C|S louvers

Storm Resistant, Fixed, Operating & Acoustical 2007

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BuyLine 1006

C/S GROUP

Selecting The Wrong Louver Is Very Costly

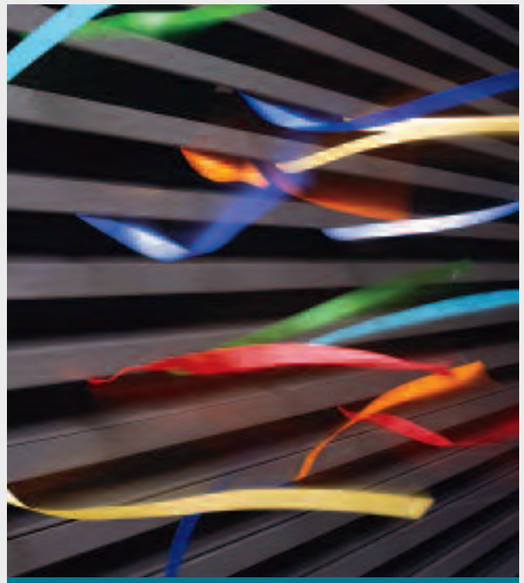
Consider these four factors before specifying

Aesthetics

Whether you want your louvers to be a major design element or simply disappear into the facade of your building, C/S has options that will work beautifully. Our louver systems provide designers with a rich pallet of textures and almost unlimited color and finish options. We can curve our louvers and cut them into intricate shapes, or make them look like anything you can imagine—as long as air can pass through them. *See page 4*

Rain Defense

Letting air into a building while keeping water out has always been a balancing act for architects and louver manufacturers alike. Conventional louvers just didn't stop water entry so architects had to use costly plenums and drainage systems. In the 1990's C/S introduced 100% Storm Resistant Louvers. Today we offer dozens of designs to keep rain out of buildings. *See page 8*



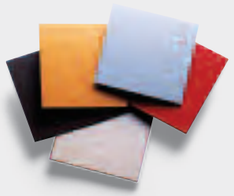
Airflow

It's the primary reason people specify louver systems in the first place. Usually the mechanical engineer figures out the air volume required to ventilate the building and the architect adds his aesthetic and structural considerations. Pretty simple, right? But, are you really delivering the air volume you asked for? C/S engineers have created new tools to guarantee that you'll get the airflow your project requires. *See page 10*

Cost

There's a lot more to the cost of a louver system than the cost of the louver. There are many factors to be considered. A "Z" blade louver with a 4' plenum actually costs many times more than our best rain defense louver system. Our louver consultants will see to it that your project is never over or under engineered. With C/S, there are never any hidden costs in our quoted price.

How will louvers impact your building's design?



C/S offers a wide variety of quality architectural finishes in virtually any color.

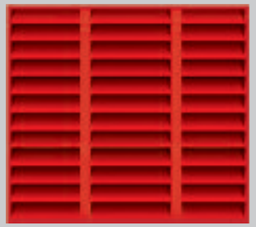
Color, texture, size, shape, mullions, continuous line - these are just some of the aesthetic options open to you when designing your louver system. Choose from the blade styles below or design your own. At far right, see just some of the configuration options. The following three pages show how some of these systems look in place.

Blade Styles

Does your design call for horizontal or vertical blades? Do you want an unbroken architectural line or are mullions acceptable? Whatever blade style or depth you require, C/S can supply it.

4" Architectural Line

6" Architectural Line



4" With Mullions

4" Vertical Line

Shape

Mullion Louvers—First Interstate Bank

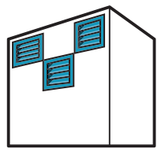
Continuous Line Louvers—Barclays Financial Center

Mullion Louvers—Cardinal Stadium

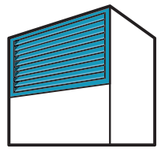
Continuous Line Louvers—Staples Arena

How your building can look.

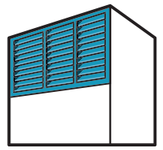
There are many ways to handle the airflow requirements of any building. The illustrations below show how the same building can have many different appearances without altering functions.



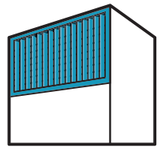
Patchwork Louvers



Continuous Line Louvers



Mullion Louvers

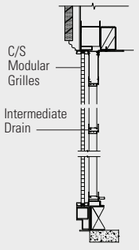


Vertical Line Louvers

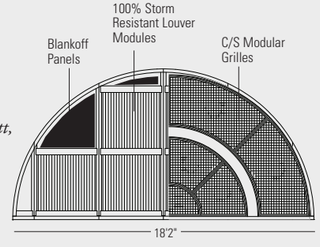
Storm Resistant, Hidden Louvers @ Elon College

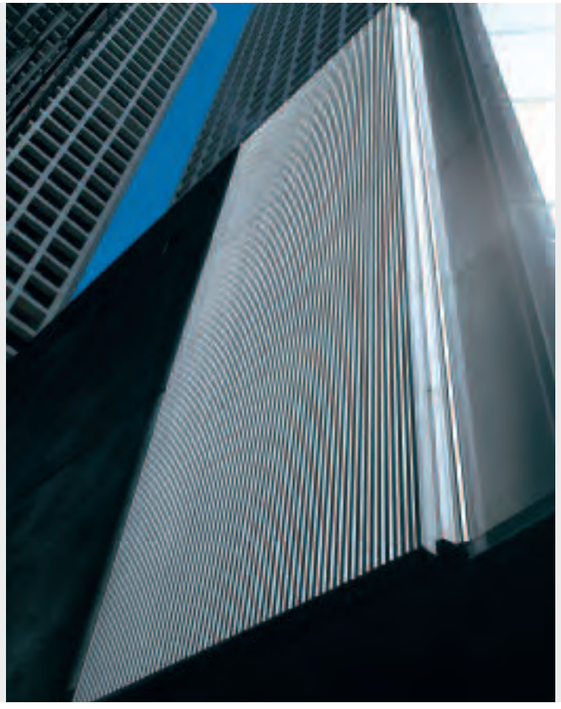
PROJECT OVERVIEW:

To protect against severe, intermittent Southern rainstorms, the architect specified a Storm Resistant C/S Louver that keeps 100% of water out of the building, yet allows a sufficient amount of air in to ensure proper HVAC function. To maintain the building's aesthetics, the architect incorporated a decorative modular grille in front of the high performance louver.



