Ashthetics

slim line cantilever design

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ASH•LACY

Introduction

Having a thermally efficient cladding system does not mean that perimeter fabrications need to be deep and unsightly, even if a high U value roof is required.

Ash & Lacy are able to offer slim line verge and eaves fabrications to be incorporated into the Ashzip roof construction.

Using components from its Ashjack range, eaves, ridge and verge support systems can be cantilevered outwards from inside the building line and remain encapsulated by the roof insulation zone to reduce the risk of cold bridging.

Ashjack is a range of galvanized steel brackets and spanning members, manufactured from galvanized steel to BS EN 10327 : 2004 (Fe PO2 G Z275), the components are approved by BBA. This provides the significant benefit of components being produced from high grade structural quality galvanised steel and have rigorous third party accreditation.

The use of BBA approved Ashjack components in conjunction with the Ashzip BBA approval means the specifier can be assured of complete confidence in the products being specified.

The span of the cantilever and projection will depend upon several criteria, such as the cavity depth, which determines what depth of components we can use.

For example a deeper construction for a higher U/value such as 0.16W/m^2K means that the insulation cavity would typically be 280mm deep, this means that within that zone a 140mm zed can be used. If the cavity is shallower, for a 0.25W/m^2K U/value then this restricts the components than can be used and therefore the potential cantilever distance is reduced.

In most cases the best option is to cleat up from the purlin or the structural deck with an AJC cleat. The cantilever component is then fixed to the face of this and allows adjustment up or downwards.

Adjustment is required to be able to set the correct level of the cantilever component. This is because the halter spacer clip that the Ashzip attaches to will be smaller than the rest of the roof.

Fixing the cantilever component to the side of the AJC cleat leaves a gap below the cantilever component that can be filled with quilt insulation. The halter clip then offsets the standing seam above the cantilever component which means that insulation can be used above. This combined with insulated flashings means that in many cases the cantilever is fully encapsulated to prevent cold bridging of metal components.

Our Ashzip technical department are available for advice and help during the development stage of the project. Architects, specifiers and designers find it useful to involve Ash & Lacy at specification development stage to help with the development of perimeter details. This provides the key benefit of allowing tender documents, specification and drawings to be developed to a level where roofing contractors can accurately price works without having to second guess the design intent or without having to guess whether details will require secondary steel components or heavy gauge hot rolled sections.

Concept

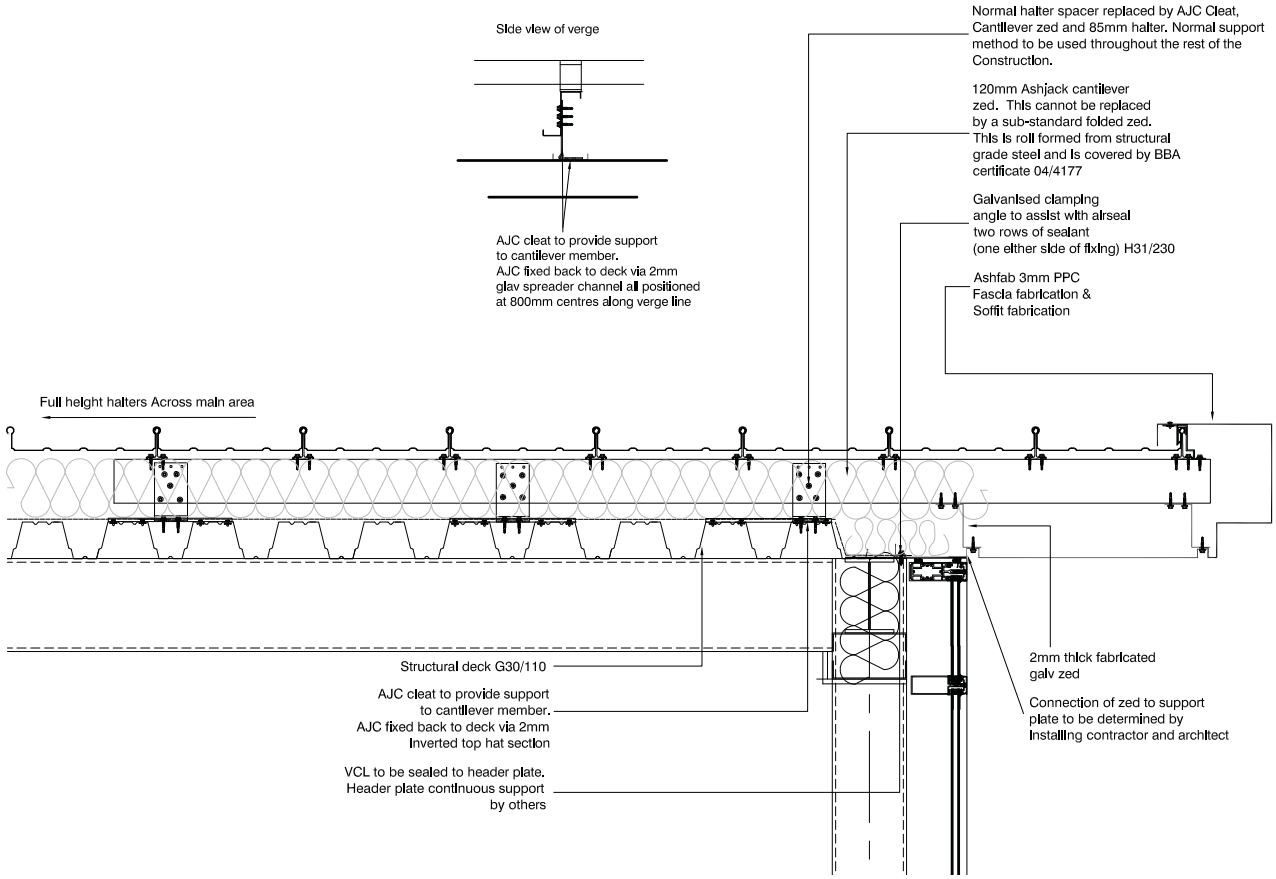
A example of this process is the recently completed Abercrombie School for Derbyshire County Council. This was one of several recent projects completed for Derbyshire C.C. where Ash & Lacy where involved from a very early stage.

