Ash&Lacy
building systems

a Hill & Smith Holdings Plc Company

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Ashtech™

Rainscreen cladding systems

Rainscreen cladding systems

introduction

Rainscreen Cladding is a unique method of cladding or over-cladding a building to provide weather protection for the building fabric and structure. Renowned for their ability to create a completely flat surface, rainscreen cladding systems are increasingly used on prestigious newbuild projects where guaranteed long-term performance and the aesthetics of the building façade are of paramount importance. A multi-layer Rainscreen Cladding System will out-perform alternative types of wall construction at an economic whole-life cost to the building owner due to its low maintenance requirements and the sustainability of the materials used.

The Ashtech Rainscreen Cladding System from Ash & Lacy provides the external element of a rainscreen system by using cassettes fabricated from aluminium (ACM)* to create a ventilated 'cold' façade. Available in a range of vertical and horizontal joint arrangements and a variety of colours and finishes, the system is backed up by the high levels of technical expertise and fabrication techniques associated with Ash & Lacy.

*Ashtech Rainscreen Cladding Panels can also be manufactured in solid aluminium. Please contact Ash & Lacy for further information.

Rainscreen cladding systems

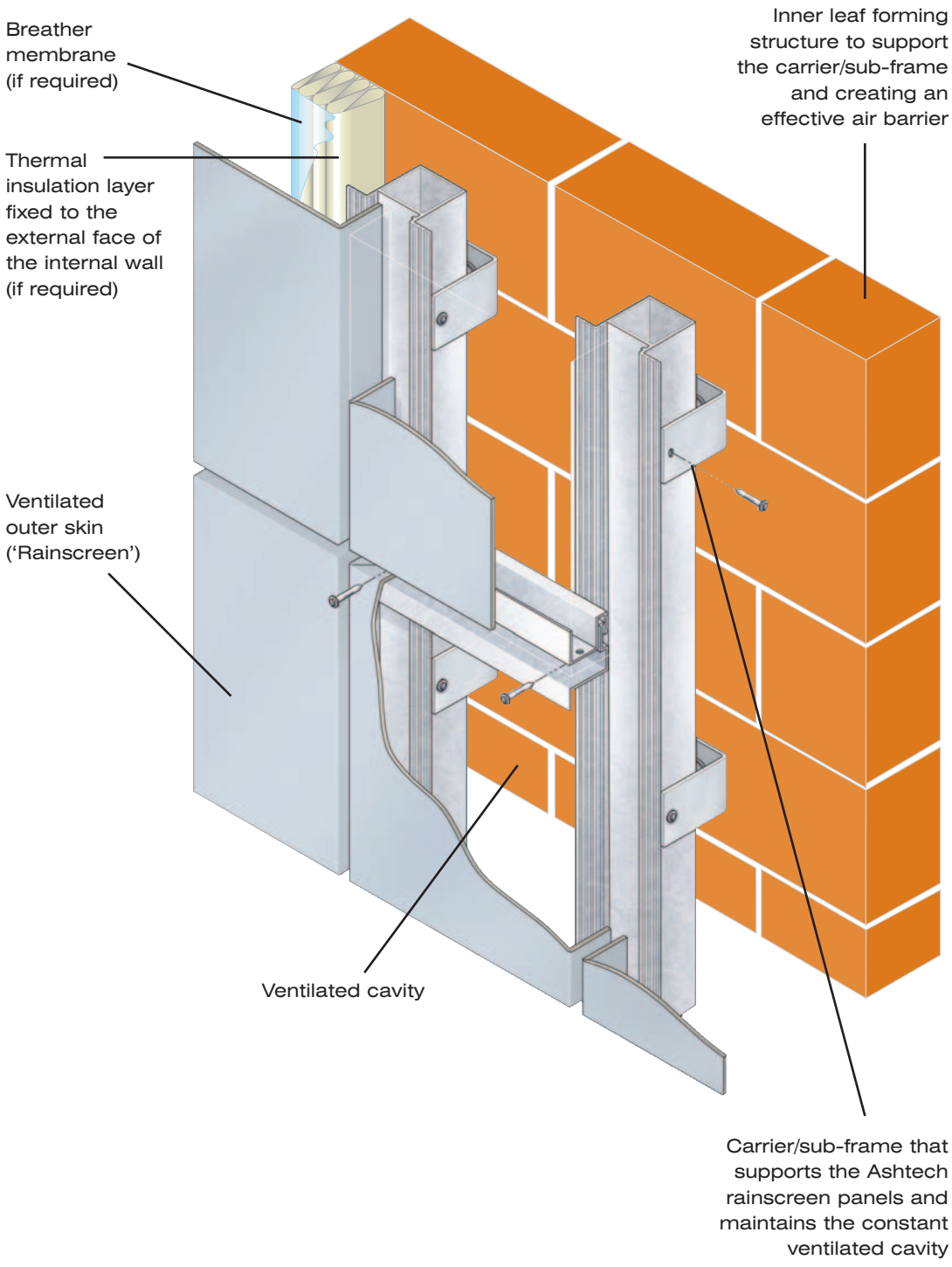
features and benefits

Features and benefits

- Excellent whole building lifecycle costs – durable and low maintenance system
- Superior aesthetics - creates a perfectly 'flat' rigid building façade
- Panel designs easily integrate with building elements such as louvres, windows, doors and atriums to create a complete building façade
- Variety of horizontal and vertical jointing arrangements available to achieve desired aesthetics
- Sustainable construction solution
