

# Question & Answer #3



People. Partnership. Performance.

P.O. Box 1837  
Tacoma, WA 98401-1837  
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## PIER 4 PHASE 2 RECONFIGURATION PROJECT NO. 091251 | CONTRACT NO. 070136

### 1. BIDDER QUESTION

Ref. Drawings C5.2, C5.5, C5.7, C5.8 and WQMPP section 2.8 and 2.81. Are cofferdams required by the Port for new outfall construction?

#### RESPONSE

Cofferdams are not required for outfall construction if construction work waterward of the OHWL occurs during the WDFW approved in-water work window (July 16 to February 14). The use of a temporary watertight cofferdam is required for outfall construction work waterward of the OHWL that occurs outside of the WDFW approved in-water work window. Installation and removal of the cofferdam must occur within the in-water work window.

### 2. BIDDER QUESTION

Sheet S6.5. From bents CC' and P the existing ground is shown lower than the existing grade shown on the dredging drawings. The civil plans do not show any excavation required for the pier structure within this area. Please clarify the final grades and excavation limits required for the areas where the pier structure goes over the existing ground.

#### RESPONSE

Per sheet D1.1, the existing rip rap shall be removed, and the slope benched for pile and pile cap installation for 150 linear feet. The exposed slope will then require 2' of light rock rip rap on 1' of filter blanket prior to installation of piles and pile caps, as shown on C3.1 and C3.3 in Addendum #3.

### 3. BIDDER QUESTION

Sheet S6.2. The drawing is missing the ground elevation contours as shown on sheets S4.1 and S4.3. Please provide the drawing with the background ground elevations.

#### RESPONSE

We take the question to refer to the Pile and Pile Cap Plan on sheet S4.2 rather than the Overall Pier Cross Section on sheet S6.2 as stated. The contours have been provided in revision 1 of sheet S4.2 included in Addendum 3.

### 4. BIDDER QUESTION

**Specification 26.01.26:** Will the port require the Contractor to submit testing firm credentials? Please be aware the port does not have a method in which to verify the contractor is providing a NETA certified or Accredited testing firm.

#### RESPONSE

Specification 26 01 26, 1.04.C, requires the Contractor to submit the testing firm qualifications to the Engineer for review. Specification 26 01 26, 1.05.C, requires the Testing Firm to submit the testing firm and personnel qualifications.

5. BIDDER QUESTION

**Specification 26.01.26 1.05 Tests:** Do you want the NETA certified tech to perform thermal imaging inspections of power cable terminations? If So, I would recommend 15kV Cable Terminations and 480V Cable Terminations greater than 100A. Do you want the NETA certified tech to perform grounding termination inspection inside Manholes?

RESPONSE

Specification 26 05 13, 3.06.A.1, specifies the testing the Contractor is required to perform associated with medium voltage cables. NETA 7.3.2 states that performing a thermographic survey is one acceptable method for inspecting high resistance connections.

6. BIDDER QUESTION

**Specification 26.01.26 1.05.A.3** Tests to be performed by the Testing Firm. Are all other tests for Power Panels, Switchboards, Thermal Inspections, ECT. to be performed by the Contractor? Suggest adding verbiage that clarifies these points and all other specs should point back to testing spec.

RESPONSE

1.05.A.3: Testing for equipment not specified in specification 26 01 26, but specified in the other electrical specifications shall be performed by the Contractor.

7. BIDDER QUESTION

Specification 26.05.13 Section 3.06 Field Quality control does not point back to Specification 26.01.26 testing specs. Please confirm if the contractor or Testing Firm is responsible to complete these tests. Suggest adding verbiage that points back to testing spec. 15kV power cable terminations, does the port want them to be inspected by a thermal imaging device?

RESPONSE

Specification 26 01 26, 1.01.A.1, references Specification 26 05 13 for work related to this section.

Specification 26 01 26, 1.06.A, states that the Contractor shall perform routine insulation-resistance and continuity tests, in addition to tests performed by the Independent Testing Firm. Specification 26 01 26, 1.05.3.d, states that the Independent Testing Firm also tests the 15kV cables. Specification 26 01 26 1.14 documents the medium voltage cable tests requirements.

8. BIDDER QUESTION

Specification 26.05.19 Section 3 Execution Field Quality control does not point back to Specification 26.01.26 testing specs. Please confirm if the contractor or Testing Firm is responsible to complete megger tests for cables greater than 100A. Suggest adding verbiage that points back to testing spec.

RESPONSE

Specification 26 01 26, 1.01.A.2, references Specification 26 05 19 for work related to this section.

Specification 26 01 26, 1.06.A, states that the Contractor shall perform routine insulation-resistance and continuity tests, in addition to tests performed by the Independent Testing Firm. Specification 26 01 26, 1.05.3.a, states that the Independent Testing Firm also tests the low voltage conductors.

9. BIDDER QUESTION

**Specification 26.05.73** Does the Port of Tacoma have an existing or control the Electrical System Model? If so what software and version has the electrical model been developed? Section 3.05 B. Does the port of Tacoma have an Arc Flash Label Preference?

RESPONSE

No, the Port does not have a software "model" of the Port's overcurrent protection and coordination study. Specification 26 05 73, 1.02C, states the medium voltage switchgear manufacturer shall perform the study, and 1.03.A states the manufacturer shall submit the software program.

No, the Port does not have a Arc Flash label preference. *Specification 26 06 73, 3.05.B, states the labels shall comply with ANSI Standard Z535.4, which refers to NFPA 70E.X*

10. BIDDER QUESTION

**Specification 26.12.14 and 26.22.14** Do you want the Transformers Tested? Suggest adding verbiage that points back to testing spec and clarify the testing spec responsibility.

RESPONSE

Specification 26 01 26, 1.01.A.5, references Specification 26 12 14 for work related to this section. No testing is specified for Oil-filled Transformers in specification 26 12 14.

Specification 26 01 26, 1.01.A.6, references Specification 26 22 13 for work related to this section. No testing is specified for Dry-Type Transformers in specification 26 22 13.

11. BIDDER QUESTION

**Specification 26.24.13 and 26.24.16** Do you want the LV Switchboards and Panel Boards Thermal Tested done by a NETA Certified Firm? Suggest adding verbiage that points back to testing spec and clarify the testing spec responsibility.

RESPONSE

Specification 26 01 26, 1.01.A.7, references Specification 26 24 13 for work related to this section. Specification 26 24 13, 3.07 specifies the testing the Contractor is required to perform associated with Switchboards. NETA 7.1 states that performing a thermographic survey is one acceptable method for inspecting high resistance connections.

Specification 26 01 26, 1.01.A.8, references Specification 26 24 16 for work related to this section. No testing is specified in Specification 26 24 16.

12. BIDDER QUESTION

**Specification 33.77.00** Specification does not outline State of Washington Gold Seal Process. Suggest adding verbiage Specification does not define what type of relays. Does the port have type of product that they might want to use to reduce material spares or ease of system monitoring and networking?

RESPONSE

Specification 33 77 00, 2.04.A, states the Switchgear walk-in enclosure shall be manufactured per latest Washington State Labor & Industries Gold Seal requirements. Washington State Labor & Industries (L&I) classifies the walk-in enclosure as a building and needs to have Factory Assembled Structures (FAS) approval. The FAS requirements are in WAC 296-150F and RCW 43-22-450. The walk-in building must meet the requirements of the Washington State Building Code, the NEC, and additional codes. The proposed walk-in building plans need to be submitted to the L&I FAS program for review and approval. L&I will inspect the building at the factory during construction, and will put the "Gold Seal" label on the building when it has passed final factory inspection. For additional requirements, contact L&I FAS program.

Specification 33 77 00, 2.10.D, states the relays shall be Schweitzer 351A, or Engineer approved equal.

13. BIDDER QUESTION

**Specification 33.77.00 Section 3** Suggest adding verbiage that points back to testing spec and clarify the testing spec responsibility. Does the port of Tacoma want the CT's, PTs and Metering Systems Tested per NETA guidelines?

RESPONSE

Section 3: Specification 26 01 26, 1.01.A.10, references Specification 33 77 00 for work related to this section. There is no requirement for testing CT's, PT's, and Metering Systems.

14. BIDDER QUESTION

**Specification 33.79.00 Section 3** Suggest adding verbiage that points back to testing spec and clarify the testing spec responsibility.

RESPONSE

Specification 26 01 26, 1.01.A.11, references Specification 33 79 00 for work related to this section. Specification 33 79 00, 3.07.A.1, directs the Contractor to measure the ground resistance, including manhole/handhole grounds.

Specification 26 01 26, 1.05.3.b, states that the Independent Testing Firm shall inspect and test the ground resistance at new and revised wiring, and electrical service ground tests at the new substation.

15. BIDDER QUESTION

**Drawing E3.6** will this drawing be update to show an arc flash venting safety area?

RESPONSE

Specification 26 05 73, 3.05.A states that the medium voltage switchgear manufacturer shall calculate the arc flash hazard category, the incident level and the flash hazard boundary for all electrical equipment. Upon completion of the study, the arc flash venting safety area can be obtained from the manufacturer and shown on the as-built and record drawings.

16. BIDDER QUESTION

**Section 31 66 13 – Stone Columns** Section 31 66 13-2.01.B.3 refers to the required stone column material gradation AASHTO No. 57. The gradation table within the specification shows 0% passing the No. 200 sieve. This requirement should be removed for the AASHTO No. 57 standard does not include a limit on the No. 200 sieve as the fines content is governed by the requirement of 0 – 5% limit on the No. 8 sieve.

RESPONSE

See Addendum No. 3

17. BIDDER QUESTION

Per drawings E8.3 and E3.2, it is our assumption that WIFIC1 through WIFIC22, is existing conduit? Please clarify?

RESPONSE

Yes, they are existing, see Addendum No. 3

18. BIDDER QUESTION

Per drawing E8.3, schedule key notes 14, 16, 17, 18, 19, 20 and 21 all indicate that they are existing and then list a group of copper and fiber optic cables following, can it be assumed that all of the cables and fiber optics are existing? Please clarify?

RESPONSE

The key notes state what cables are "existing" in the existing conduits, and what cabling the Contractor needs to "provide" to the existing conduits.

19. BIDDER QUESTION

Please indicate what size and type of pole is needed to mount the light fixtures on as called for in key note 2 on drawing E3.1 O?

RESPONSE

Key note #2 states that the light fixture shall be at +35' above grade. If Contractor uses specified mast arm, assume top of pole is 35' above grade and determine pole length required per information in key note #8. If Contractor provides a different mast arm than specified, Contractor to determine pole length required.

20. BIDDER QUESTION

Per drawing E3.10, the conduit is called out as being above ground power, please indicate the intent of mounting this conduit? The code would not allow it to lay on the ground. Please clarify?

RESPONSE

The conduit can be mounted to strut channel anchored to the adjacent fence, or routed along 4x4 wood sleepers on grade, with the sleepers anchored to the ground with rebar or other NEC approved supporting methods for RMC conduit.

21. BIDDER QUESTION

Please see the attachment (*Attachment A - QA No. 03*) for our formal request for product substitution consideration on the Pier 4 Phase 2 Reconfiguration project. We are submitting the following for your consideration:

- \* PERMINATOR® HP 15 mil Underslab Vapor Barrier
- \* MEL-ROL® Rolled, Self-Adhering Waterproofing Membrane
- \* PRECON® Blindside Waterproofing / Underslab Membrane
- \* AIR-SHIELD™ Self-Adhering Air/Vapor and Liquid Moisture BarrierX

RESPONSE

- \* PERMINATOR® HP 15 mil Underslab Vapor Barrier - **Acceptable**
- \* MEL-ROL® Rolled, Self-Adhering Waterproofing Membrane - **Acceptable**
- \* PRECON® Blindside Waterproofing / Underslab Membrane - **Acceptable**
- \* AIR-SHIELD™ Self-Adhering Air/Vapor and Liquid Moisture Barrier - **Rejected** (specified is a sheet good, substitution is a liquid and upsets adhesion between products, also would require redetailing of openings)

22. BIDDER QUESTION

In reference to the “Geotech Data Report, Pier 4 Reconfiguration, dated Sept 18, 2014” historical boring data is provided from on pages 113 – 132. Were all the tests completed with a 2” split spoon sampler using a 140-lb hammer? This information is specified on the most recent boring data from 2012-2014, but not for the historical boring data from 1967, 1980, and 1986.

RESPONSE

Logs from 1980 and 1986 were generated with a 2 inch split spoon sampler, 140-lb hammer, and 30 inch drop. The hammer, drop, and sampler size from 1967 is unknown.

23. BIDDER QUESTION

**Appendix I: DFW HPA.** Provisions: "Timing Restrictions" section 1 A. False work, deck, forms and supports, including both installation and removal and concrete pouring during the fish closure window during low tide in the dry at any elevation, is approved year round for this project"

Please confirm the "year around" approval also included work aspects associated with the cap construction such as excess pile removal (Pile cut off), pile dowel grouting/installation, and associated fender/misc metal installations"

RESPONSE

Work aspects associated with pile cap construction such as excess pile removal (Pile cut off), pile dowel grouting/installation, and associated fender/misc metal installations are allowed year round, provided that all BMP requirements defined in the contract documents and project permits for keeping construction materials and debris from entering the water are followed.

24. BIDDER QUESTION

I have attached (*Attachment B - QA No. 03*) a substitution request for the pier 4 Phase 2 Reconfiguration- marine Building in Tacoma, WA.

RESPONSE

Paragraph 2.02 - Rockfon - Acceptable

Paragraph 2.03 - Rockfon - Rejected (does not meet size requirements)

25. BIDDER QUESTION

Due to the size of the project, are any additional addendum being considered and is it possible the bid date will be extended?

