KAWNEER
AN ALCOA COMPANY

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Kawneer's continuous development and engineering programmes may bring about product changes. Kawneer reserves the right to introduce without notice such changes which will not detract from the product's performance.
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June 2007

Curtain Wall Systems



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Capital City Academy
Foster & Partners

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Introduction

Kawneer, a global systems company

Kawneer offers a comprehensive range of architectural aluminium building products and systems for commercial construction-entrances, framing systems, windows and curtain wall systems.

Since its beginnings a century ago, Kawneer has been recognized as an innovator. Through the years, we've balanced experience with innovation. We've listened to our customers, and we are dedicated to providing the tools our customers need to succeed.

Our unrivalled team has a wealth of experience working closely with architects, contractors and clients to develop project solutions from their earliest concepts. We are committed to injecting innovation into new product development to ensure our products meet the most exacting engineering and technical standards whilst overcoming sophisticated design challenges. Kawneer's global design expertise, combined with aluminium's flexibility and recyclability, makes our building systems and products the right solutions for today and tomorrow.

Committed to the success of your project

Kawneer products are made from materials of the highest quality and designed with the benefit of many years of construction experience. Because we control every stage of the process, from mining the bauxite ore through to designing individual systems, we offer a unique resource to architects and contractors. Our engineers and designers can support you through every stage of the design and installation process, ensuring a successful outcome.

Need something special?

Kawneer offers the world's greatest pool of talent in architectural glazing systems, and we can design custom solutions that will help you to realise your most daring concepts. So don't compromise - by working with Kawneer you can achieve a solution to your most challenging architectural concept.

Total Performance

High performance is an essential ingredient for all building components nowadays – it is demanded by users and required by current building regulations. Throughout our history we have kept ahead of both the market and regulatory requirements to offer glazing solutions that surpass even the most demanding specifications, and our products meet or exceed all required standards of thermal performance. We have developed leading-edge production techniques to ensure that manufacturing efficiency is optimised, and environmental impact is minimised, and our right-first-time quality management systems have been devised to minimise waste and exceed the requirements of current ISO 9001 standards.

Why Aluminium?

Kawneer has been producing advanced glazing solutions in this versatile material for many decades. Aluminium is a near-perfect material for architectural glazing products, and has practical advantages over all other available choices, including inherent resistance to corrosion and very low whole-life costs. Aluminium is also an environmentally friendly material and possibly one of the best options for energy saving within the construction industry. In the building sector vast amounts of aluminium are collected for recycling, with rates as high as 92-98%, and more than 50% of the energy used in aluminium production comes from hydro-electric schemes.



Glasgow Harbour
Cooper Cromar Architects

Curtain Wall Systems

Introduction

Today's fast paced construction schedules demand it all – design innovation, flexibility, high quality, fast installation, simplified fabrication and superior performance. Kawneer's curtain wall systems have been designed and engineered to meet these demands and more. Our curtain wall systems have been assessed in accordance with the relevant BS EN and Centre for Window and Cladding Technology (CWCT) Curtain Wall Standards.

Kawneer AA®100 50mm Curtain Wall
The AA®100 50mm Curtain Wall system provides a unique dry jointed façade solution that has been developed to provide the specifier with opportunities to design original and exciting façades. The system is available in a variety of styles and is suitable for vertical and sloped applications including facetted walls. To provide complete design flexibility the AA®100 is also available as a Horizontally Capped system, a Structurally Silicone Glazed system and a Fire Resistant system.

The AA®100 has a range of mullion, transom and facecap options, with 50mm sightlines.

Kawneer AA®110 65mm Curtain Wall
The AA®110 65mm Curtain Wall system also provides a dry jointed façade solution, and the range of mullion, transom and facecap options provide 65mm sightlines. The system is available in a variety of styles and is suitable for vertical applications and facetted walls.

A deeper glazing rebate meets the requirements for barrier loading and enables the facade to stand up to high levels of building movement.

