



Installation Guide

Airboard™ Insulation + Vapor Barrier
For New Construction & Retrofits



INTRODUCTION

Airboard™ combines closed cell Expanded Polystyrene (EPS) rigid insulation with advanced polymeric facers for fast installation and excellent durability. The reflective metallic facers can boost the effective insulation value, if installed like a radiant heat barrier against dead air space. Airboards are vapor barriers and serve as an air barrier when the seams, penetrations and transitions are properly sealed.

SAFETY FIRST

Understand and follow the Safety Data Sheet (SDS) www.airfoam.com/SDS.pdf regarding hazards, precautions, storage etc. CAUTION: This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. Keep products away from high heat and ignition sources. If potential ignition sources are present during construction, keep serviced fire extinguishers readily accessible. Personal Protective Equipment: work gloves, long-sleeved shirts, approved safety glasses and disposable dust respirators (if EPS dust is generated).

BUILDING CODE COMPLIANCE

Install Airboard™ Insulation per the applicable building code, best practices and follow these installation instructions. Ensure that the installation complies with all locally applicable code requirements including (but not limited to): thermal and ignition barriers, interior thermal barriers, finish materials, vapor retarders, exterior water-resistive barriers, air barriers and claddings, drainage, ventilation, insulation in adjacent areas, caulking and sealing, among others. Airboard™ Insulation shall only be placed into an assembly where the moisture transport mechanisms are well understood and determined to be acceptable in accordance with building codes and/or accepted engineering practices (e.g. ASHRAE Fundamentals).



INCOMPATIBLE MATERIALS & LIMITATIONS

Airboard™ Insulation should only be stored & installed in locations/applications where the temperature will not exceed 167°F [75°C]. Adhesives, sealants, ties, fasteners, tapes, coatings and all other materials & accessories used with Airboard™ Insulation must be compatible with polystyrene foam and installed per their manufacturer's instructions. EPS dissolves in hydrocarbons (e.g. fuels, oils, tar), organic solvents (e.g. acetone/ketones, benzene, paint thinner), ethers, esters, aldehydes and amines. Do not use Airboard™ Insulation with coal tar pitch, highly solvent extended mastics, or solvent-based adhesives without adequate separation.

STORAGE AND HANDLING

Airboard™ Insulation is lightweight and easy to handle. The insulation boards come bundled in 4'x8' [1.2m x 2.4m] UV resistant bags up to 12.5" [32cm] high. Handle products carefully to prevent damage. Store in a ventilated, protected area to prevent exposure to ignition sources, sun, insects, water, snow, ice, dirt and any other materials that may affect performance. If needed, store under breathable protective covers. Airboard™ Insulation shall be fully supported during storage, not in contact with the ground, and adequately secured against wind. Store Airboard™ Insulation in unopened packaging with identification labels or markings intact until ready for installation.

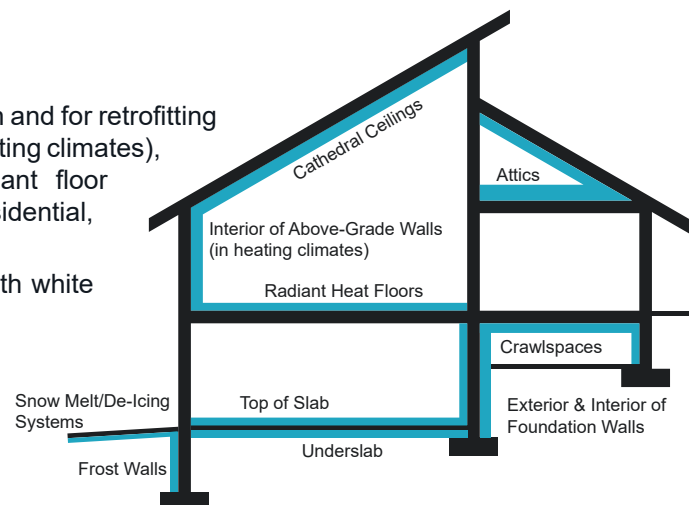
APPLICATIONS

Airboard™ VB 100 & VB 160 are commonly used in new construction and for retrofitting foundation walls, concrete slabs, interior of above-grade walls (in heating climates), floors, frost walls, crawl-spaces, cathedral ceilings, attics, radiant floor heating systems, snow melt and de-icing systems and more in residential, commercial, and industrial buildings.

Airboard™ VB 100 - Regular compressive strength - labeled with white stickers on product packaging bags.

Airboard™ VB 160 - Higher compressive strength - labeled with yellow stickers on product packaging bags.

