

**Hi-therm<sup>TM</sup>+**  
LINTELS

The low cost solution for reduced carbon emissions

[keystonelintels.com](http://keystonelintels.com)

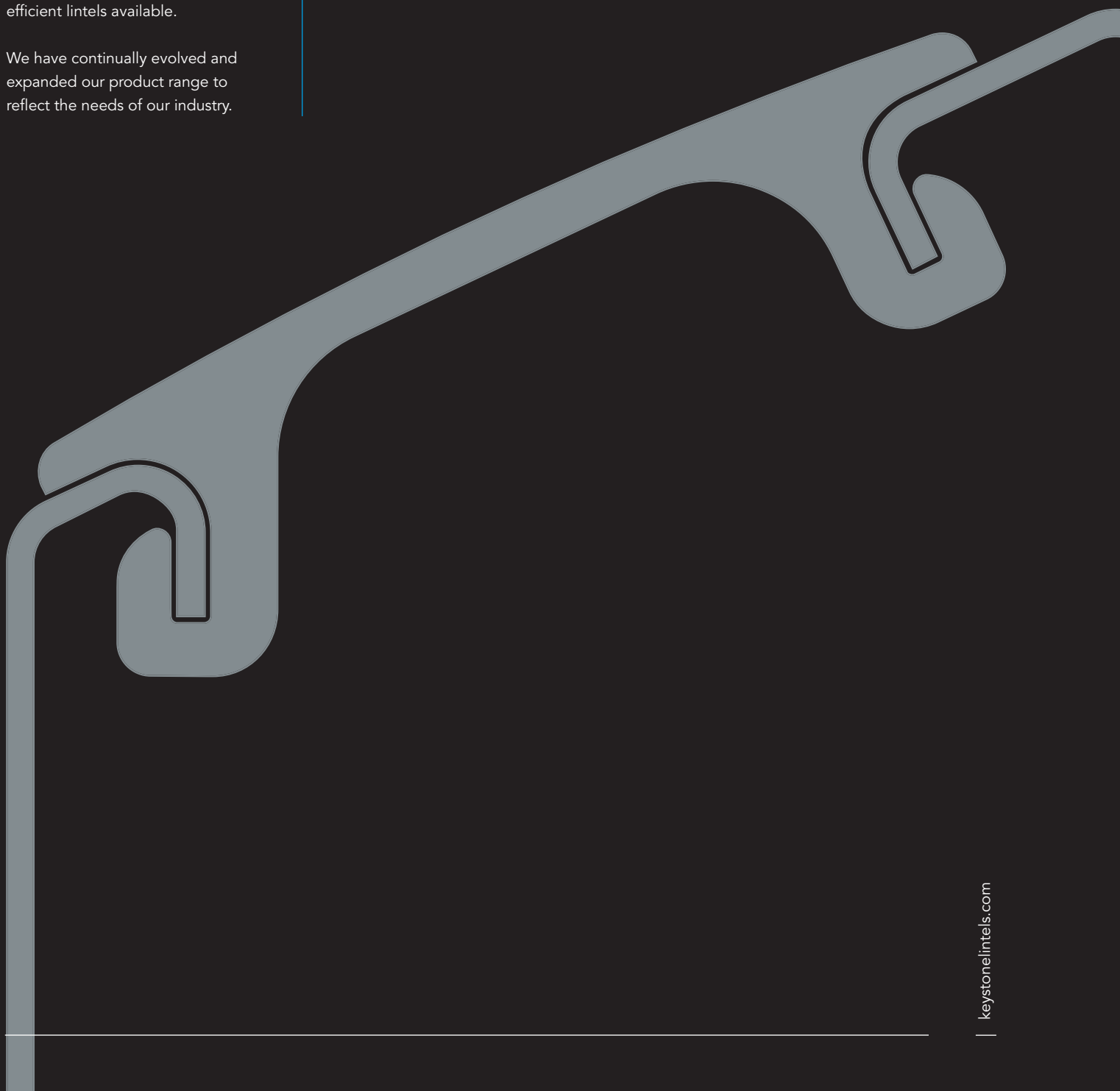


# *Evolution of lintels*

## Evolution

Our lintels are engineered to be the most structurally and thermally efficient lintels available.

We have continually evolved and expanded our product range to reflect the needs of our industry.



# Hi-therm<sup>TM</sup> LINTELS

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# Award Winning Innovation



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*The Hi-therm lintel  
has revolutionised the  
steel lintel industry and  
has won multiple awards  
for its innovation.*

*The sky's  
the limit*

*Product  
of the Year*

*Housebuilder Awards*

*Commercial  
Innovation  
of the Year*

*Construction News Awards*

*Best  
Building  
Fabric  
Product*

*Housebuilder Product Awards*

*Best Eco  
Product*

*Build It Awards*



# What the experts say

*“This innovation thoroughly impressed the judging panel as an example of a problem being identified, a solution being developed and its success being firmly evident.”*

**Will Botting**  
Construction News Awards

*“We specified Hi-therm lintels on our Oakgrove development in Milton Keynes. Crest Nicholson traditionally take the approach of achieving the carbon and energy saving required on a development through a fabric first approach. The Hi-therm lintel contributes to this approach by significantly reducing the thermal bridging through the window and door head junction, making it a cost effective option on this Code 4 site.”*

**Darren Dancey**  
Group Technical &  
Quality Director  
Crest Nicholson

*“We have utilised Hi-therm on a number of developments in a drive to improve our energy performance and limit thermal bridging.*

