



 **Louvres**  
Architectural Louvre Systems

# C/S LOUVRES

Required on most facilities to provide essential natural ventilation and airflow, architectural louvre systems help to improve a building's energy efficiency. They are also often needed to provide protection from rain ingress, or screening of plant machinery.

C/S have been manufacturing and selling louvres globally for over 60 years. When you choose our louvre panels, you get the support of a dedicated team with a wealth of experience and design capability.

The performance of our louvre systems has been evaluated by independent third party testing. In addition, any of our standard or bespoke solutions can be verified in our own testing chamber to ensure they achieve specified performance levels in real world conditions.

Whatever your building's ventilation, screening or weather protection requirements, we have a louvre system to meet your needs.



## COMPANY PROFILE

Construction Specialties operates through 22 offices worldwide, and has key manufacturing locations or Sales Offices in most European countries.

The UK Head Office, based in Buckinghamshire, is the sales and manufacturing hub for servicing markets across the UK, Ireland, Nordic Countries, Latvia, Estonia and Malta, through a network of experienced and professional technical sales representatives.

Our product range includes wall protection systems, impact resistant doors, entrance matting systems, specialist coatings, expansion joint covers, interior serviced wall systems, solar shading, cubicle curtain track, louvres and pressure relief systems.

These have been successfully installed in many of the world's most prestigious buildings, across a spectrum of business sectors including healthcare, transport, retail, leisure and commercial offices.

# FEATURES AND BENEFITS

- **Global experience**

C/S developed the first extruded louvre 60 years ago and has since been involved in thousands of successful projects around the world.

- **Design flexibility**

Many of our standard models have been created through collaboration with customers, helping them realise their design vision and meet their building's performance requirements.

- **Maximum performance**

We always aim to combine the best possible weather protection and airflow. Our RS-5605 rain defence model delivers Class A rain defence up to 5.0m/s, whilst offering Class 1 airflow performance.

- **Spatial efficiency**

Our highly engineered extruded louvre designs deliver high performance and space savings (at the same time).

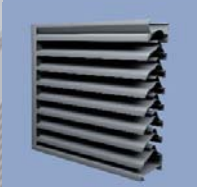

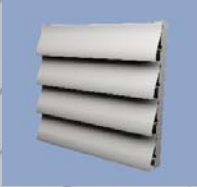
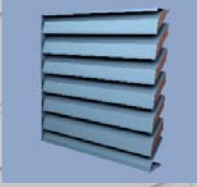
- **Aesthetic options**

With our louvre design options you can blend, contrast or make a feature of your building's louvres. Choose their colour, size, shape and whether they provide a continuous line or visible mullions. Plus, for a truly unique look, specify our new C/S Bold Line or C/S Perform options.

- **Project support**

From early design stage and product selection to installation, we provide advice and support to ensure successful project delivery.

# CONTENTS

	PAGES
<b>SPECIFYING LOUVRES</b>	<b>4</b>
<b>TESTING</b>	<b>5</b>
<b>CASE STUDY</b>	<b>6-7</b>
<b>DESIGN POSSIBILITIES</b>	<b>8-9</b>
 <b>RAIN DEFENCE LOUVRES</b>	<b>10-11</b>
for applications requiring good airflow and high levels of protection from wind-driven rain	
 <b>VENTILATION LOUVRES</b>	<b>12-13</b>
for applications requiring maximum airflow, where some water penetration is acceptable	
 <b>SCREENING LOUVRES</b>	<b>14-15</b>
for applications requiring visual screening, often in exposed areas where rain penetration is not an issue	
 <b>ACOUSTIC LOUVRES</b>	<b>16-17</b>
for applications where sound attenuation is required; can be used on their own, or behind any of our other louvre solutions	
<b>MATERIALS AND FINISHES</b>	<b>18</b>
<b>ACCESSORIES</b>	<b>18</b>
<b>OUR SERVICE</b>	<b>19</b>

# SPECIFYING LOUVRES

The principal reason for using louvres is to allow the movement of air. Each project should be considered independently, ensuring that the specified louvre solution delivers all the required performance criteria.

A plant room housing expensive HVAC equipment will typically require **Rain Defence** louvres to offer both good airflow and protection from water ingress.

For situations where the primary concern is maximum airflow, and some rain penetration is acceptable, **Ventilation** louvres should be considered.

Where visual screening is the main requirement and rain ingress is not an issue, e.g. a car park, **Screening** louvres offer an easy to install and economical solution.

In addition, sound attenuation or noise reduction may be required in any of the above situations. **Acoustic** louvres should then be considered.

Louvre specification is a balance between form & function, but appearance plays an important part in the selection process. With a wide range of options available, louvres can become a stand out feature, or be harmoniously blended with the building design.

## SPECIFYING LOUVRES ON FREE AREA ALONE CAN CAUSE SERIOUS PROBLEMS.

How can you be sure that the louvres you specify will meet the required airflow performance?

Traditionally, louvres were specified and sized based on free area alone. The industry commonly uses a nominal 1m<sup>2</sup> louvre when quoting free area. In reality, louvres are never precisely this size. Free area is affected by the louvre module size and other factors, such as additional structural supports or insect meshes, which will add resistance to airflow.

Even more importantly, free area does not take into account how the air flows through the louvre. All louvres restrict the passage of air, creating a pressure drop. Too high a pressure drop, and not enough air will be allowed through. If there is HVAC or generator equipment behind, insufficient airflow will cause it to work harder and overheat.

Therefore, Aerodynamic Free Area (AvCv)\*, expressing the airflow efficiency and ventilation performance of a louvre, should be used instead.

\* Aerodynamic Free Area (AvCv) is the product of Measured Free Area and Discharge Loss Coefficient

## KEY FACTORS TO CONSIDER WHEN SPECIFYING LOUVRES:

- Site position and exposure
- Prevailing weather conditions (especially wind direction)
- Location of the louvres on the building and exposure to wind driven rain
- Required airflow performance and acceptable pressure drop
- Level of permissible water penetration
- Exterior building design and aesthetics
- Acoustic requirements



To learn more about specifying louvres, view our online RIBA Approved CPD module at your convenience, or book a lunchtime presentation for your practice:  
[www.c-sgroup.co.uk/louvre-cpd](http://www.c-sgroup.co.uk/louvre-cpd)

For further information on our standard louvre options see pages:

RAIN DEFENCE

10-11

VENTILATION

12-13

SCREENING

14-15

ACOUSTIC

16-17

# TESTING

The standard performance test for weather louvres is BS EN 13030:2001 'Ventilation for buildings. Terminals. Performance testing of louvres subjected to simulated rain' (in the UK and Europe).