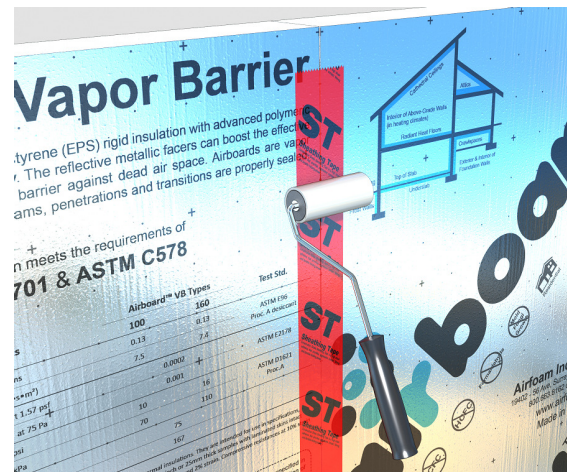
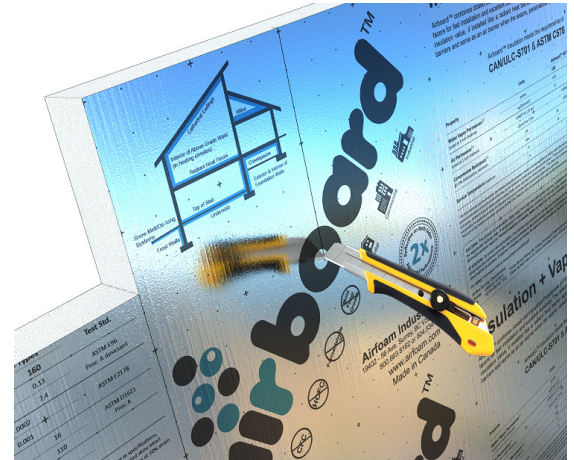
For more information, refer to product specifications at www.airboard.ca and refer to design drawings done by a qualified professional.



GENERAL INSTALLATION REQUIREMENTS

Ensure proper selection and installation of the correct Airboard™ “Type” with the material properties and thickness for the intended use as specified in building plans or codes. For example, under-slab insulation needs higher compressive strengths than most wall insulation. Select the Airboard™ that meets the use-requirements and the thickness for the desired insulation value. Refer to the Airboard™ Insulation packaging labels and www.airfoam.com for EPS Type information.

- Airboard™ Insulation must be installed on a flat surface such as straight walls or a well-graded gravel substrate.
- Remove/patch deformations, irregularities and voids in the substrate to prevent broken insulation & weak connections.
- Butt all edges and ends tightly to adjacent Airboards and avoid leaving gaps where the insulation meets other components.
- If applicable, stagger Airboard™ joints in one direction for each course and lap Airboards at corners of the walls.
- Seal insulation gaps and joints that have been cut or damaged (e.g. at corners, edges or penetrations) using suitable, compatible materials such as foam-in-place polyurethane.
- If required, fastener penetrations and the seams between Airboards may be sealed with compatible approved sealing/sheathing tape. Tape by starting at bottom of walls and working upward. Maintain continuity between Airboard and other air and vapor barriers in the buildings.
- If required, provide edge protection such as J-channels for exposed Airboard™ Insulation.
- Tape and/or flash as required all transitions, vertical and horizontal seams, butt joints and corners/angles. Tape insulation edges and around components that pass through the Airboard™ Insulation, such as sleeves, pipes, window/door openings and other penetrations.
- Do not leave Airboard™ Insulation exposed for an extended period to protect from sunlight and damage from subsequent construction. Prolonged exposure to ultraviolet light creates a yellow dust on the surface of EPS products that shall be removed before adhesion to other materials such as sealants, adhesives, flashing membranes etc.



CUTTING & ADHESION

Airboard™ is easily cut with utility knives or circular saws where cutting volume makes it faster. For easier cutting, Airboard™ facers are marked up vertically and horizontally as follows:

Plus symbols “+” spaced at every 6" [152mm] o/c,

Dot symbols “•” spaced at every 2" [51mm] o/c.

Airboard™ may be tacked (spot-adhered) to substrates prior to fastening the finishes, such as drywall, or furring strips to framing or structural substrate. Adhering drywall directly to Airboard™ is recommended for small surface areas only. Finishes, including drywall, should always be fastened directly to framing or to furring strips secured to framing. Plain Urethane adhesive may be used where the bead lines are applied in a vertical fashion 12" to 16" [30cm to 40cm] o/c.

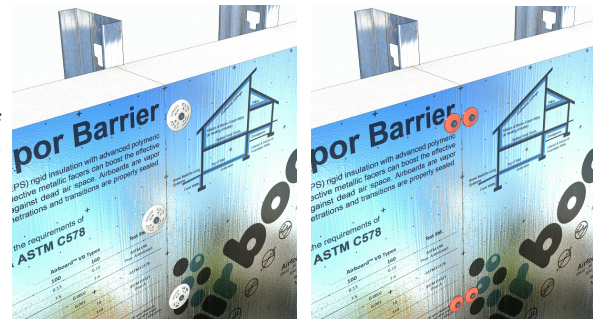
Sheathing Tape should be minimum 2-3/8" [60mm] wide. Fasteners do not need to be taped to maintain vapor barrier continuity. When Airboard™ is applied in moisture sensitive areas, in a vertical or angled position, the tape should be installed with a ship-lapping technique starting at the bottom. Sheathing tapes usually have recommended installation temperature ranges - see tape manufacturer's specifications. Wherever Airboard is used to control water vapor, ensure that the tape is rated as a vapor barrier.



