in order to highlight *root* or *rhizome* covered areas. The *root* or *rhizome* density as a percentage of total base area can be determined using appropriate image processing software.

**C6.3** *Root* or *rhizome* adhesion is defined as *roots* or *rhizomes* that stick to the surface of a material or imperfections in the surface of a material that are not easily washed off with a low pressure water stream. This may include *roots* or *rhizomes* that have entered surface air bubbles or craters in the surface of a material but not progressed beyond the limits of the surface imperfection. *Root* or *rhizome* adhesion does not include *roots* or *rhizomes* that stick to the material because of surface erosion or other degradation of the material.

Not to be identified as *root* or *rhizome* penetration but may be noted in the test documentation are:

- ▶ *Roots* or *rhizomes* that have grown < 0.2 in (5 mm) on a root barrier which contain radicide substances, since here any root or *rhizome* banning effect can only act upon the root or *rhizome* in the root barrier.
- ▶ *Roots* or *rhizomes* that have penetrated seam sealing components (without damaging the sealed seam).

First Name	Last Name	Company	Email
Mike	Ennis	SPRI, Inc.	m.ennis@mac.com
Tim	McQuillen	Johns Manville	tmcquillen@kellencompany.com
Phil	Smith	FM Approvals / FM Global	phillip.smith@fmapprovals.com
Timothy	Barrett	Barrett Co,	tim@barrettroofs.com
Mike	Darsch	Sika Sarnafil Inc.	darsch.michael@us.sika.com
Kelly	Lockett	Green Roof Blocks	kelly@greenroofblocks.com
Scott	Wolff	Henry Company	swolff@henry.com
T.W.	Freeman	TW Freeman Consultants	roof@windstream.net
David	Hawn	Dedicated Roof & Hydro-Solutions, LLC	drhawn@drhroofsolutions.com
Tom	Irvine	Benchmark, Inc.	TIrvine@benchmark-inc.com
Charles	Miller	Roofscapes	cmiller@roofmeadow.com
Maciek	Rupar	National Roofing Contractors Association	<a href="mailto:mrupar@nrca.net">mrupar@nrca.net</a>
Mader	Chris	Blue Ridge Fiberboard	<a href="mailto:cmader@blueridgefiberbaord.com">cmader@blueridgefiberbaord.com</a>
McFarland	Tim	Mule-Hide	<a href="mailto:tim.mcfarland@mulehide.com">tim.mcfarland@mulehide.com</a>
Meyer	Chris	Fibertite	cmeyer@seamancorp.com
Durhman	Angie		angie@adgreenroof.com
Kahn	Chris	Carlisle Constuction Materials	chris.kann@carlisleccm.com
Morris	Elizabeth		morris@greeuproofing.com

need to add in compass



SPRI  
Education Committee  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
11:30 a.m.



## AGENDA

- I. Call to Order B. Chamberlain
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Update on BOAF
- IV. Review Survey Information about Wind Seminar
- V. Ideas and thoughts
- VI. Adjournment

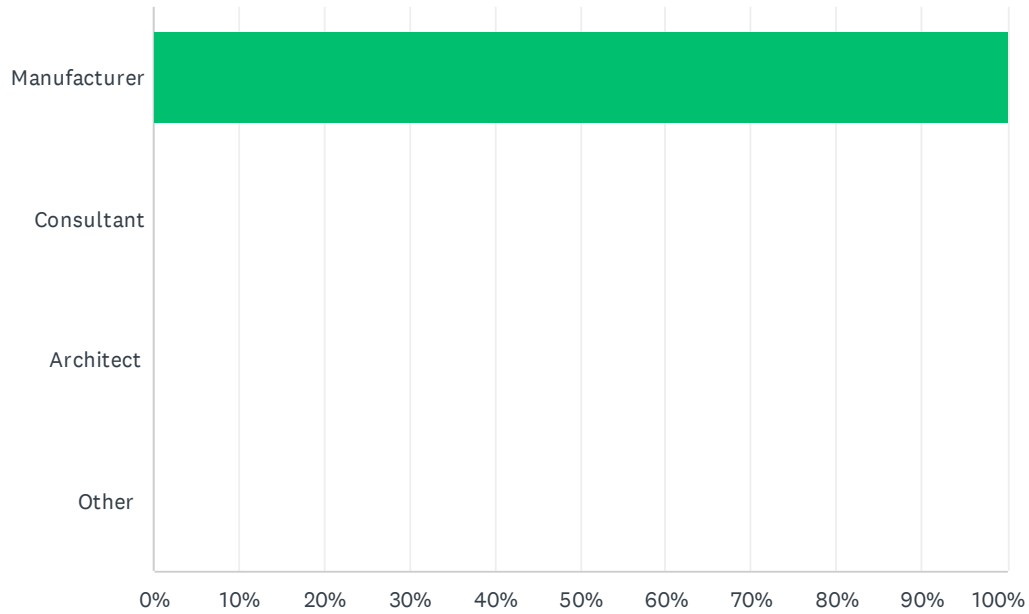
### **Task Force Objective:**

– *Brian Chamberlain, Carlisle Construction Materials*  
start date 01/2021 budget: \$0

The objective of this Task Force is to develop and conduct training programs for code officials, designers, installers and other interested parties. When appropriate, the Task Force will join with other industry organizations to expand the educational content.

## Q1 Please indicate your role

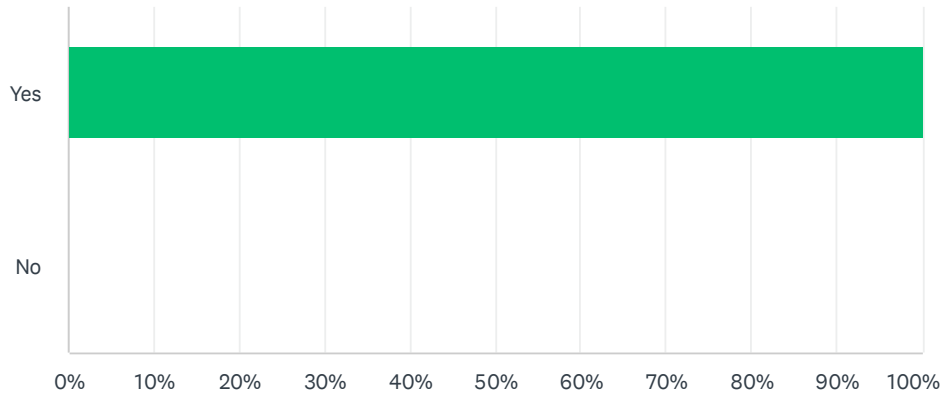
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES
Manufacturer	100.00% 9
Consultant	0.00% 0
Architect	0.00% 0
Other	0.00% 0
Total Respondents: 9	