Two aspects of louver performance are measured during the test:

- **WATER PENETRATION**  
The ability of the louver to prevent rain ingress (expressed as a rating at each face velocity)
- **PRESSURE DROP**  
The airflow characteristic of the louver (expressed as Discharge/Entry Loss Coefficient Class)

The test results enable specifiers to directly compare the performance of different weather louver models.

A single louver design classification should be accompanied by the limiting core velocity, e.g. **Class A 2 up to 1m/s**.

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

## PENETRATION CLASSIFICATION

Class	Effectiveness	Max. allowed rain penetration l/h/m <sup>2</sup>
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

NOTE: Water penetration effectiveness is measured for each of eight face velocities between 0m/s and 3.5m/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

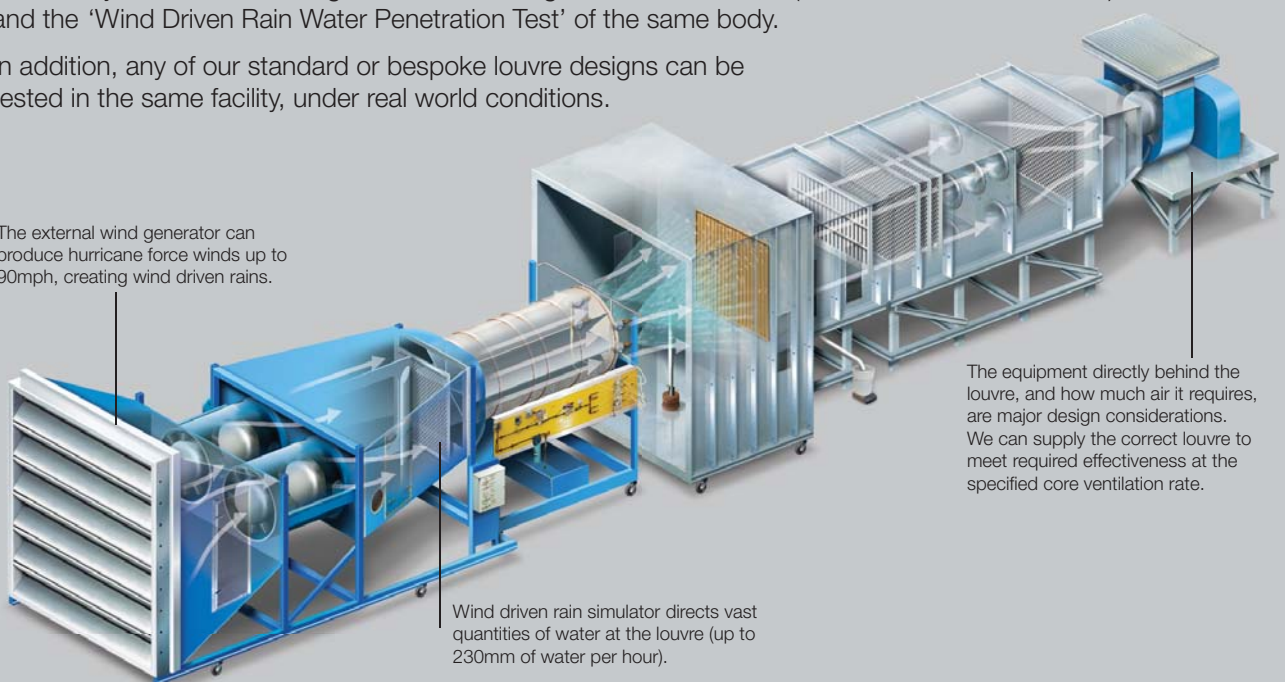
NOTE: Discharge/entry loss coefficient is expressed as a single class, based on an average result over five air velocities. Class 1 indicates the least and Class 4 the most resistance to airflow. The higher the value, the lower the energy usage.

## C/S LOUVRE TESTING

In the UK, C/S weather louvres have been tested by an independent 3<sup>rd</sup> party to BS EN 13030:2001. The louvres have also been tested at C/S' own, AMCA-Accredited facility in US, to AMCA Standard 500-L-99 Laboratory Methods of Testing Louvres for Rating 'Water Penetration' (Non-Wind Driven Rain Test) and the 'Wind Driven Rain Water Penetration Test' of the same body.

In addition, any of our standard or bespoke louver designs can be tested in the same facility, under real world conditions.

The external wind generator can produce hurricane force winds up to 90mph, creating wind driven rains.



Wind driven rain simulator directs vast quantities of water at the louver (up to 230mm of water per hour).

The equipment directly behind the louver, and how much air it requires, are major design considerations. We can supply the correct louver to meet required effectiveness at the specified core ventilation rate.

# SKY-HIGH AIRFLOW AND FLAWLESS WEATHER RESISTANCE

When Skidmore, Owings & Merrill (SOM) began work on One World Trade Center, the expectation was clear: design and build the world's most iconic building.

## CHALLENGE

The technical expectations? Sky-high airflow and flawless weather resistance - in the wind tunnel that is New York City's financial district - and ventilation of a massive HVAC system. Whatever the solution, it had to discreetly blend into a monolithic glass design.

## SOLUTION

C/S engineers worked with SOM, mechanical engineers, and the owner, to develop a custom, Class A-rated, weather resistant louvre system composed of elements from three standard C/S louvres.

The louvre was tested in the C/S in-house test facility in conjunction with the specified glass configuration system.

The end result was a high performing louvre system spanning 18 floors.



On the building's lower floors, a blast-resistant grille is sandwiched between open glass panels and the louvres, providing its base with security and breathability.

