

## Technical Note No. 15 CLADDING TYPES



### Introduction

Cladding is an all-encompassing term for the external skin of a building which keeps out the weather and provides the building's aesthetic effect. In low-rise construction it may support its own weight but self-weight and wind loading are normally transferred to the structural building frame. It may form the full thickness of the vertical envelope of the building but can simply be the outer layer with additional layers providing insulation and the internal lining.

### Principles of operation

Apart from providing the external appearance of the building, the main function of cladding is to protect the structure from the weather particularly rain. This may be achieved in one of three ways as follows:

- Porous materials. Porous materials such as brickwork absorb water during rain and subsequently dry out. If the wall is of sufficient thickness and the permeability is reasonably low water will not penetrate during a rainstorm. In modern construction a cavity is normally introduced into the wall to provide an additional barrier to the passage of water.
- Sealed construction. Impermeable cladding materials will only permit the passage of water at joints. Sealing the joints with gaskets or wet applied sealants provides a continuous impermeable layer.
- Rainscreen. As its name suggests, the purpose of the outer rainscreen panels is to shield the wall from direct rain. The joints

between the panels may allow some water to penetrate but an air gap and airtight backing wall behind the panels combine to limit this penetration. This may be achieved by the drained and ventilated method in which the air gap is continuous and well ventilated to encourage drying out. Alternatively the pressure equalised system may be used in which the gap behind the panels is compartmentalised allowing the air to be pressurised by the wind. The reduced pressure difference across the panel joints limits water penetration.

Methods of achieving weathertightness are described in greater detail in Technical Note 17 *Weathertightness and drainage*.

### Description of principal cladding types

There are many types of cladding available, which are described below, grouped according to type of construction. Some of the categories are clearly defined but others cover a range of options and some variations could be considered to fall in more than one category. The distinction between curtain walling and some other cladding types is particularly blurred.

In some cases weathertightness will always be achieved using the same method but in other cases apparently small changes to the design of the cladding will change the cladding from a sealed façade to a rainscreen. It is necessary to appreciate the effect of such decisions on the design of both the cladding and the supporting structure.