Liquid Plastics

Uniclass L5242	EPIC E342
Cl/SfB (47) X	

CEM -TOPPED BOARD

TECHNICAL DATA SHEET FOR INVERTED ROOFS

DESCRIPTION

Liquid Plastics' Cem-topped Board is a high performance rigid extruded polystyrene insulation with 10mm thick polymer fibre reinforced hydraulic cement.

Liquid Plastics' Cem-topped Board is manufactured without the use of CFC's/HCFC's and has zero Ozone Depletion Potential (ODP).

TECHNICAL DATA

Standard Dimensions

Liquid Plastics' Cem-topped Board is available in the following standard size:

Nominal Dimension	Availability
Length (m)	1.2
Width (m)	0.6
Topping Thickness (mm)	10
Insulation Thickness (mm)	50
Edge Profile	Tongue & grooved on long edges

Insulation Compressive Strength

The compressive strength of Liquid Plastics' Cem-topped Board typically exceeds 300kPa at 10% compression when tested to BS EN 826: 1996 (Thermal insulating products for building applications. Determination of compressive behaviour).

Water Vapour Resistance

The boards achieve a resistance greater than 825 MN.s/g when tested in accordance with BS EN 12086: 1997 (Thermal insulating products for building applications. Determination of water vapour transmission properties)

Thermal Conductivity

The thermal conductivity of the cement topping of Liquid Plastics' Cem-topped Board is 1.4 W/m.K.

The thermal conductivity of the extruded polystyrene core of Liquid Plastics' Cem-topped Board is 0.029 W/m.K

Thermal Resistance

The thermal resistance (R value) varies with the thickness and is calculated by dividing the thickness of the individual component (expressed in metres) by its thermal conductivity.

Additionally, an allowance of the calculated resistance is made to compensate for saturated roofs during long periods of rain in accordance with BS EN ISO 6946: 1997 and BRE report (BR443 2006). Conventions for U-value calculations.

Product Thickness* (mm)	Thermal Resistance (m^2.K/W)
60	1.73

*Product thickness = insulation thickness + 10mm polymer fibre reinforced cement topping

Thermal Expansion

The linear thermal expansion coefficient of the rigid extruded polystyrene insulation element in Liquid Plastics' Cem-topped Board is 0.07mm/m.K. when tested to BS 4379-3: 1988 (1996) (Methods of test for rigid cellular.

Typical U-values

Liquid Plastics will carry out U-value calculations to help ensure that the building incorporating Liquid Plastics' Inverted Roofing system will meet current thermal insulation regulations.

Wind Uplift Calculations

A full wind uplift calculation should be produced to verify the fixing specification of the Liquid Plastics' Cem-topped Board over the roof. Please contact Liquid Plastics' Technical Customer Services department.

Design Restraint

The design restraint of the Liquid Plastics' Cem-topped Board when interlocked into an array is:

Not interlocked into array Self weight

Stretcher bond array Self weight x 2

The normal and recommended laying pattern for Liquid Plastics' Cem-topped Board is the brick or stretcher bond pattern.

This method offers additional restraint values of two times self weight where the panels are locked into the array. Panels with a free edge and not locked into the array should be considered as self weight only.
The Liquid Plastics' Cem-topped Board should be laid so that the tongue and grooved edges fully interlock. Where panels have to be cut the continuity of interlock should be maintained by the use of cross clipping.

Edge Detail Additional Restraint

Where the design requires additional ballast or mechanical restraint over and above the self weight values offered by the various methods of laying as described above, this is normally achieved by the use of 50 mm concrete paving slabs loose laid over the panels at centres as appropriate to the design values.

Fire Performance

When subjected to British Standard fire tests using Liquid Plastics' Cem-topped Board, the results are dependent on the roofing system adopted, however Decothane systems used as the waterproofing layer of the complete system achieves a FAA rating for BS476 Part 3. Decothane is also successfully tested to DD ENV 1187 Parts 1, 2 and 3 and FM (Factory Mutual).

Absorption of Moisture

The rigid polystyrene insulation element of the Liquid Plastics' Cem-topped Board is not sensitive to moisture of any kind. Its surface is water repellent and there is no capillary suction. The material is also no hygroscopic. Water absorption is <0.5% when tested to BS EN 12087: 1997 (Thermal insulating products for building applications. Determination of long-term water absorption by immersion)

Resistance to Solvents and Fungi

The rigid extruded polystyrene insulation element of the Liquid Plastics' Cem-topped Board is resistant to most dilute acids, and alkalis. It may not be resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be allowed to come into contact with the rigid extruded polystyrene insulation backing of the product. Edible oils, white oil, petroleum jelly and fuel oil should also be avoided. Organic solvents, petrol, petroleum solvents, and solvent based cold bitumens and or mastic will have a detrimental effect if allowed to come into contact with the rigid extruded polystyrene insulation core. In the event of the boards coming into contact with harsh solvents, petrol, mineral oil or acids or being damaged in any other way, they should not be used. If already fixed, they should be replaced.
Liquid Plastics' Cem-topped Board resists attack by mould and microbial growth.

Maximum Service Temperature

Liquid Plastics' Cem-topped Board should not be brought into direct contact with high temperature heat sources. The maximum service temperature of Liquid Plastics' Cem-topped Board is 75°C.

Cutting

Use an angle grinder saw to cut through the cement topping.

Cutting of the extruded polystyrene insulation should be carried out using a fine toothed saw, or by scoring with a sharp knife and snapping the board over a straight edge and cutting the facing on the other side. Ensure accurate trimming to achieve close butting joints and continuity of insulation.

Packaging

Liquid Plastics' Cem-topped Board is supplied in labelled packs shrink wrapped in polythene.

Storage

The packaging for Liquid Plastics' Cem-topped Board should not be considered adequate for long term outside protection. Ideally boards should be stored inside a building. Liquid Plastics' Cem-topped Boards should be stored flat in a ventilated areas and protected generally from accidental damage, contact with volatile solvents, flames and extended exposure to UV and sunlight. If it is stored outside for more than a few weeks, it must be covered with a pale pigmented plastic sheet.

Health and Safety

Liquid Plastics' Cem-topped Board is chemically inert and safe to use (please refer to the relevant safety data sheet before use)

CONTACT DETAILS

For further information please contact:
Liquid Plastics Limited
Iotech House
Miller Street
Preston
Lancashire
PR1 1EA

Enquiry line: +44 (0)1772 259781
Fax: +44 (0)1772 255670
e-mail: (UK) info@liquidplastics.co.uk