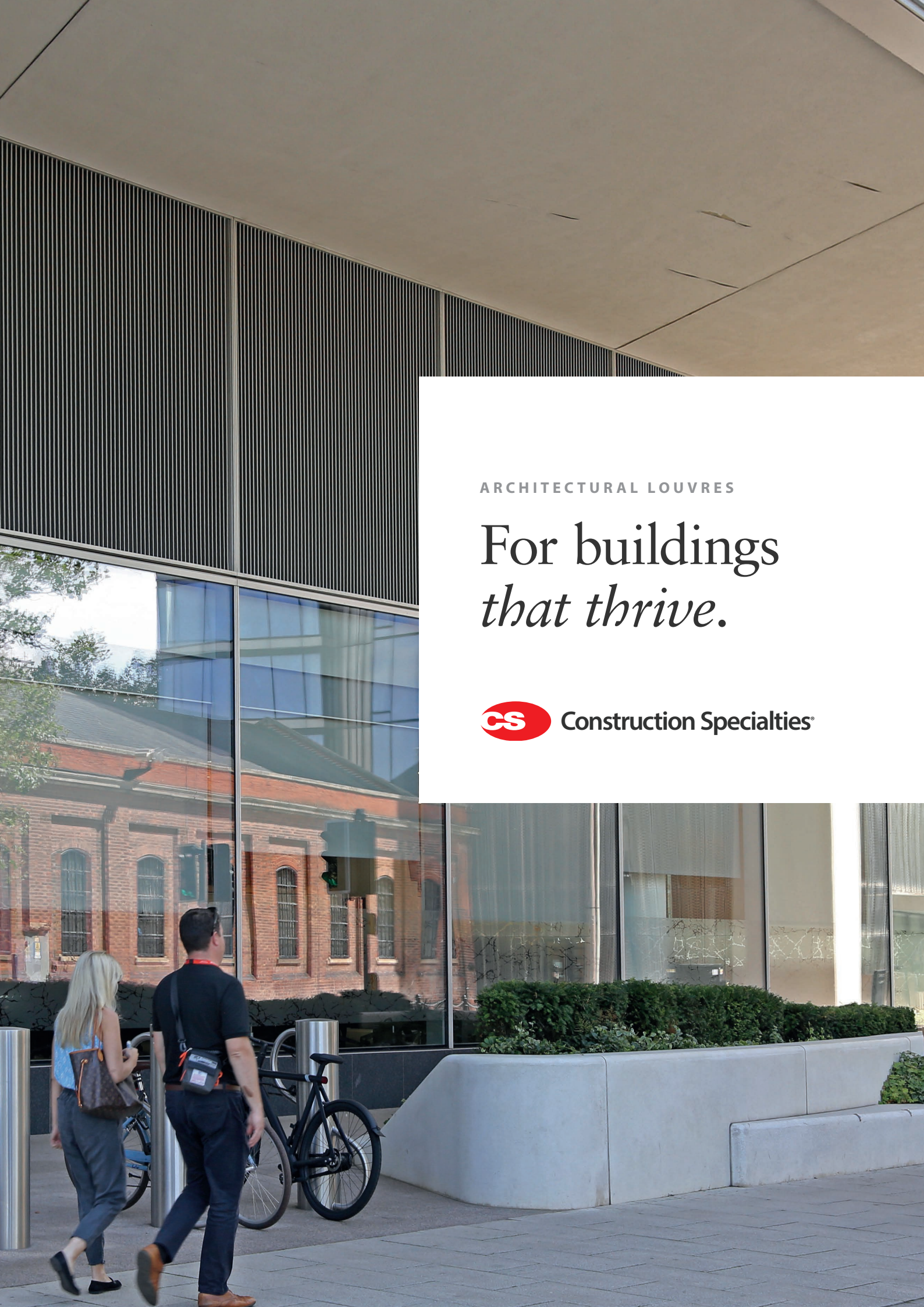


ARCHITECTURAL LOUVRES

# For buildings *that thrive.*

Construction Specialties®

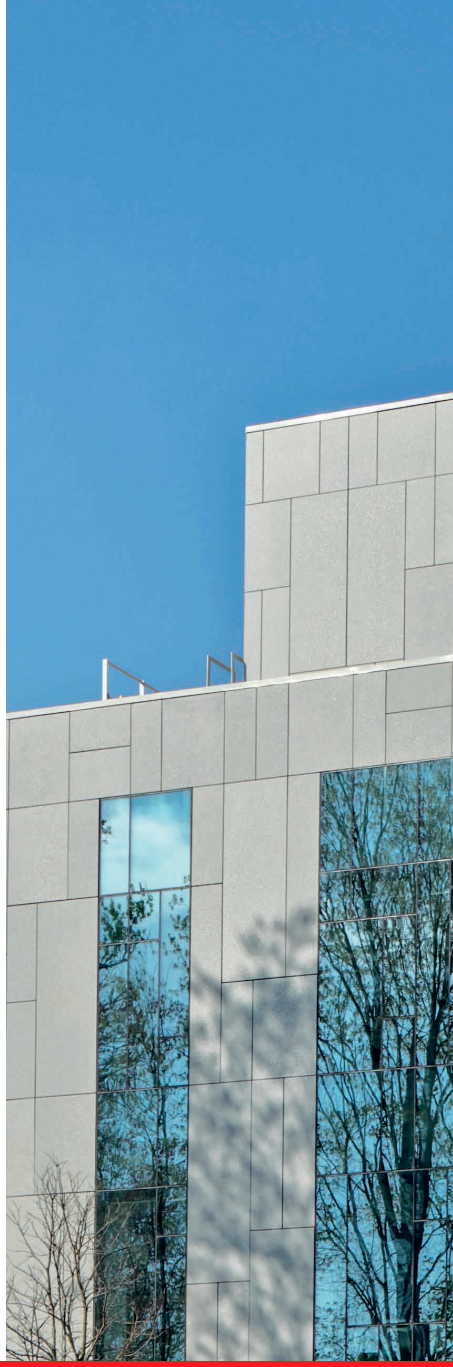
# Helping you build *big dreams.*

We start with a simple promise: offer the highest quality service, products, and expertise to help the building industry create amazing places. And since 1948, we've done that by taking a listen-first approach to discover what you really need. That's led us to create innovative products and enabled us to not only solve problems but also to create opportunities to help you build better.

**ONE VANDERBILT**
**NEW YORK, US**
RS-5605 RAIN DEFENCE LOUVRES

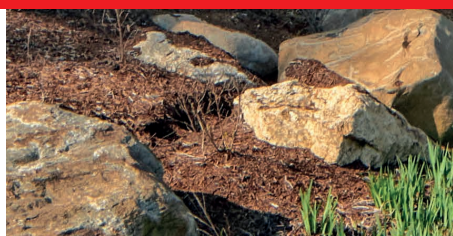
# Leading *with excellence.*

We're always challenging ourselves to live up to your highest standards. So, when you find that what's out there doesn't work for you, we're willing to partner with you to find new solutions for your projects. It's an approach that's helped set the bar for the industry and can help you realise a world of possibilities.



**1948**
Edward and Mary Ellen Hallock established Construction Specialties in Newark, New Jersey, as a manufacturer's representative firm.

**75+**
Years of excellence in the architectural products industry



**UCONN STEM RESEARCH CENTER**
**STORRS, US**
PERFORM™ LOUVRES

## LEADERS IN THE INDUSTRY

We manufacture the highest quality architectural products for architects, designers, engineers, and contractors to create resilient spaces and drive innovation in the building industry.

*©Robert Benson Photography*

# Solutions from *the outside in.*

A beautiful building is just the beginning. Our goal is to partner with you to transform your project into a vibrant space that positively impacts its occupants – whether that means protection from the elements, making a visual statement, or anything in between. Let's make it memorable together.

**ARCHITECTURAL LOUVRES**

**EXPANSION JOINT COVERS**
**SUN CONTROL SOLUTIONS**
**ACROVYN WALL & DOOR PROTECTION**
**ACROVYN DOORS**
**ENTRANCE FLOORING SYSTEMS**

View our full product range:

**c-sgroup.co.uk/28**

**PREBYS CARDIOVASCULAR INSTITUTE, US**
RAIN DEFENCE LOUVRES

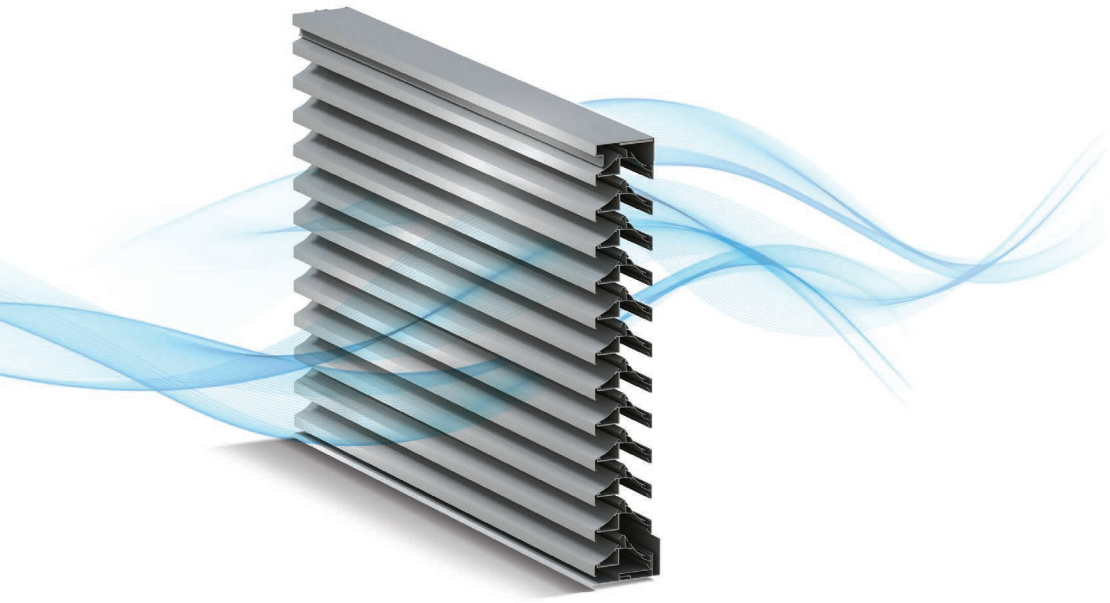

**ROYAL ORTHOPAEDIC HOSPITAL, LONDON, UK**
ACROVYN WALL PROTECTION
ACROVYN BY DESIGN

ARCHITECTURAL PRODUCTS

# Architectural *Louvres*

# Helping buildings *to breathe.*

Louvres are essential to any successful building, allowing airflow in while keeping unwanted elements, like rain, outside. They can also become an integral part of your building's exterior, adding architectural interest, whilst ensuring all functional requirements are met.