## Q2 Did you watch the introductory video?

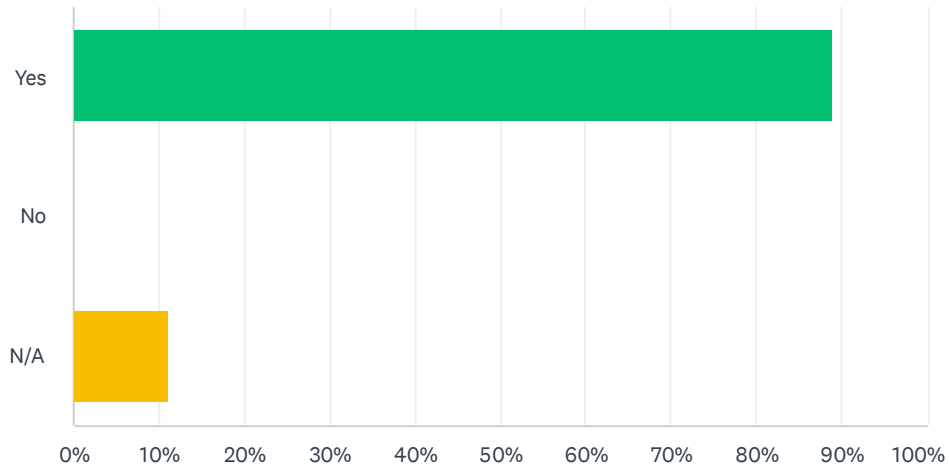
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	100.00%	9
No	0.00%	0
Total Respondents: 9		

### Q3 Did you find it useful for better understanding the seminar?

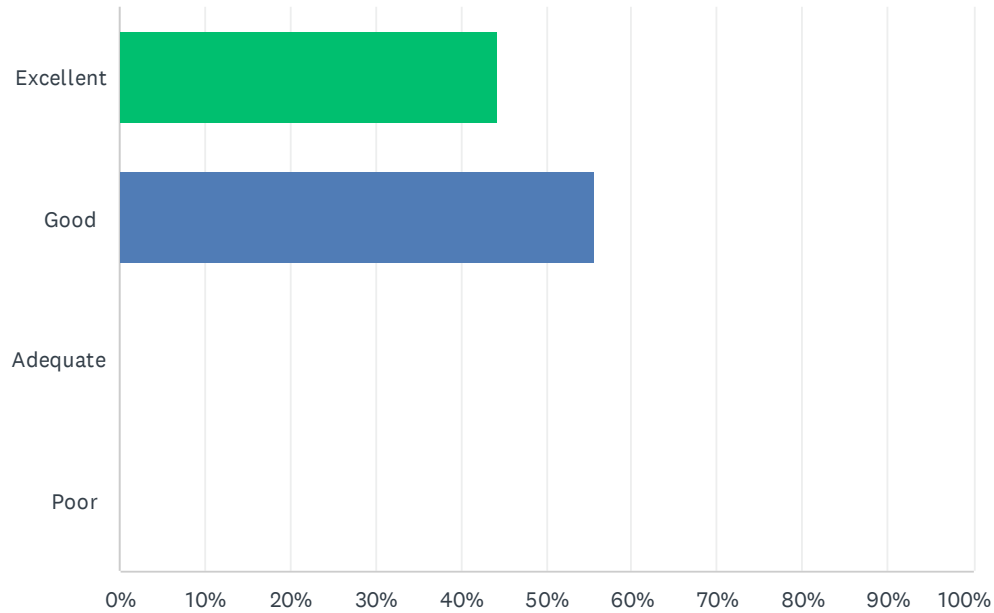
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	88.89%	8
No	0.00%	0
N/A	11.11%	1
Total Respondents: 9		

### Q4 Please rate the applicability/value of new knowledge, ideas, or information presented.

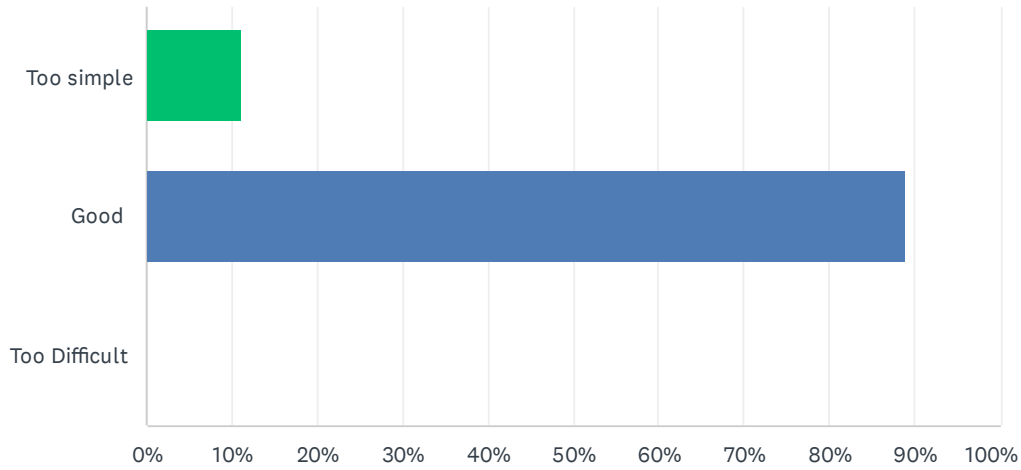
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Excellent	44.44%	4
Good	55.56%	5
Adequate	0.00%	0
Poor	0.00%	0
TOTAL		9

## Q5 How was the overall level of the material

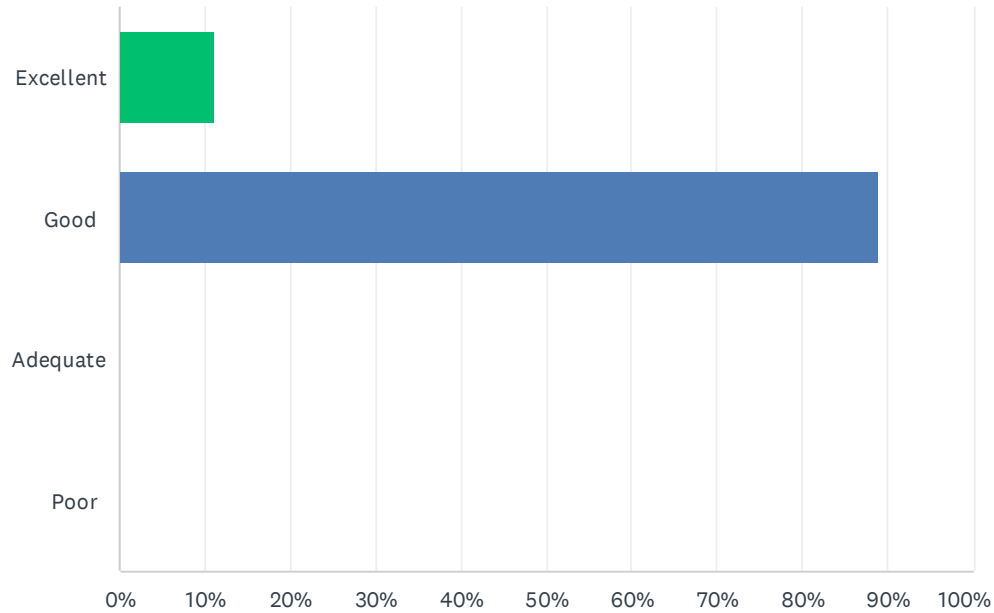
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES
Too simple	11.11% 1
Good	88.89% 8
Too Difficult	0.00% 0
<b>TOTAL</b>	<b>9</b>

