

*Quality People. Building Solutions.*

Comfort Systems USA (Arkansas), Inc.  
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Little Rock, AR 72231  
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**Date:** 1/13/2025

**Return Request:** 1/23/2025

**Project:** HSU – Reynolds Hall Lap Renovation

**Supplier:** Pro Insulation

**Manufacturer:** Various

**Submittal:** HVAC Piping Insulation

**Submittal Number:** 23 00 00-01

**Drawing # and Installation:** Mechanical Drawings

**ARCHITECT**

SCM Architects  
1400 Kirk Road, Suite 220  
Little Rock, AR 72223  
501-224-3055

**ENGINEER**

Pettit & Pettit  
201 E. Markham, Suite 400  
Little Rock, AR 72201  
501-374-3731

**GENERAL CONTRACTOR**

Nabholz  
612 Garland St.  
Conway, AR 72032  
501-505-5800

**MECHANICAL SUBCONTRACTOR**

Comfort Systems USA (Arkansas), Inc.  
9924 Landers Rd.  
N. Little Rock, AR 72117  
501-834-3320

Notes:

**\*Plan Page M1.01; Keyed Note 1**

**CSUSA PROJECT NO.**

**22-6091**

**[sean@comfortar.com](mailto:sean@comfortar.com)**

9924 Landers Rd.  
No. Little Rock, AR 72117

# Pro Insulation

4414 South 16<sup>th</sup> Street  
Ft. Smith, AR 72901  
Ph. 479-646-5644  
Fax 479-646-5654

December 26, 2024

Comfort Systems USA, Inc.  
P.O. Box 16620  
Little Rock, AR 72231

Mr. Sean Cross

Re: Mechanical Insulation Submittals for HSU Bid, Arkadelphia, Arkansas.

No spec or notes on plans.

The following items will be insulated with Armacell Armaflex BLS pipe cover. All joints and seams will be sealed with 520 adhesive.

Item #1 Heating Water at New FCU----- ½” Thick

Item #2 Chilled Water at New FCU----- ½” Thick

Item #3 Condensate at New FCU----- ½” Thick

Thank You,

Mike Galatzer

SOLUTIONS FOR ENERGY SAVINGS

# AP ArmaFlex®

## Black Lap Seal

The original flexible elastomeric pipe insulation with a lap seal for greater seam security and increased protection against condensation, mold and energy loss.

- // Durable, low-profile lap seal with wider release tab, stays closed and looks neat
- // Easy to install – an excellent choice for retrofit applications
- // 25/50 rated for use in air plenums
- // Fiber-free, formaldehyde-free, low VOC and non-particulating

[www.armacell.us](http://www.armacell.us)



 **armacell**  
ArmaFlex®

## TECHNICAL DATA – AP ArmaFlex® BLACK LAPSEAL TUBE INSULATION

### Description

Black flexible closed-cell elastomeric thermal insulation in tubular form with a self-seal system reinforced with lap seal tape

### Applications

Insulation for piping associated with HVAC, VRV and VRF systems, chillers, hot and cold water, refrigeration. For use in commercial, industrial, and residential applications.

### Specification Compliance

ASTM C 534, Type I – Grade 1 ASTM E 84	UL 723 NFPA 90A, 90B	UL 181 ASTM G21/C1338	ASTM D 1056, 2C1
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### Approvals, Certifications, Compliances

- 3rd party certified by FM Approvals through 1-1/2" wall thickness per FM 4924
- GREENGUARD® Gold Certified.
- Manufactured without CFCs, HFCs, HCFCs, PBDEs, or Formaldehyde.
- Made with EPA registered Microban® antimicrobial product protection.
- All Armacell facilities in North America are ISO 9001 certified.
- Plenum Rated
- Conforms to ASHRAE 90.1 Energy Standards
- Conforms to building codes: International Mechanical Code, IMC, International Energy Conservation Code, IECC, International Residential Code, IRC, Title 24 California Building Energy Efficiency Standards.