Architect:
Shepley Bulfinch Richardson Abbott, Boston, MA.

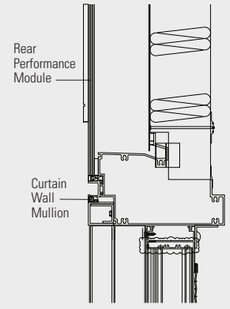




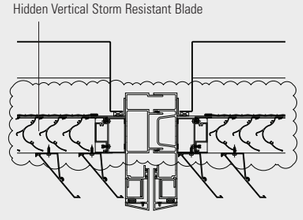
Vertical Line Louvers @ The Landmark in Hong Kong

PROJECT OVERVIEW:

The Landmark Commercial Complex comprises 47 and 48 story towers that house some of the world's leading retailers. C/S Model 4600 Vertical Line Louvers were designed to integrate seamlessly with the curtain wall construction. The louvers also provide the HVAC equipment with adequate airflow and keep 100% of wind driven rain out of the building's interior.



Contractor:
URC and Benson Wall Systems, Singapore

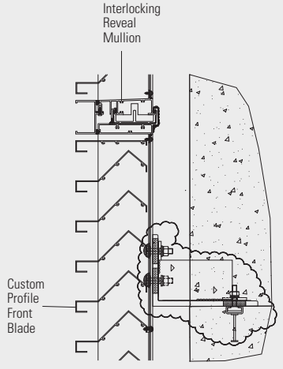


Custom Continuous Line Louvers @ One Raffles Quay in Singapore

PROJECT OVERVIEW:

To create the remarkable façade on the Raffles Quay Complex, KPF specified a C/S Custom Continuous Line Storm Resistant Louver. On all elevations the louvers are designed to stop rain while providing optimum airflow for the building. These storm resistant louvers also provide a sightproof screen for the hvac equipment.

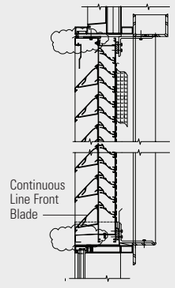
Architect:
Kohn Pedersen and Fox, NYC, NY



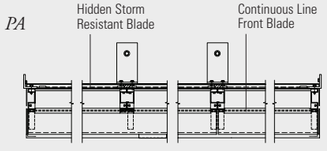
Continuous Line Storm Resistant Louvers @ The Children's Hospital of Philadelphia

PROJECT OVERVIEW:

To prevent damage to the HVAC equipment from the wind driven rain of East Coast storms, the architect specified C/S's Continuous Line, Storm Resistant Louver Model RS-7305. Wrapping completely around the buildings facade, the RS-7305's continuous front blade provides an imperceptible visual transition from the active and insulated portions of the louver.



Architect:
Ballinger, Philadelphia, PA



Don't let leaky louvers shut down your building.

Rain coming through louvers can cause critical building equipment and systems to fail. Specify Storm Resistant Louvers.

Does rain fall straight down? Most rainstorms are accompanied by wind—many times strong wind gusts. The result—wind driven rain, serious internal water problems, and devastating effects on the performance of the building. To prevent problems all C/S Louvers are tested in our exclusive test chamber.

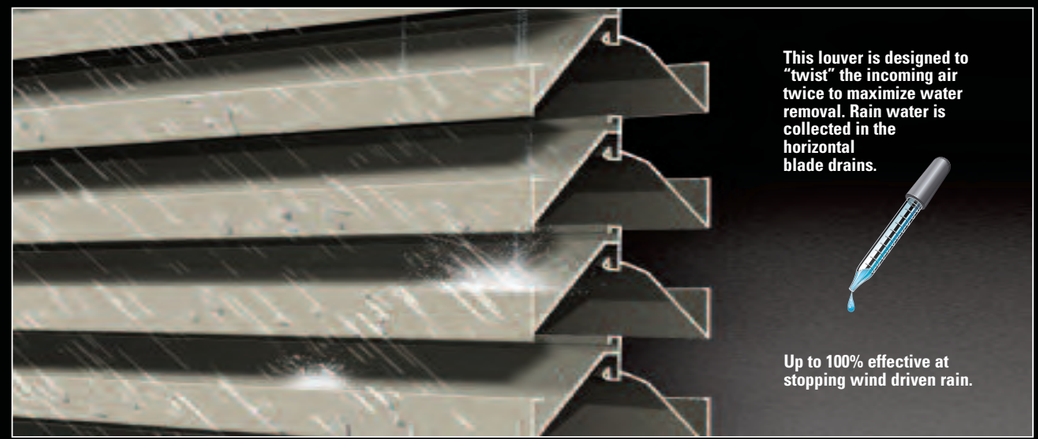
The Problem With Conventional Louvers

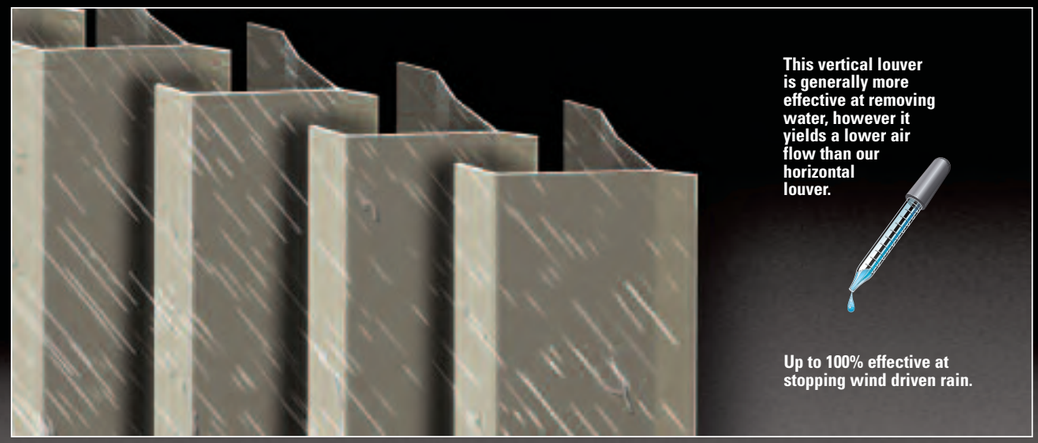
The flat design of conventional louver blades does little to prevent wind driven rain from passing through them, even in sheltered areas.