## Q6 Please indicate the level in which your overall objectives for attending were met:

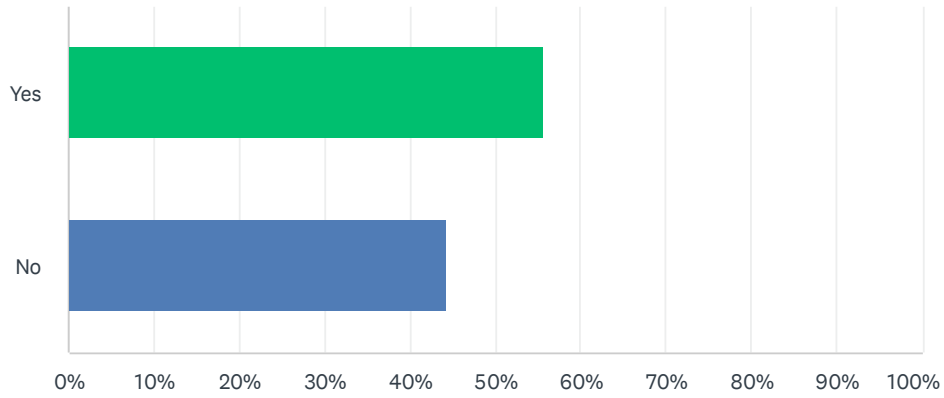
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Excellent	11.11%	1
Good	88.89%	8
Adequate	0.00%	0
Poor	0.00%	0
<b>TOTAL</b>		<b>9</b>

# Q7 Would you be interested in a more detailed, 6-hour in-person wind design seminar?

Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	55.56%	5
No	44.44%	4
TOTAL		9



Q8 We'd like to have your opinion on the overall presentation experience:

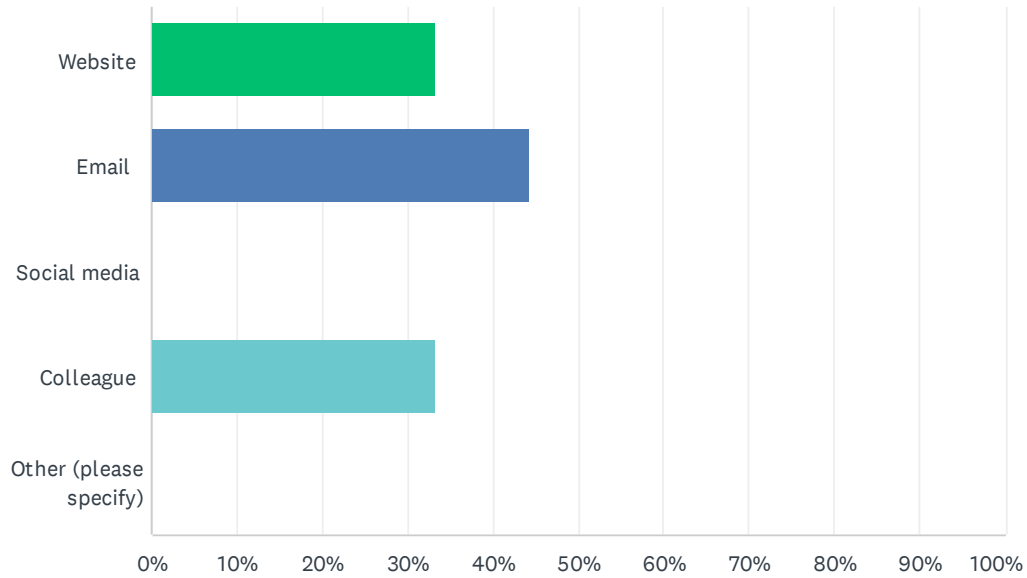
Answered: 9 Skipped: 0

# Q9 Do you have any ideas on how the session could be improved?

Answered: 9 Skipped: 0

## Q10 How did you hear about this program?

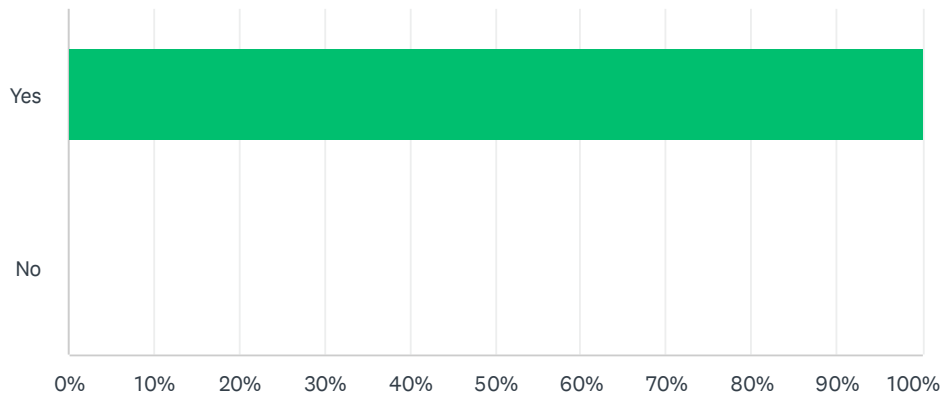
Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Website	33.33%	3
Email	44.44%	4
Social media	0.00%	0
Colleague	33.33%	3
Other (please specify)	0.00%	0
Total Respondents: 9		

## Q11 Is your company a SPRI Member?

Answered: 9 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	100.00%	9
No	0.00%	0
TOTAL		9

SPRI  
D6878 TPO Considerations for Revision  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
1:00 p.m.



## AGENDA

- I. Call to Order W. Sanborn
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Fleece Back Method Comparison Results Review and Next Steps
- IV. Adjournment

**Task Force Objective:**

– *Will Sanborn, Johns Manville*  
*start date 07/2018 budget: \$0*

The objective of the Task is to investigate whether there are performance benefits realized with a fleece back Thermoplastic Polyolefin (TPO) membrane versus smooth back; physical performance and potential impact resistance. The D6878 standard currently combines these products under one membrane type. All discussion and activity of this Task Force will focus on potential updates to the ASTM standard D6878.