The architect produced concept elevations and outline drawings but did not want to increase the perimeter fabrication depths by the use of hot rolled out rigger steels.

The concept drawings along with the Architects outline details where then developed out by Ash & Lacy's technical department to incorporate the Ashjack components to form the required cantilevers.

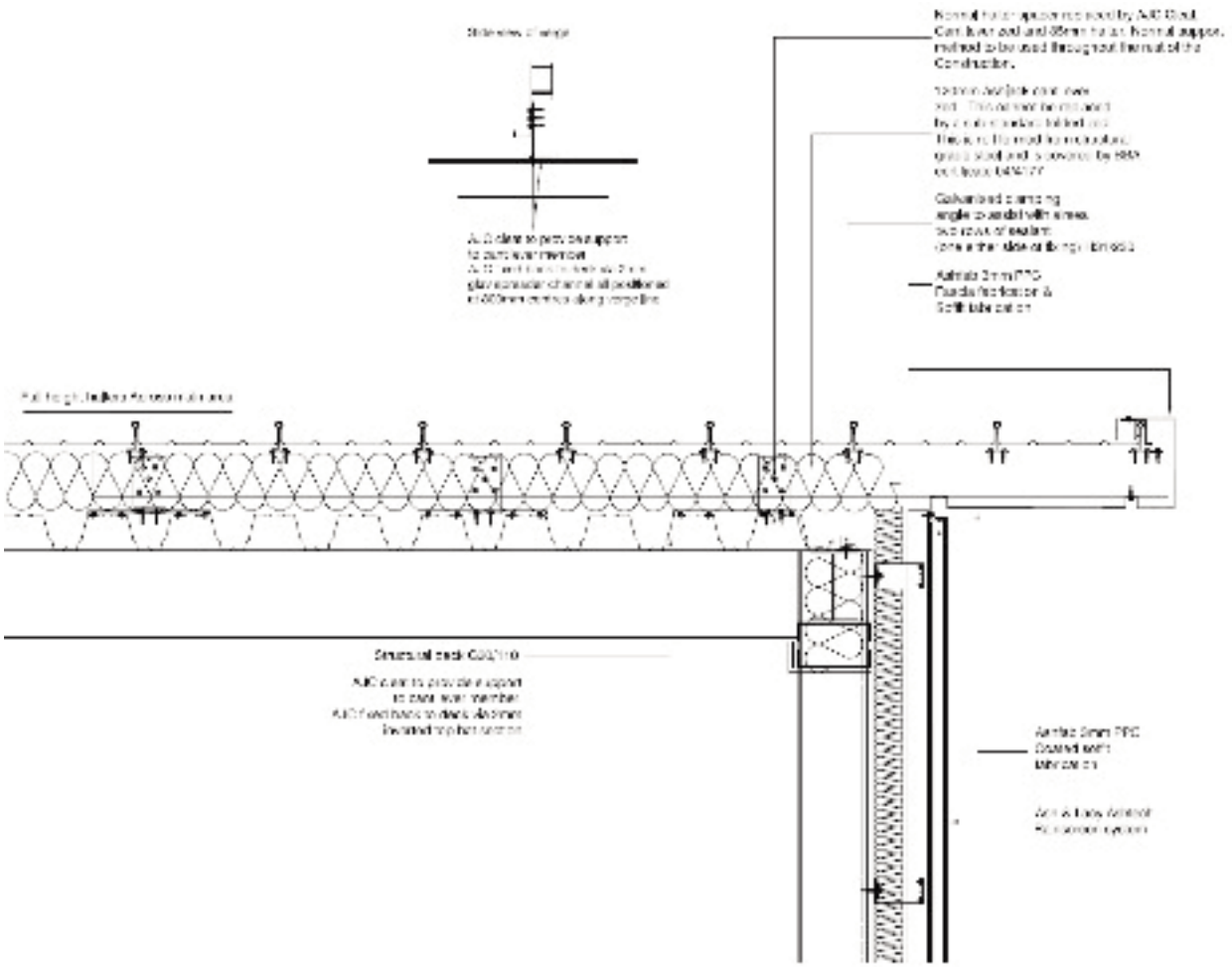
With the detail below, A hot rolled outrigger steel having to be used would have meant that the perimeter fabrication could be up to 200mm deeper depending upon the length of the cantilever.

