	Tuesday, July 11		
	Ocean	**Rhode Island**	**Patriot**
8:00 AM	Codes & Standards 8:00 - 9:00 Collins		
8:15 AM			
8:30 AM			
8:45 AM			
9:00 AM	Code Development 9:00 - 10:00 Hickman		ADT-1 9:00 - 10:00 Eschhofen & Griswold
9:15 AM		Standards Consistency 9:15 - 9:45 Mader	
9:30 AM			
9:45 AM			
10:00 AM		RP-14 Revision 10:00 - 10:30 Mader	
10:15 AM	DORA™ Listing 10:15 - 11:00 Collins		
10:30 AM		VR-1 10:30 - 11:15 Darsch	Internal Positive Pressure 10:30 - 11:15 Childs & Mader
10:45 AM			
11:00 AM			
11:15 AM		Education 11:15 - 12:00 Chamberlain	
11:30 AM			
11:45 AM			
12:00 PM	Lunch & Member Services Presentation		
12:15 PM			
12:30 PM			
12:45 PM			
1:00 PM	PVC Environmental 1:00 - 2:00 Stanley	Resiliency Standard 1:00 - 1:45	DORA™ Edge Securement 1:00 - 1:30 LeClare
1:15 PM			
1:30 PM			
1:45 PM			Digital Content & Communications 1:45 - 2:15 Montoya
2:00 PM			
2:15 PM	Lightning Protection 2:15 - 2:45 Van Dam	MPO-1 Standard Development 2:15 - 3:00 Childs & Shyti	
2:30 PM			
2:45 PM	PRO Guide Updates 2:45 - 3:15 Collins		
3:00 PM			
3:15 PM	**Technical Committee** **3:15-4:00** **Childs**		
3:30 PM			
3:45 PM			
4:00 PM			
4:15 PM	**Bus to the Eisenhower House**		
	Wednesday, July 12		
	Ocean		
8:00 AM	**Board of Directors** **(all members welcome)**		
11:00 AM	End time is an estimate.		

Return to Schedule

SPRI
ADT-1
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
9:00 a.m.

AGENDA

I.	Call to Order	N. Eschhofen and C. Griswold
II.	Roll Call & sign in	
III.	Reading of SPRI Antitrust Statement	
IV.	Discuss feedback received on preliminary draft	
V.	Distribute and review revised draft	
VI.	Review task force timeline and action items	
VII.	Adjournment	

Task Force Objective:
– Nick Eschhofen, TruFast, Colin Griswold, OMG start date 04/2023 budget: $0

This Task Force will develop a consensus standard /for a 6x6 adhesive delamination tests.

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SPRI
Code Development
Crowne Plaza at the Crossings
Warwick, RI
July 11, 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. ICC Code Commentary (2024 edition)

V. 2024 IECC Update

VI. ICC Code Development Process Update and Strategy (2027 edition / CAC)

VII. ASHRAE update (90.1 and 189.1)

VIII. Florida Code Development update

IX. Code Trends

X. 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
Codes & Standards
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
8:00 a.m.

AGENDA

I. Call to Order — C. Collins/M. Ennis
II. Roll Call & Reading of SPRI Antitrust Statement
III. Review Objectives of Task Force
IV. Reports & Updates
  A. Industry Association Report
    1. CRRC
    2. RICOWI
  B. Industry initiatives Report
    1. BABA Act
    2. Canada/NRC
    3. US GSA
  C. Code updates
    1. National
    2. State
  D. Standards Updates
    1. FM uddates
    2. ANSI/ISO activity
    3. ASHRAE
    4. ASTM activity
    5. SPRI standards
V. Unfinished Business – None from April Meeting
VI. New Business
VII. Adjournment

Task Force Objective:
– Chadwick Collins, SPRI

The objectives of the Codes & Standards Task Force (CSTF) 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 CSTF will respond promptly to issues relating to codes & standards based on the consensus of the SPRI membership. As of January 2014, the Cool Roof Codes update will be provided in the CSTF meeting.

SPRI
Digital Content & Communications
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
1:45 p.m.

AGENDA

I. Call to Order — R. Montoya

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review of blogs

IV. Review of website content

V. Adjournment

Task Force Objective:
– Rick Montoya, Acme Cone Company

The objective for this task force is to build SPRI's digital presence through the regular posting of blogs to the SPRI website, post and share digital content through LinkedIn and Facebook, soliciting blog content.

SPRI
DORA Edge Securement
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
1:00 p.m.

AGENDA

I.	Call to Order	B. LeClare
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Discussion of Products, Tests, Listings to be include	
IV.	Review of Intertek Needs, Limitations, Processes, Costs	
V.	Develop Objective Statement	
VI.	Determine next steps	
VII.	Adjournment	

Task Force Objective:
– Bob LeClare, ATLAS International, Inc.
start date 06/2023 objectives approved 11/09/2022 budget: $0

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

SPRI
DORA™ Listing Service
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
10:15 a.m.

AGENDA

I. Call to Order C. Collins/M. Ennis

II. Roll Call & Reading of SPRI Antitrust Statement

III. Reports & Updates DORA Database Report & Updates Steering Committee Updates

a.) Steering Committee Updates

i. Education/Outreach

ii. Voice of Customer Market Research

b.) Edge Securement Task Force Update

i. 1st Meeting today: 11AM-Ocean

IV. Unfinished Business – None from April Meeting

V. New Business

Vl. Adjournment

Task Force Objective:
– Chadwick Collins and Mike Ennis, SPRI

Develop 1-, 3- and 5-year objectives for the DORA platform in support of the SPRI Strategic Plan.

SPRI
Education
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
11:15 a.m.

