

INSTALLATION GUIDE FOR KOROLITE® EXPANDED POLYSTYRENE (EPS) RIGID INSULATION

Korolite® Insulation is rigid, closed cell EPS foam that is ideal for many energy-conservation applications in buildings. This document provides guidance for the installation of Korolite® Insulation in residential and light commercial construction. Along with documents cited and all information found on Korolite® 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 Korolite® Insulation in a building. The installation of Korolite® 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.

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).

Follow Building Codes Install Korolite® Insulation per the applicable building code, best practices and these installation instructions. Ensure that the installation complies with all locally applicable code requirements such as 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. Korolite® 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 practice (e.g. ASHRAE Fundamentals).

Incompatible Materials, Limitations Korolite® 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 Korolite® 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 Korolite® Insulation with coal tar pitch, highly solvent extended mastics, or solvent-based adhesives without adequate separation.

Storage and Handling Lightweight Korolite® Insulation is easy to handle and install and can be cut with a utility knife or any sharp blade. 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 under breathable protective covers. Korolite® Insulation shall be fully supported during storage, not in contact with the ground, and adequately secured against wind. Store Korolite® Insulation in unopened packaging with identification labels or markings intact until ready for installation.

General Installation Requirements Ensure to select and install the correct EPS “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, so select the EPS Type that meets the use-requirements then the thickness for the desired insulation value. Refer to the Korolite® Insulation packaging labels and www.korolite.com for EPS Type information.

- Korolite® 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 Korolite® Insulation and avoid leaving gaps where the insulation meets other components. If applicable, stagger insulation board joints in one direction for each course and lap insulation boards at corners of 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 Korolite® Insulation boards may be sealed with compatible approved sealing/sheathing tape, starting at bottom of walls going up.
- If required, provide edge protection such as J-channels for exposed Korolite® Insulation.
- Seal and/or flash as required at transitions, insulation edges and around components that pass through the Korolite® Insulation, such as sleeves, pipes, window/door openings and other penetrations.
- Do not leave Korolite® 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 or of other materials such as stucco, adhesives, membranes etc.

Additional application-specific installation guidance is provided below.

Above-Grade Framed Walls Although Korolite® Insulation can provide backing for exterior finishes, it is not structural so separate structural sheathing or bracing of framed assemblies is required, including temporary wind bracing as needed.

- Install Korolite® Insulation on the exterior of the wall assembly with vertical joints at stud locations. Orient 4'x8' square edged Korolite® boards vertically and 2'x8' or shiplap edged boards horizontally for drainage to the exterior. Stagger joints.
- Fasten the insulation boards to the walls as required for the specific application. Fasteners must be corrosion resistant with cap heads or washers at least 1" [25.4mm] diameter when there is an air space between the insulation and the cladding and at least 1/2" [12.7mm] in diameter when the cladding is applied directly against the insulation and separately fastened to the framing. Fastener spacing is usually specified or prescribed in building codes, for example when insulation is used as a backing for exterior cladding in Canada: 150mm [6"] o.c. at vertical edges and on a grid of not more than 300mm x 600mm (12"x24") for the remainder of each board. Fasteners must have sufficient length for adequate penetration into framing and through sheathing, e.g. at least 25mm [1"].
- If Korolite® Insulation is used as Insulating Sheathing in lieu of sheathing membranes, all board joints may need to be taped – follow building plans, code requirements or contact the owner's representative for details.
- Install exterior cladding and other components and barriers as required; siding must be attached to the structural framing. Install a code-approved thermal barrier on the interior side of the wall as required, e.g. minimum 1/2" [12.7mm] thick gypsum wallboard.

Foundation Walls (Exterior) Korolite® Insulation of sufficient strength (see EPS Types above) can be used as Protection Board over foundation walls damp-proofed or water-proofed with coatings/membranes by providing impact puncture protection from rocks & construction debris in backfill materials and the crushed stone/gravel used in drainage systems.

- Ensure that concrete, damp-proofing / waterproofing are sufficiently cured, dry & clean prior to installation.
- Install Korolite® Insulation on the exterior with long edges horizontal and vertical joints staggered, from the bottom/footings going up.
- Attach the Korolite® Insulation by pressing into cured damp-proofing/waterproofing or with construction adhesive compatible with polystyrene foam per manufacturer's instructions. Many adhesive manufacturers require the insulation be adhered to the wall within 15 minutes after adhesive is applied. Although some jurisdictions allow insulation board to be held against the foundation wall using backfill, some adhesion or mechanical fastening of the insulation to the wall is required for tight joints and to prevent insulation displacement.
- Seal the joints between the walls and the insulation to minimize water infiltration behind the insulation.

- Install other components as needed such as: Flashing at the top that seals to the building above and extends out over the insulation; Parging or other protective material to protect exposed EPS from the bottom of cladding to about 12" [30cm] below grade; Drainage board and/or membranes over the insulation; Perforated drain tiles with crushed stone/gravel or similar drainage system around the footings.
- Backfill carefully to prevent displacing or damaging the Korolite® Insulation using backfill material that permits adequate flow of water down to the drainage system. Grade the finished backfill surface away from the building.

Basement, Concrete & Masonry Walls (Interior) For installation on framed walls built on the interior of the basement wall, refer to guidance for Framed Walls above. For interior insulation & furring directly applied to mass walls:

- Install the Korolite® Insulation over clean & dry concrete or masonry surfaces from floor-level going up with long edges horizontal and vertical joints staggered.
- Attach the insulation boards with furring/mounting strips spaced at a maximum of 24" o.c. and fastened through Korolite® Insulation to the structural walls; and/or with construction adhesive compatible with polystyrene foam per its manufacturer's instructions. Many adhesive manufacturers require the insulation be adhered to the wall within 15 minutes after adhesive is applied.
- If required, install a framed wall over the Korolite® Insulation.
- Install the correct code-approved vapor retardant membranes over the inside face (climate dependent).
- Install a code-approved thermal barrier as required for the application (e.g. minimum 1/2" gypsum drywall) to completely cover all Korolite® Insulation.

Under 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 & concrete cracks.
- Install a vapor and/or radon membrane over the subgrade as required, e.g. 6-mil polyethylene.
- Install Korolite® Insulation boards, butting all edges and ends tightly.
If installed in multiple layers, offset all insulation board joints between layers.
- 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.

Reference Documents

Project's Building Plans & Specifications
Locally applicable Building Codes and regulations
Safety Data Sheet (SDS) www.airfoam.com/SDS.pdf
Terms and Conditions of Sale www.airfoam.com/terms



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