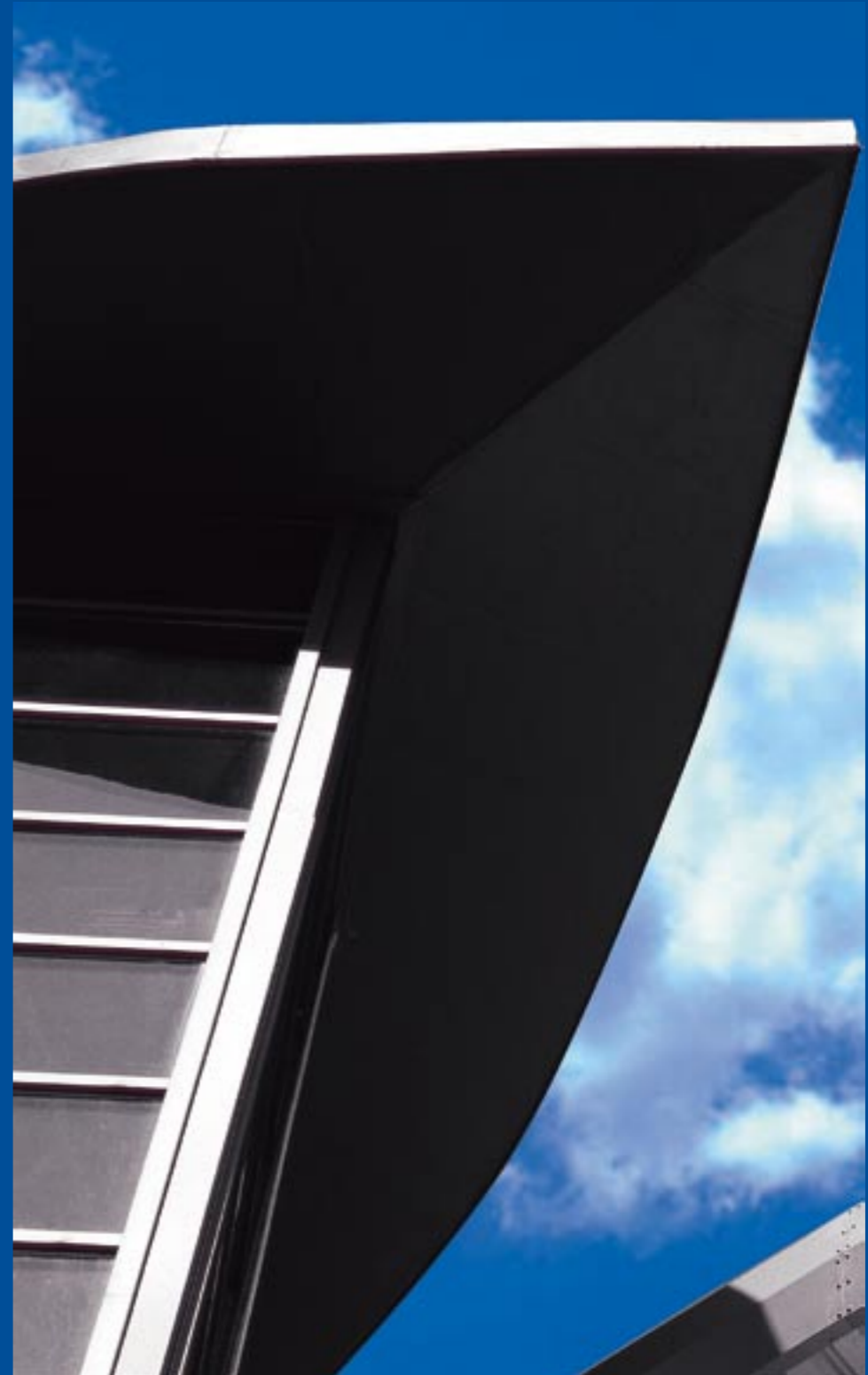


TWIN-THERM™ ROOF & WALL SYSTEM TECHNICAL DATA



Every effort has been made to ensure that the details included in this publication are correct at the time of printing. CA Group accepts no liability for errors included in this publication. To ensure that the products are suitable for the project, refer to CA Building Products' Technical Department.