**AIRFLOW ISN'T A RESTRICTION. IT'S AN OPPORTUNITY.**
Architects can rely on CS louvres to complement mechanical systems and simultaneously provide architectural interest.


**ST REGIS**
**CHICAGO, US**
RSV-5700 RAIN DEFENCE LOUVRES

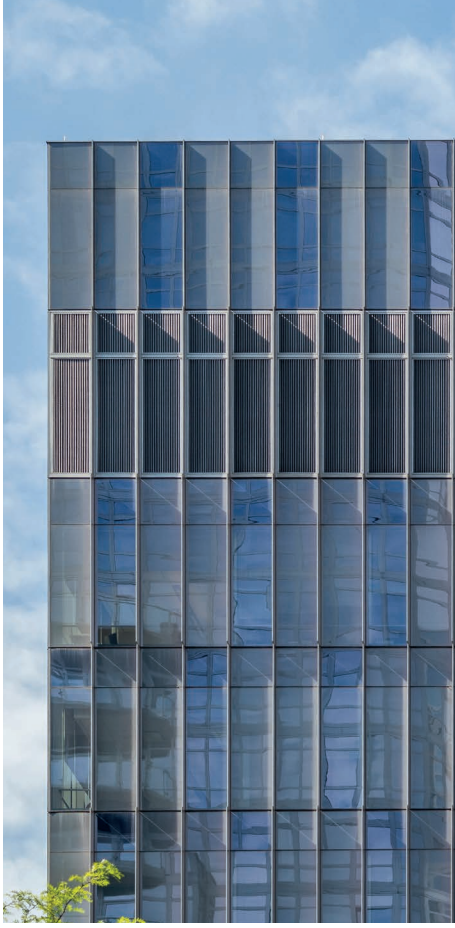
# Global *solutions.*

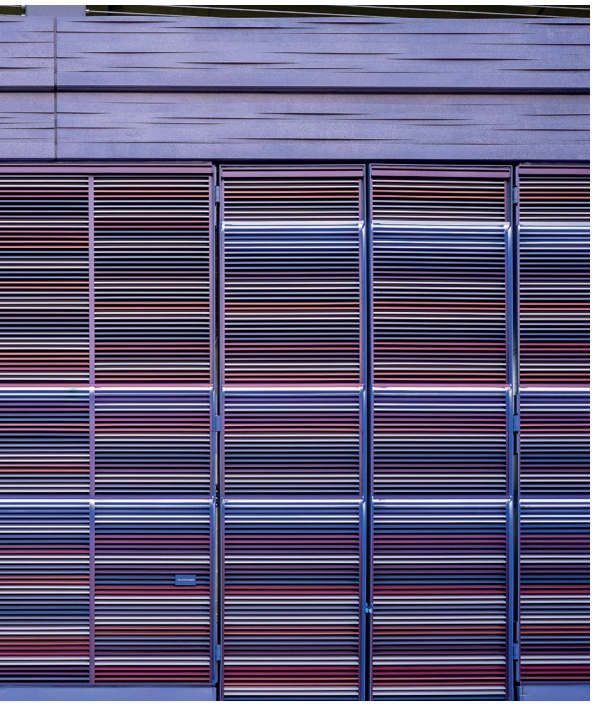
Since developing the industry's first extruded aluminium louvre in 1950s, we've introduced many new and better solutions to customer challenges. We've been privileged to collaborate on thousands of projects worldwide, helping architects and specifiers realise their design vision and achieve the required performance.

View some of our projects:

**c-sgroup.co.uk/11674**


©Robert Benson Photography



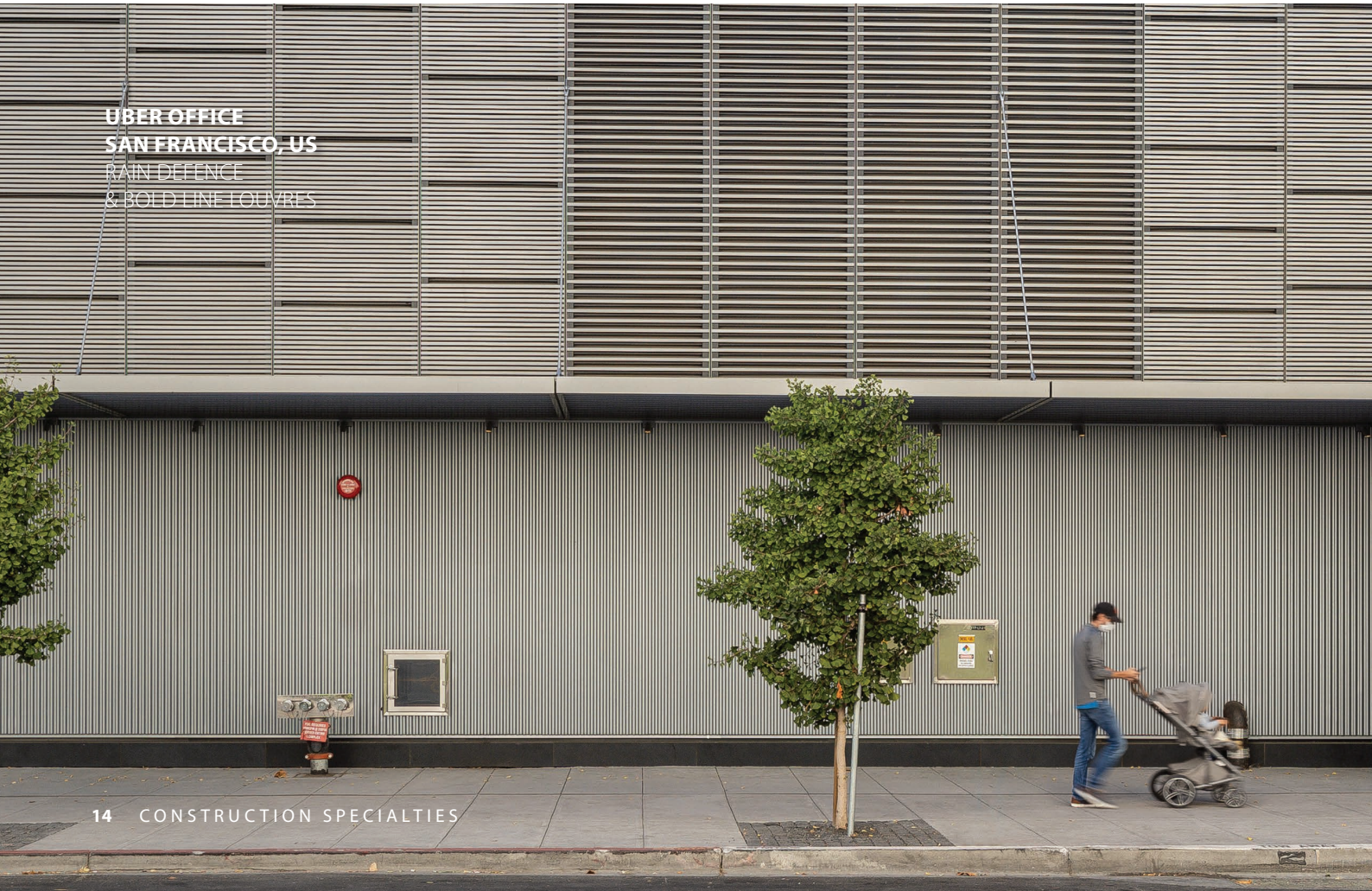


# Integrate *into any design.*

While some louvres are all about standing out, others are more about blending in. Whether you want your louvre to be a major design element or simply disappear into the façade of your building, we have options that will work beautifully.

