

# Wall Ties & Restraint Fixings

Featuring Construction to the Construction Products Regulation



AASONRY TO TIMBEI Wall Ties

asonry to steel Wall ties

Manufactured by



DTHER MASONRY Products



Issue No. 15

### Logo Guide

CE

Look out for these logos.

These products are supplied with a CE marking. This demonstrates compliance with a European Standard and has been a legal requirement of the Construction Products Regulation since 1st July 2013. For more information and to download all associated documents, including Declarations of Performance, go to www.ancon.co.uk/CE.



These products are approved by the British Board of Agrément.



These products are Type A ties and suitable for internal separating walls to Approved Document E.



These advanced energy-saving products won the prestigious Queen's Award for Innovation in 2018.

### Availability

Ancon and Staifix wall ties are available from builders merchants and other specialist distributors throughout the UK. For details of your nearest stockist please contact Ancon on 0114 238 1 238.

### **Correct Installation**

Wall ties should be pressed down in, and then surrounded by, fresh mortar. In order to show more details of the application, mortar has been excluded from the photography in this literature.



### **Masonry to Masonry Wall Ties**

Staifix Wall Ties Ancon Wall Ties Ancon Teplo Wall Ties Staifix-Thor Helical Wall Ties Other Standard Restraint Fixings

#### **Wall Starter Systems**

Ancon Teplo-L-Tie Staifix Frame Tie

Staifix Universal Wall Starter System Staifix Starter Tie Staifix Cavity Starter Tie

# **Masonry to Timber Wall Ties** Pages 16-19 Staifix Timber Frame Tie Staifix-Thor Helical Timber Tie **Masonry to Steel Wall Ties** Pages 20-21 Ancon 25/14 Restraint System Pages 22-28 Pages 29-31



### **Roofing Products**

Wire Balloons Super-7 Thor-Helical Nail for Pitched Roofs Super-8 Headed Helical Nail for Flat Roofs

### **Other Masonry Products**

Ancon AMR Masonry Reinforcement Staifix Insulated Plasterboard Nails Staifix-Thor Helical Crack Stitching Kit **Remedial Wall Ties** 

### Pages 4-11

### Pages 12-15









### **Stainless Steel Cavity Wall Ties**

for traditional masonry construction with cavities from 50mm to 225mm





#### Staifix Universal Insulation Retaining Clip

For use with standard Ancon/Staifix stainless steel ties in partial fill cavities

### Application

These stainless steel wall ties connect the two leaves of a cavity wall. Product selection is based on building type and height, geographical location and cavity width. Specially designed safety ends reduce the risk of injury during handling and installation.



### **Staifix HRT4 Light Duty Tie**

(Type 4 Tie to PD6697)

Length (mm)	Cavity (mm)
200	50-75
225	76-100
250	101-125
275	126-150

Type 4 wall tie for use in the external walls of houses up to 10 metres in height. Altitude and wind speed restrictions may apply.



Available in packs of 20 or 250

### **Staifix RT2 General Purpose Tie**

(Type 2 Tie to PD6697)

Length (mm)	Cavity (mm)
200	50-75
225	76-100
250	101-125
275	126-150

Type 2 wall tie for use in the external walls of houses and small commercial developments up to 15 metres in height. Altitude and wind speed restrictions may apply.

Available in packs of 20 or 250

### **Ancon ST1 Heavy Duty Tie**

(Type 1 Tie to PD6697 in M2 mortar)

Length (mm)	Cavity (mm)
200	50-75
225	76-100
250	101-125
275	126-150
300	151-175
325	176-200
350	201-225

Type 1 wall tie for use in the external walls of buildings of any height anywhere in the British Isles.

**Note:** For internal separating walls of new-build attached dwellings use HRT4 only. Check product packaging or contact Ancon for more information.



C F

### **Ancon Teplo Basalt Fibre Wall Ties**

for ultra energy-efficient buildings with cavities up to 450mm





#### **Teplo-Clip**

Insulation retaining clip for use with all Ancon Teplo wall ties

#### Teplo-L-Tie

Features a stainless steel upstand for surface fixing

#### Teplo-BFR

Features a plain end for resin anchoring to existing structure

#### Application

Ancon Teplo wall ties are manufactured from pultruded basalt fibres set in a resin matrix. They have a thermal conductivity of just 0.7W/mK and are shown in U-value calculations to reduce insulation thickness and wall footprint.