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Assessed and Certificated by BBA, Twin-Therm™ is ahead, even of future regulations

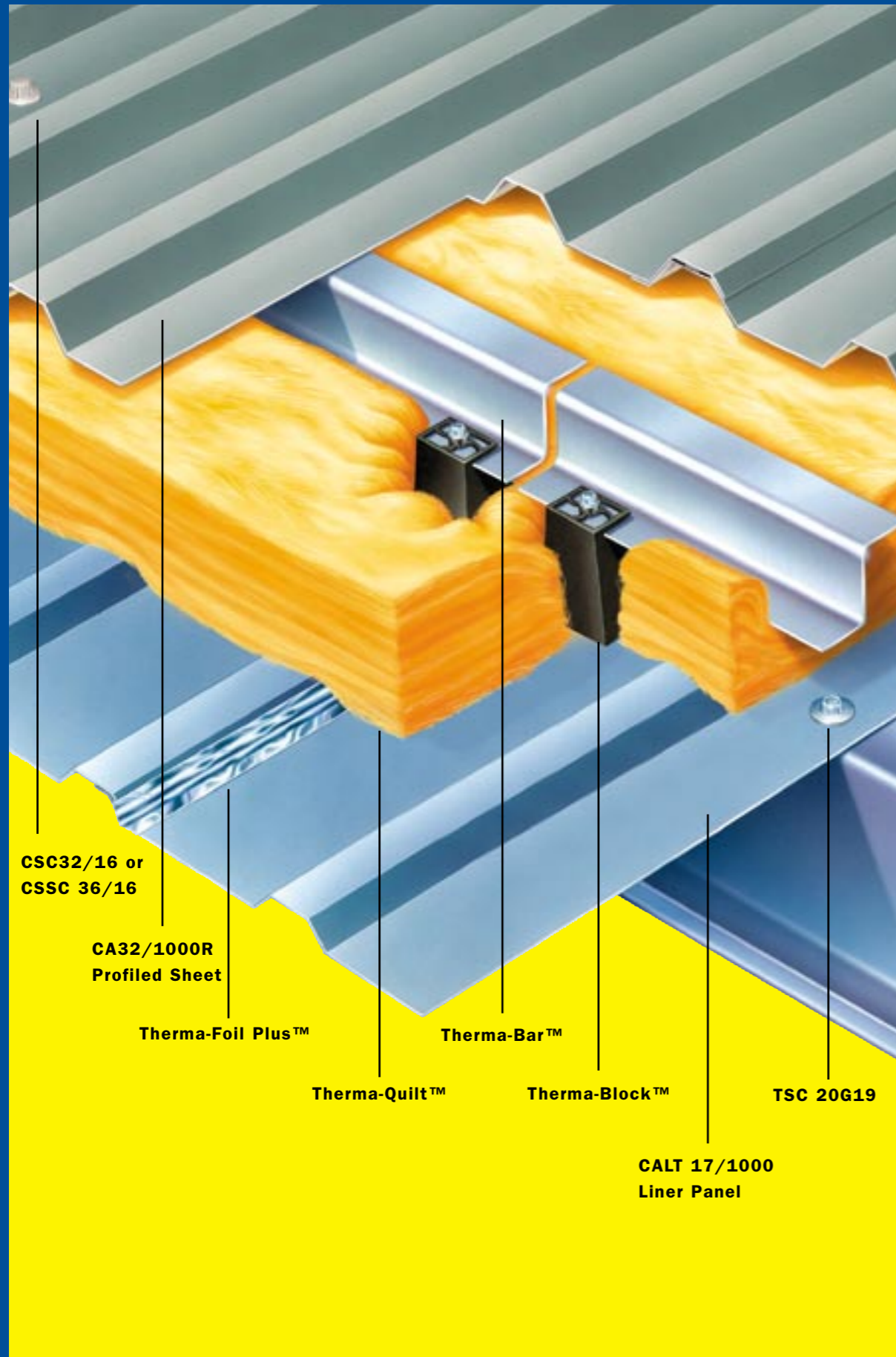
With now over 5 million m² installed since its launch in 1995, Twin-Therm™ has become universally recognised by major specifiers, developers and roofing contractors throughout the UK as the only trapezoidal twin skin system that provides a Non-Fragile assembly and a guaranteed 'U' value to comply with current and proposed Building Regulations.

