



Building Insulation

Residential and Light Commercial Products





A Full Line of Residential and Commercial Building Insulation Products with ECOSE® Technology

Superior Products for Sustainability, Thermal and Acoustical Efficiency and Installer Productivity

When considering an insulation product for your residential or light commercial project, fiber glass or glasswool products have proven to be one of the most thermally efficient and cost-effective ways to save energy. Knauf Insulation products made with ECOSE® Technology go beyond traditional fiber glass to the next generation of sustainable insulation. ECOSE Technology is a revolutionary new bio-based binder that contains no phenol, formaldehyde, acrylics or artificial colors. It is made from rapidly renewable bio-based materials instead of non-renewable, petroleum-based chemicals for greater sustainability.

Glasswool insulation is an excellent performer in maintaining desired room temperatures for comfortable home and work environments. Additionally, glasswool insulation works well to reduce unwanted noise and limit sound transmission from the outside and from one room to another. Glasswool insulation, therefore, helps to create living and work spaces people can be productive in and enjoy. And Knauf Insulation is committed to providing premium quality

thermal and acoustical insulation products that continually perform throughout the life of the home.

Installer productivity is also a primary consideration in choosing an insulation product. Knauf has earned a well-deserved reputation for delivering products that installers prefer. To enhance productivity, Knauf EcoBatt Insulation:

- Recovers quickly out of the package for immediate installation,
- Has a consistent fiber density for a smooth clean cut with low dust every time,
- Is firm for easy handling and installation, and
- Is full and gutsy to fit snugly in the wall cavity without slumping.

In fact, Knauf's full line of building insulation products are known for consistency and ease of fabrication. From loose-fill blowing wool, Knauf Jet Stream® 73.3 and Perimeter Plus®, designed for attics and sidewall cavities in homes, to Knauf Insulation Board and Black Acoustical Insulation with ECOSE Technology for light commercial buildings, Knauf products have garnered a reputation of high quality, efficient installation and high productivity.



Knauf Residential and Commercial Insulation

- EcoBatt® Thermal and Acoustical Insulation
- Jet Stream® 73.3 Blowing Insulation
- Perimeter Plus® Blow-In-Blanket® System
- Sill Sealer with ECOSE® Technology
- Insulation Board with ECOSE® Technology
- Black Acoustical Insulation with ECOSE® Technology

Blow-In-Blanket® System is a registered trademark of Blow In Blanket, LLC.



Knauf EcoBatt® insulation is made from rapidly renewable bio-based materials instead of petroleum-based chemicals for greater sustainability, up to 70% less energy intensive than traditional binders.



Resilient fibers and firm batts that emit less dust keep installers comfortable and productive.



Knauf EcoBatt Insulation is naturally brown—assures no phenol, formaldehyde, acrylics or artificial colors are used in the manufacturing process.



Knauf Residential Insulation

Excellent Value with Proven Performance

For cavity walls, floors, ceilings, attics, basements and crawl spaces in residential structures, Knauf Insulation delivers a full line of products to insulate the home. Energy-saving high density and standard batts cover the full range of R-values to serve the most severe temperature fluctuations across all seasons. Unfaced or with kraft and foil facings, Knauf EcoBatt® insulation is prepared for any situation while meeting specifications throughout all parts of the country.

More Productive Installers

Knauf EcoBatt insulation and blowing wools all come with superior handling characteristics that make it easier to do a better job in less time. Product characteristics of Knauf EcoBatt Insulation make installation easier and more comfortable. They recover quickly out of the package for immediate installation. Extra-wide stapling flanges and durable facing marked in one-foot increments on our standard batts lead to a faster and easier installation. The consistent quality fibers make for smooth, clean cuts with less dust. All of these product attributes create confidence in the professional installer and lead to higher productivity.

Knauf EcoBatt® High Density Insulation

High Density products are available where optimal thermal performance is required and space for insulation is limited. R-values can be increased while adequate space for ventilation is still maintained.

Knauf EcoBatt® Staple-Free Insulation

The flangeless kraft faced batt is designed for use in wood framed cavities for quick, hassle free installation in exterior wall assemblies, where the framing members are 16" o.c.

Knauf Sill Sealer with ECOSE® Technology

Knauf Sill Sealer is a flexible unfaced insulation designed for use between the sill plate and the foundation wall to provide an excellent air infiltration barrier.



Installer Preferred

- Widely acknowledged by professional installers as a consistently high quality product.



High Density Insulation

- Achieves a higher R-value in less space.



GREENGUARD for Children and Schools™ Certified

- Repeated third-party testing ensures that these products continually meet the highest indoor air quality standards in the industry.



Knauf Sill Sealer Insulation

- Specifically sized for easy installation with the same low-itch fibers.



Efficient Product Handling

Leads to More Profitable Installations

- Speed up inventory counts and simplify inventory control—count one unit rather than 42 Jet Stream® 73.3 or Perimeter Plus® bags.
- Large quantities of material are moved fast and easy with lift trucks onto box trucks utilizing either hydraulic clamps or forks.