RESPONSE

Yes there will be additional addendums issued. At this point the bid date will not be extended.

**ATTACHMENTS:**

ATTACHMENT A - Question No. 21 Substitution Requests

ATTACHMENT B - Question No. 24 Substitution Requests



<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Lauren Mazza / Bryon Allen</u>	Contract No.	<u></u>
Prime/Sub/Supplier:	<u></u>	Date:	<u>4/27/2016</u>

Specification Title:	<u>Division 03 - Concrete</u>	Section No.	<u>033000.01</u>
Description:	<u>Cast-In-Place Concrete</u>	Paragraph:	<u>2.07, A</u>
	<u></u>	Page No.	<u>6</u>

Proposed Substitution:	<u>PERMINATOR® HP 15 mil Underslab Vapor Barrier</u>		
Trade Name:	<u>SEALTIGHT</u>	Model No.:	<u></u>

Manufacturer:	<u>W. R. Meadows, Inc.</u>		
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>	Phone No.:	<u>623-932-9383 / 503-333-6023</u>


Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By: Lauren Mazza / Bryon Allen

Signed By:	<u></u>	Firm:	<u>W. R. Meadows, Inc.</u>
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Address: 4220 S. Sarival Ave., Goodyear, AZ 85338

Telephone: 623-932-9383 / 503-333-6023

Email: [lmazza@wrmeadows.com](mailto:lmazza@wrmeadows.com) / [ballen@wrmeadows.com](mailto:ballen@wrmeadows.com)

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other

#### ENGINEER'S REVIEW AND ACTION

- ☒ Substitution approved  
☐ Substitution approved as noted  
☐ Substitution rejected - Use specified materials.  
☐ Substitution Request received too late - Use specified materials.

Signed by:	<u></u>	Date:	<u>5/2/16</u>
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## W. R. MEADOWS ALTERNATE REQUEST

Project: Pier 4 Phase 2 Reconfiguration Substitution Request Number: 1002501547

To: Port of Tacoma From: Lauren Mazza / Bryon Allen

Project # 091251

Re: Alternate Approval

Date: 4/27/2016

PERMINATOR® HP 15 mil Underslab  
Vapor Barrier

Bid Date: 5/17/2016

Specification Title: Cast-In-Place Concrete

Section: 033000.01

Page: 6

Paragraph: 2.07, A

SPECIFIED PRODUCTSPROPOSED SUBSTITUTION

Name of Product: Stego Wrap Vapor Barrier (15 mil)

PERMINATOR® HP 15 mil Underslab Vapor  
Barrier

Manufacture: Stego Industries, LLC

W. R. MEADOWS, INC.

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- Proposed substitution does not affect dimensions and functional clearances.

Firm: **W. R. MEADOWS, INC.**

Submitted by: Lauren Mazza / Bryon Allen

Address: 4220 South Sarival

E-mail: [lmazza@wrmeadows.com](mailto:lmazza@wrmeadows.com)

Goodyear, AZ 85338

Telephone: 623-932-9383 / 503-333-6023

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by:

Date: 4/27/2016

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS  
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Lauren Mazza / Bryon Allen</u>	Contract No.	<u></u>
Prime/Sub/Supplier:	<u></u>	Date:	<u>4/27/2016</u>

Specification Title:	<u>Division 07 - Thermal and Moisture Protection</u>	Section No.	<u>071326.01</u>
Description:	<u>Self-Adhering Sheet Waterproofing</u>	Paragraph:	<u>P2, 2.02, A</u>
		Page No.	<u>2</u>

Proposed Substitution:	<u>MEL-ROL® Rolled, Self-Adhering Waterproofing Membrane</u>		
Trade Name:	<u>SEALTIGHT</u>	Model No.:	<u></u>
Manufacturer:	<u>W. R. Meadows, Inc.</u>		
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>	Phone No.:	<u>623-932-9383 / 503-333-6023</u>


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- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By: Lauren Mazza / Bryon Allen

Signed By:	<u></u>	Firm:	<u>W. R. Meadows, Inc.</u>
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>		
Telephone:	<u>623-932-9383 / 503-333-6023</u>	Email:	<u><a href="mailto:lmazza@wrmeadows.com">lmazza@wrmeadows.com</a> / <a href="mailto:ballen@wrmeadows.com">ballen@wrmeadows.com</a></u>

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other

ENGINEER'S REVIEW AND ACTION

- ☒ Substitution approved  
☐ Substitution approved as noted  
☐ Substitution rejected - Use specified materials.  
☐ Substitution Request received too late - Use specified materials.

Signed by:	<u></u>	Date:	<u>5/2/16</u>
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## W. R. MEADOWS ALTERNATE REQUEST

Project: Pier 4 Phase 2 Reconfiguration

Substitution Request Number: 1002501547

To: Port of Tacoma

From: Lauren Mazza / Bryon Allen

Project # 091251

Re: Alternate Approval

Date: 4/27/2016

**MEL-ROL® Rolled, Self-Adhering  
Waterproofing Membrane**

Bid Date: 5/17/2016

Specification Title: Self-Adhering Sheet Waterproofing

Section: 071326.01

Page: 2

Paragraph: 2.02, A

SPECIFIED PRODUCTSPROPOSED SUBSTITUTION

Name of Product: Bituthene 3000

**MEL-ROL® Rolled, Self-Adhering  
Waterproofing Membrane**

Manufacture: Grace Products

**W. R. MEADOWS, INC.***The Undersigned Certifies:*

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Firm: **W. R. MEADOWS, INC.**

Submitted by: Lauren Mazza / Bryon Allen

Address: 4220 South Sarival  
Goodyear, AZ 85338E-mail: [lmazza@wrmeadows.com](mailto:lmazza@wrmeadows.com)  
Telephone: 623-932-9383 / 503-333-6023

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Signed by:



Date: 4/27/2016

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS  
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Lauren Mazza / Bryon Allen</u>	Contract No.	<u></u>
Prime/Sub/Supplier:	<u></u>	Date:	<u>4/27/2016</u>

Specification Title:	<u>Division 07 - Thermal and Moisture Protection</u>	Section No.	<u>071326.01</u>
Description:	<u>Self-Adhering Sheet Waterproofing</u>	Paragraph:	<u>P2, 2.03, A</u>
		Page No.	<u>3</u>

Proposed Substitution:	<u>PRECON® Blindside Waterproofing / Underslab Membrane</u>		
Trade Name:	<u>SEALTIGHT</u>	Model No.:	<u></u>
Manufacturer:	<u>W. R. Meadows, Inc.</u>		
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>	Phone No.:	<u>623-932-9383 / 503-333-6023</u>


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Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>		
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☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other

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Signed by:	<u></u>	Date:	<u>5/2/16</u>
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## W. R. MEADOWS ALTERNATE REQUEST

Project: Pier 4 Phase 2 Reconfiguration

Substitution Request Number: 1002501547

To: Port of Tacoma

From: Lauren Mazza / Bryon Allen

Project # 091251

Re: Alternate Approval

Date: 4/27/2016

PRECON® Blindside Waterproofing /  
Underslab Membrane

Bid Date: 5/17/2016

Specification Title: Self-Adhering Sheet Waterproofing

Section: 071326.01

Page: 3

Paragraph: 2.03, A

SPECIFIED PRODUCTS

Name of Product: Preprufe 300R

Manufacture: Grace Products

PROPOSED SUBSTITUTIONPRECON® Blindside Waterproofing /  
Underslab Membrane

W. R. MEADOWS, INC.

*The Undersigned Certifies:*

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Firm: **W. R. MEADOWS, INC.**

Submitted by: Lauren Mazza / Bryon Allen

Address: 4220 South Sarival  
Goodyear, AZ 85338E-mail: [lmazza@wrmeadows.com](mailto:lmazza@wrmeadows.com)  
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Date: 4/27/2016

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS  
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Lauren Mazza / Bryon Allen</u>	Contract No.	<u></u>
Prime/Sub/Supplier:	<u></u>	Date:	<u>4/27/2016</u>

Specification Title:	<u>Division 07 - Thermal and Moisture Protection</u>	Section No.	<u>072500.01</u>
Description:	<u>Weather Barriers</u>	Paragraph:	<u>P2, 2.03, A</u>
		Page No.	<u>3</u>

Proposed Substitution:	<u>AIR-SHIELD™ Self-Adhering Air/Vapor and Liquid Moisture Barrier</u>		
Trade Name:	<u>SEALTIGHT</u>	Model No.:	<u></u>
Manufacturer:	<u>W. R. Meadows, Inc.</u>		
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>	Phone No.:	<u>623-932-9383 / 503-333-6023</u>


Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By: Lauren Mazza / Bryon Allen

Signed By:	<u></u>	Firm:	<u>W. R. Meadows, Inc.</u>
Address:	<u>4220 S. Sarival Ave., Goodyear, AZ 85338</u>		
Telephone:	<u>623-932-9383 / 503-333-6023</u>	Email:	<u><a href="mailto:lmazza@wrmeadows.com">lmazza@wrmeadows.com</a> / <a href="mailto:ballen@wrmeadows.com">ballen@wrmeadows.com</a></u>

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other

ENGINEER'S REVIEW AND ACTION

- ☐ Substitution approved
- ☐ Substitution approved as noted
- ☒ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by:	<u></u>	Date:	<u>5/2/16</u>
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## W. R. MEADOWS ALTERNATE REQUEST

Project: Pier 4 Phase 2 Reconfiguration Substitution Request Number: 1002501547

To: Port of Tacoma From: Lauren Mazza / Bryon Allen

Project # 091251

Re: Alternate Approval Date: 4/27/2016

AIR-SHIELD™ Self-Adhering  
Air/Vapor and Liquid Moisture Barrier Bid Date: 5/17/2016

Specification Title: Weather Barriers

Section: 072500.01

Page: 3

Paragraph: 2.03

SPECIFIED PRODUCTS

Name of Product: Vycor Ultra

Manufacture: W. R. Grace &amp; Co.

PROPOSED SUBSTITUTIONAIR-SHIELD™ Self-Adhering Air/Vapor and  
Liquid Moisture Barrier

W. R. MEADOWS, INC.

\*\*\* AIR-SHIELD™ system accessories include: MEL-PRIME™ W/B, MEL-PRIME™ ADHESIVE, TERMINATION BAR, and POINTING MASTIC information included for review. \*\*\**The Undersigned Certifies:*

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.

Firm: **W. R. MEADOWS, INC.**

Submitted by: Lauren Mazza / Bryon Allen

Address: 4220 South Sarival  
Goodyear, AZ 85338E-mail: [lmazza@wrmeadows.com](mailto:lmazza@wrmeadows.com)  
Telephone: 623-932-9383 / 503-333-6023

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by:



Date: 4/27/2016



# PRODUCT DATA

NO. 723-B

MasterFormat:  
03 33 00  
07 26 16

W. R. MEADOWS®

SEALTIGHT®

JULY 2015

## PERMINATOR® HP

### 15 Mil Underslab Vapor Barrier

#### DESCRIPTION

PERMINATOR HP underslab vapor barrier is a new generation of polyolefin-based resin/chemical technology. PERMINATOR HP provides the vapor barrier industry with a highly effective, economical choice for helping to reduce the penetration of moisture and water vapor through the slab into the structure, thereby helping to reduce fungus, mildew, and mold growth. PERMINATOR HP also helps reduce radon gas from entering the structure.

**New resin technology allows dramatically greater puncture resistance while maintaining one of the lowest perm ratings in the market.**

PERMINATOR HP is tough enough to withstand normal construction jobsite conditions and traffic. It will not crack, puncture, snag, split, or tear easily.

PERMINATOR HP prevents uncontrolled moisture from entering the slab allowing the slab to maintain the maximum slab moisture emission rate and relative humidity level as allowed by flooring manufacturer's specifications.

PERMINATOR HP rolls require fewer seams in application. Installation is quick and easy. All joints/seams, both side and end, should be overlapped 6" (152.4 mm) and taped using 4" (101.6 mm) wide PERMINATOR TAPE from W. R. MEADOWS. PERMINATOR HP rolls fast and smoothly over level tamped soil or compacted fill.

#### USES

PERMINATOR HP underslab vapor barrier is primarily designed for underslab construction, where the soil has been tamped and leveled or compacted fill has been applied. The 200' (61 m) long sheets are unrolled as is or cut to size and installed using the overlapping method. Overlaps are 6" (152.4 mm) wide and these seams are sealed using 4" (101.6 mm) wide PERMINATOR TAPE.

PERMINATOR HP can also be used as a protection course for waterproofing membranes. The desired sheet lengths are cut to size and retained at the top of the waterproofing membranes by PERMINATOR TAPE or TERMINATION BAR from W. R. MEADOWS.

#### FEATURES/BENEFITS

- Helps reduce the penetration of moisture and water vapor through the slab into the structure.
- Helps reduce fungus, mildew, and mold.
- Helps reduce radon gas from entering a structure.
- Resistant to methane gas.
- Tough enough to withstand normal construction jobsite conditions and traffic ... will not crack, puncture, snag, split, or tear easily.
- Installs quickly and easily over tamped grade ... no gravel, fill, or sand needed.
- Rolls require fewer seams in application.
- PERMINATOR HP prevents uncontrolled moisture from entering the slab allowing the slab to maintain the maximum slab moisture emission rate and relative humidity level as allowed by flooring manufacturer's specifications.
- VOC content is 0 g/L.
- Made in America.