- Easily shaped and curved to create unique details for capping, copings, bullnoses and fascias
- Fabricated using latest CNC technology and fabrication skills
- Ideal for newbuild and refurbishment
- Flexibility - system can be fixed to any external wall construction providing it is a rigid structure
- Thermal insulation easily incorporated to achieve desired U-value
- Comprehensive design and technical support package
- Full range of accessories available
- Available in a wide range of standard and non-standard colours

The rainscreen principle

A Rainscreen System is a layered cladding system, which protects the inner leaf from wind borne rain and ultra-violet light. It also ensures that a stable temperature is maintained, thereby removing any risk of condensation. Characterised by an external façade that allows water ingress through the joints of the external cladding, any water entering this primary rain barrier is prevented from reaching the building structure by a ventilated cavity. This construction is described as 'rear-ventilated' as it creates an equalisation of pressures both externally and inside the cavity causing any water to simply drain away down the rear face of the external panel. If the Rainscreen System is required to perform thermally, insulation can be placed on the outside of the internal wall.



The Ashtech rainscreen system

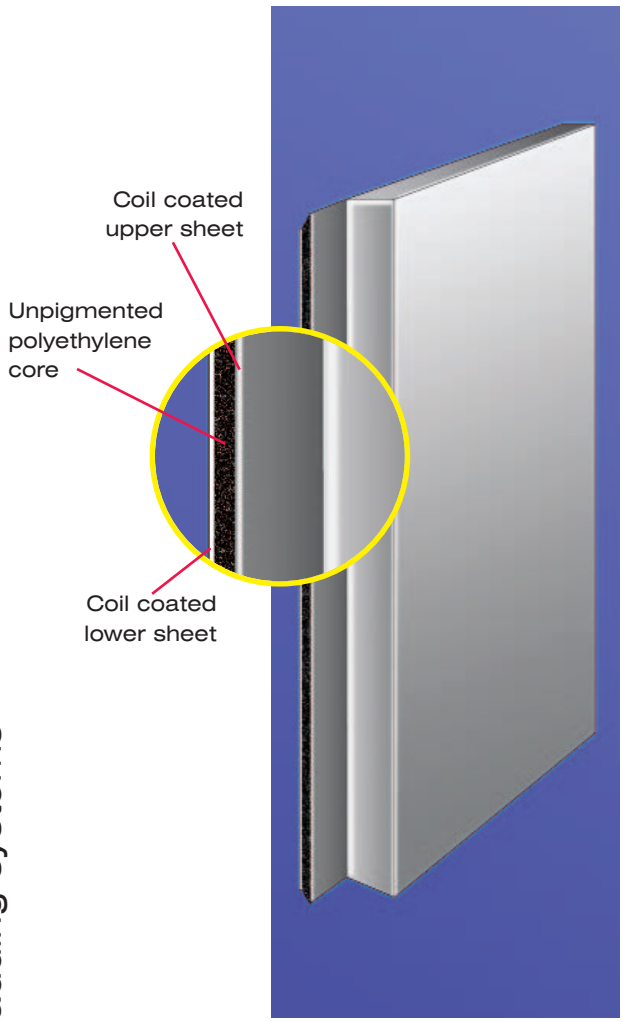
ACM Rainscreen Panels offer the wide range of benefits associated with aluminium and can be fabricated into complex designs that are simple to install and easy to maintain.

ACM

A three-layer laminate consisting of two 0.5mm pre-coated aluminium sheets thermally bonded to a polyethylene core to create an overall standard thickness of 4mm. Adhesion is achieved between the external skins and core by a combination of chemical and mechanical actions. This results in outstanding bond integrity and exceptional resistance to delamination and shock.