Knauf Master Bags

- Easy-to-handle unitized packaging saves time on the jobsite.
- Knauf Master Bags maintain the unit's shape and configuration so they are easier to move by hand.
- The durable poly woven bag protects batts from impact and damage.
- Product identification and information are easy to read through the translucent poly woven bag.



Knauf Jet Packs

- The clear poly wrap and the cardboard slip sheet at the bottom of the Jet Pack provide product protection.

Knauf Plus Packs

- Cut loading/unloading time and man hours in half.

Individual Bags

- Small orders of blowing wool may still be shipped as individual bags.



Knauf Jet Stream® 73.3 Blowing Insulation can process at better than one bag per minute, (dependent on machine capabilities) which will get your crews in and out of each job quickly.



Jet Stream® 73.3's high thermal performance per inch delivers more R-value at the eaves or in low pitch attics.



Knauf Perimeter Plus® Blowing Insulation blows consistently and fills evenly to easily take on tight corners and hard to reach areas in sidewalls.



Knauf Jet Stream® 73.3 Blowing Insulation

- More coverage per pound.
- Delivers high thermal performance per inch.
- Attic applications.
- R-30 at 10³/₈" : 73.3 SF/bag
- R-38 at 13" : 56.2 SF/bag



Knauf Perimeter Plus® Blow-In-Blanket® System

- Sidewall applications.
- R-15 in 2x4 construction
- R-23 in 2x6 construction



JET STREAM 73.3



Knauf Jet Stream® 73.3 Fiber Glass Blowing Insulation

High performing Jet Stream 73.3's excellent thermal efficiency allows for more square footage on a per pound basis. It delivers high thermal performance per inch which is important at the eaves and in low pitch attics. Knauf Jet Stream 73.3 blows fast into new and existing attics leaving behind a clean, white professional-looking appearance. It may also be used in retrofit closed-cavity applications such as flooded attics.

Settle for Nothing Less

A third-party 2-year settling study predicted settlement of Jet Stream 73.3 Blowing Insulation over a 20-year period would be one percent or less. Therefore, you can be assured that Jet Stream's stated R-value will be maintained over the life of the home. And with Jet Stream 73.3's unique "platinum" color, you know you're getting the product you require and your customers are getting the performance they deserve.

Greater Coverage with Fewer Bags

Knauf Jet Stream 73.3 Blowing Insulation delivers high thermal performance. This allows crews to blow fewer bags per attic with less time spent in each attic and even more attics blown per day:

- R-30 at 10³/₈" : 73.3 SF/bag
- R-38 at 13" : 56.2 SF/bag

Knauf Perimeter Plus® Fiber Glass Blowing Insulation



Designed and manufactured for use in the patented Blow-In-Blanket® System (BIBS) system, Knauf Perimeter Plus will maintain the installed R-value over the life of the

home. It blows consistently and fills evenly in tight spaces and hard to reach areas around pipes, electrical wires and fixtures. The unique light green product color provides easy identification so you can assure your customers they're getting the performance they require.

Perimeter Plus Fiber Glass Blowing Insulation is BIBS approved and can only be installed by BIBS certified installers to assure the highest quality installed performance.



Excellent Thermal Properties

Filling all gaps and voids provides better temperature control in homes. Perimeter Plus will provide R-values of R-15 in 2 x 4 construction and R-23 in 2 x 6 construction.

