QuietR® Duct Board

Description

Owens Corning® QuietR® Duct Board is a rigid, resin bonded fibrous glass board with a tough, damage-resistant, flame retardant, reinforced aluminum foil (FRK) facing; with a durable mat air stream surface.

Features

- Absorbs noise and reduces popping noises caused by expansion, contraction and vibration
- Assured thermal R-value performance
- Bacterial and fungal growth resistant with an EPA registered biocide that helps protect the air stream surface from microbial growth
- Thermal/acoustical insulation board plus jacket forms a single component duct system, thus reducing inspection time
- Lightweight boards are easier to transport and handle than insulated sheet metal ducts
- Virtually eliminates air leakage thus saving energy and removing the need for system overdesign

Physical Properties

Property	Test Method	Value
Maximum Operating Temperature Limits	UL 181/ULC S110	Internal: 250°F (121°C) External: 150°F (66°C)
Maximum Air Velocity	UL 181/ULC S110 Erosion Test	6,000 fpm (30.5 m/s)
Static Pressure Limit	UL 181/ULC S110	±2 in. w.g. (500 Pa)
Water Vapor Sorption	ASTM C1104	<3% by weight at 120°F (49°C), 95% R.H.
Mold Growth	UL 181/ULC S110	Meets requirements
Fungi Resistance	ASTM G21	Meets requirements
Bacteria Resistance	ASTM G22	Meets requirements
Surface Burning Characteristics[1] Flame Spread Smoke Developed	UL 723/ULC S102	 < 25[1] < 50
Fire Retardancy	UL 181/ULC S110	Flame Penetration 30 min.

1. The surface burning characteristics of these products have been determined in accordance with UL 723/ULC S102. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

Applications

QuietR® Duct Board may be used to fabricate components for indoor commercial and residential heating, ventilating and air conditioning duct systems operating at static pressures to ±2 in. w.g. (500 Pa), internal air temperatures 40°F (4°C) to 250°F (121°C), and air velocities to 6,000 fpm (30.5 m/s). Straight duct sections, elbows, tees, offsets and other system elements can quickly and easily be fabricated at the shop or on the job and assembled into a complete air distribution system using these lightweight, thermally efficient boards.

Availability

Type	Thickness	Density, pcf (kg/m3)
Type 475	1" (25mm)	4.4 (70)
Type 800	1½" (38mm)	3.8 (61)
Type 1400	2" (51mm)	3.8 (61)

Type designates board stiffness defined by flexural rigidity.
Type selection depends on duct size, pressure and reinforcement schedule. The 1½" (38mm) and 2" (51mm) thickness provides superior thermal value.

Thermal Performance

at 75°F (24°C) Mean Temperature	1" (25mm)	1½" (38mm)	2" (51mm)
R-value, hr•ft²•°F/Btu (RSI, m²•°C/W)	4.30 (0.76)	6.50 (1.15)	8.70 (1.53)
k-value, Btu•in/hr•ft²•°F (W/m•°C)	0.23 (0.033)	0.23 (0.033)	0.23 (0.033)
C-value, Btu/hr•ft²•°F (W/m²•°C)	0.23 (1.32)	0.16 (0.87)	0.12 (0.65)

Mean temperature is the average of two temperatures: that of the air inside the duct and that of the ambient air outside it.
Note: Specified design thickness should be adequate to prevent exterior surface condensation.

Acoustical Performance

Sound absorption coefficients at octave band center frequencies, Hz.

Thickness	125	250	500	1000	2000	4000	NRC
1"	0.08	0.19	0.69	0.94	0.99	0.98	0.70
1½"	0.12	0.33	0.92	1.04	1.03	1.02	0.85
2"	0.14	0.72	1.15	1.12	1.06	1.07	1.00

This data was collected using a limited sample size and are not absolute values. Therefore, reasonable tolerances must be applied. Tests were conducted in accordance with ASTM C423, Mounting A (material applied against a solid backing.)

Technical Information

National Fire Protection Association Standards NFPA 90A and 90B for air conditioning and ventilating systems require air ducts to be Class 0 or 1. The tests set stringent requirements on fire safety as well as ruggedness. To meet Class 1 air duct requirements, the system must withstand UL 181/ULC S110 tests such as erosion, pressure loss, impact, collapse, puncture, static load and fire retardancy (30 minute flame penetration test). Also, to qualify as a Class 1 Air Duct System, the following UL 723/ULC S102 fire testing requirements must be met: Flame Spread, 25; Smoke Developed, 50.

Limitations

Fiberglass ducts should not be used in the following applications:

- Kitchen or fume exhaust ducts, or to convey solids or corrosive gases;
- In concrete or buried below grade;
- Outdoors;
- As casings and/or housings of built-up equipment;
- Immediately adjacent to high temperature electric heating coils without radiation protection;
- For vertical risers in air duct systems serving more than two stories in height;
- With coal or wood fueled equipment, or with equipment of any type which does not include automatic maximum temperature controls;
- In variable air volume systems on the high pressure side unless reinforced to withstand the full fan pressure;
- As penetrations in construction where fire dampers are required, unless the fire damper is installed in a sheet metal sleeve extending through the fire wall; or
- When the duct system is located in non-conditioned space and is used for cooling only (when heating is from another source), unless all registers which would allow moist air into the duct system are vapor sealed during the heating season to prevent condensation from forming inside the duct.

Standards, Codes Compliance

- Meets UL 181 Class 1 Air Ducts
- Meets NFPA 90A/90B
- Meets ICC International Mechanical Code, Corps of Engineers Guide Spec.
- Supported by NAIMA and SMACNA industry standards
- Meets requirements of UL 181 and ASTM C1338 (mold growth), ASTM G21 (fungi test) and ASTM G22 (bacteria test)

Fabrication and Installation

Fabrication and installation of fiber glass Duct Systems shall be in accordance with the UL listing and shall conform to Owens Corning's published methods and/or latest editions of NAIMA (North American Insulation Manufacturers Association) Fibrous Glass Duct Construction Standards (AH116 or AH119) or SMACNA (Sheet Metal and Air Conditioning Contractors National Association) Fibrous Glass Duct Construction Standards.

UL181A Listed Closure

UL 181A Listed Closure must be employed to meet the requirements of UL 181/ULC S110. USE OF A NON-LISTED CLOSURE SYSTEM VOIDS THE UL CLASS 1 AIR DUCT RATING. The following are the listed closure methods:

- Pressure-Sensitive Tape (UL 181A-P)
- Mastic and Glass Fabric (UL 181A-M)
- Heat-Activated Tape (UL 181A-H)

Cleanability

The durable mat air stream surface makes it easy to clean the duct system using methods and equipment described in North American Insulation Manufacturers Association (NAIMA) Publication AH122, Cleaning Fibrous Glass Insulated Duct Systems.

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at www.owenscorning.com.

Notes

For additional information, refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via http://sds.owenscorning.com

Certifications and Sustainable Features

- Certified by SCS Global Services to contain a minimum of 53% recycled glass content, 31% pre-consumer and 22% post-consumer
- 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*
- Environmental Product Declaration (EPD) has been certified by UL Environment
- Material Health Certificate from Cradle to Cradle Products Innovation Institute

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

UL GREENGUARD PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS UL.COM/GG UL 2818 GOLD

*GREENGUARD certification is for boards 1" or less in thickness

CERTIFIED RECYCLED CONTENT SCS GLOBAL SERVICES

AVERAGE 53% RECYCLED CONTENT
31% PRE-CONSUMER
22% POST-CONSUMER

Disclaimer of Liability

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