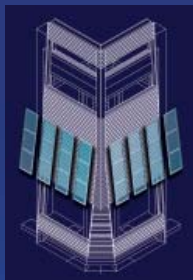
One World Trade Center Facts:

**18** floors of  
louvres

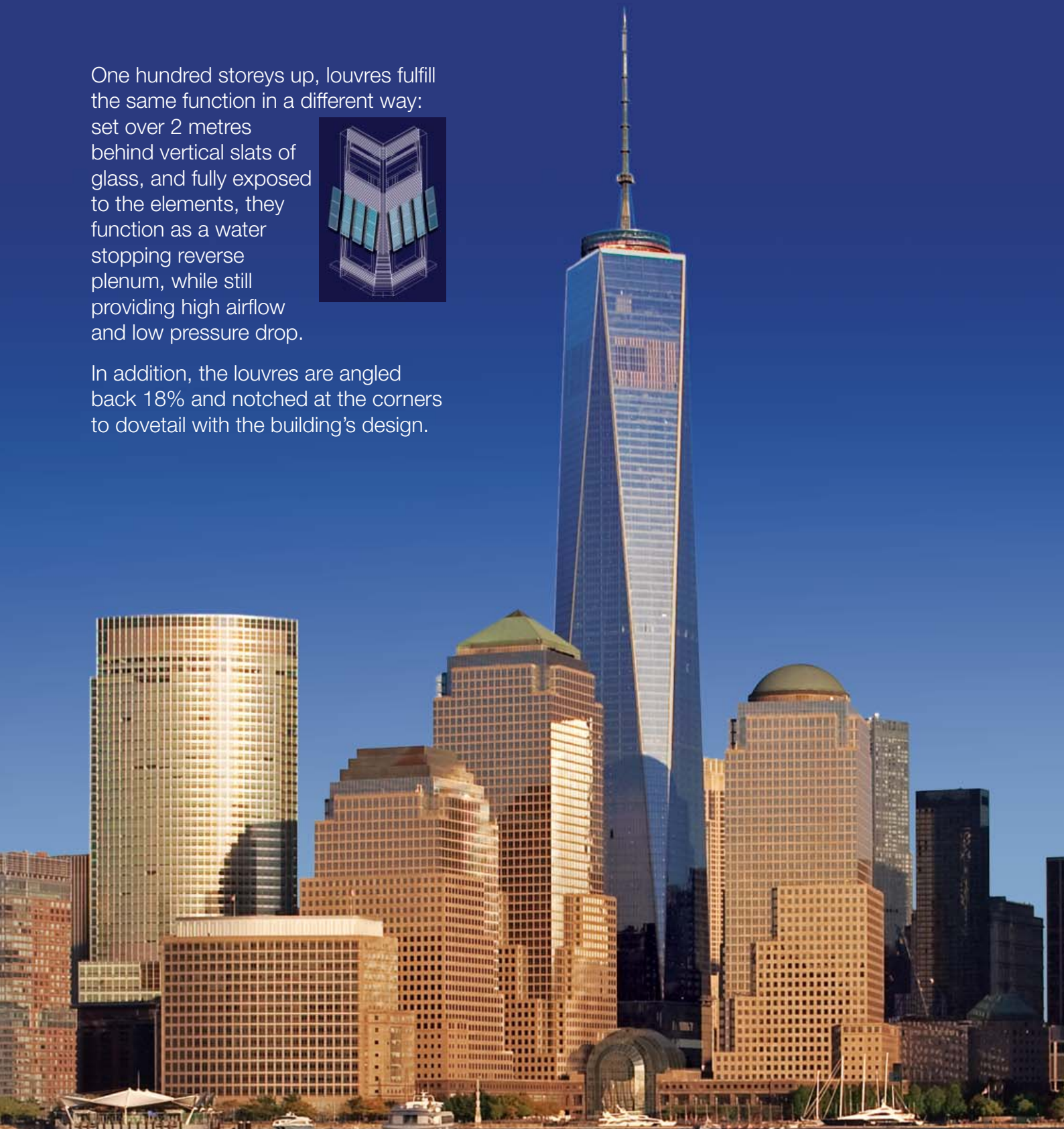
**15,481** m<sup>2</sup> of  
louvres

**383** tonnes of  
aluminium

One hundred storeys up, louvres fulfill the same function in a different way: set over 2 metres behind vertical slats of glass, and fully exposed to the elements, they function as a water stopping reverse plenum, while still providing high airflow and low pressure drop.



In addition, the louvres are angled back 18° and notched at the corners to dovetail with the building's design.



**34,667** litres of  
PVDF finish

**989,780** fasteners

# BRING COLOUR, DRAMA AND EXCITEMENT TO YOUR FACADE

With C/S Louvres you get the performance you need and the look you desire.

Whether you are looking for a horizontal or vertical blade appearance, uninterrupted louvre line or mullions visually integrating with façade features, regular shapes or curves, we can work with you to realise your design.

And with our new C/S Bold Line and C/S Perform options you can make a strong statement on your next project.



