



## Roxul DrainBoard®

High Performance Drainage Insulation for  
Below Grade Basement and Foundation  
Wall Systems

# High Performance Drainage Insulation

Roxul DrainBoard® is a rigid stone wool insulation board for high performance fibrous foundation drainage systems. This stone wool board insulation features a unique non-directional fiber structure that contributes to DrainBoard's strength and means the boards can be installed either horizontally or vertically without any loss of drainage ability. The superior strength of DrainBoard also means it is very resistant to damage during installation and backfilling operations.

## Roxul DrainBoard: 3-1 Solution For Exterior Basement and Foundation

Roxul DrainBoard provides excellent thermal value, water drainage and positive environmental benefits, especially when compared to insulation materials like extruded polystyrene foam (XPS).

## Water Repellent

Moisture can be an issue with below-grade constructions and keeping water away from the foundation is paramount. Roxul DrainBoard displays hydrophobic characteristics and it will not absorb or hold water making it the perfect capillary break.

- Its high density stone wool fiber orientation will allow water to drain away from the foundation wall.
- As a drainage layer, DrainBoard can be used for both residential and commercial applications, on foundations and structural concrete.

## Top Thermal Performance

Insulating the outside foundation helps keep the foundation walls warm in the winter – reducing the chance for condensation.

- Roxul DrainBoard is vapor permeable and displays hydrophobic characteristics, which allows the foundation walls to breathe or dry out faster than polystyrene insulation.
- DrainBoard is specifically designed to deliver consistently higher R-values across the board, making it an excellent choice for lasting thermal protection in foundation wall systems. Thermal performance may vary during moisture migration in the product during drainage.

## Sustainable & Safe

Roxul DrainBoard is natural and inorganic and is completely HFC-free.

- DrainBoard is classified as non-combustible and does not contain flame retardants.
- DrainBoard has a very low global warming potential of 0.0455 ft<sup>2</sup>•R as estimated by *Green Building Product News* when compared to other foam insulations and lessens the impact of the building on the environment. For designers of zero net energy (ZNE) buildings, DrainBoard is an often spec'd insulation.
- DrainBoard contains a minimum 75% recycled content as certified by ICC-ES™.



Specifying a quality insulation board for the basement or foundation drainage system at the time of construction can save building owners significant dollars in the long run.



### Lifetime Global Warming Potential (GWP) of Common Insulation Materials

While foam products are commonly found within building walls, for the sake of the environment, it's time to change the common practice and switch to a more sustainable product like mineral wool. Below is a chart that notes the long-term global warming potential from the blowing agents of foams and plastics compared to Roxul mineral wool products.

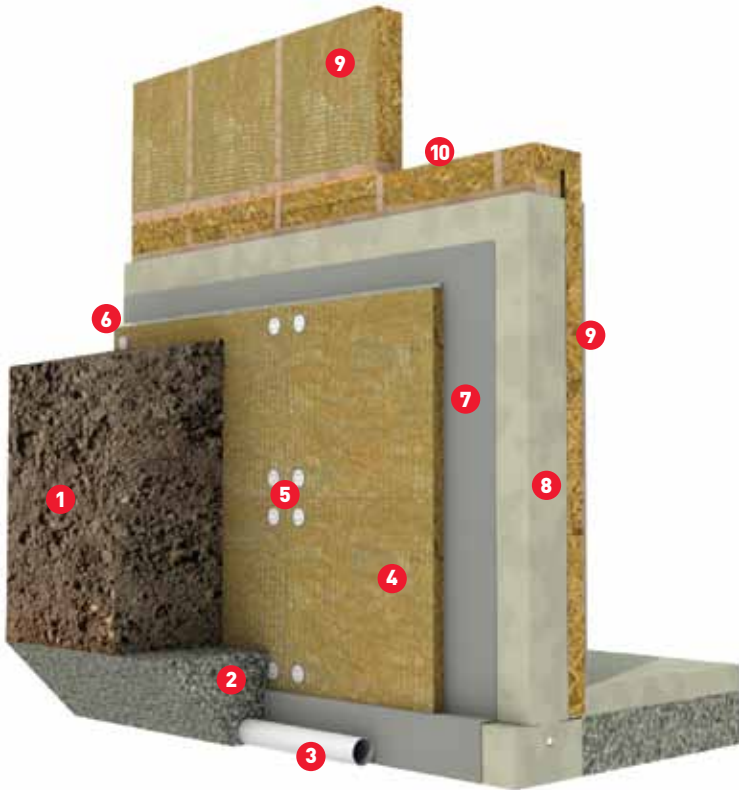
### Zero Net Energy (ZNE) Buildings

The critical steps to reduce to a building's energy consumption usually occur during the design process. The development and movement towards modern zero net energy (ZNE) buildings has become possible through sustainable products like Roxul DrainBoard.