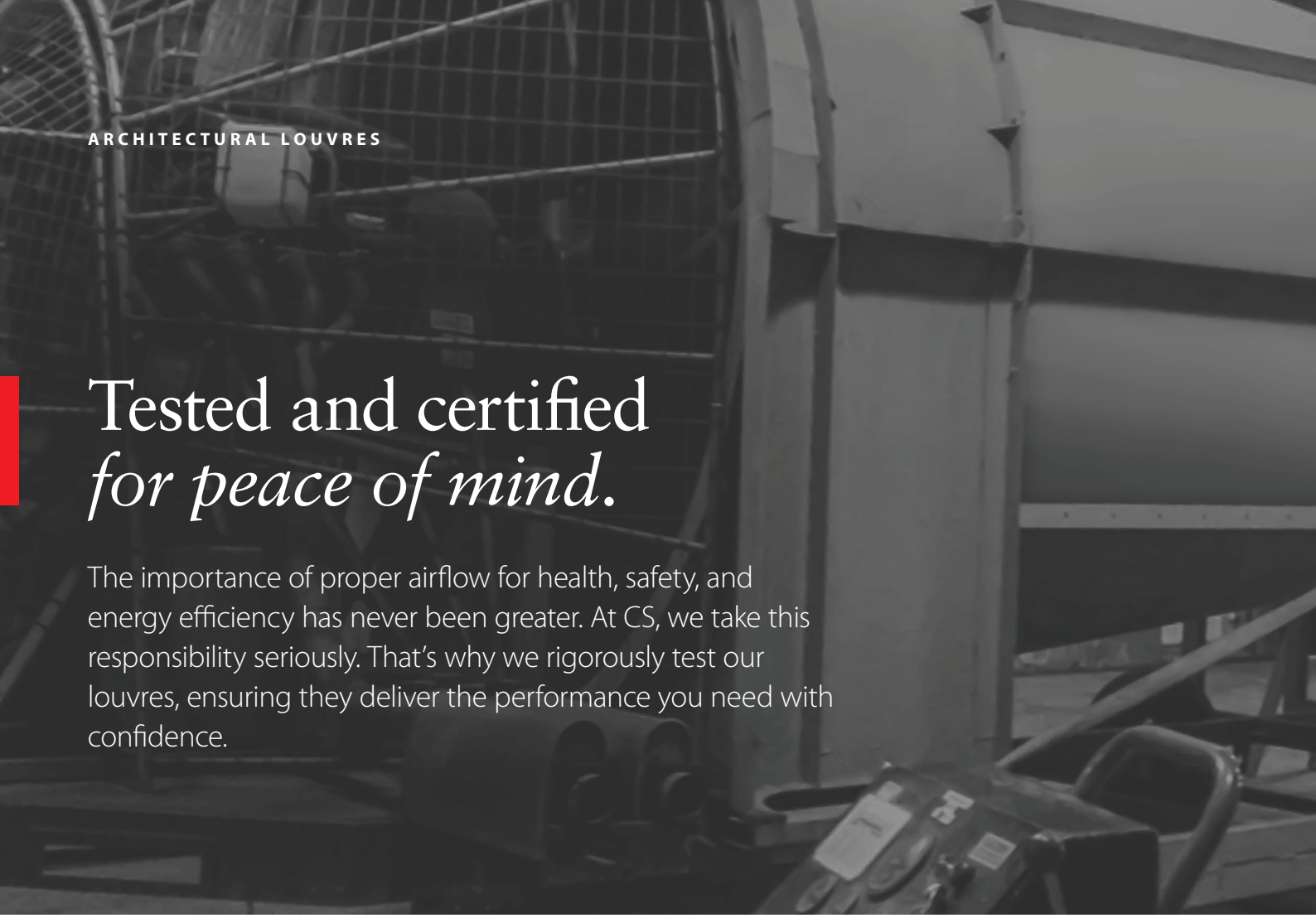
Learn more about design options:

**c-sgroup.co.uk/23432**



**UBER OFFICE**
**SAN FRANCISCO, US**
RAIN DEFENCE
& BOLD LINE LOUVRES

**412 WEST 15**
**NEW YORK, US**
RSH-5700 RAIN DEFENCE LOUVRES



# Tested and certified *for peace of mind.*

The importance of proper airflow for health, safety, and energy efficiency has never been greater. At CS, we take this responsibility seriously. That's why we rigorously test our louvres, ensuring they deliver the performance you need with confidence.

All our standard rain defence and ventilation louvre models sold in Europe are third-party tested to EN 13030:2001 'Ventilation for buildings – Terminals – Performance testing of louvres subjected to simulated rain'.

## EN 13030

Two aspects of performance are measured during the test:

- *Water penetration*
  The ability of the louvre to prevent wind-driven rain ingress. The test simulates 13 m/s winds and 75 mm rain per hour, and measures the louvre's performance at core velocities from 0 m/s to 3.5 m/s.
- *Airflow*
  The airflow characteristic of the louvre (expressed as Discharge and Entry Loss Coefficient Class)

The test results enable specifiers to directly compare the performance of different rain defence louvre models.

A single louvre design classification should be accompanied by the limiting core velocity, for example **Class A 2 up to 2 m/s**.

*NOTE: Whilst simplifying the selection process, the test results reflect the performance of a one-off test panel, 1 $m^2$ in size. The test does not measure or give consideration to the way the water is collected and drained from larger louvre installations.*

**PENETRATION CLASSIFICATION**

| Class | Effectiveness | Max. allowed rain penetration (l/h/m$^2$) |
|---|---|---|
| A | 1 to 0.99 | 0.75 |
| B | 0.989 to 0.95 | 3.75 |
| C | 0.949 to 0.80 | 15.00 |
| D | Below 0.80 | Greater than 15.00 |

*Water penetration effectiveness is measured for each of eight face velocities between 0 m/s and 3.5 m/s. Louvre penetration class should always be expressed in the context of the face velocity it was measured at.*

**DISCHARGE LOSS COEFFICIENT CLASSIFICATION**

| Class | Discharge Loss Coefficient | Rating |
|---|---|---|
| 1 | 0.4 to 1 | Excellent |
| 2 | 0.3 to 0.399 | Very Good |
| 3 | 0.2 to 0.299 | Good |
| 4 | 0.199 & below | Fair |

*Discharge/entry loss coefficient is expressed as a single class, based on an average result over at least five air velocities. Class 1 indicates the least and Class 4 the most resistance to airflow. The higher the value, the lower the energy usage.*

## IN-HOUSE TESTING CAPABILITY

In addition to testing our louvres at Building Services Research and Information Association (BSRIA), a leading independent test laboratory, we can verify how our products will perform in real-life conditions by testing them in our own wind-driven test chamber. The chamber allows us to replicate the test standards for airflow, still air water penetration and wind-driven rain.

# Sustainable *solution.*

Durable and infinitely recyclable, aluminium is a highly sustainable material. Additionally, our louvre extrusions are made of an alloy that contains at least 55% recycled content.

Recently, we were awarded Cradle to Cradle Certified certification for the louvres manufactured at our UK facility, which recognises our commitment to providing safe and responsibly made products.

## Materials

Our aluminium louvre extrusions are typically made of a 6063-T6 alloy, commonly referred to as an architectural alloy, which provides excellent corrosion resistance.

The standard alloy we use contains at least 55% recycled pre-and post-consumer scrap content.

Contact us for more information or to discuss your project requirements.

## Cradle to Cradle Certified® Bronze

CS Architectural Louvres, manufactured at our Westcott facility in the UK, are C2C Certified® Full Scope Bronze, giving you confidence to specify them in green building schemes. The certification applies to a range of colours and finishes.

For more information and certification scope, visit:
**c-sgroup.co.uk/38764**

*Cradle to Cradle Certified is a registered trademark of the Cradle to Cradle Product Innovation Institute.*

**ARKON ENERGY**
**GLOMFJORD, NORWAY**
RAIN DEFENCE LOUVRES

# A louvre *for every demand.*

The principal reason for using louvres is to allow the movement of air, but there are often additional considerations at play. Many projects will need protection from wind-driven rain ingress to prevent damage to expensive HVAC equipment. Sound attenuation or blast resistance can be an important specification factor too.

Whatever your project's performance criteria – we've got it covered.

Learn more about our solutions for:



Explore our Architectural Louvres:

**c-sgroup.co.uk/2369**

**ARKON ENERGY NORWAY**
RSH-5700 RAIN DEFENCE LOUVRES

**MANCHESTER ENGINEERING CAMPUS (MECD), UK**
RSV-5700 RAIN DEFENCE LOUVRES

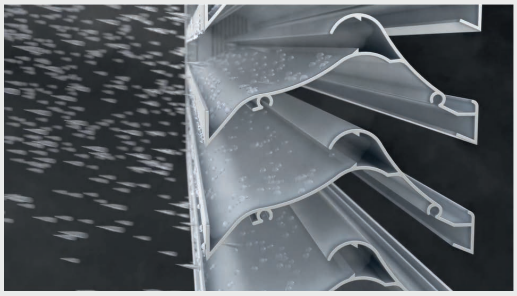
# Weatherproof *your designs.*

Engineered to provide excellent protection from rain penetration and good airflow, our Rain Defence models are available in a choice of blade configurations, can be hidden behind attractive perforated screens or can feature different blade depths to integrate beautifully with your building.

They are ideal when:

- Reliable resistance to wind-driven rain is a priority
- Using a large plenum behind louvres is impractical due to cost or space considerations
- Sensitive equipment will be housed close to the louvre system
- Integrating louvres into the building design is a priority. They can be housed behind architectural features or continuous line louvres

See how our Rain Defence Louvres work



**c-sgroup.co.uk/38027**

Our precision-engineered, extruded louvres maximise performance while minimising space requirements. Watch a video to see how rain water is separated from the airflow, collected and drained.