**Teplo-BF** Cavity wall tie with rounded safety ends



### Ancon Teplo-BF4 (Type 4 Tie to PD6697)

Length (mm)	Cavity (mm)
200	50-75
225	76-100
250	101-125
550	401-425
575	426-450



Type 4 wall tie for use in external walls of houses up to 10 metres in height. Altitude and wind speed restrictions may apply.

### Ancon Teplo-BF3 (Type 3 Tie to PD6697)

Cavity (mm)
301-325
326-350
351-375
376-400

	100000000
BE	BA INSPECTION TESTING
CERT	FICATE No 14/5160

Type 3 wall tie for use in external walls of houses and small commercial developments up to 15 metres in height. Altitude and wind speed restrictions may apply.

Ancon Tep	lo-BF2 (Type	2 Tie to PD6697)
Length (mm)	Cavity (mm)	_
200	50-75	
225	76-100	BBA APPROVAL
250	101-125	GRUTTAN Nº 14/5160
275	126-150	
300	151-175	
325	176-200	Type 2 wall tie for use in external walls

Type 2 wall tie for use in external walls of houses and small commercial developments up to 15 metres in height. Altitude and wind speed restrictions may apply.

### Ancon Teplo-BF1 (Type 1 Tie to PD6697)

201-225

226-250

251-275

276-300

Length (mm)	Cavity (mm)
200	50-75
225	76-100
250	101-125
275	126-150

350

375

400

425



### **Staifix-Thor Helical TJ2 Tie**

for thin-joint blockwork



Length (mm)	Cavity (mm)
205	50
230	75
255	100
280	125
305	150

# CE

### Application

Hammer-driven cavity wall tie, ideal for thin-joint blockwork and other applications where the joints of the inner and outer leaves of masonry do not course. Suitable for buildings up to 15 metres in height when used with high strength blocks. Contact Ancon for more details.

For thin-joint to thin-joint separating walls use the Staifix HRT4 (see page 5).



European Patent No. 1307303

### Installation



### **Embedment**

Staifix-Thor Helical TJ2 Thin-Joint Ties should have a minimum embedment of 85mm in the inner leaf of blockwork and 70mm in the outer leaf of brickwork.



### **Other Standard Ancon Wall Ties**

lengths shown in *red italics* refer to items available within 24 hours

### **Ancon Teplo-L-Tie**

Low thermal conductivity restraint fixing



Lengths 165, 190, 215, 240, 265, 290, 315, 340, 365mm

#### **Application**

Basalt fibre frame cramp with stainless steel upstand, used to join masonry to existing structures.



<b>DT Double</b> <b>Triangle</b> Lengths 150°, 200°, 225°, 250°*, 300mm** *Conforms to PD6697 as a Type 2 tie **Type 3 tie	CE
<b>RD3</b> Lengths <i>250</i> , <i>275mm</i> Conforms to PD6697 as a Type 3 tie	<b>CE</b>
HRD4 Lengths 250, 275mm Conforms to PD6697 as a Type 4 tie	CE

SPS Lengths 150, 200, 225, 250, 275, 300mm

#### SPS CJ Lengths 150mm

(3mm thickness for collar-jointed construction)



### **Ancon PPS Movement Tie**

For vertical movement joints



Lengths 175, 225, 250, 275, 300mm

**Application** Flat tie used with a debonding sleeve to allow the masonry to expand or contract.



SPB Lengths 75, 100, 125, 150, 175, 200, 225, 250, 275, 300mm (Heavy duty version also available)



SDB Lengths 125, 150, 175, 200, 225, 250, 275, 300mm



SDV Lengths 125, 150, 175, 200, 225, 250, 275, 300mm



PPB Lengths 125, 150, 175, 200, 225 mm

PPV Lengths 125, 150, 175, 200, 225mm





### Wall Tie Installation

Symmetrical Ancon wall ties (HRT4, RT2, ST1 and Teplo-BF) accommodate some site tolerance in their length, for both cavity width variation and centring of the tie. In line with PD6697: 2010 and Approved Document A, the minimum wall tie embedment is 50mm. Longer wall ties will be required where cavities are outside the tolerance offered.

For walls in which both leaves are 90mm or thicker, ties should be installed at not less than 2.5 per square metre (900mm x 450mm vertical centres).