AGENDA

I.	Call to Order	B. Chamberlain
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Discuss Wind Seminar	
IV.	Discuss Wind Seminar Flyer (attached)	
V.	Update on BOAF Presentation	
VI.	Ideas and Thoughts	
VII.	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.

Wind Design Seminar

Sheraton Suites Chicago O'Hare

October 16, 2023 I 12:45 - 5:00 PM CST

This 4-hour seminar provides an overview of how wind affects buildings, including practical examples observed during investigations of roof system performance after exposure to high wind events. The seminar includes:

- Pre-session introductory video;
- Review of ASCE 7 versions and changes;
- Present an practical example of how ASCE 7 is used;
- Potential Impact of FM PLPDS* 1-28 & 1-29
- An overview of current and working SPRI Standards
- Demonstration of DORA® and RoofNav system
- Review code criteria for securement of metal edging and gutters to mitigate wind damage

4.0 IIBEC CEH Credits Available 4.0 AIA Learning Credits Available	ANSI/ASCE 7-16 Minimum Design Loads for Buildings and Other Structures available here

Presenters:

Brian Chamberlain, Architect / Code Specialist, Carlisle Construction Materials Inc.
Stephanie Kiriazes, Senior Codes Engineer, Holcim Building Envelope
Bob LeClare, Director of Perimeter Edge, ATAS International, Inc.
Chris Mader, Code & Certification Manager, Blue Ridge Fiberboard
Colin Griswold, Codes Approvals Engineering Leader, OMG Roofing Products

*Property Loss Prevention Data Sheets

This seminar is FREE for all attendees, but pre-registration is required:
https://www.spri.org/events/october2023/

Need a hotel room?
Hotel Group Registration Info: SPRI 2023 October Quarterly Meeting
https://www.marriott.com/event-reservations/reservation-link.mi?id=1686580773423&key=GRP&app=resvlink
or call 1 847-699-6300
Group Rate: $145

SPRI
Internal Positive Pressure
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
10:30 a.m.

AGENDA

I. Call to Order — S. Childs and C. Mader

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review RFP to be submitted to technical writers for consideration

a. Discuss, edit as needed, and vote to approve if ready.

b. Prepare list of technical writers to send RFP
   1. Curtis Liscum
   2. Others?

IV. Adjournment

Task Force Objective:
– Stephen Childs, GAF, Chris Mader, Blue Ridge Fiberboard start date 01/2023

Objective: The objective of this Task Force is to draft and release a white paper to the SPRI Promotion Committee, with the intent to raise awareness of the issues related to internal positive pressurization of buildings beyond what is accounted for in wind uplift design, with an expenditure of up to $3,000 to hire a technical writer.

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Return to Schedule

Technical White Paper Request for Proposal

Overview

SPRI is a collection of commercial roofing industry experts dedicated to providing an open forum for discussion, education, and innovation. We provide ongoing resources and expertise for contractors, architects, and building owners.

We are the leading authority in single-ply roofing. Our network deals exclusively with thermosets, thermoplastics, and modified bitumens. Here, you'll find easy access to online publications and documents that range from industry standards, generic technical guidelines for design and application to general information about roof maintenance and emergency repairs.

Description of Project

SPRI is interested in publishing a three to five page white paper for the roofing community outlining the potential effects that building pressurization, not accounted for in wind uplift design, can have on a roof system. Building pressurization affects the whole building in different ways, can come from different sources, and can be mitigated in different ways. In addition to the topics outlined below, this white paper shall primarily focus on describing potential sources of building pressurization, the impacts that added pressure can have on the roof system, and design considerations and/or remedial actions that can mitigate potentially negative consequences on the roofing system as a result of the building pressure.

- Overview of general roofing assemblies
    - What pressurization sources are accounted for in wind uplift design
    - Include overview of air barriers and vapor retarders in roofing assemblies
- Changes in HVAC systems
    - Discuss how upgrades to improve air exchange rates in an effort to improve air quality, especially upon arrival of COVID-19, can increase internal pressure
- Changes in building use or occupancy
    - Many times, buildings are re-purposed for industrial activities for which they were not originally designed, such as painting booths, food processing or storage, etc. which can increase internal building pressures and potentially change internal moisture conditions as well.
- Poorly chosen roofing materials and/or assemblies
    - Some materials and/or assemblies manage moisture and air infiltration better than others.
    - Work with your system manufacturers and roof system designers to select product types and system assemblies that suit the needs of the building or application.

- Under-designed roofing assemblies
    - Sometimes internal pressure conditions cannot be changed, and the roof system will need to be designed to resist these pressures in addition to normal wind uplift pressures
- Poorly detailed roofing systems
    - Especially true with air and vapor control layers, detailing is critical. Poorly detailed control layers can create “hot spots” of air and moisture infiltration, potentially leading to major roofing issues.
    - When air / vapor retarders are in the design, order of operations during installation can make a big difference.
    - Retrofits & modifications - When a roof penetration is added after the installation of the roof assembly, that penetration will not have the same detail work as the other penetrations that were existing prior to installation of the roof unless the roof is opened up, penetration sealed, and then reassembled.

Timeline

● Request for Proposal issued	Monday July, 17 2023
● Deadline for proposals/bids	Monday August 14, 2023
● Selection of writer	Monday August 21, 2023
● Initial draft of white paper	Friday October 6, 2023
● Final Draft of white paper	Monday April 1, 2024 (estimate)

Budget

The SPRI Board of Directors has approved a maximum budget spend of $3000.00 for the creation and publishing of this white paper

Responses

Please include in your response the project cost, projected timeline (should it need to be different than above), an example of previous technical writing, and any relevant experience you may have on the subject. For bid responses, any questions regarding this RFP, or the expectations surrounding the white paper please reach out to one of the task group chairs:

Stephen Childs
stephen.childs@gaf.com

Or

Chris Mader
CMader@blueridgefiberboard.com

Selected writer will be notified via email on or shortly following Monday August 21, 2023. Please be sure to include the best return email address for notification.

