Wall Ties & Restraint Fixings

Includes Ties that meet PART E of the BUILDING REGS
Stainless Steel
All Ancon and Staifix wall ties are manufactured from Stainless Steel because of its corrosion resistance and its strength. The use of Stainless Steel means that no costly remedial measures are required during the lifetime of the structure.

Approvals
Look for these logos.

![BBA Logo](image)
These products are approved by the British Board of Agrément.

![NHBC Logo](image)
These products meet the technical requirements of the National House Building Council.

![Part E Logo](image)
These products meet the requirements of Part E of the Building Regulations: Resistance to the passage of sound. See pages 4-5 for more information.

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

Safety
All Ancon and Staifix wall ties have specially designed safety ends to reduce the risk of injury during handling and installation.

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  Pages 4-11
Introduction to Part E of the Building Regulations
Staifix HRT4 Housing Tie
Staifix RT2 General Purpose Tie
Ancon ST1 Heavy Duty Tie
Staifix-Thor Helical TJ2 Thin-Joint Tie

Wall Starter Systems  Pages 12-15
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 Frame Tie

Masonry to Steel Wall Ties  Pages 20-21
Ancon 25/14 Restraint System

Other Restraint Fixings  Pages 22-25
Ancon HiT (Hammer-in Tie)
Other Standard Ancon Wall Ties
References for Bespoke Ancon Wall Ties
Ancon Remedial Wall Ties

Warm Roof Fixings  Pages 26-27
Staifix-Thor Helical Batten Fixing

Technical Information  Pages 28-31
Selection of Wall Ties to DD140
Installation Guidance
Length and Density of Wall Ties
Wall Ties to Part E of the Building Regulations
Part E of the Building Regulations

Ancon has tested its cavity wall ties to Part E of the Building Regulations: Resistance to the passage of sound. Part E aims to increase the sound insulation of walls and, like many other materials, ties must now be tested on their ability to transmit airborne sound.

Independent tests have proven that Ancon has fixing solutions that meet the new performance requirements for both internal and external walls.

Part E of the Building Regulations classifies wall ties into two types: Type A and Type B. Two logos are shown throughout this booklet to indicate the Ancon and Staifix wall ties that meet these new requirements.

Type A for separating or external walls
These ties must have a measured dynamic stiffness of <4.8MN/m³.

This logo indicates the ties with a measured dynamic stiffness of <4.8MN/m³. These ties are suitable for use in separating (party) walls and external walls.

Type B for external walls where a type A tie is not suitable
These ties must have a measured dynamic stiffness of <113MN/m³.

This logo indicates the ties with a measured dynamic stiffness of <113MN/m³, that are suitable for use in external walls where a type A tie is unsuitable.

See pages 30-31 for more information.
There are
Loud Ties

...and there are
Staifix® Wall Ties

Not all ties comply with Part E of the Building Regulations: Resistance to the Passage of Sound.

But Ancon and Staifix Wall Ties do.

See pages 30-31 for more information
Wall ties are an important element in the stability of cavity walls. The correct selection, spacing and installation of ties is essential to avoid damp penetration and the distortion or cracking of brickwork.

Many factors including cavity width, type and height of building, and location must all be considered in the selection of the most appropriate tie.

**BS1243: Metal ties for cavity wall construction**

BS1243 was withdrawn in 2005. Ancon recommends that wall ties are selected to DD140-2.

**DD140 Part 2: Recommendations for the design of wall ties**

DD140 Part 2 classifies ties according to their strength and function. Ancon recommends that these classifications are used to select the correct type of tie to suit your project.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Heavy Duty Wall Tie for buildings of any height</td>
</tr>
<tr>
<td>Type 2/3</td>
<td>General Purpose Wall Tie for buildings not greater than 15 metres in height</td>
</tr>
<tr>
<td>Type 4</td>
<td>Light Duty Wall Tie for buildings not greater than 10 metres in height</td>
</tr>
</tbody>
</table>

Pages 28 and 29 provide information on the density and positioning of ties, length of tie and embedment, installation, and more details on DD140-2.
The New Generation of Cavity Wall Ties

- Manufactured from corrosion resistant stainless steel
- Safety ends reduce the risk of injury and provide excellent mortar key
- Multiple drips prevent moisture crossing the cavity
- Packed to prevent entanglement
- Tested to performance requirements of Part E of the Building Regulations
Staifix HRT4 Housing Tie (Type 4 Tie)

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50-75</td>
</tr>
<tr>
<td>225</td>
<td>76-100</td>
</tr>
</tbody>
</table>

Application
Cavity wall tie suitable for use in the construction of houses not greater than 10 metres in height. Please refer to page 28 for more details.