## C/S BOLD LINE

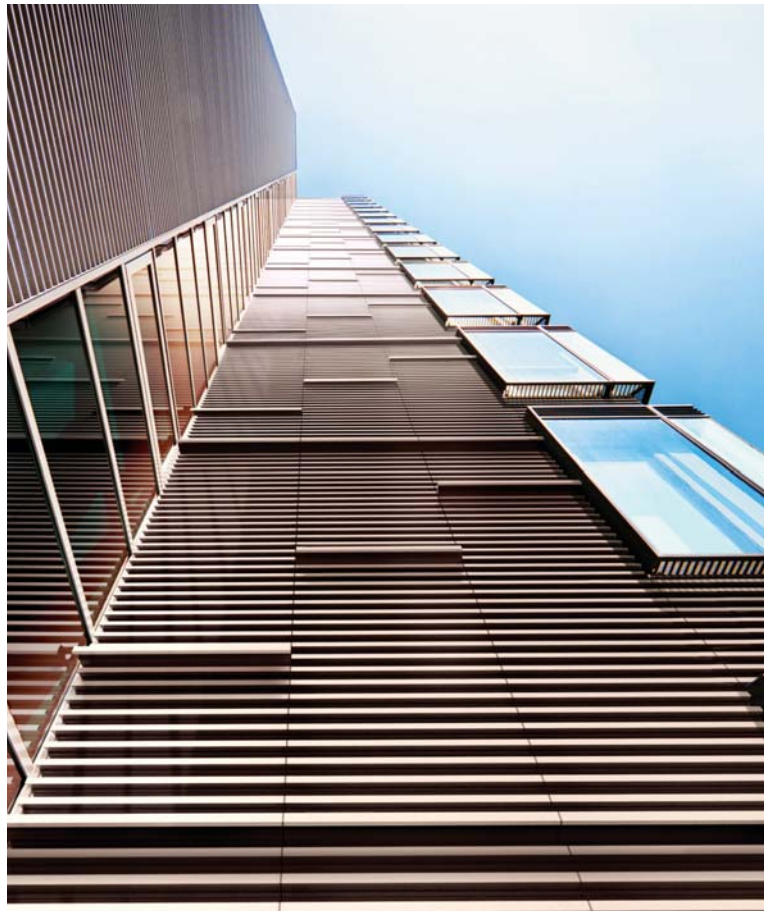
Bold Line adds drama to your louvre application, by allowing you to accentuate the façade with colour, shadow lines, varying blade depths and staggered blade placement. All without sacrificing performance.

**Bold Line** includes fully tested rain defence and ventilation louvres, with a choice of an uninterrupted louvre line or exposed mullions, and in a vast array of colour options and finishes.

B-7505A



B-6485A



## C/S PERFORM

Whilst some louvres are about standing out, others are more about blending in.

**Perform** louvres provide all the air movement, security and sight screening of our standard range, under the cover of a modern skin.

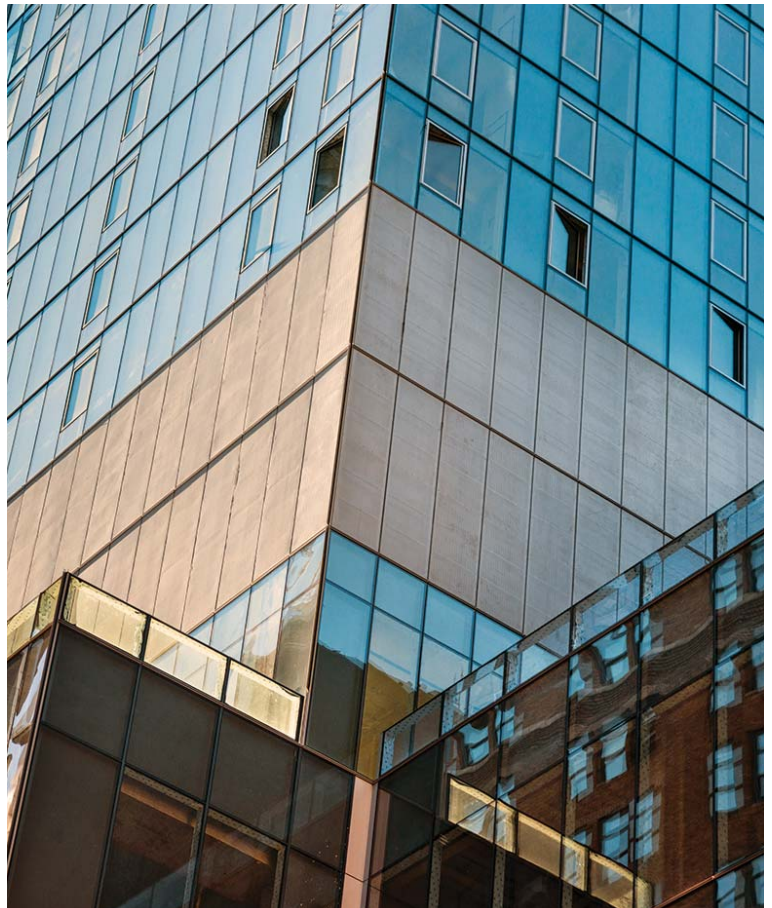
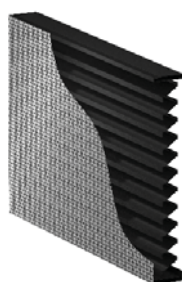
Perform's perforated skin is engineered to work in harmony with the interior louvre blades, providing unparalleled performance.

The range includes fully tested rain defence and ventilation options.

PL-5700



PL-4080



C/S Perform and C/S Bold Line options are available to special order only. Contact us to discuss your requirements.



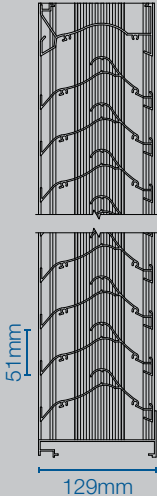
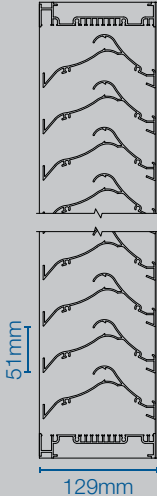
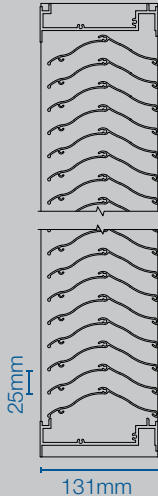
# RAIN DEFENCE LOUVRES

Engineered to provide up to 100% protection from rain penetration, whilst still offering good airflow, C/S Rain Defence Louvres are available in vertical and horizontal blade configurations to integrate beautifully with your building.

They are ideal for situations where sensitive equipment is housed adjacent to the louvre system, and/or a plenum cannot be used due to cost or space considerations.

Our RS-5605 model provides arguably the best combination of airflow, rain defence and spatial efficiency of any weather louvre product in the market.