SPRI
Lightning Protection
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
2:15 p.m.

AGENDA

I.	Call to Order	B. Van Dam
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Status of Construction Specifier Article	
IV.	Opportunity with Roofing Elements magazine	
V.	Update TF objectives	
VI.	Adjournment	

Task Force Objective:
– Brad Van Dam, Metal-Era Inc.
start date 01/2021 budget: $0

The objectives of this Task Force are to review industry feedback along with NFP 780 and ED1, ES1 for gaps, outline gaps and solutions and develop guidance, and seek ANSI consensus approval if Task Force determines appropriate

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SPRI
MPO-1 Standard Development
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
2:15 p.m.

AGENDA

I. Call to Order — S. Childs and F. Shyti

II. Roll Call & Reading of SPRI Antitrust Statement

III. Review first ballot results

a.) Discuss any negatives as needed and formulate a response for each

IV. Review task force objectives, was the task completed?

a.) If Yes, vote to disband

V. Adjournment

Task Force Objective:
– Steven Childs, OMG Roofing Products, Flonja Shyti, National Research Council of Canada
start date 05/2022 objectives approved 11/09/2022 budget: $0

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

Return to Schedule

SPRI
PRO Guide Updates
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
2:45 p.m.

AGENDA

I.	Call to Order	C. Collins
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Discuss documents for revision (see all documents here: https://www.spri.org/pro-guide-updates/)	
IV.	Discuss and vote on approval of ES-1 documents	
V.	Establish working groups to review other documents	
VI.	Adjournment	

Task Force Objective:
– Chadwick Collins, SPRI
start date 06/2023 *budget: $0*

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SPRI
PVC Environmental
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
1:00 p.m.

AGENDA

I.	Call to Order	S. Stanley
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Review white paper objectives and estimated cost (see attached)	
IV.	Go over any environmental findings or questions from the group	
V.	Go over Red list updates	
VI.	Report on Phthalates as endocrine disrupters research done by volunteer	
VII.	Adjournment	

Task Force Objective:
– Shawn Stanley, IB Roof Systems.
start date 07/2022 objectives approved 10/19/2022 budget: $0

The approved objectives of this Task Force are:

- 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 PVC Environmental Task Force- White Paper on Flexible PVC Roofing Membrane. Working Title: Why Flexible PVC Roofing Membrane should be classified differently than Single Use and Multi-Use Plastics

List of White Paper Objectives:

Overview: The purpose of this white paper is to outline the benefits of flexible PVC Roofing membranes as a continual use plastic and why it should not be included as part of any legislation of other plastic categories, it should be removed from environmental watch lists, and should be classified differently from single use and multiple use plastics.

1. Demonstrate that all plastics are not the same based on life, use, and end of life capabilities. Therefore, plastics would be separated into three categories:
    a. **Single-Use Plastics**: Single-use plastics are defined as plastics which are typically used once, or for a brief period before disposal. Once that purpose has been fulfilled, there is no longer a useful purpose for this plastic. In many cases, this plastic does not carry a recycle resin ID number (1-7). This type of plastic is not considered recyclable in all states. Typical uses include packaging and wrapping.
    b. **Reusable Plastics:** Reusable plastics are a resilient, robust type of plastic that can be repurposed or recycled multiple times through heat transformation. Multi-use plastics can be produced from recycled plastics, and incorporate a long working life, after which they can be recycled again, and the material can be reused to produce another product This plastic either has a known recycle ID number 1-7 or has a known downstream industry use when recycled.
    c. **Durable Plastics:** Durable plastics are a durable, long-lasting category of plastic that are intend to have a service life of 20 years or more and can be mechanically recycled as a feedstock material for a downstream repurposed use at the end of its initial life. Due to its potential for recycling, it remains in continuous use in a second or third phase.

2. Identify common objections to PVC in general from various environmental groups. Refute these claims of with data and science using data from various studies, such as McKinsey and Company to demonstrate the climate impacts of PVC, comparing it to their alternatives and their effects on the environment, if any.
3. Find common ground with environmental groups by showing their objections to PVC are valid with respect to single-use plastic.
4. Alternatives: If multi-use and continual use PVC were restricted legislatively, what would the alternatives be? What would the economic and environmental impact be?
5. Share the embodied carbon of flexible PVC roofing membranes proven with the CFFA EPD report to demonstrate the low carbon footprint of flexible PVC roofing membranes. Share levels of current recycled post-consumer content in flexible PVC roofing membranes.
6. State why flexible PVC Roofing membranes are a sustainable choice and should be classified as a continual use plastic.

7. Conclusion – because of the evidence in this report, flexible PVC roofing membranes should be classified as a continual use plastic, it should be separated from any legislation regarding the use, production, installation, and disposal or recycling of PVC roofing membranes from other plastics. Furthermore, accrediting groups such as LEED, Green Globes, or any other accrediting organization should not penalize flexible PVC roofing membranes. Also, supply education to address the harmful effects of plastic waste and the benefits of resilient plastics that can be recycled multiple times. In addition, flexible PVC Roofing membranes should be removed from watch lists from environmental groups.