SPRI  
VF-1 Revision  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
1:30 p.m.



#### AGENDA

- I. Call to Order C. Mader
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review Ballot Results and Determine SPRI Response (see attached)
- IV. Adjournment

Report Generated By: info@spri.org

Report Generated On: 12/06/2022 at 12:06:34 PM EST

Ballot 1\_BSR/SPRI VF-1 Revision

Ballot Name: 11/04/2022 at 01:00:00 AM EDT

Open Date: 12/05/2022 at 11:59:59 PM EST

Close Date: This ballot is closed.

Note:

Item #1 - Should the revised VF-1 document be re-approved as an American National Standard as proposed?

ITEM No. 1 SENT: 12 RETURNED: 7 %RETURNED: 58.33%

Affirmative (comments optional) 6 Negative w/ Comment: 1 Abstain: 1  
 83.33% 16.67% 0.00 %

Votes:			
Voter Name	Voter Role	Answer	Comment
Christopher Mader	Official Voter	Affirmative (comments optional)	
David Hawn	Official Voter	Negative w/ Comment	2.1 Area Divider An area of separation zone between vegetative roofing systems or other critical roof areas that is constructed using a roofing system the roof that meets Class A fire classification requirements when tested per roof areas that is constructed using a roofing system the roof that meets Class A .  The following needs adjustment: "roof areas that is constructed using a roofing system the {sic} roof that meets Class A"  Please consider:  "roof systems and building components that are constructed of fully compliant materials/ systems for an assembly that meets the requirements of Class A fire resistance"
Brian Davis	Official Voter	Affirmative (comments optional)	
Mike Ennis	Official Voter	Affirmative (comments optional)	
Phillip Smith	Official Voter	Affirmative (comments optional)	
Timothy McFarland	Official Voter	Abstain	
Chris Kann	Official Voter	Affirmative (comments optional)	
Linda King	Administrator		
Chris Meyer	Official Voter		
Kelly Lockett	Official Voter		
Angie Durhman	Official Voter		
T.W. Freeman	Official Voter	Affirmative (comments optional)	
Elizabeth Morris	Official Voter		

SPRI  
Internal Positive Pressure  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
10:30 a.m.



#### AGENDA

- I. Call to Order
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Discuss need for Task Force and potential objectives
- IV. Call for Volunteer to Chair Task Force
- V. Adjournment



SPRI  
Code Compliance Task Force  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
11:15 a.m.



## AGENDA

- I. Call to Order L. Cadena/E. Younkin
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review Draft Letter to Miami-Dade (attached)
- IV. Adjournment

### **Code Compliance Interface**

– Eric Younkin, Metal-Era, Luis Cadena, NEMO  
start date 04/2019 budget: \$0

SPRI has created an industry coalition to identify common challenges in receiving Code Body approvals. Its objectives are to improve the speed of the approval process, create a process for better acceptance of third-party data, and create a road map for sharing changes in procedures.



November 3, 2020

Jorge Acebo

Roofing Product Control Examiner at Miami-Dade County

Miami-Dade County Department of Regulatory and Economic Resources

11805 S.W. 26<sup>th</sup> St.

Miami, FL 33175-2464

Dear Jorge:

Over the past two years, the SPRI Code Compliance Task Force has had the opportunity to meet and discuss with you and your team the Miami-Dade NOA process in efforts to continually improve upon it. Your feedback and assistance have been greatly appreciated.

The SPRI Code Compliance Task Force has some ideas to share that may assist in streamlining the NOA process, since the time for issuance of an NOA is an industry concern and our membership is requesting assistance.

Below are some outlined ideas that the Task Force would like Miami Dade to consider, in order to assist our membership in keeping NOA's active as well as generating NOA's for new products and systems designed to increase roof top performance.

- On-line submittals of NOA's to quickly activate and review a file. Currently, the activation of a file can take up to several days/weeks, depending on multiple variables. If a submittal package (consisting of an application, supporting reports, QA items and a draft NOA) was to be submitted electronically, it would allow for Miami-Dade to activate the file and for the examiner to have immediate access to the documentation needed for review. Online submittal would result in a more efficient process and the overall processing time would be decreased by giving the examiner direct access to the files.
- It is our understanding an examiner must review a specific number of NOA applications weekly. With many larger and older files taking years to complete, these files should be considered a priority and any "quota" should be removed so the examiners could concentrate on the priority files. A "first come, first serve" approach would allow for all files, large and small, to be reviewed in a timely manner.
- When changes to Miami-Dade's process or interpretation of the code affect an application file, a global notification should be sent out referencing the changes along with a compliance period to adjust. For instance, when the steel deck policy came into effect, applicants were given one year to comply. Any application submitted before the granted compliance period would not be subject to the change. Changes in interpretation of the code are just as critical in these matters.
- Provide a complete check list specific to low-slope roofing applications to ensure all required information is provided.

- Provide a standard template for all applications to assist the examiner in their review. If an application does not have the checklist and template completed, an **Additional Info. Requested** notification should be sent out by the examiner to the applicant. This would encourage applicants to organize the information provided in a more “reader friendly” format and speed up reviews. A template for low-slope roofing systems was previously provided by SPRI.

The SPRI Code Compliance Task Force would like to discuss these specific points in greater detail with yourself and your immediate supervisor.

Sincerely,



Randy Ober  
SPRI Technical Director

cc: Luis Cadena, Task Force Co-chair  
Lynsey Hull, Task Force Co-chair  
Eric Younkin, Task Force Co-chair

\*Attachments –

The 2020\_Template\_Low Slope Roofing Systems  
2020-07-DRAFT-NOA-basic requirements  
2020-08\_DRAFT-NOA-general-submittal

The purpose of this template (see below) is to provide applicants, who may not use Miami-Dade services often, with a general guide as of how evidence is to be presented for review.

**SAMPLE #1: MIAMI-DADE ROOF SYSTEM NOA DRAFT**

*The purpose of this sample is to provide new NOA applicants with a draft NOA format and a general idea of how the supporting data is to be presented.*

**Deck Type 3I:** Concrete Decks, Insulated

**Deck Description:** 2500 psi structural concrete or concrete plank

**System Type A:** All layers of insulation adhered with approved asphalt or adhesive. Membranes subsequently adhered to insulation.