Knauf EcoBatt® and EcoBlanket® Insulation

with ECOSE® Technology

Wood Frame Construction

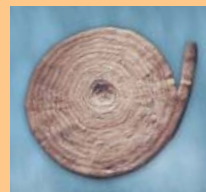
EcoBatt and EcoBlanket Insulation



R-Value	Thickness	Width	Facings				Specification Compliance	Surface Burning Characteristics	Facing Permeance	Water Vapor Sorption (ASTM C 1104)	Corrosion (ASTM C 665)	Microbial Growth (ASTM C 1338)	Non-Combustibility (ASTM E 136)	Packaging
			Unfaced	Kraft	Foil	FSK-Foil								
R-11	3.5" (89 mm)	11", 15", 15.25", 16", 19", 23", 23.25", 24" (279, 381, 406, 483, 584, 610 mm)	•	•	•	•	U.S.— ASTM C 665, Type I, Class A (unfaced); ASTM C 665, Type II, Class C (kraft faced); ASTM C 665, Type III, Class A (FSK-25 foil faced); ASTM C 665, Type III, Class B (foil faced); GREENGUARD Certification; GREENGUARD For Children and Schools™ Certification; California Energy Commission; Dade County, Florida; MEA #498-90-M; State of Minnesota.	Unfaced & FSK-25: Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84.	Kraft faced products have a moisture permeance of 1.0 or less. FSK foil faced products have ratings of .04 Foil faced products have ratings of .05	5% maximum by weight.	No greater than sterile cotton.	Does not support microbial growth	Noncombustible (Unfaced)	Feature complete installation instructions and a highly visible color coding system which follows industry standards, making Knauf products easy to select. Knauf packages are lightweight, stack without slipping and are sized to fit easily under floors and through scuttle holes. Most batt products are packaged in Knauf Master Bag 4-packs. However, several 15"/16" products are available in 5-packs.
R-13			•	•	•	•								
R-15HD	3.5" (89 mm)	11", 15", 15.25", 16", 19", 23" (279, 381, 406, 483, 584, 610 mm)	•	•										
R-19	6.25" (159 mm)	11", 15", 15.25", 16", 19", 23", 23.25", 24", (279, 381, 387, 406, 483, 584, 590, 610 mm)	•	•	•	•								
R-21HD	5.5" (140 mm)	15", 15.25", 23" (381, 406, 584 mm)	•	•										
R-22	6.5" (165 mm)	15", 16", 19", 23" (381, 406, 483, 584 mm)	•	•										
R-25	8" (203 mm)	15", 19.25", 23" (381, 489, 584 mm)	•											
R-26	9" (229 mm)	16", 24" (406, 610 mm)	•	•										
R-30HD	8.25" (210 mm)	15", 23" (381, 584 mm)	•	•										
R-30	10" (254 mm)	11", 12", 16", 19", 19.25", 24", (279, 406, 483, 489, 610 mm)	•	•	•	•								
R-38HD	10.25" (260 mm)	15", 23" (381, 584 mm)	•	•										
R-38	12" (305 mm)	16", 24" (406, 610 mm)	•	•		•								

HD = High Density Batt

Sill Sealer (Forms Double Layer)



	1.125" (29 mm)	6" (153 mm)	•												
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**Federal Specification HHI-521F has been cancelled and replaced by ASTM C 665.

Knauf Blowing Insulation

Open Attic Application

Jet Stream® 73.3



R-Value*	Bags/1,000 SF	Maximum Coverage	Minimum Weight	Initial Installed Thickness	Minimum Settled Thickness**
R-60	29.7	33.6 SF	.952 lbs	19.750"	19.750"
R-49	23.5	42.5 SF	.753 lbs	16.375"	16.375"
R-44	20.9	47.8 SF	.670 lbs	14.875"	14.875"
R-38	17.8	56.2 SF	.569 lbs	13.000"	13.000"
R-30	13.6	73.3 SF	.437 lbs	10.375"	10.375"
R-26	11.8	85.0 SF	.377 lbs	9.125"	9.125"
R-22	9.8	102.2 SF	.313 lbs	7.750"	7.750"
R-19	8.4	119.3 SF	.268 lbs	6.750"	6.750"
R-13	5.7	175.3 SF	.183 lbs	4.750"	4.750"
R-11	4.7	210.8 SF	.152 lbs	4.000"	4.000"

Bag Net Weight – Nominal 32 lbs., Minimum 31 lbs.
 Coverage and installation data were determined using a Volu-Matic® II blowing machine in 3rd gear with 13" gate opening, 2.0 psi air pressure, 150' of 3" diameter internally-corrugated hose.
 * "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. To get the marked R-value, it is essential that this insulation be installed properly. If you do it yourself, get instructions and follow them carefully. Instructions do not come with this package.

Specification Compliance	Surface Burning Characteristics	Critical Radiant Flux (ASTM E 970)	Water Vapor Sorption (ASTM C 1104)	Corrosion (ASTM C 764)	Microbial Growth (ASTM C 1338)	Non-Combustibility (ASTM E 136)	Packaging
U.S. — ASTM C 764, Type I; HH-1030B, Class B; Greenguard™ Certification; Greenguard For Children and Schools™ Certification.	Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88.	Greater than 0.12 W/cm².	5% maximum by weight.	No greater than sterile cotton.	Does not support microbial growth.	No temperature rise above 54°F (30°C).	Jet Stream Blowing Insulation is packaged in a strong, white poly bag that offers excellent protection from abuse, dust and moisture. Knauf packages are lightweight, stack without slipping and are easy to handle and store. Knauf Jet Packs stack 14 bags high in a three bag footprint for improved inventory control, while minimizing damage during quick and easy loading and unloading with forklifts.

**Based on a third party 2-year settling study, the predicted settlement over a 20-year period would be 1 percent or less. This amount of settling is thermally insignificant. Therefore, the installed and settled thicknesses are effectively the same. Volu-Matic® II is a registered trademark of Unisul.