Characterised by its exceptional flatness, high corrosion resistance and excellent strength-to-weight ratio, ACM offers good levels of sound reduction and dampens vibration. Weighing 3.4 times less than steel and 1.6 times less than solid aluminium the use of ACM allows cost savings to be made in the supporting structure and fasteners.

Easy to fabricate and available in a wide range of flat and metallic colours with a PVdF coating, ACM offers an exciting range of design opportunities for external architectural features.



Strength to weight ratio

ACM		Aluminium		Steel	
4mm	5.5 kg/m²	3.3mm	8.9 kg/m²	2.4mm	18.7 kg/m²

Ashtech ACM fabrication

Using the latest CNC technology the Ashtech ACM Rainscreen Panels are fabricated cold from pre-coated flat ACM sheets. Panels are cut down to the required dimensions and a groove is routed along the inside of the panel fold to create the required cassette shape. The panel returns are then folded by hand into the required cassette design and all corner returns secured with rivets. To meet designed wind loadings and panel deflection requirements individual panel cassettes may require stiffening to the reverse with aluminium rails.

Ashtech supporting structure

There are a number of supporting aluminium sub-frames which can be used in conjunction with Ashtech cassettes and trays, allowing the panels to be mechanically fixed or hung in position. The supporting structure can be fixed to any external wall construction providing it is a rigid structure, and generally comprises a range of adjustable wall brackets supporting vertical aluminium mullions, which create the cavity between the internal wall structure and the Ashtech panel face.

The design and detailing of these sub-frames wholly depends on the panel size and system being employed. For further information and advice regarding specific applications please contact the Ash & Lacy Technical Department.

Although not responsible for the structural adequacy of the internal wall, Ash & Lacy will however provide design and specification advice on all elements of the Rainscreen Cladding System.

Low maintenance system

An Ashtech Rainscreen Cladding System is easy to maintain as individual panels can be removed for inspection or replacement purposes. Unlike other types of wall construction which rely on complicated seals and mastics to maintain their integrity (and which may at some stage need replacing), open jointed panels are self-cleaning and therefore virtually maintenance free.

Aesthetics

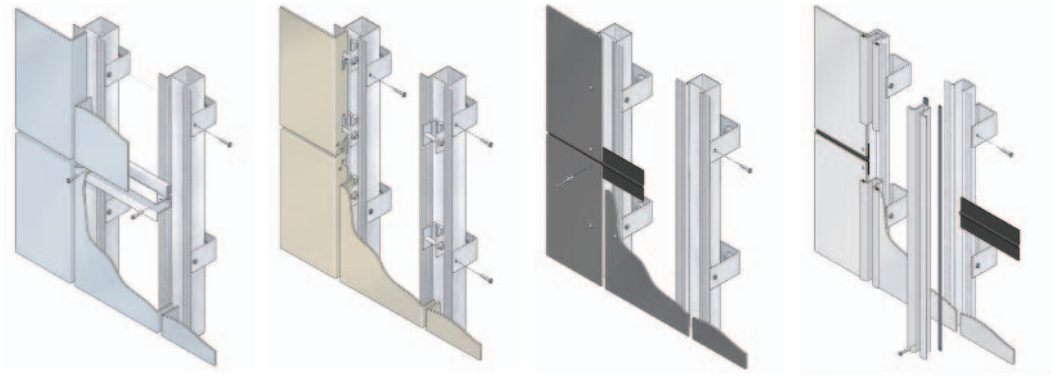
A Rainscreen Cladding System offers designers and specifiers the creative freedom to meet the aesthetics requirements of today's prestigious organisations. Whether newbuild or refurbishment, this high quality flat cladding system creates clean, crisp building lines to achieve the desired level of visual impact.

Striking visual effects can be achieved through the use of colour and the option of horizontal and vertical jointing arrangements together with the ability to shape and curve panels offers a limitless range of exciting design opportunities.

When creating a building façade that meets the aesthetic expectations of the client or building owner, the incorporation of equally sophisticated perimeter detailing is an essential requirement to ensure visual continuity is maintained. Ash & Lacy have many years experience in the production of specialist fabrications, which include architectural and rainscreen cladding panels, louvers, flashings and rainwater systems. Supported by specialist design and project co-ordination teams, all products are precision engineered using the latest CNC technology by skilled fabricators.

