



HALOGENATED FLAME RETARDANTS IN BUILDING INSULATION

WHAT PRODUCTS DO WE USE?

Mineral Wool

- ✓ Interior and Exterior applications

Extruded Polystyrene (XPS)

- ✓ Roofing, below deck pavers, vertical envelopes, below grade

Expanded Polystyrene (EPS)

- ✓ Build-Ups under concrete slabs or in planters

Polyisocyanurate (Polyiso)

- ✓ Roofing and vertical envelopes

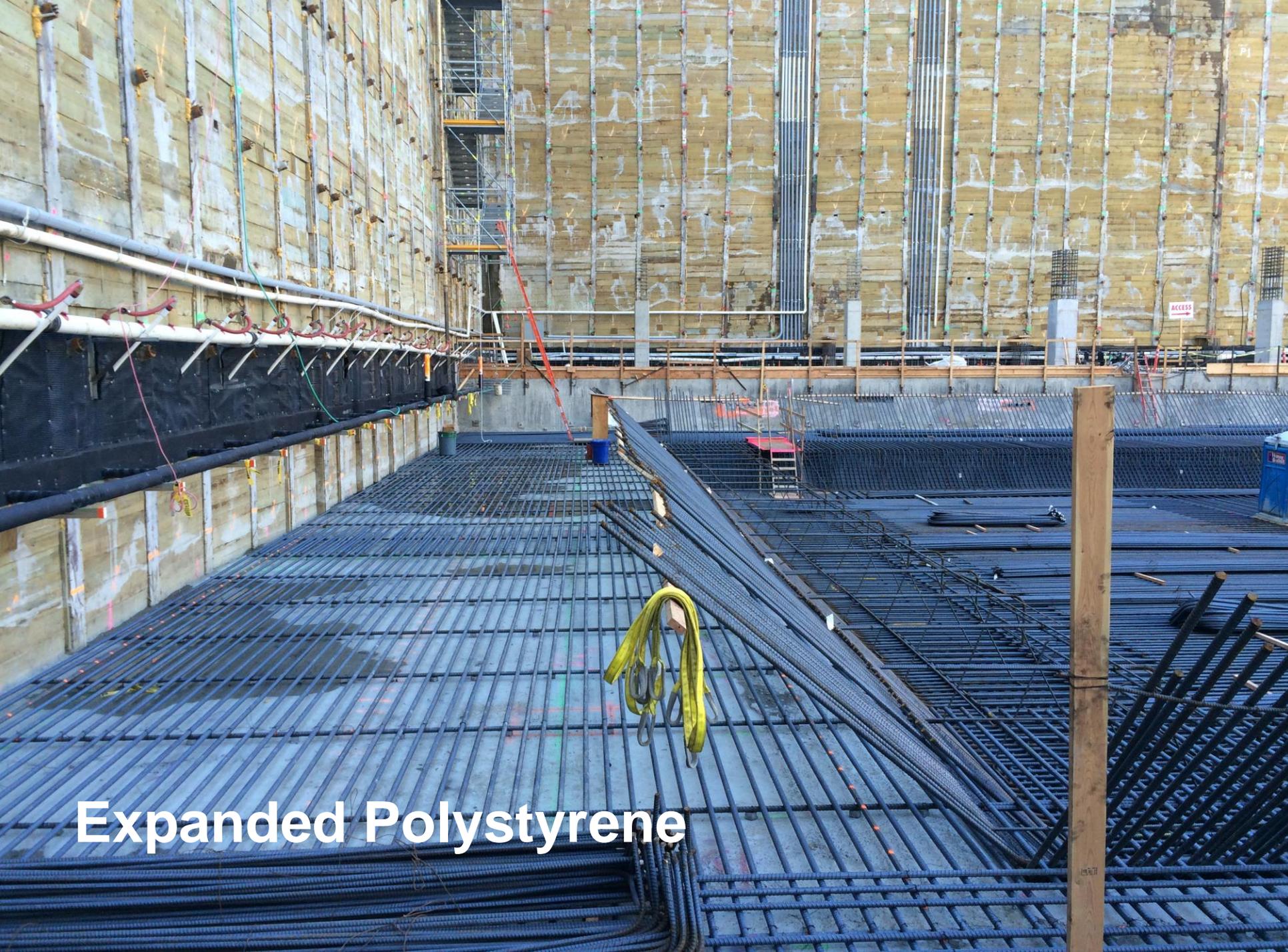
Polyurethane Spray

- ✓ Vertical envelope barrier

AWARENESS OF TOXINS:

- Asbestos
- Formaldehydes
- Halogenated Flame Retardants
- Pentane





Expanded Polystyrene

POLYURETHANE SPRAY



HOW WOULD CONTRACTORS SELECT NON-TOXIC INSULATION?

