

Low Thermal Conductor



Orchestrate improvements to wall U-values
with Ancon Low Thermal Conductivity Wall Ties



Ancon[®]
BUILDING PRODUCTS

Helping to deliver sustainable, energy-efficient buildings

Wall Ties are an essential element in the strength and stability of cavity walls, but by crossing the cavity they act as a thermal bridge between the internal and external leaves. Generally speaking, the wider the insulated cavity, the more substantial the Wall Tie needs to be and the greater the effect the tie will then have on the U-value of the wall.

The challenge for the Wall Tie industry, set by the Government's ambitious energy efficiency targets, is to reduce the thermal conductivity of its products whilst continuing to meet the structural performance requirements of multi-storey and wide cavity construction.

Ancon has met this challenge, but then that's what Market Leaders do...

Ancon Low Thermal Conductivity Cavity Wall Ties

Ties which minimise heat transfer through thermal bridging, improving the energy-efficiency of a wall

Ancon TeploTie Basalt Fibre Wall Ties

Ancon TeploTie composite wall ties comprise pultruded basalt fibres set in an epoxy resin and are the most thermally-efficient wall ties on the market. With a thermal conductivity of just 0.7W/mK, they can be used to reduce insulation thickness and wall footprint. A sand finish provides excellent mortar key and an end cap is supplied with each tie to reduce the risk of injury on-site, if temporarily left protruding from a single leaf of a wall.