east elevation



Overhangs

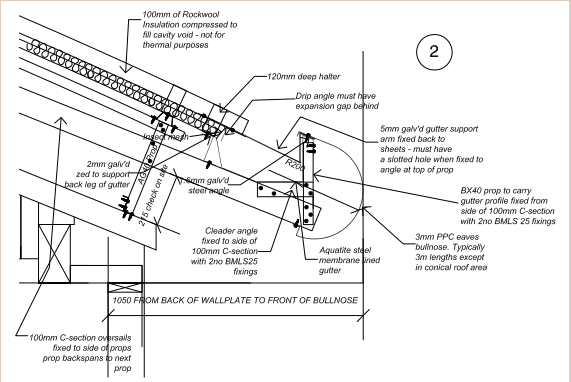
Overhangs can be even slimmer by adjusting the levels where materials on the vertical are built up to. For example a rainscreen on a wall can be built up to the level of the underside of the cantilever component. This as shown below reduces the depth of the construction significantly to that used for Abercrombie school as shown previously.



Curves and bullnoses

More bespoke and complex shaped framing solutions can be developed by introducing curves and bullnoses.

A simple pitched timber truss roof can be turned into curved roof with a bullnose eaves as was the case at Valletort Road, Plymouth, for Persimmon Homes.



A secondary Ashjack frame was used to form a curved rafter system and further cantilever componentry was used to form the supporting arms for the eaves bullnose and gutter

For this project the main insulation was at ceiling joist level within the trusses. The insulation at the Ashzip level was there to assist with the reduction of rain noise and act as a deadening layer. The roof void was then fitted with mechanical extraction units to remove the risk of condensation occurring.

For further information on acoustic design please refer to our technical department.