Ashtech jointing arrangements

Ash & Lacy offer the following Ashtech Rainscreen Cladding Systems:



Durability

Durability and consequently lifespan is one of the most impressive qualities of aluminium making it an ideal material for Rainscreen Cladding Systems. The outstanding durability of aluminium is largely down to its 'self-healing' properties as when it comes into contact with the environment it naturally oxidises to form a permanent barrier to atmospheric attack (even in the most hostile of environments). This protects the underlying metal substrate and reforms if the surface is damaged or scratched.

Inert and hard, the oxide protects the underlying metal, reforming spontaneously if damaged or scratched. This means that any minor damage to the surface during or after construction is not detrimental to its longevity.

Common industrial pollutants such as ammonia, carbon monoxide and carbon dioxide all have very little effect on aluminium, as do coastal and marine environments because the effect of sodium chloride on the metal is minimal.

Sustainability

Aluminium is the ultimate sustainable building material as it can be recycled at the end of its life many times without any degradation. Once ACM is separated, both the aluminium and polyethylene core can be recycled. Most aluminium is initially smelted using hydroelectric power, which is a renewable energy resource and therefore doesn't produce any CO_2 emissions. The energy used to recycle aluminium is only 5% of the energy required to produce the primary product making it the most cost-effective material to recycle.

Materials that are produced cleanly and efficiently with minimum impact on the environment over their whole lifecycle, including final disposal should be the first choice for building owners, clients, developers, planners, designers and contractors alike.

Structural aspects

Knowledge of wind loadings is fundamental in the design of any project incorporating a Rainscreen Cladding System. Whilst it is acknowledged that Ashtech is a 'pressure equalised' system it is nevertheless important to fully evaluate and understand (with the assistance of a qualified structural engineer) the effects of vortices, funnelling and separation pressures likely to be acting upon the cladding system in order to ensure post construction safety. For further information please contact our Technical Department.

Airtightness

Unless the internal wall structure of a building is airtight, pressure equalisation cannot occur and the weather performance of the layered Rainscreen Cladding System will be seriously compromised. Therefore if the cladding system is constructed correctly and the Rainscreen principals observed, the internal wall structure will act as an air barrier.

Thermal performance

The thermal performance of a Rainscreen Cladding System is determined by the thickness of insulation included within the system itself or that of the internal wall structure. In refurbishment applications, the use of an Ashtech Rainscreen Cladding System provides an ideal opportunity to upgrade the thermal performance of the existing building. A breather membrane is often used to protect the insulation from any moisture crossing the cavity, which will evaporate through the rear ventilation action.

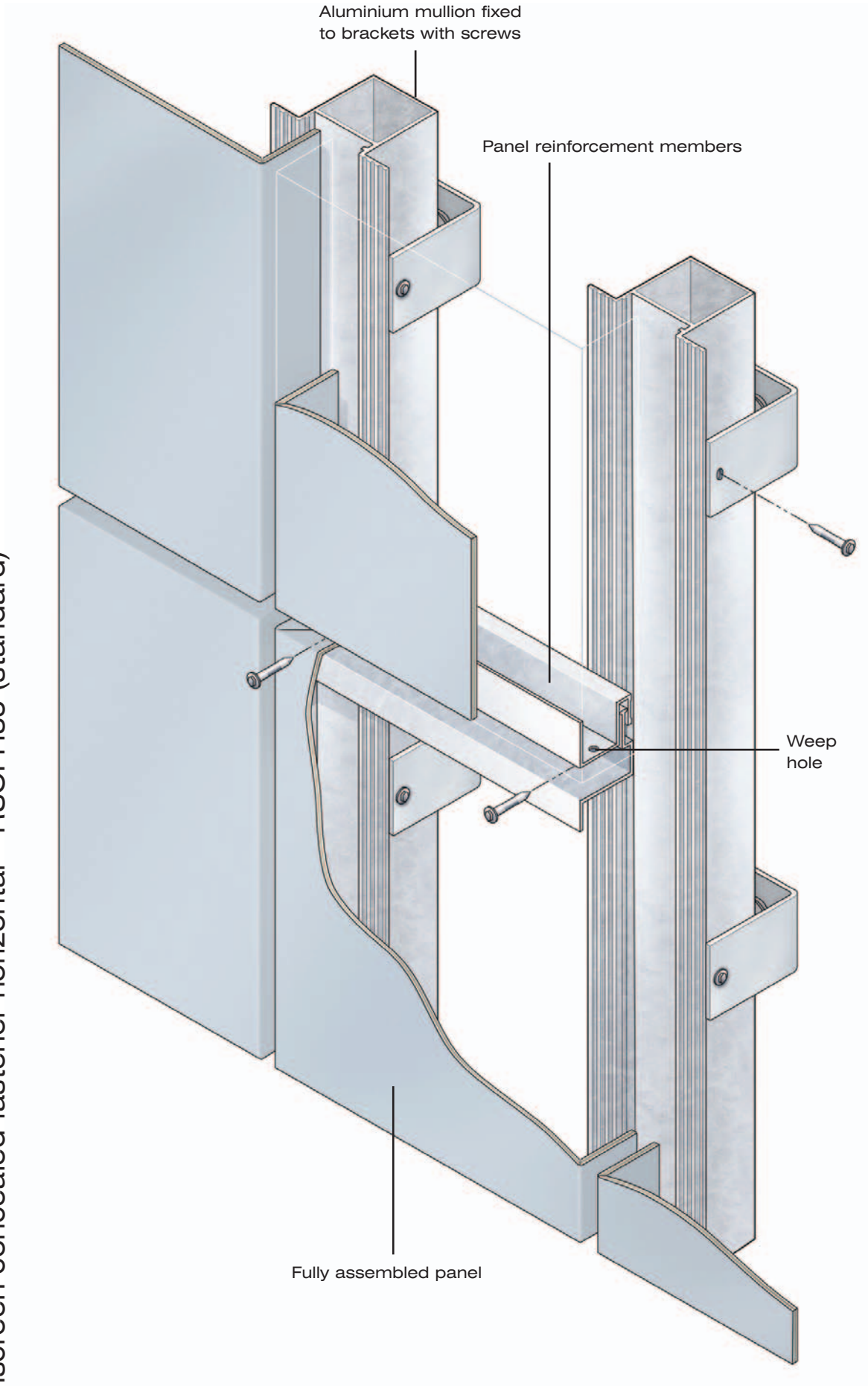
The thickness of insulation required is dependent on the thermal performance of the insulation selected and required U-value. For further advice please contact our Technical Department.