Insulation Material	R-value R/inch	Density lb/ft <sup>3</sup>	Emb. E MJ/kg	Emb. Carbon kgCO <sub>2</sub> /kg	Emb. Carbon kgCO <sub>2</sub> /ft <sup>2</sup> •R	Blowing Agent (GWP)	Bl. Agent kg/kg foam	Blowing Agent GWP/bd-ft	Lifetime GWP/ft <sup>2</sup> •R
Rigid mineral wool	4.0	4.0	17	1.2	0.0455	none	0	NA	0.0455
Spray polyurethane foam (SPF) - closed-cell (HFC-blown)	6.0	2.0	72	3.0	0.0379	HFC-245fa (GWP=1,030)	0.11	8.68	1.48
Extruded polystyrene (XPS)	5.0	2.0	89	2.5	0.0379	HFC-134a <sup>1</sup> (GWP=1,430)	0.08	8.67	1.77
Expanded polystyrene (EPS)	3.9	1.0	89	2.5	0.0307	Pentane (GWP=7)	0.06	0.02	0.036

<sup>1</sup> XPS manufacturers have not divulged their post-HCFC blowing agent, and MSDS data have not been updated. The blowing agent is assumed here to be HFC-134a | Source: Environment Building News, *Avoiding the Global Warming Impact of Insulation*.

# Typical Foundation Wall Systems Using Roxul DrainBoard®

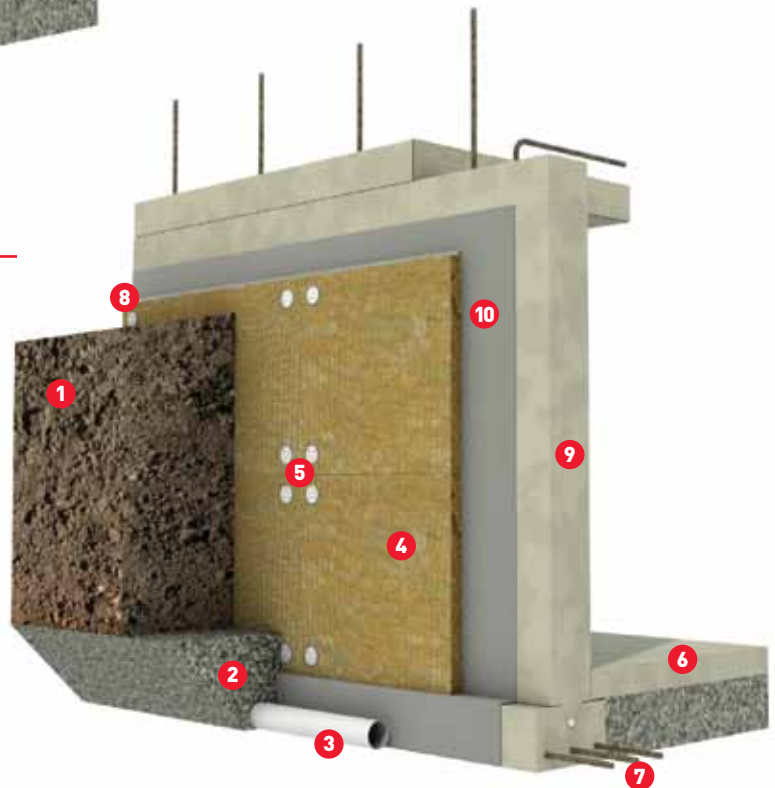


## Residential Drainage Wall Components

1. Backfill
2. Crushed stone/drainage gravel
3. Drain pipe/tile
4. Roxul DrainBoard insulation
5. Fasteners
6. Caulking
7. Damp Proofing
8. Concrete wall/block
9. Roxul ComfortBatt
10. Roxul ComfortBatt

## Commercial Drainage Wall Components

1. Backfill
2. Crushed stone/drainage gravel
3. Drain pipe/tile
4. Roxul DrainBoard insulation
5. Fasteners
6. Floor Slab
7. Rebar
8. Caulking
9. Concrete wall/Block
10. Damp Proofing





## DrainBoard: Advantages of Insulating the Exterior Basement Wall

Stone wool is moisture resistant, yet vapor permeable insulation (30-40 perms) and will allow transient vapors to pass through without restriction. Lower permeable insulations such as XPS foam can also work as vapor retarders and can greatly affect the drying potential.

Foundation insulation on the exterior will keep the wall warmer, allowing the wall to dry to the interior. If walls remain warm, there is a decreased risk of condensation, mold, mildew and bacteria growth.

### Dimensions

Roxul DrainBoard is available in 3' x 4' and 4' x 6' dimensions, and is offered as a non-stock item with a required minimum order quantity.