Staifix RT2 General Purpose Tie (Type 2 Tie)

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50-75</td>
</tr>
<tr>
<td>225</td>
<td>76-100</td>
</tr>
</tbody>
</table>

Application
Cavity wall tie suitable for use in the construction of houses and small commercial developments not greater than 15 metres in height. Please refer to page 28 for more details.
Ancon ST1 Heavy Duty Tie  (Type 1 Tie)

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50-75</td>
</tr>
<tr>
<td>225</td>
<td>76-100</td>
</tr>
<tr>
<td>250</td>
<td>101-125</td>
</tr>
<tr>
<td>300</td>
<td>126-150</td>
</tr>
</tbody>
</table>

Application

Cavity wall tie suitable for use in the construction of buildings of any height. Please refer to page 28 for more details.

Staifix Universal Insulation Retaining Clip

Application

Insulation retaining clip for use in partial fill cavities with all* standard Ancon and Staifix wall ties.

*The TJ Clip should be used with Staifix-Thor Helical TJ2 ties.
Staifix-Thor Helical TJ2 Tie
for thin-joint blockwork

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>205</td>
<td>50</td>
</tr>
<tr>
<td>230</td>
<td>75</td>
</tr>
<tr>
<td>255</td>
<td>100</td>
</tr>
<tr>
<td>280</td>
<td>125</td>
</tr>
<tr>
<td>305</td>
<td>150</td>
</tr>
</tbody>
</table>

**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.

**Notes**

Reference should be made to the information on page 28 for maximum building heights and wind speed restrictions. Figures in brackets are for a 125mm cavity. Other figures are for a cavity of 100mm or less.

Patents applied for
Installation

Keep the brickwork one course clear during installation of the ties. Position the tie against the inner leaf so that the outer end will be located in the bed joint of the external leaf.

Hammer the tie, through the insulation, and into the blockwork to the correct embedment.

Install a black Staifix TJ Insulation Retaining Clip to restrain the insulation.

Build into the bed joint of the outer leaf ensuring the tie is surrounded by mortar.

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.
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

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

This wall starter will resist a wind load of up to 4.5kN over a height of 2400mm. Prior to installation remove any render, debris etc from the existing wall in the area where the new wall will be joined.

Mark the position of the five fixing holes so that the wall starter system is 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. Drill 10mm diameter holes and install 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 as shown and build into the bed joints of the new wall ensuring they are surrounded by mortar.
Staifix Starter Tie
for joining new walls to existing masonry

Application
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.

AVAILABLE SINGULARLY - NO JOB TOO SMALL
Staifix Starter Tie Installation

1. 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.

2. 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

for the build of a new inner leaf of blockwork

Application
Screw-in tie that simplifies the build of an inner leaf of blockwork within an existing structure. Supplied with an 8mm nylon plug.

Staifix Cavity Starter Tie Installation

Drill an 8mm diameter hole horizontally into existing outer leaf of masonry. Position the hole such that when the tie is installed the safety end will be located in the bed joint of the new inner leaf of blockwork.

Insert the nylon plug and screw in the Cavity Starter Tie. Build the tie into the inner leaf of blockwork ensuring it is surrounded by mortar.
Staifix Timber Frame Tie (Type 6 Tie) for fixing masonry to timber frames

**Application**

Cavity wall tie for use in the construction of timber-framed buildings up to 4 storeys in height. Supplied complete with an annular ring shank nail.

<table>
<thead>
<tr>
<th>To Suit Cavities (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50, 75</td>
</tr>
</tbody>
</table>

CRANKED, TO EASE INSTALLATION
**Installation**

1. Position the tie on fresh mortar in the bed joint of the outer leaf of masonry with the upstand against the timber.

2. Hammer the nail, through the hole in the upstand, into the timber framework.

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

**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 44m/s or in towns and cities where this does not exceed 52m/s. The density should be increased to 7 ties per square metre in more severe situations.
Staifix Frame Tie
for fixing timber door and window frames to brickwork

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

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

2. 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).

Maximum vertical spacing of Staifix Frame Ties for most buildings in the UK* with a maximum brickwork height of 15 metres

Main Front and Rear Elevations with most Windows

<table>
<thead>
<tr>
<th>Maximum Width of Frame (mm)</th>
<th>900</th>
<th>1200</th>
<th>1500</th>
<th>1800</th>
<th>2100</th>
<th>2400</th>
<th>2700</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Towns and Cities</td>
<td>450</td>
<td>450</td>
<td>300</td>
<td>300</td>
<td>225</td>
<td>225</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Open Country</td>
<td>450</td>
<td>375</td>
<td>300</td>
<td>225</td>
<td>225</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Note: The area of doors and windows in the wall is more than half the area of doors and windows in the other walls.