MECHANICAL FASTENING

It may be necessary to mechanically secure the Airboard™ Insulation to framing or other structural substrate. Nail guns are available to install the fastener washers flush with insulation. Staples should be galvanized steel of 16 gauge [1.6mm] or larger with a minimum 1" [25mm] wide crown. Alternately use screws or nails with plastic washers that are min. 1" [25mm] in diameter. Larger washers may be used by alternating the fastening pattern.

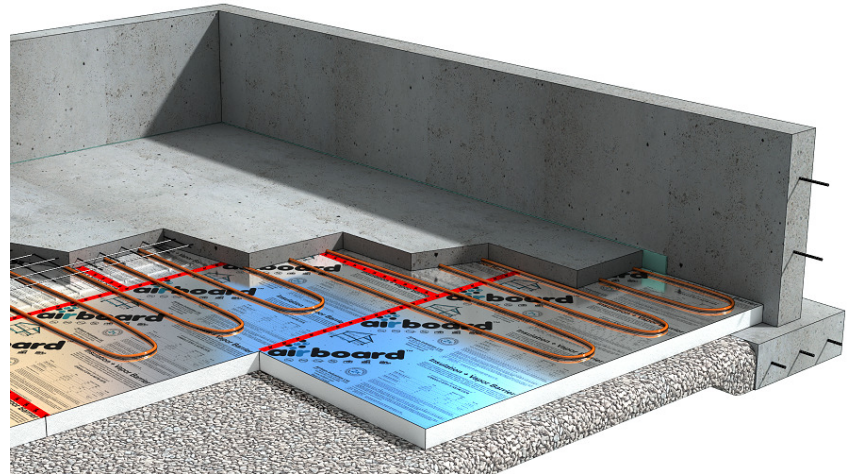
- The fastener length should be equal to Airboard™ Insulation thickness plus a minimum of 1" [25mm] penetration into substrate.
- The minimum edge to fastener distance should be 3/4" [20mm].



INSTALLATION BELOW CONCRETE SLABS

Ensure to install the correct EPS Types (see above) in their intended locations with compressive strengths that are appropriate for the intended use. For example, a garage slab often requires EPS Types with higher compressive strengths than slabs for regular residential use.

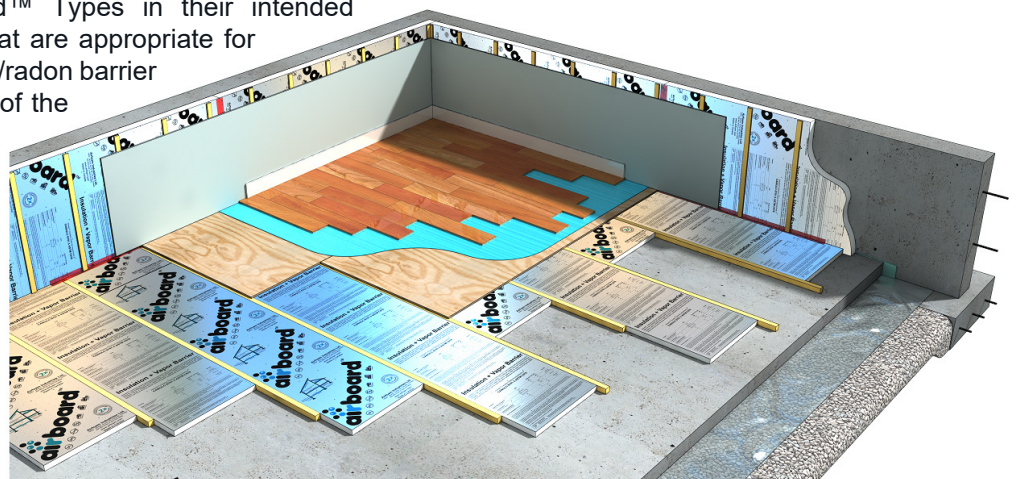
- Verify/prepare flat surface of well graded and compacted gravel fill. Do not place insulation boards over uneven surfaces that can cause broken insulation and concrete cracks.
- Install Airboard™ Insulation in a staggered pattern, butting all edges and ends tightly.
- If installed in multiple layers, offset all insulation board joints between layers.
- If Airboard™ is used as a vapor and/or radon barrier, tape all seams, penetrations and transitions with approved vapor barrier tape; otherwise install approved membrane over the sub-grade as required, e.g. 6-mil [0.15mm] polyethylene.
- Install reinforcement on spacers as required without displacing or damaging the insulation boards.
- Double-check position, elevations of reinforcement and perimeter formwork before placing concrete.
- Place the concrete to the required thickness and finish it using normal construction methods and equipment.