**All General and System limitations apply.**

One or more layers of any of the following insulations:

<u>Base Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft<sup>2</sup></u>
Polyiso-A, Polyiso-B Minimum 1.5" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft<sup>2</sup></u>
Gypsum Coverboard-A Minimum ¼" thick	N/A	N/A

**Note: All insulation shall be adhered with Adhesive-A or Adhesive-B at a rate of ## gal/100ft<sup>2</sup>. Please refer to Roofing Application Standard RAS 117 for insulation attachment.**

**Base Sheet:** One ply of Base, Base Plus or Base X-Treme adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

**Membrane:** One ply of Cap, Cap Plus or Cap X-Treme adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

**Surfacing: (Optional)** Install one of the approved surfacing products listed in Table 4 to obtain desired coating or required fire classification.

**Maximum Design Pressure:** -52.5 psf (See General Limitation #9)

**2018-09-REPORT-A, Table 4, Sample 1 (originally tested system):** Cap over Base adhered with hot asphalt to Gypsum Coverboard-A. Gypsum Coverboard-A adhered to Polyiso-A with Adhesive-A. **MDP = -52.5 psf**

**Alternate Insulation / Adhesive(s): 2018-09-REPORT-A, Table 1 (*tensile adhesive data*)** identifies Polyiso-A / Gypsum Coverboard-A as the critical combination. Allows use of combinations deemed less critical (over 200 lbf)

Base	Top	Adhesive	Result <sup>1</sup> (lbf)
Polyiso-A	Gypsum Coverboard-A	Adhesive-A	200
Polyiso-B	Gypsum Coverboard-A	Adhesive-A	275
Polyiso-B	Gypsum Coverboard-A	Adhesive-B	300
Polyiso-A	Gypsum Coverboard-A	Adhesive-B	315

**Alternate Base Sheet(s): 2018-09-REPORT-A, Table 2 (*membrane delamination data*)** identifies Base adhered to Gypsum Coverboard-A as the critical combination. Allows use of combinations deemed less critical (over 2.4 lbf)

Substrate	Base Ply	Application	Result <sup>1</sup> (lbf)
Gypsum Coverboard-A	Base	Hot-asphalt	2.4
Gypsum Coverboard-A	Base Plus	Hot-asphalt	2.9
Gypsum Coverboard-A	Base X-Treme	Hot-asphalt	3.8

**Alternate Cap Sheet(s): 2018-09-REPORT-A, Table 3 (*interply adhesion data*)** identifies Cap over Base as the critical combination. Allows use of combinations deemed less critical (over 2.4 lbf)

Substrate	Base Ply	Application	Result <sup>1</sup> (pli)
Base	Cap	Hot-asphalt	2.4
Base	Cap Plus	Hot-asphalt	2.9
Base	Cap X-Treme	Hot-asphalt	3.8

<sup>1</sup>Data values presented herein are not accurate, nor valid, and shall not be used.

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**CHECKLIST FOR THE SUBMITTAL OF: BASIC REQUIREMENTS FOR ROOFING (NON-STRUCTURAL)**

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Each **Notice of** Acceptance Submittal shall contain the documentation listed below. All documentation shall be submitted in a loose-leaf folder, divided into sections, in the following manner.

**Section 1**

- A complete application.
- A non-refundable filing fee in the form of a check with the name of the applicant printed in the check in the amount in accordance with current fee schedule. **Online payment is an option if requested, via email.**
- Letter from applicant containing the following:
  - Specific request for approval of the product and its specific use,

**Section 2**

- All required testing, which shall be performed by Miami-Dade County Certified laboratories. Tests should not be older than two years from time of completing the test to time of submittal.
- **(if applicable)** Marked-up drawing by the testing laboratory identifying all components of specimen(s) tested.

**Section 3**

- Any other documentation required by individual checklist. All **supporting reports and/or** calculations must be signed, dated and sealed by a Florida Licensed Professional Engineer.
- All documentation submitted, including approval documents shall be in 8 ½" x 11" paper size. (Drawings may be submitted in 11" x 17" paper size).

**Section 4**

- Documented quality assurance system addressing the requirements of the Miami-Dade County's Quality Assurance Manual Guidelines, and containing sufficient detail to ensure compliance with the product's limitations of use.

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## NOTICE OF ACCEPTANCE (NOA) GENERAL SUBMITTAL INFORMATION FOR ROOFING (NON-STRUCTURAL)

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NOAs are issued only to manufacturers and their private labelers. Manufacturers outside the USA shall have a distributor in the USA and must submit a properly executed distributor agreement. The following information is provided to facilitate the submittal documentation in an effort to streamline the NOA process.

### A. DOCUMENTS TO BE SUBMITTED FOR THE DIFFERENT TYPES OF SUBMITTAL

#### 1. **New Notice of Acceptance:**

- a. Letter from the manufacturer requesting NOA and clearly identifying product (type and use) to be included in NOA.
- b. Application and applicable Miami-Dade service fee.
- c. Quality Assurance documentation:
  - i. Letter from the manufacturer verifying the manufacturing location and composition of material(s).
  - ii. (If applicable) Private Labeling Agreement form - if product is manufactured by any company other than applicant.
  - iii. (if applicable) Distributor Agreement form - if product is manufactured outside of the United States.
  - iv. Manufacturing product list - identifying individual products, manufacturing location, physical property testing reports.
  - iv-v. Product literature such as product data sheet and installation guide.
- d. Any other documents required by the checklist for Basic Requirements.
- e. Any other documents and supporting reports required by the checklist for approval of the specific product. Reports shall be signed and sealed by a Florida Licensed Professional Engineer.
- f. A draft NOA, showing low-slope roofing assemblies and supporting data. Template available upon request.

#### 2. **Revision to a current Notice of Acceptance:**

- a. Letter from the manufacturer requesting revision to current NOA and clearly identifying the NOA being revised and the requested revisions.
- b. Application and applicable Miami-Dade service fee.
- c. Quality Assurance documentation:
  - i. Letter from the manufacturer verifying the manufacturing location and composition of material(s).
  - ii. (If applicable) Private Labeling Agreement form - if product is manufactured by any company other than applicant.
  - iii. (if applicable) Distributor Agreement form - if product is manufactured outside of the United States.
  - iv. Manufacturing product list - identifying individual products, manufacturing location, physical property testing reports.
  - iv-v. Product literature, for products added in revision, such as product data sheet and installation guide
- d. (if applicable) Submit any revisions to the approved drawings and include the revision date on drawing revision box.
- e. Submit supporting documents and supporting reports required by the revision being requested.
- e.f. A revised draft NOA showing low-slope roofing assemblies and supporting data. Template available upon request.

g. Verification of State of Corporate registration (upon Miami-Dade request):

