

Masonry Support Installation

Best practices and guidance for the use of, handling and installation of masonry support bracket-angle systems

Introduction

Masonry support systems are a common feature in most masonry-clad buildings worldwide. The correct use and installation of these systems is critical in the function and integrity of the external facade therefore an understanding of best practice is beneficial for the end user and designer alike.

Within the following document a range of key features common to most standard masonry support systems are presented to provide an insight into the critical attributes of the product. Following these simple guidelines should ensure that a support system designed to suit a particular application would provide the structural integrity required, eliminating the potential for excessive deflection associated with cracking of masonry panels or closing of movement joints.

Safety

Although every effort is made to remove sharp edges during the manufacture of the product, appropriate personal protective equipment should always be worn when handling and installing masonry support to avoid injury.



Structural Tolerance

The structural and masonry tolerances should be assessed prior to finalising the design of the support system. The tolerance provided by a standard masonry support system is much less than the typical construction tolerances so the support system must be designed to accommodate for this prior to manufacturing. The methods of adjustment possible with standard masonry support systems are detailed following.

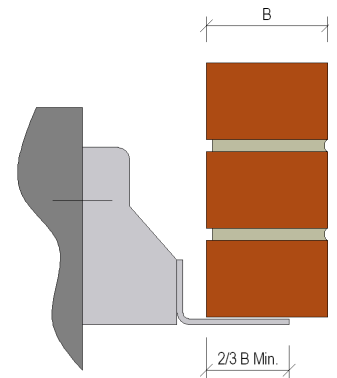
Vertical Adjustment

To provide adjustment to the level of the support ACS masonry support is supplied with the patented 4th generation 'Alpha' system. The positive lock system provides a greater load capacity than a traditional serrated system due to the physical locking teeth. The offset hole in the washer allows the increments of adjustment to be halved when rotated through 180° meaning the support level can be finely adjusted by +/- 30mm. The design of the Alpha System provides clear inspection into the location and engagement of the washer in the bracket simplifying the final site installation checks.

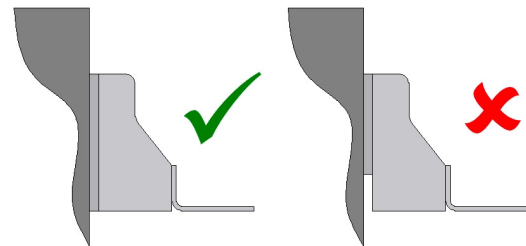


Cavity Width Adjustments

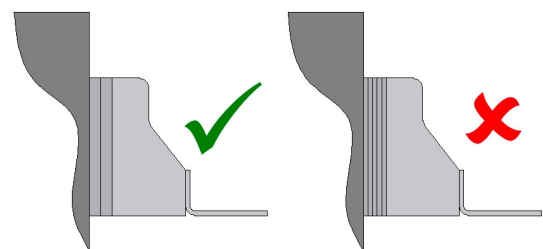
The support system is designed to allow a small amount of cavity adjustment, however, a minimum masonry bearing of $\frac{2}{3}$ B must always be maintained unless advised otherwise by the manufacturer. To increase the cavity width further than this stainless steel shims can be used. To avoid excessive deflection, the shim must be fully bearing on the structure supporting the compressive forces at the heel of the bracket.



The maximum allowable thickness of shims should be no more than outside diameter of the fixing bolt or 16mm whichever is less. Larger cavity variation can be accommodated following the advice of the manufacturer.



Shims should provide full bearing, ensuring the heel of the bracket is fully engaged with the structure to avoid excessive settlement and deflection under load.



The number of individual shims should be as small as possible to avoid creating slip planes that may allow settlement or creep under load.

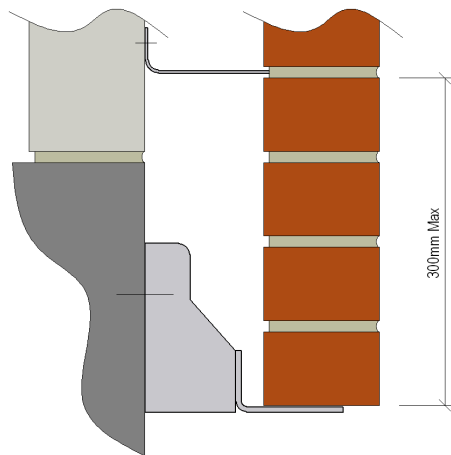
Horizontal Adjustment

Masonry support systems are designed with a nominal gap of 10mm between angle lengths. This provides horizontal adjustment to accommodate for tolerances on site during installation. To provide continuous horizontal adjustment the support system can be fixed back to channel.