ABOVE CONCRETE SLABS

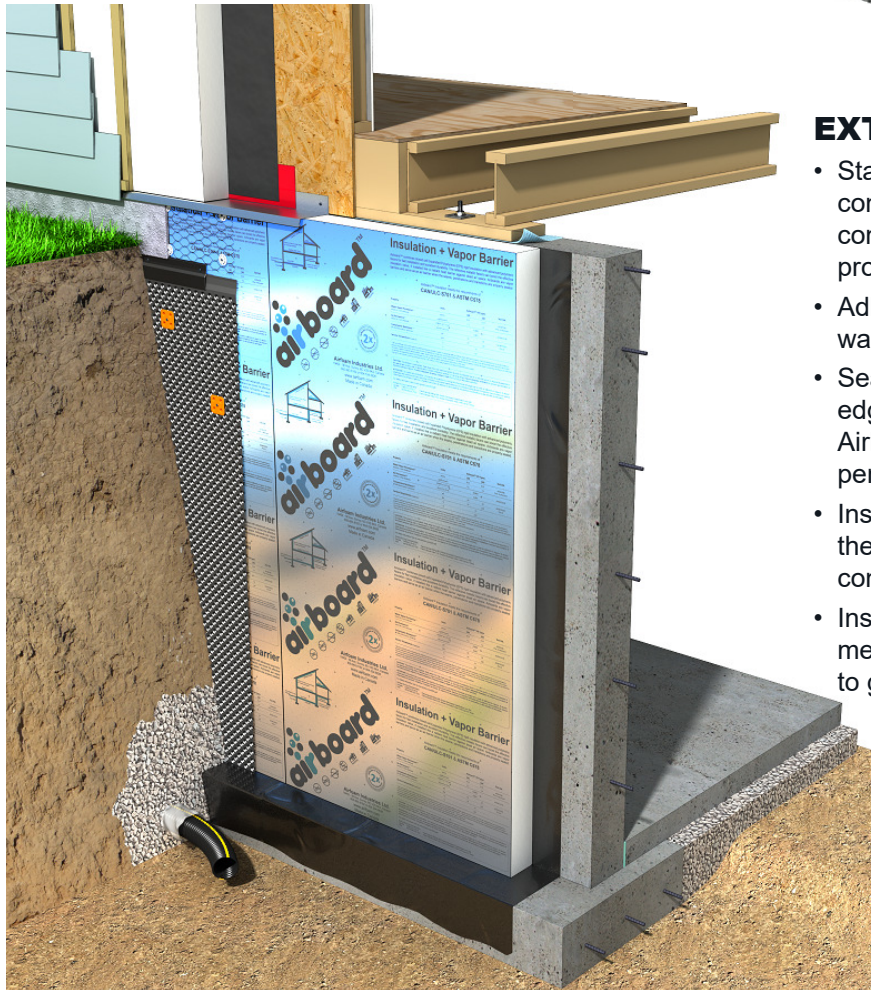
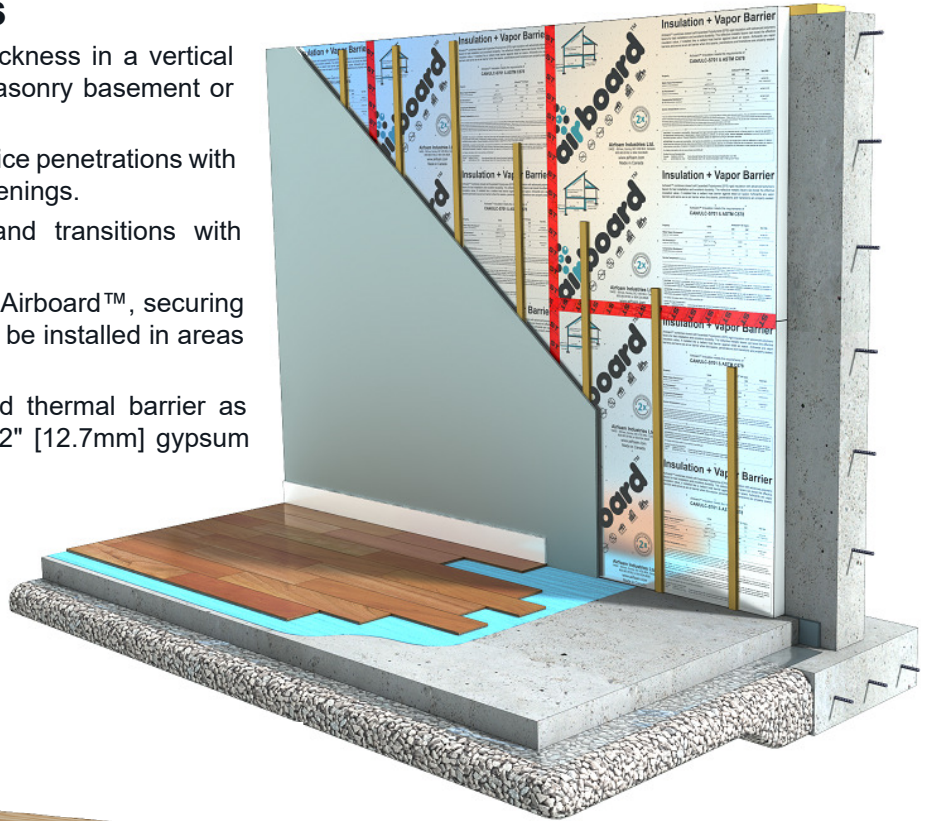
Ensure to install the correct Airboard™ Types in their intended locations with compressive strengths that are appropriate for the intended use. If there is no vapor and/radon barrier under the slab, it can be placed on top of the concrete slab and held down with the strapping spacers.