*Hi-therm is a cost effective solution that has the added benefit of utilising existing site practices; it enables trades to continue working in line with our current processes which in turn aids consistency in design and performance.”*

**Paul Jenkins**  
UK Housing  
Portfolio Director  
Taylor Wimpey

*“When the government unveiled its changes to Part L 2013 building regulations, Barratts analysed a range of sustainable solutions in order to comply with the mandatory minimum fabric performance standard (Target Fabric Energy Efficiency, TFEF).*

*The Hi-therm lintel has proved to offer a cost effective option as part of a suite of specification upgrades.”*

**Michael Finn**  
Group Design &  
Technical Director  
Barratt Homes

*“The Hi-therm lintel with its low Psi Value assists in achieving a fabric first approach to meet compliance and, when specified, can significantly help to meet the ever increasing building regulation/FEES targets.”*

Sustainability Consultants  
AES Southern Ltd





# *The original is now even better*

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*The award winning Hi-therm lintel has been upgraded  
to offer even greater practicality to builders.*

*Keystone has invested heavily in Research and Development to re-engineer  
the Hi-therm lintel utilising our industry leading top hat design.*

## Fire Performance

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Hi-therm+ lintels have been subjected to a fire test in accordance with BS EN 1363-1 1999, at Exova Warrington Fire and achieved a one hour fire performance.

## Thermal Performance

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Hi-therm+ is up to five times more thermally efficient than a standard steel lintel. Our in-house experts use the latest 'Physibel Trisco' thermal analysis software to calculate Psi values and advise clients on the optimum lintel solution for compliance with the required building regulations.

## Material Performance

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Patented galvanised steel & rigid polymer hybrid design.

## BBA Certification

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Hi-therm+ has BBA certification having undergone rigorous structural testing to BS EN 845 part 2.



# Unique Patented Design

Insulation



Steel



Thermal Break



therm+  
LINTELS

Hi-therm+  
LINTELS

Hi-therm+  
LINTELS

Hi-therm+  
LINTELS

Hi-th

Trusted 3rd party approval



# Key Benefits

*The Hi-therm+ lintel is unsurpassed in terms of thermal efficiency, buildability and technical support.*



## Buildability

Better buildability – offers the simplicity of a one piece, structurally superior top hat design creating stability during the building process, unlike a two part lintel solution.

Hi-therm+ is manufactured with a wider range & longer lengths.



## Thermal Efficiency

Hi-therm+ is the only BBA approved one piece lintel solution that achieves the appendix R value for steel lintels in Part L 2013, depending on wall construction.

Up to 5 times more thermally efficient than a standard steel cavity wall lintel, therefore reducing thermal bridging & improving SAP calculations.



## Cost Effective

A low cost route to improve both CO<sub>2</sub> reduction & Fabric Energy Efficiency standards, in line with Part L Building Regulations (see page 12 to compare Hi-therm+ cost efficiency with other popular alternatives).





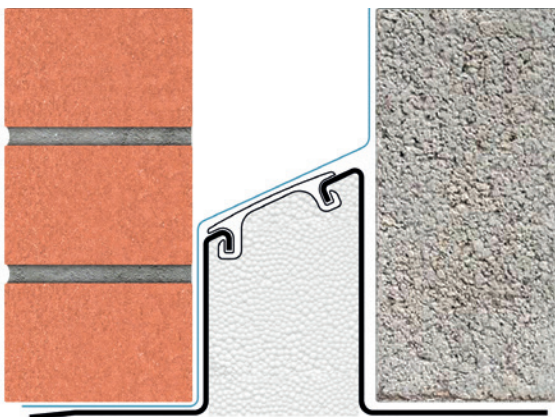
# Better Buildability



*Split lintels - in some cases split lintels may be offered as a means of enhancing thermal performance, however they are in no way comparable in terms of efficiency or buildability to the Hi-therm+ sustainability lintel.*



## Good Detailing



### Hi-therm+ LINTELS

Hi-therm+ closes the cavity.

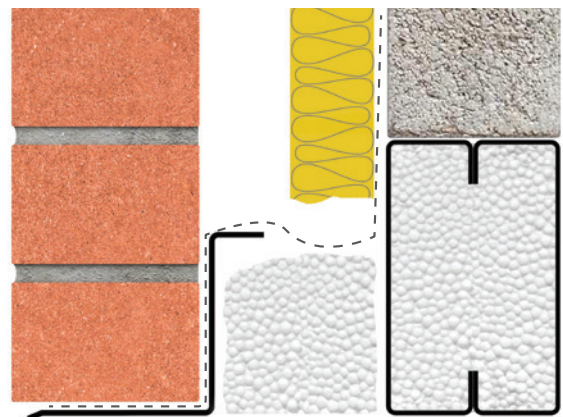
The single component design simplifies installation.

The one piece design assists stability between the internal and external leaves and creates stability during the build process.

Hi-therm+ gives cost certainty with no additional costs.



## Poor Site Detailing



### Split Lintels

A cavity closer must be supplied and fitted. ££

Requires two separate lintels with double the handling and installation labour. ££

Individual lintels will require propping and additional wall ties will be necessary to overcome the lack of inherent stability in a split lintel solution. ££

££) = Additional Costs.

# Thermally Efficient

*Up to 5 times more thermally  
efficient than a standard steel lintel.*

*The proven solution to Part L*

## The Building Regulations Part L

Building Regulations Part L sets the minimum standards for energy performance of new and existing buildings. In the latest changes to Part L, a mandatory (FEES) Fabric Energy Efficiency Standard has been introduced in addition to the original (TER) Target Emission Rate which measures CO<sub>2</sub>.