Acoustic performance

ACM offers an average airborne sound transmission loss of 25 dB together with exceptional vibration dampening capabilities which can be as much as 9 times more effective than solid aluminium. For further information, please contact our Technical Department.

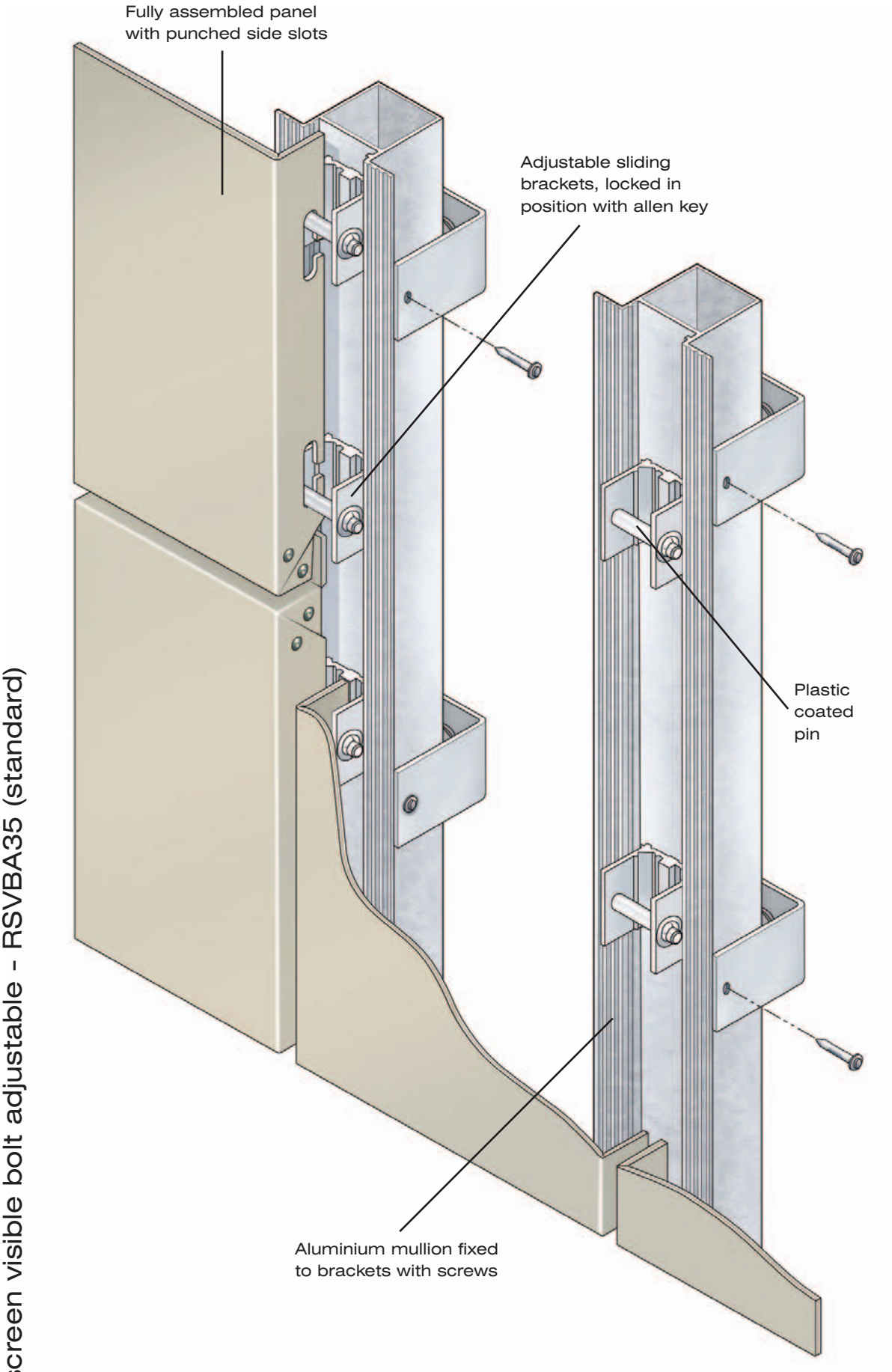
Ashtech™ rainscreen cladding systems

rainscreen concealed fastener horizontal - RSCFH35 (standard)