When fully installed in accordance with CA Building Products' installation guide the metal lining panel and GRP Therma-lights are classified as NON-FRAGILE. At the same time the lining system also creates a Vapour Control Layer (VCL) that has been tested and achieved a standard of airtightness which surpasses both current and proposed Building Regulations.

Forthcoming Government Legislation will make a 'U' Value of 0.25W/m²K the industry standard and the Twin-Therm™ design caters for this specification. A major feature of the system is the fact that the insulation is installed continuously ensuring thermal bridging is kept to an absolute minimum.

Twin-Therm™ is the only system that allows the insulation to be installed first. The Therma-bar™ is then installed on top of the insulation eliminating the need to cut and tuck. The patented Therma-block spacer eliminates direct thermal bridging thus managing the risks associated with more stringent thermal requirements. Correctly installed, Twin-Therm™ eradicates the "Cold-Spot" failures highlighted by Thermographic surveys on a wide variety of comparable roofing and cladding systems.

Twin-Therm™ has been independently assessed and certificated by the British Board of Agreement, providing the construction team with the third party accreditation which is soon to become a fundamental requirement of the revised Building Regulations. Guarantees covering all components including valley and boundary gutters (for up to 25 years), give building owners confidence that they have a well-tried and successful building envelope that will continue to provide many years' of satisfactory practical use.



Twin-Therm™ System components

Twin-Therm™ has been specifically developed to minimise the number of components, reducing the potential for installation error and allowing for consistently good results on every contract.

Therma-crank ridge liners are designed for installation over the liner panels, rather than beneath them as with conventional ridge flashings. This eliminates the potential for leaks at the ridge and is also a key factor in the overall airtightness of the installed system.

CA LT17/1000 liner panels, when correctly installed in accordance with CA Building Products' guidelines, provide a Non-fragile assembly, satisfying the stringent requirements imposed by the Health and Safety Executive Advisory Committee for Roofwork document ACR(M)001:2000.

Therma-foil Plus is a critical component in achieving both Non-Fragility and airtightness of the liner panel.

Therma-light GRP liner panel and external rooflights are made to exacting standards and are coated with a UV-protective layer to neutralise potentially harmful rays. They are also tested as an integral area of the roof construction to provide a Non-Fragile assembly.

Therma-quilt Glasswool insulation incorporates Silicone coating to every fibre allowing any potential moisture in the roof or wall cavity to drain out of the finished construction. Therma-Quilt is supplied in 1050mm wide rolls to complement the 1-metre module that is standard to the system. The additional 50mm of insulation width ensures that no gaps occur at sidelaps. Therma-quilt is non-hygroscopic, eliminating the need for breather membranes except in Class 'C' buildings (refer to CA Building Products' Technical Department).

Therma-bars and Therma-blocks are the heart of the Twin-Therm™ design. Conventional twin skin constructions involve the cutting and tucking of insulation at the spacer bar. CA Building Products' patented spacer system eradicates this suspect practice even in applications that require deeper insulation thicknesses. The Therma-Bar is located into a purpose-designed slot in the Therma-Block, allowing a fully structural mechanical connection between the purlin and the

Therma-Bar, with no metal-to-metal contact and therefore no direct cold bridging at this point. Pre-punched holes in the bar remove any uncertainty regarding fastener frequency or bracket location. This is a major benefit in the light of the proposed amendments in 2002 to the Building Regulations (Part L).

CA 32/1000 is manufactured from Corus HPS 200 (Scintilla) which carries the Corus Confidex Guarantee, giving real peace of mind to the Specifier/Owner.

Flashings are manufactured from the same material as the external profile, ensuring uniform weathering and protecting the long-term aesthetics of the finished project.

Guarantees: The Twin-Therm™ system is supplied with a 12 or 25-year guarantee covering the complete system, rather than isolated components. The 25-year option is achieved by using stainless steel external fasteners and EPDM fillers. The Guarantee can be extended to embrace all flashings and TCN-440-coated Structural Gutters.