- ❑ **All purchase and install per our contract Specification**
- ❑ **Some sustainability-minded firms specify/select HFR-Free**
- ❑ **Sellen's approach:**
 - ✓ Leverage Design-Build opportunities
 - ✓ Assist Clients who value toxic material reduction
 - ✓ Proactive outreach to Architects RE: Healthy Materials

HFR-FREE SELECTION CHALLENGES?

☐ Quality

- ✓ Confirm product meets Specifications and ASTM Standards
- ✓ Ensure material compatibility issues addressed

☐ Safety

- ✓ Follow SDS, PPE and installation directions
- ✓ Off-gassing of blowing agent and HFRs
- ✓ Future impacts of those regrettable substitutions

☐ Sustainability

- ✓ Building Certification documentation: EPD, HPD, Declare Label
- ✓ Healthy Materials
- ✓ Low Global Warming Potential and Ozone Depletion Potential
- ✓ Embodied Carbon footprint

HOW DO YOU IDENTIFY HFR-FREE?

☐ **Easy: Website or Product Data Sheets**

- ✓ Product name says HFR-Free
- ✓ Website – see example

☐ **Somewhat time consuming: Look for Certifications**

- ✓ Declare Label- Red List Free
- ✓ Health Product Declaration (HPD)

☐ **More time consuming: Manufacturer**

- ✓ SDS review for CAS#
- ✓ Call Manufacturer for missing components



SUSTAINABILITY FACT SHEET Jet Stream® Ultra



PRODUCT: Jet Stream® Ultra Loosefill insulation for walls and ceilings

DESCRIPTION: Inorganic glass fiber building insulation with a small amount of organic lubricant for use with essentially all Loosefill insulation blowing machines. The product has a high degree of recycled content.

SUSTAINABILITY ATTRIBUTES:

- ✓ High Recycled Content
- ✓ No Fire Retardants Added
- ✓ Type III Environmental Product Declaration
- ✓ GREENGUARD Gold
- ✓ Formaldehyde Free
- ✓ Complete Ingredient Disclosure
- ✓ Red List Free
- ✓ Meets California Department of Public Health (CDPH) Standard Method V1.1-2010

LIVING BUILDING CHALLENGE: Jet Stream® Ultra has a Declare® label and is Redlist Free.



See the following link:

<http://declareproducts.com/content/knauf-jetstream-ultra-loosefill-insulation>

MANUFACTURING FACILITY LOCATIONS:

- Shelbyville, IN 46176
- Lanett, AL 36863
- Shasta Lake, CA 96019
- Inwood, WV 25428
- Albion, MI 49224

ENVIRONMENTAL PRODUCT DECLARATION: The Type III EPD is available online at the following link:

http://productguide.ulenvironment.com/productDocuments/358/15/Knauf_102.1_EPD_BlowingWool_13Nov2013.pdf

RECYCLED CONTENT: The recycled content is 3rd party validated by UL Environment at the following link:

<http://productguide.ulenvironment.com/ProductDetail.aspx?productID=30443&BrandID=358&CertificationID=21&pageNumber=2>

RAPIDLY RENEWABLE CONTENT: None

INDOOR ENVIRONMENTAL INFORMATION:

This product is certified as GREENGUARD Gold by the UL GREENGUARD Environmental Institute. This product is also validated to be Formaldehyde Free by UL GREENGUARD, see all certificates and validations at:

Name ENRGY 3®.E

Product ID JM Polyiso Insulation, ENRGY 3®.E

Classification 07 01 00.00 Thermal and Moisture Protection (insulation water barrier): Operation and Maintenance of Thermal and Moisture Protection



Website www.jm.com/en/building-materials/commercial-roofing

Manufacturer Address Johns Manville 717 17th St Denver, Co 80202

Contact Name Title Kelly Sandin Senior Product Regulatory and Safety Specialist Phone 303 978 2605 Email kelly.sandin@jm.com

Description Next generation polyisocyanurate insulation board where the fire resistance has been engineered into the polymer backbone without the need for added halogenated flame retardants.