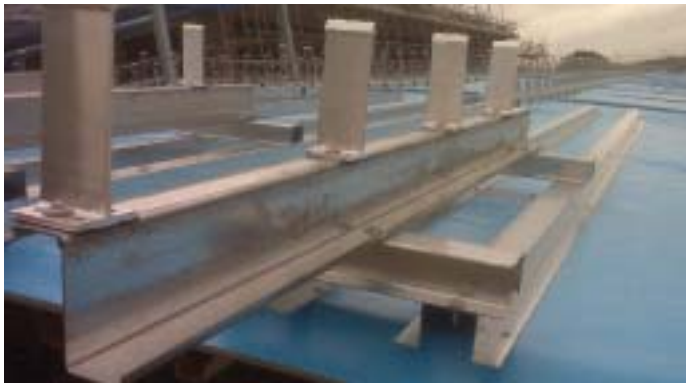
Structural decking profile

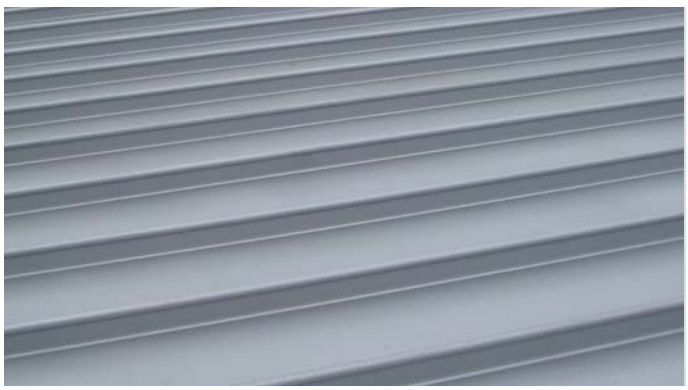
In some cases the cantilever can be provided by a structural decking profile. The distance this can oversail will be governed by the profile depth, gauge and the material specification.

On the recent, University of Nottingham, Bio Energy project. A long span aluminium decking profile was used. The decking provided part of the oversail and the rest of the support to the wide soffit detail was provided by Ashjack cantilever components. This arrangement was adopted so that the cantilever could have a step and slimline verge fascia.

The deck was stiffened by back spanning top hat sections on each profile rib and then a secondary grid above provided the additional oversail past the end of the deck cantilever.

Full height halters where used for the majority of the roof construction, with smaller extruded halters being used above the cantilever components to ensure that the Ashzip sheet is kept to the same plane and level.



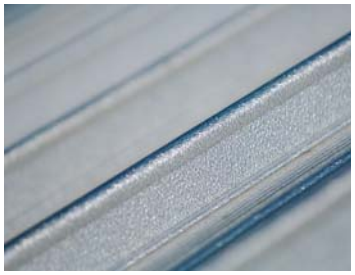


Envelope solution

The total envelope solution – from a single source

To ensure compatibility between individual components and to make the design, specification and installation process as smooth and as risk-free as possible, the Ash & Lacy envelope solution is available from a single source. From standing seam roofing and rainscreen cladding systems to the bespoke architectural fabrications that create the visually important perimeter details, all products undergo rigorous testing procedures and offer unrivalled product quality and customer service associated with Ash & Lacy Building Systems.

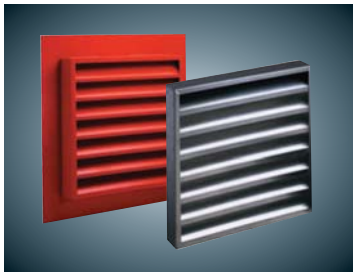
Ashzip™
standing seam roofing systems



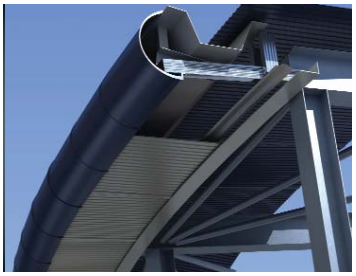
Ashgrid™
spacer support systems

Ashjack™
over-roof conversion systems

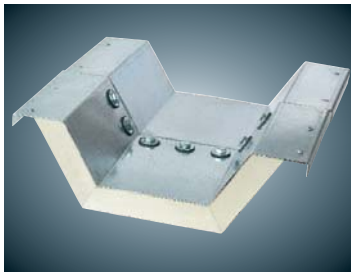
Ashtech™
rainscreen cladding systems



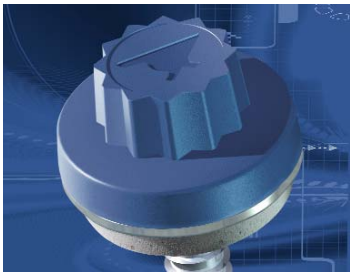
Ashfab™
architectural fabrications



Ashfab™
ash-thetics



Ashflow™
rainwater systems



Ashfix™
fasteners and accessories

All products are supported by a comprehensive technical advisory service, which is available from the design stage right through to the completion of the project.

Fabrications and Flashings

Fasteners and Accessories

Over-Roof Conversion Systems

Rainscreen Cladding Systems

Standing Seam Roofing Systems

Spacer Support Systems

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