### Typical Properties

Specifications	Values		Test Method
	3/8" through 1" Wall (NBR/PVC based)	1-1/2" and 2" Walls (EPDM based)	
<b>Thermal Conductivity:</b> Btu • in/h • ft <sup>2</sup> • °F (W/mK)			
50°F Mean Temperature (10°C)	0.235 (0.034)	0.278 (0.040)	ASTM C 177 or C 518
75°F Mean Temperature (24°C)	0.245 (0.0353)	0.28 (0.040)	
100°F Mean Temperature (38°C)	0.257 (0.037)	0.289 (0.041)	
125°F Mean Temperature (52°C)	0.268 (0.039)	0.300 (0.043)	
<b>Water Vapor Permeability:</b> Perm-in. [Kg/(s • m • Pa)]	0.05 (0.725 x 10 <sup>-13</sup> )	0.08 (1.16 x 10 <sup>-13</sup> )	ASTM E 96, Procedure A
<b>Flame Spread and Smoke Developed Index:</b>	25/50 rated	25/50 rated	ASTM E 84, UL 723
<b>Water Absorption, % by Volume:</b>	0.2 %	0.2 %	ASTM C 209 or ASTM C1763
<b>Mold Growth: Fungi Resistance:</b>	Passed	Passed	UL181 ASTM G21/C1338
<b>Maximum Service Temperature</b>	220°F (105°C) ①	300°F (149°C) ②	ASTM C534
<b>Minimum Service Temperature</b> ③	-297°F (-183°C) ④	-297°F (-183°C) ④	ASTM C534

### Sizes

Wall Thickness (nominal) Form	3/8", 1/2", 3/4" 1", 1-1/2", 2" (10, 13, 19, 25, 38, 50 mm)
Inside Diameter, Tubular Form	3/8" ID to 6" ID (10 mm to 153 mm) [3/8" and 1/2" IDs not offered in 3/8" wall thickness]
Length of Sections, Tubular Form	6' (1.8 m)

### Outdoor Use

Painting with WB Finish or other protective jacketing is required to prevent damage to the insulation in exterior applications and to comply with the insulation protection sections of the International Energy Conservation Code (IECC) and ASHRAE 90.1.

- ① AP ArmaFlex BST Pipe Insulation can withstand temperatures as high as 250°F for 96 hour time periods when tested according to ASTM C411 - Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
- ② 1-1/2" and 2" AP ArmaFlex tubes are formulated with EPDM rubber giving them a higher upper use temperature than AP ArmaFlex tubes less than 1-1/2" wall thickness.
- ③ At temperatures below -20°F (-29°C), elastomeric insulation starts to become less flexible. However, this characteristic does not affect thermal efficiency and resistance to water vapor permeability of ArmaFlex insulation.
- ④ For applications of -40°F to -297°F (-40°C to -183°C), contact Armacell



GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit [ul.com/gg](http://ul.com/gg).

Microban antimicrobial product protection is limited to the product itself and is not designed to protect the users of these products from disease causing microorganisms, or as a substitute for normal cleaning and hygiene practices. Microban International, Ltd. makes neither direct nor implied health claims for the products containing Microban® antimicrobial product protection. Data, photomicrographs and information presented are based on standard laboratory tests and are provided for comparative purposes to substantiate antimicrobial activity for non-public health uses. Microban is a registered trademark of Microban International, Ltd.

