

# Brick-facing Special Edition

## Q&A: Technical considerations when using brick-faced cladding



The Concrete Centre's senior architect Elaine Toogood on the design considerations and technical requirements when using brick-faced cladding.

### **Are design principles the same for brick-faced cladding as for conventional precast cladding?**

Brick-faced cladding uses similar design principles to other forms of architectural precast, but panel sizes should align with the brick dimensions. Offcuts should be avoided. Detailing of reinforcement, thickness and specification of concrete will be determined by the structural requirements and other performance specification given by the design team. Panels are typically around 200mm thick, incorporating facing brick which is usually around 50mm thick.

### **Can brick facing be used for other precast components like balconies?**

Brick-facing can be used for bespoke applications, including arches, columns, balconies, soffits as well as conventional wall panels.

### **Can windows be fitted into the panels?**

As with all precast cladding, insulation, doors, windows and other facade features can be factory-fitted if required.

### **Are there any restrictions on types of brick that can be used?**

Virtually any brick material can be used, but not all brick types are appropriate or can bond into concrete. A positive key at the back of the

brick anchors it to the concrete. For brick slips, this profile of well-formed grooves is created when manufactured. For cut bricks the original perforations can provide the anchor once cut, otherwise a dovetailed slot can be cut in to the back. At window reveals, corners, corbelling and other three-dimensional details, the bricks will require multiple finished faces and specials may be required. Significant cost and resource efficiencies can be made by using bricks with four usable faces.

### **How are bricks placed into the mould?**

Bricks are placed facing-side down in the concrete mould, arranged in the required bonding or pattern. Proprietary templates are commonly used to hold the bricks in position, spaced apart by 10mm for the mortar joints. Non-standard patterns or brick sizes will require proprietary spacing templates. Three-dimensional elements may need an additional means of supporting the bricks until the concrete has cured.

The reinforcement and any lifting eyes and fixing supports – typically located on hiding facings – are then put into position and the concrete placed into the mould.

Once the concrete has reached its required strength, the formwork is struck and the panels turned over. The brickwork is then cleaned and, where required, mortar joints pointed. Brick slips offer the time-efficient option of pre-filling the mortar joints before the concrete is poured. The mortar is simply placed from behind.

### **Are there any special requirements for joints between panels?**

Joints widths between panels are typically larger than the 10mm mortar joints and are determined by the tolerances necessary for manufacture, natural shrinkage, thermal expansion and installation. They should typically not exceed 20mm. The joints are filled with sealant after installation which should be carefully specified to ensure the appropriate thermal expansion and avoid colour-staining. One option is a 'dusted seal', where the joint is rubbed with mortar dust when newly applied, takes the shine off the sealant and provides better visual consistency.