Kawneer PF Curtain Wall
The Kawneer PF System is a mullion drained modular curtain wall system, which has been designed so that when viewed externally, the opening vents and the fixed lights have the same visual appearance. The PF is a modular system with factory glazed panellised frames that are fixed to the curtain wall grid.

All this makes the PF System an attractive and practical option for many curtain walling requirements.

Kawneer AA®120 Sunshades
The AA®120 Sunshades system has been designed specifically for use with the AA®100 and AA®110 Curtain Wall systems and offers the specifier a wide choice in terms of size and shape of shades to suit individual project needs. The AA®120 Sunshades system allows passive solar control for the façade of the building and can be connected to the façade either horizontally or vertically.

Kawneer AA®201 Unitised Curtain Wall
Our modular façade solution, AA®201 Unitised Curtain Wall, is a highly innovative concept that has already been proven on a number of projects in the UK and Ireland. Unitised curtain walling is modular – the individual units or panels are assembled off site in factory controlled conditions and then transported to site and craned onto the building. This dramatically reduces time on site, and thus the building can be enclosed rapidly allowing hand-over to following trades to take place much sooner.



Oxford Business Park
Aukett Europe

AA®100 50mm Curtain Wall

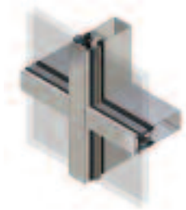
H11 110

2004/33, 2005/18
2007/26, 2007/27

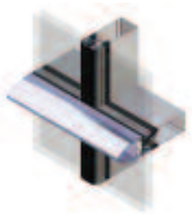
Introduction

Kawneer AA®100 redefines curtain walling offering a wide range of design options from a single grid. It is a tried and tested system - originally designed in Europe to European standards and now adapted and tested to meet the stringent UK market requirements. Available in both zone and mullion drained options, the AA®100 50mm curtain wall system provides an innovative dry jointed façade solution that does not need on-site sealants to ensure system performance.

The AA®100 has been designed to provide the specifier with a wide choice of design options according to the needs of the project. By offering a range of construction methods and a structural silicone glazed option, the AA®100 enables specifiers, assisted by our Architectural Advisers, to identify the optimum curtain walling solutions for the project's specific requirements.



AA®100/AA®110 Zone & Mullion Drained



AA®100/AA®110HC



AA®100/AA®110PFLL



AA®100/AA®110SSG

Product Features

- Dry jointed system
- Suited to vertical, sloped (from 7°, with slope vent) and facetted applications
- Concealed Zone drainage and Mullion drainage options
- Tested & Certified in accordance with the relevant BS EN & CWCT Curtain Wall Standards
- Complies with all current thermal regulations
- Range of mullion, transom and facecap options with 50mm sightlines
- PFLL capped system
- Fully capped option
- SSG option
- Horizontal cap
- Offers total flexibility - shares components with AA®110 curtain wall system
- Suites with AA®120 Sunshades
- Available with a concealed open out vent
- Accommodates glass from 4mm to 40mm

With the decisive advantage of...

- Removes reliance upon on-site sealing and ensures excellent weathering performance
- Wide range of applications from the same suite of sections
- Proven weathering performance in the most stringent conditions
- Provides choice of aesthetics when designing the building façade
- Fire Rated option

Performance

The system, installed and glazed to Kawneer recommended procedures, has been tested and certified in accordance with the relevant BS EN and Centre for Window and Cladding Technology (CWCT) Curtain Wall Standards.