## AP ArmaFlex BLACK LAPSEAL TUBE INSULATION - R VALUES

### 3/8 " Walls

IPBST05838	1/2" Copper	2.6
IPBST03438	5/8" Copper	2.4
IPBST07838	3/4" Copper	2.4
IPBST11838	1" Copper	2.3
IPBST13838	1-1/4" Copper	2.2
IPBST15838	1-1/2" Copper	2.5
IPBST11038	1-1/2" IPS	2.4
IPBST21838	2" Copper	2.4

### 1/2 " WALLS

IPBST03812	1/4" Copper	3.3
IPBST01212	3/8" Copper	3.3
IPBST05812	1/2" Copper	3.4
IPBST03412	5/8" Copper	3.3
IPBST07812	3/4" Copper	3.3
IPBST11812	1" Copper	3.3
IPBST13812	1-1/4" Copper	3.2
IPBST15812	1-1/2" Copper	3.2
IPBST11012	1-1/2" IPS	3.1
IPBST21812	2" Copper	3.2
IPBST20012	2" IPS	3.2
IPBST25812	2-1/2" Copper	3.2
IPBST21012	2-1/2" IPS	3.2
IPBST31812	3" Copper	3.2
IPBST30012	3" IPS	3.1
IPBST35812	3-1/2" Copper	3.1
IPBST41812	4" Copper	3.1
IPBST40012	4" IPS	3.0

### 3/4 " WALLS

IPBST03834	1/4" Copper	5.9
IPBST01234	3/8" Copper	5.5
IPBST05834	1/2" Copper	5.6
IPBST03434	5/8" Copper	5.5
IPBST07834	3/4" Copper	5.4
IPBST11834	1" Copper	5.4
IPBST13834	1-1/4" Copper	5.3
IPBST15834	1-1/2" Copper	5.1
IPBST11034	1 1/2" IPS	4.9
IPBST21834	2" Copper	4.8
IPBST20034	2" IPS	5.2
IPBST25834	2-1/2" Copper	4.7
IPBST21034	2-1/2" IPS	5.0
IPBST31834	3 " Copper	4.6
IPBST30034	3" IPS	4.9
IPBST35834	3-1/2" Copper	4.5
IPBST41834	4" Copper	4.5
IPBST40034	4" IPS	4.8

### 1" WALLS

IPBST03810	1/4" Copper	7.3
IPBST01210	3/8" Copper	7.2
IPBST05810	1/2" Copper	7.2
IPBST03410	5/8" Copper	7.0
IPBST07810	3/4" Copper	7.0
IPBST11810	1" Copper	7.2
IPBST13810	1-1/4" Copper	7.2
IPBST15810	1-1/2" Copper	7.2
IPBST11010	1-1/2" IPS	6.9
IPBST21810	2" Copper	6.8
IPBST20010	2" IPS	7.1
IPBST25810	2-1/2" Copper	6.5
IPBST21010	2-1/2" IPS	6.8
IPBST31810	3" Copper	6.3
IPBST30010	3" IPS	6.6
IPBST35810	3-1/2" Copper	6.2
IPBST41810	4" Copper	6.1
IPBST40010	4" IPS	6.4
IPBST50010	5 " IPS	6.2
IPBST60010	6 " IPS	6.1

### 1-1/2" WALLS

IPBST03815	1/4" Copper	13.7
IPBST01215	3/8" Copper	12.7
IPBST05815	1/2" Copper	12.0
IPBST03415	5/8" Copper	11.3
IPBST07815	3/4" Copper	10.8
IPBST11815	1" Copper	10.1
IPBST13815	1-1/4" Copper	9.6
IPBST15815	1-1/2" Copper	9.2
IPBST11015	1-1/2" IPS	8.7
IPBST21815	2" Copper	8.6
IPBST20015	2" IPS	8.8
IPBST25815	2-1/2" Copper	8.2
IPBST21015	2-1/2" IPS	8.4
IPBST31815	3" Copper	7.9
IPBST30015	3" IPS	8.1
IPBST35815	3-1/2" Copper	7.7
IPBST41815	4" Copper	7.5
IPBST40015	4" IPS	7.8
IPBST50015	5" IPS	7.5
IPBST60015	6" IPS	7.3

