Ibstock Brick

APPLICATION & CONSTRUCTION
SETTING OUT BRICKWORK

Designing and setting out brickwork correctly creates a matching and balanced appearance, particularly at reveals on either side of door and window openings and at the end of walls.

Setting out starts at the design stage where the design of a building, including openings, should ideally be set out to brick co-ordinating dimensions, eliminating the requirement to cut bricks on site.

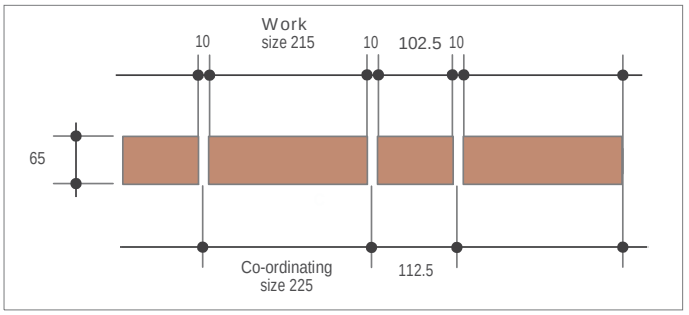
In this document only stretcher bond, also known as half-bond, is considered, although the basic principles will apply whatever bond is used.

DESIGN

Co-ordinating Size.

Brickwork should be set-out using as a 'unit' dimension the co-ordinating size of the brick, i.e. one brick length plus one nominal 10mm mortar joint – usually 225mm for standard metric bricks.

The mortar joint acts as the 'buffer zone' and will be adjusted to suit the actual brick size during construction.



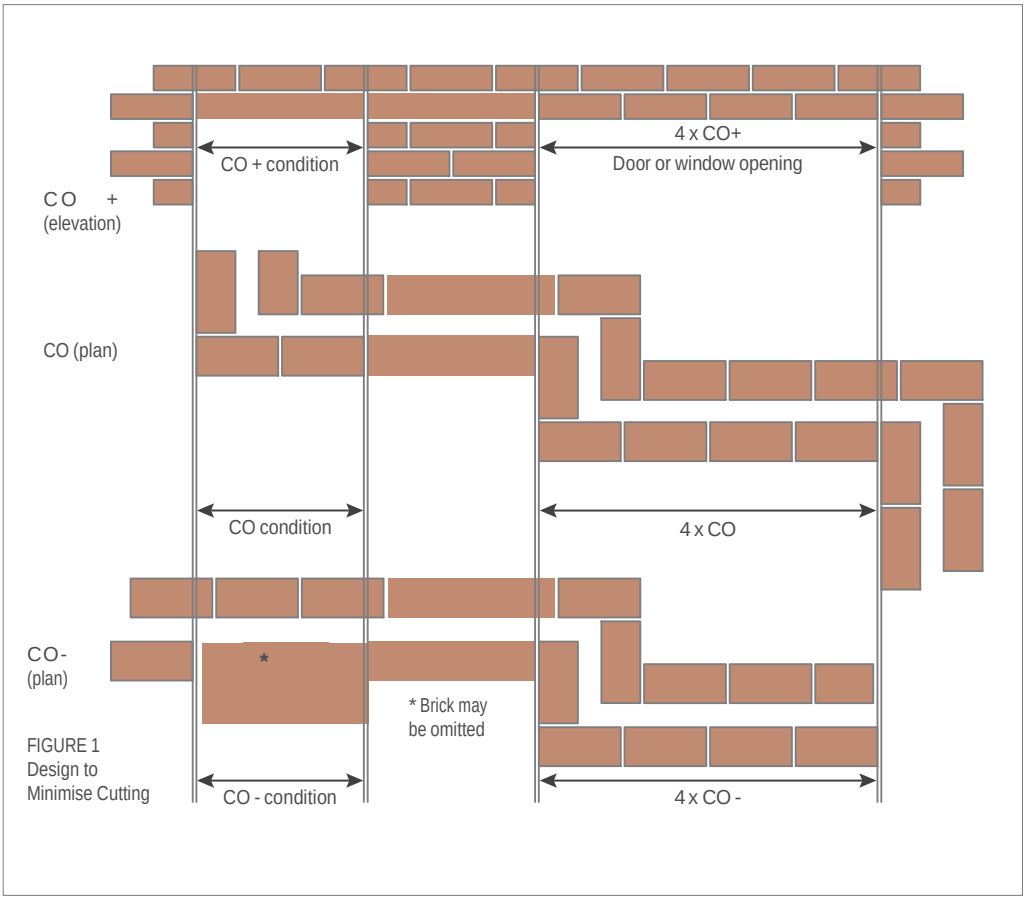


FIGURE 1
Design to Minimise Cutting

All brickwork dimensions are determined by one of three conditions. Brick plus two joints (CO+) – brickwork above or below door and window openings. Brick plus one joint (CO) – brick panel with opposite return ends. Brick only (CO-) – brick piers or panels between openings.