## Part L Challenge

The introduction of FEES is based on the principal of preventing energy waste by ensuring the fabric of the building is adequately insulated and airtight. As the fabric of the building will remain for the lifetime, getting the fabric correct at the beginning will save energy for the whole life of the dwelling, meaning more efficient homes.

The FEES target puts focus on the thermal performance of the building fabric i.e. walls, floors, roofs and the materials / components that make these elements up. Lintels are in most cases the most significant thermal bridge, meaning lintels can have an important impact on the overall thermal performance of a building.

For example in a modern well insulated 3 bedroom house with a floor area of 60m<sup>2</sup>, the heat loss through a standard lintel can account for approximately 6%\* of the overall heat loss through the fabric of the house. Using a Hi-therm+ lintel reduces this figure to 0.25%, virtually eliminating thermal bridging.

\* based on a default lintel Psi value of 0.5 W/m.K.

## Psi Value (Ψ)

**0.03-0.06**

### 1 Insulation

Pre-fitted expanded polystyrene insulation enhances the thermal performance of the lintel.

### 2 Polymer Thermal Insulator

Rigid polymer thermal insulator acts as an effective thermal break.

### 3 Galvanised Steel

Galvanised steel inner & outer leaf.



## SAP 2012 and Appendix R

'Standard assessment procedure' (SAP) is adopted by government as the UK's methodology for calculating the energy performance of buildings and ultimately demonstrating compliance with Part L Building Regulations.

Appendix R of SAP 2012 provides a specification for a notional dwelling of identical proportions and dimension, which provides the target for the CO<sub>2</sub> and the FEES. If a dwelling is built conforming to Appendix R values it will achieve the CO<sub>2</sub> and Fabric Energy Efficiency targets to comply with Part L.

Appendix R requires a lintel Psi value of 0.05 W/m.K, which the Hi-therm+ lintel achieves (see the Psi value comparison chart).

## The Importance of Psi Values

The thermal performance of a lintel is expressed in terms of a Psi value ( $\Psi$ ) i.e. linear thermal transmittance, which is more commonly referred to as 'thermal bridging'.

The increasing focus on thermal bridging means that materials specifications and component selection need to be carefully considered as part of the overall compliance strategy to meet Part L.

Poorly performing products and SAP calculations using default Psi values are increasingly penalised. The only way to improve the SAP calculation at this stage will be to over compensate in the design by improving other areas of the fabric, such as higher performing insulation, wider cavities or bolt on renewables ultimately increasing the build cost.

To design efficiently for Part L, it's important that energy assessors use independently calculated Psi values or manufacturer calculated Psi values providing they have been calculated by a trained person using specialist thermal modelling software. Keystone's technical support team are trained and accredited to provide specific Psi value calculations free of charge that can be directly input in to SAP calculations

Talk to our technical experts to find out how Hi-therm+ could save money on your build specification.

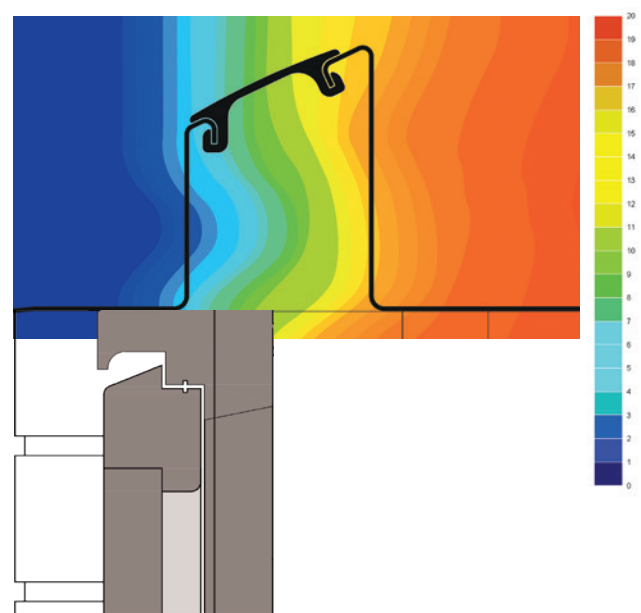
## The Importance of Lintels

Hi-therm+ can achieve the Appendix R value for steel lintels in Part L 2013 depending on the wall construction. This table shows how Hi-therm+ outperforms other commonly used lintel types.

Lintel Type Comparison	
Hi-therm+ Lintel	0.03 - 0.06 W/m.K
Part L Appendix R value	0.05 W/m.K
Standard Lintel	0.22 W/m.K
Default Non Plated Steel Lintel	0.33 W/m.K
Plated Steel Lintel (Default) Table K1	0.5 W/m.K

