



**Movement**

Consider increased provision for movement in curved walling.

**Calculating Joint Widths and Brick Numbers**

To calculate the internal radius of a curve from the external radius:

$$r = R - W *$$

External Radius of brickwork minus the Width of unit\*.

i.e for 1 brick thick stretcher bond if the external radius is 4m,  $r = 4000 - 215 = 3785\text{mm}$  internal.

( or for vice versa  $r = R + W$  )

*\*The term 'unit' refers to a group of up to 3 bricks depending on the bonding pattern adopted.*

To calculate by how much the width of a cross joint on the convex side of a curved wall will exceed that of the concave side:  $X = \frac{L \times W}{p \times r}$

(Length of unit x unit Width( ÷ (bonding factor 'p'<sup>#</sup> x internal radius of wall).

i.e. for 1 brick thick stretcher bond if external radius is 4m,  $X = (215 \times 215) \div (1 \times 3785) = 12.2\text{mm}$  difference.

If both sides are fair face external joint could measure 17.5mm and internal 5mm.

The narrow internal joint thickness and brick type used may not be visually acceptable and special shape radial units should be considered in this instance.

To calculate the Number of bricks in a complete 360° ring:  $N = \frac{2\pi r}{L + [p \times d]} \times n$

$2 \times 3.14 \times \text{internal radius mm} \div (\text{Unit length} + [\text{bonding factor 'p'}^{\#} \times \text{width of cross joint on concave side mm}]) \times \text{number of bricks per unit.}$

i.e for 1 brick thick stretcher bond if external radius is 4m,  $(2 \times 3.14 \times 3785) \div (215 + [1 \times 5]) = 108 \times 2 = 216$  bricks

*#Factor 'p' is also dependant on the bonding pattern. The appropriate values are:*

	'L' Length of unit (mm)	'W' Width of unit (mm)	'n' number of bricks per unit*	'p' factor
Half brick wall (102mm) Stretcher bond	215	102	1	1
One brick wall (215mm) Stretcher bond	215	215	2	1
One brick wall Flemish bond	317	215	3	2
One brick wall Header bond	102	215	1	1

For curved brickwork requiring Special Shapes a range of radial headers and stretchers are available from Ibstock, also transition bricks for areas where curved sections lead into straight.

Refer to the BDA Design Note 12, 'The Design of Curved Brickwork' for more detailed information.

For further information or advice regarding this topic please contact Ibstock's Design & Technical Helpline on 0844 800 4576 or email [technical@ibstock.co.uk](mailto:technical@ibstock.co.uk)

*Although the instructions contained in this publication and any other information published by Ibstock Brick Ltd are believed to be accurate at the date of publication, they are strictly for guidance only and Ibstock Brick Ltd accepts no liability in relation to their use or for any losses, howsoever caused. You are responsible for taking all reasonable steps to ensure your use of the product conforms to all applicable health and safety requirements from time to time. If in doubt, please consult appropriately qualified persons. All products sold by Ibstock are sold subject to Ibstock's Terms and Conditions of Sale, a copy of which is available on request.*