Helpful resources

- Phthalates and plasticizers
    - Current phthalates used in PVC roofing membranes, DINP has received a safe use letter from the California office of environmental health hazard assessment when used as intended. https://bit.ly/3pYm0AW
- Dioxin formation during production and end-of-life incineration
    - Anything burned inefficiently creates dioxins. For example, burning firewood creates the most toxic compounds known to science. https://bit.ly/3oppcFm
    - Dioxin levels decline cited by the EPA. https://www.epa.gov/trinationalanalysis/dioxins According to the EPA forest fires are the major cause of dioxin levels in the environment. https://www.fs.usda.gov/rm/pubs_other/rmrs_2009_urbanski_s001.pdf
- Seven myths of PVC – debunked https://bit.ly/3q3nbiG
- 2019 Tarnell Company LLC. Recycler survey, American chemistry council 2022 resin report, EPA SMM report https://bit.ly/3Iy2K3K
- EPA TRI air and water data. https://www.epa.gov/trinationalanalysis/releases-chemicals
- Vinyl Institute 6 truths about PVC vinyl https://bit.ly/3ooS2G3
- Climate impacts of PVC vs Alternatives – McKinsey and Company report https://bit.ly/3MUm7qt
- "The Perils of PVC Plastic Pipes" Fact or Fiction?" from Dr. Chris DeArmitt, an independent scientist. He said he wrote it because he cares about facts and leaving a better planet for future generations.

SPRI
Resiliency Standard
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
1:00 p.m.

AGENDA

I. Call to Order — S. Childs

II. Roll Call & Reading of SPRI Antitrust Statement

III. Reports & Updates - None

IV. Unfinished Business

a.) Task Force Chair – Volunteer needed

V. New Business

a.) Establish goals and focus of Task Force

b.) Draft objective statement

VI. Adjournment

Task Force History:
25 April 2023 – Technical Committee Meeting, New Business, Item 3: B. Chamberlain reported that A. Burzynski suggested the formation of a Task Force for recycling and sustainability. This Task Force will be posted seeking participants.

26 April 2023 – Board of Directors Meeting, Technical Committee Report, Item 2: On motion duly made, the Board approved, with no negative vote, the formation of the Resiliency Standard Task Force. Mr. Childs will run the first meeting.

SPRI
RP-14 Revision
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
10:00 a.m.

AGENDA

I. Call to Order C. Mader

II. Roll Call & Reading of SPRI Antitrust Statement

III. Current State of RP-14

a.) Clean up language around Eaves, Overhangs, and Canopies

IV. Vote to submit draft for balloting if appropriate

V. Adjournment

Task Force Objective:
-Chris Mader, Blueridge Fiberboard
start date 04/2023

The ANSI/SPRI RP-14, *Wind Design Standard for Vegetative Roofing Systems,* will be edited to remove information no longer relevant to the standard, and canvassed for re-approval as an American National Standard.

SPRI
Standards Consistency
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
9:15 a.m.

AGENDA

I. Call to Order C. Mader

II. Roll Call & Reading of SPRI Antitrust Statement

III. Prepare/Modify and vote on a task force name

a.) "SPRI Standards Library and Template"?

IV. Prepare/Modify and vote on Task Force objective statement

a.) To create a library of common industry terminology, using existing SPRI standards and documents, as well as to create template documents, with the goal of creating consistency across SPRI standards, and making the standard development process more efficient.

V. Adjournment

Task Force Objective:
–Chris Mader, Blue Ridge Fiberboard
start date 01/2023

Draft Objective – Create a library of definitions and conversion factors for reporting metric values in SPRI/ANSI standards.

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Return to Schedule

SPRI
Technical Committee
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
3:15 p.m.

AGENDA

I.	Call to Order	S. Childs
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Minutes: Vote on approval of the minutes of the April 2023 meeting (attached)	
IV.	Task Force Reports	
	a. ADT-1	Eschhofen/Griswold
	b. Code Development	A. Hickman
	c. Codes & Standards	C. Collins
	d. Code Compliance (Update/ no TF meeting)	L. Cadena/E. Younkin
	e. Digital Content & Communications	R. Montoya
	f. DORA™ Edge Securement	B. LeClare
	g. DORA™ Listing Service	C. Collins
	h. Education	B. Chamberlain
	i. Internal Positive Pressure	Childs/Mader
	j. Lightning Protection	B. Van Dam
	k. MPO-1 Standard Development	Childs/Shyti
	l. PRO Guide Updates (https://www.spri.org/pro-guide-updates/)	C. Collins
	m. PVC Environmental	S. Stanley
	n. Resiliency Standard	TBD
	o. RP-14 Revision	C. Mader
	p. Standards Consistency	C. Mader
	q. VR-1 Revision	M. Darsch
V.	Unfinished Business	
VI.	New Business	
	Standards date review	
VII.	Adjournment	

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SPRI
Technical Committee
Crowne Plaza at the Crossings
Warwick, RI
April 25, 2023

Minutes

Call to Order

Technical Committee Chair Stephen Childs called the meeting to order at 3:30 p.m. EDT. The SPRI Antitrust Statement was read.*

