# REPLACEMENT WALL TIES

SECTION 03

Replacing cavity wall ties with a remedial tying system is a low-cost alternative to rebuilding walls that are suffering from wall tie corrosion. For 30 years wall tie replacement has become the accepted method of solving the problem of cavity tie failure.

Wall tie failure occurs when the ability of the built-in tie-system to secure the façade wall of a building to its structural frame is compromised. Failure may be due to too few ties having been incorporated into the build or deterioration of the ties as a result of rust.

In the case of wall tie corrosion, the rusting steel generates an expanding build-up of iron oxide layers as the steel erodes. The damage that can be caused by the expanding ties depends on the type of wall tie used in construction.

Ties produced from steel wire may erode and disintegrate, resulting in the façade wall becoming free-standing and vulnerable to wind loads.

Ties manufactured from steel plate tend to force the brickwork apart as they expand. These forces may result in a series of cracks developing along the mortar joints in which the ties are laid. Such horizontal cracking significantly weakens the structural integrity of the façade wall at a time when the eroding ties are less able to support it.

In both cases replacing cavity wall ties with a corrosion resistant wall tie replacement system provides a lasting remedial solution. Thor Helical manufactures a range of retrofit ties, these include:

## Mechanical Helical Wall Ties

One-piece stainless steel helical wall ties, 9mm in diameter. When they are hammer-driven into small pilot holes, the ties corkscrew into brick, block and concrete to deliver a mechanical fix that grips the wall on each side of the cavity. Unlike ties having expanding mechanisms, which deliver point-loadings when tightened, the masonry thread connection of the helical wall tie exerts no expansive stress into the brickwork and will not loosen with vibration.

## Resin Fix Ties

A helical tie for replacing cavity wall ties on a budget. The ties are chemically bonded into 8-10mm holes to connect or reconnect the walls either side of the cavity. Resin fix ties are not recommended where fire performance ratings exceed 30 minutes.

## Resin/Mechanical Tie

Thor Helical timber frame ties are usually used in new construction. However they can also be used for replacing cavity wall ties in existing timber framed houses up to 4 stories high. The flexible 5mm ties corkscrew as they are hammered through a 6mm clearance hole in the outer façade and into the wooden studs of the timber frame. The connection to the masonry wall is made with a chemical bonding agent.

Our best-selling remedial wall tie is Thor's CD Tie. The mechanical tie system is patented in four Continents and has a proven track record at out-performing every other helical wall tie on the market.

### WHAT MAKES THE THOR HELICAL REINFORCING BARS A CUT ABOVE THE REST?

- Suitable for use in brick, perforated brick, block, stone,concrete and aerated concrete.
- Suitable for replacing cavity wall ties in wide cavities – up to 225mm.
- Patented replacement wall tie system with unique driving shank.
- Safe, reliable, easy to use and low cost SDS setting tool (patent pending).
- Patented precise pitch engineering, through advanced twisting die technology, delivers helical ties with unrivaled product performance.
- Thor Helical CD wall ties conform to conditions for CE marking according to BS EN 845-1 2013 and meet the requirements for a Type 2 tie for cavity widths of up to 150mm (brick, block, perforated brick and concrete) and for a Type 3 for cavities of up to 225m wide (aircrete).