- Fasten strapping spacers to concrete slab with self-tapping screws or nails, typically leaving 24" [61cm] gaps for Airboard™.
- Airboard™ thickness should match the thickness of the strapping spacers.
- Cut and install Airboard™ Insulation between the spacers.
- Select plywood subfloor of adequate thickness to span the distance between the spacers and secure directly to spacers.
- Install/secure floor finish material to subfloor.



INTERIOR OF BASEMENT WALLS

- Adhere Airboard™ Insulation of adequate thickness in a vertical fashion directly to clean and dry concrete, masonry basement or foundation walls with compatible adhesive.
- Seal all gaps and around openings and/or service penetrations with spray foam. Frame/box out all window well openings.
- Tape all Airboard™ seams, penetrations and transitions with approved sheathing tape.
- Install 1"x2" or plywood furring/strapping over Airboard™, securing it directly into the concrete. 2"x4" framing may be installed in areas where more space for utilities is required.
- Fasten/install wall finish using code-approved thermal barrier as required for the application (e.g. minimum 1/2" [12.7mm] gypsum drywall) to furring/strapping or framing.



EXTERIOR OF BASEMENT WALLS

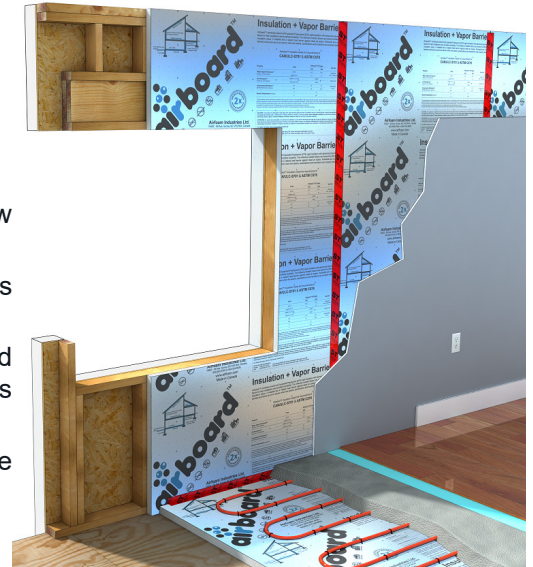
- Start by water or damp proofing the exterior of concrete or masonry basement/foundation wall. Ensure compatibility between Airboard™ and the water/damp proofing material (no coal tar pitch).
- Adhere Airboard™ Insulation in vertical fashion to the wall with urethane adhesive.
- Seal and/or flash as required at transitions, insulation edges and around components that pass through the Airboard™ Insulation, such as sleeves, pipes, and other penetrations.
- Install drainage/protection board with finishing strip on the top and secure through Airboard™ Insulation into concrete with self-tapping screws or nails.
- Install parging at grade level as a trowel applied mix over metal lath or adhere approved cement board, resistant to ground moisture, to Airboard™ Insulation.
 - Install metal flashing with self-adhering membrane to transition from the wall above and over top of Airboard Insulation and parging.
 - Korolite® EPS board insulation may be used above grade to match the thickness of Airboard™ below grade for seamless transition of exterior finish down to parging at grade.
 - Backfill to the required elevation.

EXTERIOR OF FRAMED WALLS - NOT RECOMMENDED

Due to its low permeance rating, Airboard™ VB 100 & VB 160 are not recommended for exterior of framed walls unless specifically approved by a qualified professional (e.g. in cooling climates). Consider using plain Korolite® Rigid EPS insulation boards for exterior of framed walls.