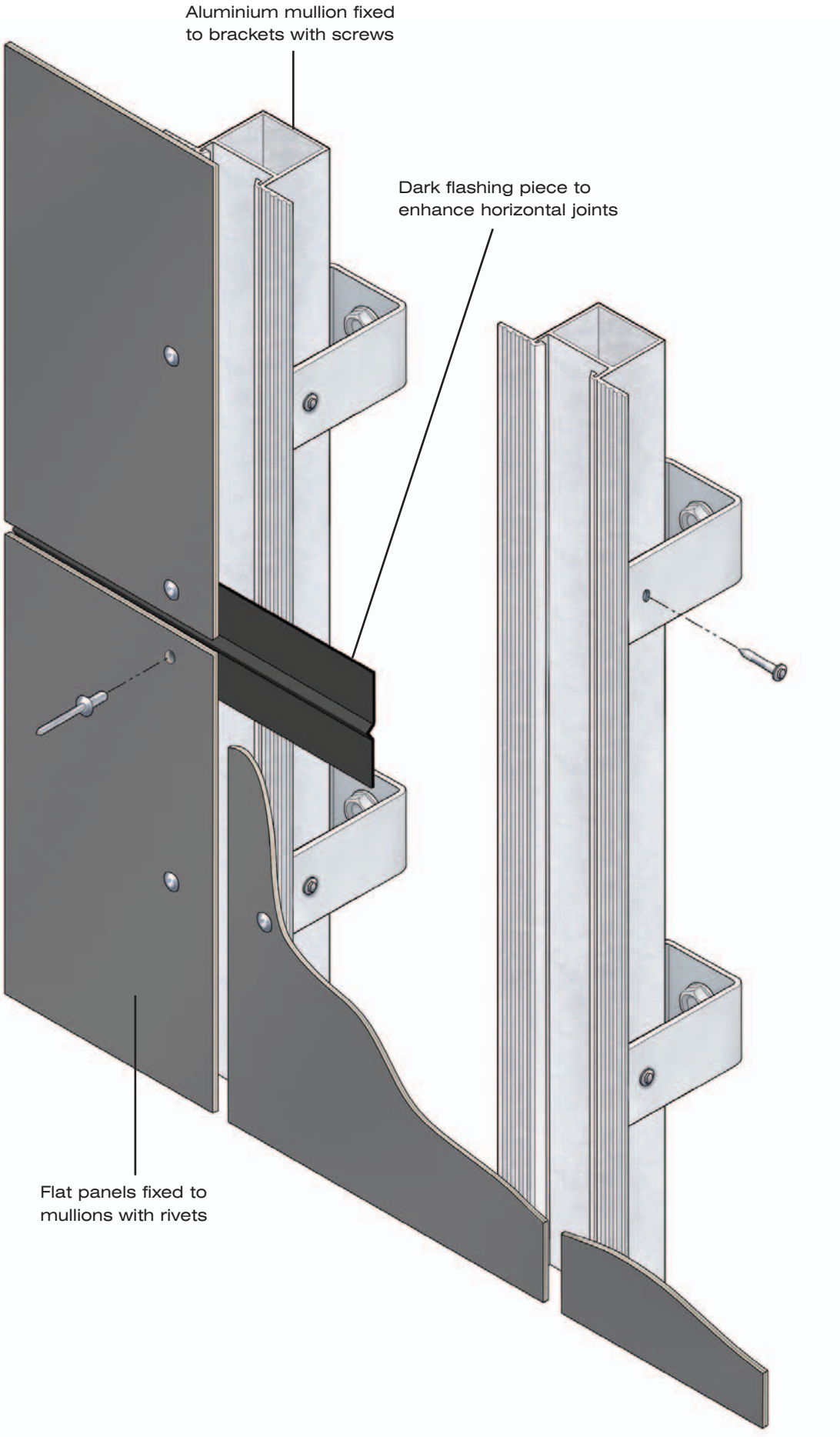
Ashtech™ rainscreen cladding systems

rainscreen visible bolt adjustable - RSVBA35 (standard)