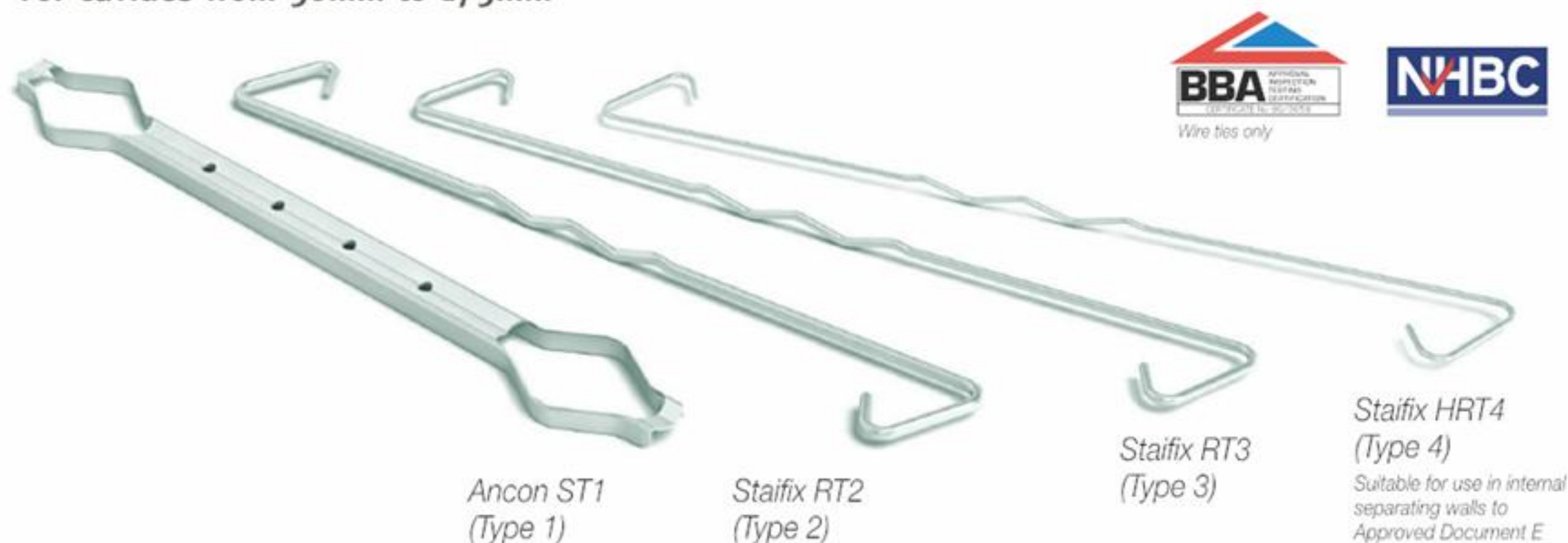
For cavities from 50mm to 300mm

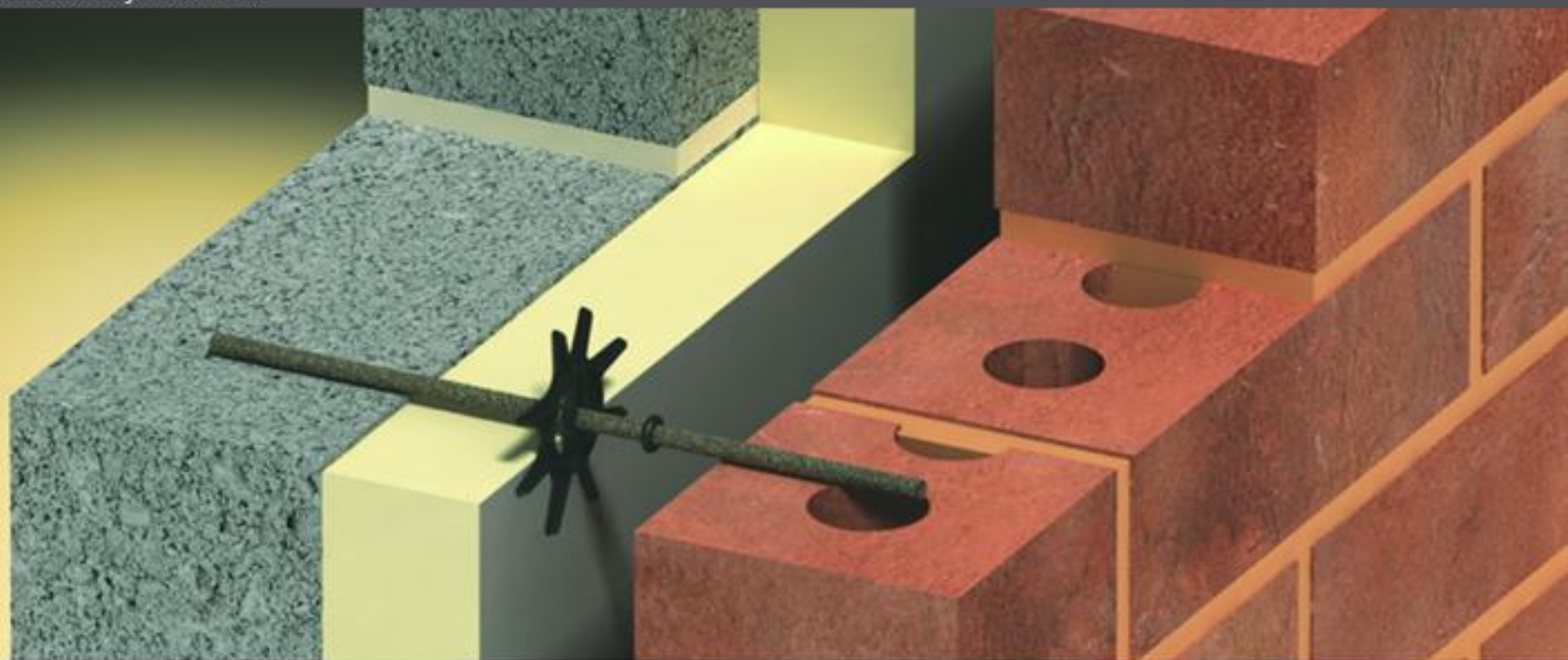


Ancon Stainless Steel Wall Ties

These stainless steel wall ties have been value-engineered to provide high performance at competitive prices. The effect Ancon's high tensile wire wall ties have on heat transfer is negligible and they can be excluded from U-value calculations to EN ISO 6946. Cross-sectional areas of each tie are shown on the back cover.

For cavities from 50mm to 175mm





Example Projects

Zero-Carbon Retrofit, Birmingham, UK

Ancon TeploTie has been used in the UK's first retrofit to achieve zero-carbon Level 6 of the Code for Sustainable Homes.

The project involved the upgrade and extension of an architect's own family home in Birmingham, which was built in the 1840s with solid brick walls.

The front elevation is internally insulated to preserve the original brickwork. The rear of the property was dismantled, extended and re-built using some of the original bricks.

The existing house reached the same demanding energy efficiency standards as the new extension.

TeploTies were used extensively throughout the project, wherever a fixing was required to cross the 250mm insulated cavity.



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“ The U-value of the walls is now $0.11\text{W}/\text{m}^2\text{K}$, which is 16 times better than before. TeploTies were fixed with resin into the existing Victorian brickwork and built into the new internal block walls. ”

John Christophers, Architect



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“ Our choice of Wall Tie has been carefully modelled in Passivhaus Planning Package (PHPP) - the design tool for architects designing to the Passivhaus standard. The use of basalt wall ties gives a nil reading for heat transference. ”

Bill Butcher, Green Building Company

Masonry Passivhaus, West Yorkshire, UK

Ancon TeploTie has been used in the first certified Passivhaus to be built using masonry cavity walls. A well-insulated airtight building envelope must be constructed in order to achieve the energy efficiency levels of Passivhaus. Thermal bridges are removed wherever possible to limit heat loss. When building with cavity walls, this makes Wall Tie selection particularly important.