Release Date 2014-06-20

Expiry Date 2017-06-20

HPD URL https://tool.hpdcollaborative.org/uploads/files/hpds/647/1115-20140620175639.pdf

Self-declared

Second Party

Third Party

Certifier Certificate #

POLYISOCYANURATE FOAM	9063-78-9	71 %	LT-U	PC	N	Insulating foam
None found	No warnings found on HPD Priority lists					
Cellulose	65996-61-4	21 %		BO	N	Facer
None found	No warnings found on HPD Priority lists					
Amount varies with the thickness of the final product						
PENTANE	109-66-0	5 %	LT-P1	N	N	blowing agent
MAMMALIAN	EU H-Statements: H304: May be fatal if swallowed and enters airways					
ACUTE AQUATIC	EU R-Phrases: R51: Toxic to aquatic organisms.					
CHRON AQUATIC	EU H-Statements: H411 - Aquatic Chronic 2 - Toxic to aquatic life with long lasting effects					
FLAMMABLE	EU H-Statements: H225 Highly flammable liquid and vapour.					
MULTIPLE	Vw/vs: Class 2 Hazard to Waters					

SELLEN'S APPROACH

❑ Leverage Design-Build opportunities

- ✓ Chemicals of Concern Specification Section*
- ✓ Specify HFR-Free Products*

❑ Assist Clients who value toxic material reduction

- ✓ Campus-client encouraged WELL Standard 25 Toxic Material Reduction
- ✓ Town Hall Seattle – Research CAS# of all Materials before Specify

❑ Proactive outreach to Architects about Healthy Materials

- ✓ Members of Healthy Materials Collaborative
- ✓ Participate in the AIA Materials Matter program
- ✓ Educated staff about green chemicals and safer alternatives

**Actions in progress*

Browser window showing the WELL Standard #25 Toxic Material Reduction page. The page is divided into three sections, each with a corresponding verification box on the right.

Section	Verification
Perfluorinated Compound Limitation <p>No perfluorinated compounds (PFCs) are present in the following condition:</p> <ul style="list-style-type: none">a. ³⁶ At levels equal to or greater than 100 ppm in components that constitute at least 5% by weight of a furniture or furnishing (drapes/curtains) assembly.	VERIFICATION Letter of Assurance - Architect & Owner
PART 2 Flame Retardant Limitation <p>Halogenated flame retardants are limited in the following components to 0.01% (100 ppm) to the extent allowable by local code:</p> <ul style="list-style-type: none">a. ³⁶ Window and waterproofing membranes, door and window frames and siding.b. ³⁶ Flooring, ceiling tiles and wall coverings.c. ³⁶ Piping and electrical cables, conduits and junction boxes.d. ³⁶ Sound and thermal insulation.e. ³⁶ Upholstered furniture and furnishings, textiles and fabrics.	VERIFICATION Letter of Assurance - Architect & Contractor
PART 3 Phthalate (Plasticizers) Limitation <p>DEHP, DBP, BBP, DINP, DIDP or DNOP (often found in polyvinyl chloride [PVC]) are limited in the following components to 0.01% (100 ppm):</p> <ul style="list-style-type: none">a. ³⁶ Flooring, including resilient and hard surface flooring and carpet	VERIFICATION Letter of Assurance - Architect & Contractor