INTERIOR OF FRAMED WALLS

- Tack Airboards temporarily into place with screws or nails in a vertical fashion against framing structure.
- Electrical/plumbing services and utility lines may be cut into Airboard™.
- Seal all gaps and around openings and/or service lines/penetrations with low expansion sprayfoam.
- If Airboard™ is used as a vapor and/or air barrier, tape all seams, penetrations and transitions with approved sheathing tape.
- Fasten vertical strapping through Airboard™ Insulation. If the studs are spaced close enough, this step may be skipped with thinner insulation where wall finish is fastened directly to studs through Airboard™ Insulation.
- If required (e.g. Airboards are not taped), install approved membrane over the Airboard™ Insulation as required, e.g. 6-mil [0.15mm] polyethylene.
- Fasten wall finish (e.g. drywall) to framing or strapping.



WOOD FLOORS

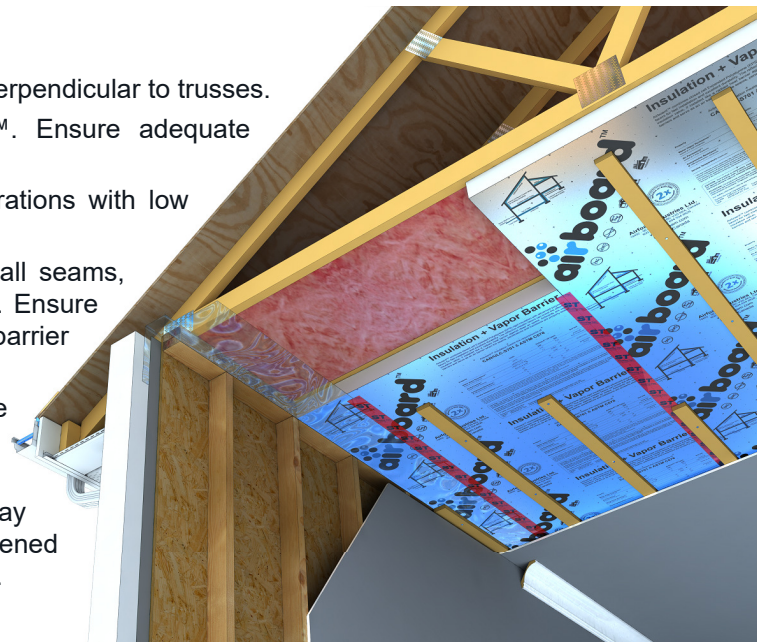
Ensure installation of the correct Airboard™ Type in its intended location with compressive strength that is appropriate for the intended use.

- Install vapor barrier over subfloor if Airboard is not taped and sealed at the joints.
- Adhere Airboard™ insulation to subfloor plywood/vapor barrier.
- Seal all gaps and/or service penetrations with sprayfoam.
- If required, install lines for in-floor-radiant heat by stapling them into Airboard™ Insulation.
- Pour concrete screed layer for in-floor-radiant heat system or install plywood subfloor of adequate thickness directly over the Airboard™ Insulation and fasten it to subfloor.
- Install/secure floor finish material to subfloor or to screed layer.