#### PACKAGING

12' Wide (3.66 m), 200' Long (60.96 m) Rolls

#### SPECIFICATIONS

- Meets or exceeds all requirements of ASTM E 1745-11 Class A, B & C.
- ACI 302.2R: Guide for Concrete Slabs that Receive Moisture Sensitive Flooring Materials makes a suggestion to use materials having 0.01 perms when flooring materials require protection lower than that determined by ASTM E1745. PERMINATOR HP meets this requirement.

#### APPLICATION

**Surface Preparation ...** Level, tamp, or roll earth or granular material beneath the slab base as specified by supplied architectural drawings. Follow ASTM E-1643-10 (standard practice and procedure for installation of vapor retarder used in contact with earth or fill under concrete slabs). Reference American Concrete Institute (ACI) 302.1R-04: Chapter 4, Section 4.1.4 – Base Material for sub-grade preparation prior to placement of PERMINATOR HP.

*CONTINUED ON REVERSE SIDE...*

#### W. R. MEADOWS, INC.

P.O. Box 338 • HAMPSHIRE, IL 60140-0338  
Phone: 847/214-2100 • Fax: 847/683-4544  
1-800-342-5976  
[www.wrmeadows.com](http://www.wrmeadows.com)

HAMPSHIRE, IL / CARTERSVILLE, GA / YORK, PA  
FORT WORTH, TX / BENICIA, CA / POMONA, CA  
GOODYEAR, AZ / MILTON, ON / ST. ALBERT, AB

**TECHNICAL DATA**

<b>WATER VAPOR PERMEANCE RATING</b>  ASTM E 96, Water Method		<b>TENSILE STRENGTH</b>  ASTM E 154, Section 9	<b>PUNCTURE RESISTANCE</b>  ASTM D 1709, Method B
PERMS	<b>WVT</b> <b>Grains/Ft.<sup>2</sup>/Hr</b>	LB. FORCE/INCH	GRAMS
0.018	0.007	84	4135

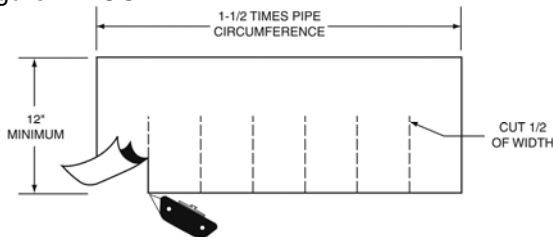
**Horizontal Application ...** Unroll 200' (61 m) PERMINATOR HP over the area where the slab is to be poured. Cut to size if necessary. PERMINATOR HP should completely cover the pour area. All joints/seams, both side and end, should be overlapped 6" (152.4 mm) and taped using 4" (101.6 mm) wide PERMINATOR TAPE. (Note: The PERMINATOR TAPE area of adhesion should be free from dust, dirt, and moisture to allow maximum adhesion of the pressure-sensitive tape.)

The most efficient installation method includes placing PERMINATOR HP on top of the footing and against the vertical wall. This will sandwich PERMINATOR HP between the footing, vertical wall, and poured concrete floor. (See illustration on page 2.) This will help protect the concrete slab from external moisture sources once the slab has been placed.

Before placing concrete slab, make sure all penetrations, block outs, and damaged areas are repaired/addressed.

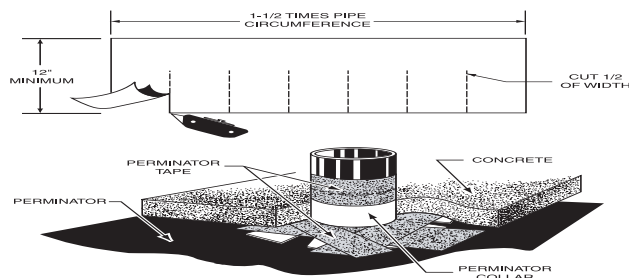
Numerous municipal building codes do not allow the placement of vapor barriers over the footing, due to breaking of the bond between the wall and footing. Although this is not an optimal application method, W. R. MEADOWS approves this alternate method when required by building code.

Figure 1 COLLAR



**Seal All Protrusions ...** Cut a slit around pipes, ductwork, rebar, and wire penetrations to place the initial layer of PERMINATOR. To further protect the concrete slab from external moisture sources, use a piece of PERMINATOR and place a collar around this as well.

1. Cut a piece of PERMINATOR HP a minimum width of 12" (304.8 mm). The length should be 1.5 times the pipe circumference. With a roofer's knife or scissors, cut "fingers" half the width of



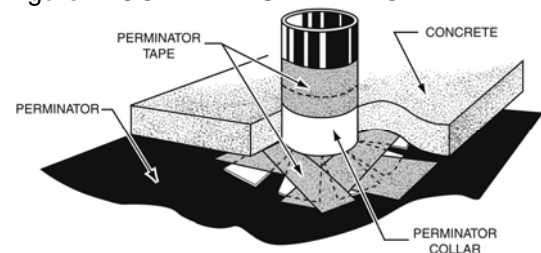
the film. See Figure 1.

2. Wrap around and tape the collar onto the pipe and completely tape fingers to the bottom layer of PERMINATOR HP, as shown in Figure 2.

In the event that PERMINATOR HP is damaged during or after installation, repairs must be made. Cut a piece of PERMINATOR HP large enough to cover any damage by a minimum overlap of 6" (152.4 mm) in all directions. Clean all adhesion areas of dust, dirt, and moisture. Tape down all edges using PERMINATOR TAPE.

**NOTE:** It is not necessary to overlay PERMINATOR HP with gravel or sand. PERMINATOR HP is tough enough to withstand normal construction abuse and traffic. Most flooring companies recommend the placement of the concrete slab directly on the vapor barrier. We agree, since this eliminates the potential for trapping moisture in a blotter-effect, causing it to resurface through the slab into the flooring systems. Consult local building codes and regulations, plus architectural and design firm guidelines, prior to application.

Figure 2: COLLAR INSTALLATION



**Vertical Wall Application ...** Install MEL-ROL® waterproofing membrane or MEL-ROL LM liquid waterproofing membrane from W. R. MEADOWS according to installation instructions. While the membrane is still tacky, install PERMINATOR HP as a protective course over the applied waterproofing membrane. Using TERMINATION BAR with concrete nails or PERMINATOR TAPE at the termination of the waterproofing membrane is advisable in some applications. Supervised care must be taken during backfilling against the material so that it is not damaged or punctured. If damage occurs, patch using the techniques outlined previously. When applying PERMINATOR TAPE to foundation walls, MEL-PRIME™ adhesive from W. R. MEADOWS may be used to increase bond.

## ACCESSORIES

MEL-DRAIN™ rolled matrix drainage system is designed to remove moisture from around footings and to relieve hydrostatic head pressures. Several different versions are available.

MEL-ROL LM or POINTING MASTIC may be used for stakes, small pipe, and rebar penetrations. Cut PERMINATOR HP just big enough for the penetration. Liberally apply MEL-ROL LM or POINTING MASTIC around the penetration to keep the integrity of the PERMINATOR HP membrane intact. MEL-ROL LM can be applied by brush, roller, or sprayer. POINTING MASTIC can be applied by caulking gun or trowel.

PERMINATOR TAPE is a self-adhesive tape for use in sealing vapor barrier seams and attachment to footings, protrusions, etc. It is offered in 4" (10 cm) widths and roll lengths of 180' (55 m)/roll. It is packaged twelve rolls per carton. Coverage: One box of tape will adhere approximately 10 rolls of PERMINATOR HP.

TERMINATION BAR is provided in 10' (3 m) lengths to attach PERMINATOR HP to walls as a protection course for vertical surface waterproofing applications.

## PRECAUTIONS

PERMINATOR HP underslab vapor barrier does not negate the need for relief of hydrostatic heads.

A complete drain tile system should be placed on the exterior of the footing and, in severe cases, on the interior of the footing as well. For maximum concrete performance and durability, the concrete floor slab design should provide for the lowest possible slump, yet assure complete hydration of the concrete.

## LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials
- SS Credit 3: Brownfield Redevelopment



## LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

## Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.



# SAFETY DATA SHEET

Page 1 of 2

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product:</b>	<b>Perminator® Vapor Retarder</b>	<b>Part Number:</b> 5242100
<b>Manufacturer:</b>	<b>W. R. Meadows®, Inc.</b>	<b>Address:</b> 300 Industrial Drive Hampshire, Illinois 60140
<b>Telephone:</b>	(847) 214-2100	In case of emergency, dial (800) 424-9300 (CHEMTREC)
<b>Revision Date:</b>	9/9/2014	
<b>Product Use:</b>	Vapor Retarder	

## SECTION 2: HAZARDS IDENTIFICATION/EXPOSURE LIMITS

HMIS		
<b>  Health  </b>	0	Product is classified as non-hazardous per OSHA 1910.1200. Perminator is defined by OSHA as an "article." A manufactured item that is formed to a specific shape or design during manufacture that does not release or result in exposure to a hazardous chemical under normal use conditions.
<b>  Flammability  </b>	0	
<b>  Reactivity  </b>	0	
<b>  Personal Protection  </b>		

## SECTION 3: HAZARDS COMPONENTS

<b>Chemical Name:</b>	<b>CAS Number</b>	<b>% by Weight</b>	<b>SARA 313</b>	<b>Vapor Pressure (mm Hg@20°C)</b>	<b>LEL (@24°C)</b>
1. Blown Polyethylene Film	Proprietary	100	No	N/A	N/A
Under the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1966 (SARA) and 40 CFR Part 372, chemicals listed on the 313 List (40 CFR Part 373.65) are identified under the heading "SARA 313."					
N/A: Not Applicable					

## SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

**EYE CONTACT:** Not expected to be an exposure route.  
**SKIN CONTACT:** Not Expected to be an exposure route.  
**INHALATION:** Not expected to be an exposure route.  
**INGESTION:** Not expected to be an exposure source.

## SECTION 5: FIRE AND EXPLOSIVES HAZARDS

**FLASHPOINT:** Not applicable; product is a solid.  
**EXTINGUISHING MEDIA:** Water fog, foam, dry chemical.  
**CHEMICAL/COMBUSTION HAZARDS:** Carbon monoxide, carbon dioxide, and incomplete combustion products.  
**PRECAUTIONS/PERSONAL PROTECTIVE EQUIPMENT:** Avoid smoke inhalation. Use appropriate respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK PROCEDURES:** Not applicable. Product is a solid.

## SECTION 7: HANDLING AND STORAGE

**SAFE HANDLING PROCEDURES:** None.  
**SAFE STORAGE:** Prevent job-site damage.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Chemical Name:</b>	OSHA				ACGIH			
	<b>PEL</b>	<b>PEL/CEILING</b>	<b>PEL/STEL</b>	<b>SKIN</b>	<b>TLV</b>	<b>TLV/CEILING</b>	<b>TLV/STEL</b>	<b>SKIN</b>
1. Blown Polyethylene	N/E	N/E	N/E	No	N/E	N/E	N/E	N/E
<b>ENGINEERING CONTROLS:</b> None required under normal use conditions.								
<b>PERSONAL PROTECTIVE EQUIPMENT:</b> None required under normal use conditions. <span style="float: right;">N/E = Not Established</span>								

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT:</b> N/A	<b>VAPOR DENSITY:</b> N/A	<b>% VOLATILE BY VOLUME:</b> N/A
<b>EVAPORATION RATE:</b> N/A	<b>pH LEVEL:</b> N/A	<b>% VOLATILE BY WEIGHT:</b> N/A
<b>WEIGHT PER GALLON:</b> N/A	<b>PRODUCT APPEARANCE:</b> Black solid	<b>VOC CONTENT:</b> N/A

## SECTION 10: STABILITY/REACTIVITY

**STABILITY:** Stable. **HAZARDOUS POLYMERIZATION:** Will not occur.  
**CONDITIONS AND MATERIALS TO AVOID:** None recognized.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None recognized.

## SECTION 11: TOXICOLOGICAL INFORMATION

**EYE CONTACT:** Not anticipated to be an exposure route.  
**SKIN CONTACT:** Direct contact may cause slight skin irritation.  
**INHALATION:** Not anticipated to be an exposure route.  
**INGESTION:** Not anticipated to be an exposure route.  
**SIGNS AND SYMPTOMS:** None recognized.  
**AGGRAVATED MEDICAL CONDITIONS:** None recognized.  
**OTHER HEALTH EFFECTS:** None recognized

## SAFETY DATA SHEET

<b>Date of Preparation:</b> 9/9/14	<b>Page 2 of 2</b>	<b>5242100</b>
<b>SECTION 12: ECOLOGICAL INFORMATION</b>		
ECOTOXICITY: N/E	DEGRADABILITY: N/E	BIOACCUMULATIVE POTENTIAL: N/E
SOIL MOBILITY: N/E	OTHER ADVERSE EFFECTS: None Recognized	
<b>SECTION 13: WASTE DISPOSAL INFORMATION</b>		
WASTE DISPOSAL INFORMATION: Product is classified as a non-hazardous waste.		
<b>SECTION 14: TRANSPORTATION INFORMATION</b>		
HAZARDOUS/NON-HAZARDOUS MATERIAL: Not regulated by DOT.		
UN NUMBER: None	HAZARD CLASS: N/A	PACKING GROUP: N/A
UN PROPER SHIPPING NAME: N/A		
ENVIRONMENTAL HAZARDS: None recognized.		
BULK TRANSPORTATION INFORMATION: None.		
SPECIAL PRECAUTIONS: None.		
<b>SECTION 15: REGULATORY INFORMATION</b>		
OTHER REGULATORY CONSIDERATIONS: None recognized.		
<b>SECTION 16: OTHER INFORMATION</b>		
PREPARATION DATE: 9/9/2014		
PREPARED BY: Dave Carey		

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*The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. We assume no responsibility for injury from the use of this product described herein.*

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NO. 714

MasterFormat: 07 13 26



OCTOBER 2013  
(Supersedes July 2012)

## MEL-ROL®

### Rolled, Self-Adhering Waterproofing Membrane

#### DESCRIPTION

MEL-ROL waterproofing system is a flexible, versatile, dependable, roll-type waterproofing membrane. It is composed of a nominally 56 mil thick layer of polymeric waterproofing membrane on a heavy duty, four-mil thick, cross-laminated polyethylene carrier film. The two components are laminated together under strict quality-controlled production procedures.