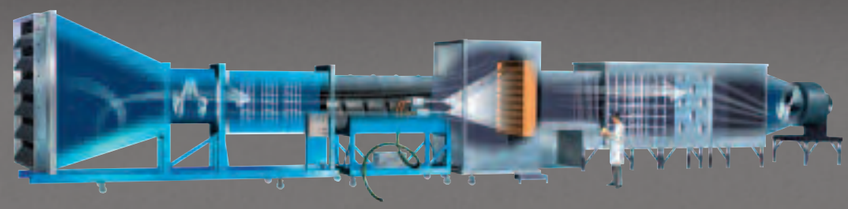
Modern testing has shown that traditional "Z" blade louvers and drainable louvers do little or nothing to stop wind driven rain.

C/S Storm Resistant Louvers Stop Rain and Prevent Costly Damage.

The C/S Wind Driven Rain Test Facility allows C/S to analyze the performance of all of our louvers. Through experimentation with bending wind, C/S Engineers have designed a louver system that allows air in buildings while keeping water out.







C/S Group designed and built the first wind driven rain test chamber in the United States and changed the louver industry. It became clear overnight that conventionally accepted drainable louvers did nothing to stop wind driven rain.

Specifying louvers on free area alone can cause serious problems.

MASTERSPEC® 2000

LOUVER SELECTION CONSIDERATION

Limiting the pressure drop is another consideration in louver selection. If the pressure drop for louvers exceeds 0.10- to 0.15-inch wg (25 to 37 Pa), fan power will need to be increased to maintain adequate airflow, and this will decrease the system's energy efficiency.

Within each category of blade design, slight changes in the profile may affect water penetration and air resistance; 6-inch- (150-mm-) deep louvers generally provide better performance with more free area than 4-inch- (100-mm-) deep louvers, but not always.

To prevent airflow problems specify louvers using both static pressure drop and free area.

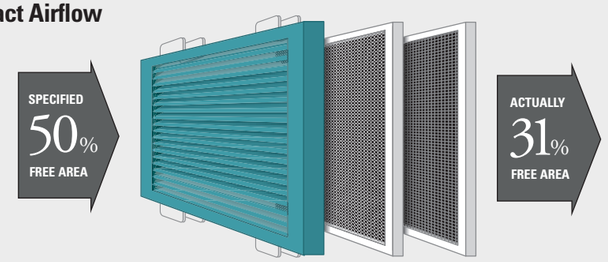
The principle reason for using louvers is to move air. How do you know if the louver you specify will actually deliver the air volume the engineer called for? History has shown that sizing and specifying louvers based on free area alone can cause problems for architects and owners alike. The illustrations on these pages explain what to do to prevent under or oversizing louvers.

When You Specify a 50% Free Area Louver, What Are You Really Getting?

Free area is affected by the size of the louver. In the example below the louver design is identical, only the size has been varied. The industry typically quotes free area using a 4 foot square louver. In reality louvers are never precisely this size.

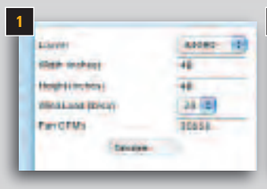
Other Factors Also Impact Airflow

Louver frames add resistance to airflow. Mullions, structural supports, bird screens and insect screens reduce airflow.



Get The Right Louver Every Time With The New C/S Online Airflow Tool.

The C/S airflow tool @ www.c-sgroup.com takes the guesswork out of louver selection. Get the correct louver, free area and pressure drop every time.



Choose the louver model and input the louver's width, height and wind load criteria.

The calculations will appear revealing the louver's free area and pressure drop.

For complete information on the louver that meets your criteria, click on Details, Specs and Photos.

Construction Specialties, Inc. certifies that louver models shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 511 and comply with requirements of the AMCA certified ratings program. The AMCA certified rating seal applies to air performance ratings and water penetration ratings.

AMCA Certified Models

A4097
A6097
A6155
DC-5304
DC-6174
GS-407
GS-410
GS-607
GS-610
LS-100
LS-100/4080
LS-105
RS-2300
RS-4605
RS-5300
RS-5605
RS-7305
RS-7315
RS-8400
RS-8615
RS-9615
A4080
A4085
A4100-A4120
A4105-A4125
A4110-A4130
A4115-A4135

Selection Chart

How to use this selection chart

Aesthetics: *Decide what you want the louvers to look like on your building. Horizontal or vertical blades? Uninterrupted louver line or vertical breaks? A 2" louver blade providing no shadow lines or a 6" louver with heavy shadow lines?*

Rain Defense: *Does it matter if rain enters your building? Would rain entry cause water sensitive equipment to shut down thereby preventing the building from functioning? Select a Storm Resistant or Hurricane Louver when stopping rain entry is important.*

Air Flow: *Free area can be very misleading when determining airflow – see pages 10 & 11 and go to our website for project specific information.*

