



Building Solutions



# Dow Building Solutions

Insulating basements with  
STYROFOAM Solutions



# Design considerations

## Introduction

Structures below ground must prevent ground water reaching the interior of a building in order to maintain suitable internal conditions (see BS 8102 for gradings).

A common way of providing waterproofing is to use externally applied tanking membranes of mastic asphalt or bituminous sheet. In such constructions insulation can be located outside the waterproofing, where it will:

- » insulate the structure
- » protect the tanking material from physical damage caused by the rest of the construction process or by the backfill material
- » drain water away from the structure, reducing the hydrostatic pressure on the tanking membrane.

When externally insulating basement walls the insulation boards are laid against the tanking membrane and the excavation is then backfilled (**Figure 1**). The construction is suitable for new build; it is also suitable for refurbishment projects. For guidance on constructing basements consult the Approved Document: Basements for dwellings.

## STYROFOAM-A and PERIMATE DI-A

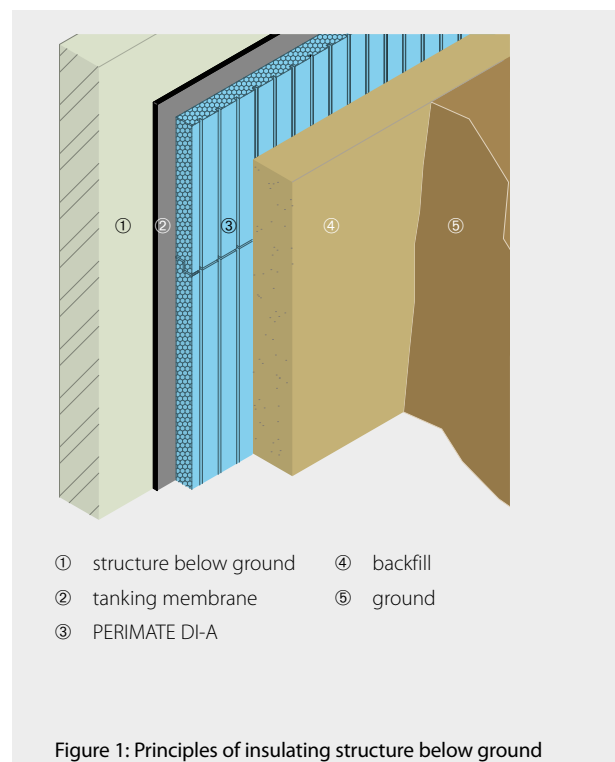
STYROFOAM™-A products use carbon dioxide as the main blowing agent - the Ozone Depletion Potential (ODP) is zero and the Global Warming Potential (GWP) is less than five.

### The STYROFOAM-A Solution for externally insulating basement walls is PERIMATE™ DI-A.

PERIMATE DI-A is designed to give maximum benefit when insulating structures below ground. It has:

- » shiplapped edges to ensure continuity of insulation
- » vertical channels cut in the face of the board to help drain water away
- » a thin layer of filter fabric bonded to the surface to help prevent soil particles blocking the channels.

**For the full physical properties and performance characteristics of PERIMATE DI-A see separate guide: STYROFOAM performance, product overview and references.**



# Design considerations

## Drainage

Water collecting at the base of the PERIMATE DI-A boards must be drained away by filter drains formed with perforated or porous pipes laid above the footings or collector drains formed from perforated pipes laid in granular material (**Figure 2**). Depending upon ground conditions drains may be connected to surface drainage systems or soakaways.

## Thermal performance

Methods for calculating U-values for basements are given in BS EN 13370 and the Approved Document 'Basements for dwellings'. For assistance with U-value calculations contact Dow Building Solutions by calling 020 3139 4000 or by emailing [fkitech@dow.com](mailto:fkitech@dow.com).

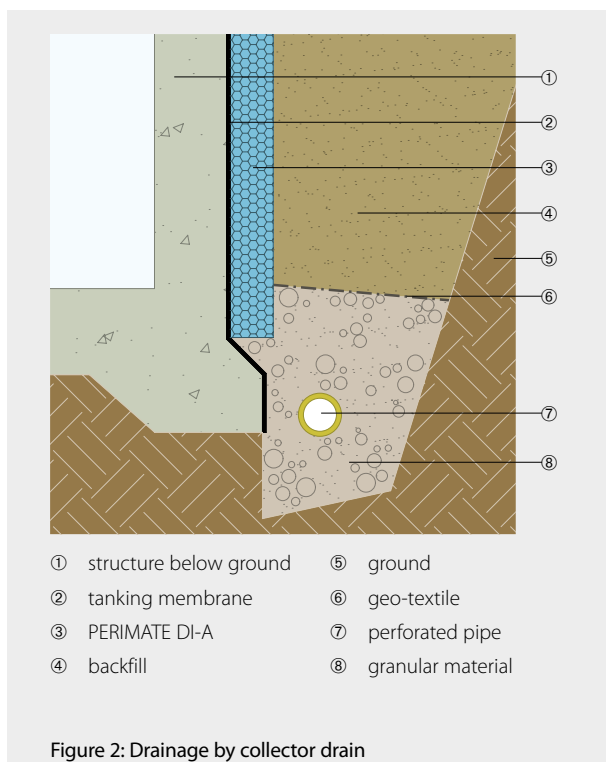
# Installation methods

## Installation sequence

1. Install the tanking membrane according to manufacturer's instructions.
2. Lay the drainage system.
3. Install PERIMATE DI-A insulation against the tanking membrane, with the grooved face outward and running vertically, using a suitable adhesive such as INSTA-STIK™ from Dow Building Solutions.
4. Backfill to the designated level.

## Key points

- » ensure boards butt together tightly
- » when installing more than one row of boards ensure the filter fabric on upper rows laps over that of lower rows.



STYROFOAM products include FLOORMATE, ROOFMATE and PERIMATE.

STYROFOAM products contain a flame retardant additive to inhibit accidental ignition from a small fire source. STYROFOAM is, however, combustible and if exposed to an intensive fire may burn rapidly.

During shipment, storage, installation and use STYROFOAM products should not be exposed to flames or other ignition sources. Fire classification is based on small scale tests, which may not reflect the reaction of the products in its end use state under actual fire conditions. STYROFOAM products should, when installed, be adequately protected from direct exposure to fire.

Recommendations about the methods, use of materials and construction details are given as a service to designers and contractors. These are based on the experience of Dow with the use of STYROFOAM products.

Any drawings offered by Dow are meant only to illustrate various possible applications and should not be taken as a basis for design. Since Dow is a materials supplier and exercises no control over the installation of STYROFOAM products, no responsibility is accepted for such drawings and recommendations.

In particular, no responsibility is accepted by Dow for the systems in which STYROFOAM is used or the method of application by which it is installed. The legal obligations of Dow in respect of any sale of STYROFOAM products shall be determined solely by the terms of the respective sales contract.

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**Visit [www.styrofoam.co.uk](http://www.styrofoam.co.uk) for further information on STYROFOAM-A insulation products and adhesives and sealants from Dow Building Solutions, or email [FKLMAIL@dow.com](mailto:FKLMAIL@dow.com) and one of the account managers will be in touch.**

**For technical enquiries email [FKLTECH@dow.com](mailto:FKLTECH@dow.com).**

**Alternatively, please contact us at:**



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