TOWN HALL: RESEARCHED NON-TOXIC MATERIALS TO SPECIFY

Step 1: PHAROS, DATABASES, MANUFACTURER RESEARCH

TOWN HALL RENOVATION- Material Matrix							STEP 1: PROCURE HPD							STEP 2: REVIEW PRO				
#	SPEC SECTION	PRODUCT NAME	PRODUCT MANUFACTURER	IS PRODUCT SPECIFIED? SUGGESTED? OR BULLITT PRE-APPROVED	NOTES	PRODUCT RED LIST STATUS	1-A: DATABASE				1-B: INTERNET, if applic			1-C: DIRECT TO MANUFACTURER, if applicable			2-A: SELLEN R	
							Pharos Database Search	HPD Available on Pharos	Internet Search for HPD	HPD Available on Internet	Date HPD Request Letter Sent	HPD Request Letter Recipient Compliance Likelihood Scale	Date Red List Request Letter Sent	Date HPD Received	Date Red List Disclosure Received	Date Product Package Reviewed by Sellen	Seller Record	
75b.1	064100	Sierra Pine Arries, FibrLite Free, Medex, MediteII, Medite II 3D, Medite MR50, Medite FR, and Arreis FR	Sierra Pine Ltd., Ampine	Suggested	HPD found on SMithGroupJJR.org. Doesn't give CAS# for all known hazards. Chase Red List Free letter from Jbaker@sierrapine.com. Firm sold to Roseburg and Ampine- await docs 11/30 pending. 3/4/17: Jeff no longer at company. Completed https://www.timberproducts.com/talk-to-an-expert-form . await response. 3/6/17: Some materials will be LBC 3.1 Compliant and have Declare Label by end of March 2017- See list to specify LBC compliant materials. 3/16/17: Timber Products Sara Anderson ssanderso@timberproducts.com says	FREE	Completed	Yes	Completed	Yes	11/9/2015, 3/4	Unknown	11/9/2015, 3/	11/9/2015	3/6/2017	12/10/2015	As-Is	
75c	064100	3M Fastbond Contact Adhesives 30-NF, 30H-NF	3M	Suggested	Custom Interiors uses this product. Research for HPDs. Emailed http://solutions.3m.com/wps/portal/3M/en_US/RoHS-Cert/Home/Contact/ThankYou/ with request for all 3M products found in this log. Itsd@mmm.com replied with link to EHS info.- download files and review chemicals of concern (I think they are RLF). Skip Preston spreston@mmm.com says 30-NF is not compliant and 30H-NF discontinued. Architect specify compliant alternate.	RED	Completed	Yes	Completed	Yes	11/9/2015	Unknown	11/9/2015	NA	NA	11/25/2015	Subst	
75d	064100	Dap Alex Plus Acrylic Latex Caulk Plus Silicone (Clear)	Dap	Suggested	Custom Interiors uses this product. Research for HPDs. 1-888-327-8477	FREE	Completed	No	Completed	No	11/9/2015	3-Neutral	11/9/2015	NA	11/11/2015	11/11/2015	As-Is	

Step 2: RED LIST MATERIAL LOOK-UP BY CAS#

Red List Material CAS# Look-up

MATERIAL 1		MATERIAL 2		MATERIAL 3		MATERIAL 4		MATERIAL 5		MATERIAL 6		MAT
7429-90-5	FREE	25640-14-6	FREE	9003-56-9	FREE	25640-14-6	FREE	XX-XX-XX	RED	XX-XX-XX	RED	25038-54-
1317-65-3	FREE	113669-95-7	FREE	65997-17-3	FREE	xx-xx-xx	RED	13463-67-7	FREE	80-15-9	FREE	

Step 3 & 4: REVIEW, APPROVE, SUBSTITUTE

STEP 2: REVIEW PROCESS					STEP 3: SUBSTITUTION PROCESS, <i>if applicable</i>				RED LIST M
2-A: SELLEN REVIEW		2-B: POINT32 REVIEW							MAT
Date Product Package Reviewed by Sellen	Sellen's Recommendation	Date Sent to Point32 for Approval	Notes2	Point32 Product Decision	Contact Vendor to Request Substitution	Is a Code-Compliant Alternative Available?	Notes (lead time, cost impacts, etc.)	Line Item of Sub Product	1-CAS #
12/10/2015	As-Is								
11/25/2015	Substitute	12/1/2015		Rejected	Not Started		Need architect to specify alternate.	TBD	
11/11/2015	As-Is	11/25/2015		Approved	N/A	N/A	NA	NA	

Letter to Manufacturers

As part of a comprehensive sustainability strategy, Town Hall has committed to minimize the toxics introduced to their space through construction, and promote transparency in chemical disclosure. We are looking to your firm for leadership and collaboration with their efforts.

We request that you must file a contract for various testing, for your

We kindly request that you **Declare** the following:

-
-
-

HPDs are included into project

This project is Town Hall's vision to make materials

1. Educated Manufacturer about HPDs and Red List

- ✓ Provided useful links
- ✓ Provided Red List
- ✓ Personal follow-up

2. Requested documentation

3. Highlighted the self-verification approach

Manufacturer documents, templates, or only

Product name

Conclusion

own these

We would like to hear from you, regardless of your choice to provide an HPD/Red List Free Letter or not, so we can understand the barriers to your firm. Our team looks forward to collaborating with you on reducing toxicity in materials.