			Aesthetics *see pages 4-7*								Rain Defense *see pages 8-9*	Airflow *see pages 10-11*		
Louver Type	Louver Model	Description	Horizontal Blades	Vertical Blades	Exposed Mullions	Continuous Line	Custom Face	Approximate Blade Spacing (in.)	Blade Angle (in degrees)	Louver Depth (in.)	Wind Driven Rain Resistance Low – High	Free Area 4' x 4'	Free Area 8' x 8'	Page Number
Storm Resistant	RS-8615	LOCATION SMART	Yes	No	No	Yes	Yes	4"	45°	8"	● ● ● ● ● ● ●	51.1%	54.7%	15
	RS-4605	VERTICAL	No	Yes	No	Yes	No	2"	N/A	4"	● ● ● ● ● ● ●	51.1%	54.7%	15
	RS-9615	LOCATION SMART	Yes	No	No	Yes	Yes	4"	45°	9"	● ● ● ● ● ● ●	61.3%	61.5%	15
	RS-5605	VERTICAL	No	Yes	No	Yes	No	1"	N/A	5"	● ● ● ● ● ● ●	51.0%	51.0%	15
	RS-4300	CHEVRON	Yes	No	Yes	No	No	2-1/8"	N/A	4"	● ● ● ●	46.9%	50.4%	14
	RS-7315	CHEVRON	Yes	No	No	Yes	No	3-7/8"	46°	7"	● ● ● ● ● ●	50.5%	52.8%	14
	RS-5300	CHEVRON	Yes	No	Yes	No	No	2-3/4"	N/A	5"	● ● ● ● ●	47.3%	51.5%	14
	RS-2300	INVERTED CHEVRON	Yes	No	Yes	No	No	1-1/2"	N/A	2"	● ● ● ●	42.3%	43.5%	14
	Other Stormproof models available, see pages 14 & 15													
Conventional	A4080/A6080	30° STD. "Z" BLADE	Yes	No	Yes	No	No	4" / 6"	30°	4" / 6"	● ●	54.0% / 56.1%	57.0% / 58.0%	16
	A4100/A6100	STD. "Z" BLADE	Yes	No	Yes	No	No	6" / 6-13/16"	45°	4" / 6"	● ●	46.0% / 48.0%	50.0% / 52.0%	16
	A4110/A6110	STEP BLADE	Yes	No	Yes	No	No	6" / 6-13/16"	45°	4" / 6"	● ●	46.0% / 48.0%	50.0% / 52.0%	16
	A4115/A6115	CONTINUOUS STEP BLADE	Yes	No	No	Yes	No	6" / 6-13/16"	45°	4" / 6"	● ●	46.0% / 48.0%	50.0% / 52.0%	16
	GS-410/GS-610	FORMED STD/STEP BLADE	Yes	No	Yes	No	No	4-1/2" / 6-1/4"	37°	4" / 6"	● ●	43.0% / 46.0%	47.0% / 51.0%	16
	4180	CHEVRON	Yes	No	Yes	No	No	4-1/8"	N/A	4"	● ●	26.0%	35.0%	16
	A2097	DRAINABLE	Yes	No	Yes	No	No	1-7/8"	41°	2"	● ●	52.3%	56.9%	17
	A4097	DRAINABLE	Yes	No	Yes	No	No	4"	37°	4"	● ●	50.4%	54.9%	17
	A6097	DRAINABLE	Yes	No	Yes	No	No	6"	37°	6"	● ●	52.1%	57.9%	17
	A6155	DOUBLE DRAINABLE	Yes	No	No	Yes	No	5-5/8"	38°	6"	● ●	48.8%	53.9%	17
	GS-407/GS-607	DRAINABLE	Yes	No	Yes	No	No	3-7/8" / 5-3/8"	37°	4" / 6"	● ●	55.4% / 54.1%	57.6% / 59.7%	17
	2252	THINLINE PROFILES	Yes	No	Yes	No	No	3"	40°	2"	● ●	35.0%	37.2%	18
	2272	THINLINE PROFILES	Yes	No	Yes	No	No	1-1/2"	30°	2"	● ●	55.0%	56.9%	18
	2282	THINLINE PROFILES	Yes	No	Yes	No	No	1-7/8"	N/A	2"	● ●	39.0%	41.1%	18
	1302	THINLINE PROFILES	Yes	No	Yes	No	No	3/4"	45°	1-3/8"	● ●	58.0%	59.3%	18
	0292	THINLINE PROFILES	Yes	No	Yes	No	No	1-1/4"	26°	1"	● ●	64.0%	62.5%	18
	Other Conventional models available, see pages 16 - 18													
Hurricane	DC-7034 - 4085	OPERATING STORM RESISTANT	Yes	No	No	Yes	Yes	4"	30°	11"	● ●*	40.0%	47.0%	19
	DC-7044 - 4097	DRAINABLE	Yes	No	Yes	No	No	4"	37°	11"	● ●	53.0%	55.1%	19
	DC-7024	STORM RESISTANT	Yes	No	No	Yes	Yes	4"	30°	11"	● ● ● ● ● ● ●	41.3%	42.0%	19
	DC-6174	DRAINABLE	Yes	No	Yes	Yes	No	5-3/4"	37°	6"	● ●	57.0%	60.0%	19
	DC-5304	STORM RESISTANT	Yes	No	Yes	No	No	2-3/4"	N/A	5"	● ● ● ● ●	45.0%	49.4%	19
Operating	6917	DRAINABLE	Yes	No	Yes	No	No	6-3/16"	43°	6"	● ●*	40.6%	47.3%	21
	6870	STD. "Z" BLADE	Yes	No	Yes	No	No	5-5/8"	30°	6"	● ●*	53.2%	60.2%	21
	6850	STD. "Z" BLADE	Yes	No	Yes	No	No	6"	45°	6"	● ●*	34.0%	40.7%	21
	4830	STD. "Z" BLADE	Yes	No	Yes	No	No	5-5/8"	40°	4"	● ●*	33.1%	35.6%	21
	Other Operating models available, see page 21													
Acoustical	A12350	CHEVRON	Yes	No	Yes	Yes	No	11-3/4"	N/A	12"	● ●	23.3%	31.1%	20
	A12970	OPERATING	Yes	No	Yes	Yes	No	12"	45°	12"	● ●*	22.0%	25.5%	20
	A12370	STD. "Z" BLADE	Yes	No	Yes	Yes	No	12"	45°	12"	● ●	24.3%	28.3%	20
	A8370	STD. "Z" BLADE	Yes	No	Yes	Yes	No	8-1/2"	45°	8"	● ●	23.0%	28.8%	20
	A6370	STD. "Z" BLADE	Yes	No	Yes	Yes	No	10"	45°	6"	● ●	21.6%	24.3%	20
	A8890	AIRFOIL	Yes	No	Yes	No	No	6"	46°	8-3/4"	● ●	28.5%	33.3%	20
	Other Acoustical models available, see page 20													
Insulated	8990	OPERATING THERMAL BREAK	Yes	No	Yes	No	No	8"	N/A	8"	● ●*	43.0%	51.0%	See
	9880	OPERATING AIRFOIL	Yes	No	Yes	No	No	9"	N/A	9-1/2"	● ●*	55.3%	65.0%	Website

Brick vents, door vents, and penthouses available. Visit www.c-sgroup.com or call 800-631-7379.