A handy overlap guideline is printed 2 1/2" (63.5 mm) in from the material edge on each side to assure proper overlap coverage and to assist in maintaining a straight application. Special exposed polymeric membrane strips are provided on both sides for positive membrane-to-membrane adhesion in the overlap area. The membrane strips are protected by a pull-off release strip. All components of the MEL-ROL waterproofing system work together to provide a cost-effective, positive waterproofing system that's quick and easy to apply.

W. R. MEADOWS accessory products included in the MEL-ROL waterproofing system are: BEM, MEL-ROL LIQUID MEMBRANE, MEL-PRIME™ adhesive (solvent-based and water-based), POINTING MASTIC, DETAIL STRIP, CATALYTIC BONDING ASPHALT, TERMINATION BAR, PROTECTION COURSE and MEL-DRAIN™ drainage board.

#### USES

MEL-ROL waterproofing system provides a cost-effective answer to properly waterproof foundations, vertical walls, and below-grade floors in residential and commercial construction. It is equally effective for use as between-the-slab waterproofing on plaza decks, parking decks, and structural slabs. Use it as a waterproofing membrane to isolate mechanical and electronic rooms, laboratories, kitchens, and bathrooms. MEL-ROL offers positive protection when "wrapped around" major rapid transit, vehicular, utility, and pedestrian tunnel projects. MEL-ROL can also be used on insulated concrete forms (ICF).

Installation of PROTECTION COURSE from W. R. MEADOWS is recommended before backfilling. MEL-ROL can also be used with drainage boards when specified.

#### FEATURES/BENEFITS

- Provides cost-effective, flexible, versatile, dependable, positive waterproofing protection against damaging moisture migration and the infiltration of free water.
- Offers a quick and easy-to-apply system for maximum productivity.
- Special membrane-to-membrane adhesion provides additional overlap security.
- Meets or exceeds the test requirements of all currently applicable specifications.
- Components work together for positive waterproofing protection.
- Handles with ease on the jobsite.
- Available in a low temperature version for use when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C). An extra-low temp version is also available, ideal for application in extra-low temperatures down to 0° F (-18° C).

#### PACKAGING

38.5" (977.9 mm) wide x 62.5' (19.1 m) long, one roll per carton.

#### COVERAGE

Provides 200 ft.<sup>2</sup> (18.6 m<sup>2</sup>) per roll. Gross coverage is 200 ft.<sup>2</sup> (18.6 m<sup>2</sup>). [Net coverage is 187.5 ft.<sup>2</sup> (17.4 m<sup>2</sup>) with overlap of 2 1/2" (63.5 mm).]

#### STORAGE AND HANDLING

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames. Store where temperature will not exceed 90° F (32° C) for extended periods of time.

#### SPECIFICATIONS

- A.R.E.M.A.® Specifications Chapter 29, Waterproofing
- ASTM D 570

#### APPLICATION

**Surface Preparation ...** Concrete should be cured at least 72 hours, be clean, dry, smooth, and free of voids. Repair spalled areas; fill all voids and remove all sharp protrusions.

*CONTINUED ON REVERSE SIDE...*



## MEL-ROL COMBINES POSITIVE WATERPROOFING PROTECTION WITH EASE OF HANDLING

### EXCLUSIVE FEATURES

A handy overlap guideline is printed 2 ½" (63.5 mm) in from the material edge on each side, assuring proper overlap coverage and assisting in maintaining a straight application. The polymeric waterproofing membrane is protected by a special, easy-to-remove release paper. The exposed membrane strips on the material edges are protected by a pull-off release strip. Exposed polymeric membrane strips are provided on both sides of MEL-ROL for positive membrane-to-membrane adhesion in the overlap area ... note the detail, as shown in inset photo.

TECHNICAL DATA		
PROPERTY	TYPICAL VALUE	TEST METHOD
COLOR ... Carrier Film	White	
Polymeric Membrane	Black	
THICKNESS ... Carrier Film	4 mils	
Polymeric Membrane	56 mils	
TENSILE STRENGTH ... Carrier Film	5900 psi min. (40.71 MPa)	ASTM D 412
Membrane	460 psi (3230 KPa)	(Die C)
ELONGATION	971.3%	ASTM D 412
LOW TEMP CRACK BRIDGING		
100 Cycle -25° F (-32° C)	Pass	ASTM C 836
PEEL ADHESION	11.8 lb./in. (2068 N/m)	ASTM D 903
LAP ADHESION	8.62 lbf/in. (1508.5 N/m)	ASTM D 1876
WATER VAPOR PERMEABILITY	0.036 Perms	ASTM E-96, B
WATER ABSORPTION	0.1%, 72 hrs. max.	ASTM D 1970
HYDROSTATIC RESISTANCE	Equiv. to 230.9' (70.38 m) of water	ASTM D 5385
PUNCTURE RESISTANCE	48.24 lbf (214.6 N)	ASTM E 154
EXPOSURE TO FUNGI	Pass, 16 weeks	Soil Test
FLEXIBILITY @ -20° F (-29° C)	Pass	ASTM D 1970

### MEL-ROL IS QUICK AND EASY TO APPLY

**Temperature ...** Apply in dry, fair weather when the air and surface temperatures are above 40° F (4° C). Do not apply to frozen concrete.

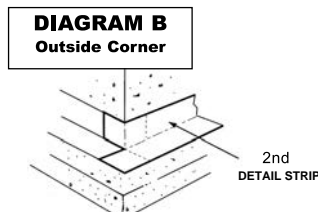
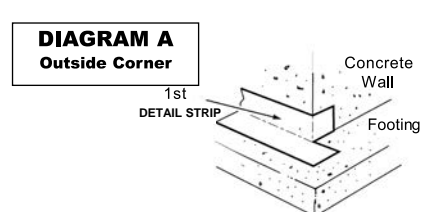
MEL-ROL LOW TEMP can be used when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C).

**Surface Conditioning ...** Apply MEL-PRIME adhesive to surfaces that will be covered within one working day. If left exposed overnight, additional adhesive must be applied. Follow all instructions and precautions on containers.

REMOVE release paper from MEL-ROL from the top edge of the roll and firmly press exposed area to the wall. Remove the release paper from the rolls in a downward direction, pressing MEL-ROL into place on the wall.

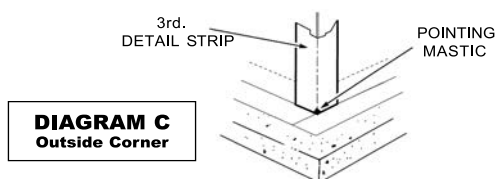
**Footing Details ...** Use DETAIL STRIP for impaction sheet coverage. First, fold strips lengthwise and then cut at the fold. Material is then ready to install as 4 ½" (114.3 mm) strips on either side of the rebar. Any excess can be turned down on the face of the footing. Next, fill the voids around rebars in the keyway with CATALYTIC BONDING ASPHALT. Pour the walls. Install DETAIL STRIP horizontally along the wall where it meets the footing, placing half the material up the wall and the other half onto the footing. Extend the material 4 ½" (114.3 mm) beyond outside corners. Slit extended portion of DETAIL STRIP lengthwise. Place the horizontal flap out onto the footing and bend the vertical flap around the wall. (See Diagram A.) Repeat this procedure in the opposite direction as shown in Diagram B.

MEL-ROL can be applied to concrete, masonry surfaces, wood, insulated wall systems, and metal. All substrates must be clean, dry, and free of all surface irregularities.



**Horizontal Application ...** Remove release paper on edge, then position the MEL-ROL membrane. Pull balance of release paper off, running the roll from low to high points, so all laps will shed water. Stagger end laps and overlap all seams at least 2 ½" (63.5 mm). Apply a double-thickness of the MEL-ROL membrane over construction, control, all expansion joints and over cracks greater than 1/16" (1.59 mm) wide.

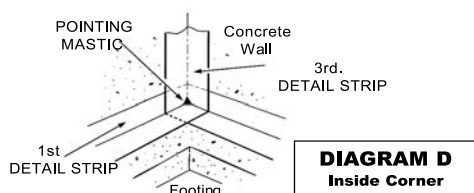
**Vertical Wall Application ...** Masonry walls may require the application of a cementitious parge-coat. Allow the parge-coat to dry before priming and applying MEL-ROL. When applied, the parge-coat will produce a smooth, uniform, and well-bonded surface. Remove release paper, then apply vertically in lengths approximately 8' (2.44 m) long over the top of the horizontal DETAIL STRIP at the footing. Overlap seams at least 2 1/2" (63.5 mm). Tightly butt edges of membrane and apply POINTING MASTIC in corner applications. (See Diagram C.)



To the top terminations, apply POINTING MASTIC at least 1/8" (3.18 mm) thick and 1" (25.4 mm) wide. As an option, TERMINATION BAR may be used to mechanically fasten the membrane.

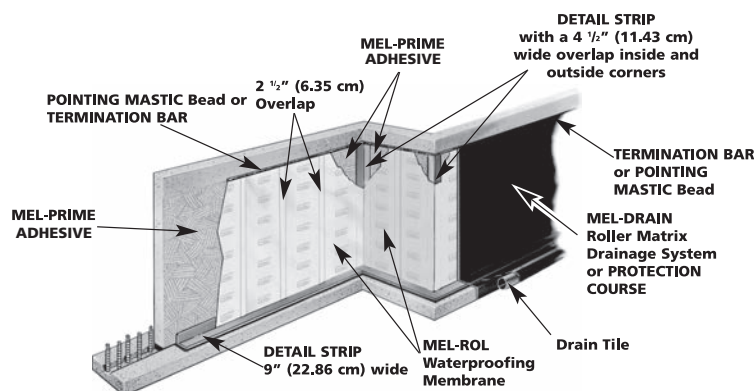
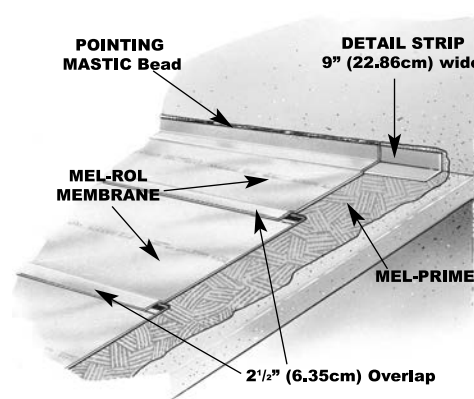
**Hand-Rub and Roll Press ...** Once positioned, immediately hand-rub the MEL-ROL membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.

**Inside Corners ...** Before MEL-ROL is applied, place a vertical DETAIL STRIP on inside corners extending the material 4 1/2" (114.3 mm) beyond each side of the corner. (See Diagram D.) Terminate at the footing and finish the corner with POINTING MASTIC.



**Outside Corners ...** Bend DETAIL STRIP vertically over the outside corner and extend 4 1/2" (114.3 mm) beyond each side of the corner. Terminate the material at the footing. Finish the corner with POINTING MASTIC. (See Diagram C.)

**Drains and Protrusions ...** All protrusions should be sealed with two layers of membrane applied at least 6" (152.4 mm) in all directions. Seal all terminations with POINTING MASTIC. Around drains, apply two layers of MEL-ROL and put a bead of POINTING MASTIC between the membrane and clamping rings and at all terminations, drains, and protrusions. See ASTM D 5898.



**Inspect and Repair ...** A thorough inspection should be made before covering and all necessary repairs made immediately. Tears and inadequate overlaps should be covered with MEL-ROL ... slit fish mouths and patch. Seal edges of all patches with POINTING MASTIC. Where applicable, horizontal applications can be flood-tested for 24 hours. All leaks should be marked and repaired when membrane dries.

**Protect the Membrane ...** on all vertical and horizontal installations with the immediate application of PROTECTION COURSE if no drainage system is used, or MEL-DRAIN. To secure PROTECTION COURSE, use POINTING MASTIC as an adhesive, and/or physically attach at the top edge using TERMINATION BAR. Backfilling should be done immediately, using care and caution to avoid damaging the waterproofing application.

## PRECAUTIONS

Avoid the use of products that contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with MEL-ROL. The use of MEL-ROL does not negate the need for relief of hydrostatic heads. A complete drain tile system should be placed around the exterior of footing and under slabs, as required.

## ACCESSORIES

**MEL-PRIME W/B ...** This water-based adhesive prepares concrete surfaces for MEL-ROL application. Arrives ready to use. Requires no additional mixing. MEL-PRIME W/B emits no unpleasant odors and works with all W. R. MEADOWS waterproofing membranes. Applies easily with manual sprayer or roller; VOC-compliant. MEL-PRIME W/B is for use at temperatures of 40° F (4° C) and up.

