

Halfen bed joint reinforcement

Halfen bed joint reinforcement is a prefabricated wire for masonry to be embedded in the horizontal bed joints. Its unique shape combined with its material properties increases the tensile strength of the masonry.

Masonry has high compressive strength but limited tensile strength. This tends to lead to cracking when tensile and/or shear stresses develop. By providing reinforcement to resist such stresses, the risk of cracking is substantially reduced.

Description

Halfen bed joint reinforcement consists of two longitudinal wires which are welded to a continuous zig-zag cross wire to form a lattice truss configuration. The cross wire is welded to the sides of the longitudinal wires, so that the overall thickness does not exceed the diameter of the longitudinal wires.

The longitudinal wires are deformed to improve the bond with the mortar.

Materials

Halfen bed joint reinforcement is manufactured in round wire, Code RND, for use with masonry with nominal 10 mm thick mortar joints.

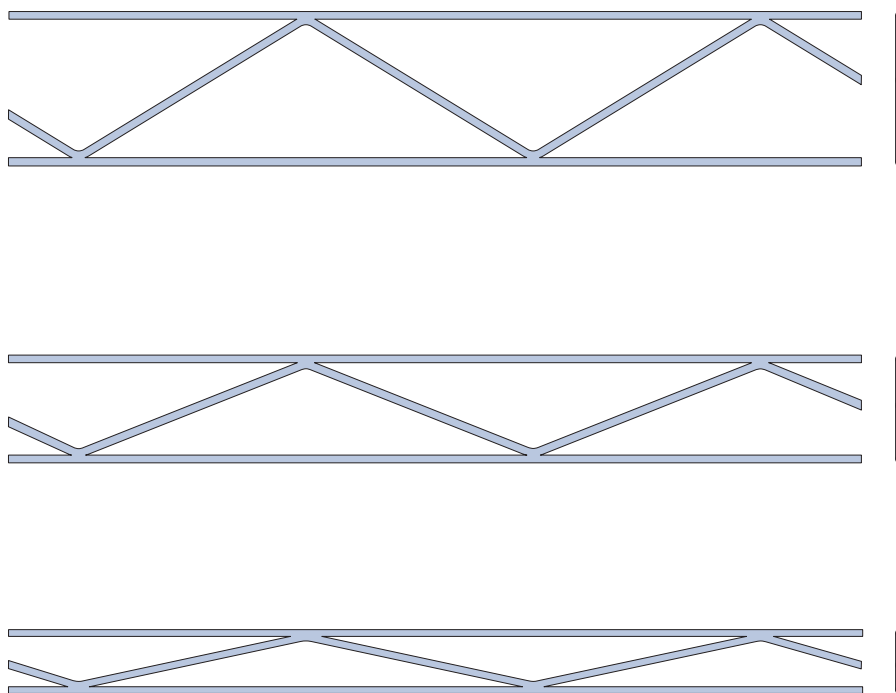
The steel used is either high tensile carbon steel or austenitic stainless steel, Grade 304.

The carbon steel is hot dip galvanised with a minimum average coating of 70 g/m². This is suitable for inner skins only.

The products are coded as follows:

- RND/Z-4** hot dip galvanised 4 mm wire
- RND/Z-3** hot dip galvanised 3 mm wire
- RND/S-4** stainless steel 4 mm wire
- RND/S-3** stainless steel 3 mm wire

Halfen bed joint reinforcement is a convenient, purpose-made reinforcement for masonry for use in the horizontal bed joints. It limits the risk of cracking and increases the tensile and flexural strength of masonry.



Round wire bed joint reinforcement, for use with masonry with nominal 10mm thick bed joints

Table of sizes

Code No	Width of reinforcement (mm)	Suitable for wall thickness (mm)	Diameter of longitudinal wires (mm)	Length of unit (m)	Units in bundle (no.)
RND/Z-4	50	90-140	4	3.05	25
	100	140-190	4	3.05	25
	150	190-225	4	3.05	25
RND/Z-3	50	90-140	3	3.05	25
	100	140-190	3	3.05	25
	150	190-225	3	3.05	25
RND/S-4	50	90-140	4	3.05	25
	100	140-190	4	3.05	25
	150	190-225	4	3.05	25
RND/S-3	50	90-140	3	3.05	25
	100	140-190	3	3.05	25
	150	190-225	3	3.05	25

How to specify bed joint reinforcement			
RND Code	Z3 material/wire dia.	50 Width	3050 Length

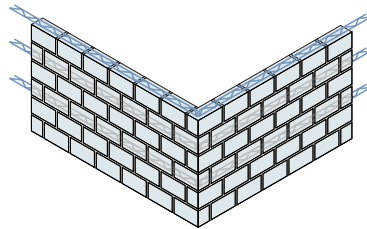
Z-4/Z-3 = hot dip galvanised S-4/S-3 = stainless steel
 Note: Bundle quantity: bundles will not normally be split

