



# FOAMULAR® NGX® XPS INSULATION

## COMMERCIAL BELOW GRADE WALLS & FOUNDATIONS INSTALLATION

### BEFORE INSTALLATION

Read all installation instructions, guide specifications, and datasheets prior to installation. It is recommended that application of the below grade wall continuous insulation occurs after the slab and back of the wall are made water-tight to prevent water becoming trapped beneath the assembly. Prior to installation, ensure that the substrate and FOAMULAR® NGX® are clean, dry, sound, and free of any ice, dirt, oils, release agents, or debris. Do not install system if ice or frost exists on surface of substrate or rain, snow, wind, or other adverse weather would prevent or threaten correct installation. Remove any mortar fins that interrupt the application surface. If not part of the installer's responsibility, bring any deficiencies to the attention of the contractor in writing for remedy and do not proceed until corrected. Prior to installation, verify compatibility of adjacent products such wall flashing and roof membranes. Verify manufacturer recommended cure time for any membrane systems before installing continuous insulation board. Best practice includes installation of the insulation from one side to the other or from low point of roof to highpoint. However, regardless of starting point, insulation should be installed continuously moving from one location to ensure continuity, adhesion, and accurate fit without damaging the system

### GENERAL

Optimum performance of Owens Corning FOAMULAR® NGX® insulation products is dependent on 1) selection of the correct product for the assembly or application into/on which it is to be placed and 2) following these installation instructions. General rules which apply to both selection and installation include:

The surface onto which the insulation is to be applied must be even. FOAMULAR® NGX® insulation is a rigid product and not intended for uneven surfaces. Any deformation of the application surface can result in a weakening of the attachment points and/or cracking of the insulation.

There should be no voids or gaps in the insulation itself, around any objects that penetrate the insulation, or at the interface of the insulation and framing members.

FOAMULAR® NGX® insulation is not structural. Structural sheathing, slabs, and/or decks must be designed and reinforced to accommodate design loads.

### PREPARATION

1. Verify that below grade wall, footing, structural components, waterproofing, grade, fill, service penetrations, concrete accessories, below grade gas retarding membranes, and/or below grade vapor retarding membranes have been installed per requirements of the project.
2. Verify adjacent foundation and walls materials are dry and ready to receive insulation.
3. Clean surfaces thoroughly prior to installation.
4. Prepare surfaces using methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### BELOW GRADE WALL ASSEMBLIES

1. Verify all membrane testing has been satisfactorily completed prior to beginning installation.

2. Verify drainage composite and/or waterproofing/dampproofing is installed correctly if required prior to installation of extruded polystyrene insulation.
3. Install extruded polystyrene (XPS) insulation boards over the waterproofing/dampproofing and/or drainage composite layer in accordance with manufacturers' written recommendations.
4. Install XPS insulation with long edges horizontal in maximum sizes to minimize joints.
5. Align horizontal rows and stagger vertical joints
6. Insulation board edges shall be butted together tightly and fit around openings and penetrations. Install square edges to fit square and tight.
7. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. (Owens Corning does not require a particular method of securing FOAMULAR® NGX® insulation, nor does Owens Corning require joint sealing.)
8. Apply single layer of insulation boards to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
9. Fasten XPS insulation to exterior face of CMU or concrete wall using mechanical fasteners and/or compatible adhesive per manufacturer's written instructions.

### COMPATIBLE ADHESIVE



1. Apply compatible adhesive to substrate and waterproofing/dampproofing membrane and XPS, per adhesive manufacturer waterproofing/dampproofing manufacturer and insulation manufacturer recommendations.
2. If spot adhesion is required, place pads of construction adhesive spaced a maximum 24 inches (610 mm) on center along the edges of the inside face of the insulation board or as recommended by the adhesive manufacturer.
3. If full adhesion is required, apply adhesive to entire surface with a serrated trowel or spray equipment, complying with the adhesive manufacturer's written instructions.
4. Install XPS insulation in adhesive prior to adhesive curing per adhesive manufacturer's instructions.
5. Hold insulation securely in place until adhesion is satisfactory.
6. Application rate and spacing shall be evenly distributed and minimum necessary per jobsite conditions as required by insulation and adhesive manufacturers to hold the continuous insulation in place until protection and overburden be installed to permanently secure the insulation board.

## PLASTIC FASTENER WITH AIR & WATER SEALING WASHER

1. Install through XPS insulation into CMU or concrete substrate below by predrilling with drill bit sized per fastener manufacturer recommendations using a standard drill with a variable clutch adjustment.
2. Do not attach with impact driver.
3. Pretreat fastener and penetration with compatible waterproofing sealant recommended by waterproofing manufacturer if required.
4. Drive fasteners into predrilled hole so the washer is tight and flush with insulation surface, but do not countersink.
5. Fastener spacing shall be evenly distributed and the minimum necessary per jobsite conditions as required by insulation and fastener manufacturers to hold the continuous insulation in place until backfill can be installed to permanently secure the insulation board.

Install drainage composite and/or backfill to prevent damage and moisture accumulation and to allow vapor diffusion.

Install backfill carefully to avoid damage as soon as possible, best within 60 days.

## UNDERSLAB ASSEMBLIES

1. Verify all membrane testing has been satisfactorily completed prior to beginning installation.
2. Verify vapor retarding membrane is installed correctly if required prior to installation of extruded polystyrene insulation.
3. Verify below grade gas retarding membrane is installed correctly if required prior to installation of extruded polystyrene insulation.
4. Install extruded polystyrene (XPS) insulation boards over the drainage aggregate, vapor retarding membrane, and/or below grade gas retarding membrane layer(s) in accordance with manufacturers' written recommendations.
5. Install XPS insulation board in maximum sizes to minimize joints.
6. Locate joints square to structure.

## PROTECTION

1. Protect insulation from damage due to weather and vandalism until protected by permanent constructions.
2. Cover dark surfaces as soon as possible to avoid damage due to potential solar heat build-up on the dark surface.
3. Do not permit extruded polystyrene insulation board to come into contact with surfaces or temperatures in excess of 165 °F.
4. Refer to: [FOAMULAR® NGX® Extruded Polystyrene \(XPS\) Insulation Heat Buildup Due to Solar Exposure Technical Bulletin](#)

## HINTS, TIPS, TRICKS, AND AREAS OF CAUTION

1. Foam Board can be easily cut to size by scoring with a long-blade knife and a straight-edge and "snapping" the board by applying pressure on both sides of the scored area.
2. Round openings can be more smoothly created with hole saws to create a smooth tightly butted edge.
3. Plan installation such that cladding or protection can be installed at the same time as insulation.

7. Install insulation with long edges of XPS in continuous straight lines with edge joints staggered.
8. Stagger joints in subsequent layers.
9. Insulation board edges shall be butted together tightly and fit around openings and penetrations. Install square edges to fit square and tight.



**Boards should be installed tightly together.**

10. Install in one or more layers to meet thickness indicated to envelop entire area to be insulated. (Owens Corning does not require a particular method of securing FOAMULAR® NGX® Insulation, nor does Owens Corning require joint sealing.)
11. Apply a single layer of insulation boards to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
12. When installing tapered insulation, begin at low point building insulation away from lowest point.
13. Install the reinforcement rebar and/or radiant heat tubing is required per manufacturers' written instructions and architect's/engineer's specifications.
14. Install reinforced slab, taking precaution not to damage or displace insulation.



Follow all jobsite and personal safety precautions as noted in individual product safety datasheets and in accordance with local, state, and federal safety requirements.

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