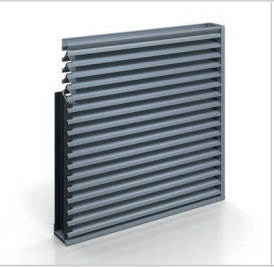

**99 HUDSON**
**JERSEY CITY, US**
RSV-5700 RAIN DEFENCE LOUVRES

# Compare Rain Defence Louvres

Our range of weather louvres offers blade configurations and frame styles to perfectly match your needs. Experience superior weather protection, optimal airflow, and space-saving design.

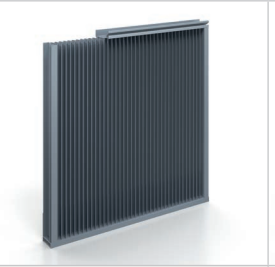
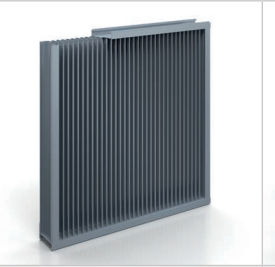
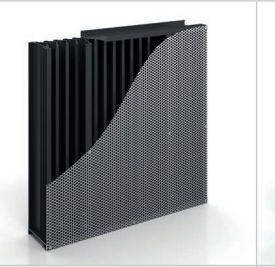
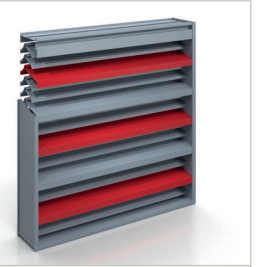
For more information and to download Product Sheets, visit:

**c-sgroup.co.uk/2409**

| |  |  |  |  |
|---|---|---|---|---|
| **Product Name** | RSH-5700 | RSH-5700AL | RSV-5700 | RS-4605 |
| **Penetration Class** [1] | A up to 3.0 m/s | A up to 3.0 m/s | A up to 3.5 m/s | A up to 3.5 m/s |
| **Airflow Class** [1] | 2 (entry), 3 (discharge) | 2 (entry), 3 (discharge) | 3 (entry & discharge) | 3 (entry & discharge) |
| **Airflow Coefficient** [1] | 0.309 (entry)<br>0.274 (discharge) | 0.309 (entry)<br>0.274 (discharge) | 0.287 (entry)<br>0.251 (discharge) | 0.268 (entry)<br>0.257 (discharge) |
| **Horizontal Joint** | Visible or invisible | Visible or invisible | Visible | Visible |
| **Vertical Joint** | Visible (interlocking) | Recessed mullion (interlocking) | Visible (interlocking) or invisible | Visible or invisible |
| **Blade Pitch** | 51 mm | 51 mm | 51 mm | 51 mm |
| **Depth** | 129 mm | 129 mm | 129 mm | 106 mm |
| **Glazing Frame Option** | Yes (depth - 133 mm) | Not applicable | Yes (depth - 133 mm) | Yes (depth - 108 mm) |
| **Blast Resistant Option** | Yes | No | Yes | No |
| **Burglar Resistant Option** | Yes (RC2) | No | Yes (RC2) | No |
| **Max Module Height** [2] | 3600 mm | 3600 mm | 3600 mm | 3048 mm |
| **Max Module Width** [2] | 3600 mm | 3600 mm | 3600 mm | 3600 mm |

[1] *Tested to EN 13030. For full performance data, refer to the Performance Datasheet or contact us for the test report.*
[2] *Based on 1.5 kPa wind load. Subject to weight considerations.*
[3] *Maximum perforated sheet size is approx. 3550 x 1400 mm. Units exceeding this size will have joints in the perforated sheet. Perforation is directional.*

**412 WEST 15TH STREET**
**NEW YORK, US**
RSH-5700 RAIN DEFENCE LOUVRES

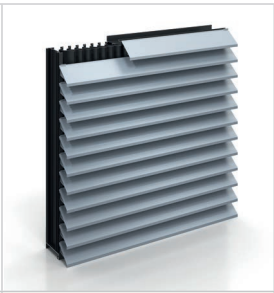
|  |  |  |  |  |
|---|---|---|---|---|
| RS-5900 | RS-3900 | RS-5605 | PL-5700 | B-7505 |
| A up to 3.5 m/s | A up to 3.5 m/s | A up to 3.5 m/s | A up to 3.0 m/s | A up to 2.5 m/s |
| 2 (entry & discharge) | 2 (entry & discharge) | 1 (entry & discharge) | 3 (entry & discharge) | 2 (entry), 3 (discharge) |
| 0.342 (entry)<br>0.352 (discharge) | 0.326 (entry)<br>0.388 (discharge) | 0.466 (entry)<br>0.421 (discharge) | 0.252 (entry)<br>0.222 (discharge) | 0.324 (entry)<br>0.273 (discharge) |
| Visible<br>Visible (interlocking) | Visible<br>Visible (interlocking) | Visible<br>Visible (interlocking) or invisible | Louvre modules positioned behind perforated screen | Visible or invisible<br>Multiple options |
| 38 mm | 22 mm | 25 mm | 51 mm | 51 mm |
| 130 mm | 82 mm | 131 mm | 191 mm | 183 mm |
| Yes (depth - 133 mm) | No | Yes (depth - 133 mm) | Yes (depth - 191 mm) | No |
| Yes<br>No | No<br>No | Yes<br>No | No<br>No | No<br>No |
| 3600 mm<br>3600 mm | 3048 mm<br>3600 mm | 2400 mm<br>3600 mm | 3550 mm [3]<br>3550 mm [3] | 3600 mm<br>3600 mm |

# Compare Architectural Line Louvres

Achieve the sleek, uninterrupted aesthetic of continuous blade louvres without sacrificing rain defence performance. Our double bank arrangements provide an elegant solution where both design and functionality are paramount.

For more information and to download Product Sheets, visit:

**c-sgroup.co.uk/21928**

| |  |  |  |  |
|---|---|---|---|---|
| **Product Name** | RS-8715 | RS-8915 | RS-9715 | RS-9915 |
| **Penetration Class** [1] | A up to 3.5 m/s | A up to 3.5 m/s | A up to 3.5 m/s | A up to 3.5 m/s |
| **Airflow Class** [1] | 3 (entry & discharge) | 3 (entry & discharge) | 3 (entry & discharge) | 3 (entry & discharge) |
| **Airflow Coefficient** [1] | 0.260 (entry)<br>0.232 (discharge) | 0.294 (entry)<br>0.299 (discharge) | 0.259 (entry)<br>0.224 (discharge) | 0.290 (entry)<br>0.287 (discharge) |
| **Mullion Type** | Hidden | Hidden | Hidden | Hidden |
| **Blade Pitch (Front)** | 75 mm | 75 mm | 100 mm | 100 mm |
| **Overall Depth** | 208 mm | 207 mm | 229 mm | 230 mm |

[1] *Tested to EN 13030. For performance data, refer to the Performance Datasheet or contact us for the test report.*

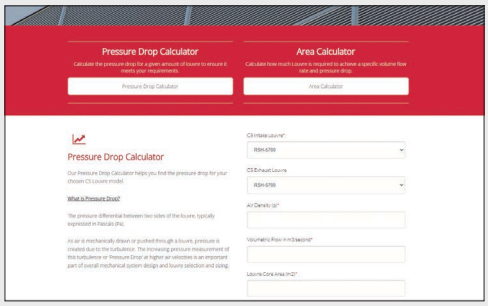
# Let your buildings *breathe.*

When superior ventilation is paramount, our ventilation louvres are the answer. Engineered to deliver exceptional airflow with minimal pressure drop, they offer a cost-effective solution while still providing essential weather protection. Choose from continuous line or modular mullion options to seamlessly integrate with your desired façade design.

They are ideal for:

- Projects prioritising maximum free area and high airflow
- Budget-conscious designs seeking optimal value
- Applications where occasional rainwater penetration is acceptable
- Designs aiming for a continuous, uninterrupted façade aesthetic

Calculate Louvre Area and Pressure Drop




**c-sgroup.co.uk/38611**

Achieving sufficient airflow through the louvres is critical for the effective operation of your ventilation systems. Use our handy online tools to establish the area of our louvre models required to meet your volume flow rate and pressure drop requirements, or to calculate pressure drop for a given louvre model and size.

**117 PACIFIC HIGHWAY**
**HORNSBY, AUSTRALIA**
A-4085 VENTILATION LOUVRES

# Compare Ventilation Louvres

Explore our comprehensive range of ventilation louvres, designed to meet the diverse functional and aesthetic demands of your projects. For seamless integration into curtain walling or glazing, choose from models available with a glazing frame.