Side Elevations with few Windows

<table>
<thead>
<tr>
<th>Maximum Width of Frame (mm)</th>
<th>900</th>
<th>1200</th>
<th>1500</th>
<th>1800</th>
<th>2100</th>
<th>2400</th>
<th>2700</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Towns and Cities</td>
<td>450</td>
<td>300</td>
<td>225</td>
<td>225</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>75</td>
</tr>
<tr>
<td>Open Country</td>
<td>375</td>
<td>225</td>
<td>225</td>
<td>150</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

Note: The area of doors and windows in the wall is less than half the area of doors and windows in the other walls.

* Excludes the Scottish Highlands, Western Ireland and buildings on slopes greater than 1 in 20. Please contact Ancon Building Products for applications outside the tables above.
## Ancon 25/14 Restraint System
for tying masonry to steel frames

### Application
Channel and cavity wall tie for use in the construction of steel-framed buildings. Self-drilling screws fix through the channel and the insulation material, into the steel.

<table>
<thead>
<tr>
<th>Tie Length (mm)</th>
<th>Open Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

**Note:** Other tie lengths are available.

[IDEAL FOR USE WITH STEEL STUDDING]
Installation

1. Ancon 25/14 channel is supplied with pre-punched holes at 112.5mm centres. This ensures a fixing position is always located near the end when the channel is cut on site. Using self-drilling screws the channel should be fixed at 450mm vertical centres (every fourth hole).

2. The spacing of ties is based on the height of the building and geographical location. See the table below and the map on page 28 for recommended spacing. SD25 wall ties can be positioned at any point along the channel’s length. Ties should achieve a minimum embedment of 62.5mm in the outer leaf and be pressed down in fresh mortar.

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

Note: Screws are available in various lengths to accommodate an insulation thickness of up to 60mm. Ancon recommends the use of stainless steel fixing screws.

Tie Spacing Based on 25/14 Channel at 600mm Horizontal Centres

<table>
<thead>
<tr>
<th>Wind Zone</th>
<th>Vertical Tie Spacing (mm) for Maximum Height of Brickwork</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15m</td>
</tr>
<tr>
<td>A</td>
<td>450</td>
</tr>
<tr>
<td>B</td>
<td>450</td>
</tr>
<tr>
<td>C</td>
<td>450</td>
</tr>
</tbody>
</table>

Note: Wind zones are taken from DD140: Part 2 and are for towns and cities. See page 28.
Ancon HiT (Type 2 Tie)
Hammer-in Tie for multiple cavity widths

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cavity (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>up to 150</td>
</tr>
</tbody>
</table>

**Application**
Hammer-in Tie for fixing masonry to concrete, dense blocks ($\geq 7$N/mm$^2$), non-perforated brick or hard stone. This tie is hammered into a plug and bent to suit the size of cavity.

Note: A special installation tool is required.
**Installation**

Cross section view

1. Remove the tool and build the tie into the bed joint of the outer leaf.

2. Supporting the tie by hand in the open cavity, bend parallel to the brickwork, ensuring an angle of 85-90° is achieved.

3. Hammer the tool until the tie is no longer visible. Remove the tool and push an ‘O’ ring on to the tie to a central position in the open cavity.

4. Re-insert the tie in the tool leaving enough tie exposed to allow for adequate embedment in the outer leaf. Ancon recommends an embedment depth of between 50-65mm.

5. Insert the plain end of the tie into the tool, as far as it reaches leaving the 45mm thread exposed. Locate the tie in the plug.

6. Drill a 6mm diameter hole 50mm deep and insert the nylon plug.

**Notes:**
- The Ancon HIT is not suitable for use with low density materials.
- Must be used with plug supplied.
Other Standard Ancon Wall Ties

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

**SD1**
Lengths 200, 225, 250, 275, 300 mm
Conforms to DD140 as a Type 1 tie. Also available with a central drip

**SPS**
Lengths 150, 200, 225, 250, 275, 300 mm
Please specify 20 x 3mm section for collar - jointed construction

**Butterfly**
Lengths 200*, 225, 250 mm
*Conforms to BS 1243 (withdrawn in 2005) and suitable for party walls.

**Double Triangle**
Lengths 150*, 200*, 225*, 250, 300 mm
*Conforms to EN845-1 and DD140 as a Type 2 Tie

Other standard Ancon Wall Ties are available. Please visit

[www.ancon.co.uk](http://www.ancon.co.uk)

or ask your Ancon and Staifix stockist for more details.

