

# Cavity trays – the use of polyethylene materials

## Introduction

The use of flexible cavity trays within external masonry walls is common place. A variety of materials are available for this purpose, and polyethylene has often been considered as a widely available and relatively economical option. In recent years, poor installation of cavity trays using flexible cavity tray systems has been an area of claims. Particularly where these products are polyethylene materials, often culminating in water ingress and instability in parapet walls and coping stones due to incorrect detailing and laying being the main contributing factors.

## Provision of information

Where flexible DPC materials are to be used as a cavity tray, they must:

- Have third-party certification (BBA or similar UKAS accredited body) confirming their suitability for use as a cavity tray
- Have supporting evidence in the form of a Declaration of Performance to BS EN 14909:2012
- Be supplemented by clear manufacturer's guidance in relation to installation
- Where required, be subject to the assessment of an Engineer e.g. where used in parapet walls, retaining structures, etc.

## Polyethylene Damp Proof Courses

Provided as a roll material, most building merchants will stock 100mm, 450mm and 600mm complete with product branding stating a compliance with BS6515:1984 – the latter roll sizes are stocked specifically for cavity tray purposes.

## So what is BS 6515:1984?

It is a British Standard that relates to the manufacture of polyethylene damp proof courses, intended for use in masonry construction. It covers material composition, thickness, finish and permeability of the material

## What is the issue?

BS 6515:1984 contains an Appendix giving the recommended uses for polyethylene DPC's, and notably recommends that these products are not used as a solution against the downward movement of water e.g. cavity trays. More recent standards, such as BS8215:1991 and PD6697:2019 (a published document sitting alongside BS EN 1996-1-1), offered a variation – in that such materials could be used, provided they were installed, detailed and sealed correctly in line with manufacturers guidance. However, the issue is that polyethylene materials are often produced without any manufacturers supporting guidance nor do they undergo testing as cavity tray installations, as they are only intended to be used for 'simple' damp proofing situations. So installed to deal with:

- A) Upward movement of water e.g. linear DPC at the base of a wall and;
- B) Horizontal movement of water e.g. vertical applications at window and door reveals

## So how do we control the risk to warranty?

### Carry out material identification

BS EN 14909:2012 stipulates the characteristics required of flexible sheet damp proof courses for buildings. It details the requirements and test methods to determine conformity of the products.

Any flexible material that is being used as a cavity tray should have supporting evidence in the form of a Declaration of Performance to BS EN 14909:2012. They should also have third-party certification (BBA or similar UKAS accredited body) confirming their suitability for use as a cavity tray.

A material that carries 3rd Party Accreditation will often have supporting ancillaries e.g. pre-formed corner 'cloaks' and adhesive tapes for use as a cavity tray.



Where the material is polyethylene, meeting the requirements of BS 6515 alone is not enough to support their use as a cavity tray.

### Be aware of the available guidance

Manufacturers of flexible DPC materials that can be used for cavity trays will have a multitude of guidance regarding detailing, sealing of joints and installation. The manufacturer's literature should explicitly state the suitability of their product for use as a cavity tray and their recommendations for appropriate use and installation should be followed. The advice of the manufacturer will typically be aligned with the guidance of:

- BS 8215:1991 Code of practice for design and installation of damp proof courses in masonry construction - for design
- BS 8000-3:2020 Workmanship on construction sites - Code of practice for masonry - for installation

### Look for the obvious issues

A cavity tray that is not laid on mortar, e.g. dry laid, can result in movement in the wall where the mortar bond is not created. It can also allow moisture to track under the material, and where this is above an opening, often lead to visible moisture ingress and damp patches on reveals and wall areas below the cavity tray.

Also look out for laps that are not sealed, poor detailing around corners, wind post penetrations leaving open joints or cavity trays that do not terminate in a stopped end. Ideally a pre-formed stop end but more

likely to be a perp joint 'turn-in' of the material should be used to terminate a discontinuous cavity tray installation.


## Warranty stance

### What type of flexible damp-proof courses (DPCs) are acceptable for use as a cavity tray?

Where flexible DPC materials are to be used as a cavity tray, they should have supporting evidence in the form of a Declaration of Performance to BS EN 14909:2012. They should also have third-party certification (BBA or similar UKAS accredited body) confirming their suitability for use as a cavity tray.

## What to look for on the Declaration of Performance?

The Declaration of Performance information should include reference to BS EN 14909:2012 and include one of the 'Product Designation Codes' given within that standard to enable clear determination of the material being used on site.

 01234 AnyCo Ltd, PO Box 21, B-1050 06
<b>EN 14909:2012</b> <b>Damp proof course 2 mm PE</b>
Reaction to fire: Class E Watertightness: Pass Resistance to impact: npd Resistance to low temperature: -20 °C Durability against ageing: Pass against alkali: Pass

THERMOPLASTICS	
EEA	Ethylene/ethyl acrylate
EVAC	Ethylene/vinyl acetate
ECB	Ethylene, Copolymer, Bitumen
PE	Polyethylene
CPE	Chlorinated polyethylene
PP	Polypropylene
PIB	Polyisobutylene
PVC	Polyvinyl chloride
TPO	Thermoplastic polyolefine
FPO	Flexible polyolefins
PO-F	Flexible polyolefins

THERMOPLASTICS - ELASTOMERS	
CSM	Chlorosulfonated polyethylene

ELASTOMERS	
BR	Butadiene rubber
CR	Chloroprene rubber
EPDM	Ethylene Propylene Diene Monomer
IIR	Isobutene-isoprene rubber
NBR	Acrylonitrile-butadiene rubber
POE	Polyolefin elastomer

(Example CE marking information and product designation codes – sourced from BS EN 14909:2012)

## What to ask for in support of use?

Position	Installation type	Minimum required supporting information			
		BS EN 14909 Declaration of Performance	UKAS 3 <sup>rd</sup> Party Accreditation	Manufacturers guidance	Engineers specification
Base of a wall	Horizontal Linear DPC	•		•	
Window reveal	Vertical Linear DPC	•		•	
Accommodation of movement e.g. stone heads	Slip plane provision	•			•
Retaining structures	Horizontal Linear DPC	•	•	•	•
Parapet Walls	Horizontal Linear DPC	•	•	•	•
Under Coping stones	Horizontal Linear DPC	•	•	•	•
Base of a wall	Cavity tray	•	•	•	
Under a jointed stone sill	Cavity tray	•	•	•	
Over an obstruction in the cavity or an opening	Cavity tray	•	•	•	
Over a Horizontal Cavity Fire Barrier	Cavity tray	•	•	•	
Over a brickwork support angle	Cavity tray	•	•	•	•
Roof abutments – flat and pitched	Cavity tray – horizontal/stepping	•	•	•	
Parapet Walls	Cavity tray	•	•	•	•