COVERAGE: 250 to 350 ft.<sup>2</sup>/gal. (6.14 to 8.59 m<sup>2</sup>/L)  
PACKAGING: 1 Gallon (3.79 Liter) Units (4 units per carton), 5 Gallon (18.93 Liter) Pails

**MEL-PRIME ...** This solvent-based adhesive is for use at temperatures of 25° F (-4° C) and above. Apply by roller.

COVERAGE: 250-350 ft.<sup>2</sup>/gal. (6.14 to 8.59 m<sup>2</sup>/L)  
PACKAGING: 5 Gallon (18.93 Liter) Pails

**MEL-ROL LIQUID MEMBRANE ...** A two-component material used as a flashing to form fillets at corners and at protrusions. May be used as a substitute for POINTING MASTIC. Product can also be used in between walls and footings in lieu of DETAIL STRIP.

COVERAGE: As a fillet, approximately 135 lineal feet per gallon (10.87 m per liter) PACKAGING: 1 Gallon (3.79 Liter) Units, 4 Units per carton.

**BEM ...** BEM can be used as a fillet to round out 90° angles, such as the wall-footing connection, and can be used as a substitute for MEL-ROL LIQUID MEMBRANE.

COVERAGE: As a fillet, approximately 135 lineal ft./gal. (10.9 m/L). PACKAGING: 28 Oz. (828 mL) Cartridges (12 per Carton)

**POINTING MASTIC ...** Used as an adhesive and for sealing top edge terminations on DETAIL STRIP and membrane, and to adhere PROTECTION COURSE.

COVERAGE: 1/8" x 1" x 200'/gal. (3.18 mm x 25.4 mm x 16.10 ml). PACKAGING: 5 Gallon (18.93 Liter) Pails, 29 Oz. (857.65 ml) Cartridges, 12/ctn.

**CATALYTIC BONDING ASPHALT ...** Easy-to-apply, one-component material for sealing around rebar.

COVERAGE: 5 gal./1000 ft.<sup>2</sup>/gal. (4.9 m<sup>2</sup>/L) PACKAGING: 5 Gallon (18.93 Liter) Pails.



## LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

## Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection

with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

**DETAIL STRIP ...** Convenient, easy-to-use DETAIL STRIP provides an economical and effective method for sealing vertical and horizontal butt joints, i.e. inside or outside corners and where walls and footings meet.

PACKAGING: 9" x 50' (.23 x 15.24 m) roll, 4 rolls per carton.

**PROTECTION COURSE ...** Use for vertical and horizontal applications. Adhere with POINTING MASTIC or use mechanical fasteners.

PACKAGING: 4' x 8' (1.22 x 2.44 m) panels.

**MEL-DRAIN ...** is a dimple-raised molded polystyrene fabric designed to provide high flow capacity to reduce hydrostatic pressure buildup around waterproofing and vaporproofing membranes. Choice of drain types are available for vertical, horizontal, and site applications. Use MEL-PRIME to condition surface prior to application of MEL-DRAIN.

**TERMINATION BAR ...** is a high strength, pre-formed, multi-purpose, plastic strip designed to support vertical membrane systems and PROTECTION COURSE at their termination point.

PACKAGING: 10' (Holes every 6" o/c, 2" from either end), 25 pieces per carton.

## MAINTAIN ENERGY EFFICIENCY

Wet insulating materials lose much of their "R" factor performance characteristics, reducing the energy efficiency of the structure. W. R. MEADOWS thermal and moisture protection products play a key role in *maintaining* the structure's energy efficiency and aiding in the integrity of other structural systems, such as insulation.

## LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

**For CAD details, most recent data sheet, further LEED information, and MSDS, visit [www.wrmeadows.com](http://www.wrmeadows.com).**



# SAFETY DATA SHEET

Page 1 of 2

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product:** MEL-ROL® Waterproofing Membrane **Part Number:** 5110060  
**Manufacturer:** W. R. Meadows®, Inc. **Address:** 300 Industrial Drive  
Hampshire, Illinois 60140  
**Telephone:** (847) 214-2100 **In case of emergency, dial (800) 424-9300 (CHEMTREC)**  
**Revision Date:** 9/9/2014  
**Product Use:** Waterproofing Membrane

## SECTION 2: HAZARDS IDENTIFICATION/EXPOSURE LIMITS

**HMIS**

Health	0	Product is classified as non-hazardous per OSHA 1910.1200. Mel-Rol is defined by OSHA as an "article." A manufactured item that is formed to a specific shape or design during manufacture that does not release or result in exposure to a hazardous chemical under normal use conditions.
Flammability	1	
Reactivity	0	
Personal Protection		

## SECTION 3: HAZARDS COMPONENTS

<u>Chemical Name:</u>	<u>CAS Number</u>	<u>% by Weight</u>	<u>SARA 313</u>	<u>Vapor Pressure (mm Hg@20°C)</u>	<u>LEL (@24°C)</u>
1. Petroleum Asphalt	8052-42-4	55-60	No	N/A	N/A

Under the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1966 (SARA) and 40 CFR Part 372, chemicals listed on the 313 List (40 CFR Part 373.65) are identified under the heading "SARA 313." *N/A = Not Applicable*

## SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

**EYE CONTACT:** Not expected to be an exposure route.  
**SKIN CONTACT:** Wash affected areas with soap and water if available.  
**INHALATION:** Not expected to be an exposure route.  
**INGESTION:** Not expected to be an exposure source.

## SECTION 5: FIRE AND EXPLOSIVES HAZARDS

**FLASHPOINT:** Not applicable; product is a solid.  
**EXTINGUISHING MEDIA:** Water fog, foam, dry chemical.  
**CHEMICAL/COMBUSTION HAZARDS:** Oxides and compounds of nitrogen/sulfur.  
**PRECAUTIONS/PERSONAL PROTECTIVE EQUIPMENT:** Avoid smoke inhalation. Use appropriate respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK PROCEDURES:** Not applicable. Product is a solid.

## SECTION 7: HANDLING AND STORAGE

**SAFE HANDLING PROCEDURES:** Avoid direct contact.  
**SAFE STORAGE:** Prevent job-site damage.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Chemical Name:</u>	<u>PEL</u>	<u>OSHA</u>			<u>SKIN</u>	<u>TLV</u>	<u>ACGIH</u>		<u>SKIN</u>
		<u>PEL/CEILING</u>	<u>PEL/STEL</u>	<u>TLV/CEILING</u>			<u>TLV/STEL</u>		
1. Petroleum Asphalt	5 mg/m <sup>3</sup> *	N/E	N/E	No	0.5 mg/m <sup>3</sup> *	N/E	N/E	N/E	

**ENGINEERING CONTROLS:** None required under normal use conditions.  
**PERSONAL PROTECTIVE EQUIPMENT:** Safety glasses, chemical-resistant gloves. *N/E = Not Established* \*: Asphalt Fumes

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT:</b> N/A	<b>VAPOR DENSITY:</b> N/A	<b>% VOLATILE BY VOLUME:</b> N/A
<b>EVAPORATION RATE:</b> N/A	<b>pH LEVEL:</b> N/A	<b>% VOLATILE BY WEIGHT:</b> N/A
<b>WEIGHT PER GALLON:</b> N/A	<b>PRODUCT APPEARANCE:</b> Black Solid	<b>VOC CONTENT:</b> N/A

## SECTION 10: STABILITY/REACTIVITY

**STABILITY:** Stable. **HAZARDOUS POLYMERIZATION:** Will not occur.  
**CONDITIONS AND MATERIALS TO AVOID:** None recognized.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None recognized.

## SECTION 11: TOXICOLOGICAL INFORMATION

**EYE CONTACT:** Direct contact may cause mild irritation.  
**SKIN CONTACT:** Direct contact may cause slight skin irritation.  
**INHALATION:** Not anticipated to be an exposure route.  
**INGESTION:** Not anticipated to be an exposure route.  
**SIGNS AND SYMPTOMS:** Symptoms of eye irritation include tearing, reddening, and swelling. Symptoms of skin irritation include redness and swelling. Gastrointestinal irritation symptoms include nausea, vomiting, and abdominal discomfort.  
**AGGRAVATED MEDICAL CONDITIONS:** None recognized.  
**OTHER HEALTH EFFECTS:** None recognized.

## SAFETY DATA SHEET

Date of Preparation: 9/9/14	Page 2 of 2	5112060
SECTION 12: ECOLOGICAL INFORMATION		
ECOTOXICITY: N/E	DEGRADABILITY: N/E	BIOACCUMULATIVE POTENTIAL: N/E
SOIL MOBILITY: N/E	OTHER ADVERSE EFFECTS: None Recognized	
SECTION 13: WASTE DISPOSAL INFORMATION		
WASTE DISPOSAL INFORMATION: Product is classified as a non-hazardous waste.		
SECTION 14: TRANSPORTATION INFORMATION		
HAZARDOUS/NON-HAZARDOUS MATERIAL: Not regulated by DOT.		
UN NUMBER: None	HAZARD CLASS: N/A	PACKING GROUP: N/A
UN PROPER SHIPPING NAME: N/A		
ENVIRONMENTAL HAZARDS: None recognized.		
BULK TRANSPORTATION INFORMATION: None.		
SPECIAL PRECAUTIONS: None.		
SECTION 15: REGULATORY INFORMATION		
OTHER REGULATORY CONSIDERATIONS: None recognized.		
SECTION 16: OTHER INFORMATION		
PREPARATION DATE:	9/9/2014	
PREPARED BY:	Dave Carey	

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*The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. We assume no responsibility for injury from the use of this product described herein.*

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NO. 714-F

SEPTEMBER 2013  
(Supersedes May 2013)**PRECON®**  
Blindside/Underslab Membrane**DESCRIPTION**

PRECON is a composite sheet membrane comprised of a non-woven fabric, elastomeric membrane, and W. R. MEADOWS' exclusive, patented plasmatic core (U.S. Patent No. 7,179,761). The plasmatic core is a seven-layer matrix designed for toughness and provides the lowest water vapor transmission (WVT) rating on the market. Once concrete is poured against PRECON and the concrete cures, a mechanical bond forms that secures the concrete to the membrane.

**USES**

PRECON is used as a blindside membrane in vertical applications where access to the positive side is limited. The membrane can also be used for horizontal applications for underslab waterproofing and vaporproofing.

**FEATURES/BENEFITS**

- Provides a waterproof seal between the membrane and poured concrete wall.
- Helps prevent moisture migration into the structure.
- Acts as a barrier against termites.
- Reduces methane and radon gas intrusion.

**PACKAGING**

4' (1.2 m) wide x 50' (15.2 m) long rolls, one roll per carton.

**STORAGE AND HANDLING**

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames.

**SPECIFICATIONS**

ASTM E 1993-98\*

\*Standard Specification for Bituminous Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs.

**APPLICATION**

**Surface Preparation ...** Inspect all surfaces for any conditions detrimental to the proper completion of the work. Surfaces should be structurally sound. Remove debris or any other foreign material that could damage the membrane.

**Application Method ...** PRECON may be applied at temperatures down to 40° F (5° C); however, in less than ideal environments or marginal conditions, consider the use of PRECON LOW TEMP below 60° F (16° C). PRECON LOW TEMP can be used in temperatures down to 25° F (-4° C). MEL-PRIME™ from W. R. MEADOWS should be used to enhance the bond at the selvedge edge when conditions warrant with both PRECON and PRECON LOW TEMP.

Prior to application of the blindside membrane, attach MEL-DRAIN™ rolled matrix drainage system from W. R. MEADOWS to lagging or soil retention system.

**TECHNICAL DATA**

Property	Test Method	PRECON Results
Color		Black
Thickness	ASTM D 1000	73 mil (1.85 mm)
Low Temp Flexibility	ASTM D 1970, 180° @ -25° F (-32° C)	Pass
Resistance to Hydrostatic Head	ASTM D 5385-93	230' (70 m)
Elongation	ASTM D 412-06	> 400%
Tensile Strength, Film	ASTM D 882	9200 psi (63.4 MPa)
Crack Cycling	ASTM C 836 @ -15° F (-26° C)	Pass
Puncture Resistance	ASTM E 154	> 210 lb. (> 934 N)
Peel Adhesion to Concrete	ASTM D 903	10 lb./in (1754 N/m)
Moisture Vapor Transmission	ASTM E 96B	0.0011 perms
Resistance to Penetration by Termites	Texas A&M Method Percentage of Penetration	0.0%
Resistance to Penetration by Pesticides	ASTM F 2130 Percentage of Penetration	0.0%
Resistance to Fungi in Soil	GSA-PBS 07115 – 16 Weeks	No Effect

**CONTINUED ON REVERSE SIDE...****W. R. MEADOWS, INC.**

P.O. Box 338 • HAMPSHIRE, IL 60140-0338  
Phone: 847/214-2100 • Fax: 847/683-4544  
1-800-342-5976  
[www.wrmeadows.com](http://www.wrmeadows.com)

HAMPSHIRE, IL / CARTERSVILLE, GA / YORK, PA  
FORT WORTH, TX / BENICIA, CA / POMONA, CA  
GOODYEAR, AZ / MILTON, ON / ST. ALBERT, AB

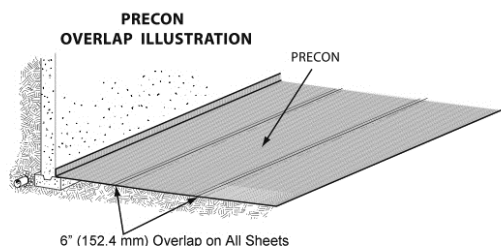
In vertical applications of PRECON, mechanically attach with fasteners every 12" (31 cm) across the top, within ½" (13 mm) of the top edge of the membrane. Install the membrane with the fabric side facing toward the concrete pour.

Remove release paper on 6" (152.4 mm) overlap. Apply membrane and roll press into place with a tile type roller.