**Ancon SPB Frame Cramp**

Lengths 75, 100, 125, 150, 175, 200 mm

**Ancon PPS Movement Tie**

Lengths 150, 200, 225, 250 mm

**Application**
Safety-ended frame cramp used to join masonry to concrete or steel frames.

**Application**
Plain-ended tie used with a debonding sleeve to allow the masonry to expand or contract.
References for Bespoke Ancon Wall Ties

Ancon wall ties may be specified and ordered by using a reference letter for the tail, shank and head of the tie.

Example using Reference System

<table>
<thead>
<tr>
<th>Shank</th>
<th>Tail</th>
<th>Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>D</td>
<td>21</td>
</tr>
</tbody>
</table>

Ancon DP21 wall tie

- **Tail**: Most can be used at either end of tie
- **Shank**: To fit 21/18 Omega Channel
- **Head**: To suit channel

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-Thor Helical Batten Fixing
for warm roof applications

Application
Hammer-driven fixing for securing battens and counterbattens to rafters without compressing insulation material.

Unlike a nail, it rotates as it is driven in reducing the risk of splitting or bouncing timbers.

Hand tools like the one shown above, and SDS drill attachments are available to aid installation.

How to calculate the correct length of fixings

<table>
<thead>
<tr>
<th>Batten / Counterbatten Thickness</th>
<th>Insulation Thickness</th>
<th>Thickness of any additional material eg plywood, damp-proofing</th>
<th>35mm Embedment in rafter</th>
<th>Length of fixing required</th>
</tr>
</thead>
<tbody>
<tr>
<td>eg 37mm</td>
<td>40mm</td>
<td>12mm</td>
<td>35mm</td>
<td>124mm</td>
</tr>
</tbody>
</table>

The answer should be rounded up to the nearest available length.
The density and spacing of Staifix-Thor Helical Batten Fixings

<table>
<thead>
<tr>
<th>Insulation Thickness</th>
<th>Fixings per m²</th>
<th>400mm (mm)</th>
<th>Rafter Spacing 450mm (mm)</th>
<th>600mm (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-40mm</td>
<td>4.6</td>
<td>525</td>
<td>475</td>
<td>350</td>
</tr>
<tr>
<td>41-60mm</td>
<td>7</td>
<td>350</td>
<td>300</td>
<td>225</td>
</tr>
</tbody>
</table>

Note: This data is calculated from the results of independent testing carried out by CERAM Building Technology. The provisions of CP3 Chapter V Parts 1 and 2 have been used and the effects of roofing material weight, and wind and snow loads have been taken into consideration.

The table above has been designed to suit the majority of applications. It is suitable for projects matching all of the following criteria:

• Buildings up to 15 metres in height
• Roof coverings up to 60kg/m²
• Minimum counterbatten thickness of 37mm
• Slope of ground within 1km up to 1:12.5
• Locations in wind zone A or B ie up to 52m/s (see map on page 28)

Please contact Ancon for advice on the correct density and spacing of Batten Fixings for applications outside any of the parameters detailed. Full technical details are available on request.

How to calculate the quantity of fixings

Batten fixings per m² x Total roof area m² = Quantity required
Selection of Wall Ties to DD140: Part 2

| Wall Tie to DD140-2 | Application | Density | Maximum Building Height | Basic Wind Speed  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Heavy duty tie suitable for any building in the British Isles.</td>
<td>≥ 2.5 per m²</td>
<td>Any Height</td>
<td>&lt; 56m/s</td>
</tr>
<tr>
<td>Type 2</td>
<td>General purpose tie for domestic houses and small commercial buildings.</td>
<td>≥ 2.5 per m²</td>
<td>15m</td>
<td>&lt; 56m/s</td>
</tr>
<tr>
<td>Type 3</td>
<td>General purpose tie for domestic houses and small commercial buildings.</td>
<td>≥ 2.5 per m²</td>
<td>15m</td>
<td>&lt; 44m/s (&lt; 52m/s for towns or cities)</td>
</tr>
<tr>
<td>Type 4</td>
<td>Housing tie suitable for box-form domestic houses.</td>
<td>≥ 2.5 per m²</td>
<td>10m</td>
<td>&lt; 44m/s (&lt; 52m/s for towns or cities)</td>
</tr>
<tr>
<td>Type 5</td>
<td>Timber frame tie suitable for domestic houses and small commercial developments of up to two storeys.</td>
<td>≥ 4.4 per m²</td>
<td>15m</td>
<td>&lt; 44m/s (&lt; 52m/s for towns or cities)</td>
</tr>
<tr>
<td>Type 6</td>
<td>Timber frame tie that accommodates movement between the structural frame and the masonry cladding in buildings up to 3 storeys.</td>
<td>≥ 4.4 per m²</td>
<td>15m</td>
<td>&lt; 44m/s (&lt; 52m/s for towns or cities)</td>
</tr>
</tbody>
</table>

Installation of Ties

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

To ensure cavity wall ties are effective at tying the leaves together they should be installed as the inner leaf is constructed and not simply pushed into a joint. Ties should be installed with a slight fall to the outer leaf, never towards the inner leaf as this could provide a path for moisture to cross the cavity.