Air Permeability 600Pa
Watertightness (static & dynamic): 600Pa
Wind Resistance (serviceability): 2400Pa
Wind Resistance (safety): 3600Pa

Centipedes, Heerlen
Atelier Dutch

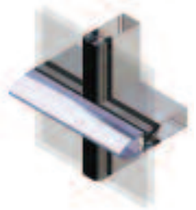
AA®110 65mm Curtain Wall

Introduction

The AA®110 curtain wall system has been designed in line with the AA®100 system, the fundamental difference is the depth of the mullions and transoms. The AA®110 65mm system with its deeper glazing rebate meets the requirements for barrier loading and enables the facade to stand up to high levels of building movement. It is also a tried and tested system - originally designed in Europe, and is suitable for vertical applications including facetted walls. As with the AA®100 system, the AA®110 also offers a range of construction methods, including zone-drainage and mullion-drainage. The AA®110 enables architects, assisted by our Architectural Advisers, to identify the optimum curtain walling solutions and create inspirational architectural designs.



AA®100/AA®110 Zone & Mullion Drained



AA®100/AA®110HC



AA®100/AA®110PFLL



AA®100/AA®110SSG

Product Features

- Dry jointed system
- Suited to vertical, sloped and facetted applications
- Concealed Zone drainage and Mullion drainage options
- Assessed in accordance with the CWCT Curtain Wall Standard
- Complies with all current thermal regulations
- Range of mullion, transom and facecap options with 65mm sightlines
- PFLL capped system
- Fully capped option
- SSG option
- Horizontal cap
- Offers total flexibility - shares components with AA®100 curtain wall system
- Suites with AA®120 Sunshades
- Available with a concealed open out vent
- Accommodates glass from 4mm to 40mm

With the decisive advantage of...

- Removes the need for on-site sealing and ensures excellent weathering performance
- Wide range of applications from the same suite of sections
- Proven weathering performance in the most stringent conditions
- Provides choice of aesthetics when designing the building façade

Performance

The system, installed and glazed to Kawneer recommended procedures, has been assessed in accordance with the Centre for Window and Cladding Technology (CWCT) Curtain Wall Standard.



Marine Operations Centre, Aberdeen
SMC Parr Architects

PF Curtain Wall

H11 110

Introduction

The PF System is a mullion drained modular curtain wall system, which has been designed so that, when viewed externally, the opening vents and the fixed lights have the same visual appearance.

The system consists of panellised frames that are attached, as either fixed lights, opening lights or panel areas, to the curtain wall grids. Each glazed panel has a visible face of 28mm in width which in combination with a 14mm recess between the panels, gives an overall sightline of 70mm. Alternatively, a structurally glazed version of the system is available, giving the facade an all glass appearance when viewed from the outside, with only a 14mm recessed gap between each pane. This thermally insulated system offers many possibilities, with a wide selection of mullions and transoms to suit most practical requirements.

All this makes the PF System an attractive and practical option for many curtain walling requirements.

Product Features

- Modular system with factory glazed panellised frames that are fixed to the curtain wall grid
- Available as a structurally glazed version, with only a 14mm recess between panels
- Dry gasket glazing
- Tested in accordance with the CWCT Curtain Wall Standard

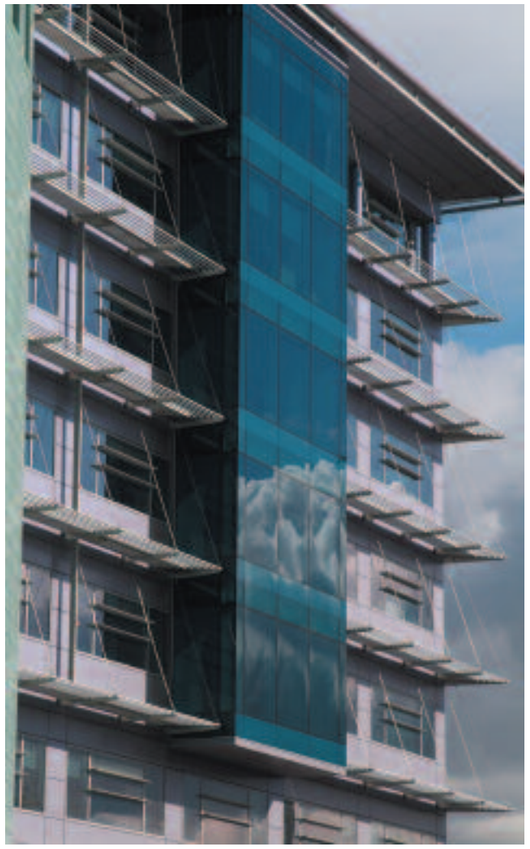
With the decisive advantage of...