**In closed position louver offers highest rain defense.*

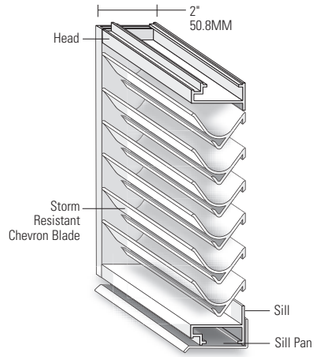
Storm Resistant

Choose Storm Resistant Louvers when:

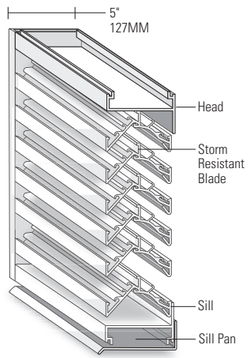
- Keeping up to 100% of rain out of your building is a priority
- Wind driven rain is prevalent
- Using a plenum is impractical because of cost or space considerations
- Sensitive equipment will be housed close to the louver system

Shown:
Model RS-7315

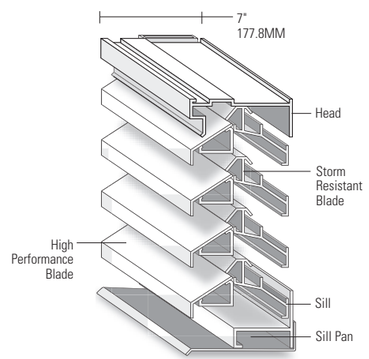
Model RS-2300



Model RS-5300



Model RS-7315



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
RS-7315	Chevron Sightproof	Cont. Line	3-7/8"	7"	●●●●●●	50.5%	52.8%	0.259
RS-5300	Chevron Sightproof	Mullion	2-3/4"	5"	●●●●●	47.3%	51.5%	0.32
RS-4300	Chevron Sightproof	Mullion	2-1/8"	4"	●●●●	46.9%	50.4%	0.30
RS-2300	Inverted Chevron Sightproof	Mullion	1-1/2"	2"	●●●●	42.3%	43.5%	0.32

For CAD Details & Specifications visit www.c-sgroup.com

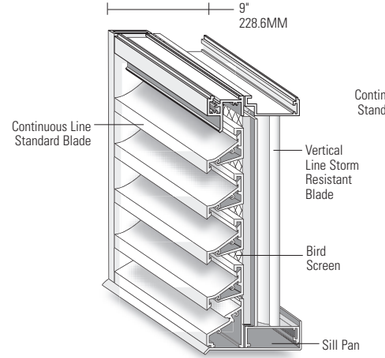
Storm Resistant

Choose Storm Resistant Louvers when:

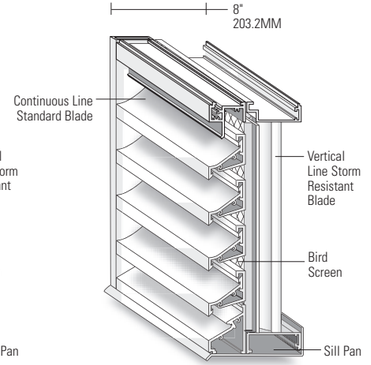
- Keeping 100% of water out of your building is an absolute necessity
- If your building is subjected to wind driven rain up to 100 mph with 6" of water per hour
- Integrating the louver into the building design is a priority. Louvers can be housed behind architectural grilles, architectural detailing or continuous line louvers

Shown:
Model RS-8615

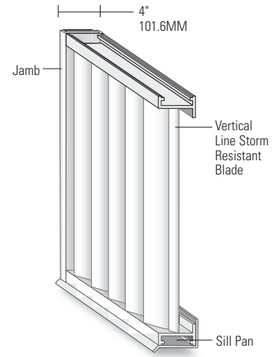
Model RS-9615



Model RS-8615



Model RS-4605



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
RS-8615	Flat Blade or Grille Front	Cont. Line	4"	8"	●●●●●●●	51.1%	54.7%	0.26
RS-4605	Chevron	Vertical	2"	4"	●●●●●●●	51.1%	54.7%	0.14
RS-9615	Flat Blade or Grille Front	Cont. Line	4"	9"	●●●●●●●	61.3%	61.5%	0.20
RS-5605	Chevron	Vertical	1"	5"	●●●●●●●	61.3%	61.5%	0.08

For CAD Details & Specifications visit www.c-sgroup.com

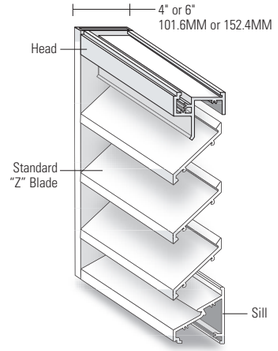
Conventional

Choose Standard Louvers when:

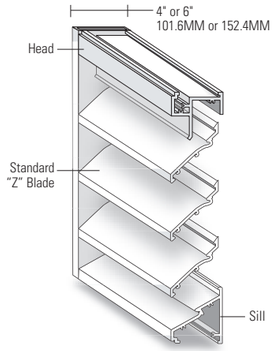
- Occasional water penetration will not cause significant problems
- Economy is the primary consideration
- High free area is important
- A variety of blade and frame styles/options are important

Shown:
Model A6100

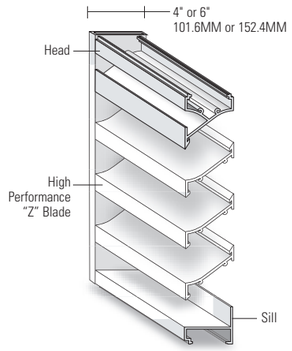
Models A4100 & A6100



Models A4110 & A6110



Models A4080 & A6080



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low	Rain Defense High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
A4080/A4085	30° Flat Blade	Mullion/Cont. Line	4"	4"	●●		54.0%	57.0%	0.17
A4100/A4105	45° Flat Blade*	Mullion/Cont. Line	6"	4"	●●		46.0%	50.0%	0.17
A4110/A4115	45° Step Blade*	Mullion/Cont. Line	6"	4"	●●		46.0%	50.0%	0.09
4180	Chevron Sightproof	Mullion/Cont. Line	4-1/8"	4"	●●		26.0%	35.0%	0.09
4190	Chevron Tamperproof	Mullion	3-3/4"	4"	●●		32.0%	35.0%	0.54
A6080/A6085	30° Flat Blade	Mullion/Cont. Line	6"	6"	●●		56.1%	58.0%	0.16
A6100/A6105	45° Flat Blade*	Mullion/Cont. Line	6-13/16"	6"	●●		48.0%	52.0%	0.16
A6110/A6115	45° Step Blade	Mullion/Cont. Line	6-13/16"	6"	●●		48.0%	52.0%	0.17
GS-410	45° Step Blade Steel	Mullion/Cont. Line	4-1/2"	4"	●●		43.0%	47.0%	0.13
GS-610	45° Step Blade Steel	Mullion/Cont. Line	6-1/4"	6"	●●		46.0%	51.0%	0.12