### **Staifix Universal Wall Starter System**

for joining new walls to existing masonry



### Application

Wall starter system with all the necessary fixings to join a single skin of masonry 2.4 metres high to an existing wall.

Suitable for:

- Brickwork and blockwork
- Imperial and metric masonry units
- Single leaf and cavity walls
- Internal and external use
- Wall widths from 60mm to 250mm
- Masonry up to 8 metres in height

Wall ties slide within the fixing strip to course with the bed joints of any masonry unit.



#### **Universal Wall Starter Installation**

2

Prior to installation remove any render, debris etc from the existing wall where the new wall will be joined.

3



- Mark the position of the five fixing holes so that the Wall Starter System will be central to the new wall. When overlapped, the strips should be fixed through the first and last slot, at the point of overlap and at two other points in between (alternate 450mm and 600mm centres are recommended).
- Drill 10mm diameter holes and install wall plugs.



- Loosely fix first strip at the bottom two fixing points.
- Insert second strip into the top of the first strip and loosely fix at the remaining three fixing points.
- Fully tighten screws, in any order, when both strips are in position.
- Insert wall ties by turning 90° clockwise in the fixing strip and build into the bed joints of the new wall, ensuring they are surrounded by mortar (225mm vertical centres are recommended).

225mm 225mm



### **Staifix Starter Ties**

for joining new walls to existing masonry





### **Wall Starter Tie**

Screw-in tie supplied with an 8mm nylon plug for joining new masonry to existing walls without the need for jointing.

Ideal for the construction of conservatories, extensions and garden walls.



### **Cavity Starter Tie**

Screw-in tie that simplifies the build of an inner leaf of blockwork within an existing structure. Supplied with an 8mm nylon plug and a neoprene 'o' ring.

Length (mm)	Cavity (mm)
180	50-70
200	75-95
230	100-120

**Note:** Embedment depth for above tie lengths should be 65-85mm in mortar joint.

#### **Staifix Wall Starter Tie Installation**



Starter Ties should be fixed at 225mm vertical centres in a line central to the new leaf. Drill 8mm diameter holes, 45mm deep into the existing wall at an angle of 30° to the horizontal. Insert wall plugs provided and screw in ties.



Bend the tie into the bed joint of the new brickwork. Build the tie in ensuring it is surrounded by mortar.

This tie is suitable for use in masonry up to 8 metres in height. For buildings in particularly exposed areas, especially if the wall is higher than 5 metres or the construction is single leaf, it would be advisable to carry out a check calculation using the wind code and increase the density of starter ties if necessary.

#### **Staifix Cavity Starter Tie Installation**





### **Staifix Timber Frame Ties**

for fixing masonry to timber frames up to four storeys in height





### **STF6 Timber Frame Tie**

Cranked cavity wall tie for use in the construction of timber-framed buildings. Supplied complete with an annular ring shank nail. Available in three lengths to suit cavities of 50, 75 and 100mm.

### **TIM6 Helical Timber Frame Tie**

Hammers directly into timber frames without a pilot hole, through insulation where necessary. Available in four lengths to suit cavities from 50mm to 150mm.

### **Ancon Teplo-L-Tie**

For applications where a low thermal conductivity restraint fixing is required between masonry and a timber frame. Available in 9 lengths to suit cavities from 100mm to 300mm.

### **STF6 Installation**



### **Density of Timber Frame Ties**

Timber Frame Ties should be installed at a density of 4.4 ties per square metre in buildings where the basic wind speed does not exceed 25m/s (BS6399-2: 1997 Code of Practice for Wind Loads). The density should be increased to 7 ties per square metre in more severe situations.

#### **TIM6 Installation**





AASONRY TO TIMBER WALL TIFS

### **Staifix Frame Tie**

for fixing timber door and window frames to brickwork



CE

### **Application**

Screw-in tie used to join timber door and window frames to brickwork.



### Installation



Screw the tie horizontally into the door or window frame at a bed joint position.

Build the tie into the bed joint of the new brickwork ensuring that it is surrounded by mortar.

The Staifix Frame Tie should not be used as a wall starter tie (see page 14).

### **Vertical spacing of Staifix Frame Ties**

Width of Opening (mm)	Required Vertical Spacing Modified for Coursing (mm)	
<1001	300	
1001-1400	225	
1401-2100	150	
>2100	75	

Suitable for buildings up to 15m in height on flat sites where the basic wind speed does not exceed 31m/s.