- Opening vents and fixed lights appear the same visually, with no visible drainage slots
- Allows the specifier to design façades that appear all glass when viewed from the outside
- Proven weathering performance in the most stringent conditions

Glazing

Maximum glass thickness 34mm. For the structurally glazed version of this system, the maximum glass thickness is dependant on various factors, which are specific for each individual project. We advise therefore, that you contact our Architectural Advisers for more information.

The Station, Manchester Airport
Aedas, Jefferson Sheard Architects
and Nick Derbyshire Architects



AA®120 Sunshades



ICARE, Montpellier
Blue Tango Architecture

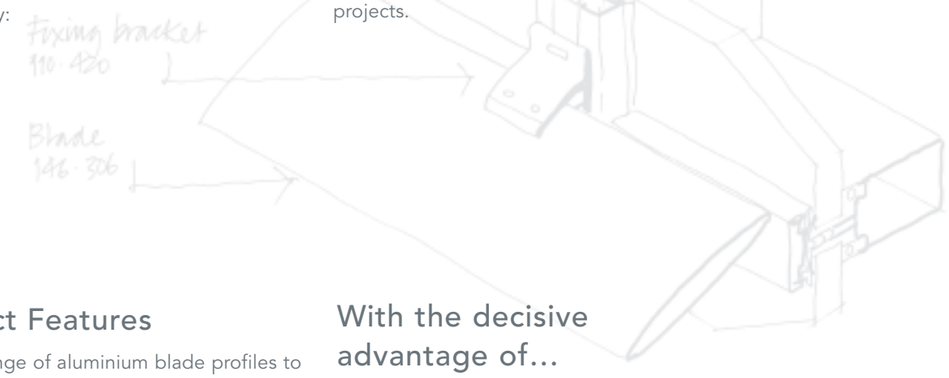
Introduction

The Kawneer AA®120 Sunshades add a stunning design statement to the building façade; they help to optimise the natural daylight within a building whilst limiting the solar heat gain. The AA®120 Sunshades have fixed aluminium blades, which are available in a variety of shapes and sizes and suite with the Kawneer Curtain Wall range.

Use of solar shading on building facades to limit the building's solar heat gain can contribute to the thermal performance of the building by:

- Reducing the energy consumption due to air conditioning
- Allowing greater use of natural ventilation
- Limiting direct solar radiation whilst maintaining natural light levels

Our Technical Team and Architectural Advisers can offer advice and support in calculating potential energy savings derived from the use of the AA®120 Sunshades for your individual projects.



Product Features

- Wide range of aluminium blade profiles to suit a variety of requirements
- Integrates with Kawneer Curtain Wall Systems
- The AA®120 Sunshades can be fitted vertically or horizontally
- Bespoke sections and connections can be designed according to project needs

With the decisive advantage of...

- Reduction in solar heat gain and allows greater use of natural ventilation systems
- Control of solar glare, whilst maximizing the amount of natural light reaching the building's internal environment
- Provides a stunning aesthetic statement that unites the building façade
- Flexibility and choice according to individual requirements



AA®120 Sunshades

AA®201 Unitised Curtain Wall

H11 110

CENTRE FOR WINDOW AND CLADDING TECHNOLOGY

2005/19

Introduction

Today's fast paced construction schedules demand high performance, fast installation, simplified fabrication, superior performance and design flexibility. The AA®201 offers exactly that.

