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Knauf Air Duct Board-AGM

Submittal MSDS Guide Specifications

Description

Knauf Air Duct Board-AGM is a resin-bonded fiber glass formed into rigid, rectangular boards faced on one side with a fire-resistant foil-scrim-kraft (FSK) vapor retarder and a lightweight fiber glass mat on the airstream surface. Available in EI-475 or EI-800, with a butt edge or a factory-molded shiplap edge, it offers excellent thermal and acoustical performance.

Application

Knauf Air Duct Board-AGM is designed for commercial and residential air handling installations for cooling, heating, or dual-temperature service where good temperature control and noise absorption are required.

Features

- Low thermal conductivity of 0.23 at 75°F (24°C) mean temperature.
- Low installed cost, insulated duct system.
- Excellent acoustical characteristics.
- Non-woven all-glass mat facing on the airstream surface.
- Assured insulation thickness, shiplap joints, and FSK vapor retarder.
- If necessary, can be cleaned in accordance with NAIMA's "Cleaning Fibrous Glass Insulated Air Duct Systems Recommended Practices."
- Knauf Air Duct Board systems meet the fire and smoke safety regulations of most federal, state, and local building codes.

Benefits

- Fabrication in shop environment lowers field installation time.
- One craft required to fabricate and install system.
- Minimum capital investment for fabrication equipment.
- Portability allows for assembly or fabrication at job site.
- AGM facing ensures a smoother airstream surface for a cleaner cut and added durability.
- Lower installation cost than with duct wrap and duct liner.
- Quiet, efficient air delivery.
- Reduces noise generated by air turbulence and mechanical equipment.
- Eliminates "booming" and "cracking" sounds caused by sheet metal duct contraction and expansion.
- Condensation control.
- Strong thermal performance.
- Code compliance.

Specification Compliance

In U.S.:

- ASTM C 1136; Type II (FSK facing)
- ASTM D 5116
- ASTM G 21, G 22
- BOCA
- CABO
- California Title 24
- Corps of Engineers Guide Specifications
- ICBO
- International Mechanical Code
- NFPA 90A and 90B
- SBCCI
- UL 181; Class 1

In Canada:



Website Options

Language

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International

www.knaufinsulation.com
www.knauf.com

- CAN/ULC S102-M88
- CAN/CGSB 51-GP-52M (facing)
- CAN/CGSB 51.10-92
- ULC Issue 869C; Class 1

Technical Data

- UL/ULC listed.
- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255, and UL 723.

Flexural Rigidity

- Available in two stiffness values: EI-475 and EI-800.
- Flexural rigidity (EI) is the product of Young's modulus of elasticity (E) and moment of inertia (I) as determined in accordance with NAIMA AHS-100-74.

Service Temperature (ASTM C 411)

- Up to 250°F (121°C).

Air Velocity (UL 181)

- Maximum 5000 fpm (1524 mpm).
- Tested to 12,500 fpm (3810 mpm).

Internal Static Pressure (UL 181)

- Maximum ±2" water (498 pascals [Pa]).

Water Vapor Permeance (ASTM E 96)

- Less than 0.02 perms.

Water Vapor Sorption (ASTM C 1104)

- Less than 5% by weight.

Microbial Growth (ASTM G 21, G 22, UL 181)

- Does not promote or support the growth of mold, fungi, or bacteria.

Application and Specification Guidelines

Storage

- Protect stored duct board from water damage, construction damage, and other abuse.
- If stored outside, proper protection from weather conditions should be provided.

Application

- Duct shall be fabricated and installed in strict accordance with NAIMA's "Fibrous Glass Duct Construction Standard," "Residential Standard," "1^{1/2}" Fabrication Manual," or Knauf Insulation "Air Duct Fabrication Manual," and in accordance with the conditions of UL 181 listing. Duct systems shall have all transverse joints, longitudinal seams, and duct wall penetrations sealed using 3" (76 mm) wide glass fabric and mastic, 2" (51 mm) minimum width heat-sealable tape, or 2" (51 mm) minimum width pressure-sensitive tape with acrylic adhesive. Rubber based adhesives are not approved.
- Only UL 181-A listed and labeled products shall be used for closure systems. A listing of approved closure products is available from your local Knauf sales representative.

PRESSURE-SENSITIVE TAPES: Only those tapes listed under and imprinted with designation UL 181 A-P and registered with UL.

HEAT-SEALABLE TAPES: Only those tapes listed under and imprinted with designation UL 181 A-H and registered with UL.

MASTICS: Mastic systems listed and registered with UL and carrying the designation UL 181 A-M used in conjunction with a 3" (76 mm) wide glass fabric.

Procedures

1. PRESSURE-SENSITIVE TAPE:
 1. All longitudinal and circumferential joints must be stapled with outward flaring, 1/2" (13 mm) minimum length staples, 2" (51 mm) on center.
 2. If necessary, follow the recommendations of the tape manufacturer for cleaning the surface to be taped.
 3. Center tape over staple flap and rub tape firmly in place immediately after application, using a plastic "squeegee" or similar tool, until the scrim reinforcement of the duct board facing can be clearly seen through the tape.