For more information and to download Product Sheets, visit:

**c-sgroup.co.uk/2397**

| |  |  |  |  |
|---|---|---|---|---|
| **Product Name** | A-3250 | A-3200 | A-4050 | A-4080/A-4085 |
| **Penetration Class** [1] | D up to 3.5 m/s | D up to 3.5 m/s | C up to 1.0 m/s | C up to 1.0 m/s |
| **Airflow Class** [1] | 1 (entry & discharge) | 2 (entry & discharge) | 2 (entry & discharge) | 2 (entry & discharge) |
| **Airflow Coefficient** [1] | 0.400 (entry)<br>0.434 (discharge) | 0.376 (entry)<br>0.394 (discharge) | 0.338 (entry)<br>0.345 (discharge) | 0.338 (entry)<br>0.345 (discharge) |
| **Horizontal Joint** | Invisible | Visible or invisible | Invisible | Visible or invisible |
| **Vertical Joint** | Invisible | Visible (interlocking) or invisible | Invisible | Visible (interlocking) or invisible |
| **Blade Pitch** | 75 mm | 75 mm | 100 mm | 100 mm |
| **Depth** | 128 mm | 102 or 150 mm [3] | 151 mm | 102 or 154 mm [3] |
| **Glazing Frame Option** | No | Yes (depth 108 mm) | No | Yes (depth 108 mm) |
| **Blast Resistant Option** | No | No | No | Yes |
| **Max Height** [2] | Not applicable | 3600 mm | Not applicable | 3600 mm |
| **Max Module or Blade Width** [2] | 3000 mm | 3000 mm | 3600 mm | 3600 mm |

**MET OFFICE SUPERCOMPUTER FACILITY, EXETER, UK**
A-3250 VENTILATION LOUVRES

|  |  |  |
|---|---|---|
| A-6177 | PL-4080 | B-6485 |
| C at 0 m/s | C up to 3.0 m/s | C up to 1.5 m/s |
| 2 (entry), 1 (discharge) | 3 (entry & discharge) | 2 (entry & discharge) |
| 0.380 (entry)<br>0.411 (discharge) | 0.260 (entry)<br>0.253 (discharge) | 0.370 (entry)<br>0.331 (discharge) |
| Visible or invisible<br>Visible (interlocking) or invisible | Louvre modules positioned behind perforated screen | Visible or invisible<br>Multiple options |
| 146 mm | 100 mm | 100 mm |
| 154 or min. 231 mm [3] | 191 mm | 159 or 207 mm [3] |
| No | Yes (depth 191 mm) | No |
| Yes | No | No |
| 3600 mm<br>3600 mm | 3550 mm [4]<br>3550 mm [4] | 3600 mm<br>3600 mm |

[1] *Tested to EN 13030. For full performance data, refer to the Performance Datasheet or contact us for the test report.*

[2] *Based on 1.5 kPa wind load. Subject to weight considerations.*

[3] *Model's depth depends on the specified mullion type (visible or hidden).*

[4] *Maximum perforated sheet size is approx. 3550 x 1400 mm. Units exceeding this size will have joints in the perforated sheet. Perforation is directional.*

# Where concealment *meets style.*

Discover the simple yet elegant solution for concealing mechanical equipment or unsightly areas while maintaining airflow and enhancing the aesthetic appeal of your building. Our screening louvres offer a simple, cost-effective way to achieve a sleek, continuous appearance that seamlessly integrates with your design.

Choose screening louvres for:

- Projects seeking a budget-friendly, easy-to-install screening solution
- Applications where rain penetration is not a concern
- Designs that prioritise a clean, uninterrupted façade aesthetic


**MAELFA**
**CARDIFF, UK**
SLA-Z SCREENING LOUVRES

# Compare Screening Louvres

We offer four screening louvre blade shapes to suit your design. The blades are clipped on site into mullions at pre-determined positions, streamlining installation and saving valuable time. For optimal rooftop screening, blades can be installed in an inverted orientation, ensuring maximum privacy and protection.

For more information and to download Product Sheets, visit:

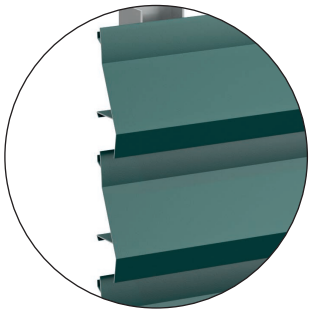
**c-sgroup.co.uk/2373**

| |  |  |  |  |
|---|---|---|---|---|
| **Product Name** | SLA-Z | SLA-S | SLA-C | SLA-I |
| **Blade Shape** | Z-shaped | S-shaped | C-shaped | I-shaped |
| **Mullion Type** | Hidden | Hidden | Hidden | Hidden |
| **Blade Pitch** | 100 mm | 100 mm | 100 mm | 100 mm |
| **Depth** | 70 mm | 70 mm | 70 mm | 70 mm |
| **Maximum Mullion Centres** [1] | 1500 mm | 1500 mm | 1500 mm | 1500 mm |

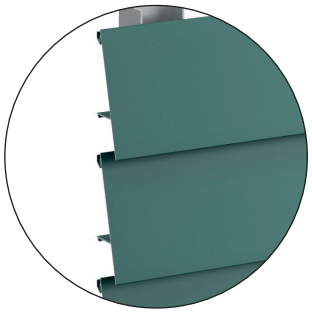
[1] *Based on 1.5 kPa wind load.*

**GREENWICH SQUARE**
**LONDON, UK**
SLA-Z SCREENING LOUVRES –
ROOFTOP APPLICATION

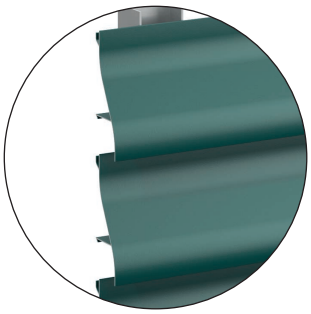
**BLADE OPTIONS**



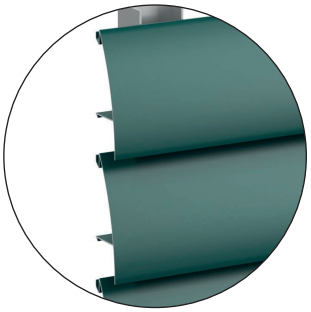
SLA-Z



SLA-I



SLA-S



SLA-C

# Controlled sound, *uncompromised airflow.*

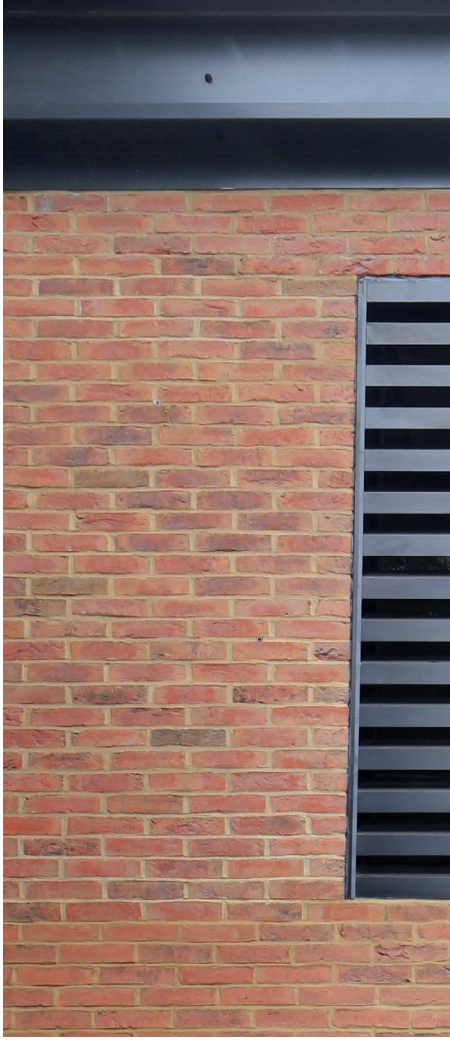
Where noise reduction and ventilation are both required, our Acoustic Louvres deliver the perfect solution. Whether as standalone screens, or integrated into building façades, they effectively mitigate noise polution without sacrificing airflow. They can also be combined with any of our rain defence or ventilation models, if required.

Choose acoustic louvres for:

- Car parks, plant rooms, substations, cooling towers and any other application that requires both sound attenuation and ventilation
- Areas where noise levels that escape from exterior or interior walls need to be minimised

# Compare Acoustic Louvres

Choose from three louvre depths and flat or chevron designs to find the perfect fit for your project. We recommend considering depth and weight during the design phase to ensure adequate structural support is provided.



For more information and to download Product Sheets, visit:

**c-sgroup.co.uk/4730**

| |  |  |  |  |
|---|---|---|---|---|
| **Product Name** | A-150S | A-300S | A-300C | A-600C |
| **Weighted Sound Reduction Index Rw (dB)** [1] | 10 | 15 | 12 | 19 |
| **Airflow Class** [2] | 3 (entry & discharge) | 4 (entry & discharge) | 4 (entry & discharge) | 4 (entry & discharge) |
| **Airflow Coefficient** [2] | 0.204 (entry)<br>0.205 (discharge) | 0.184 (entry)<br>0.181 (discharge) | 0.168 (entry)<br>0.159 (discharge) | 0.154 (entry)<br>0.149 (discharge) |
| **Design Features** | Flat blade /<br>visible mullion | Flat blade /<br>visible mullion | Chevron blade /<br>visible mullion | Chevron blade /<br>visible mullion |
| **Blade Pitch** | 150 mm | 150 mm | 150 mm | 150 mm |
| **Depth** | 150 mm | 300 mm | 300 mm | 600 mm |
| **Weight** [3] | 30 kg/m$^2$ | 40 kg/m$^2$ | 45 kg/m$^2$ | 75 kg/m$^2$ |
| **Sightproof** | No | No | Yes | Yes |

[1] *Rating according to EN ISO 717-1:2013. For Sound Reduction Index (dB) values at specific octave band centre frequencies, refer to individual Performance Datasheets (tested to EN ISO 10140-2:2010 ).*

[2] *Tested to EN 13030. For full airflow performance data, refer to the Performance Datasheet or contact us for the test report.*

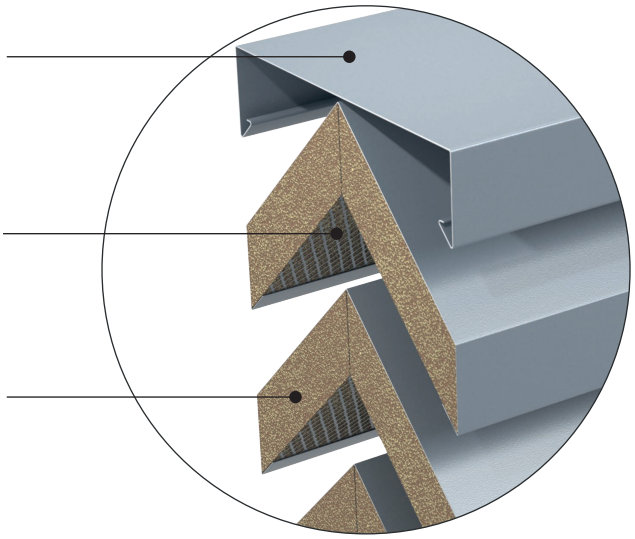
[3] *The maximum module height is 2500 mm, and the width 1200 mm, subject to weight considerations.*

**WHITEFRIARS SHOPPING CENTRE**
**CANTERBURY, UK**
A-150S ACOUSTIC LOUVRES

Blades and frames are formed out of galvanised steel, supplied in mill finish or painted.