**3. Private Label Notice of Acceptance:**

- a. Letter from private labeler (applicant) requesting product control approval.
- b. Application (completely filled by private labeler) **and applicable Miami-Dade service fee.**
- c. **Quality Assurance documentation:**
  - i. Letter from the ~~manufacturer~~ applicant verifying agreement and the manufacturing location and composition of material(s).
  - ii. Private Labeling Agreement form - if product is manufactured by any company other than applicant.
  - iii. (if applicable) Distributor Agreement form - if product is manufactured outside of the United States.
  - iv. Manufacturing product list - identifying individual products, manufacturing location, physical property testing reports.
- d. A draft NOA compliant with Miami-Dade private labeling process.
- e. Verification of State of Corporate registration (upon Miami-Dade request):

**Renewal with no change (Component NOA's)**

- Applicable Basic Requirements.
- Letter from manufacturer stating that since last approval was granted, product has:
  - not changed
  - not changed manufacturing location
  - not changed manufacturing process
- Statement from applicant indicating that original test reports submitted are not older than 10 years from current expiration date. ***If the physical properties test reports are older than 10 years at time of renewal, new testing is required. New signed and sealed original report(s) shall be submitted to Miami-Dade County.- (See Notes below.)***
- Quality Assurance documentation:
  - Letter from the manufacturer verifying the manufacturing location and composition of material(s).
  - (If applicable) Private Labeling Agreement form - if product is manufactured by any company other than applicant.
  - (if applicable) Distributor Agreement form - if product is manufactured outside of the United States.
  - Manufacturing product list - identifying individual products, manufacturing location, physical property testing reports.
- Verification of State of Corporate registration (upon Miami-Dade request):



## B. AVOID THE FOLLOWING PITFALLS

### 1. APPLICATIONS:

- a. Remember that the product control approval application is to be completed by the manufacturer. The manufacturer's company name must be clearly stated in the application and consistent throughout all of the documents submitted.
- b. The application must include the printed name and signature of the manufacturer.
- c. The name of the manufacturer printed on the check must be identical to the name of the manufacturer printed on the application.
- d. The name of the product or system on the application must match the product or system name of the approval document. This name must be consistent throughout all of the documents submitted.

### 2. MANUFACTURER'S APPROVAL DOCUMENTS

- a. All manufacturers' design drawings submitted must not exceed 11" x 17" paper size. Larger size drawings shall be discarded.
- b. All manufacturers' design drawings shall have one drawing number and date for the entire set, and the pages shall be numbered as sheet 1 of X through X of X. For example, a drawing set with 8 sheets shall have one drawing number 10-007, dated May 14, 2010, and the pages shall be numbered as sheets 1 of 8 through 8 of 8.
- c. Only one set of original manufacturer's design drawings shall be submitted. Other copies shall be discarded.
- d. All manufacturers' results tables made part of approval documents, derived from calculations, such as comparative analysis, must be dated, signed and sealed by a Florida Licensed Engineer.

### 3. OTHER DOCUMENTS:

- a. All documents submitted shall be printed on one side of the paper. Documents printed on both sides of the paper will be discarded.
- b. Unless additional copies have been specifically requested, only one set of documents shall be submitted. Duplicate documents will be discarded.
- c. With the exception of the manufacturer's design drawings, all other documents submitted shall be in 8-1/2" x 11" size paper. Larger size paper, including 8-1/2" x 14" papersize, will be discarded.

### 4. CALCULATIONS (if applicable):

- a. All calculations must be dated, signed and sealed by a Florida Licensed Engineer.

### 5. TEST REPORTS:

- a. All test reports must be dated, signed and sealed by a Florida Licensed Engineer.
- b. All required tests shall be performed by laboratories approved by Miami-Dade County per TAS301.
- c. Physical properties test reports over 10 years old shall be replaced with new testing.
- d. Reports with test standard version/edition not referenced in the current code edition must be complemented with an equivalency of standards letter.
- e. Tests for new approvals or revisions shall not be over two (2) years old after date of completion upon submittal.
- f. Drawings marked and verified by the test labs shall not exceed 11" x 17" paper size. Larger size paper will be discarded.

### **Renewal with no change (System NOA's)**

- Applicable Basic Requirements.
- Letter from manufacturer stating that since last approval was granted, product has:
  - not changed
  - not changed manufacturing location
  - not changed manufacturing process
- Statement from applicant indicating that original test reports submitted are not older than 10 years from current expiration date. ***If the physical properties test reports are older than 10 years at time of renewal, new testing is required. New signed and sealed original report(s) shall be submitted to Miami-Dade County. (See Notes below.)***
- Quality Assurance documentation:
  - Letter from the manufacturer verifying the manufacturing location and composition of material(s).
  - (If applicable) Private Labeling Agreement form - if product is manufactured by any company other than applicant.
  - (if applicable) Distributor Agreement form - if product is manufactured outside of the United States.
  - Manufacturing product list - identifying individual products, manufacturing location, physical property testing reports.
- A draft NOA, if needed, to show update or remove listed components. Update shall only be needed to revise product name for components manufactured by others to reflect published component NOA.
  - Miami-Dade can request for existing systems to be reevaluated and submit supporting documentation for review.
- Verification of State of Corporate registration (upon Miami-Dade request):

### **Renewal with no change (Association Members)**

- Applicable Basic Requirements.
- Letter from manufacture stating that since last approval was granted, product has:
  - not changed
  - not changed manufacturing location
  - not changed manufacturing process
- Updated Association Release Letter
- Updated Manufacturer's Acknowledgment Letter

#### **Notes:**

1. At time of renewal, if the tests on file are older than 10 years from current expiration date, we can offer a one year renewal while **testing is** being performed. ***In order to process a one year renewal, the following documents must be submitted:***
  - A. An application for renewal with **\$1,612.50** fee,
  - B. One year offer/request correspondence between RER and applicant containing instruction of item(s) to test, and
  - C. A letter from a Miami-Dade County approved laboratory stating that the applicant has contracted the laboratory to perform the required testing, the date of commencing and estimated date of completion of the testing.
2. ***The one year renewal is not extendable.*** Before the one year approval expires, the applicant must submit:
  - A. Application with **\$1,612.50** fee,
  - B. The **Miami-Dade compliant** testing, and
  - C. All the documents required above in order to process a standard renewal. (A minimum of one specimen must be successfully completed as verification test; please consult with the plans examiner to document the required testing.)
3. If new conditions are introduced in the verification tests, the application will be considered a new file with a full set of tests and a new file fee.

SPRI  
MPO-1 Standard Development  
Sheraton Grand at Wild Horse Pass  
Phoenix, AZ  
January 13, 2023  
1:30 p.m.



## AGENDA

- I. Call to Order S. Childs/F. Shyti
- II. Roll Call & Reading of SPRI Antitrust Statement
- III. Review current draft (attached)
- IV. Finalize canvass list (attached)
- V. Adjournment

### ***Draft Task Force Objective***

*– Steven Childs, OMG Roofing Products, Flonja Shyti, National Research Council of Canada  
start date 05/2022 budget: \$0*

This Task Force will create and canvass a standard to test fastener membrane pull-over.