\* Depending on wall construction

## Thermal Break

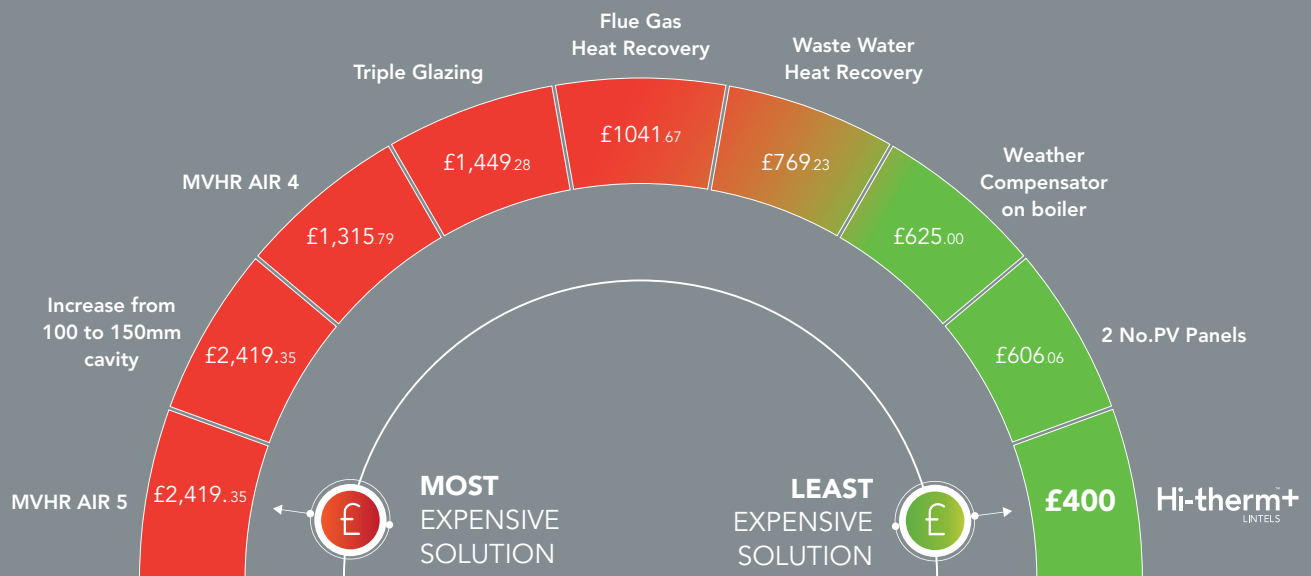


# Cost Effective

*Hi-therm+ offers a cost effective solution to lowering carbon emissions within SAP, offering significant savings compared to other popular alternatives.*

For example in a comparative case study for a house type, using Hi-therm+ would incur less than 20% of the cost of increasing the cavity width by 50mm for the same saving in CO<sub>2</sub>. These CO<sub>2</sub> savings are important within SAP because they give flexibility for compliance in situations where other built details are not meeting the standards in Appendix R.

## Comparison of popular solutions to reduce carbon emissions by 1kg



This case study is based on an actual semi detached 75m<sup>2</sup>, 3 bedroom house design and the figures were produced by an independent energy assessor using SAP 2012 software.



# House Builder Testimonials

## Barratt Homes

Hi-therm significantly reduced thermal bridging on all house types helping to meet Part L 2013. [\(see page 21\)](#)



## Gospel Oaks

Hi-therm saved more than £200 per plot by enabling the use of a reduced cavity width. [\(See page 22\)](#)



## Coxon's Mews

Hi-therm saved thousands of pounds by removing the need for PV panels. [\(see page 22\)](#)



## Berewood

The use of Hi-therm saved thousands by negating the use of costly alternatives. [\(See page 23\)](#)



## Saxon Place

Hi-therm saved more than £300 per plot by reducing the required level of insulation. [\(See page 24\)](#)



## East Riding

Hi-therm provided an easily installed Part L solution in comparison to a complex split lintel option. [\(See page 25\)](#)



*Loading  
Tables*

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Hi-therm<sup>+</sup>  
LINTELS



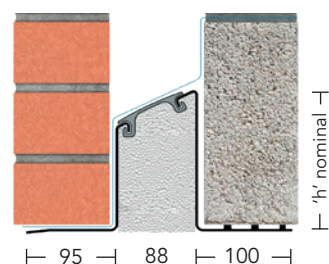
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## STANDARD LOAD

## Section Profiles

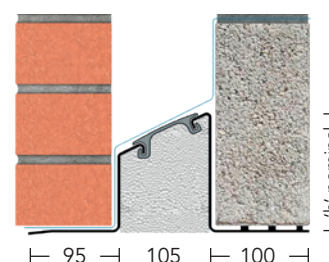
### HT/S+ 100 For cavity widths 90 -105

Manufactured Length 150mm increments	600- 1200	1350- 1500	1650- 1800	1950- 2100	2250- 2400	2550- 2700	2850- 3000	3150- 3600	3750- 4200
Height (h)	100	107	150	150	175	190	190	234	234
Thickness	1.6	2.0	2.0	2.0/2.5	2.0/2.5	2.5	2.5/2.9	2.9	3.2
Total UDL kN 3:1	12	16	19	21	23	27	27	27	27
Total UDL kN 19:1	10	13	16	17	18	22	20	20	22



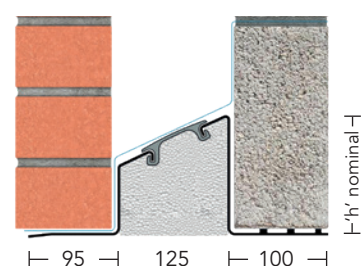
### HT/S+ 110 For cavity widths 110 -125

Manufactured Length 150mm increments	600- 1500	1650- 1800	1950- 2100	2250- 3000	3150- 3600	3750- 4200
Height (h)	118	118	130	190	234	234
Thickness	2.0	2.0/2.5	2.5	2.5/2.9	2.9	3.2
Total UDL kN 3:1	16	22	21	27	27	27
Total UDL kN 19:1	13	18	17	22	20	22