### Ancon 25/14 Restraint System

for tying masonry to steel, concrete or timber frames through any insulation type



Tie Length (mm)	Open Cavity (mm)
100	35 - 59
125	60 - 84
150	85 - 109

Note: Other tie lengths to suit cavities up to 259mm are available.



### Applications

Channel-and-tie system for fixing masonry to an in-situ structure through an insulation layer.

For fixing to steel or timber frames, Ancon self-drilling high-thread screws should be used through the channel and insulation and into the frame. They are suitable for an insulation depth up to 220mm.

For fixing to concrete, Ancon concrete fixing screws should be used through the channel and a stainless steel compression sleeve, located in the insulation, and into a pilot hole in the concrete. They are suitable for an insulation depth up to 267mm.



#### Installation (shown with rigid insulation and a steel frame)



Fix channel to steel frame with Ancon self-drilling screws. Contact Ancon for fixing centres. Ancon 25/14 channel is supplied with pre-punched holes at close centres to ensure a fixing position is always located near the end when the channel is cut on site.



The spacing of ties is based on the height of the building and geographical location. Contact Ancon for details. SD25 wall ties can be positioned at any point along the channel's length. Ties should achieve a minimum embedment of 50mm in the outer leaf and be pressed down in fresh mortar.



Build the tie into the bed joint of the new masonry ensuring it is surrounded by mortar.

**Notes:** Screws are available in various lengths to accommodate an insulation thickness of up to 220mm. Wall ties are available in lengths from 100mm to 300mm to suit open cavities up to 259mm.

Contact Ancon for installation details for other frame and insulation types.



### **Ancon AMR Masonry Reinforcement**

to strengthen masonry panels



AMR Width	Wall Thickness	
60mm	100-125mm Brick/Block	
100mm	140-150mm Block	
150mm	190-200mm Block	
175mm	215mm Block	

CE

#### **AMR Applications**

Stainless steel reinforcement, installed in a bed joint to strengthen masonry walls. Manufactured in lengths of 2700mm.

Available in five wire diameters and four widths, AMR suits the majority of wall conditions.

For collar-jointed walls use Ancon AMR-CJ.

Suitable for internal and external leaves

### **Laps and Positioning**

The position of laps should be staggered throughout the masonry panel.

Laps should be a minimum of 225mm in length and include one cross wire. Laps can be achieved by either stacking the product or positioning lengths side by side.



Note: Overall thickness of AMR when stacked is less than 6mm.

#### Corners

Prefabricated corner units can be manufactured to provide true continuity of reinforcement. Alternatively, Ancon AMR can be cut and bent on site.





### **Insulated Plasterboard Nails**

Fire-proof steel fixing for securing insulated plasterboards



#### **Available Lengths**

65, 85, 105, 125, 145mm

### Application

A one piece steel fastener (referenced ISF18A) with a dish-profiled head for mechanically securing drywall and insulated plasterboard panels to walls.

This fire-proof steel fastener has a selftapping helical shank with work-hardened blades that cut into a wide range of masonry and timber substrates.



#### Installation

The fixings are driven-in by an adaptor, which is powered by a standard SDS hammer drill.

The anchor drives directly into aircrete blocks and softwood timber. A 5mm pilot hole is recommended for brick, concrete block and hardwood.

A 6mm pilot hole is required for structural concrete and engineered brick.

Substrate	Embedment depth
Aircrete Block	50-75mm
Brick/Concrete Block	40-60mm
Softwood	35-50mm



- = Position of fixing If used with 'dot and dab' method
- = Position of fixing If used instead of 'dot and dab' method



Professional SDS Adaptor Set

3 fixings are required per panel if used with 'dot and dab' method. Each dab should be 50mm to 75mm wide and approx. 250mm long.

12 fixings are required per panel if used instead of 'dot and dab'.



### **Staifix-Thor Helical Crack Stitching Kit**

for the permanent repair of cracked masonry



500mm

Wall	Slot	Bar
Thickness	Depth	Depth
102mm	30mm	20mm
215mm	40mm	30mm



500mm

### **Application**

This kit contains all the necessary components to permanently repair vertical or stepped cracks in masonry.