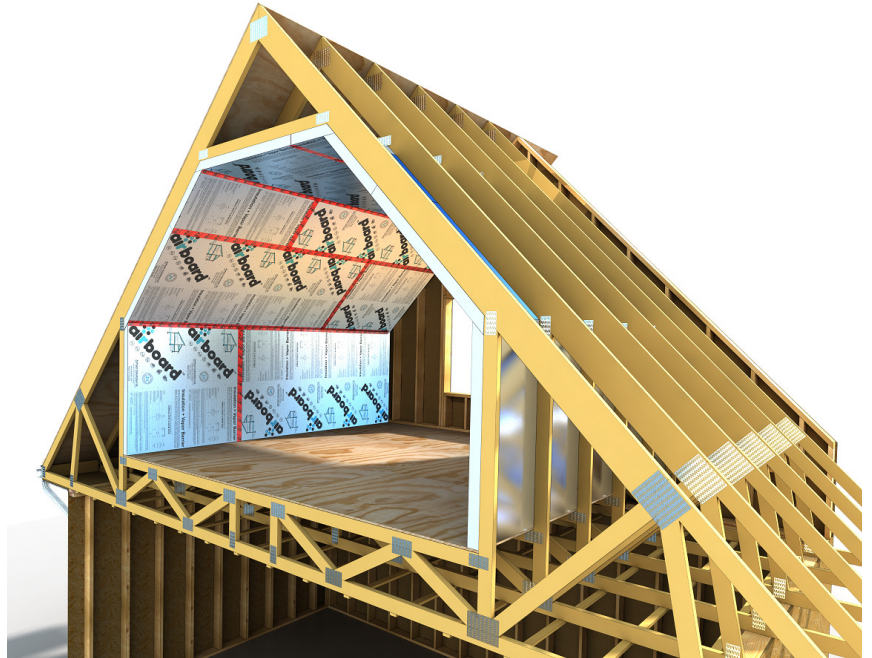
CEILING

- Tack Airboards temporarily into place with screws or nails perpendicular to trusses.
- Electrical/plumbing services may be cut into Airboard™. Ensure adequate clearance cutouts around recessed lights.
- Seal all gaps and around openings and/or service penetrations with low expansion sprayfoam.
- If Airboard™ is used as a vapor and/or air barrier, tape all seams, penetrations and transitions with approved sheathing tape. Ensure that continuity of seal exists between Airboard and other barrier elements, like that used in walls.
- Where required, install and tape approved membrane to the Airboard™ Insulation, e.g. 6-mil [0.15mm] polyethylene.
- Fasten strapping through the Airboard™ at required spacing. If the trusses are spaced close enough, this step may be skipped with thinner insulation where wall finish is fastened directly to trusses/framing through the Airboard™ Insulation.
- Fasten ceiling finish (e.g. drywall) to framing or strapping.



ATTICS / UNDER ROOFS

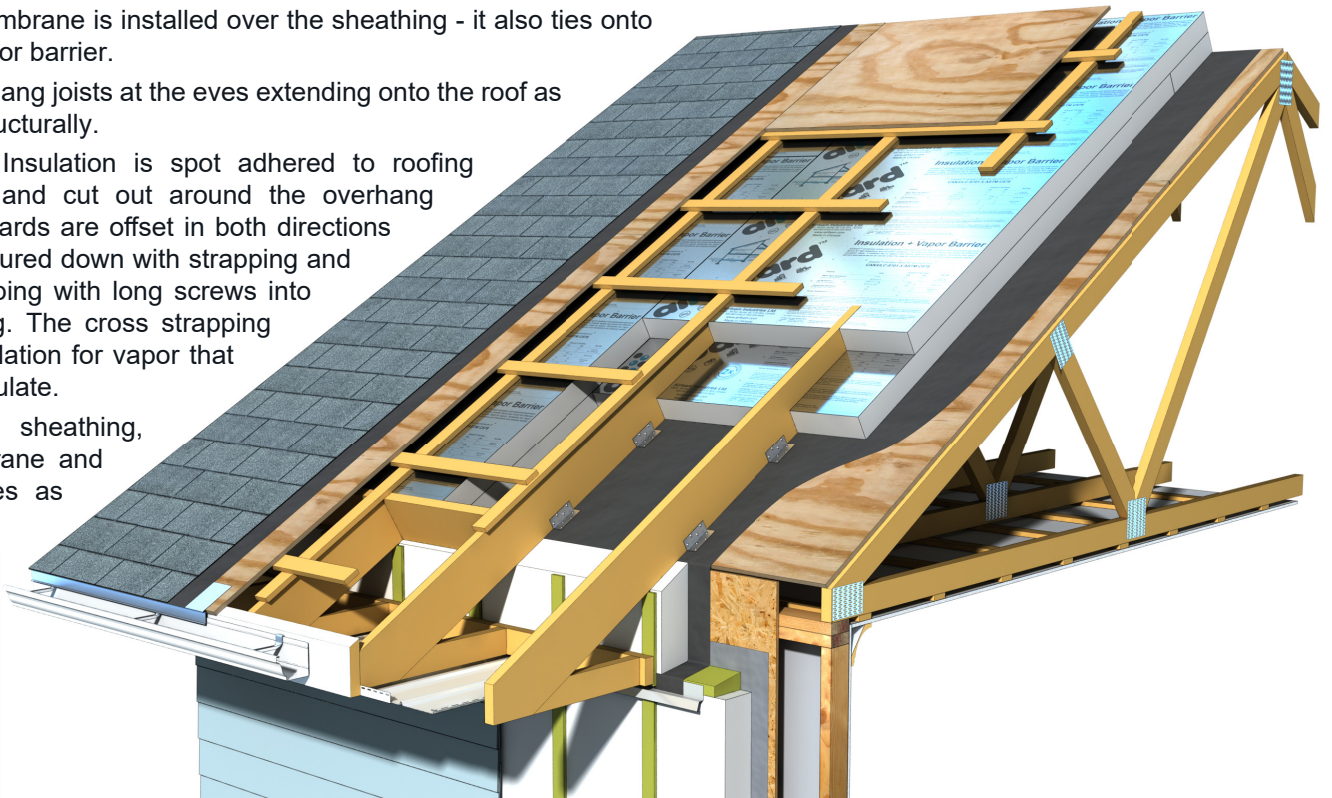
- Tack Airboards temporarily into place with screws or nails.
- Electrical/plumbing services may be cut into Airboard™.
- Seal all gaps and around openings and/or service penetrations with low expansion sprayfoam.
- If Airboard™ is used as a vapor and/or air barrier, tape all seams, penetrations and transitions with approved sheathing tape. Ensure that continuity of seal exists between Airboard and other barrier elements, like that used in walls.
- Fasten vertical strapping through the Airboard™ Insulation. This step may be skipped with thinner insulation where wall finish is fastened directly to studs through the Airboard™ Insulation.
- Where required, install and tape approved membrane to the Airboard™ Insulation, e.g. 6-mil [0.15mm] polyethylene.
- Fasten attic finish (e.g. drywall) to framing or strapping. Wall finish in graphic on right omitted for clarity.