Cavity Wall Applications

Wood Frame Construction

Perimeter Plus®



Framing	Cavity Depth	R-Value* To obtain an insulation resistance of:	Density	Bags per 1000 SF The number of bags per 1000 square feet of net area should not be less than:	Maximum Coverage per Bag Contents of this bag should not cover more than:	Net Minimum Weight per SF The weight per square feet of installed insulation should not be less than:
2"x 4"	3.50"	R-15	1.8 lbs./cu. ft.	16.4 bags	61.0 sq. ft.	0.525 lbs.
2"x 6"	5.50"	R-23	1.8 lbs./cu. ft.	25.8 bags	38.8 sq. ft.	0.825 lbs.
2"x 8"	7.25"	R-31	1.8 lbs./cu. ft.	34.0 bags	29.4 sq. ft.	1.088 lbs.
2"x 10"	9.25"	R-39	1.8 lbs./cu. ft.	43.4 bags	23.1 sq. ft.	1.388 lbs.
2"x 12"	11.25"	R-48	1.8 lbs./cu. ft.	52.7 bags	19.0 sq. ft.	1.688 lbs.
2"x 14"	13.25"	R-56	1.8 lbs./cu. ft.	62.1 bags	16.1 sq. ft.	1.988 lbs.

Bag Net Weight – Nominal 32 lbs., Minimum 31 lbs.
 * "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. To get the marked R-value, it is essential that this insulation be installed properly.

Specification Compliance	Surface Burning Characteristics	Critical Radiant Flux (ASTM E 970)	Moisture Vapor Sorption (ASTM C 1104)	Corrosion (ASTM C 764)	Microbial Growth (ASTM C 1338)	Non-Combustibility (ASTM E 136)	Packaging
U.S. — ASTM C 764, Type I; HH-1030B, Class B; Greenguard™ Certification; Greenguard For Children and Schools™ Certification.	Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84 and CAN/ULC S102-M88.	Greater than 0.12 W/cm².	5% maximum by weight.	No greater than sterile cotton.	Does not support microbial growth.	No temperature rise above 54°F (30°C).	Perimeter Plus Blowing Insulation is packaged in a strong, poly bag that offers excellent protection from abuse, dust and moisture. Knauf packages are lightweight, stack without slipping and are easy to handle and store. Knauf 42-bag Plus Packs simplify loading/unloading and inventory control.



The low dust and easy smooth cutting of Knauf Ecobatt Insulation keeps installers efficient and comfortable.



Firm batts that recover quickly out of the package lead to quick installations.



Low dust batts: Worker comfort and higher productivity are the outcomes of using Knauf batts and blankets. Professional installers prefer Knauf's consistent density, low dust and clean-cutting batts.



GREENGUARD For Children and SchoolsSM Certified

- Strict indoor air quality requirements for applications such as classroom and daycare facilities are met or exceeded with Knauf batts.
- Quarterly testing by an independent third-party ensures ongoing compliance.



Knauf EcoBatt[®] QuietTherm[®] Insulation

- Acoustical insulation can assist with improving the STC ratings by 8 to 10 points in metal stud construction.

Knauf Commercial Insulation with ECOSE[®] Technology

Tough Industry Demands, Easy-Going Product

We help you meet the tough construction industry demands on time and budget with products that enhance installer productivity and create long term value for the building owner. All while fulfilling your business needs with a full line of quality products that will help to ensure your finished work looks and performs to everyone's expectations. And Knauf products are backed by the most responsive service in the industry because helping you succeed in your business is how we succeed in ours. Knauf EcoBatt[®] thermal and acoustical glasswool insulation products are available:

- Unfaced
- Kraft faced
- Foil faced
- Flame-rated FSK-25 (Foil-Scrim-Kraft) foil faced.

Knauf EcoBatt[®] Commercial Building Insulation provides cost-effective thermal and acoustical barriers for energy-efficient design. Their consistent quality, low dust and clean-cutting resilient fibers make fabrication easy and installation fast. The products can be used in wood and metal frame applications in commercial structures. These applications include thermal and acoustical treatments to walls, ceilings and floors.

Knauf EcoBatt[®] QuietTherm[®] Insulation's excellent acoustical properties reduce sound transmission and assist in reducing unwanted noise. Knauf EcoBatt QuietTherm Insulation can improve STC ratings in wood stud construction by 3 to 5 points and metal stud construction by 8 to 10 points, depending on the complexity of the wall configuration and layers of insulation. Knauf EcoBatt Commercial Batt Insulation can be used for exterior and partition walls, floors, crawlspaces and a variety of ceiling applications.



Knauf Insulation Board with ECOSE® Technology cuts smooth and easy for a quick and trouble-free installation.



Knauf Wall and Ceiling Liner M with ECOSE® Technology is commonly used to provide an acoustical treatment in theaters and concourses. It is also used as a ceiling cover in restaurants for visual aesthetics.



Knauf Black Acoustical Insulation with ECOSE® Technology resists damage during installation and has a consistent black surface for visual aesthetics.



Knauf Insulation Board with ECOSE® Technology fulfills many thermal and acoustical applications in light commercial construction. From metal and masonry walls, curtain wall assemblies and wall cavities to wall and roof panel systems.



Knauf's line of Black Acoustical Insulation with ECOSE® Technology is specifically designed to reduce airborne sound transmission and combines the performance, appearance and abuse resistance any job may require.