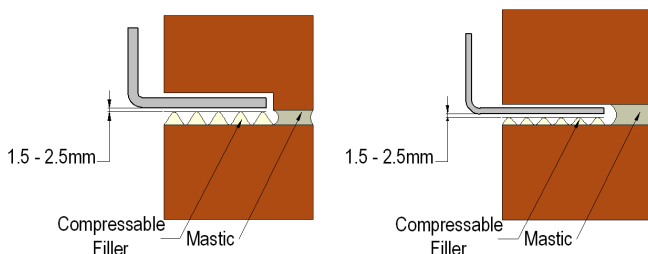
Wall Ties

Wall ties are critical to the correct function and performance of all masonry support systems. Stainless steel wall ties should be positioned within 300mm of a support angle at a maximum horizontal spacing of 450mm. Ties can be specially designed to suit the particular application and should be installed inline with the manufacturer's recommendations.



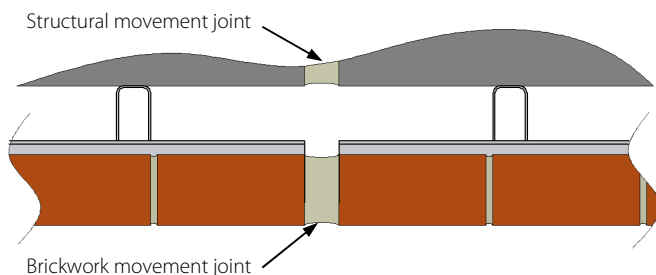
Horizontal Movement Joint

The masonry support angle should be set approximately 1.5 to 2.5mm above the compressible filler to prevent the angle deflecting into the joint when loaded. Once the masonry panel is complete the open joint on the face of the panel should be filled with a mastic seal. Thin angles can be concealed in a standard joint, thicker angles may require a rebate or pistol to be cut into the under side of the brick. The pistol brick should then be bedded onto a 5mm Max mortar joint. No more than 1.5m of masonry should be built of a support angle per day to prevent excessive deflection through rotation of the angle.



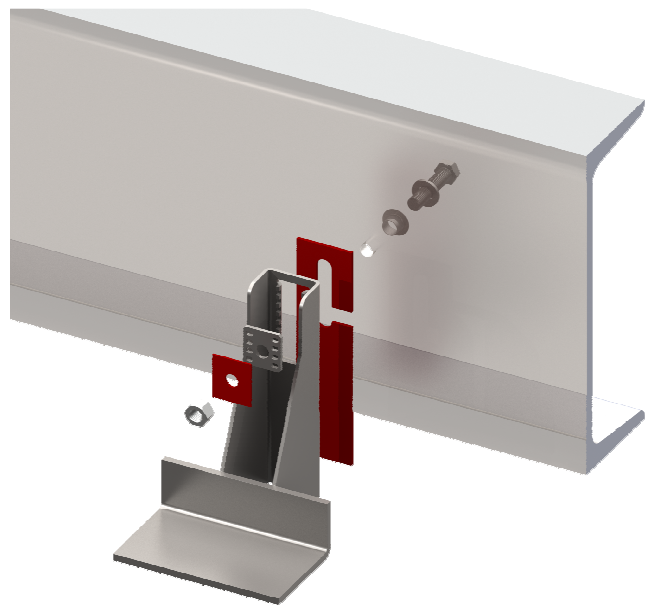
Vertical Movement Joint

Masonry support angles can span through the vertical movement joint in the brickwork but must be broken at a structural movement joint.



Bi-Metallic Corrosion

Bi-metallic corrosion can occur when dissimilar metals such as stainless and carbon steel are in direct contact in the presence of water. To avoid this it is recommended that steel beams are painted or an isolation gasket is positioned between the bracket and beam and a top hat washer is used to isolate the stainless steel bolt from the drilled fixing hole.



Fixings

The fixing is one of the most critical features of a load bearing structural element and the correct installation of the fixing is of paramount importance in achieving and maintaining the structural integrity of a support system. Only fixings designed by the manufacturer should be used in the installation of masonry support. Special care should be taken, especially when installing concrete fixings. Guidance from the manufacturer should be used to establish best practice such as:

- Drill diameters
- Embedment depths
- Edge distances
- Minimum spacing
- Installation procedure
- Tightening torques

Most of this information will be detailed on the design drawings illustrating the layouts and section details for the specially designed support system. The manufacturer will design a system that will work within the limits of the specified fixing. These designs should be adhered to - to ensure the design capacity of the fixing is achieved and maintained throughout the service life of the system. For further information on the correct specification and use of fixings contact the manufacturer.