Roll Call

Those present were:
Stephen Childs, GAF
Maury Alpert, Polyglass USA, Inc
Warren Barber, National Gypsum
Robert Beaird, All Weather Insulated Panels
Keith Berg, CertainTeed LLC
Daniel Blasini, Anchor Products
Brian Chamberlain, Carlisle
Stan Choiniere, StanCConsulting
Gareth Christopher, Siplast
Mike Darsch, Sika
Liam Donovan, OMG
Nick Eschhofen, Trufast
Michael Giangiacomo, Flex Membrane Int'l Corp
Frank Greco, IKO Industries Ltd
Colin Griswold, OMG
Matthew Hollingsworth, CDT, Georgia-Pacific, LLC
Al Janni, Duro-Last
Chad Johnson, CertainTeed LLC
Michelle Jones, Creativate
Shaun Kerschen, Atlas Roofing Corporation
Joel King, IB Roof Systems
Mikael Kuronen, Georgia Pacific
Christopher Mader, Blue Ridge Fiberboard
Rick Martelon, Johns Manville
Brian Martineau, IB Roof Systems
Tim McQuillen, JM
Christopher Meyer, Seaman Corporation
Martin Moesgaard, MTL Holdings
Rick Montoya, Acme Cone Company
Steve Moskowitz, Atlas Roofing Corporation
Jake Murry, Trufast
Brian Ng, All Weather Insulated Panels
Dave Nordentoft, Leister Technologies
Jim Pieczynski, Blue Ridge Fiberboard, Inc.
Ralph Raulie, FiberTite
Phil Redmon, National Gypsum Company
Kevin Reinheimer, SFS
William Sanborn, Johns Manville
Kurt Sosinski, Tremco CPG Inc
Joel Stanley, Anchor Products
Shawn Stanley, IB Roof Systems
Brad Van Dam, MTL Holdings
Ryan Van Wert, Seaman Corporation
Steven Wadding, Polyglass USA
Fred Walnut, Holcim Polymers Sealants
Daniel Wise, Intertek
Ted Young, GAF

Staff present:
Mike Ennis, SPRI Technical Director
Amanda Hickman, The Hickman Group
Linda King, Managing Director
Carl Silverman, Legal Counsel

Guest:
Sam Everett, SE Marketing

*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.

Minutes
On motion duly made, the minutes of the January 2023 Technical Committee meeting were approved as presented.

Task Force Reports
In the absence of Code Development chair Amanda Hickman, Mike Ennis reported the following:

- Provided process updates for the ICC family of codes along with Code Change Proposals for: IBC, IFC, IECC, IgCC;
- Reviewed current activities related to ASHRAE 90.1 and 189.1; and
- Provided an update on latest Florida Code development activities.

Codes and Standards Chair Mike Ennis reported the following:

- Reviewed proposed revisions to CA Title 24;
- Reviewed activities of various industry associations including the CRRC and RICOWI;
- Discussed State actions on advanced recycling practices; and
- Provided a summary of green building, sustainability and related activities.

In the absence of Code Compliance Chair Luis Cadena, Mike Ennis reported the following:

- A letter was written to Miami-Dade with suggestions on how to streamline the Miami-Dade NOA process. The final version of the letter was sent to ARMA, PIMA, CFFA and ERA to see if they would sign on. To date both PMIA and the CFFA have agreed to sign on.

D6878 TPO Considerations for Revisions Task Force Chair Will Sanborn reported the following:

- Provided an update on the thickness round robin. Next activities will focus on impact resistance of fleeceback membranes.
- Mr. Sanborn recommended that the Task Force be disbanded. He noted that the Task Force was formed during COVID with the objective that extra meetings at SPRI would speed up the development process. This is no longer the case. On motion duly made, the Technical Committee unanimously accepted the recommendation of the Task Force to disband the Task Force.

Digital Content and Communications Task Force Chair Rick Montoya reported the following:

- The blog metrics are being captured and reviewed; and
- Additional blogs are scheduled for the next few months.

DORA™ Listing Service chair Mike Ennis reported that:

- The activities of the Steering Committee were reviewed;
- Dan Wise provided an update on revisions to DORA™ and future plans; and
- Mike Ennis requested the formation of a new Task Force, to be chaired by Bob LeClare, to develop criteria for inclusion of edge securement listing in DORA™. A sign-up sheet was posted.

Education Task Force Chair Brian Chamberlain reported that:

- The ASCE7 portion of the wind design seminar will be updated to the 2022 edition;
- SPRI received a request to develop an educational session of leak detection. The request came from a non-SPRI Member. It was decided that SPRI would not pursue the opportunity, but would offer the company information regarding membership in SPRI; and
- Colin Griswold has volunteered to replace Jodi Thomas as a presenter for the Wind Design Seminar.

Internal Positive Pressure Task Force Co-chair Stephen Childs reported the following:

- The Task Force will draft and release a white paper, with a target date of the end of January;
- It will engage a technical writer to prepare the paper; and.
- On motion duly made, the Technical Committee unanimously accepted the Task Force proposed budget of $3,000 to complete the project.

Lightening Protection chair Brad Van Dam reported that:

- The blog is complete;
- The Construction Specifier article will be published in August; and
- The Task Force Objectives have been expanded to include a white paper to be completed by October.

MPO-1 Standard Development co-chair Steven Childs reported:

- 40% of the canvass list has responded that they will participate, additional participation is being sought; and
- The precanvas interest ballot closes on May 3.

Environmental PVC chair Shawn Stanley reported that:

- The Task Force discussed providing separate requirements for one-time, long-term use products;
- Working with consultant that is ex-EPA, to develop a strategy is being discussed; and
- The Task Force will also develop a white paper.

RP-14 revision Task Force Chair Chris Mader reported that:

- After the last revision some content that is no longer needed was noted in the text resulting in the need to re-ballot the standard; and
- An example being the inclusion of pervious decks when non-pervious decks are a requirement of RP-4.

VOC Regulatory Monitoring Mike Ennis reported the following for Task Force Justin Bates:

- LEED requirements as related to VOCs' were reviewed. The Task Force will pursue revisions to the standards referenced for VOC limits as well as the definition of interior; and
- Justin Bates will participate in discussions in Canada as they pursue the development of VOC regulations.

VR-1 Revision chair Mike Darsch reported that:

- The Task Force did not meet.