- Grout mixing paddle
- Cementitious grout (3 litres)
- Grout applicator gun with flat nozzle
- Ten stainless steel helical bars. (6mm ø x 1000mm)
- Finger trowel

#### Notes:

- 1. This system is also suitable for rendered/plastered walls
- 2. Vertical spacing is normally every 4 to 6 brick courses (300 - 450mm), however this should be checked with the structural engineer
- 3. Where cracks are within 500mm from corners or reveals. the bar should be bent and bonded 100mm around the corner
- 4. If two or more cracks are close together, bars can be lapped. Laps should be at least 500mm and the bar should extend 500mm from the outer cracks

#### Installation

It is essential that the cause of the cracking is established by a structural engineer and then eliminated, prior to the installation of this system.



Cut a slot in the mortar joint to the specified depth that extends just over 500mm each side of the crack (recommended equipment: Twin-bladed diamond-tipped wall chaser). Ensure the mortar is completely removed to reveal the top and bottom faces of the masonry. Remove all loose mortar from the slot and flush with clean water.



Connect the paddle to a power drill, blend the components of the grout together in the tub and load into the gun. Apply a continuous bead (approximately 10-15mm thick) to the back of the slot.



Push the helical bar into the face of the grout, to the depth specified, so that the bar extends 500mm each side of the crack.





Apply a second, continuous bead of grout to the slot, ensuring the bar is covered. With the finger trowel, force the grout back into the slot 10mm from the surface, and ensure the bar/grout composite is tightly packed.

Make good the bed joint and fill the vertical crack with an appropriate filler or mortar.





Lengths in *red italics* refer to items available within 24 hours. Setting tools, resin cartridges, resin guns and mixing nozzles are all available. Contact Ancon for more details on our range of remedial wall ties and ancillary products.

### **Staifix Wire Balloons**



A simple and effective way of keeping chimneys and downpipes clear from nesting birds, leaves and other debris.

Available in six standard sizes, wire balloons are manufactured from stainless steel or galvanised steel mesh.

Maintenance-free and easy to install

Wire Balloon Size	Stainless Mesh Size	Galvanised Mesh Size
21/2"	1⁄2"	1/2"
3"	1⁄2"	1/2"
4"	1⁄2"	1/2"
6"	3⁄4"	3⁄4"
8"	1"	3⁄4"
9"	1"	3⁄4"

**Note:** Stainless steel balloons are manufactured to order. Galvanised steel balloons are available ex-stock.



### **Helical Nails for Warm Roof Construction**

Helical nails are a quick and reliable fixing for use in warm roof applications. Unlike traditional nails, they rotate as they are driven in, inducing a self-tapping action and consequently do not split or bounce timbers.

### Super-7<sup>™</sup> Thor-Helical Nail for Pitched Roofs

Stocked Lengths: 140, 150, 160, 165, 175, 185mm Note: Other lengths are available in increments of 5mm. Ancon recommends a minimum counter batten thickness of 38mm.

### Super-7™ Alignment Tool for Pitched Roofs



### **HeliCalc Calculator**

HeliCalc is a free web-based program which calculates the length, density and quantity of Super-7 nails required for a specific project. Visit www.helicalc.co.uk or contact Ancon for more information.



### Super-8 Headed Helical Nail for Flat Roofs

Standard Lengths: 145, 170, 195mm Note: Other lengths are available on request (min. 135mm)



For more information on the above products please refer to the 'Helical Nails for Warm Roof Construction' brochure



### **Applications**

### **Pitched Roofs**



Helical nails fix counterbattens to rafters, without compressing the layer of insulation in-between.

### **Flat Roofs**



Headed helical nails fix plywood/insulation composite roof panels to joists.





Ancon will advise on the correct selection of fixing to suit any project and provide details of your nearest stockist.

# Tel: 0114 238 1 238

International Tel: +44 114 238 1 238

## Visit: www.ancon.co.uk



#### Ancon Ltd

President Way, President Park, Sheffield S4 7UR Tel: +44 (0) 114 238 1 238 Fax: +44 (0) 114 276 8543

Email: info@ancon.co.uk Visit: www.ancon.co.uk Follow: @AnconUK

© Ancon Ltd

The construction applications and details provided in this literature are indicative only. In every case, project working details should be entrusted to appropriately qualified and experienced persons.

Whilst every care has been exercised in the preparation of this document to ensure that any advice, recommendations or information is accurate, no liability or responsibility of any kind is accepted in respect of Ancon Ltd.

With a policy of continuous product development Ancon Ltd reserves the right to modify product design and specification without due notice.