It offers the advantage of unitised assembly giving the building team a unique set of benefits. These include factory fabrication to ensure additional quality control, rapid on site installation with slimline design and flexibility. Unitised construction enables it to meet the demands of fast track work schedules and restricted working conditions. Weathering is achieved by zone drained pressure equalisation. The glazing provides a positive weather seal for high performance. The system also features the exclusive, high performance IsoPort thermal break.

The AA®201 unitised system gives the specifier a wide choice of styles to create individual and exciting building facades. The AA®201 can accommodate spandrel infill materials including glass, granite and metal panels. It offers two sided or four sided structural silicone glazing, fully capped or horizontal caps giving a horizontal emphasis or a vertical cap option giving a vertical emphasis. The AA®201 unitised curtain wall system is adaptable to any new construction project, and because it can be quickly installed in occupied buildings with minimal disturbance, the system is ideal for refurbishment projects.

The AA®201 unitised curtain wall system has been engineered to meet these demands and more.

Supplied on a project solution basis the AA®201 has been exclusively designed, developed and supplied by Kawneer, with installation contracts undertaken in combination with authorised installing Kawneer dealers.

Product features

- Zone drainage – each pane acts as an individual self draining unit
- Side load
- Stack joint
- Fully drained and pressure equalised for optimal weather performance
- Lifting rail
- Dual finish capability
- The AA®201 system accommodates glass or infill panels up to 32mm
- Complies with all current thermal regulations
- Fully capped option
- SSG option
- Horizontal cap option with vertical silicone joint
- Vertical cap option with horizontal silicone joint
- Tested and Certified in accordance with the relevant BS EN & CWCT Curtain Wall Standards
- Range of mullion, transom & face cap options with 64mm sightlines
- Seismic movement capability up to 41.25mm



AA®201 Unitised

With the decisive advantage of...

- Particularly suitable for refurbishment projects
- Offers wide choice of aesthetics
- The AA®201 unitised curtain wall system does not require scaffolding
- The units are craned or winched into position and secured from the inside of the building, reducing costs and encouraging safer working conditions

Performance

The system, installed and glazed to Kawneer recommended procedures, has been tested and certified in accordance with the relevant BS EN and Centre for Window and Cladding Technology (CWCT) Curtain Wall Standards.

Air Permeability 600Pa
Watertightness (static & dynamic): 600Pa
Wind Resistance (serviceability): 2400Pa
Wind Resistance (safety): 3600Pa



Lowry Hotel, Salford Quays

Consarc Consulting Architects

Curtain Wall Case Study

The Marine Operations Centre on Scotland's windswept North Sea coast is situated just two metres from the edge of the harbour wall. The building has to withstand high winds, cold winter temperatures and a wet, salt-laden climate. And if that were not enough, the façade was a complex, faceted outward-sloping design.

The designers of this landmark building were the Dundee office of SMC Parr Architects who opted for a striking modern take on the traditional Scottish lighthouse. The external envelope is partly white reconstituted stone but the greater part – and the most exposed part – is a bespoke glazed curtain wall.

"We had come up with a bold concept and it was essential to progress the detailed design with input from all parties – the installer and the supplier as well as Sir Robert McAlpine, the main contractor," said project director Derek Reid of SMC Parr Architects.

This teamwork, with Kawneer's special projects team supplying design drawings and fabrication of the curtain wall, resulted in a glazing solution that would accommodate the architect's challenging specification and deliver the 270° visibility demanded by the client, Aberdeen Harbour Board.

The complex shape, and the fact that the wind-swept building would be subject to higher-than-average building movements, meant the curtain walling had to be flexible in more ways than one. Not only did it need to accommodate the curvature of the façade, it had to be capable of flexing with the rest of the structure.



The only solution was the Kawneer CWCT approved AA®110 curtain wall system.

One of the biggest challenges for today's architects and building contractors is the reconciliation of material interfaces. Whereas in traditional build the interactions between brick, mortar and timber are simple and predictable, today's buildings incorporate a far greater variety of materials that must be joined without compromising overall building performance.