ABOVE ROOFS

In this example, the Airboard™ Insulation is placed entirely above the roof structure allowing a conditioned attic or living space.

- Roof trusses are installed; the trusses do not require the tails. The insulation between the roof trusses at ceiling may be omitted as well as detailing the interior ceiling finish as the attic is conditioned.
- Roof sheathing is installed joining onto wall sheathing. The sheathing from wall to roof is continuous.
- Roofing membrane is installed over the sheathing - it also ties onto the wall vapor barrier.
- Install overhang joists at the eaves extending onto the roof as required structurally.
- Airboard™ Insulation is spot adhered to roofing membrane and cut out around the overhang joists. Airboards are offset in both directions and are secured down with strapping and cross strapping with long screws into roof framing. The cross strapping allows ventilation for vapor that may accumulate.
- Install roof sheathing, roofing membrane and roof shingles as required.



ADDITIONAL INFORMATION

Insulation values for given thicknesses are listed below in table 1 and 2.

Other thicknesses and densities may be available upon request.

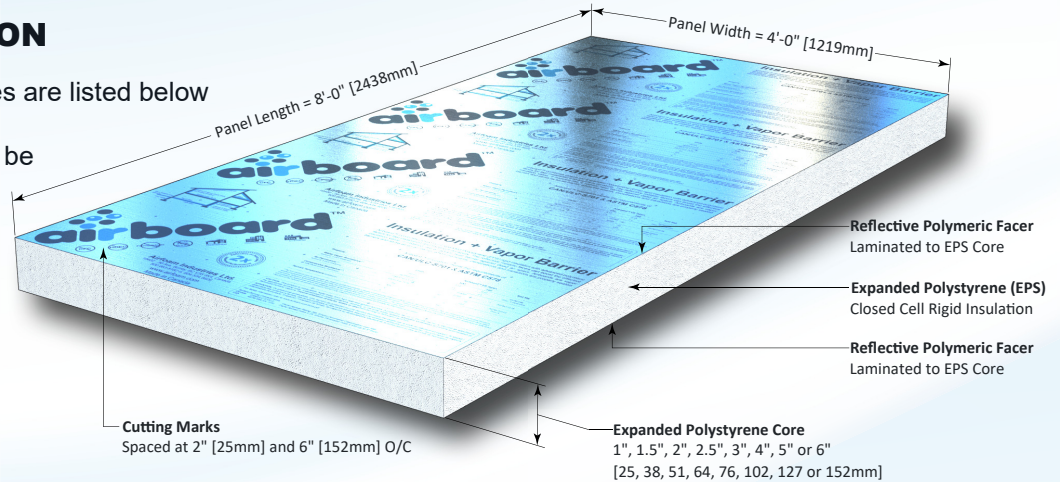


TABLE 1. Airboard™ VB 100 Thermal Resistance Properties by Thickness

Material Thickness	R-Value ¹ ft ² ·hr·°F/BTU	RSI ¹ (m ² ·°C)/W
1" 25.4mm	3.75	0.65
1.5" 38.1mm	5.63	0.98
2" 50.8mm	7.50	1.30
2.5" 63.5mm	9.38	1.63
3" 76.2mm	11.3	1.95
4" 101.6mm	15.0	2.60
5" 127mm	18.8	3.25
6" 152.4mm	22.5	3.90

¹ At 75°F [24°C]

TABLE 2. Airboard™ VB 160 Thermal Resistance Properties by Thickness

Material Thickness	R-Value ¹ ft ² ·hr·°F/BTU	RSI ¹ (m ² ·°C)/W
1" 25.4mm	4.04	0.70
1.5" 38.1mm	6.06	1.05
2" 50.8mm	8.08	1.40
2.5" 63.5mm	10.1	1.75
3" 76.2mm	12.1	2.10
4" 101.6mm	16.2	2.80
5" 127mm	20.2	3.50
6" 152.4mm	24.2	4.20

¹ At 75°F [24°C]



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DISCLAIMER

This document provides guidance for the installation of Airboard™ Insulation in residential and light commercial construction. Along with documents cited and all information found on Airboard™ product packaging or other publications, this guide forms the “manufacturer’s installation instructions” that may be referenced in applicable building codes. They provide guidance and do not cover all aspects related to the installation or use of Airboard™ Insulation in a building. The installation of Airboard™ Insulation does not require a trained or certified installer. As the installer, you are solely responsible for the proper installation of all materials, following building codes, and using proper safety precautions. Airfoam is not responsible for building design and accepts no responsibility for the performance of the products resulting from inadequate building design, construction faults, or installation-related defects, see Terms and Conditions of Sale at www.airfoam.com/terms.

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