### 2" WALLS

IPBST03820	1/4" Copper	19.7
IPBST01220	3/8" Copper	18.2
IPBST05820	1/2" Copper	17.2
IPBST03420	5/8" Copper	16.2
IPBST07820	3/4" Copper	15.5
IPBST11820	1" Copper	14.5
IPBST13820	1-1/4" Copper	13.7
IPBST15820	1-1/2" Copper	13.1
IPBST11020	1-1/2" IPS	12.4
IPBST21820	2" Copper	12.2
IPBST20020	2" IPS	12.3
IPBST25820	2-1/2" Copper	11.6
IPBST21020	2-1/2" IPS	11.7
IPBST31820	3" Copper	11.1
IPBST30020	3" IPS	11.2
IPBST35820	3-1/2" Copper	10.7
IPBST41820	4" Copper	10.5
IPBST40020	4" IPS	10.7
IPBST50020	5" IPS	10.2
IPBST60020	6" IPS	9.9

\* These specifications are based on the measurement methods employed by Armacell. Other methods may not result in the same values and cannot be used to determine if the product is within the given tolerance.

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AP ArmaFlex | Black LapSeal Tube TDS | 112021 | NA | EN-A | 020

## ABOUT ARMACELL

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As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,000 employees and 23 production plants in 15 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more information, please visit:  
[www.armacell.us](http://www.armacell.us)  
800-866-5638





SOLUTIONS FOR ENERGY SAVINGS

# ArmaFlex 520 Adhesive

An air-drying contact adhesive specifically designed for use with ArmaFlex insulation products.

- // The original contact adhesive for ArmaFlex insulation
- // Years of on-the-job performance
- // Meets MIL-A-24179A and Amend-2



 **armacell**<sup>®</sup>  
ArmaFlex<sup>®</sup>

## TECHNICAL DATA - ARMAFLEX 520 ADHESIVE

Brief description	A special air-drying contact adhesive that is required for joining the seams and butt joints of ArmaFlex Pipe and Sheet Insulations as well as adhering ArmaFlex to ducts, tanks, chillers and other equipment / vessels.
Material type	Synthetic rubber base with synthetic resins and fillers added; hydrocarbon- and ketone-type solvents.
Product color range	Greenish yellow
Product range	Half-pint and pint brush-top cans and pint, quart, and gallon containers.

### Approvals and compliance

Specification compliance	<ul style="list-style-type: none"> <li>All Armacell facilities in North America are ISO 9001 certified.</li> <li>ASTM G21/C1338</li> <li>MIL-A-24179A Type II, Class 1</li> </ul>
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Property	Value / Assessment				Standard / Test method
<b>Temperature range</b>					
Service temperature	Min. °C	Min. °F	Max. °C	Max. °F	
	-50	-58	120	250	
Remarks	120 °C (250 °F) — ArmaFlex pipe insulation seams and joints 82 °C (180 °F) — Full bonding sheet insulation For applications below -50°C (-58°F), contact Armacell technical team.				

### Fire Performance and Approvals

Surface burning characteristics <sup>1</sup>	Flame spread and smoke development index: 25/50 rated	ASTM E84
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### Health and environment

Volatile organic compounds (VOC) content	615 g/l
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### Other technical features

Bond time	Immediate after allowing for tack time.
Cure time	36 hours
Shelf life	1-1/2 years in original sealed container.
Solids content	Approximately 19% by weight.
Storage	Store in a well ventilated area with storage temperature 60° F to 80° F (16° C to 27° C).
Tack time	1-5 minutes depending on ambient conditions.
Wet flash point	-15°F (-26°C) (TOC).
Yield	200 sq ft per gallon (18.5 m <sup>2</sup> /gallon or 5 m <sup>2</sup> /l) max, single coat (depending upon porosity of materials bonded and air temperature).

<sup>1</sup>ASTM E84 performance is for adhesive in the dry state.



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Adhesive and cleaner | ArmaFlex 520 Adhesive (AMERICAS) | TDS | 032024 | en-US

## ABOUT ARMACELL

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As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With more than 3,300 employees and 25 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.

For more information, please visit:  
[www.armacell.com](http://www.armacell.com)