**End Laps ...** Overlap membrane 6" (152.4 mm). Prior to overlap, apply BEM, HYDRALASTIC 836 or \*MEL-ROL® LIQUID MEMBRANE (two-component) from W. R. MEADOWS in area to be lapped. Roll press membrane into BEM, HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE. At terminations of membrane, apply BEM, HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE 12" (31 cm) wide centered over the termination and while still wet, embed 12" (31 cm) wide DETAIL FABRIC into the HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE and roll press into place. Ensure that DETAIL FABRIC is centered over the termination with 6" (15.2 cm) on each side of lap edge. Apply additional HYDRALASTIC 836 on all terminations of DETAIL FABRIC.

**Penetrations and Protrusions ...** Detail around all horizontal and vertical penetrations using BEM or MEL-ROL LIQUID MEMBRANE (two-component) from W. R. MEADOWS. Apply BEM or MEL-ROL LIQUID MEMBRANE by forming a fillet around the pipe or protrusion, overlapping the fabric side of PRECON and the protrusion a minimum of 2.5" (64 mm). If the gap between the protrusion and the membrane is greater than ½" (13 mm), apply PRECON FABRIC TAPE over the fully-cured BEM or MEL-ROL LIQUID MEMBRANE (minimum 24 hours cure required). All penetration and protrusion surfaces must be clean, rust-free, and sound prior to application of BEM or MEL-ROL LIQUID MEMBRANE.

\*MEL-ROL LIQUID MEMBRANE is a two-component material, not to be confused with MEL-ROL LM.



### LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

### Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

For horizontal applications involving a cluster of penetrations, consider the use of HYDRALASTIC 836. Prior to application of HYDRALASTIC 836, prepare the surfaces of the penetrations as above and provide a block out using 2' x 4' (.6 x 1.2 m) lumber or other in order to create a "pitch pan" area to receive HYDRALASTIC 836.

**Patching ...** Prior to pouring, inspect membrane for punctures or damage and repair as necessary with HYDRALASTIC 836 and/or DETAIL FABRIC. (BEM or MEL-ROL LIQUID MEMBRANE may be used in place of HYDRALASTIC 836.) In addition, ensure the membrane is free of standing water and has been cleaned of any deleterious materials that will affect the bond of the concrete to the membrane.

**Underslab Application ...** Refer to ACI 302.1R-04: Chapter 4 – Site Preparation and Placing Environment for sub-grade preparation prior to PRECON placement.

### PRECAUTIONS

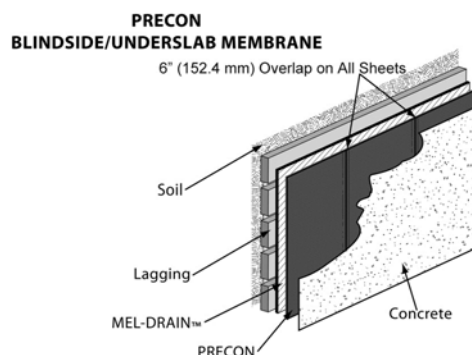
Concrete should be poured within 60 days of membrane installation. For installations below 40° F (4° C), contact W. R. MEADOWS technical services. When using bar supports, use those with a flat bottom.

### LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort – Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

For CAD details, most recent data sheet, further LEED information, and MSDS, visit [www.wrmeadows.com](http://www.wrmeadows.com).







# SAFETY DATA SHEET

Page 1 of 2

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product:** PRECON® Blindside/Underslab Membrane **Part Number:** 5118050  
**Manufacturer:** W. R. Meadows®, Inc. **Address:** 300 Industrial Drive  
Hampshire, Illinois 60140  
**Telephone:** (847) 214-2100 **In case of emergency, dial (800) 424-9300 (CHEMTREC)**  
**Revision Date:** 9/9/2014  
**Product Use:** Waterproofing Membrane

## SECTION 2: HAZARDS IDENTIFICATION/EXPOSURE LIMITS

**HMIS**

<b>Health</b>	[0]
<b>Flammability</b>	[1]
<b>Reactivity</b>	[0]
<b>Personal Protection</b>	

Product is classified as non-hazardous per OSHA 1910.1200. PRECON is defined by OSHA as an "article." A manufactured item that is formed to a specific shape or design during manufacture that does not release or result in exposure to a hazardous chemical under normal use conditions.

## SECTION 3: HAZARDS COMPONENTS

<b>Chemical Name:</b>	<b>CAS Number</b>	<b>% by Weight</b>	<b>SARA 313</b>	<b>Vapor Pressure (mm Hg@20°C)</b>	<b>LEL (@24°C)</b>
1. Petroleum Asphalt	8052-42-4	55-60	No	N/A	N/A

Under the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1966 (SARA) and 40 CFR Part 372, chemicals listed on the 313 List (40 CFR Part 373.65) are identified under the heading "SARA 313." *N/A = Not Applicable*

## SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

**EYE CONTACT:** Not expected to be an exposure route.  
**SKIN CONTACT:** Wash affected areas with soap and water if available.  
**INHALATION:** Not expected to be an exposure route.  
**INGESTION:** Not expected to be an exposure source.

## SECTION 5: FIRE AND EXPLOSIVES HAZARDS

**FLASHPOINT:** Not Applicable; Product is a solid.  
**EXTINGUISHING MEDIA:** Water fog, foam, dry chemical.  
**CHEMICAL/COMBUSTION HAZARDS:** Oxides and compounds of nitrogen/sulfur.  
**PRECAUTIONS/PERSONAL PROTECTIVE EQUIPMENT:** Avoid smoke inhalation. Use appropriate respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK PROCEDURES:** Not applicable. Product is a solid.

## SECTION 7: HANDLING AND STORAGE

**SAFE HANDLING PROCEDURES:** Avoid direct contact.  
**SAFE STORAGE:** Prevent job-site damage.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Chemical Name:</b>	<b>OSHA</b>				<b>ACGIH</b>			
	<b>PEL</b>	<b>PEL/CEILING</b>	<b>PEL/STEL</b>	<b>SKIN</b>	<b>TLV</b>	<b>TLV/CEILING</b>	<b>TLV/STEL</b>	<b>SKIN</b>
1. Petroleum Asphalt	5 mg/m <sup>3</sup> *	N/E	N/E	No	0.5 mg/m <sup>3</sup> *	N/E	N/E	N/E

**ENGINEERING CONTROLS:** None required under normal use conditions.  
**PERSONAL PROTECTIVE EQUIPMENT:** Safety glasses, chemical resistant gloves. *N/E = Not Established* \*: Asphalt Fumes

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT:</b> N/A	<b>VAPOR DENSITY:</b> N/A	<b>% VOLATILE BY VOLUME:</b> N/A
<b>EVAPORATION RATE:</b> N/A	<b>pH LEVEL:</b> N/A	<b>% VOLATILE BY WEIGHT:</b> N/A
<b>WEIGHT PER GALLON:</b> N/A	<b>PRODUCT APPEARANCE:</b> Black solid	<b>VOC CONTENT:</b> N/A

## SECTION 10: STABILITY/REACTIVITY

**STABILITY:** Stable. **HAZARDOUS POLYMERIZATION:** Will not occur.  
**CONDITIONS AND MATERIALS TO AVOID:** None recognized.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None recognized.

## SAFETY DATA SHEET

Date of Preparation: 9/9/14	Page 2 of 2	5118050
<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>		
<b>EYE CONTACT:</b> Direct contact may cause mild irritation. <b>SKIN CONTACT:</b> Direct contact may cause slight skin irritation. <b>INHALATION:</b> Not anticipated to be an exposure route. <b>INGESTION:</b> Not anticipated to be an exposure route. <b>SIGNS AND SYMPTOMS:</b> Symptoms of eye irritation include tearing, reddening, and swelling. Symptoms of skin irritation include redness and swelling. Gastrointestinal irritation symptoms include nausea, vomiting, and abdominal discomfort. <b>AGGRAVATED MEDICAL CONDITIONS:</b> None recognized. <b>OTHER HEALTH EFFECTS:</b> None recognized.		
<b>SECTION 12: ECOLOGICAL INFORMATION</b>		
<b>ECOTOXICITY:</b> N/E	<b>DEGRADABILITY:</b> N/E	<b>BIOACCUMULATIVE POTENTIAL:</b> N/E
<b>SOIL MOBILITY:</b> N/E	<b>OTHER ADVERSE EFFECTS:</b> None Recognized	
<b>SECTION 13: WASTE DISPOSAL INFORMATION</b>		
<b>WASTE DISPOSAL INFORMATION:</b> Product is classified as a non-hazardous waste.		
<b>SECTION 14: TRANSPORTATION INFORMATION</b>		
<b>HAZARDOUS/NON-HAZARDOUS MATERIAL:</b> Not regulated by DOT. <b>UN NUMBER:</b> None. <b>HAZARD CLASS:</b> N/A <b>PACKING GROUP:</b> N/A <b>UN PROPER SHIPPING NAME:</b> N/A <b>ENVIRONMENTAL HAZARDS:</b> None recognized. <b>BULK TRANSPORTATION INFORMATION:</b> None. <b>SPECIAL PRECAUTIONS:</b> None.		
<b>SECTION 15: REGULATORY INFORMATION</b>		
<b>OTHER REGULATORY CONSIDERATIONS:</b> None recognized.		
<b>SECTION 16: OTHER INFORMATION</b>		
<b>PREPARATION DATE:</b>	9/9/2014	
<b>PREPARED BY:</b>	Dave Carey	

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*The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. We assume no responsibility for injury from the use of this product described herein.*

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NO. 718

MasterFormat: 07 27 13



MARCH 2012  
(Supersedes July 2007)

## AIR-SHIELD™

### Self-Adhering Air/Vapor and Liquid Moisture Barrier

#### DESCRIPTION

AIR-SHIELD self-adhering air/vapor and liquid moisture barrier is part of a total W. R. MEADOWS system to complete the building envelope. It is a roll-type product that is nominally 40 mils thick. The membrane's controlled thickness is fabricated from cross-laminated polyethylene bonded to specially modified asphalt.

This unique, self-adhesive membrane, protected by a special release paper, is strong and durable. It remains flexible when surface mounted and will adhere to most primed surfaces at minimum temperatures of 40° F (4° C). The membrane provides excellent protection as a tough barrier that won't shrink, sag, dry out, crack, or rot. It offers excellent resistance to punctures during installation. The self-healing characteristics of AIR-SHIELD facilitate recovery if minimal damage is sustained under normal use applications, i.e. when penetrated with self-tapping screws or nails.

#### PACKAGING

AIR-SHIELD is packaged in rolls of 38.5" (.97 m) x 75' (22.86 m). AIR-SHIELD can also be cut to desired width.

Optional sizes include:

4" x 75', 6" x 75', 9" x 75', 12" x 75', 16" x 75'  
18" x 75', 20" x 75' and 24" x 75'.

#### STORAGE

AIR-SHIELD should be stored palletized and protected from rain and/or physical damage. Do not store at temperatures above 90° F (32.2° C) for extended periods of time. Do not leave membrane exposed to direct sunlight. Do not double-deck pallets. Store away from sparks or flames. Outdoors, store AIR-SHIELD on pallets and completely cover.

#### USES

AIR-SHIELD self-adhering air/vapor and liquid moisture barrier is designed for a variety of uses.

Primary applications include cavity wall and masonry wall construction. AIR-SHIELD works equally well as an air and/or vapor barrier on precast concrete, cast-in-place concrete, masonry (concrete block), interior and exterior gypsum board, Styrofoam, primed steel, aluminum mill finish, anodized aluminum, primed galvanized metal, drywall, and plywood.

#### SPECIFICATIONS

- Exceeds the requirements of the Massachusetts Commercial Energy Code for Building Envelope Systems.
- Meets CAN/CGSB-51-33, Type I Water Vapor Permeance Requirements.
- 2005 National Building Code of Canada
- ABAA Section 07261 Self-Adhering Air and Vapor Barrier Specification

#### MAINTAIN ENERGY EFFICIENCY

AIR-SHIELD provides an effective barrier to air exfiltration and infiltration, reducing condensation within the wall assembly, and increasing efficiency of a building's mechanical system. Wet insulating materials lose much of their R-factor performance characteristics, reducing the energy efficiency of the structure. W. R. MEADOWS thermal and moisture protection products play a key role in *maintaining* the structure's energy efficiency and aiding in the integrity of other structural systems, such as insulation.

CONTINUED ON REVERSE SIDE...

**TECHNICAL DATA**

Test	Results
<b>Color:</b>	White
<b>Thickness:</b>	40 mils (1 mm)
<b>Pliability @ -25° F (-32° C)</b>	No effect
<b>Tensile Strength Film</b> ASTM D 412 modified (MD): ASTM D 882 (MD): lb/in.	4000 psi (27.6 MPa) 23.5 lb/in. (4.1 N/mm)
<b>Elongation Film:</b> ASTMD 412 modified (MD, %): ASTM D 882, (MD, %):	400 (Typical) 400 Min.
<b>Puncture Resistance:</b> ASTM E 154	40 lbf (178 N) Min.
<b>Water Vapor Permeance (free film)</b> ASTM E-96, Procedure B	0.035 Perms
<b>Water Absorption (% by weight):</b> ASTM D 1970 ASTM D 570-81	0.25 Max 0.1 Max.
<b>Application Temperature:</b>	40° F (4° C) Min.
<b>Low Temperature Flexibility @ -22° F (-30° C)</b> (CGSB 37-gp-56m)	PASS
<b>Service Temperature</b>	-40° F to 158° F
<b>Lap Peel Strength @ 39° F (4° C)</b> (ASTM D 903, 180 Bend)	10 lbf/in width (1.75 N/mm)

**\*\*Air leakage tested per ASTM E 283**

**Air leakage tested per ASTM E 283, ASTM E 2178-01, and ASTM E 2357**

**FEATURES/BENEFITS**

- Low permeability - prevents the transmission of air and inhibits moisture vapor through porous building materials.
- Provides a complete above-grade air, vapor, and water barrier on a variety of construction materials.
- Controlled thickness membrane is ideal for air barrier applications.
- Cross-laminated polyethylene film has excellent tensile strength, elongation, and tear resistance.
- Modified membrane is flexible at low temperatures.
- Excellent adhesion to prepared substrates of precast concrete, cast-in-place concrete, masonry (concrete block), interior and exterior gypsum board, Styrofoam, primed steel, aluminum mill finish, anodized aluminum, primed galvanized metal, drywall, and plywood.
- Self-healing characteristics facilitate recovery if minimal damage is sustained under normal use applications.
- No flame required.
- Low temperature version also available – can be applied at temperatures between 20° F (-7° C) and 60° F (16° C).
- AIR-SHIELD XLT can be applied at minimum temperatures of 0° F (-18° C).

