

APPLICATION & CONSTRUCTION

CHIMNEY CONSTRUCTION

Homes are now often built without an open fireplace and the type of heating contained within may mean a simple steel flue liner is all that is seen projecting from the roof.

To maintain the local vernacular false chimneys can be installed using lightweight materials faced in brick slips matching the rest of the house. Many new homes are built to retain the option for log burners or open fires and a traditional brick built chimney to accommodate the flue offers an attractive finish.

Corners are often cut when constructing chimneys and it is important to design and build with long term climate conditions in mind.

EXPOSURE

Geographical location is important when designing and choosing materials for exposed details such as chimneys. Much of the UK is classed as severe or very severe exposure to wind driven rain and appropriate construction methods will be required to ensure the longevity of the chimney structure.

BRICK

Select bricks of F2 (frost resistant) and S2 (low active soluble salt content) for durability. Seek advice from the brick manufacturer as to the correct mortar specification appropriate for the chosen brick.

MORTAR

Mortar is just as exposed as the brick. Generally, and especially in the North West of England and Scotland, mortar designation (i) must be specified for exposed detailing. The exception to this recommendation would apply to 'Stock' bricks for which designation (ii) should be used. Fully fill all bed and perpend joints and lay frogged bricks with frog uppermost. Joint profiles must be bucket handle or weather-struck; both well compressed and smoothed.

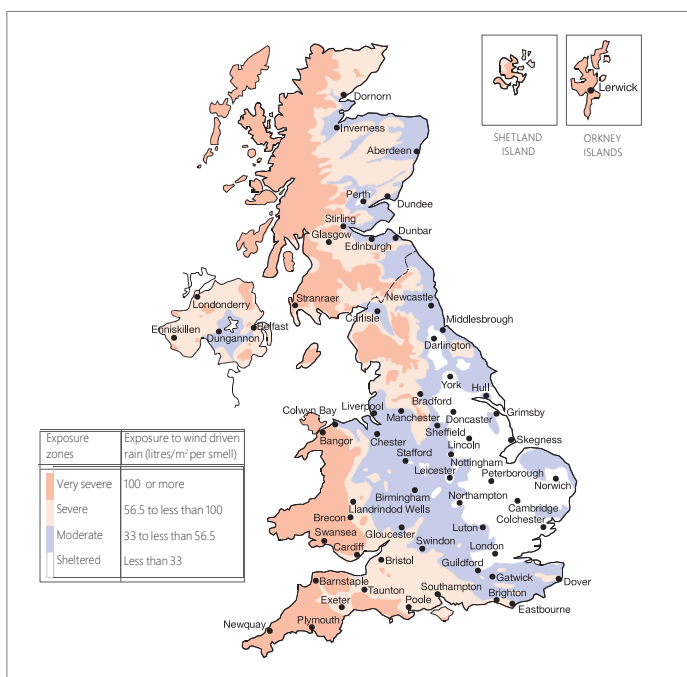
Recessed joints are not recommended in any application subjected to severe weather exposure.

Using mortar of insufficient strength will compromise the over-all durability of the chimney. Mortar will over time become very soft and organic growth can take hold and exacerbate the problem if an insufficient amount of cement is used.

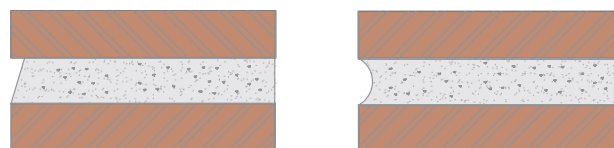
CAPPINGS

Chimney terminals exposed to the weather should be provided with a one piece overhanging coping. Drip groove edges should be positioned a maximum 40mm from the face of the wall.

Where for aesthetic or other reasons a capping is used special care is needed in the choice of materials both for the capping and the walling beneath.



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Designation (i)	Designation (ii)
1 part Portland Cement or equivalent	1 part Portland Cement or equivalent
1/4 part Lime	1/2 part Lime
3 parts Sand	4 1/2 parts Sand

Where the coping or capping is jointed (i.e. brick on edge) a continuous DPC should be provided. It should be appreciated that different elements in the same building can be subject to different degrees of exposure. In locations subject to severe or very severe categories of exposure the benefits of protection by overhangs and other projecting features are particularly valuable. If such protective features are omitted for aesthetic or other reasons the effects of the increased exposure of the masonry to wetting should be considered.