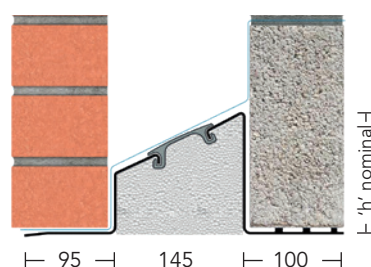
### HT/S+ 130 For cavity widths 130 -145

Manufactured Length 150mm increments	600- 1500	1650- 1800	1950- 2100	2250- 3000	3150- 3600	3750- 4200
Height (h)	118	118	130	190	234	234
Thickness	2.0	2.0/2.5	2.5	2.5/2.9	2.9	3.2
Total UDL kN 3:1	16	22	21	27	27	27
Total UDL kN 19:1	13	18	17	22	20	22



### HT/S+ 150 For cavity widths 150 -165

Manufactured Length 150mm increments	600- 1500	1650- 1800	1950- 2100	2250- 3000	3150- 3600	3750- 4200
Height (h)	118	118	130	190	234	234
Thickness	2.0	2.0/2.5	2.5	2.5/2.9	2.9	3.2
Total UDL kN 3:1	16	22	21	27	27	27
Total UDL kN 19:1	13	18	17	22	20	22



Please note other cavity widths and loading conditions are available.

NOTE: The exact lintel profile may vary dependent on lintel length and loading.

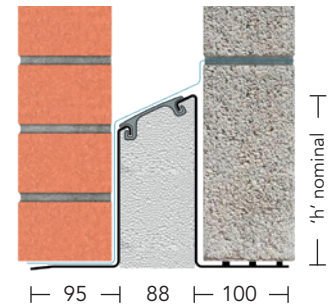
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## HEAVY DUTY

## Section Profiles

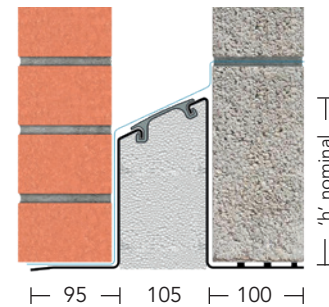
### HT/HD+ 100 For cavity widths 90-105

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000	3150- 3600
Height (h)	150	190	234	234
Thickness	2.0/2.5	2.9/3.2	2.9	3.2
Total UDL kN 3:1	30	35	35	35
Total UDL kN 19:1	22	35	35	32



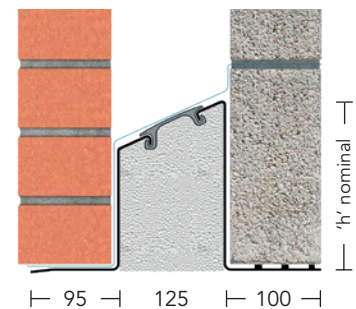
### HT/HD+ 110 For cavity widths 110-125

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000	3150- 3600
Height (h)	190	190	234	234
Thickness	2.9	2.9/3.2	2.9	3.2
Total UDL kN 3:1	30	35	35	35
Total UDL kN 19:1	22	35	35	32



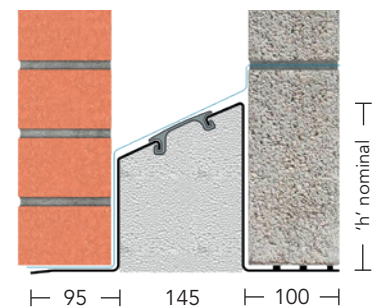
### HT/HD+ 130 For cavity widths 130-145

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000	3150- 3600
Height (h)	190	190	234	234
Thickness	2.9	2.9/3.2	2.9	3.2
Total UDL kN 3:1	30	35	35	35
Total UDL kN 19:1	22	35	35	32



### HT/HD+ 150 For cavity widths 150-165

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000	3150- 3600
Height (h)	190	190	234	234
Thickness	2.9	2.9/3.2	2.9	3.2
Total UDL kN 3:1	30	35	35	35
Total UDL kN 19:1	22	35	35	32



Please note other cavity widths and loading conditions are available.

NOTE: The exact lintel profile may vary dependent on lintel length and loading.

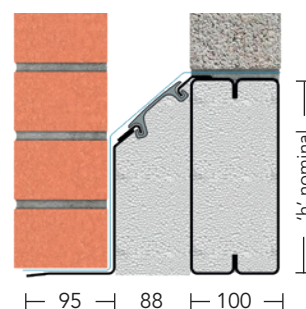
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## EXTRA HEAVY DUTY

## Section Profiles

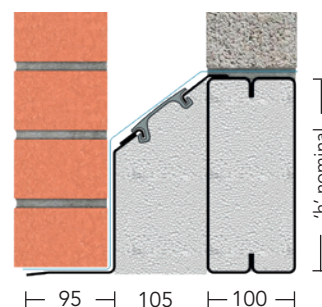
### HT/XHD+ 100 For cavity widths 90-105

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000
Height (h)	234	218	218
Thickness	2.9/3.2	2.9/2.5	3.2/2.5
Total UDL kN 19:1	40	48	48



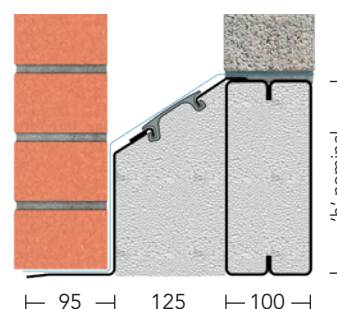
### HT/XHD+ 110 For cavity widths 110 -125