***** *0.125 (3.18mm) thickness available*

For CAD Details & Specifications visit www.c-sgroup.com

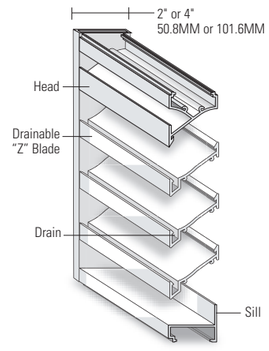
Conventional

Choose Drainable Louvers when:

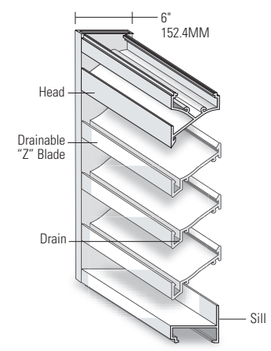
- The periodic entry of water from non-wind driven rain is not a prime concern
- Some drainage of cascading water is necessary
- A variety of blade sizes, styles and frames are important

Shown:
Model A6097

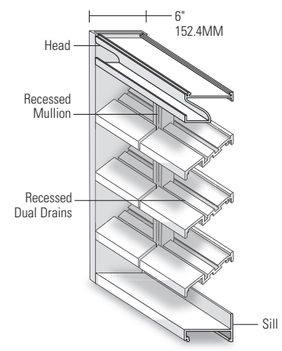
Models A2097 & A4097



Model A6097



Model A6155



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low	Rain Defense High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
A2097	Drainable	Mullion	1-7/8"	2"	●●		52.3%	56.9%	0.13
A4097	Drainable	Mullion	4"	4"	●●		50.4%	54.9%	0.16
A6097	Drainable	Mullion	6"	6"	●●		52.1%	57.9%	0.13
3157	Double Drainable	Mullion	2-7/8"	3"	●●		48.1%	53.7%	0.14
4157	Double Drainable	Mullion	3-1/2"	4"	●●		49.6%	53.5%	0.14
5157	Chevron Drainable	Mullion	2-1/2"	5"	●●		52.9%	56.1%	0.22
6157	Double Drainable	Mullion	6"	6"	●●		45.8%	48.9%	0.13
A6155	Double Drainable	Cont. Line	5-5/8"	6"	●●		48.8%	53.9%	0.1
GS-407	Drainable Steel	Mullion	3-7/8"	4"	●●		55.4%	57.6%	0.13
GS-607	Drainable Steel	Mullion	5-3/8"	6"	●●		54.1%	59.7%	0.13

For CAD Details & Specifications visit www.c-sgroup.com

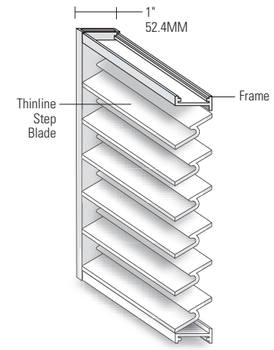
Thinline

Choose Thinline Louvers when:

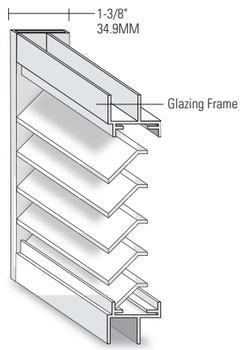
- Standard 4" or 6" deep louvers are not practical in applications such as curtain walls, interior and exterior partitions and window walls
- High free area and low pressure drop requirements are a priority: specify air conditioning louvers
- Water is a problem: specify RS-2300
- Channel, flange or glazing frames are required

Shown:
Model 2252

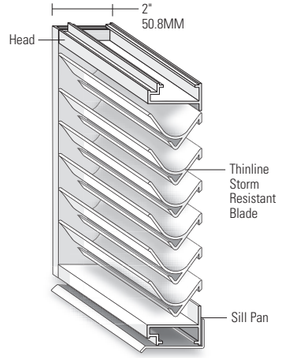
Model 0292



Model 1302



Model RS-2300



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
0292	30° Step Blade	Cont. Line	1-1/4"	1"	●●	64.0%	62.5%	0.095
1242	30° Step Blade	Cont. Line	1-1/8"	1-3/8"	●●	46.0%	46.2%	0.07
2272	30° Step Blade	Cont. Line	1-1/2"	2"	●●	55.0%	56.9%	0.095
2252	Step Blade	Cont. Line	3"	2-1/4"	●●	35.0%	37.2%	0.13
0322	Flat Blade	Cont. Line	1-1/4"	1"	●●	27.8%	27.6%	0.084
1322	Flat Blade	Cont. Line	1-3/4"	1-3/8"	●●	32.0%	32.5%	0.10
2322	Flat Blade	Cont. Line	2-1/2"	2"	●●	39.3%	40.2%	0.13
1282	Chevron Sightproof	Cont. Line	1-3/8"	1-3/8"	●●	39.3%	40.0%	0.75
2282	Chevron Sightproof	Cont. Line	1-7/8"	3"	●●	39.0%	41.1%	0.64
1302	Air Cond. PTAC Louver	Cont. Line	3/4"	1-1/4"	●●	58.0%	59.3%	0.15
RS-2300	Storm Resistant	Cont. Line	1-1/2"	2"	●●●●	42.3%	43.5%	0.32