The masonry walls on this project comprise an inner leaf of dense concrete block, a 300mm cavity filled with fibreglass insulation batts and a natural stone external leaf.

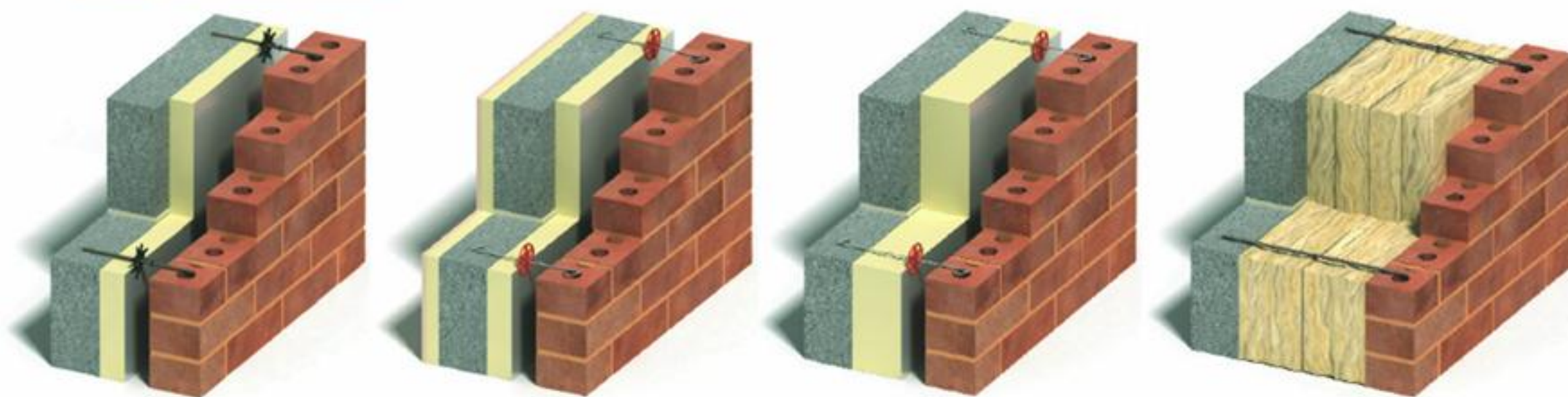
Cavity wall construction was chosen because builders are familiar with the technique, materials can be sourced easily and it meets Yorkshire planning requirements for a stone exterior. In addition, masonry construction provides thermal mass which helps to keep interior temperatures stable.

Visit www.ancon.co.uk/projects for more details on these and other case studies.

Futureproofing for Traditional Masonry Cavity Construction

Ancon wall ties can be used in insulated cavity walls to meet the thermal performance requirements of Part L of the Building Regulations and the Code for Sustainable Homes levels 3 to 6. The range includes a BBA-approved Low Thermal Conductivity Wall Tie for cavities from 50mm to 300mm. Longer tie lengths are also available if required.

Example Wall Profiles



U-value Calculations using Stainless Steel Wall Ties

It is important to use the actual cross-sectional area and thermal conductivity of the Wall Tie being used when calculating the U-value of a wall, rather than allowing a program to apply default values. This can make a considerable difference to the U-value calculated; default values will generally overestimate the effect of an Ancon Wall Tie. **TeploTie Wall Ties have a thermal conductivity of less than 1.0 W/mK and so are excluded from U-value calculations to EN ISO 6946.**

Cross-Sectional Areas of Ancon Stainless Steel Wall Ties

Ancon Tie Reference	Wall Tie Type*	Tie Length (mm)	Cavity Width (mm)	Area (mm ²)	Thermal Conductivity (W/mK)
HRT4	4	200	50-75	3.5	17
	4	225	76-100	4.2	17
	4	250	101-125	6.2	17
	4	275	126-150	6.2	17
RT3	3	200	50-75	6.2	17
	3	225	76-100	6.2	17
	3	250	101-125	7.5	17
	3	275	126-150	8.6	17
DT	3	300	151-175	8.6	17
RT2	2	200	50-75	7.5	17
	2	225	76-100	7.5	17
	2	250	101-125	8.6	17
	2	275	126-150	10.2	17
ST1	1	200	50-75	19.5	17
	1	225	76-100	19.5	17
	1	250	101-125	19.5	17
	1	275	126-150	23.4	17
	1	300	151-175	23.4	17

Notes: Masonry-to-masonry ties are usually installed at 900mm horizontal centres and 450mm vertical centres; this is equivalent to 2.5ties/m².
 * Wall ties are selected by the Types detailed in PD6697:2010. For more information on wall tie types please refer to Ancon's 'Wall Ties & Restraint Fixings' literature available from www.ancon.co.uk or contact Ancon's Technical Services Team on +44 (0) 114 275 5224.



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