SPECIFICATIONS AND MATERIAL VETTING REPORT

MATERIAL VETTING REPORT

- 4) MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.
 - a) Arreis by Sierra Pine Ltd.
 - <<<vetted-AWC Sellen 11 TownHall>>
 - b) Medex by Sierra Pine Ltd.
 - <<<vetted-AWC Sellen 15 TownHall>>
 - c) Medex FR by Sierra Pine Ltd.
 - <<<vetted-AWC Sellen 16 TownHall>>
 - d) Medite II by Sierra Pine Ltd.
 - <<<vetted-AWC Sellen 17 TownHall>>
- 3. PROTECTION
 - d. Flame Retardant: WT-103 by FireTect.
 - <<<vetted Sellen 71 TownHall>> *Not Approved.*
 - a. Wood Sealants and Coatings:
 - 1) _____ by Rubio Monocoat.
 - <<<vetted Sellen 72 TownHall>>
 - 2) Rubio Monocoat Oil by Rubio Monocoat.
 - <<<vetted Sellen 72a TownHall>>
 - 3) Ornamental Woodwork, Acoustic Reflector by Daly's.
 - <<<vetted Sellen 73a TownHall>>
 - 4) Oxalic Acid Wood Cleaner by Daly's.
 - <<<vetted Sellen 73b TownHall>>
 - 5) Wood Bleaching Solution A&B by Daly's.
 - <<<vetted Sellen 73c TownHall>>
 - 6) Osmo Pro Polyx-Oil #5125 by Osmo.
 - <<<vetted Sellen 74 TownHall>>
 - 7) Arch H2O Block by Arch Wood Protection.
 - <<<vetted Sellen 74a TownHall>>
 - 8) Antiblu IP 75 Dip Solution (for Arch H2O Block) by Arch Wood Protection.
 - <<<vetted Sellen 74b TownHall>>
 - 9) Arclin Adhesive by Arclin.
 - <<<vetted-UNS Sellen 74c TownHall>>

Comment [JD14]: Not relevant to project
Formatted: Strikethrough

1.9 064100 - ARCHITECTURAL WOOD CASEWORK

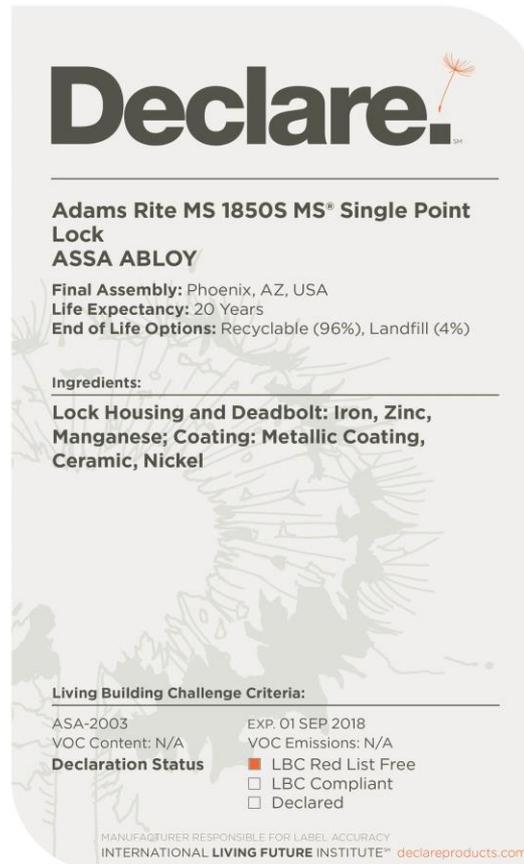
- a. Living Building Challenge: 2014 Bullitt Center As-Built Product List
 - 1) Hardware Resource Aluminum Pulls - Hardware Resources
- 2. MATERIALS
 - a. Cabinet units.
 - 1) Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards for Grades as indicated.
 - a) Wood Veneer Faced Cabinets; Premium Grade.
 - Apply/Europly with finish faces and self edge. #473
 - <<<Not vetted>>

Arch Specify FSC M&WF

Comment [JD15]: Use Europly, self edge, species per architect. <http://www.columbiaforestproducts.com/product/designedge/>



TRANSPARENCY & DECLARATION TREND



Declare.