Knauf Insulation Board is a thermal and acoustical insulation product made from inorganic glass fibers preformed into boards bonded by ECOSE® Technology. Available in:

- Unfaced
- Foil-scrim-kraft (FSK) facing factory-applied
- Polypropylene-scrim-kraft (PSK) facing factory-applied
- All-service jacket (ASJ) factory-applied.

Knauf Insulation Board with ECOSE Technology is a versatile product for thermal and acoustical applications such as metal and masonry walls, wall and roof panel systems, curtain wall assemblies and cavity walls.

Lower Installation and Operating Costs

The lightweight, stiff board is easy to handle and fabricate making for a fast installation, lowering labor costs. And the excellent thermal efficiency conserves energy and lowers operating costs.

Improved Interior Surroundings

Excellent acoustical properties effectively reduce noise. An enhanced appearance is created with FSK, PSK and ASJ vapor-retardant facings.

Knauf Black Acoustical Insulation with ECOSE Technology reduces sound transmission and can significantly improve STC ratings of wall configurations. These products are designed for use as acoustical insulation or as an enhancement of the visual surface on walls and ceilings.

Knauf Wall and Ceiling Liner M with ECOSE Technology is a brown flexible fiber glass blanket with a black mat facing adhered to one surface. Its smooth, tough surface resists damage during installation.

Knauf Wall and Ceiling Liner M is primarily used in theaters, sound studios, public concourses and other areas where acoustical treatment is needed. It is intended to be mechanically fastened to walls and covered with fabric or draping, or suspended above linear metal and metal pan ceiling systems to serve as both a visual and acoustical treatment.

Knauf Black Acoustical Board with ECOSE Technology is a heavy density brown fiber glass base board with a black mat applied to provide a smooth, tough finish.

Knauf Black Acoustical Board is designed for use as acoustical insulation and/or a visual aesthetic on walls and ceilings, where a rigid product and additional strength and abuse resistance are required. The product is typically used where framing members are not present.

Knauf EcoBatt® and EcoBlanket® Insulation

with ECOSE® Technology

Metal Frame Construction

EcoBatt Insulation Batts and Blankets



R-Value	Thickness	Width	Facings				Specification Compliance	Surface Burning Characteristics	Facing Permeance	Water Vapor Sorption (ASTM C 1104)	Corrosion (ASTM C 665)	Microbial Growth (ASTM C 1338)	Non-Combustibility (ASTM E 136)	Packaging
			Unfaced	Kraft	Foil*	FSK-Foil								
R-8 QT	2.5" (64 mm)	16", 24" (406, 610 mm)	•				U.S.— ASTM C 665, Type I, Class A (unfaced); ASTM C 665, Type II, Class C (kraft faced); ASTM C 665, Type III, Class A (FSK-25 foil faced); ASTM C 665, Type III, Class B (foil faced); GREENGUARD Certification; GREENGUARD For Children and Schools™ Certification; California Energy Commission; Dade County, Florida; MEA #498-90-M; State of Minnesota.	Unfaced & FSK-25: Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84.	Kraft faced products have a moisture permeance of 1.0 or less. FSK foil faced products have ratings of .04. Foil faced products have ratings of .05.	5% maximum by weight.	No greater than sterile cotton.	Does not support microbial growth.	Noncombustible (unfaced)	Feature complete installation instructions and a highly visible color coding system which follows industr standards, making Knauf products easy to select. Knauf packages are lightweight, stack without slipping and are sized to fit easily under floors and through scuttle holes. Most batt products are packaged in Knauf Master Bag 4-packs. However, several 15"/16" products are available in 5-packs.
R-11	3.5" (89 mm)	16", 24" (406, 610 mm)			•	•								
R-11 QT	3.5" (89 mm)	16", 24" (406, 610 mm)	•	•										
R-13	3.5" (89 mm)	16" (406 mm)			•	•								
R-13 QT	3.5" (89 mm)	16", 24" (406, 610 mm)	•	•										
R-19	6.25" (159 mm)	16", 24" (406, 610 mm)			•	•								
R-19 XF	6.25" (159 mm)	23" (584 mm)				•								
R-19 QT	6.25" (159 mm)	16", 24" (406, 610 mm)	•	•										
R-30	10" (254 mm)	16", 24" (406, 610 mm)			•	•								
R-30 XF	10" (254 mm)	24" (610 mm)				•								
R-38	12" (305 mm)	24" (610 mm)			•									

* Not rated for flame propagation.
 QT = QuietTherm insulation specifically designed for acoustical applications.
 XF = Extended Flange, FSK Foil Facing