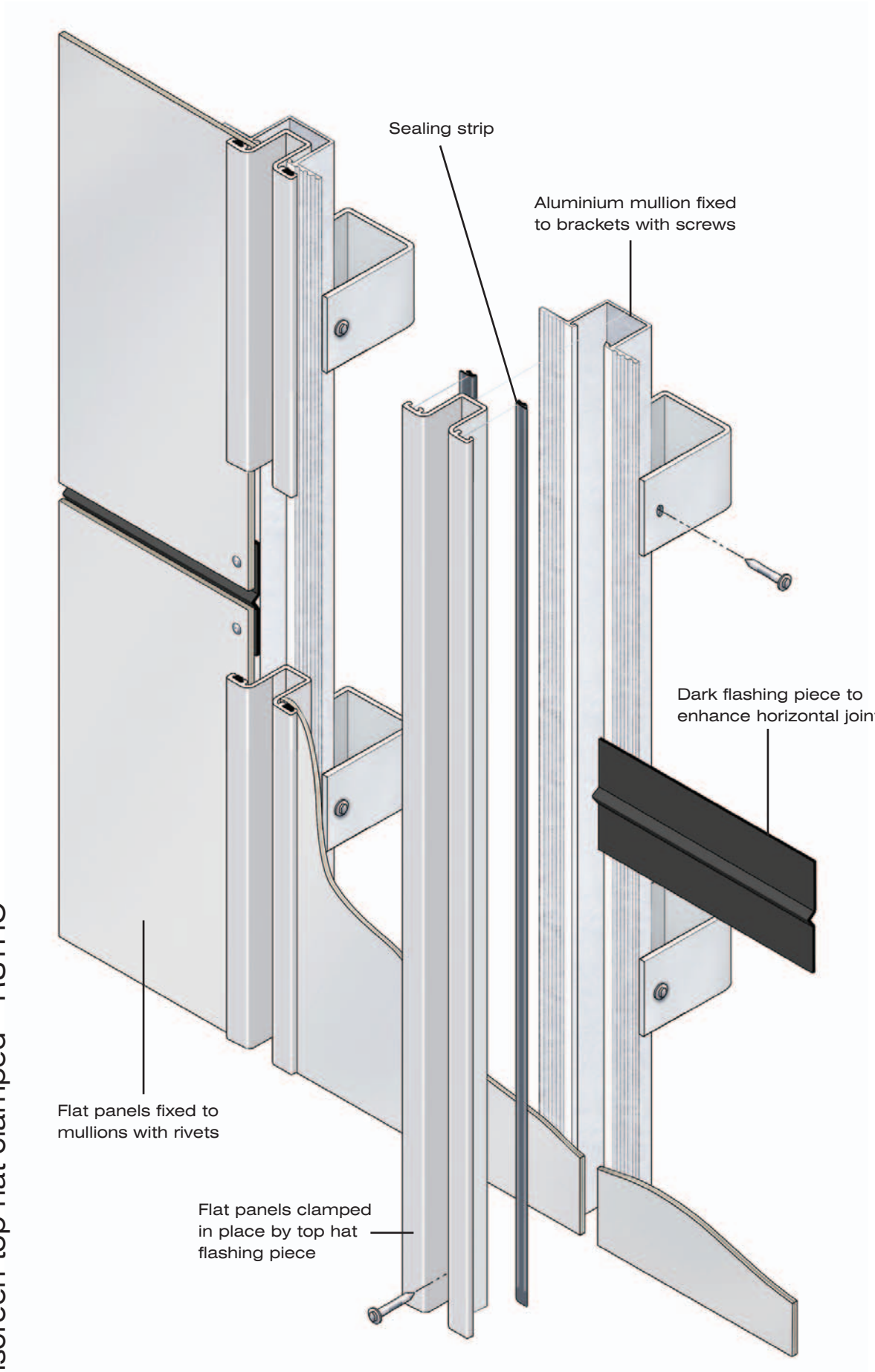
Ashtech™ rainscreen cladding systems

rainscreen face fixed - RSFF



Ashtech™ rainscreen cladding systems

rainscreen top hat clamped - RSTHC



Fire performance

ACM Rainscreen Cladding Panels meet the requirements of BS476: Parts 6 & 7, therefore achieving a Class O rating as classified by Building Regulations. Any specified firebreaks would be installed by an Ashtech approved contractor. A non-standard A2 core is also available which meets the requirements of the London Underground Code of Practice. For further information, please contact our Technical Department.

Installation

Ashtech Rainscreen Cladding Systems are only installed by specialist approved contractors. For further information, please contact our Sales Department.

Panel dimensions

Ashtech ACM Rainscreen Cladding Panels are available in the following dimensions:

Panel Thickness	4 mm*
Panel Width	1,250mm 1,000mm & 1,500mm (subject to minimum order quantity)
Panel Length	Up to 4,000 mm in increments of 1mm Up to 8,000 mm (available upon request)

*6mm thickness also available but subject to minimum order quantity. Please contact Ash & Lacy for further information.

Quality

Ash & Lacy products are manufactured to the highest quality standards including BS EN ISO 9000: 2000. All products are designed to fulfil specific applications and have been engineered to precise standards and tolerances.

Delivery / panel protection

Ashtech Rainscreen Cladding Panels are supplied fully formed with a protective film to the external face and arrows indicating the direction of lay. The protective film should only be removed once the panels are fixed in place, preferably at the end of each day's installation.

ACM - high performance coating

ACM Rainscreen Panels are available in a range of standard coil coated colours with a PvdF finish. This high performance coating system is available in opaque or metallic finishes and specific colours are available on request subject to order quantity. When planning a specific project careful consideration should be given to the quantity of material required to enable production from a single paint batch and coil run if possible.