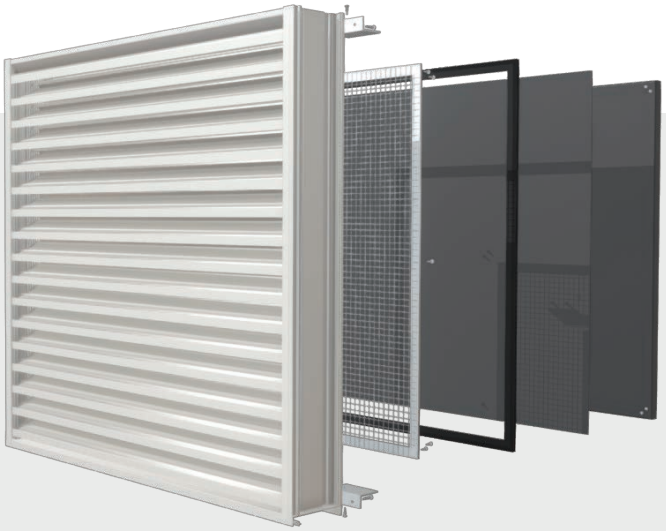
Galvanised mesh on the underside of louvre blades maximises noise reduction performance.

Mineral wool infill material with acoustic, thermal and fire resistant properties. It is also water repellent, to prevent moisture build up, damp and rot.



# Accessorise *your louvres.*

We offer a wide range of accessories and extras to suit your project's needs. From protective guards and meshes to insulated blanking panels, louvred doors and volume control dampers, we offer everything you need to optimise functionality and performance.



Explore the full range of accessories:

**c-sgroup.co.uk/26795**

Blank-off panels are often selected as a simple way to mitigate air and water from coming through non-ducted areas. Any specified louvre can have custom fabricated blank-offs applied with or without the ability to convert to active at a later time.

**181 FREMONT**
**SAN FRANCISCO, US**
RS-5605 RAIN DEFENCE LOUVRES

# Everything *you need.*

When you specify our systems, you get the support of a dedicated team with a wealth of experience and design capabilities.

We are here to assist you along the way, from the concept design and specification stages to product selection and practical installation considerations.

## Tools & Support

- Specification guidance and documents
- Technical drawings
- BIM objects
- Online pressure drop calculator tool
- Performance test reports
- Product samples (physical and virtual)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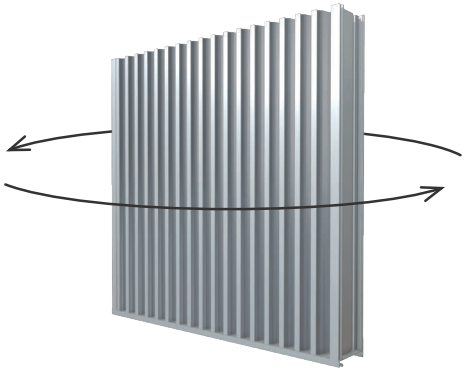
## Specification Guidance

Louvre specification is a balance of form and function. Our CPD presentation provides best practice guidance on how to specify for aesthetics and performance.

Book a presentation at your practice.

c-sgroup.co.uk/2900

**NORTHAMPTON UNIVERSITY CAMPUS, UK**
RSV-5700 RAIN DEFENCE LOUVRES



Explore our models in 3D:

**ONE BANK STREET**
**LONDON, UK**
RSV-5700 RAIN DEFENCE LOUVRES

Modular RSV-5700 Rain Defence Louvres met this project's functional and aesthetic needs.

CASE STORY

# A building that *exudes classy vibes.*

One Bank Street, an iconic addition to Canary Wharf, London, symbolises a fusion of modern architectural aesthetics and sustainability. To provide efficient ventilation and rain defence while merging with the exterior envelope design, architects sought a high-performance louvre solution with vertical blades.

View the full story:

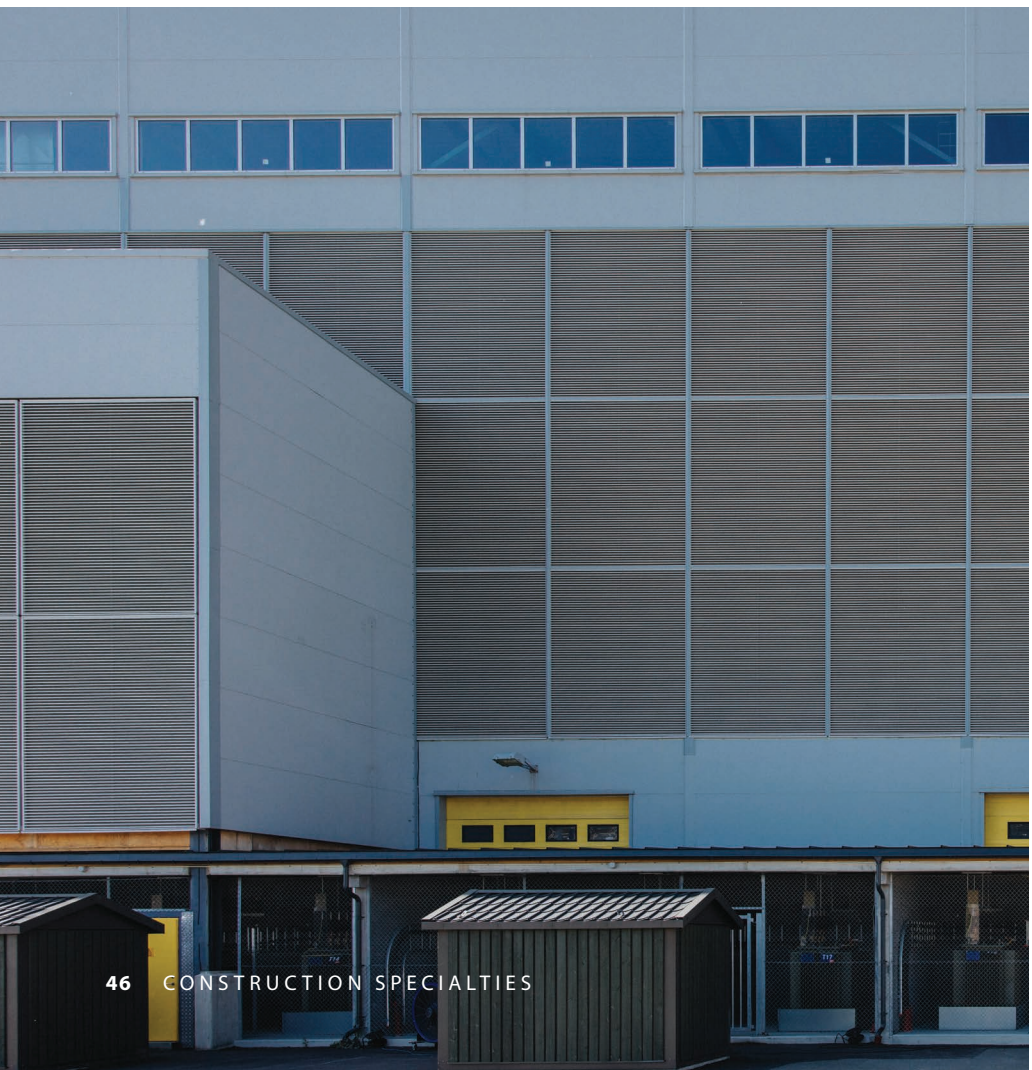
**c-sgroup.co.uk/38184**

CASE STORY

# Powering *the digital age.*

Arkon Energy, a 100% renewable data centre infrastructure company, expanded its network by acquiring the Hydrokraft data centre in Glomfjord, Norway, which operates on eco-friendly hydroelectric power.

A key aspect of the project was the installation of rain defence louvres for the facility, located just 400 metres from the ocean. The system needed to provide efficient airflow, withstand strong wind loads, and complement the design while ensuring durability and cost-effectiveness.



**ARKON ENERGY DATA CENTRE**
**GLOMFJORD, NORWAY**
RSH-5700 RAIN DEFENCE LOUVRES

View the full story:

**c-sgroup.co.uk/38241**

**LEIPZIG SOUTH COMBINED HEAT AND POWER PLANT**
**LEIPZIG, GERMANY**
RSH-5700AL RAIN DEFENCE LOUVRES

Modular RSH-5700AL Rain Defence Louvres provide excellent rain defence and efficient airflow.