Twin-Therm™ Design Features

- CDM and HSE compliant - non-fragile assembly
- Eliminates the need for thick rooflights
- Proven airtight construction
- Therma-crank ridge liner enhances airtightness and leak protection
- Lightweight components
- Complies with proposed changes to Part 'L' of Building Regulations
- BBA Agreement Certificate No. 98/3518
- Proven consistent thermal efficiency
- Tested to BS476 Parts 4 & 22
- Loss Prevention Council LPS 1181 approved
- Unique 'Patented' firewall for all 'U' values
- Non-combustible
- Environmentally Benign - no CFC's or HCFC's
- Eliminates separate Vapour Control Layer *
- Therma-quilt eliminates breather membranes *
- Therma-block and Therma-bar prevent insulation slippage.
- Therma-quilt installed continuously ridge to eaves
- Direct thermal bridging minimised
- Reduces overall construction and running costs
- Accelerates building programme
- 12 or 25-year Guarantee

* Except class 'C' buildings



Roof System Options

Twin-Therm™ is designed to cater for pitched or curved roof constructions.

Curved roofs can be installed to a 45-metre radius within the natural curvature of the CA32/1000R profiled sheet, or to as little as 1-metre radius by means of mechanical "Crimp Curving". This flexibility has delivered a cost-effective option for many projects which otherwise may never have proceeded due to budgetary constraints. Refer to CA Building Products' Technical Department to ensure that Twin-Therm™ is suitable for the scope of the building design.



Refurbishment of older buildings that are approaching the end of their functional life is made simple and affordable using the unique Twin-Therm component range.

Ridge Detail: The Therma-crank is a key component within the system. The external ridge and all other external flashings are manufactured from the same material as the outer sheet profiles.

Eaves Detail: The liner panel is sealed at the eaves to prevent air leakage. This is achieved by positioning unvented profiled filler blocks on a sealant bed below the liner profile to ensure airtightness. Vented profiled filler blocks are installed below the external profiled sheet at the eaves, and between the outer sheet and flashing at the ridge to allow air movement to dissipate any moisture within the cavity. Polyethylene fillers are used for the 12-year system guarantee whereas EPDM fillers are installed to enhance the guarantee to 25 years.

Verge Detail: varies from project to project. This is a critical junction in relation to air leakage and care should be taken when detailing. Advice is available from CA Building Products' Technical Department.

Hip Detail: varies depending on hip angle and roof pitch. CA Building Products produce a fully sealed and simple detail to address airtightness at this junction.

Wall System Options

Height: The key factor governing the elevation height to which Twin-Therm™ can be installed is wind-load. Customers are advised to conduct a BS 6399 calculation to determine the required fastener frequency for specific projects. The calculation is required for buildings over 15 metres to ridge in England and Wales, and over 10 metres to ridge in Scotland.

Vertically Laid Cladding: This is by far the most common installation orientation and is proven on countless satisfactorily completed projects.



Horizontally Laid Cladding: Colour choice is a point for consideration. CA Building Products recommend 0.7mm material for Metallic Finish sheets used horizontally. Additional care is required concerning the installation sequence and direction of lay to ensure clean and straight cladding lines across the elevation. Therma-bars should be installed vertically, for which a separate technical note is available on request.

Diagonally Laid Cladding: This option requires careful consideration of steelwork layout and detailing. The contractor should, therefore, be involved at an early stage.

Firewall Cladding: CA Building Products have introduced a new patented FireWall construction, which provides 240 minutes of firewall integrity and 30 minutes of insulation integrity. The design caters for the requirements of the proposed changes to the Building Regulations (Part 'L'), whilst addressing many of the problems inherent in Firewall technology. Further details are on page 9.



Twin-Therm™ Firewall

The proposed amendments to the Thermal Requirements of the Building Regulations will inevitably lead to the need for deeper insulation cavities.

This, in turn, presents cladding manufacturers and installers with the problem of producing Fire Walls which can be installed correctly and consistently under site conditions.

One of the primary functions of Fire Walls is to isolate the direct conduction of heat - via the metal spacer system - from the inside of a building (the fire source) to the outside.

The thinner insulations allowed by the current Building Regulations, can be installed either clamped against the Liner Panel under the spacer system, or trapped between the spacer bar and outer sheet.