The drip part of the tie should point downwards and be positioned near the centre of the open cavity. Ties with multiple drips, like the Staifix RT2, can often be positioned centrally as part of the drip will normally be near the centre of the open section of a partial fill cavity.

Installed ties should be clear of mortar droppings to allow the drip to function and prevent water from crossing to the inner leaf of masonry.
Length of Tie and Embedment

Wall ties should be of the correct length to ensure they are properly embedded in the masonry. Ancon recommends tie lengths which achieve an embedment of between 62.5mm and 75mm.

A tie, 225mm long, would be the minimum length recommended by Ancon for a 100mm cavity.

$$62.5mm + 100mm + 62.5mm = 225mm$$

The embedment depths for Staifix-Thor Helical thin-joint ties differ from the information above and are shown on page 11.

Density and Positioning of Ties

Typical Layout of Wall Ties Indicating Maximum Spacing

Standard spacing for cavity brickwork 900mm x 450mm centres in a staggered pattern (2.5 ties per m²)

For walls in which both leaves are 90mm or thicker, ties should be used at not less than 2.5 per square metre (900mm horizontal and 450mm vertical centres). This spacing may be varied by building regulations. Ties should be evenly distributed over the wall area, except around openings, and should be preferably staggered.

At vertical edges of an opening, unreturned or unbonded edges, and vertical expansion joints, additional ties should be used. Such ties should be located at 300mm vertical centres, positioned not more than 225mm from the edge.
Wall Ties to Part E of the Building Regulations:

The new Part E of the building regulations raises the performance requirements of walls for resisting the passage of sound. The aim is to offer increased protection to inhabitants against sound from other parts of a building and from adjoining buildings.

Part E classifies wall ties into two types:

Type A
Ties for separating (party) walls or external walls

Type B
Ties for external walls where a Type A tie is unsuitable

Type A ties

These ties must have a measured dynamic stiffness of <4.8MN/m³ taking both cavity width and tie density into account.

Test Results

Independent tests have proven the Staifix HRT4 Housing Tie has a measured dynamic stiffness of <4.8MN/m³ at a 50mm cavity and is therefore suitable for separating walls with cavities from 50mm to 100mm at a standard density of 2.5 per m².

Robust Standard Details

Robust Details Limited has approved the use of several standard construction details as a means of complying with Part E when building new houses and flats. Use of these details eliminates the need for pre-completion sound testing. The Staifix HRT4 is suitable for use with the approved details for masonry separating walls as a Type A tie. For more information visit www.robustdetails.com.
# Resistance to the Passage of Sound

## Type B ties

These ties must have a measured dynamic stiffness of $<113\text{MN/m}^3$ taking both cavity width and tie density into account.

## Test Results

Independent tests have proven that the following Ancon and Staifix wall ties have a measured dynamic stiffness of $<113\text{MN/m}^3$ and are therefore suitable for use in external walls.

<table>
<thead>
<tr>
<th>Product</th>
<th>Cavity Width</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Ties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staifix HRT4</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Staifix RT2</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon WHX</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon WDB</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Staifix Cavity Starter Tie</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon Hammer-In Tie</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon Double Triangle</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flat Cavity Ties, Frame Cramps and Channel Ties</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancon ST1</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SD1</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SDB</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SDV</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SD21</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SD25</td>
<td>50mm and above</td>
<td>3.7 per m²</td>
</tr>
<tr>
<td>Ancon SD28</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SD30</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon SD38</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
<tr>
<td>Ancon Two-Part Tie</td>
<td>150mm and above</td>
<td>2.5 per m²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Helical Ties for Thin-Joint Blockwork</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staifix-Thor Helical TJ2</td>
<td>50mm and above</td>
<td>2.5 per m²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ties for Timber Frame Construction</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staifix Timber Frame Tie</td>
<td>50mm and above</td>
<td>4.4 per m²</td>
</tr>
</tbody>
</table>
Ancon will advise on the correct selection of fixing to suit any project and provide details of your nearest stockist.

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**Visit:** www.ancon.co.uk

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.

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