Knauf Insulation Board

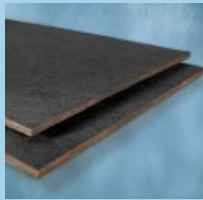
with ECOSE® Technology




Insulation Board	Density	Thickness	Width	Length	Packaging	Thermal Conductivity k-Value (S.I.) (ASTM C 518)*	Thermal Resistance R-Value (S.I.) (ASTM C 177)*	Specification Compliance	Acoustical Performance Sound Absorption Coefficients (ASTM C 423, Type A Mounting)				Surface Burning Characteristics	Temp. Range (ASTM C 411)	Puncture Resistance (TAPPI Test T803, Beach Units)	Water Vapor Permeance (ASTM E 96, Procedure A)	Water Vapor Sorption (ASTM C 1104)
									1/3 Octave Band Center Frequency (Cycles/Sec.)								
									Density	Thickness	Facing	NRC					
Insulation Board	1.6 PCF (26 kg/m³)	1½" (38 mm)	24", 48" (610 mm, 1219 mm)	48", 96" and 120" (1219, 2438 and 3048 mm)	Plain: Cartons, Sleeves Faced: Cartons Only	.24 (.035)	6.3 (1.1)	U.S.—ASTM C 612, Type IA, IB; ASTM C 1136 (facings), Type I, II, III, IV (ASJ), Type II, IV (FSK, PSK) California Title 24; HH-B-100B, Type I (ASJ facing), Type II (FSK, PSK facings); HH-1558C, Form A, Class 1, Class 2; GREENGUARD Certification; GREENGUARD For Children and Schools™ Certification; NFPA 90A and 90B. Canada — CAN/ULC S102-M88, CGSB 51-GP-10M.	1.6 PCF (26 kg/m³)	1½" (38 mm)	Plain		.80				
		2" (51 mm)								.90							
		2½" (64 mm)								1.00							
		3" (76 mm)								1.05							
		3½" (89 mm)															
	4" (102 mm)																
	2.25 PCF (36 kg/m³)	1" (25 mm)	24", 48" (610 mm, 1219 mm)	48", 96" and 120" (1219, 2438 and 3048 mm)		.23 (.033)	4.3 (0.8)		2.25 PCF (36 kg/m³)	1" (25 mm)	Plain		.65				
		1½" (38 mm)								.85							
		2" (51 mm)								.95							
		2½" (64 mm)															
		3" (76 mm)								FSK			.75				
		3½" (89 mm)								.75							
		4" (102 mm)															
	3.0 PCF (48 kg/m³)	1" (25 mm)	24", 48" (610 mm, 1219 mm)	48", 96" and 120" (1219, 2438 and 3048 mm)		.23 (.033)	4.3 (0.8)		3.0 PCF (48 kg/m³)	1" (25 mm)	Plain		.65				
		1½" (38 mm)								.85							
		2" (51 mm)								1.00							
		2½" (64 mm)								1.10							
		3" (76 mm)								1.10							
		3½" (89 mm)								FSK			.75				
4" (102 mm)		.70															
		.65															
4.25 PCF (68 kg/m³)	1" (25 mm)	24", 48" (610 mm, 1219 mm)	48", 72", 96" and 120" (1219, 1829, 2438 and 3048 mm)		.23 (.033)	4.3 (0.8)		4.25 PCF (68 kg/m³)	1" (25 mm)	Plain		.75					
	1½" (38 mm)								.55								
	2" (51 mm)																
	2½" (64 mm)																
6.0 PCF (96 kg/m³)	1" (25 mm)	24", 48" (610 mm, 1219 mm)	48", 72", 96" and 120" (1219, 1829, 2438 and 3048 mm)		.22 (.032)	4.4 (0.8)		6.0 PCF (96 kg/m³)	1" (25 mm)	Plain		.80					
	1½" (38 mm)								.90								
	2" (51 mm)								1.00								
	2½" (64 mm)																
									FSK			.50					
									.60								
									.60								
									ASJ			.50					
	.50																