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Horizontal surfaces can become saturated or nearly saturated and are readily frozen by night frosts which are common in all parts of the UK. Extra care should be given to the choice of masonry if the building is to be located in conditions of extreme exposure.

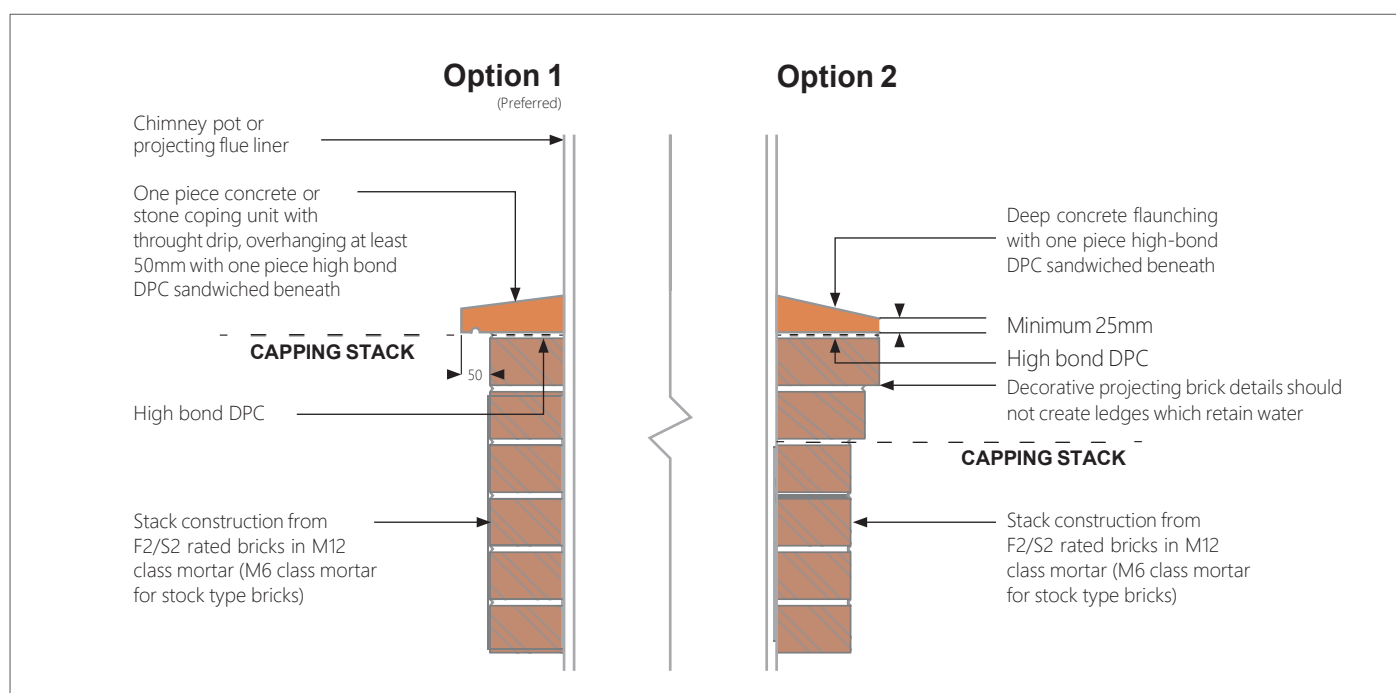
Because chimney stacks are normally exposed on all four faces and the top, they may be more liable to saturation and frost attack than other parts of the building, especially where an effective coping has not been provided at the terminal.

Mortar or concrete flaunching is often not adequate to protect the chimney in the longer term. Thermal fluctuations cause cracks to appear and water to ingress unless a high bond dpc has been placed, sandwiched in the concrete, and a deep mound formed and shaped to shed water quickly. A minimum 25mm up-stand at the concrete capping edge is also required to minimise deterioration.

The diagram below, taken from the Brick Development Association document on Designing for Severely Exposed Brickwork, illustrates the preferred construction method for moderate and severe exposure regions (option 1) and acceptable concrete flaunching in sheltered regions (option 2).



Flat brick on edge is not suitable to cap chimneys. Water is not shed quickly resulting in organic growths and increased likelihood of frost failure.



Chimney Coping / Capping Details

NOTE: Where there is a risk that flue gasses may affect masonry sulfate resisting cement should be used

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