For CAD Details & Specifications visit www.c-sgroup.com

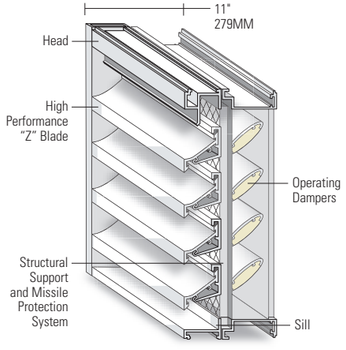
Hurricane

Choose Hurricane Louvers when:

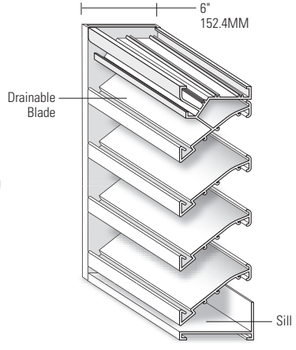
- Your building is subjected to severe weather from hurricanes, tropical storms and tornadoes
- Total envelope protection is required from hurricanes including: 120 PSF winds, missile protection and 100% water penetration
- All models below are Dade County Impact Test approved

Shown:
Model DC-5304

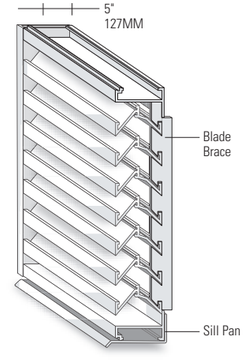
Model DC-7034



Model DC-6174



Model DC-5304



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
DC-5304	Chevron Storm Resistant	Mullion	2-3/4"	5"	●●●●●	45.0%	49.4%	0.32
DC-7034	Flat Blade Front	Cont. Line	4"	11"	●● *	40.0%	47.0%	0.20
DC-6174	Drainable	Mullion/Cont. Line	5-3/4"	6"	●●	57.0%	60.0%	0.14
DC-7044	Flat Blade Front	Cont. Line	4"	11"	●●	53.0%	55.1%	0.20
DC-7024	Flat Blade Front	Cont. Line with Rain Rejection Module	4"	11"	●●●●●●●	41.3%	42.0%	0.25

**In closed position louver offers highest rain defense.*

For CAD Details & Specifications visit www.c-sgroup.com

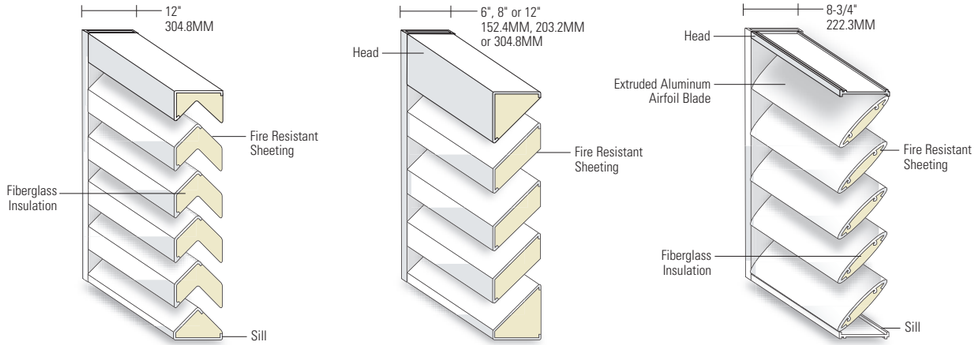
Acoustical

Choose Acoustical Louvers when:

- Sound attenuation or minimizing noise is essential
- Reducing sound levels that escape from exterior or interior walls is necessary
- Maximum noise reduction is required: specify model 12350
- Maximum free area and reducing noise is important: specify models 8890 or 8860

Shown:
Model A12350

Model A12350 **Model A12370** **Model A8890**



Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low	Rain Defense High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
A6370	Flat Blade	Mullion or Cont. Line	10"	6"	●●		21.6%	24.3%	13
A8370	Flat Blade	Mullion or Cont. Line	8-1/2"	8"	●●		23.0%	28.8%	15
A12350	Chevron Sightproof	Mullion or Cont. Line	11-3/4"	12"	●●		23.3%	31.1%	19
A12360	Flat Blade	Mullion or Cont. Line	15"	12"	●●		24.3%	30.4%	13
A12370	Flat Blade	Mullion or Cont. Line	12"	12"	●●		24.3%	28.3%	15
A12970	Flat Blade Operating	Mullion	12"	12"	●●*		22.0%	25.5%	15
A8890	Airfoil Blade	Mullion	6"	8-3/4"	●●		28.5%	33.3%	10
A8860	Operating Airfoil	Mullion	6"	9-1/2"	●●*		28.5%	33.3%	10

**In closed position louver offers highest rain defense.*

For CAD Details & Specifications visit www.c-sgroup.com

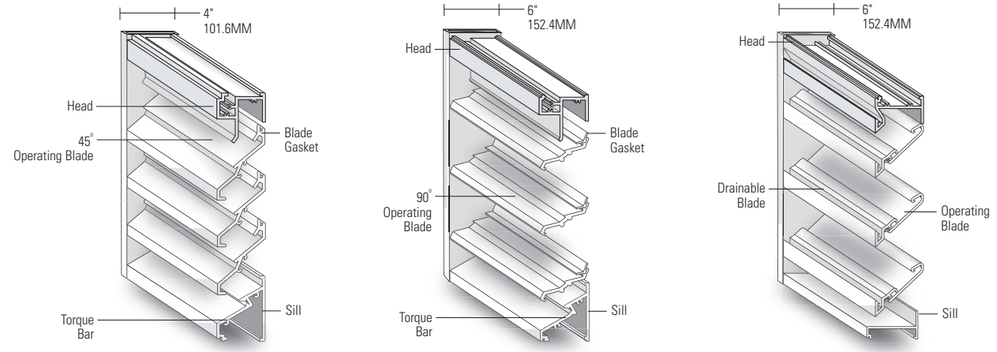
Operating

Choose Operating Louvers when:

- Controlling the amount of airflow through the louver at any given time is a requirement
- Preventing rain, sleet or snow from entering the building is important (closed position only)
- Providing security from external intrusion is a priority
- The louver must close, but must have a fixed blade appearance: specify model 6917 or 6967