Applications using bed joint reinforcement

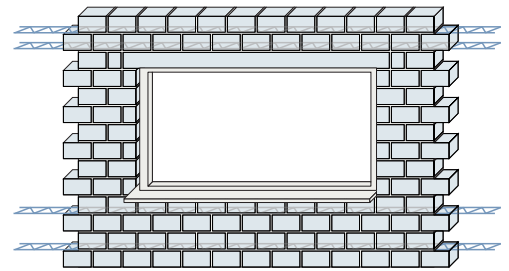
Crack control

Halfen bed joint reinforcement is very effective in reducing cracking in masonry due to a variety of causes, for example:

- shrinkage due to drying out and long term creep
- movement due to moisture loss or gain in external situations
- movement due to fluctuating temperatures
- flexural or tensile stresses resulting from loading
- stress concentrations around openings, such as windows or doors
- movement of partition walls due to the deflection of the supporting structure.



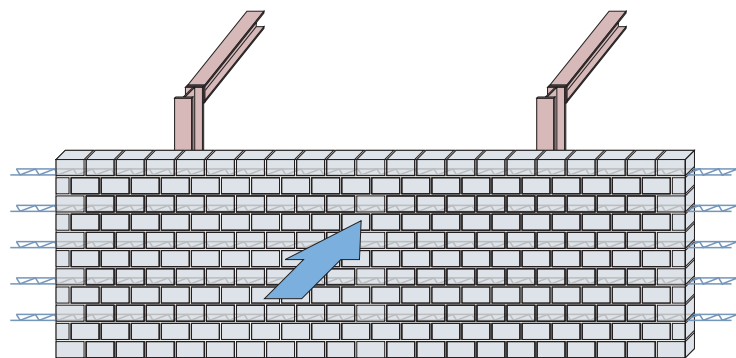
Crack control at wall junctions



Crack control around openings

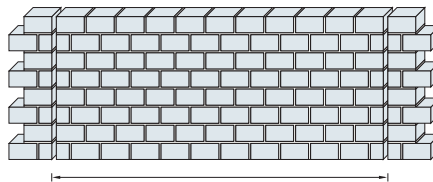
Structural strength

Halfen bed joint reinforcement can increase the structural strength of masonry. It can be used to provide additional resistance to lateral loading from, for example, the wind.



Laterally loaded wall panels

When used generally throughout masonry construction, Halfen bed joint reinforcement will improve the overall stiffness of the masonry construction, tying the walls together positively to provide a structural material with a more even distribution of stresses.

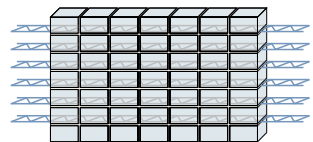


Distance between movement joints can be extended by using bed joint reinforcement

Architectural benefits

Halfen bed joint reinforcement offers greater flexibility to the architect. For example:

- the distance between movement joints can be extended
- stack bonded walls can be used with Halfen bed joint reinforcement tying the masonry together



Stack bonded and banded masonry

Calculations

If the wall is to be calculated, please consult Halfen Limited.

Installation and accessories

Mortar bed joints

Halfen bed joint reinforcement is embedded in the mortar as follows:

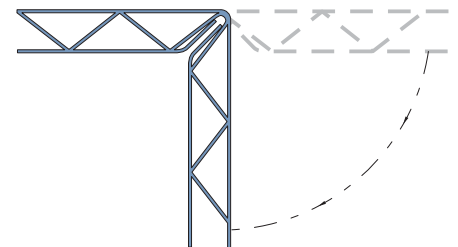
- spread out mortar layer on bricks or blocks
- press the Halfen bed joint reinforcement unit into the centre of the mortar layer
- lay the next course of bricks or blocks in the normal way

Laps

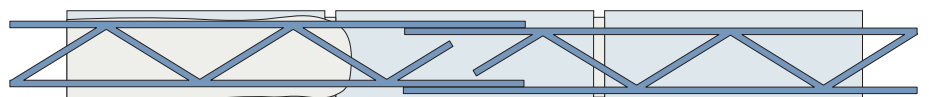
When lapping two Halfen bed joint reinforcement units, always lay them next to each other, and never on top of each other, otherwise the mortar will not cover them properly. Minimum lap should be 150 mm. (See illustration below.)

Corners

When using Halfen bed joint reinforcement at corners or junctions. Halfen bed joint reinforcement should be cut and bent as shown at right to provide continuity. Alternatively specially designed pre-fabricated units can be used.



Cutting and bending of bed joint reinforcement at corners or junctions.



Lapping of bed joint reinforcement.