PVdF

PVdF (Polyvinylidenefluoride) is a coating system that contains at least 70% of the Kynar 500 resin or equivalent which is famous for its quality and durability. PVdF coatings are renowned for their outstanding resistance to colour and gloss ageing, solar radiation, humidity and aggressive environments.

Properties	PVdF
Coating thickness	25 microns
Gloss level	20%
Adhesion after indentation	100%
Crack resistance	no cracking, no loss of adhesion
Salt spray resistance	1000hrs
Water immersion resistance	1000hrs
Colour fastness on natural weathering	5–10 units (maximum)

Durability of coatings

The durability of any metal coating is determined by geographical location, local environment and the colour selected. For further information please contact our Technical Department or the relevant coatings manufacturer.

The total package 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 package solution is available from a single source. From rainwater goods 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.

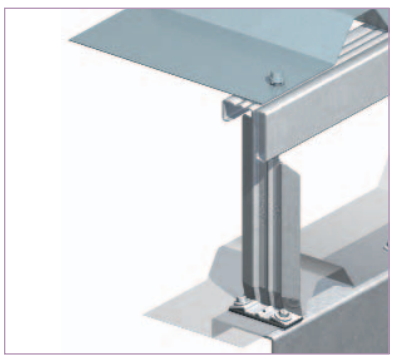
All products are supported by a comprehensive technical advisory service, which is available from the design stage right through to the completion of the project.

Ashzip
Standing seam roofing systems

Ashjack
over-roof conversion systems

Ashtech
Architectural wall panel systems

Ashfab
Architectural fabrications & flashings



Ashgrid
Spacer support systems

Ashfix
Fasteners and accessories

Ash & Lacy also offer an extensive range of Ashflow rainwater management systems.

ASHZIP™

STANDING SEAM ROOFING SYSTEMS

ASHJACK™

OVER-ROOF CONVERSION SYSTEMS

ASHTECH™

ARCHITECTURAL WALL PANEL SYSTEMS

ASHFAB™

ARCHITECTURAL FABRICATIONS & FLASHINGS

ASHFLOW™

RAINWATER MANAGEMENT SYSTEMS

ASHGRID™

SPACER SUPPORT SYSTEMS

ASHFIX™

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