6x6 test standard development Task Force Co- Chair Colin Griswold reported:

- The Task Force has established a target date of completing this standard of January 2024; and the Task Force and the standard have been renamed the ADT-1 Standard.

New Business

- Michael Darsch reported that he received a request to update fastener pull-out values. After discussion it was determined that there are too many variables and fastener manufacturers have this data, so SPRI should not pursue.

- Chris Mader requested that SPRI create a Task Force to standardize language, format, standards of measurement and definitions for its standards (i.e., create a library). This request received more than three SPRI Member volunteers, and so this will be brought to the Board for approval.

- Brian Chamberlain reported that Adam Burzynski suggested the formation of a Task Force for recycling and Sustainability. This Task Force will be posted seeking participants.

- Brad Van Dam reported that SPRI may want to investigate the possibility of going to a facility called I-Fly during the October meeting in Chicago. This facility puts people in a wind tunnel which allows them to fly. This could be an interesting addition to the wind design seminar.

Adjournment
There being no further business, the meeting adjourned at 4:30 p.m. EDT.

Submitted: Mike Ennis, Technical Director

These minutes have been reviewed by SPRI Legal Counsel.

2023 Meeting Schedule
July 11-12, 2023 (Tuesday-Wednesday)
Warwick, RI

October 15-18, 2023 (Monday-Wednesday)
Rosemont, IL

SPRI
VR-1
Crowne Plaza at the Crossings
Warwick, RI
July 11, 2023
10:30 a.m.

AGENDA

I.	Call to Order	M. Darsch
II.	Roll Call & Reading of SPRI Antitrust Statement	
III.	Review proposed revisions (attached)	
IV.	Update on Precanvass Survey and Ballot Timeline	
V.	Adjournment	

Task Force Objective:
Mike Darsch, Sika
start date 10/2022 objectives approved 01/15/23 budget: $0

This SPRI/ANSI VR-1 Procedure for Investigating Resistance to Root or Rhizome Penetration on Vegetative Roofs standard will be reviewed, edited if necessary, and canvassed for re-approval as an American National Standard. This review is required every 5 years per ANSI Essential Requirements.

~~05/10/201/~~06/2023 Updated

ANSI/SPRI VR-1 ~~2018~~2023

Approved ~~06/11/2018~~xx/xx/xxxx

Procedure for Investigating Resistance to *Root* or *Rhizome* Penetration on Vegetative Roofs

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 Commentary 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 Section 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 Section 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 ~~Section 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~~ zoysia grass *rhizomes* are hollow. See ~~Section 4.1 Elymus Repens "Couch Grass" or "Quack Grass" and~~ Figure 1.

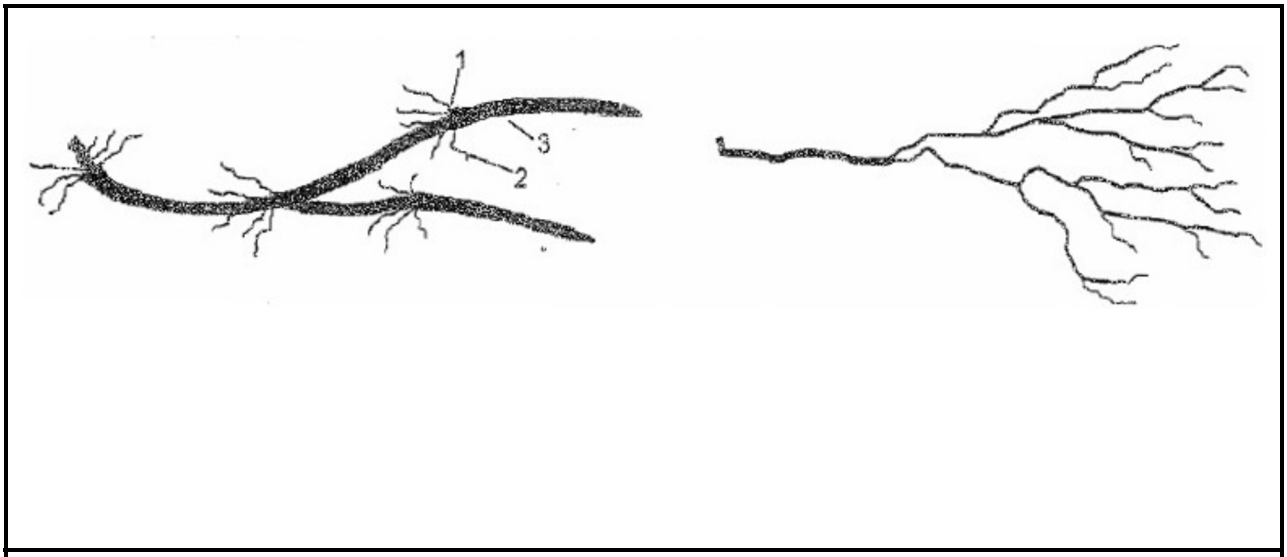


Figure 1: Schematic Representation Of "~~Couch~~ Zoysia Grass" *Rhizome* (Left) With Knots (1), *Roots* (2) And Leaves (3). "~~Orange Charmer~~Scarlett Firethorn" ~~r~~R*oot* (Right).

4.0 Test Plant Growth

4.1 Plants

- **Pyracantha Coccinea:** "~~Orange Charmer~~Scarlett Firethorn" 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.~~ **Zoysia Grass** (Zoysia Matrella, Zotsia Japonica, or Zoysia Tenuifolia): Robust slow-growing grass with a deep root system that grows with *rhizomes*.

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.