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000
Height (h)	234	218	218
Thickness	2.9/3.2	2.9/2.5	3.2/2.5
Total UDL kN 19:1	40	48	48



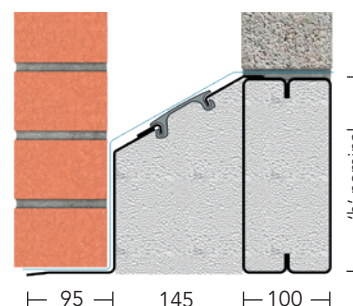
### HT/XHD+ 130 For cavity widths 130 -145

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000
Height (h)	234	218	218
Thickness	2.9/3.2	2.9/2.5	3.2/2.5
Total UDL kN 19:1	40	48	48



### HT/XHD+ 150 For cavity widths 150 -165

Manufactured Length 150mm increments	600- 1500	1650- 2400	2550- 3000
Height (h)	234	218	218
Thickness	2.9/3.2	2.9/2.5	3.2/2.5
Total UDL kN 19:1	40	48	48



Please note other cavity widths and loading conditions are available.

NOTE: The exact lintel profile may vary dependent on lintel length and loading.



# Extended Range

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## STAINLESS STEEL COASTAL SOLUTIONS

*Hi-therm+ is also available with a stainless steel outer leaf & galvanised steel inner leaf for use in coastal regions.*

*The use of stainless steel is ideal when the life expectancy and maintenance programme of a building are key design considerations, for example, in specialist laboratory or medical applications, hospitals, residential care homes, schools, prisons and institutional buildings.*

*Stainless steel is suitable in these developments because of its outstanding anti-corrosion properties.*

*'British Standard Code of Practice for the use of masonry – part 3; Materials and Components' recommends the use of stainless steel lintels in buildings that are subjected to aggressive environmental conditions and buildings exceeding three storeys.*

*There is also a requirement for NHBC registered projects to use stainless steel lintels in coastal locations, namely within 500m of the shoreline.*

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### Product information

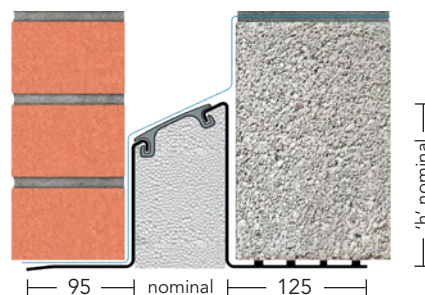
- All stainless steel lintels are manufactured from austenitic stainless steel, grade 304 2b to BS EN 10088-Part 2 Astm 240 (European Grade 1.4307).
- All stainless steel lintels are made to order, specific to each application.

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## CAVITY WALL WIDE INNER LEAF

125MM – 150MM INNER LEAF

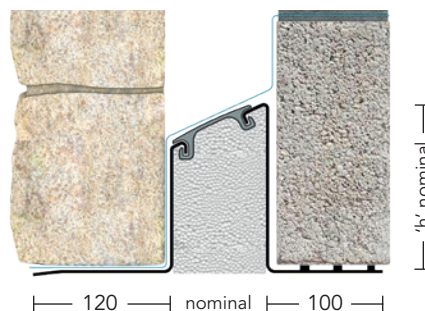
Cavity Widths (mm)	Standard	Heavy Duty	Heavy Duty
90-105	HT/S+100 WIL	HT/HD+100 WIL	HT/XHD+100 WIL
110-125	HT/S+110 WIL	HT/HD+110 WIL	HT/XHD+110 WIL
130-145	HT/S+130 WIL	HT/HD+130 WIL	HT/XHD+130 WIL
150-165	HT/S+150 WIL	HT/HD+150 WIL	HT/XHD+150 WIL



## CAVITY WALL WIDE OUTER LEAF

125MM – 150MM OUTER LEAF

Cavity Widths (mm)	Standard	Heavy Duty	Heavy Duty
90-105	HT/S+100 WOL	HT/HD+100 WOL	HT/XHD+100 WOL
110-125	HT/S+110 WOL	HT/HD+110 WOL	HT/XHD+110 WOL
130-145	HT/S+130 WOL	HT/HD+130 WOL	HT/XHD+130 WOL
150-165	HT/S+150 WOL	HT/HD+150 WOL	HT/XHD+150 WOL

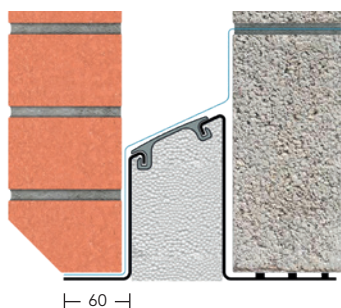


\* Contact our technical team for loading figures.

## CANT BRICK LINTEL

The Cant Brick Lintel can be supplied to suit all lintel profiles for 50-165mm wide cavities.

Example specification:  
HT/S+100 (CB 60mm)



## STOP ENDS

A Stop End is required at each end of a lintel to prevent moisture cascading over the ends into the cavity and onto the inside wall.

The use of stop ends quickly and economically removes the risk of water being directed into the cavity.

Stop Ends can be fixed to the outer leaf of the lintel using a butyl anchoring strip, ensuring the Stop End is secure at the end of the lintel in the most appropriate position to suit the masonry perp joint.

When fitted, moisture from the lintel is directed outwards through brickwork weeps.

### Standard Stop End







## New Barratt Homes

Sites throughout the UK.