The most basic interface – and often one of the most challenging – is that between the structural frame and the building envelope. And the biggest headache for designers and builders is how to cope with differential movement.

The trend in prestige commercial development today is very much towards high-rise steel framed buildings with a fully glazed curtain-wall façade and the pressure is therefore on system manufacturers to rise to the challenge.

Kawneer's solution to the increase in building movement has been to design and develop a curtain-walling system in which each glazed panel can move more freely to a specified limit within its frame. The new AA®110 system features a deeper 65mm box section which adds about 7.5mm to the rebate depth. This extra depth has two benefits: firstly, there is enough depth to increase the overlap between the aluminium frame and the glazed unit, thereby meeting the requirements for barrier loadings (that is, the amount of lateral load the assembled system can withstand) and secondly, it leaves enough extra space between the frame and the glass to permit movement within the system.

50mm systems are still very much the industry norm that contains the glass within a 20mm-deep rebate with standard glass cover of 13mm.

Kawneer's 50mm system, the AA®100, is a successful example of this. However, we believe that is set to change with 65mm curtain wall systems becoming the norm with the industry moving more and more towards lightweight structures and larger expanses of clear glass. If the requirement is to accommodate the inevitable building movement, and deliver the necessary barrier loadings, you simply won't be able to use a 50mm-wide box section.

The Marine Operations Centre is both an iconic structure for Aberdeen and a functional solution to the harbour's practical requirements. And although complex and challenging, the design has already won the building a Civic Trust Award and the admiration of the architectural community.



Marine Operations Centre, Aberdeen

SMC Parr Architects

Supporting Your Projects



Kawneer Permacover™ is a high quality polyester powder paint finish, offering over 130 standard and 31 metallic paint colours and providing outstanding resistance to environmental conditions. Kawneer Permacover™ has 15 year gloss and a 25 year matt and metallic guarantees subject to application and Kawneer acceptance in marine, industrial, swimming pools or other aggressive atmospheres.

Kawneer Permanodic® is a range of subtle co-ordinated colours which have been researched and developed for architectural systems. Kawneer Permanodic® is a tried and tested anodising process, proven in accelerated laboratory tests, extensive field trials and contract experience. Subject to compliance with Kawneer's requirements, a 25 year finishes guarantee can be obtained from our Head Office.

Authorities

ISO 9001:2000
Quality Management System

BS EN 12020
Extruded precision aluminium profiles

BS 3987
Specification for anodic coatings

BS 6496
Specification for powder organic coatings

BS 4255 Part 1
Specification for non-cellular gaskets

ASTM C509-94
Specification for cellular gaskets

BS EN 12152
Curtain Walling – Air permeability performance requirements and classification

BS EN 12153
Curtain Walling – Air permeability – Test method

BS EN 12154
Curtain Walling – Watertightness – performance requirements and classification

BS EN 12155
Curtain Walling – Watertightness- Laboratory test under static pressure

BS EN 12179
Curtain Walling – Resistance to windload – test method

BS EN 13830
Curtain Walling – Product standard

BS EN 13116
Curtain Walling – Resistance to windload – performance requirements

BS 476-22 - Fire test on building materials

Pr EN 1364-3 - Fire Resistance

Technical Assistance

Kawneer's regionally based team of Architectural Advisers and the Architectural Support Team based at our Head Office in Runcorn are able to provide project advice and support:

Tel: 01928 502485 / Fax: 01928 502512
Email: kawneerAST@alcoa.com

Information on Kawneer's extensive range of Curtain Wall, Window and Ground Floor Treatment solutions can also be obtained from our Head Office by calling:

Tel: 01928 502612

Kawneer UK Ltd is part of Alcoa Building and Construction Systems, and enjoys the extensive resources of the entire Alcoa organisation, allied to the specific glazing systems experience of Kawneer's many operations around the world. As a result of this our partners and customers have direct access to one of the largest pools of technical expertise in the construction industry.

Princes Dock, Liverpool

Atherden Fuller Leng