For example, if a span of brickwork is required to encompass 4 whole bricks over an opening, a mortar joint will be needed at either end; therefore the co-ordinating size measurement (CO+ condition) is 900mm (4 brick lengths plus 4 x10mm mortar joints).

Refer to tables inTechnical Information Sheets A2,A3 and A3a for vertical and horizontal dimensions for various brick sizes

TECHNICAL INFORMATION **C19**

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CONSTRUCTION – NOTE: 10mm nominal joint is NOT a set standard size and brick tolerances can vary. Which would cause the need for the mortar joint to be adjusted accordingly

The bricklayer should set out the brickwork at foundation level marking the position of openings and ADJUSTING JOINTS to accommodate any brick size variation. Any concerns with brick size should be raised with Ibstock promptly and the bricks set aside.

Failure to do so and incorporation into build, may cause issues with perp joints.

TOLERANCES

BS EN 771-1 requires that the dimensions of a clay masonry unit shall be declared by the manufacturer and also which tolerance category the mean values fulfil. (Information on brick tolerances can be found in our product Portfolio and on our web-site).

It is important to understand that bricks complying with the Standard have varying shape characteristics depending on the method of manufacture.
When using different products in the same wall, i.e. wire-cut products at ground level changing to stock bricks higher up, they may be classified to different tolerances.

If the guidelines on setting out are followed this should not cause any problem, however if a rigidly measured 10mm mortar joint is used there will be inevitable problems with perpends running out of plumb.
Before laying, blend units from each product type so that the overall appearance of the finished work is uniform and without patches or bands of colour.This will also help to blend any variations in size.

DO NOT set-out using the actual (215mm) size of the bricks and a standard 10mm mortar joint as the size of future deliveries may differ.

PERPENDS

Perpends are the positions of vertical joints between the bricks (not the vertical joints themselves).
Their location should be decided at foundation level.
The verticality of perpends is visually important and the plumbing of at every fourth or fifth course and the 'eyeing out' in between will produce satisfactory results.
Also the fourth or fifth perpend in each course must be plumbed and suitably marked.

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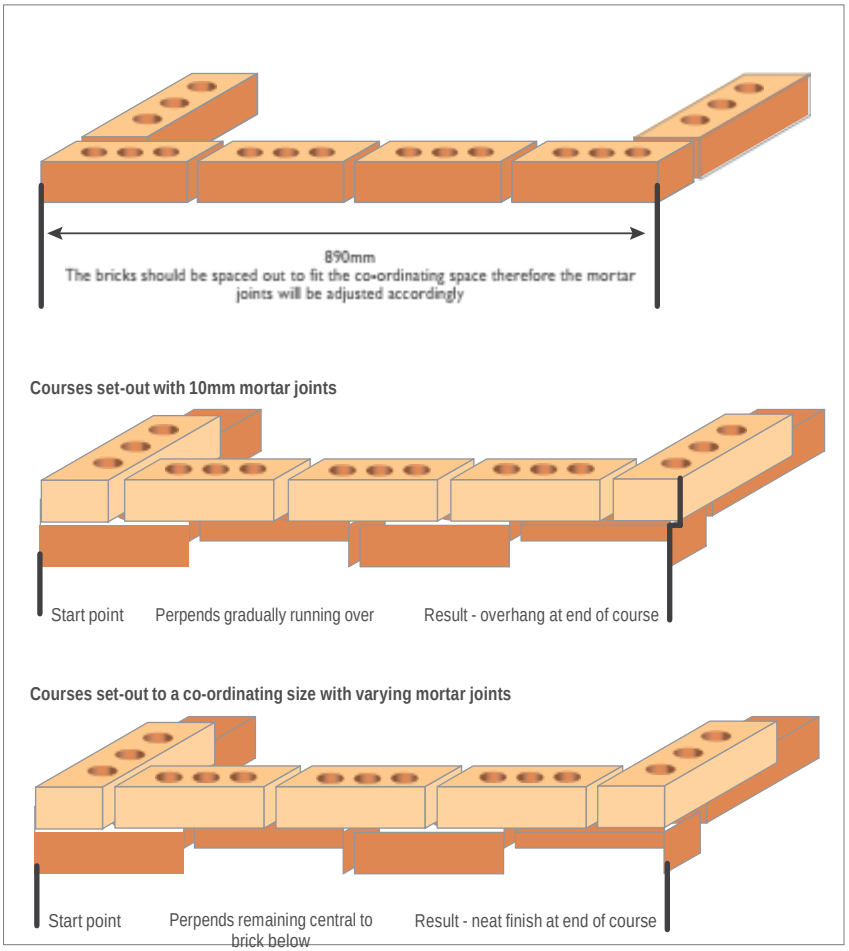