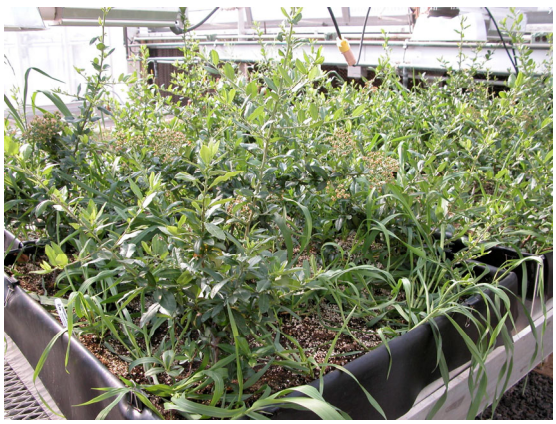


Figure 2: Adequate healthy plant growth (>75% coverage) in a *trial container* and dense *root* mat visible at the bottom of a control container.

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~~Zoysia. 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 Section 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, 5.5, 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 Section 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 Commentary 5.4.

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

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*. See 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 barrier*s to be tested−three control containers (without any *root barrier*) shall be provided.

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 barrier*s 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 Commentary 5.6.

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 Commentary 5.7.

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.

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 Section 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 ± 0.39 in (150 mm ± 10 mm). See Commentary 5.10.

Four pieces of Pyracantha 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~~zoysia grass 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 barrier*s must be installed per manufacturer's published requirements. See 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 manufacturers recommended procedures for each and outlined in Figure 4.

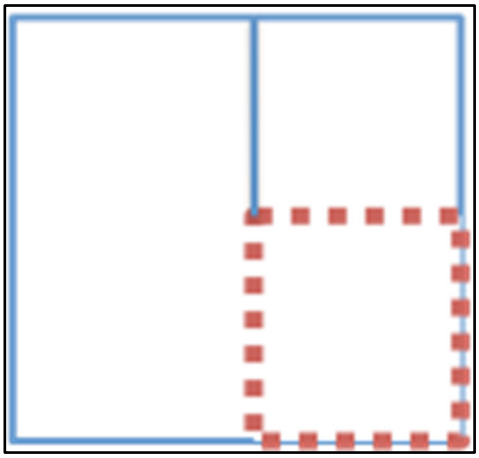


Figure 4: Seam or overlap pattern for liquid coating *root barrier*s. Solid lines indicate seams and corners created within the recoat window. Dashed line indicates seams created outside the manufacturer's recommended recoat window.

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 *root*ing 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. See Commentary 5.12.

Insufficient ~~quack~~ zoysia 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 Section 4.2. A digital photograph of all *trial containers* (base and plants) shall be taken during this inspection. See Commentary 6.1.

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~~during the test evaluations visible penetrations of *roots* or *rhizomes* into the *root barrier* to be tested is identified, the test shall be terminated. See Section 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 dissembled. *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.

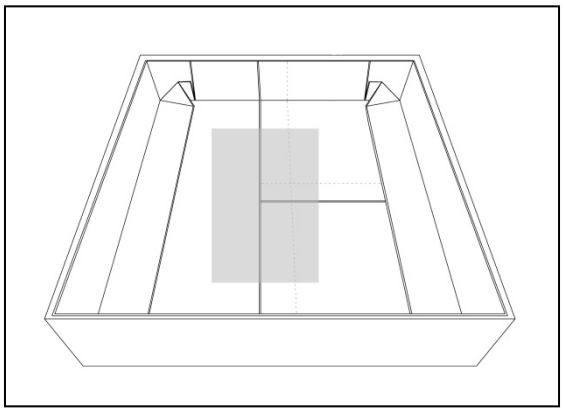
After plant and *root* or *rhizome* evaluations, examine the *root barrier* material for *root* or *rhizome* adhesion or penetration. Wash with garden hose using gentle pressure to remove loose material. Examine remaining material to determine if *roots* or *rhizomes* have adhered to the surface of the *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 Commentary 6.3.

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^2 (0.2 m^2) 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 section 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.* See Figure 6.