4. A heat-sealing iron must be used to assure a good bond when installed below 50°F (10° C). Heat duct board facing surface first to drive off moisture.
 5. Tape should not be applied to surface of duct board when temperature is below 32°F (0° C) due to the possibility of entrapping ice crystals, which upon melting will cause tape to loosen.
2. HEAT-SEALABLE TAPE:
1. All longitudinal and circumferential joints must be stapled with outward flaring, 1/2" (13 mm) minimum length staples, 2" (51 mm) on center.
 2. If necessary, follow the recommendations of the tape manufacturer for cleaning the surface to be taped.
 3. Center tape over staple flap and seal down tape end with 500°F (260°C) iron. Do not use heat gun; heat and pressure are both required to effect a seal.
 4. Press down entire length of tape with iron using a smearing action to get a good bond. Be sure edges are sealed.
 5. Staples may be omitted when an automatic closure machine such as the Glassmaster Closemaster is used. In this case, iron temperature must be set at 650°F (343°C) minimum. Continuous production may require periodic pauses to allow sealing iron temperature to recover to the 650°F (343°C) minimum.
 6. Allow joint to cool before stressing.
3. MASTIC AND GLASS FABRIC:
1. All longitudinal and circumferential joints must be stapled with outward flaring, 1/2" (13 mm) minimum length staples, 2" (51 mm) on center.
 2. Brush approved mastic onto joint and embed 3" (76 mm) wide glass fabric in mastic.
 3. Brush second coat of mastic over glass fabric until mesh is completely filled.
 4. Follow mastic manufacturer's instructions on curing the mastic prior to subjecting the joint to stress.

Closure

If the closure system used is not one of the approved systems described above, and if application is not in accordance with stated procedures, Knauf Insulation assumes no liability for duct system performance. Use of a non-UL registered and listed closure voids the UL 181 Class 1 rating as well as Knauf's product performance warranties.

Reinforcements

Duct sections shall be additionally reinforced where necessary, according to Knauf Insulation and NAIMA standards. Ductwork shall be supported as required on straight runs, at all turns, and at transitions to maintain proper alignment. Hangers and supports shall be in strict accordance with Knauf Insulation and NAIMA standards.

Notes

When used in accordance with NAIMA and Knauf Insulation application instructions, the closure systems described herein meet UL 181 requirements, and the resulting system carries a Class 1 Air Duct rating.

This data sheet is not intended to be a design or fabrication manual. For specific details and recommendations on fabrication, reinforcement, hanging, and other details, refer to the latest edition of the NAIMA "Fibrous Glass Duct Construction Standard," "Residential Standard," "1 1/2" Fabrication Manual," or Knauf Insulation "Air Duct Fabrication Manual."

Application and installation procedure is at the discretion of and is the responsibility of the Design Engineer to meet specific job requirements.

The chemical and physical properties of Knauf Air Duct Board-AGM represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with your Knauf regional office to assure information is current.

SOUND ABSORPTION COEFFICIENTS, 1/3 OCTAVE BANDS (ASTM C 423, TYPE A MOUNTING)

Type		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC
EI-475	1" (25 mm)	.03	.25	.62	.89	1.03	.97	.70
EI-800	1 1/2" (38 mm)	.02	.44	.96	1.17	1.16	1.12	.95
EI-800	2" (51 mm)	.19	.64	1.08	1.13	1.06	1.06	1.00

FRICITION LOSS (INCHES OF WATER PER 100 FT.)

Air Velocity (FPM)	10" HD	16" HD	24" HD	32" HD	40" HD	72" HD	100" HD
500	.056	.031	.018	.013	.010	.005	.003
600	.080	.044	.026	.018	.014	.007	.004
700	.108	.059	.035	.025	.019	.009	.006
800	.140	.077	.046	.032	.024	.012	.008
900	.176	.096	.058	.040	.031	.015	.010
1000	.216	.118	.071	.050	.038	.018	.012
2000	.845	.463	.278	.194	.147	.071	.048

3000	1.887	1.034	.620	.432	.328	.159	.106
4000	3.340	1.831	1.097	.765	.580	.281	.188
5000	5.206	2.854	1.710	1.193	.904	.438	.293

THERMAL RESISTANCE, R (ASTM C 518) @ 75°F (24°C) MEAN TEMPERATURE

Thickness	R-Value	R-Value (SI)
1" (25 mm)	4.3	.76
1 1/2" (38 mm)	6.5	1.14
2" (51 mm)	8.7	1.53

THERMAL CONDUCTIVITY, K (ASTM C 177) @ 75°F (24°C) MEAN TEMPERATURE

	k	k (SI)
Knauf Air Duct Type EI-475 and EI 800	.23	.033

FORMS AVAILABLE

Thickness	Type	Size [*]	Edge	Pieces/Cartron ^{**}
1" (25 mm)	EI-475, EI-800	48" x 96" (1219 mm x 2438 mm)	Butt, Shiplap	8
1" (25 mm)	EI-475, EI-800	48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap	6
1 1/2" (38 mm)	EI-800	48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap	4
2" (51 mm)	EI-800	48" x 120" (1219 mm x 3048 mm)	Butt	3

**Other lengths on made-to-order basis. **Palletized packaging on request.*