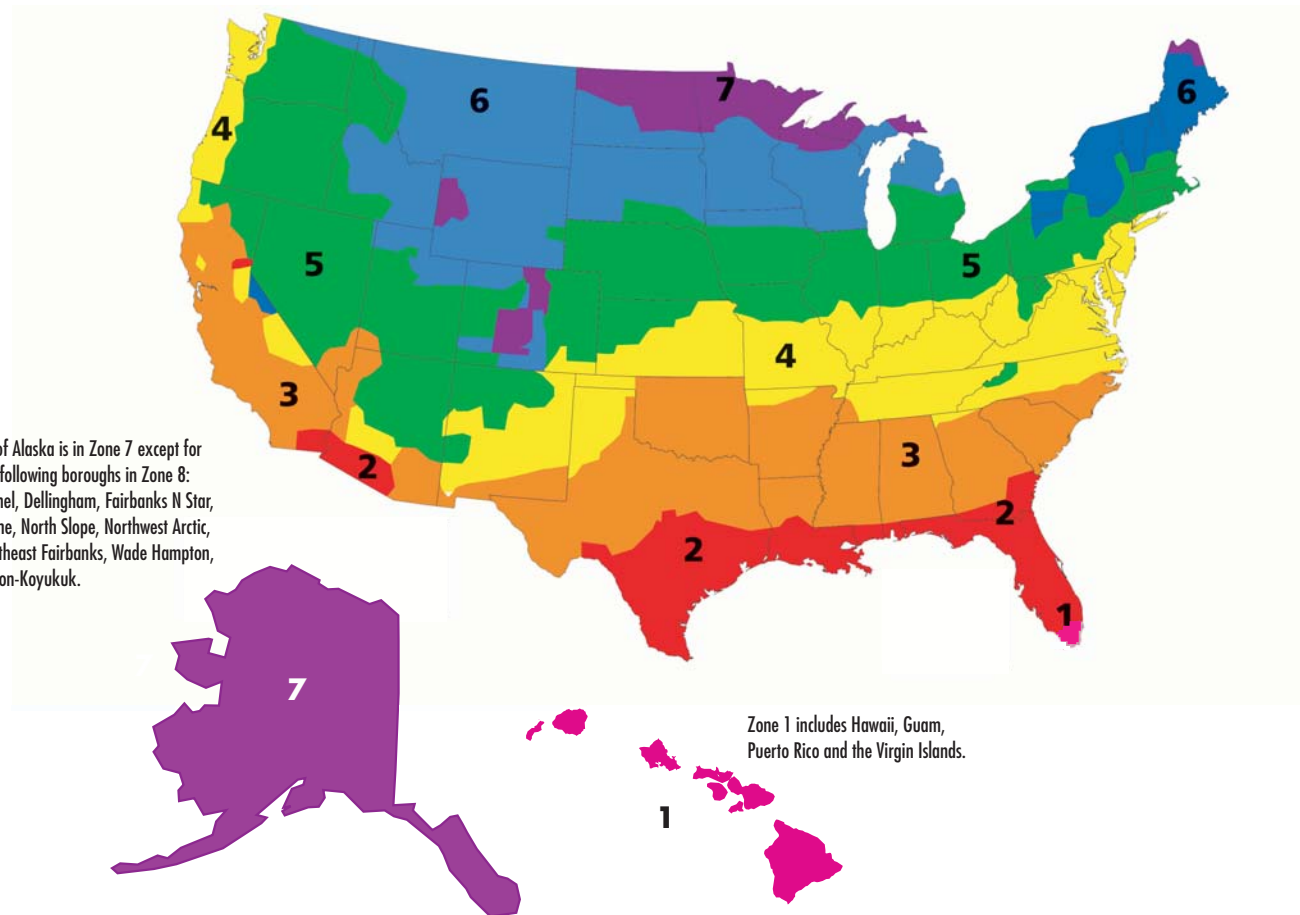
Knauf Black Acoustical Insulation

with ECOSE® Technology

Black Acoustical Board	Thickness	Width	Length	Packaging	Thermal Resistance R-Value ASTM C 518* (S.I.)	Specification Compliance	Surface Burning Characteristics	Service Temperature (ASTM C 411)	Air Velocity (UL 1071)	Water Vapor Sorption (ASTM C 1104)	Sound Absorption Coefficients (ASTM C 423, Type A Mounting) 1/3 Octave Band Center Frequency (cycles/sec)						
											225	250	500	1000	2000	4000	NRC
											125	250	500	1000	2000	4000	NRC
 <p>2.25 PCF (36 kg/m³)</p> <p>3.0 PCF (48 kg/m³)</p>	2" (51 mm)	24" (610 mm)	48" (1219 mm)	Unitized Cartons	8.7 (1.53)	U.S.— ASTM C 1338, G 21, 22; NFPA 255; UL 723, GREENGUARD Certification; GREENGUARD For Children and Schools™ Certification . Canada — CAN/ULC S102-M88.	UL/ULC Classified; 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.	Maximum 250°F (121°C)	Maximum 4000 fpm (1219 mpm)	Less than 3% by weight.	.26	.62	1.05	1.07	1.04	1.05	.95
	1" (25 mm)	24" (610 mm)	48" (1219 mm)	Unitized Cartons	4.3 (.76)						.13	.24	.56	.83	.92	.98	.65
	1.5" (38 mm)				6.5 (1.15)						.19	.41	.89	1.02	1.03	1.04	.85
	2" (51 mm)				8.7 (1.53)						.33	.67	1.07	1.07	1.03	1.06	.95
* Mean Temperature 75°F (24°C)																	