**ANSI/SPRI/FM MPO-1 2023**

**Test Standard for Comparative Pull-Over Strengths of Membrane Fastening Systems and  
Waterproofing Membrane Materials Used with Low Slope Roofing Systems where Stress Plates are  
Used for Waterproofing Membrane Securement**

Table of Contents

- 1.0 Introduction
  - 1.1 Scope
  - 1.2 Reference Document
  - 1.3 Significance and Use
- 2.0 General Information
  - 2.1 Definitions
  - 2.2 Apparatus
  - 2.3 Test Specimen Sourcing
- 3.0 MPO-1 Procedure
  - 3.1 Personal Protective Equipment
  - 3.2 Test Specimen Setup
  - 3.3 Test Method
- 4.0 Reporting
- 5.0 Precision and Bias
- Appendix A - Commentary

## 1.0 Introduction

### 1.1 Scope

This standard provides basic requirements and procedures for determining the *maximum failure load* of *waterproofing membranes* and *fastening systems* when tested for membrane pull over resistance in both symmetric and asymmetric *stress plate* loading scenarios. See Appendix A - Commentary C1.1 for additional information.

### 1.2 Reference Document

- 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*, Florida Building Code TAS 114, UL 1897, or CSA A123.21. Each assembly is made up of various components. The test procedure in this standard is useful in qualifying components or component combinations to reduce the dependence on large scale roof assembly testing. See Appendix A - Commentary C1.3.1 for additional information.
- 1.3.2 This test procedure is used to determine the *maximum failure load* of a *waterproofing membrane* when secured with a *fastener* or *fastening system* and exposed to a linear load perpendicular to the plane of the *stress plate*.

## 2.0 General Information

### 2.1 Definitions

All words defined within this section are italicized throughout the standard.

- 2.1.1 *ANSI*  
American National Standards Institute
- 2.1.2 *Fastener*  
A mechanical component used alone or in conjunction with a *stress plate* to secure roofing components to the roof deck.
- 2.1.3 *Fastening system*  
An assembly that includes a *fastener* and *stress plate* that is used to secure *waterproofing membranes* and other roofing components to the roof deck.
- 2.1.4 *Maximum Failure Load*  
The peak load value observed when the test specimen is no longer able to resist the application of additional load.
- 2.1.5 *Standard Laboratory Conditions*  
The room or enclosure where the materials are conditioned, and test specimens are prepared and tested shall be protected from the elements and maintained at a temperature of  $73 \pm 4^{\circ}\text{F}$  ( $23 \pm 2^{\circ}\text{C}$ ) and 50% relative humidity  $\pm 5\%$ .
- 2.1.6 *Stress Plate*

A specially designed metal or plastic washer, or plastic sleeve, intended to secure *waterproofing membranes* and resist uplift loads.

2.1.7 Substrate Board

A rigid board upon which a *waterproofing membrane* is secured over, ex: board stock insulation, cover board, thermal barrier, etc.

2.1.8 Waterproofing Membrane

A flexible rolled sheet product secured to the roof intended to prevent water ingress to the structure. *Waterproofing membranes* can be tested for pull over resistance in combination with the *fastener* or *fastening system*.

2.2 Apparatus

2.2.1 A tensile test machine that applies load with a constant rate of speed and can measure the applied load. The equipment shall be calibrated within 12 months of the date of testing, in accordance with a standard that is traceable to a nationally recognized source. The load cell shall be of appropriate load capacity to ensure accurate results. See Appendix A - Commentary C2.2.1 for additional information.

2.2.2 Asymmetric *Stress Plate* Loading

2.2.2.1 Pinch wheel rollers compatible with the tensile test machine used to attach the free end of the *waterproofing membrane* to the cross head of the tensile testing machine.

2.2.2.2 Lumber or wood substrate capable of holding a fastener that is a minimum of 6 in. x 6 in. and can be fixed to the tensile test machine. The *waterproofing membrane* side lap is installed onto the lumber or wood substrate, through the *substrate board* (optional) using the *fastening system*. See Appendix A - Commentary C2.2.2.2 for additional information.

2.2.3 Symmetric *Stress Plate* Loading

2.2.3.1 Clamping jaws compatible with the tensile test machine used to grip the *fastener* in the *fastening system* being tested.

2.2.3.2 A *waterproofing membrane* holding device which shall have an open area of 12 in. x 12 in. (305 mm x 305 mm) or 18 in. x 18 in. (457 mm x 457 mm) and provide sufficient holding capability to prevent the *waterproofing membrane* from slipping during the test. See Appendix A - Commentary C2.2.3.2 for additional information.

2.3 Test Specimen Sourcing

2.3.1 All specimen components shall be provided by the program sponsor or component supplier and tested as received.

2.3.2 All test specimens shall be preconditioned and prepared for testing in *standard laboratory conditions*.

3.0 MPO-1 Procedure

3.1 Personal Protective Equipment - Adequate personal protective equipment shall be available and in use such as eye protection, cut resistant gloves, etc.

### 3.2 Test Specimen Setup

#### 3.2.1 Asymmetric *Stress Plate* Loading

3.2.1.1 The *waterproofing membrane* shall be cut to 6 in. wide by a minimum of 12 in. long strips such that the 6 in. width is cut from the factory edge of the *waterproofing membrane* intended to be mechanically fastened (often has printed factory markings for sheet and *fastener* placement).

3.2.1.2 If *substrate board* (optional) is being used, cut *substrate board* to a minimum of 6 in. x 6 in.

3.2.1.3 The *fastening system* shall be installed in accordance with manufacturer's guidelines through the *substrate board* (optional) and *waterproofing membrane* into the lumber or wood substrate. The *fastening system* shall be centered in the 6 in. direction and at the *waterproofing membrane* manufacturer's suggested distance from the factory edge in the minimum of 12 in. direction. See Appendix A - Commentary C3.2.1.3 for additional information.

#### 3.2.2 Symmetric *Stress Plate* Loading

3.2.2.1 The *waterproofing membrane* shall be cut to fit the *waterproofing membrane* holding device being used. The *waterproofing membrane* should be cut from the field of the sheet omitting the factory edges from the test specimen.

3.2.2.2 The *fastening system* shall be installed in accordance with the manufacturer's guidelines at the center of the *waterproofing membrane* test specimen.

3.2.3 The test specimen shall be installed and secured in the tensile test machine in preparation for a load to be applied perpendicular to the plane of the *stress plate*.

3.2.3.1 Asymmetric *stress plate* loading - Statically secure the lumber or wood substrate containing the test specimen and move pinch wheel rollers holding the free end of the *waterproofing membrane*. See Appendix A - Commentary C3.2.3.1 for additional information.