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

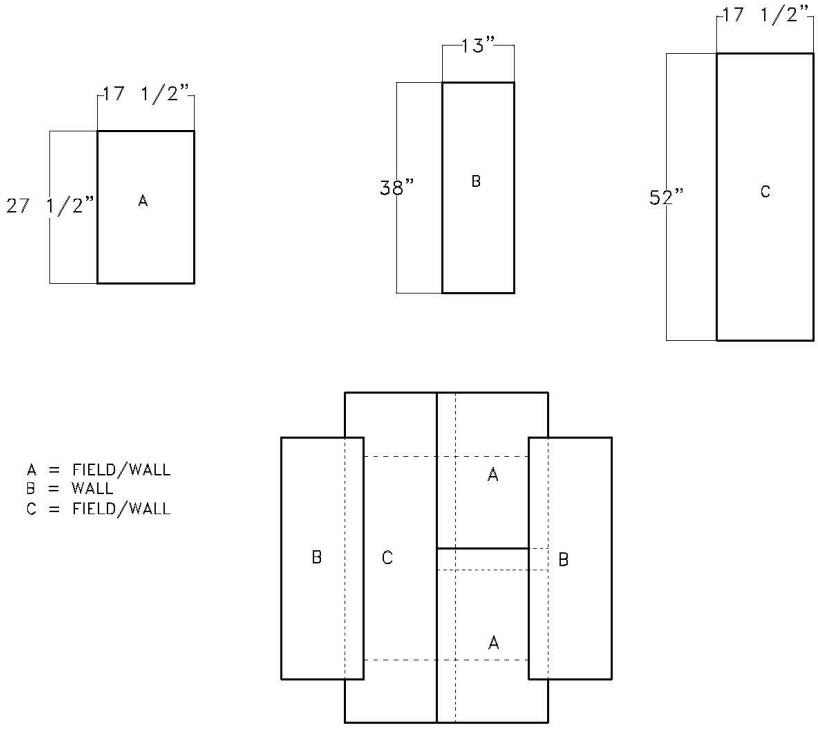
6.4 Test report

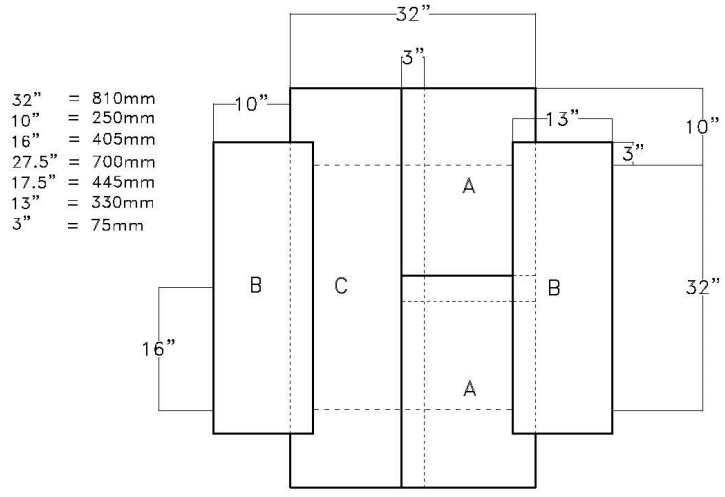
Upon termination of the trial, a complete test report shall be prepared. The report shall contain the following information:

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

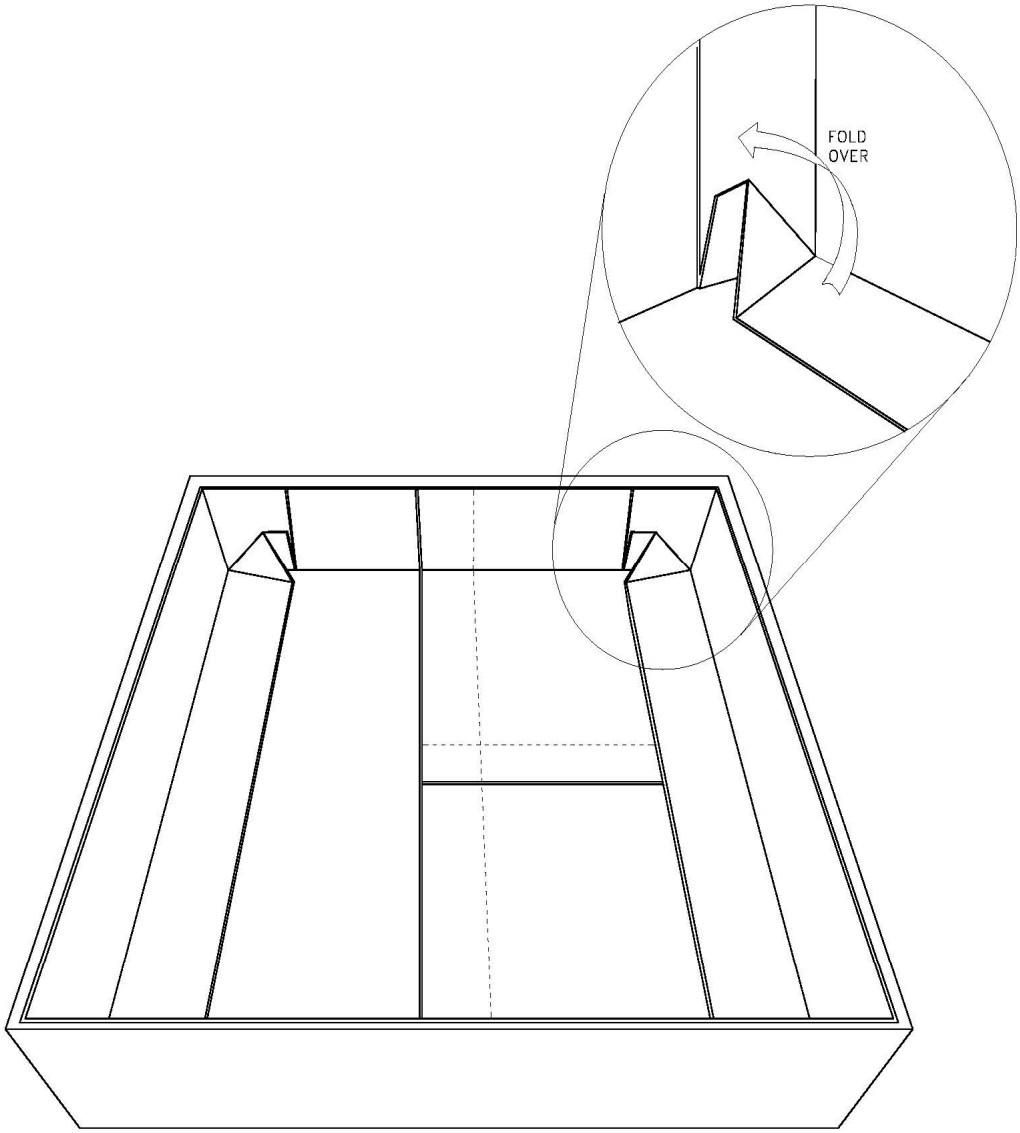
Attachments

Attachment 1: Layout of the seams in the r*oot barrier* to be tested





Attachment 2: *Trial container* corner detail



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).