View the full story:

**c-sgroup.co.uk/38797**

CASE STORY

# Pioneering *sustainable energy.*

The Leipzig South Combined Heat and Power (CHP) plant is a cutting-edge, low-emission facility that combines gas turbines and hydrogen capabilities. With over 93% efficiency, it generates both electricity and heat, supporting Leipzig's district heating network. Set to increase its use of climate-neutral hydrogen, the plant plays a key role in the city's climate neutrality goals.

Integral to the design of the main power plant building, gas supply building, and pump hall are high-performance louvres, ensuring efficient airflow while preventing rainwater ingress.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ASK A QUESTION
High performing louvres with horizontal blades and visible mullions, offering great protection against wind-driven rain penetration and good airflow.
INTAKE
EXHAUST
1 Complex extruded blade design for maximum rain defence performance
2 Multiple channels in blades and vertical components to collect and drain water from the louvred area
3 Interlocking visible mullions to line up with other façade elements
4 Delivered to site as pre-fabricated modules for efficient installation
5 Sightproof design
View 3D Model
View Test Data
Download Data Sheet

# Need more *information?*

Browse our website for detailed information on architectural louvre options, guidance on specifying and case studies.

Learn more about Architectural Louvres.

**c-sgroup.co.uk/2369**

View a complete set of Product Sheets.

**c-sgroup.co.uk/ps-lvr-uk**

# Specifying *louvres.*


allegiant stadium
LOT
E

# Form and Function

Louvre specification is a balance between design vision and performance, with the appearance of the louvred façade playing an important role in the selection process.

On the next few pages, we highlight the key specification considerations that can affect the success of a louvre installation.


For more information on the specification process, guidance on selecting the right louvres for your project, or to download our comprehensive, free *'Architectural Louvres Specification Guide'*, please visit: **c-sgroup.co.uk/23410**

**HESCHEL SCHOOL**
**NEW YORK, US**
RSV-5700 RAIN DEFENCE LOUVRES

# Performance Considerations

The main purpose of using louvres is to allow air movement, but other factors must also be considered. Each project should be assessed individually to ensure the solution meets all performance criteria.

For more information on louvre performance testing, visit:

**c-sgroup.co.uk/23431**

## AIRFLOW PERFORMANCE

With the exception of projects where louvres are specified solely to provide vision screening, their effectiveness in allowing air to enter and exit a building will always be a critical performance consideration.

When selecting and sizing your louvre solution, avoid using Free Area. Instead, calculate the correct louvre area size using the model-specific Entry/Discharge Loss Coefficient. Additionally, ensure that the louvre's Pressure Drop meets the project requirements for the specified air intake velocity.

*See pages 16-17 for airflow testing and classification information.*

## RAIN DEFENCE PERFORMANCE

Many projects require protection against wind-driven rain ingress. The prevailing weather conditions and the position of louvres on the building should be considered when assessing the risk of water ingress and potential damage.

One way to mitigate the risk is by using a ducted plenum chamber with appropriate drainage to protect sensitive equipment. In such cases, standard ventilation louvres are often chosen.

A more space-saving option is to use weather louvres, which offer both efficient airflow and rain protection. These products should be independently tested to EN 13030 to verify their performance.

*See pages 16-17 for more EN 13030 testing information.*


**LAGUARDIA AIRPORT**
**TERMINAL B, NEW YORK, US**
RSH-5700 RAIN DEFENCE LOUVRES

## ACOUSTIC PERFORMANCE

If noise emission is a concern, acoustic louvres should be considered to reduce factory or plant room noise, especially near pedestrian walkways or other buildings.

Acoustic louvres can be installed as standalone screens or integrated into the façade, and fitted behind rain defence or ventilation models if needed.

Their depth and weight should be considered early to ensure sufficient support structure is provided.

## SECURITY REQUIREMENTS

Some projects, like government buildings, data centres, or power plants, may require robust solutions to meet heightened security demands.

Louvres can be seen as a weaker point of the façade, alongside doors and windows. Where required, burglar-resistant models (e.g. tested to EN 1627-1630 standards and RC class rated) or blast-resistant configurations should be considered.

## ACCESSORIES

All louvres can be supplied with additional accessories and fittings.

Bird/vermin guards or insect meshes can be fitted to the back of the louvres but may impact airflow performance, so test data should be reviewed. Insect meshes also need to be cleaned regularly.

In non-active façade areas, louvres are usually blocked off with single-skin or insulated blanking panels.

Dampers can also be used behind louvres, typically where natural ventilation is employed.

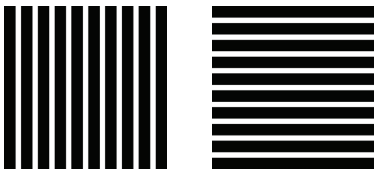
# Design Considerations

With a wide range of options available, louvres can either stand out as a bold feature or blend in with the surrounding materials and style, enhancing the overall aesthetics of the structure.

For more design inspiration, visit:

**c-sgroup.co.uk/23432**

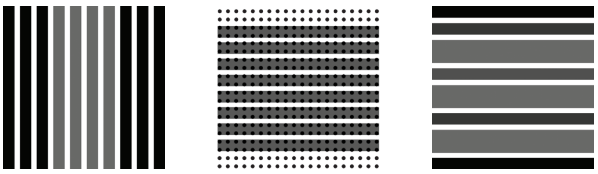
## BLADE ORIENTATION AND JOINTS



Although horizontal louvre blade arrangement is most common, vertical blade models are particularly effective for rain defence and may be preferred for their appearance.

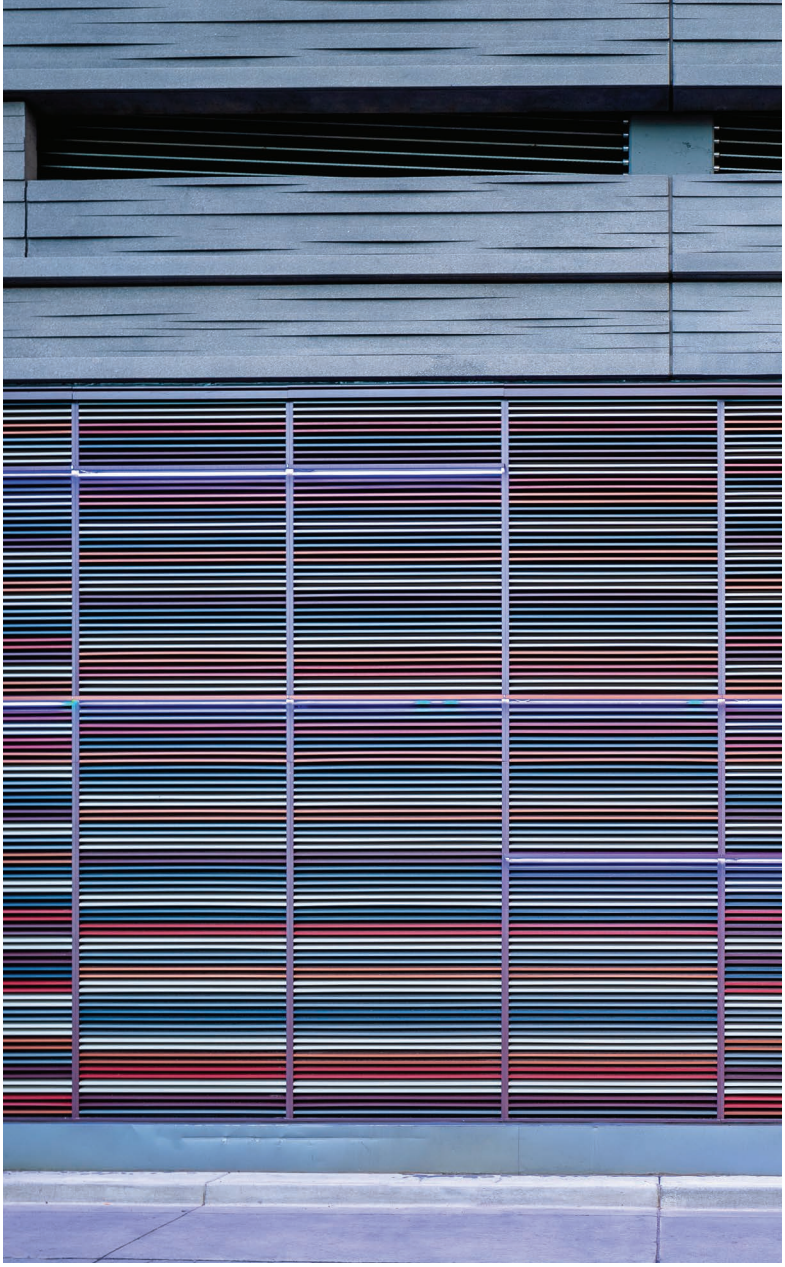
Larger installations can be designed with visible or invisible joints, depending on the desired aesthetic and model chosen. Hidden joints create a continuous line, ideal for irregular openings, while visible joints offer a framed look, aligning with other façade features.