Adams Rite MS 1850S MS[®] Single Point Lock
ASSA ABLOY

Final Assembly: Phoenix, AZ, USA
Life Expectancy: 20 Years
End of Life Options: Recyclable (96%), Landfill (4%)

Ingredients:

Lock Housing and Deadbolt: Iron, Zinc, Manganese; Coating: Metallic Coating, Ceramic, Nickel

Living Building Challenge Criteria:

ASA-2003	EXP. 01 SEP 2018
VOC Content: N/A	VOC Emissions: N/A
Declaration Status	<input checked="" type="checkbox"/> LBC Red List Free
	<input type="checkbox"/> LBC Compliant
	<input type="checkbox"/> Declared

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY
INTERNATIONAL LIVING FUTURE INSTITUTE™ declareproducts.com

Section 1: Summary

Basic Method / Product Threshold

ID: 65997-17-3

MINERAL WOOL (BIOINSOLUBLE, WITH ALKALINE OXIDE AND ALKALI EARTH OXIDE
CONTENT GREATER THAN 18 % BY WEIGHT)

%: 50.0000 - 80.0000

GS: LT-UNK

RC: PreC

NANO: No

ROLE: Core

HAZARDS:

AGENCY(IES) WITH WARNINGS:

CANCER

EU - R-phrases

R40 - Limited Evidence of Carcinogenic Effects

CANCER

EU - GHS (H-Statements)

H351 - Suspected of causing cancer

SUBSTANCE NOTES: Mineral fiber is not classified as a carcinogen by IARC, NTP, CA Proposition 65 or OSHA. The R40 and H351 phrases below are triggered by a special provision "Note Q", found only in the EU's CLP Regulation and for which the applicability to the provided products is neither certain nor adopted by the manufacturer. The world's leading institute on carcinogen classification, the International Agency for Research on Cancer (IARC) has determined that there is insufficient evidence to classify this material as carcinogenic. The EU's CLP Regulation focused on creating criteria to characterize biosolubility, but did not provide data to support a causal relationship between the EU test method and actual carcinogenicity.

[CAN] END POLYMERIZABLE (EPA) [2009] QUARTZ [2009] [CAN]
STARCH, PHOSPHATE [LT-UNK] SILICA, AMORPHOUS [LT-P] [CAN]
ALUMINA TRIHYDRATE [BM-2] [RES]

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: Clear Chem - Berkeley Analytical - Third Party compliant with CDPH/EHLB Std. Method V1.1 2010 . VOC Certificate of Compliance for Ultima
LCA: Environmental Product Declaration
Other: International Living Future Institute - Ultima AirGuard Declare Label

MANUFACTURER RED LIST FREE LETTERS

December 7, 2015

RE: Owens Corning Confirmation of Foamular® – Zero Ozone Depletion Formula to the ILBC v. 2.0/2.1 Red List of Materials

This letter describes compliance of Owens Foamular® extruded polystyrene insulation with the Red List requirements of the Living Building Challenge.

Owens Corning Foamular® extruded polystyrene insulation does contain a halogenated flame retardant, but there is a specific exemption in the Materials Petal Handbook allowing the use of a halogenated flame retardant for products of this type (I10-E12 9/2010).

Besides the halogenated flame retardant, there are no other Red List chemicals or materials in the Foamular® extruded polystyrene insulation.

WHAT DRIVES THE MARKET?

❑ COST PER R-VALUE

- ✓ Energy efficiency trend changing market from cost per square foot or per inch to cost per R-Value

❑ BUILDING CODES AND FIRE-LIFE SAFETY CODES

- ✓ Other experts will discuss

❑ WALL THICKNESS REDUCES LEASABLE SPACE

- ✓ Non-HFR products typically are thicker to achieve same R-Value

❑ OWNER REQUIREMENTS & SPECIFICATIONS

- ✓ LEED, Living Building Challenge, WELL Standard
- ✓ Specification language and requirements

❑ EASE OF INSTALL & RISK REDUCTION

- ✓ Reduce need for PPE and confined space permits
- ✓ Consider risk of trapping moisture or replacing wet material

PATHS TO HFR-FREE INSULATION:

STATE SPECIFICATIONS

- ✓ Specify HFR-Free insulation
- ✓ Specify Insulation with a Declare Label Red List Free
- ✓ Specify WELL Standard #25 Toxic Material Reduction

INDUSTRY STAKEHOLDERS & MANUFACTURERS

- ✓ Beyond insulation, consider fire sealants and gypsum firms

PARTNER WITH LARGE PRIVATE DEVELOPMENT

MANUFACTURERS SEE DEMAND OR COST BENEFIT

- ✓ Build a business case through employee healthcare costs

EDUCATION AND OUTREACH

REVISE FIRE-TEST STANDARDS & BUILDING CODES

MAKE POLICY



Presentation by:

Jennifer Frey, LIVING FUTURE® LFA,
LEED® AP O+M, CESCL
Sustainability Program Manager

Sellen //

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