3.2.3.2 Symmetric *stress plate* loading - Statically secure the *waterproofing membrane* holding device and move the *fastener*, or statically secure the *fastener* and move the *waterproofing membrane* holding device. See Appendix A - Commentary C3.2.3.2 for additional information.

3.2.4 Information on test specimen sampling size is provided in Commentary. See Appendix A - Commentary C3.2.4 for additional information.

### 3.3 Test Method

3.3.1 Testing shall be conducted in *standard laboratory conditions*.

3.3.2 Load is applied perpendicular to the plane of the *stress plate* at a speed of 2.0 in./min (50 mm/min).



3.3.3 The *maximum failure load* and mode of failure shall be recorded for each test specimen. See Appendix A - Commentary C3.3.4 for additional information.

4.0 Reporting – Test reports shall include the following:

- 4.1 Name and address of the manufacturer or supplier of each test specimen component.
- 4.2 Name or other identification marks of each test specimen component, including any relevant listing and labeling marks.
- 4.3 Description of each test specimen component.
- 4.4 Conditioning of the test specimens, environmental data during the test (temperature, RH, etc.).
- 4.5 Identification of the laboratory technician.
- 4.6 Identification of the test equipment and instruments used, including open area dimensions of the *waterproofing membrane* holding device.
- 4.7 Calibration date of the tensile test machine.
- 4.8 Any deviations from the test method.
- 4.9 *Maximum Failure Load* of each test specimen.
- 4.10 Mode of failure of each test specimen and images representative of each mode of failure.
- 4.11 Statistics. See Appendix A - Commentary C4.11 for additional information.

5.0 Precision and Bias – There is not enough data available to establish precision and bias.

## Appendix A – Commentary

This Commentary is not a part of this standard. It consists of explanatory and supplementary material designed to assist users in complying with the requirements. It is intended to create an understanding of the requirements through brief explanations of the reasoning employed in arriving at these requirements or to provide other clarifications. It therefore has not been processed in accordance with ANSI Essential Requirements and may contain material that has not been subjected to public review or a consensus process. Thus, it does not contain requirements necessary for conformance with the standard.

The sections of the Commentary are numbered to correspond to the sections of the standard to which they refer. Since it is not necessary to have supplementary material for every section in the standard itself, there may be gaps in the numbering in the Commentary.

### C1.1 Scope

This standard provides basic requirements and procedures for testing *waterproofing membrane* pull over resistance. *Stress plates* may be exposed to symmetrical or asymmetrical loading schemes depending on the application and proposed roofing system. An asymmetrically loaded *stress plate* would be found in a traditional in-seam or lap fastened system with a one-sided weld. A symmetrically loaded plate would be found in systems where the waterproofing membrane is field fastened or where a double-sided weld is used with an in-seam or lap fastened system. This test procedure can be used for induction welded systems and base sheet rupture evaluations.

### C1.3.1 Significance and Use

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 the comparative performance of component combinations - Prior to full scale roof assembly testing, it is reasonable to perform small scale testing in accordance with this standard to determine the lowest performing component combination(s). Using the lowest performing component combination(s) in full-scale roof assembly testing would allow the inclusion of the component combination(s) tested in accordance with this standard to be included in the full-scale assembly listings or approvals.
- 2) Inclusion of alternate components into existing roof assembly listings or approvals - Should a manufacturer desire to change a component, or include an alternate component, it is reasonable to perform comparative small-scale testing in accordance with this standard to determine if the proposed components perform as well or better than the existing components.

### C2.2.1 Load Cell

Ensure the load cell is appropriate for the expected or discovered loads. In some cases, load cells have a recommended load range that differs from the stated maximum load capacity due to non-linearity near zero or near maximum load.

### C2.2.2 Test Specimen Substrate

This standard calls out a lumber or wood substrate with a minimum size of 6 in. x 6 in. The lumber or wood substrate can be cut larger to hold more than one sample as long as the substrate can still be fixed to the tensile testing machine, each sample can be tested independently of one and other, and the

testing of one will not interfere with the testing or results of another. The chosen substrate should provide adequate fastener pull out resistance and restrict the fastener from moving during the test.

#### C2.2.3.2 *Waterproofing Membrane* Holding Device

FM Approvals uses a 12 in. x 12 in. (305 mm x 305 mm) open area holding device, while TAS 117(b) requires the use of an 18 in. x 18 in. (457 mm x 457 mm) open area holding device. It is the responsibility of the program sponsor to determine their needs to meet the requirements of the authority having jurisdiction. Data from one test specimen should only be compared to data from another test specimen if the two data points were generated using the same sized *waterproofing membrane* holding device.

#### C3.2.1.3 *Fastening System* Installation - Asymmetric Loading

Different *waterproofing membranes* and *fastening systems* require different installation locations for the stress plate in relation to the *waterproofing membrane's* factory edge. Care should be taken to install the fastening system correctly for each sample of the same test specimen set noting that the locations may change membrane to membrane or *stress plate* to *stress plate*.

#### C3.2.3.1 Asymmetric *Stress Plate* Loading Test Specimen Securement Schematics

Insert new image here

Figure C3.2.3.1 – Cross-sectional view of a test apparatus setup whereby the lumber or wood substrate containing the test specimen is statically secured and the pinch wheel rollers holding the free end of the *waterproofing membrane* is free to move when a load is applied.

#### C3.2.3.2 Symmetric *Stress Plate* Loading Test Specimen Securement Schematics

Insert new image here

Figure C3.2.3.2A – Cross-sectional view of a test apparatus setup whereby the *waterproofing membrane* holding device is statically secured and the *fastener* is free to move when a load is applied.

Insert new image here

Figure C3.1.3.1B – Cross-sectional view of a test apparatus setup whereby the *fastener* is statically secured and the *waterproofing membrane* holding device is free to move when a load is applied.

#### C3.2.4 Test Specimen Sampling Size

This standard does not provide requirements for test specimen sampling size. FM Approvals requires a sampling size of three (n=3) for their purposes and The Florida Building Code Application Standards TAS 117(B) requires a sampling size of fourteen (n=14) for their purposes, but other jurisdictions may have different requirements. It is the responsibility of the program sponsor to determine their needs to meet the requirements of the authority having jurisdiction.

#### C3.3.4 Mode of Failure

The test procedure described in this standard is used to evaluate and compare the interface of *waterproofing membranes* and *fastening systems*. Should the failure of a test be the *fastener* pulling out from the substrate, a more suitable substrate should be selected and the test sample with *fastener* pull out should be omitted from the data set when comparing one *waterproofing membrane* and *fastening system* to another.

#### C4.11 Statistics

Statistical information required for approvals or listings may vary depending on the jurisdictional requirements. It is the responsibility of the program sponsors to determine the appropriate statistics to report.

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