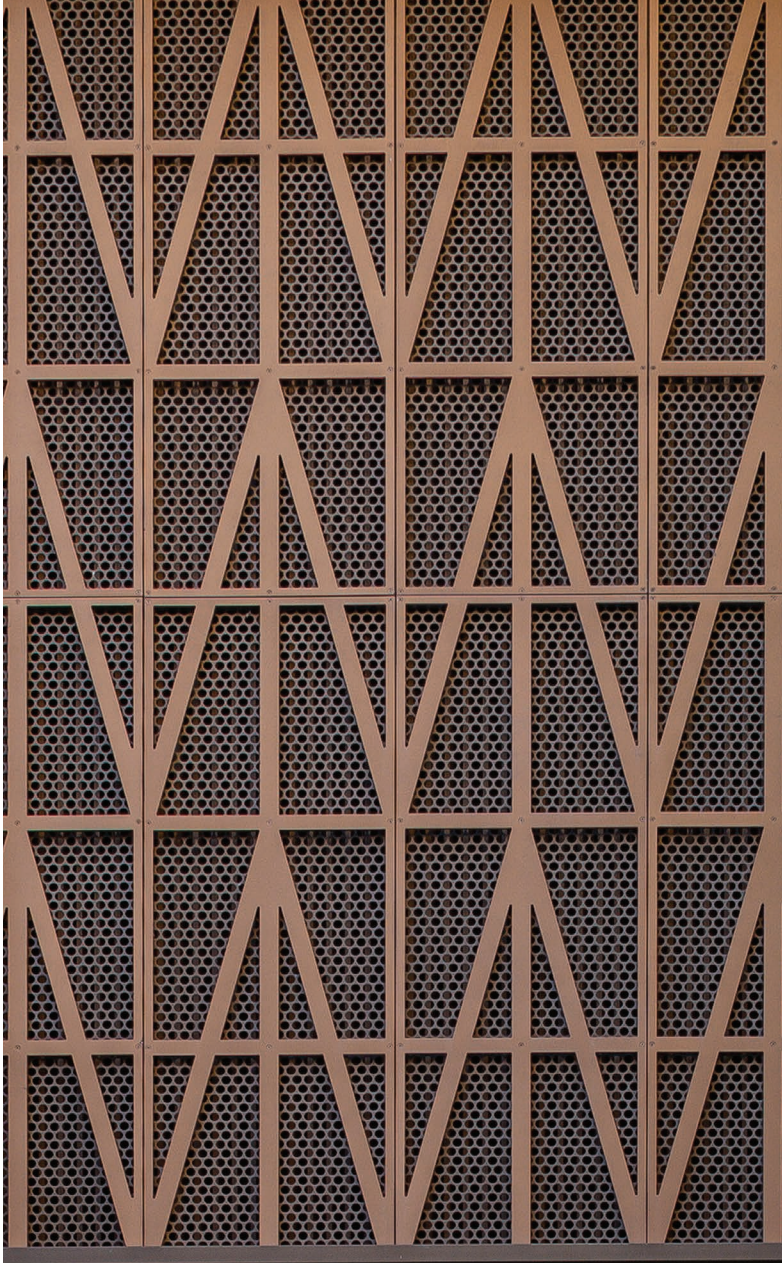
## BLEND, HIDE OR FEATURE



Louvres can be installed behind decorative grilles or screens to conceal their appearance; however, the impact of such features on airflow performance should always be carefully considered.

Some louvre models offer great flexibility in creating a truly bespoke façade, allowing for the incorporation of accent blades that add visual interest and shade, or multiple colours to complement the building's design.





## SHAPES, CURVES AND SLOPES

Most louvres can be cut to create arches or other interesting shapes. Some models can be curved in plan or faceted to create the illusion of a curve. However, the potential impact on performance should always be considered.

Additionally, some rain defence louvres can be integrated into sloping façades without compromising their performance.

## LOUVRE INTEGRATION

Louvres can be a key element of any façade design and are typically fitted into prepared openings or fixed to a secondary supporting steel structure.

Some modular louvre options are available with glazing frames, making them easy to integrate into curtain walling.

When designing, it is important to consider the louvre depth, weight and the maximum self-supporting unit size.

## COLOURS AND FINISHES

Louvres can be anodised or powder-coated in a wide range of colours to suit design requirements.

Anodising offers a clear finish for a natural look or a coloured finish for a wider range of hues, both providing durability and corrosion resistance. Powder coating is available in matt or gloss finishes, offering flexibility to achieve the desired aesthetic.

# Louvre Terminology

Louvres play a crucial role in building ventilation, and understanding key terms related to their performance is essential for effective design and selection. Below are important definitions.

### AERODYNAMIC COEFFICIENT

A unitless number, determined by airflow testing, representing the aerodynamic effectiveness of the louvre.

Unlike **% Free Area**, it accounts for the design and configuration of the louvre, providing an accurate measure of its airflow performance.

Values are recorded for both air intake (Entry Loss Coefficient $C_e$) and exhaust (Discharge Loss Coefficient $C_d$) and typically range from 0.1 to 0.5 (the higher the number, the more efficient airflow).

### AERODYNAMIC FREE AREA

The product of **Core Area** and the **Aerodynamic Coefficient**. Equal to the total area of a theoretically perfect opening.

This value is used for calculating **Pressure Drop**.

### BLADE PITCH

The individual spacing of blades within the louvre system, typically expressed in mm.

### BSRIA

Based in the UK, the Building Services Research and Information Association is one of Europe's leading independent test laboratories for the testing and certification of building services products.

### CORE AREA

The louvre core area is the product of the minimum height and minimum width of the front opening in the louvre assembly with the louvre blades removed, usually expressed in $m^2$.

It is used with the **Aerodynamic Coefficient** to calculate the **Aerodynamic Free Area** and, thus, the **Pressure Drop**.

### CORE VELOCITY

The velocity at which air passes through the **Core Area**, typically expressed in m/s.

Core Velocity = Volumetric Flow Rate / Core Area

### EN 13030

*EN 13030:2001 'Ventilation for buildings - Terminals - Performance testing of louvres subjected to simulated rain'* is the European standard to which louvre performance is tested.

The EN 13030 test procedure is based on a nominally 1 m x 1 m sized louvre panel. While allowing direct performance comparisons between different louvre designs, the test does not measure or consider how water is collected and drained from larger louvre installations.

*AMCA 500-L is a similar test used in the US and some other parts of the world.*

### FREE AREA

The minimum area through which air can pass. It is determined by multiplying the sum of the minimum distances between intermediate louvre blades, the top blade and head, and the bottom blade and cill, by the minimum distance between jambs.

Although commonly used by Building Services Engineers as a 'rule of thumb' for louvre sizing, Free Area does not provide an accurate assessment of actual louvre performance, as it does not account for the effects of louvre design on airflow efficiency. Instead, a louvre's **Pressure Drop** and **Aerodynamic Free Area** should be considered.

### PRESSURE DROP

The pressure differential between two sides of the louvre, typically expressed in Pascals (Pa).

As air is mechanically drawn or pushed through a louvre, pressure is created due to the turbulence. The increasing pressure measurement of this turbulence or 'Pressure Drop' at higher air velocities is an important factor in overall mechanical system design and louvre selection and sizing.

### SPECIFIC DENSITY OF AIR

Used in louvre airflow performance calculations. When taken at 20°C and 101.325 kPa, air has a density of 1.225 kg/$m^3$.

### VOLUMETRIC FLOW RATE

The specific volumetric flow rate of air (entry or discharge) to pass through the louvre system, expressed in $m^3$/s or $m^3$/hr.

### WEATHER / RAIN DEFENCE LOUVRE

A louvre designed to allow the passage of intake or exhaust air while minimising the ingress of rain.


**MANCHESTER ENGINEERING CAMPUS (MECD), UK**
RSV-5700 RAIN DEFENCE LOUVRES

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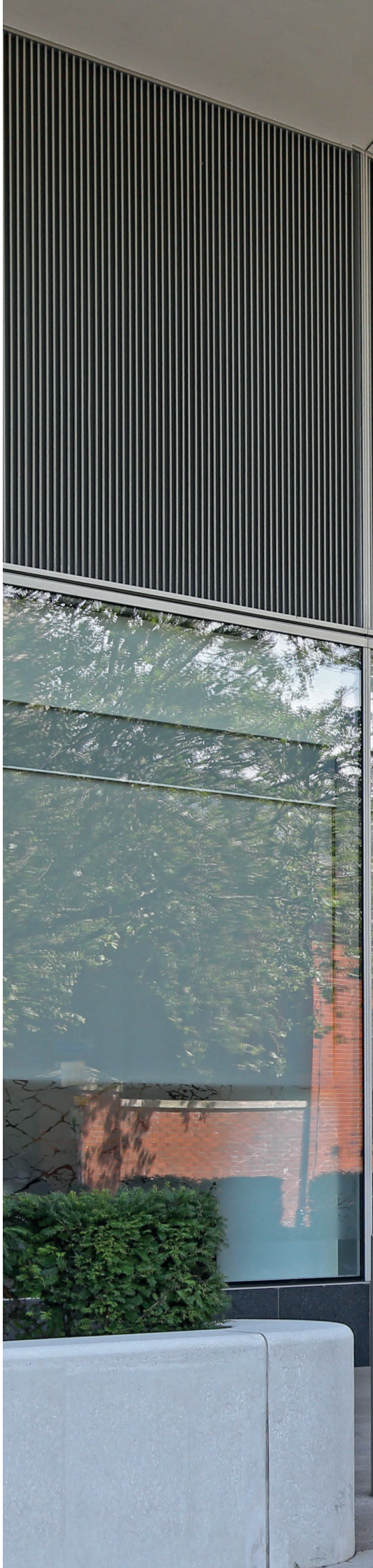


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