*Specifying Hi-therm significantly reduced thermal bridging on all house types.*

*“When the government unveiled its changes to Part L 2013 building regulations, Barratts analysed a range of sustainable solutions in order to comply with the mandatory minimum fabric performance standard (Target Fabric Energy Efficiency, TFEE).*

*The Hi-therm lintel has proved to offer a cost effective option as part of a suite of specification upgrades.”*

**Michael Finn**

Group Design & Technical Director  
Barratt Homes



### Project Details

- Barratts are required to meet the increased performance demands on plots which must comply with part L 2013.

### Hi-therm Solution

- Full technical support and site-specific Psi value calculations provided.
- Hi-therm significantly reduces the thermal bridging through window & door head junctions to achieve class leading values.
- Hi-therm lintels are single piece and fitted in the same method as a standard steel lintel, so require no special arrangements onsite.

## Oakgrove Village

Milton Keynes, Buckinghamshire.



*Specifying Hi-therm significantly reduced thermal bridging on all house types.*

*“We specified Hi-therm lintels on our Oakgrove development in Milton Keynes where we are required to meet Level 4 of the CFSH.*

*Crest Nicholson traditionally take the approach of achieving the carbon and energy saving required on a development through a fabric first approach and the Hi-therm lintel contributes to this approach by significantly reducing the thermal bridging through the window and door head junction, making it a cost effective option on this Code 4 site.”*

**Darren Dancey**

Group Technical & Quality Director  
Crest Nicholson



### Project Details

- Crest Nicholson were required to build all house types on their Oakgrove Village development to meet Level 4 of the Code for Sustainable Housing.

### Hi-therm Solution

- Full technical support and site-specific Psi value calculations provided.
- Hi-therm significantly reduced the thermal bridging through all window & door head junctions across all house types in the development.
- Hi-therm lintels are fitted in the same method as a standard steel lintel, so had no impact on the construction sequencing.

## Gospel Oak

Tipton, West Midlands.



*Hi-therm saved more than £200 per plot and dramatically improved the fabric performance without any specialist build techniques.*

*“As an experienced builder of eco-friendly homes, we were very impressed with the innovation of the Hi-therm lintel’s fabric first approach. With the new Part L 2013 regulations tightening we are always looking for cost effective solutions to improving the building’s overall thermal performance.*

*No other single lintel product has enabled us to reduce thermal bridging as much as Hi-therm. This fabric first approach has enabled us meet the new regulations without the need for costly renewable technology or wider cavities.”*

**Richard Southgate**  
Project Co-ordinator/Owner  
Wrekin Eco Homes



### Project Details

- Wrekin Homes purchased the site to develop Eco homes in Tipton, West Midlands.
- Wrekin sought out the latest fabric first solutions.

### Hi-therm Solution

- The use of Hi-therm saved more than £200 per plot by enabling the use of a 100mm cavity instead of a 125mm width.
- Hi-therm dramatically improved the fabric performance without any additional or specialist build techniques.
- Hi-therm does not require any of the maintenance associated with many other sustainable technologies.

## Coxon’s Mews

Ashby-De-La-Zouch, Leicestershire.



*The use of Hi-therm saved £1,000’s by negating the use of costly alternatives.*

*“When split lintels were specified for this project I looked for an alternative product to avoid the increased handling and site work they would involve.*

*Ashby Energy, our energy assessor, introduced the Hi-therm lintel which significantly lowered the amount of thermal bridging, helping us to meet level 4 in the code for sustainable homes with the simple installation of single piece lintels.”*

**Frank Sandkey**  
Buyer  
Lychgate Homes



### Project Details

- The planning approval for 4 retail units and 7 duplex apartments required Level 4 Code for Sustainable Homes performance.
- Design options included either 125mm cavity or the use of PV panels to meet Level 4 energy/CO2 targets.

### Hi-therm Solution

- By using Hi-therm as a fabric first solution, thermal bridging was significantly reduced enabling the energy target to be met without the use of wider cavities or PV units.
- Hi-therm was simple to install, avoiding the complexity of split lintels.
- No ongoing maintenance required.

## Berewood

Waterlooville, Hampshire.



*The use of Hi-therm saved £1,000's by negating the use of costly alternatives.*

*"The Waterlooville site was required to meet Level 4 of the code for sustainable homes. We wanted to achieve compliance and deliver the energy savings with a cost effective fabric first approach rather than the use of complex and expensive renewable technologies. Having discussed this with our energy assessor and our lintel supplier we decided to specify the Hi-therm lintel.*

*This choice delivered reduced thermal bridging at the head junctions and openings allowing us to meet our carbon targets. We particularly valued the fact that no changes to our construction practices on-site were required."*

**Phil Jackson**  
Group R&D Manager  
Bloor Homes



### Project Details

- The Berewood development includes a full range of property types from 1 to 5 bedrooms and Hi-therm was specified on each home within the 168 acre site.

### Hi-therm Solution

- The use of Hi-therm was a significant contributor to the achievement of Level 4, Code for Sustainable Homes.
- Full technical support provided to develop a suitable specification for the site.
- Hi-therm does not require any special installation techniques.

## St. Inns

Moira, Co. Armagh.



*The use of Hi-therm contributed savings of more than £1,000 per plot on other technology.*

*"Using the Hi-therm lintel helped us to achieve a pass rating keeping the air test above 5, therefore removing the need for mechanical whole house ventilation/heat recovery, or alternatively other renewable energy products such as PV.*

*Whilst the Hi-therm was not the only resolution, it is a combination of various products and u-values etc. which achieve the pass; Hi-therm helped to achieve the pass in this instance."*

**Chris Carroll**  
Quantity Surveyor  
Lagan Homes



### Project Details

- St. Inns development at Moira, Co. Down, includes detached and semi-detached 3 and 4 bedroom house types and Hi-therm was specified on each home.