Pressure		Air Leakage (National Building Code of Canada Requirement)	Results for AIR-SHIELD	Air Leakage (National Building Code of Canada Requirement)	Results for AIR-SHIELD
Pa	lb./ft. <sup>2</sup>	L/S/M <sup>2</sup>		cfm/ft. <sup>2</sup>	
75	1.57	0.02	Less than 0.02	0.004	Less than 0.004

## APPLICATION

**Surface Preparation ...** All surfaces to be protected must be clean, dry, frost-free, and smooth. Remove any sharp protrusions and repair all defects. All surfaces to receive AIR-SHIELD must be clean of oil, dust, and excess mortar. Strike masonry joints flush. Concrete surfaces must be smooth and without large voids, spalled areas, or sharp protrusions. Concrete must be cured a minimum of 14 days and must be dry before AIR-SHIELD is applied. Where curing compounds are used, they must be clear resin-based, without oil, wax or pigments. Prepare substrate per manufacturer's instruction prior to application of membrane.

All surfaces to which AIR-SHIELD is to be applied must be addressed with MEL-PRIME™ or MEL-PRIME W/B adhesive from W. R. MEADOWS. MEL-PRIME may be applied to an area that is to be covered the same day. Uncovered areas must be re-addressed the next day. See container for complete application directions, drying information, and precautions.

**Application Method ...** AIR-SHIELD self-adhesive air/vapor and liquid moisture barrier can be applied at minimum temperatures of 40° F (4° C). Apply membrane to surface addressed with MEL-PRIME by removing release paper and rolling membrane firmly into place. Remove release paper only as membrane is being applied. Ensure membrane is fully adhered and remove all wrinkles and/or fish mouths. Cut AIR-SHIELD membrane with a utility knife to detail around protrusions and masonry reinforcing. Seal all end laps and protrusions with POINTING MASTIC from W. R. MEADOWS. Overlap subsequent courses of membrane a minimum of 2" (5.1 cm). Vertical terminations of AIR-SHIELD should either be tied into the wall system or mechanically fastened with TERMINATION BAR from W. R. MEADOWS. AIR-SHIELD is not designed for permanent exposure. Good construction practices call for application of insulation as soon as possible to protect the air barrier.

When used as a flexible wall flashing, AIR-SHIELD should be recessed ½" (13 mm) from the face of the masonry. Flashing should not be permanently exposed to sunlight. Do not allow the rubberized asphalt surface of the flashing membrane to come in contact with sealants containing solvents, creosote, uncured coal tar products, EPDM, or PVC components.

**Cleanup ...** Tools, etc. can be cleaned with mineral spirits, paint thinner or aromatic solvent.

## COVERAGE

Coverage is approximately 240 ft.<sup>2</sup> (22.3 m<sup>2</sup>). Net coverage when lapped 2" (5.1 cm) is 228 ft.<sup>2</sup> (21.1 m<sup>2</sup>).

## SAFETY & TOXICITY

No adverse effects expected with normal product use. Cotton work gloves and safety glasses are recommended. Refer to Material Safety Data Sheet for complete health and safety information.

## BELOW-GRADE PROTECTION

W. R. MEADOWS offers the following moisture and vaporproofing products, providing the specifying authority a single-source system for the entire building envelope:

PREMOULDED MEMBRANE® VAPOR SEAL WITH PLASMATIC CORE® (PMPC) for horizontal vapor proofing applications. Refer to data sheet #711.

MEL-ROL® waterproofing membrane. Refer to data sheet #717.

MEL-ROL PRECON blindslide/waterproofing membrane. Refer to data sheet #714-F.

MEL-DRAIN™ rolled matrix drainage system is designed to protect vaporproofing and waterproofing membranes in either horizontal or vertical applications. Refer to data sheet #719.

MEL-ROL LM single-component, water-based, polymer-modified, cold-applied waterproofing membrane. Refer to data sheet #714-A.

PERMINATOR underslab vapor barrier. Refer to data sheet #723.

## ACCESSORIES

**MEL-PRIME W/B ...** This water-based adhesive prepares surfaces for AIR-SHIELD membrane application. Product is ready to use and requires no additional mixing. MEL-PRIME W/B emits no unpleasant odors and works with all waterproofing membranes from W. R. MEADOWS. Can be applied easily by manual spraying or with a roller. Product is VOC-compliant. MEL-PRIME W/B is ideal for use at temperatures of 40° F (4° C) and above.

Coverage: 250 - 350 ft.<sup>2</sup>/gal. (6.14 to 8.6 m<sup>2</sup>/L)

Packaging: 1 Gallon (3.79 L) Units, 4/Carton and 5 Gallon (18.93 L) Pails

**MEL-PRIME Adhesive...** This solvent-based adhesive can be used at temperatures below 40° F (4° C) and above. Can be applied with a roller or brush.

Coverage: 250 - 300 ft.<sup>2</sup>/gal. (6.14 to 7.4 m<sup>2</sup>/L)

Packaging: 1 Gallon (3.79 L) Cans and 5 Gallon (18.93 L) Pails

**TERMINATION BAR ...** As an option, TERMINATION BAR may be used to mechanically fasten the membrane.

Packaging: (25) 10' pieces per 20 lb. carton (250 lineal ft.)

**POINTING MASTIC ...** Used for sealing exterior vertical and horizontal terminations, laps, around protrusions, and top edges of TERMINATION BAR.

Coverage: Approximately 200 lineal ft. (61 m) per gallon (3.79 L) when used as directed.

Packaging: 5 Gallon (18.93 Liter) Pails or 29 oz. (857.65 ml) cartridges, 12/Carton

### LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction IAQ Management  
Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

**For CAD details, most recent data sheet, further LEED information, and MSDS, visit [www.wrmeadows.com](http://www.wrmeadows.com).**



### LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

### Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.



# SAFETY DATA SHEET

Page 1 of 2

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product:** Air-Shield™ **Part Number:** 5115000  
**Manufacturer:** W. R. Meadows®, Inc. **Address:** 300 Industrial Drive  
Hampshire, Illinois 60140  
**Telephone:** (847) 214-2100 **In case of emergency, dial (800) 424-9300 (CHEMTREC)**  
**Revision Date:** 9/9/2014  
**Product Use:** Air Barrier

## SECTION 2: HAZARDS IDENTIFICATION/EXPOSURE LIMITS

**HMIS**

<b>  Health  </b>	0	Product is classified as non-hazardous per OSHA 1910.1200. Air Shield is defined by OSHA as an "article." A manufactured item that is formed to a specific shape or design during manufacture that does not release or result in exposure to a hazardous chemical under normal use conditions.
<b>  Flammability  </b>	1	
<b>  Reactivity  </b>	0	
<b>  Personal Protection  </b>		

## SECTION 3: HAZARDS COMPONENTS

<u>Chemical Name:</u>	<u>CAS Number</u>	<u>% by Weight</u>	<u>SARA 313</u>	<u>Vapor Pressure (mm Hg@20°C)</u>	<u>LEL (@24°C)</u>
1. Petroleum Asphalt	8052-42-4	80-85	No	N/A	N/A

Under the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1966 (SARA) and 40 CFR Part 372, chemicals listed on the 313 List (40 CFR Part 373.65) are identified under the heading "SARA 313." N/A = Not Applicable

## SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

**EYE CONTACT:** Not expected to be an exposure route.  
**SKIN CONTACT:** Wash affected areas with soap and water if available.  
**INHALATION:** Not expected to be an exposure route.  
**INGESTION:** Not expected to be an exposure source.

## SECTION 5: FIRE AND EXPLOSIVES HAZARDS

**FLASHPOINT:** Not applicable. Product is a solid.  
**EXTINGUISHING MEDIA:** Water fog, foam, dry chemical.  
**CHEMICAL/COMBUSTION HAZARDS:** Oxides and compounds of nitrogen/sulfur.  
**PRECAUTIONS/PERSONAL PROTECTIVE EQUIPMENT:** Avoid smoke inhalation. Use appropriate respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK PROCEDURES:** Not applicable. Product is a solid.

## SECTION 7: HANDLING AND STORAGE

**SAFE HANDLING PROCEDURES:** Avoid direct contact.  
**SAFE STORAGE:** Prevent job-site damage.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Chemical Name:</u>	<u>PEL</u>	<u>OSHA</u>			<u>SKIN</u>	<u>TLV</u>	<u>ACGIH</u>		<u>SKIN</u>
		<u>PEL/CEILING</u>	<u>PEL/STEL</u>	<u>TLV/CEILING</u>			<u>TLV/STEL</u>		
1. Petroleum Asphalt	5 mg/m <sup>3</sup> *	N/E	N/E	No	0.5 mg/m <sup>3</sup> *	N/E	N/E	N/E	

**ENGINEERING CONTROLS:** None required under normal use conditions.  
**PERSONAL PROTECTIVE EQUIPMENT:** Safety glasses, chemical-resistant gloves. N/E = Not Established \*: Asphalt Fumes

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>BOILING POINT:</b> N/A	<b>VAPOR DENSITY:</b> N/A	<b>% VOLATILE BY VOLUME:</b> N/A
<b>EVAPORATION RATE:</b> N/A	<b>pH LEVEL:</b> N/A	<b>% VOLATILE BY WEIGHT:</b> N/A
<b>WEIGHT PER GALLON:</b> N/A	<b>PRODUCT APPEARANCE:</b> Black solid	<b>VOC CONTENT:</b> N/A

## SECTION 10: STABILITY/REACTIVITY

**STABILITY:** Stable. **HAZARDOUS POLYMERIZATION:** Will not occur.  
**CONDITIONS AND MATERIALS TO AVOID:** None recognized.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None recognized.

## SECTION 11: TOXICOLOGICAL INFORMATION

**EYE CONTACT:** Direct contact may cause mild irritation.  
**SKIN CONTACT:** Direct contact may cause slight skin irritation.  
**INHALATION:** Not anticipated to be an exposure route.  
**INGESTION:** Not anticipated to be an exposure route.  
**SIGNS AND SYMPTOMS:** Symptoms of eye irritation include tearing, reddening, and swelling. Symptoms of skin irritation include redness and swelling. Gastrointestinal irritation symptoms include nausea, vomiting, and abdominal discomfort.



## SAFETY DATA SHEET

Date of Preparation: 9/9/14	Page 2 of 2	5115000
Section 11 continued		
AGGRAVATED MEDICAL CONDITIONS: None recognized.		
OTHER HEALTH EFFECTS: None recognized.		
SECTION 12: ECOLOGICAL INFORMATION		
ECOTOXICITY: N/E	DEGRADABILITY: N/E	BIOACCUMULATIVE POTENTIAL: N/E
SOIL MOBILITY: N/E	OTHER ADVERSE EFFECTS: None Recognized	
SECTION 13: WASTE DISPOSAL INFORMATION		
WASTE DISPOSAL INFORMATION: Product is classified as a non-hazardous waste.		
SECTION 14: TRANSPORTATION INFORMATION		
HAZARDOUS/NON-HAZARDOUS MATERIAL: Not regulated by DOT.		
UN NUMBER: None.	HAZARD CLASS: N/A	PACKING GROUP: N/A
UN PROPER SHIPPING NAME: N/A		
ENVIRONMENTAL HAZARDS: None recognized.		
BULK TRANSPORTATION INFORMATION: None.		
SPECIAL PRECAUTIONS: None.		
SECTION 15: REGULATORY INFORMATION		
OTHER REGULATORY CONSIDERATIONS: None recognized.		
SECTION 16: OTHER INFORMATION		
PREPARATION DATE:	9/9/2014	
PREPARED BY:	Dave Carey	

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*The information contained herein is based on the data available to us and is believed to be correct. However, we make no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. We assume no responsibility for injury from the use of this product described herein.*

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## SUBSTITUTION REQUEST

We believe our acoustical ceiling and wall solutions are a fast and simple way to create beautiful, comfortable spaces. Easy to install and durable, they protect people from noise and the spread of fire while making a constructive contribution towards a sustainable future.