Wall and Ceiling Liner M	Thickness	Width	Length	R-Value	Specification Compliance	Surface Burning Characteristics	Service Temperature (ASTM C 411)	Air Velocity (UL 1071)	Water Vapor Sorption (ASTM C 1104)	Sound Absorption Coefficients (ASTM C 423, Type A Mounting)							
										125	250	500	1000	2000	4000	NRC	
										125	250	500	1000	2000	4000	NRC	
 <p>1.0 PCF (16 kg/m³)</p> <p>1.5 PCF (24 kg/m³)</p> <p>2.0 PCF (32 kg/m³)</p>	1½" (38 mm)	48" (1219 mm)	50' (15.24 m)	5.4	U.S.— ASTM C 1071, Type I; ASTM D 5116; ASTM G 21, 22; California Title 24 (1.5 PCF, 1" and above); NFPA 90A and 90B; GREENGUARD Certification; GREENGUARD For Children and Schools™ Certification. Canada — CAN/ULC S102-M88; CAN/CGSB 51. 11-92.	UL/ULC Classified; Does not exceed 25 Flame Spread, 50 Smoke Devel- oped when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.	Up to 250°F (121°C)	Maximum 6000 fpm (1829 mpm)	Less than 3% by weight.	—	—	—	—	—	—	.60	
	2" (51 mm)		50' (15.24 m)	7.1						—	—	—	—	—	.85		
	½" (13 mm)	48" (1219 mm)	100' (30.48 m)	2.0						—	—	—	—	—	.50		
	1" (25 mm)		100' (30.48 m)	4.2						.18	.36	.59	.86	.95	.90	.70	
	1½" (38 mm)		50' (15.24 m)	6.0						.35	.51	.83	.93	.97	.96	.80	
	2" (51 mm)		50' (15.24 m)	8.0						.34	.64	.96	1.03	1.00	1.03	.90	
	½" (13 mm)		48" (1219 mm)	100' (30.48 m)						2.1	.09	.14	.40	.60	.73	.82	.45
	1" (25 mm)			50' (15.24 m)						4.2	.25	.35	.69	.89	.96	1.01	.70

CABO Model Energy Code Guidelines*



New Wood-Framed Houses						
Zone	Heating System	Attic	Cathedral Ceiling	Wall		Floor
				Cavity	Insulation Sheathing	
1	All	R-30 to R-49	R-22 to R-38	R-13 to R-15	None	R-13
2	Gas, oil, heat pump	R-30 to R-60	R-22 to R-38	R-13 to R-15	None	R-13, R-19, R-25
	Electric furnace					
3	Gas, oil, heat pump	R-30 to R-60	R-22 to R-38	R-13 to R-15	None	R-5
	Electric furnace					
4	Gas, oil, heat pump	R-38 to R-60	R-30 to R-38	R-13 to R-15	R-2.5 to R-6	R-25 to R-30
	Electric furnace					
5	Gas, oil, heat pump	R-38 to R-60	R-30 to R-38	R-13 to R-15	R-2.5 to R-6	R-25 to R-30
	Electric furnace		R-30 to R-60	R-13 to R-21	R-5 to R-6	
6	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30
7	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30
8	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30

Existing Wood-Framed Houses			
Zone	Add Insulation to Attic		Floor
	Uninsulated Attic	Existing 3-4 Inches of Insulation	
1	R-30 to R-49	R-25 to R-30	R-13
2	R-30 to R-60	R-25 to R-38	R-13 to R-19
3	R-30 to R-60	R-25 to R-38	R-19 to R-25
4	R-30 to R-60	R-38	R-25 to R-30
5-8	R-49 to R-60	R-38 to R-49	R-25 to R-30

Wall Insulation: Whenever exterior siding is removed on an **Uninsulated wood-frame wall:**

- Drill holes in the sheathing and blow insulation into the empty wall cavity before installing the new siding, and
- Zones 3-4: Add R5 insulative wall sheathing beneath the new siding.
- Zones 5-8: Add R5 to R6 insulative wall sheathing beneath the new siding.

Insulated wood frame wall:

- For Zones 4-8: Add R5 insulative sheathing before installing the new siding

Reference: DOE/CE-0180 2008. Insulation Fact Sheet

*These recommendations are cost-effective levels of insulation based on the best available information on local fuel and materials costs and weather conditions. Consequently, the levels may differ from current local building codes. In addition, the apparent fragmentation of the recommendations is an artifact of this data and should not be considered absolute minimum requirements.

KNAUF INSULATION

it's time to save energy

Knauf Insulation is registered to ISO 9001:2000 in the prevention, detection and correction of problems in production and service areas.

The descriptions of chemical and physical properties of Knauf products listed in this catalog represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing and testing variations, 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 sales representative to ensure that the information in this catalog is the most current available.



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Visit our Web site to learn more about Knauf Insulation, to obtain product information and for industry news. More information about Greenguard certification and indoor air quality is also available. In addition, documents are available as PDFs. Literature available includes:

- MSDS
- Data Sheets
- Guide Specs
- Submittal Sheets
- Fact Sheets

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ECOSE® Technology—a revolutionary new binder chemistry that makes Knauf Insulation products even more sustainable than ever. It is based on rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals traditionally used in fiber glass insulation products. ECOSE Technology reduces binder embodied energy and does not contain phenol, formaldehyde, acrylics or artificial colors.



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At Knauf, we manufacture a wide variety of products that serve a common goal, helping to make the most of our planet's energy resources. A family-owned global company, we understand and are committed to high standards in quality, performance and environmental responsibility. Every step we take today toward energy conservation helps ensure better lives for generations to come.



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