If the insulation is to be clamped under the spacer, a minimum thickness of 8mm must be compressed between the base of the steel ferrule and the face of the Liner Panel to act as a barrier against heat conduction. This is extremely difficult to achieve with any degree of consistency. The most likely result is that the sharp edges of the ferrule/bracket will cut through the quilt, creating a direct route for heat transfer and rendering the Fire Wall unfit for purpose. In the event that the installer successfully creates the 8mm barrier, the compressed insulation is subjected to such force that it is eventually ground into dust, leaving an 8mm gap in the construction, which causes it to become unstable.

Should the contractor opt to trap the insulation between the spacer bar and the outer sheet, an aesthetic problem arises. The driving torque needed to ensure a correctly installed external fastener causes the light gauge sheet to "dimple" into the soft quilt.

Because they have two functions (Fire retardation and 'U' Value), traditional Fire Wall constructions require deeper cavities than the adjacent wall build-ups, which forces both architect and client to accept unsightly "step" details on the affected elevations.

The new Twin-Therm™ Fire Wall provides a practical and effective solution to all of these problems. The unique design incorporates the Therma-Break™ Strip, which is bonded to the outer flange of the spacer bar. This component fulfils the need for a barrier to heat conduction and facilitates a strong connection between outer sheet and spacer bar without dimpling.

In preference to traditional Cladding Roll quilt insulation, the system incorporates a low density Rock Fibre insulation slab. This component delivers two practical benefits:

Firstly, the denser material allows a narrower cavity, which eliminates the "step" detail in the elevation. Second, the rigidity and strength of the slab means that it is self supporting between the spacer bars and, perhaps more importantly, the risk of insulation slump is eradicated, guaranteeing the long-term performance of the Fire Wall.

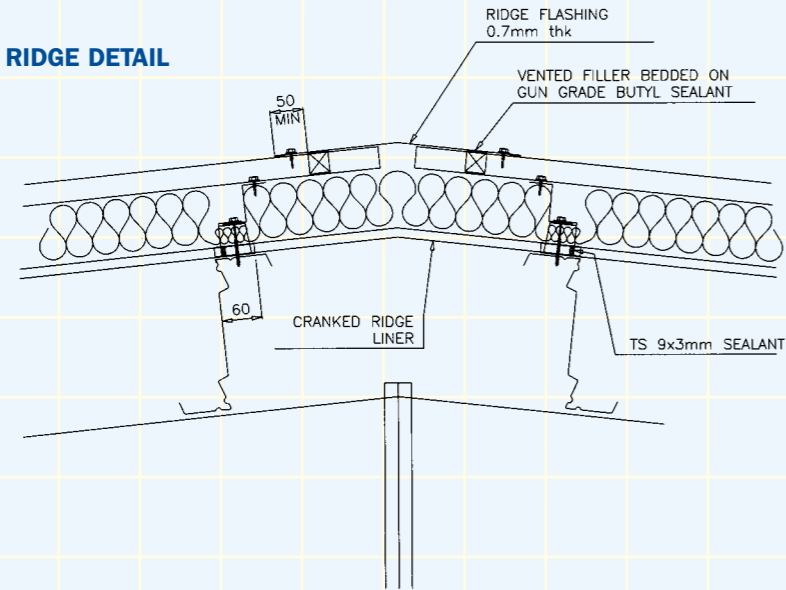
The new Twin-Therm™ Fire Wall PAT PENDING is quick and simple to install. It caters for all requirements of the British Standard for Fire Walls and the Building Regulations governing Thermal Performance.

The design is fully compliant with BS476 Parts 4 & 22.