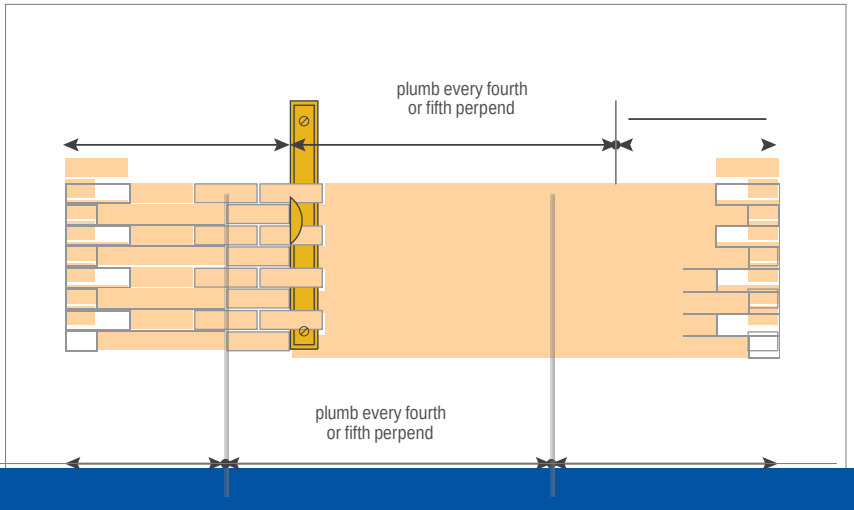

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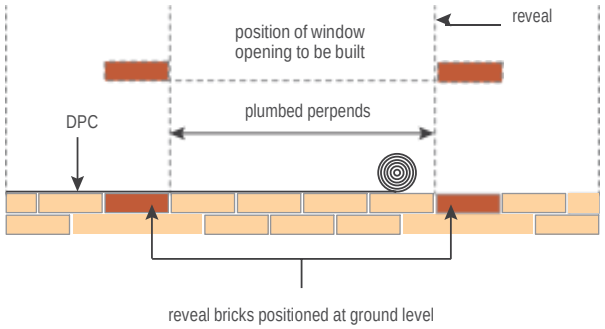
REVEALS

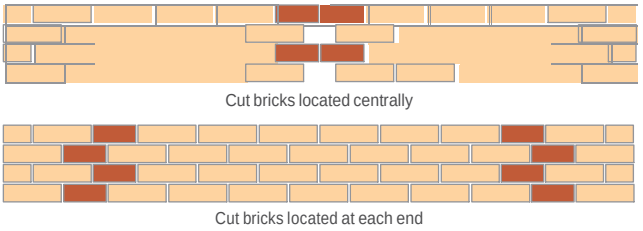
These are the sides of window and door openings and the position of the reveal brick should be identified when setting out the first few courses.This ensures unbroken perpends for the full height of the wall.



BROKEN BOND

This is the introduction of cut bricks into a length of wall which, if properly considered, will maintain satisfactory appearance and achieve a minimum quarter bond and normally occur under windows where short lengths of brickwork are not full brick or half brick dimensions.

Alternatively they can be placed symmetrically at each end of a run of brickwork.