Model: **RSH -5700**

PRODUCT	RSH-5700	RSV-5700	RS-5605
			
	SECTION ON ELEVATION	SECTION ON PLAN	SECTION ON PLAN
			

## KEY FEATURES

Blade Orientation	Horizontal	Vertical	Vertical
Mullion Type	Visible	Visible	Visible
Louvre Depth	129mm	129mm	131mm
Blade Pitch	51mm	51mm	25mm

## PERFORMANCE\*

Penetration Class	A up to 3.0m/s	A up to 3.5m/s	A up to 3.5m/s
Airflow Class	3	3	1
Airflow Coefficient $C_e$ (intake)	0.289	0.297	0.466

## FINISHES & COLOURS

- Mill finish
- Clear/colour anodised
- Polyester powder coated
- Zero VOC fluoro-polymer powder coated

## ACCESSORIES

- Blanking plates (single skin or insulated panels)
- Bird/vermin guards
- Insect mesh
- Louvred doors



Drawings and detailed datasheets are available from:

[www.c-sgroup.co.uk/rain-defence](http://www.c-sgroup.co.uk/rain-defence)

Where noise control is also required, our Acoustic Louvres can be used behind the Rain Defence models (see p. 16-17 for details).

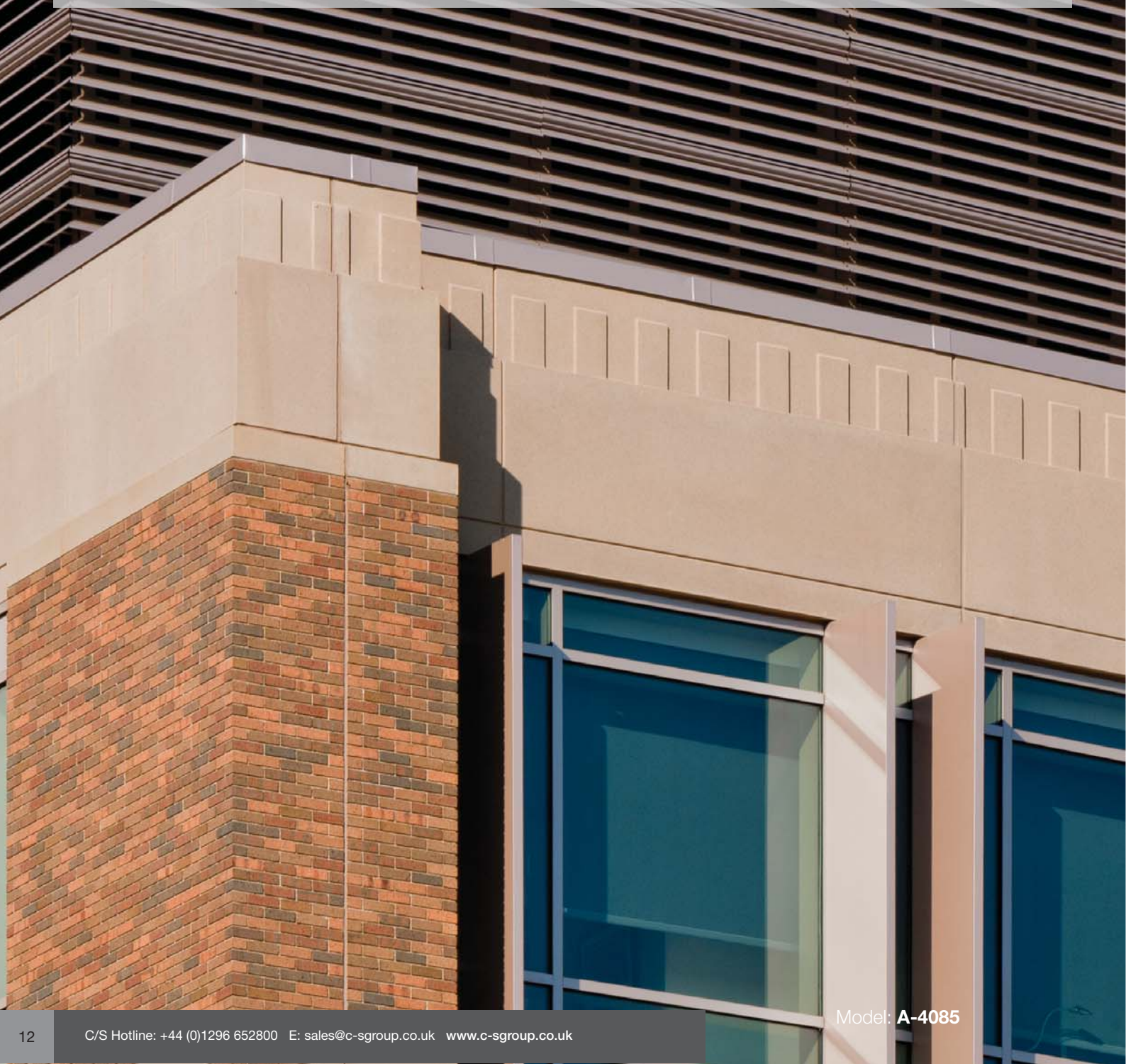
\* To principles of BS EN 13030:2001 - for full test data refer to product datasheet.

# VENTILATION LOUVRES




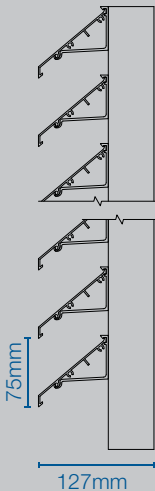
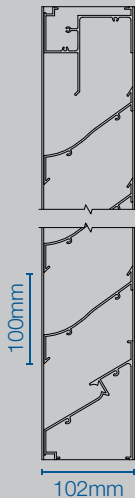
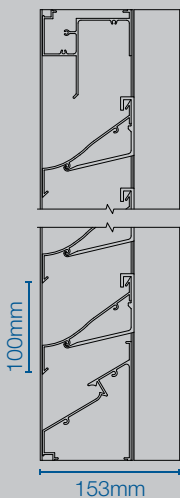
Where maximum airflow is the primary consideration, our ventilation range is a perfect solution.

C/S Ventilation Louvres offer high levels of free area and airflow, with low pressure drop, whilst still delivering some weather protection. They are suited for projects where economy is a consideration, and occasional water penetration will not cause significant problems.

Continuous line and modular mullion options can be specified to fit with façade design.