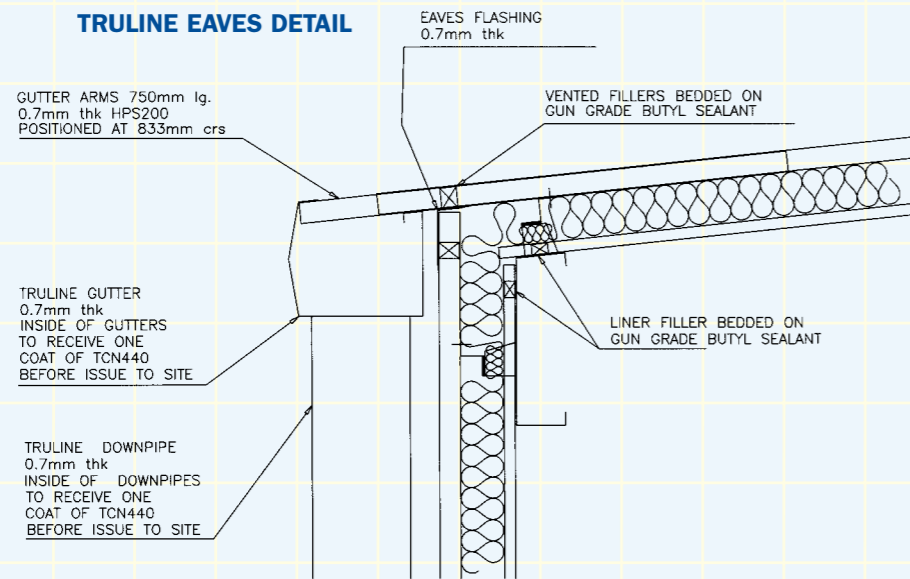
For further information, refer to CA Building Products' Technical Department.