Project Name: Port of Tacoma, Pier 4 Phase 2 Reconfiguration  
 Project Number: 091251  
 Location: Tacoma, WA  
 Submitted To: \_\_\_\_\_  
 Address: procurement@portoftacoma.com  
 Phone Number: \_\_\_\_\_  
 Section Number: 09 51 13.01  
 Section Title: Acoustical Panels  
 Paragraph(s): 2.02-2.03  
 Specification Page(s): 3-4

Request Number: \_\_\_\_\_  
 Request Date: April 28, 2016  
 Submitted By: Ben Pedersen  
 Company: ROCKFON LLC  
 Address: 4849 S. Austin Ave.  
Chicago IL, 60638  
 Phone Number: 800-323-7164  
 Local Distributor: Valhalla Construction Products  
 Address: 4429 95th St SW Bldg 8B Suite B  
Lakewood, WA 98499  
 Phone Number: 253-301-3831

Additional support materials included: ☒ [ X ] Product Data

☐ [ X ] Samples

☐ [ ] Other:

Specified Product ACT-1	Product: <u>Armstrong Optima</u>	Proposed Product ACT-1	Product: <u>Rockfon Sonar</u>
	Item Number: _____		Item Number: <u>14451</u>
	Size: <u>2x4</u>		Size: <u>2x4</u>
	Edge Detail: <u>Concealed</u>		Edge Detail: <u>Ship Lap</u>
	Color: <u>White</u>		Color: <u>White</u>
	NRC: <u>.90</u>		NRC: <u>.90</u>
	LR: _____		LR: <u>.85</u>
Other: <u>AC: 180</u>	Other: <u>AC:190, Inherent Mold and Sag</u>		

Resistance

Specified Product ACT-2	Product: <u>Armstrong Optima</u>	Proposed Product ACT-2	Product: <u>Rockfon Sonar</u>
	Item Number: _____		Item Number: <u>16301</u>
	Size: <u>2x4</u>		Size: <u>2x4</u>
	Edge Detail: <u>Tegular</u>		Edge Detail: <u>Angled Tegular</u>
	Color: <u>White</u>		Color: <u>White</u>
	NRC: <u>.90</u>		NRC: <u>.95</u>
	LR: _____		LR: <u>.85</u>
Other: <u>AC:180</u>	Other: <u>AC:190, Inherent Mold and Sag</u>		

Resistance

Specified Product ACT-3	Product: _____	Proposed Product ACT-3	Product: _____
	Item Number: _____		Item Number: _____
	Size: _____		Size: _____
	Edge Detail: _____		Edge Detail: _____
	Color: _____		Color: _____
	NRC: _____		NRC: _____
	LR: _____		LR: _____
Other: _____	Other: _____		

Specified Product ACT-4	Product: _____	Proposed Product ACT-4	Product: _____
	Item Number: _____		Item Number: _____
	Size: _____		Size: _____
	Edge Detail: _____		Edge Detail: _____
	Color: _____		Color: _____
	NRC: _____		NRC: _____
	LR: _____		LR: _____
Other: _____	Other: _____		

Approved: \_\_\_\_\_  
 Print Name

Signature \_\_\_\_\_  
 Date

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS  
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Ben Pedersen</u>	Contract No.	<u>070136</u>
Prime/Sub/Supplier:	<u>Valhalla Construction Products</u>	Date:	<u>4/28/16</u>

Specification Title:	<u>Acoustical Panel Ceilings</u>	Section No.	<u>09 51 13.01</u>
Description:	<u>Acoustical Ceiling Tiles</u>	Paragraph:	<u>2.02</u>
		Page No.	<u>3</u>

Proposed Substitution:	<u>Rockon Sonar 14451</u>		
Trade Name:	<u>Sonar</u>	Model No.:	<u>14451</u>
Manufacturer:	<u>Rockfon</u>		
Address:	<u>4849 S Austin Ave. Chicago, IL</u>	Phone No.:	<u>800 323 7164</u>

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By:	<u>Ben Pedersen</u>		
Signed By:	<u>Ben Pedersen</u>	Firm:	<u>Rockfon</u>
Address:	<u>4849 S Austin Ave</u>		
	<u>Chicago, IL 60638</u>		
Telephone:	<u>800 323 7164</u>	Email:	<u></u>

Supporting Data Attached:

☒ Drawings   ☒ Product Data   ☐ Samples   ☐ Tests   ☐ Reports   ☐ Other

ENGINEER'S REVIEW AND ACTION

- ☒ Substitution approved  
☐ Substitution approved as noted  
☐ Substitution rejected - Use specified materials.  
☐ Substitution Request received too late - Use specified materials.

Signed by:	<u>Mark Kunkel</u>	Date:	<u>5/2/16</u>
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DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS  
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

<b>Project Title</b>	<u>Pier 4 Phase 2 Reconfiguration</u>	<b>Project No.</b>	<u>091251</u>
Submitted By:	<u>Ben Pedersen</u>	Contract No.	<u>070136</u>
Prime/Sub/Supplier:	<u>Valhalla Construction Products</u>	Date:	<u>4/28/16</u>

Specification Title:	<u>Acoustical Panel Ceilings</u>	Section No.	<u>09 51 13.01</u>
Description:	<u>Acoustical Ceiling Tiles</u>	Paragraph:	<u>2.03</u>
		Page No.	<u>4</u>

Proposed Substitution:	<u>Rockon Sonar 16301</u>		
Trade Name:	<u>Sonar</u>	Model No.:	<u>16301</u>
Manufacturer:	<u>Rockfon</u>		
Address:	<u>4849 S Austin Ave. Chicago, IL</u>	Phone No.:	<u>800 323 7164</u>

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

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- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By:	<u>Ben Pedersen</u>		
Signed By:	<u>Ben Pedersen</u>	Firm:	<u>Rockfon</u>
Address:	<u>4849 S Austin Ave</u>		
	<u>Chicago, IL 60638</u>		
Telephone:	<u>800 323 7164</u>	Email:	<u></u>

Supporting Data Attached:

☒ Drawings   ☒ Product Data   ☐ Samples   ☐ Tests   ☐ Reports   ☐ Other

ENGINEER'S REVIEW AND ACTION

- ☐ Substitution approved  
☐ Substitution approved as noted  
☒ Substitution rejected - Use specified materials.  
☐ Substitution Request received too late - Use specified materials.

Signed by:	<u>Mark Kunkel</u>	Date:	<u>5/2/16</u>
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# Rockfon® Sonar™

## FEATURES & BENEFITS:




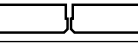



- Elegant lightly-textured white surface
- High sound absorption (NRC = 0.90 - 0.95)
- High fire performance
- High light reflectance (LR = 0.85)
- Optimal design freedom thanks to a large selection of edges (lay-in, tegular, concealed)
- Available in a variety of sizes and formats, including planks

## APPLICATIONS:

- Open-plan offices
- Single offices
- Classrooms
- Corridors
- Meeting rooms
- Foyers, lobbies and reception areas
- Retail/shops
- Waiting rooms
- Multifunctional rooms





										Thermal Insulation		
Edge designation		Item number	Modular size	lbs/sqft	sqft/carton	NRC	CAC	AC	Fire Class	Light Reflectance	R Value (BTU Units)	RSI Value (Watts Units)
 Square Lay In	SQ	16100	2' x 2' x 1"	0.69	64	0.95	22	190	A	0.85	3.5	0.62
	SQ	16101	2' x 4' x 1"	0.69	64	0.95	22	190	A	0.85	3.5	0.62
	SQ	16102	2' x 5' x 1"	0.69	80	0.95	22	190	A	0.85	3.5	0.62
	SQ	16103	2' x 6' x 1"	0.69	96	0.95	22	190	A	0.85	3.5	0.62
	SQ	16104	2' X 8' X 1"	0.69	128	0.95	22	190	A	0.85	3.5	0.62
	SQ	16105	30" x 30" x 1"	0.69	37.5	0.95	22	190	A	0.85	3.5	0.62
	SQ	16106	20" x 60" x 1"	0.69	66.67	0.95	22	190	A	0.85	3.5	0.62
	SQ	16107	4' x 4' x 1"	0.69	128	0.95	22	190	A	0.85	3.5	0.62
 Square Tegular Narrow	SLN	16200	2' x 2' x 1"	0.69	32	0.95	22	190	A	0.85	3.5	0.62
	SLN	16201	2' x 4' x 1"	0.69	64	0.95	22	190	A	0.85	3.5	0.62
	SLN	16202	2' x 5' x 1"	0.69	60	0.95	22	190	A	0.85	3.5	0.62
	SLN	16203	2' x 6' x 1"	0.69	72	0.95	22	190	A	0.85	3.5	0.62
	SLN	16204	2' x 8' x 1"	0.69	96	0.95	22	190	A	0.85	3.5	0.62
	SLN	16205	30" x 30" x1"	0.69	37.5	0.95	22	190	A	0.85	3.5	0.62
	SLN	16207	4' x 4' x 1"	0.69	96	0.95	22	190	A	0.85	3.5	0.62
 Angled Tegular	SLT	16300	2' x 2' x 1"	0.69	32	0.95	22	190	A	0.85	3.5	0.62
	SLT	16301	2' x 4' x 1"	0.69	64	0.95	22	190	A	0.85	3.5	0.62
	SLT	16302	2' x 5' x 1"	0.69	60	0.95	22	190	A	0.85	3.5	0.62
	SLT	16303	2' x 6' x 1"	0.69	72	0.95	22	190	A	0.85	3.5	0.62
	SLT	16304	2' x 8' x 1"	0.69	96	0.95	22	190	A	0.85	3.5	0.62
	SLT	16305	30" x 30" x 1"	0.69	37.5	0.95	22	190	A	0.85	3.5	0.62
	SLT	16307	4' x 4' x 1"	0.69	96	0.95	22	190	A	0.85	3.5	0.62
 Direct Mount	DMT	14350	2' x 2' x 3/4"	0.69	40	0.90	22	190	A	0.85	2.6	0.46
 Shiplap	SLP	14450	2' x 2' x 3/4"	0.69	40	0.90	22	190	A	0.85	2.6	0.46
	SLP	14451	2' x 4' x 3/4"	0.69	80	0.90	22	190	A	0.85	2.6	0.46
	SLP	14453	2' x 6' x 3/4"	0.69	96	0.90	22	190	A	0.85	2.6	0.46
	SLP	16454	2' x 8' x 1"	0.84	96	0.90	25	190	A	0.85	3.5	0.62
	SLP	16455	30" x 30" x 1"	0.84	37.5	0.90	25	190	A	0.85	3.5	0.62
	SLP	16457	4' x 4' x 1"	0.84	96	0.90	25	190	A	0.85	3.5	0.62
 Semi-Concealed	SCD	14550	2' x 2' x 3/4"	0.69	40	0.90	22	190	A	0.85	2.6	0.46
	SCD	14551	2' x 4' x 3/4"	0.69	80	0.90	22	190	A	0.85	2.6	0.46
	SCD	14552	2' x 5' x 3/4"	0.69	80	0.90	22	190	A	0.85	2.6	0.46
	SCD	16554	2' x 8' x 1"	0.84	96	0.90	25	190	A	0.85	3.5	0.62
	SCD	16555	30" x 30" x 1"	0.84	37.5	0.90	25	190	A	0.85	3.5	0.62
 Concealed - X	CDX	14600	2' x 2' x 7/8"	0.75	40	0.90	22	190	A	0.85	3.1	0.54
	CDX	14601	2' x 4' x 7/8"	0.75	80	0.90	22	190	A	0.85	3.1	0.54
	CDX	16605	30" x 30" x 1"	0.84	37.5	0.90	22	190	A	0.85	3.5	0.62

## MATERIAL:

Stone wool (Mineral Wool) ceiling tiles

## SURFACE FINISH:

Factory painted glass scrim

## FIRE PERFORMANCE:

Surface burning characteristics: UL723 (ASTM E84) Flame Spread Index 0, Smoke developed Index 0 (UL Labeled). CAN/ULC S102 Flame Spread Index 10, Smoke developed Index 5.

## ASTM E1264 CLASSIFICATION:

Type XX - Stone wool base with membrane-faced overlay, Pattern E

## SAG RESISTANCE:

ROCKFON ceiling tiles are dimensionally stable even at high humidity levels of up to 100% relative humidity and can be installed at all temperatures ranging from 32 °F to 104 °F. No acclimatization is needed. ROCKFON ceiling tiles can be installed during the very early stage of the build (when windows are

not fully sealed) without any risk of deflection of the tiles. The low weight, stability and nonhygroscopic character of ROCKFON tiles will limit the weight of the fully installed ceiling whilst retaining its declared properties even when applied in infrequently heated and unheated rooms without condensation.

## VOC/FORMALDEHYDE EMISSIONS:

The product fulfils requirements for low emitting acoustic ceiling tiles and meets the California Department of Health Services Standard Method V1.1 (February 2012) "Standard method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers (Section 01350)." Selected potential applications: LEED, CHPS and CALGreen. All ROCKFON stone wool acoustic ceiling solutions are GREENGUARD Gold certified to GREENGUARD standards for low chemical emissions into indoor air during product usage.

## HYGIENIC PROPERTIES:

ROCKFON ceiling tiles are made of water repellent stone wool. Stone wool has no

nutritional value and therefore it provides no sustenance to harmful micro-organisms.

## CLEANING PROPERTIES:

The surface can be vacuum cleaned with a soft brush attachment. It can also be cleaned using a damp cloth with cold or warm water (max. 104 °F) with a slightly alkaline detergent (pH between 7 and 9) without alcohol, ammonia or chlorine. Cleaning with a sponge or damp cloth may render the surface slightly shinier and we therefore recommend cleaning the whole surface evenly for best results.

## WARRANTY INFORMATION:

30-Year Limited Product Warranty. See [www.rockfon.com](http://www.rockfon.com)

## SUSTAINABILITY:

ROCKFON stone wool ceiling tiles are primarily made from abundantly available basalt rock and contain up to 42% recycled materials. ROCKFON products supplied in North America are produced in ISO9001/ISO14001 certified factories.