Model: **A-4085**

PRODUCT	A-3105	A-4080	A-4085
			
	SECTION ON ELEVATION	SECTION ON ELEVATION	SECTION ON ELEVATION
			

## KEY FEATURES

Blade Orientation	Horizontal	Horizontal	Horizontal
Mullion Type	Hidden	Visible	Hidden
Louvre Depth	127mm	102mm	153mm
Blade Pitch	75mm	100mm	100mm

## PERFORMANCE\*

Penetration Class	D up to 3.5m/s	C up to 1.0m/s	C up to 1.0m/s
Airflow Class	2	2	2
Airflow Coefficient $C_e$ (intake)	0.391	0.38	0.38

## FINISHES & COLOURS

- Mill finish
- Clear/colour anodised
- Polyester powder coated
- Zero VOC fluoro-polymer powder coated

## ACCESSORIES

- Blanking plates (single skin or insulated panels)
- Bird/vermin guards
- Insect mesh
- Louvred doors



Drawings and detailed datasheets are available from:

[www.c-sgroup.co.uk/ventilation](http://www.c-sgroup.co.uk/ventilation)

Where noise control is also required, our Acoustic Louvres can be used behind the Ventilation Louvre models (see p. 16-17 for details).

\* To principles of BS EN 13030:2001 - for full test data refer to product datasheet.


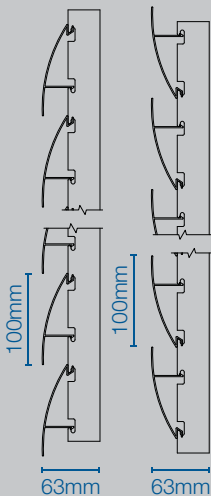
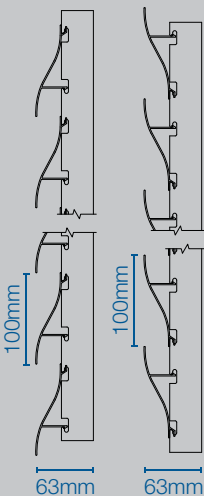
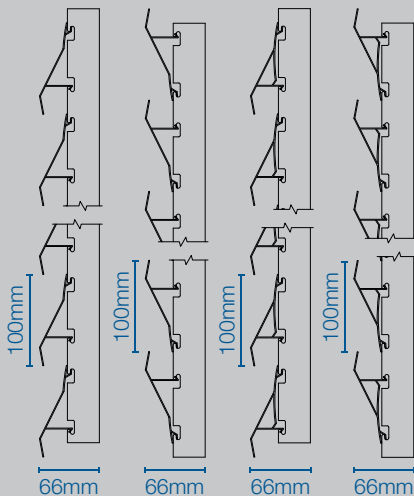
# SCREENING LOUVRES

A simple and low cost solution to providing visual screening of plant or other equipment, our Screening Louvres are typically used in applications where rain penetration is not a concern.

Their continuous appearance, without visible framing or mullions, can blend in with the building's design and provide an aesthetically pleasing feature.

These easy to install systems consist of blades clipped into support mullions. The blades can be inverted for improved screening performance at certain viewing angles.

Model: **SLA-C**

PRODUCT	SLA-C	SLA-S	SLA-Z / SLP-Z
			
	SECTION ON ELEVATION	SECTION ON ELEVATION	SECTION ON ELEVATION
	<p>SLA-C</p> <p>Typical Inverted</p> 	<p>SLA-S</p> <p>Typical Inverted</p> 	<p>SLA-Z SLP-Z</p> <p>Typical Inverted Typical Inverted</p> 
KEY FEATURES			
Blade Orientation	Horizontal	Horizontal	Horizontal
Mullion Type	Hidden	Hidden	Hidden
Louvre Depth	63mm	63mm	66mm
Blade Pitch	100mm	100mm	100mm
Material	Aluminium	Aluminium	SLA-Z: All aluminium SLP-Z: PVC blades

## FINISHES & COLOURS

### ALUMINIUM OPTIONS

- Mill finish
- Clear/colour anodised
- Polyester powder coated
- Zero VOC fluoro-polymer powder coated

### PVC OPTION

- Grey or White

## ACCESSORIES

- Blanking plates (single skin or insulated panels)
- Bird/vermin guards
- Insect mesh
- Louvred doors



Drawings and detailed datasheets are available from:

[www.c-sgroup.co.uk/screening](http://www.c-sgroup.co.uk/screening)

Where noise control is also required, our Acoustic Louvres can be used behind the Screening Louvre models (see p. 16-17 for details).

# ACOUSTIC LOUVRES

Suitable for applications where both noise control and airflow are required, C/S Acoustic Louvres can be installed as standalone screens, or can be integrated into building façades.

Our acoustic models can be used in conjunction with any of our rain defence, ventilation or screening louvre systems, if required.