TYPICAL DETAILS

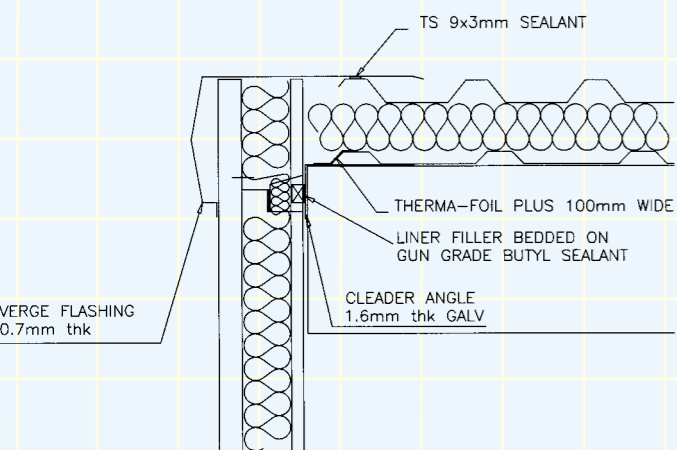
RIDGE DETAIL



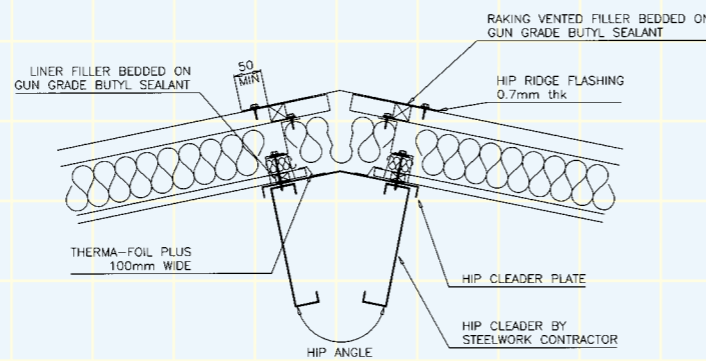
TRULINE EAVES DETAIL



VERGE DETAIL

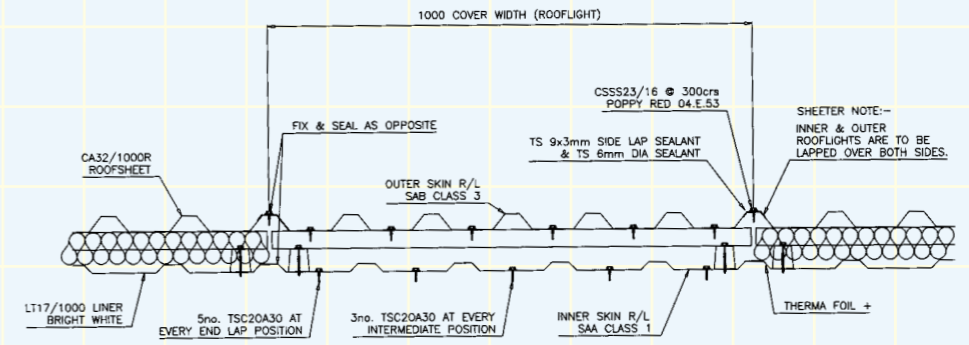


HIP DETAIL

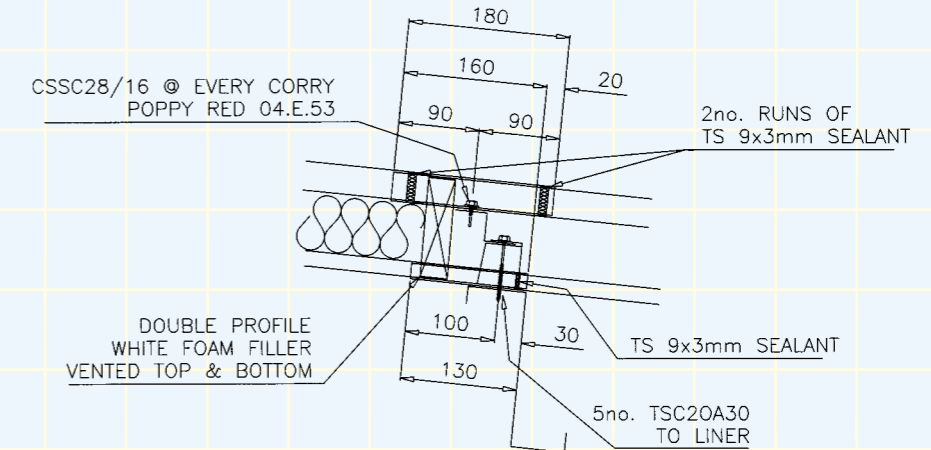


TYPICAL DETAILS

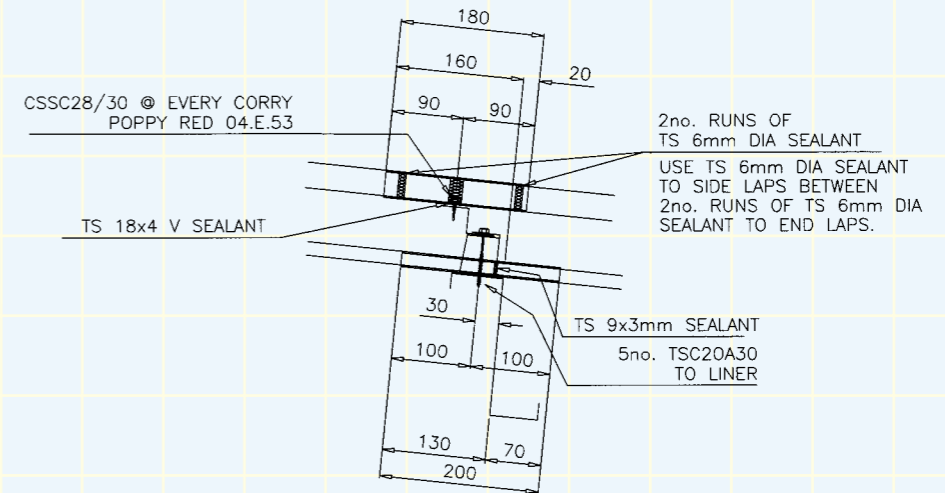
TYPICAL SECTION THROUGH ROOFLIGHT



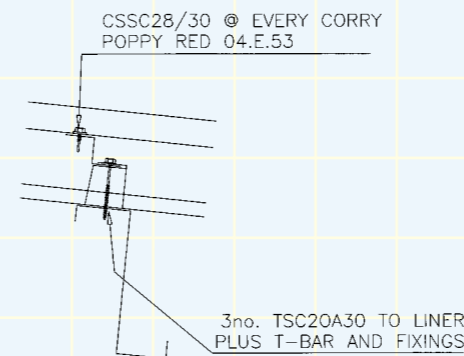
UPSLOPE ROOFLIGHT END LAP DETAIL



INTERMEDIATE ROOFLIGHT END LAP DETAIL



INTERMEDIATE ROOFLIGHT FIXING DETAIL



DOWNSLOPE ROOFLIGHT END LAP DETAIL