### Hi-therm Solution

- Full technical support and site-specific Psi value calculations provided.
- Hi-therm's performance contributed to the saving of upwards of £1000 per plot on other sustainable technology.
- Hi-therm does not require any ongoing maintenance, unlike many alternative sustainability solutions.



## Kings Hill

Alton, Hampshire.



*Hi-therm reduced thermal bridging to improve the energy efficiency of the dwellings*

*“Red Oak Developments is committed to building energy efficient homes. The Kings Hill project was designed to a high specification. We wanted to create a home that was both energy efficient and traditionally beautiful.*

*We combined Keystone’s Prefabricated Insulated Brick Flat Arch with the new Hi-therm lintels to give a product that was thermally efficient, quick to install and yet highly attractive. Choosing Hi-therm gave a 95% reduction in the thermal bridging due to lintels compared to the default and contributed significantly to lowering carbon emissions within SAP.”*

**Neil Sheilds**  
Red Oak Developments



### Project Details

- Beautiful home with over 3100 sq ft of accommodation set in half an acre.
- Like all Red Oak Developments homes, Kings Hill is highly energy efficient and built with sustainability in mind.

### Hi-therm Solution

- The use of Hi-therm significantly improved the energy efficiency of the properties.
- Keystone offered specialist support from the initial Psi value calculations through to installation.
- Hi-therm does not require any special installation techniques.

## Saxon Place

Penwortham, Lancashire.



*The use of Hi-therm sustainability lintel saved over £300 per plot on wall insulation.*

*“At Rowland we aim to build a better home for our house buyers which will lower their energy costs and minimise maintenance. That’s why we were so impressed by what the Hi-therm lintel offered us in terms of thermal performance while at the same time being extremely cost effective to build.”*

**Scott Warley**  
Senior Buyer  
Rowland Homes



### Project Details

- This is a quality development of 61, 3 and 4 bedroom houses in a scheme, designed and landscaped to create a mature, established feel.
- Rowland is committed to building environmentally efficient homes using the latest sustainable technologies.

### Hi-therm Solution

- By utilising Hi-therm’s enhanced Psi value, Rowland was able to re-assess the overall fabric specification.
- The use of Hi-therm saved over £300 per plot by enabling the wall insulation cost to be reduced from 0.32w/m/h to 0.36w/m/h.
- Hi-therm was specified on all house types providing £1,000’s of savings overall.

## New Jelson Homes

Sites throughout the UK.



*The use of Hi-therm saved up to £400 per plot on PV panels.*

*“When introduced to Hi-therm, Jelson’s energy assessors discovered they could considerably enhance the energy performance of the houses by adopting the use of Hi-therm in all their house types.*

*The increase in performance was so substantial that it enabled the assessors to still meet the building codes while removing one to two PV panels per plot at a saving of £350 - £400 per panel.*

*As a result of these cost efficiencies, Jelson now include Hi-therm sustainability lintels in the specification of all new builds going forward.”*



### Project Details

- To meet the required codes and building regulations for their standard house type, Jelson Homes had adopted a specification requiring a 100mm cavity and the use of PV panels to enhance their energy performance.

### Additional Issues

- Unlike other sustainability technologies, Hi-therm lintel does not require any ongoing maintenance throughout the life of the building.

## New Developments

East Riding PHASE 4 Housing.



*Solved site issues and helped them meet thermal bridging requirements.*

*“Within the Building Design department of East Riding of Yorkshire Council we are constantly looking at products which will enhance the quality and performance of our buildings.*

*We were specifying a split lintel solution with 150mm wide cavities for our affordable housing developments to help lower thermal bridging and meet building regulations.*

*However, the split lintel option was causing installation issues on site with the insulation and DPC detail around the split lintels and therefore we were looking for a solution to ease the installation and maintain the thermal insulation continuity.*

*We were introduced to the Hi-therm Lintel, which our technical team and Energy Assessor recognised would offer benefits over split lintels from a technical and building construction perspective. As a result, we have now specified the Hi-therm Lintel for our next phase of affordable homes.”*

**Mark Thomas**  
Senior Architect  
ERI&F Building Design



## Notes





## Standard Lintels

Keystone produce a wide range of standard galvanised steel lintels. All Keystone standard lintels satisfy the thermal performance requirements of all UK building regulations.

## Special Lintels

Keystone offer a complete custom design service to ensure your project has the best lintel for the job. Our technical expertise is renowned for delivering solutions with total efficiency.

## Masonry Support & Windposts

Keystone continues to set the standard for masonry support and windpost systems for a range of building frame configurations. Our signature Titan system provides optimum performance and design flexibility.

## Brick Slip Feature Lintels

Keystone Brick Slip Feature Lintels are a one piece prefabricated unit, manufactured bespoke to order, achieving even the most challenging architectural designs.

## Cavity Trays

The Keystone Cavity Tray presents a lightweight, simple to install and long-lasting solution to preventing damp from penetrating below the roof line.

## Stainless Steel

Keystone full range of lintels is also available in stainless steel, providing the same high quality and performance features as our standard galvanised lintels.

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Keystone Lintels is an ISO accredited organisation against various international standards, accredited by the British Board of Agrément. Our Swadlincote site is ISO 9001 certified whilst our Cookstown site is both ISO 9001 and ISO 14001 certified.

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