## PRODUCT

## KEY FEATURES

Blade Orientation

Mullion Type

Louvre Depth

Blade Pitch

## PERFORMANCE

ACOUSTIC  
PERFORMANCE

AERODYNAMIC  
PERFORMANCE

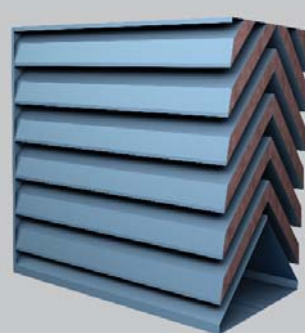
Model: **LA-300S**

## LA-150S

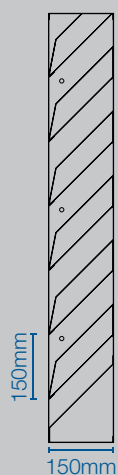
## LA-300S

## LA-300C

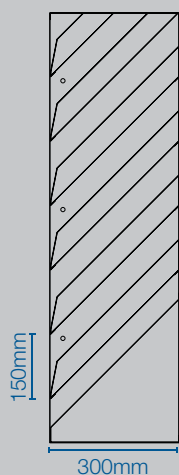
## LA-600C



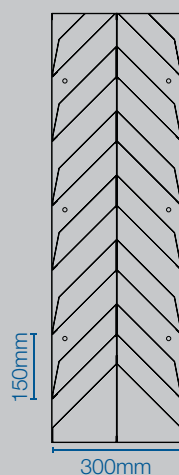
SECTION ON ELEVATION



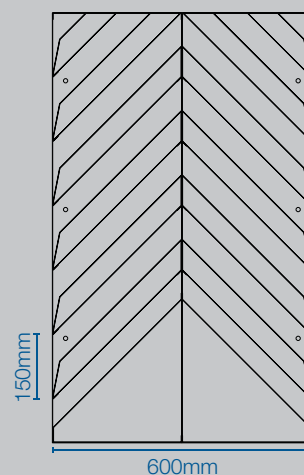
SECTION ON ELEVATION



SECTION ON ELEVATION



SECTION ON ELEVATION



Horizontal

Visible

150mm

150mm

Horizontal

Visible

300mm

150mm

Horizontal

Visible

300mm

150mm

Horizontal

Visible

600mm

150mm

Octave Band Centre Frequency (Hz)		63	125	250	500	1k	2k	4k	8k
Sound Reduction Index (dB)	LA-150S	4	4	5	8	12	16	15	13
	LA-300S	5	6	8	11	18	25	20	16
	LA-300C	5	5	8	13	22	30	28	23
	LA-600C	7	8	13	19	33	39	37	30
Face Velocity (m/s)		1	2	3	4				
Pressure Drop (Pa)	LA-150S	5	20	45	80				
	LA-300S	7	28	63	112				
	LA-300C	8	32	72	128				
	LA-600C	11	44	99	176				

## MATERIALS & FINISHES

Manufactured from galvanised mild steel. Aluminium options available.

Supplied unfinished as standard, or can be polyester powder coated to RAL Classic colours.

## ACCESSORIES

Galvanised bird screens are fitted as standard. Louvred doors are available if required.



Drawings and detailed datasheets are available from:

[www.c-sgroup.co.uk/acoustic](http://www.c-sgroup.co.uk/acoustic)

# MATERIALS AND FINISHES

## RAIN DEFENCE, VENTILATION & SCREENING

C/S Louvres from the Rain Defence, Ventilation and Screening\* ranges are manufactured from aluminium and can be finished to suit project requirements.

Standard finishes include:

- Anodised - clear
- Anodised - colour
- Polyester powder coated to any RAL Classic colour
- Zero VOC fluoro-polymer powder coated

\* SLP-Z Screening Louvre features PVC blades (available in Grey or White as standard) clipped to aluminium framework

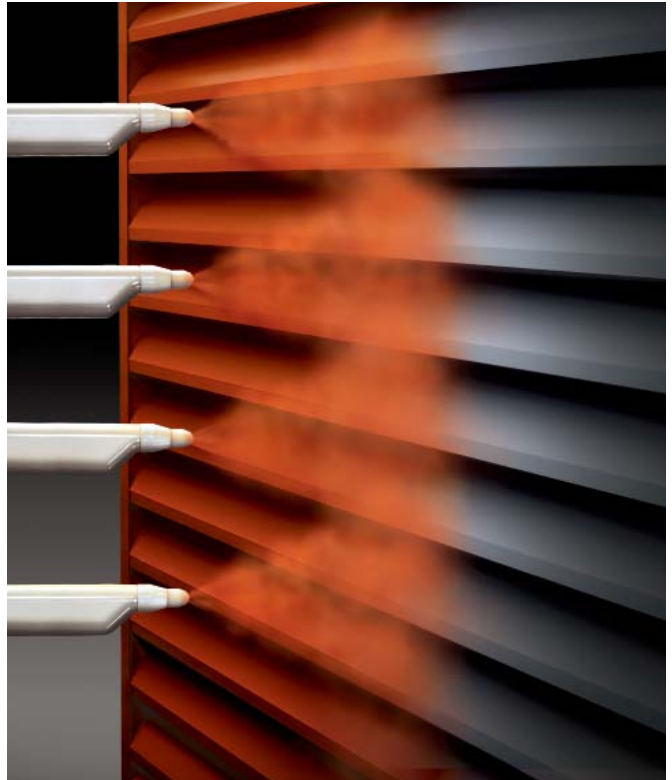
## ACOUSTIC LOUVRES

Our Acoustic range is manufactured from galvanised mild steel as standard. Aluminium options are available.

Finishes include:

- Mill finish (galvanised mild steel or aluminium)
- Polyester powder coated to any RAL Classic colour

Louvre blades contain a fibrous, sound absorbent infill faced with glass cloth. The infill is non-shredding, non-combustible, non-hygroscopic and chemically inert.



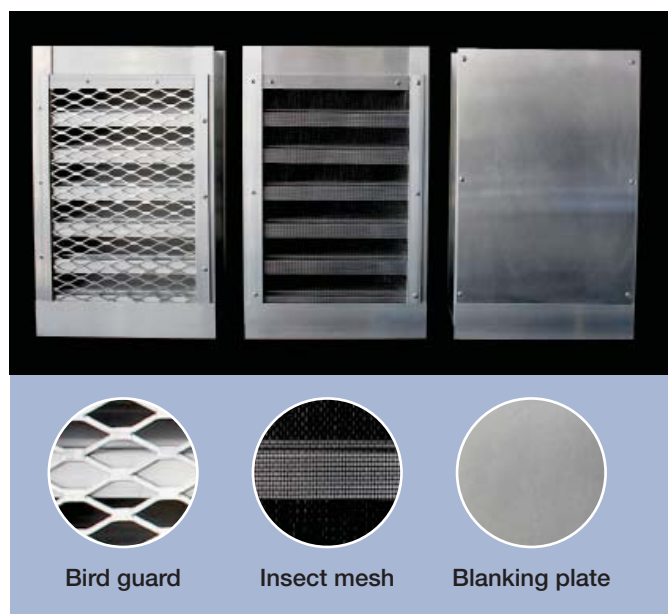
# ACCESSORIES

A comprehensive range of optional accessories can be specified with C/S Louvre systems.

Standard options include:

- Louvred doors
- Blanking plates:  
Single skin aluminium plates (mill finished or polyester powder coated)  
or  
Insulated panels in a choice of thicknesses to meet insulation requirements
- Guards:  
Bird/vermin guards  
Insect meshes

For further information contact [sales@c-sgroup.co.uk](mailto:sales@c-sgroup.co.uk)



# OUR SERVICE

## TECHNICAL SUPPORT

We look forward to assisting you with any queries and ensuring that you have made the right selection for your project. Call +44 (0)1296 652800 to speak with a member of our customer service team, technical team or area representatives.