R4.3	Standard non-stock	1"
R5	Standard non-stock	1.25"
R10	Standard non-stock	2.38"

### Recommended Fastening

- 1-1/2" (40 mm) concrete nails with 3/4" (19 mm) washers
- Bitumen Sealing Compound
- All-Purpose Construction Adhesive or equivalent

# Roxul DrainBoard Passes Drainage Performance Test Evaluated by National Research Council of Canada and Confirmed by Canadian Construction Materials Centre (CCMC)

## Purpose of Evaluation

Roxul sought confirmation from the Canadian Construction Materials Centre (CCMC) that “DrainBoard” can serve as a drainage material in compliance with the Ontario Building Code (OBC).

Testing was conducted at an independent laboratory recognized by CCMC. The results and assessments show that Roxul DrainBoard complies with CCMC’s Technical Guide for Foundation Drainage Systems, Masterformat number 02622, as a Class B, Type 2 drainage product.

## Performance

The results of the testing are summarized below.

Property and/or Test Method	Requirement	Results
Results	The average time of side-inflow of 500 mL of water into the test specimen shall be no longer than 15 minutes.	Passed
Deformation Under Compressive Load - ASTM D 1621	For a Type 2 product, the sample shall retain a minimum thickness of 10 mm under a load of 65 kPa.	Passed

### Stone Wool 32-Year Results Prove Moisture & Compression Performance

In 2009 the Danish Technological Institute analyzed stone wool installed on the outer foundation wall of a home in 1976.

The test purpose was to measure the moistening and compression of the insulation over the 32-year span, and to evaluate noticeable deterioration of the insulation and its properties.

The results show that even a span of 30-35 years didn't lead to a noticeable and permanent compression, and that the insulation by and large remains completely dry.

**For a copy of this report, please contact your local Roxul Sales or Specifications Manager, or visit [roxul.com](http://roxul.com).**



The superior strength of DrainBoard also means it is very resistant to damage during installation and backfilling operations.

# Compliance and Performance

CAN/ULC-S702-09	Thermal Insulation Mineral Fiber for Buildings Type 1	Complies
CCMC Evaluation Listing	MasterFormat 07212: Mineral Fiber Insulation Board	12610-L
CCMC Evaluation Listing	MasterFormat 02622: Foundation Drainage System	12718-R, Type 2

## Fire Performance

CAN/ULC S102	Surface Burning Characteristics	Flame Spread = 0 Smoke Developed = < 5
ASTM E 84(UL 723)	Surface Burning Characteristics	Flame Spread = 0 Smoke Developed = 5

## Moisture Resistance

ASTM C 1104	Moisture Sorption	0.04%
Compressive Resistance: ASTM C 165	≥1.5" at 10% deformation < 1.5" at 25% deformation	17 kPa (355 lbs/ft <sup>2</sup> ) 35 kPa (731 lbs/ft <sup>2</sup> )

## Corrosive Resistance

ASTM C 665	Corrosiveness to Steel	Pass
ASTM C 795****	Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692: U.S. Nuclear Regulatory Commission, Reg. Guide #1.36: U.S. Military Specifications MIL-I-24244 (all versions including B and C)	Conforms

## Thermal Performance

ASTM C 518 (C 177)	R-value/inch @ 75 ° F RSI value/25.4 mm @ 24 ° C	4.3 hr.ft <sup>2</sup> .F/Btu.in*** 0.76 m <sup>2</sup> K/W*
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## Density

8 lbs/ft <sup>3</sup>
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## A Global Leader

Roxul Inc. is part of Rockwool International, the largest producer of stone wool insulation, which is made from natural basalt rock and recycled material.

Rockwool International was founded in 1909 and today operates worldwide with more than 8,500 employees, with 25 factories across three continents.

Rockwool has more than 40 years experience in developing and manufacturing advanced wall system products. For more than 20 years, Roxul has been serving the North American market.

In addition to DrainBoard for residential and commercial construction, Roxul also manufactures a range of other premium insulation products for multiple applications.

## Roxul is the Better Insulation

Roxul DrainBoard® is an innovative insulation offering a world of green features. When Roxul is the specified insulation, green building developers can earn a variety of LEED® (Leadership in Energy and Environmental Design) points across four key categories toward sustainable development.



## Environmentally Sustainable

Our stone wool production process utilizes some of the most advanced technology available. The Roxul facility is designed to capture and recycle rainwater, reduce energy consumption, and create zero waste to landfill by recycling raw materials back into the production process.

Roxul insulations are created using naturally occurring, inorganic raw materials and materials with a high-recycled content. Stone wool insulation is non-combustible and achieves its thermal performance without the use of blowing agents. The products do not off-gas and are fully recyclable, therefore contributing to a sustainable environment.

Roxul is pleased to have third-party certification of our products' recycled content for our Milton facility, completed by **ICC-ES SAVE™**. All Roxul products produced in the Milton facility contain a minimum of **75% recycled content**. Our Milton facility is certified to produce products containing up to 93% recycled content. For further details, contact your Roxul Sales Representative. Roxul products produced in our Grand Forks facility are currently under ICC-ES SAVE™ Certification review. Please visit [www.roxul.com](http://www.roxul.com) for the latest information.



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