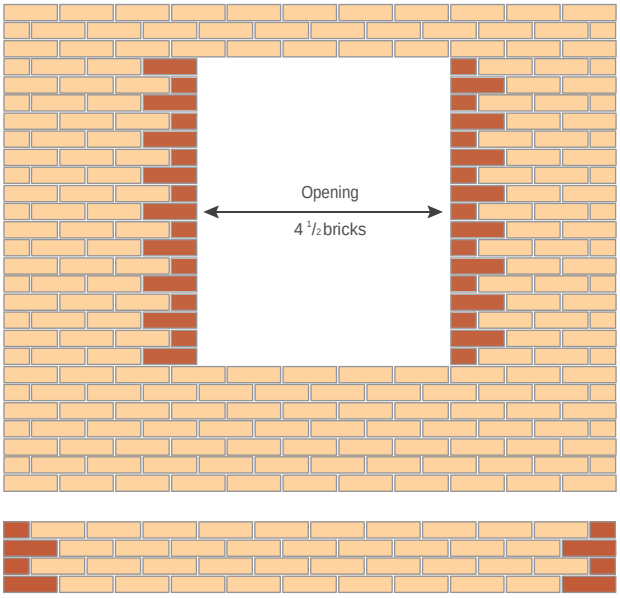


REVERSE BOND

This is where the end bricks in a given course are showing a stretcher face at one end of the panel and a header face at the other.

It can also apply at either side of an opening containing a half brick size dimension in its width and where broken bond and brick cutting may be considered unacceptable.

It is unlikely to be acceptable if reveal bricks of a contrasting colour are used as a decorative feature as the appearance is not balanced.



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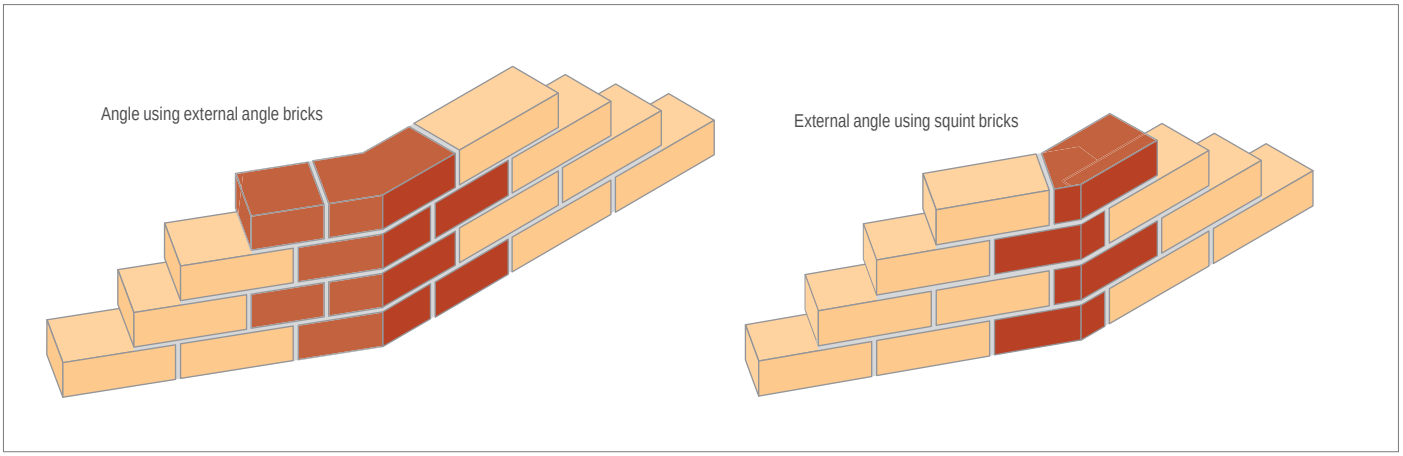

ANGLES

Walls which include angle bricks should be set out to the face side as with any facework.The use of squints will maintain half bond.

Longer angle bricks (often referred to as dog-legs) will also maintain half-bond but the shorter ones will involve some cutting of the standard brick to maintain bond.

PLINTHS

Stepped plinth courses at the base of a wall will increase the wall length externally and may result in a non-co-ordinating dimension.The setting out dimension should therefore be the brickwork above the plinth courses so that any cutting to accommodate the increased length is in the plinth and lower courses only.

COPINGS & CAPPINGS

Special thought must be given to fixing a line and pins when placing a course of copings or cappings.

It is good practice to consider the most obvious 'sight line' or side most likely to be seen.As the bricks will vary in size the favoured edge or arris of the course being laid will be the 'trued up' edge.

Where copings or capping are to be viewed from both sides, some selection of units to a common size will be necessary.