## SPECIFICATION SUPPORT

NBS specification clauses are available on request, contact us for specification assistance.



NBS Specification Clauses for C/S products are also available on NBS Plus and NBS Create.

## CPD PRESENTATIONS

Our RIBA Accredited CPD for Rain Defence Louvres covers project selection criteria, testing and louvre types and is available online on-demand.



A lunchtime CPD presentation can also be booked. For further information contact T: +44 (0)1296 652800 E: [cpd@c-sgroup.co.uk](mailto:cpd@c-sgroup.co.uk) or visit: [www.c-sgroup.co.uk/louvre-cpd](http://www.c-sgroup.co.uk/louvre-cpd)

## SAMPLES SERVICE

Call us on +44 (0)1296 652800 for samples, or submit a sample request via our website.

## INSTALLATION SERVICE

On selected projects, we can offer a complete installation package through our sister company Conspec Contracts Limited. They provide full site surveys, implement installation programmes and advise upon suitability of material.

Conspec's experienced installation teams are CSCS accredited.

For further details, please call us on +44 (0)1296 652800 or visit [www.c-sgroup.co.uk](http://www.c-sgroup.co.uk)

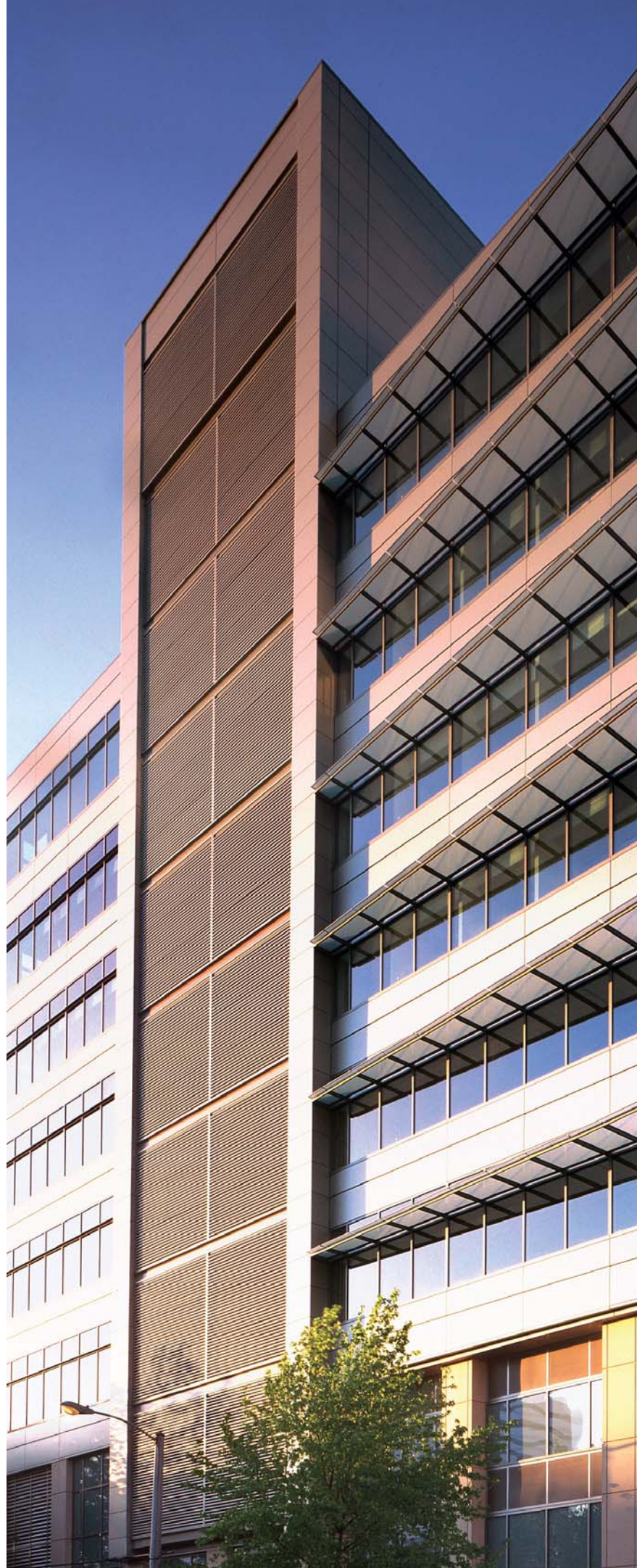


## WARRANTY POLICY

Construction Specialties (UK) Limited (the Company) warrants to its purchasers that their Louvre products sold will be free from any defects in materials or workmanship and will meet the design criteria noted in our brochures when properly applied, installed and maintained. If, in the sole opinion of the Company, a product covered by this warranty is defective, the Company will replace or repair it free of any charge. This warranty shall extend for a period of two years following the date of shipment by the Company. This is in lieu of all other warranties expressed or implied, and is the sole warranty extended by the Company. The liability of the Company under this warranty is limited to repair or replacement, and does not include any responsibility for consequential or other damage of any nature.

## DISCLAIMER

The company reserves the right to make design changes for the purpose of product improvement, or to withdraw any design without notice.



## C/S PRODUCT RANGE



**C/S Acrovyn®**  
Wall, Door and Corner Protection

**C/S Acrovyn by Design®**  
Bespoke Wall Protection

**C/S Wallglaze®**  
Performance Coatings

**C/S Pedisystems®**  
Entrance Flooring Systems

**C/S Allway®**  
Expansion Joint Covers

**C/S Elimax Reform™**  
Flat Packed Serviced Wall Systems

**C/S Supertrak® Plus**  
Cubicle Curtain Track

**C/S Solarmotion® and C/S Airfoil®**  
Solar Shading

**C/S Explovent®**  
Pressure Relief Systems

**C/S Louvres**  
Architectural Louvre Systems



for more information visit [www.c-sgroup.co.uk](http://www.c-sgroup.co.uk)



**Construction Specialties™**



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