Shown:
Model 6917

Model 4830 **Model 6870** **Model 6917**

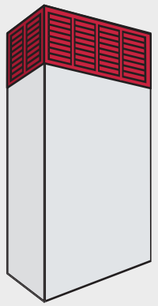


Louver Model	Description	Configuration	Blade Spacing	Louver Depth	Rain Defense Low	Rain Defense High	Free Area 4' X 4'	Free Area 8' X 8'	PD @ 900 FPM
4830	45° Step Blade	Mullion	5-5/8"	4"	●●*		33.1%	35.6%	0.13
6850	45° Step Blade	Mullion	6"	6"	●●*		34.0%	40.7%	0.11
6870	90° Step Blade	Mullion	5-5/8""	6"	●●*		53.2%	60.2%	0.15
6917	Single Drainable	Mullion	6-3/16"	6"	●●*		40.6%	47.3%	0.1
6967	Double Drainable	Mullion	5-3/4"	6"	●●*		45.2%	48.4%	0.08
4910	Gravity Exhaust Damper	Mullion	6"	4"	●●*		Varies	Varies	.22 @ 500
4920	Gravity Intake Damper	Mullion	6"	4"	●●*		Varies	Varies	.30 @ 500

**In closed position louver offers highest rain defense.*

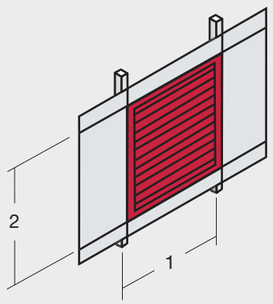
For CAD Details & Specifications visit www.c-sgroup.com

Design Considerations



Critical factors in louver installation

Louver location, exposure of the building to wind and snow and the site's topography all influence the size and amount of structurals your louvers will require.

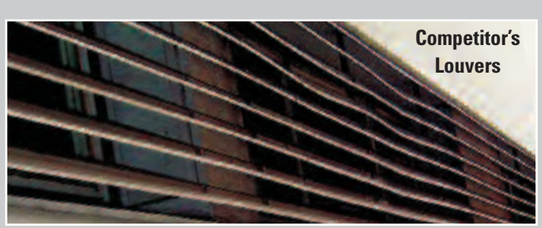


Proper louver design

The louver blade's thickness and shape, the distance between louver blade supports (dimension #1) and the louver blade mullion supports (dimension #2) should meet the needs of the project to avoid costly errors.

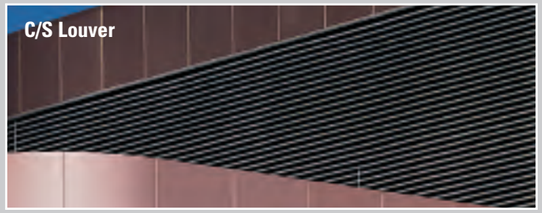
U.S. Building Codes establish specific criteria designers must consider concerning louver blade spans and the amount of structural supports required to secure louvers to a building. For most projects C/S Louver Systems are fully engineered to the specified building code, wind or snow load supplied by the architect. C/S supplies signed and sealed calculations by a professional engineer to insure our louver's structural performance.

Avoid structural and aesthetic disasters



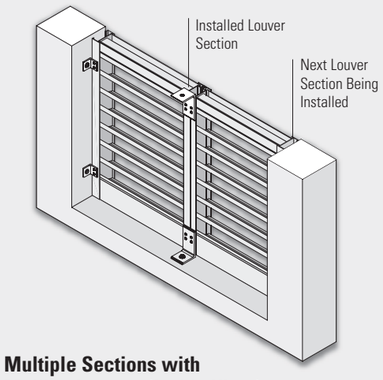
Manufacturers that use inadequate structural supports or increase the blade span to reduce costs can cause you to end up with a poorly functioning, terrible looking installation like the one above. Ripping out the louvers and replacing them can be far more expensive than properly designing them in the first place.

C/S assures a perfect installation every time

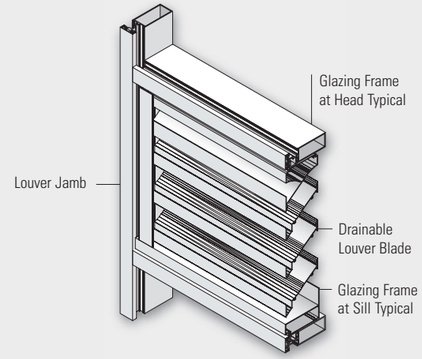


Our louver blades are manufactured to rigorous standards. The blades are designed to insure there is no deformation or sagging.

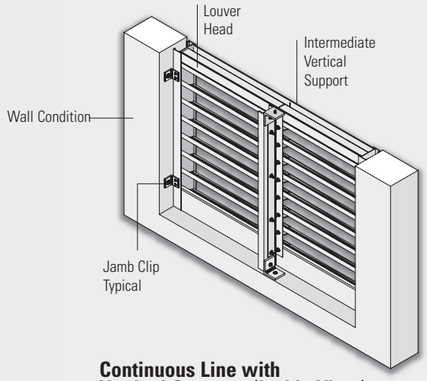
Louver Installation Options



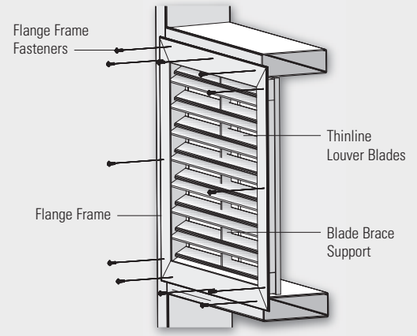
Multiple Sections with Mullion Louvers (Inside View)



Glazing Frame Installation



Continuous Line with Vertical Supports (Inside View)



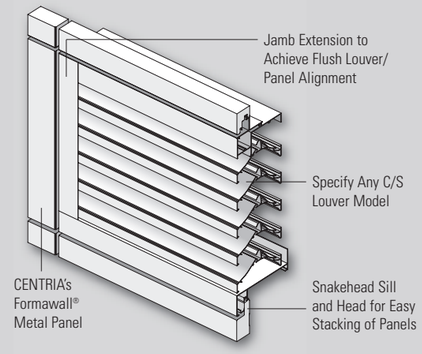
Flange Frame Subframe

C/S Louvers integrate with CENTRIA wall panels

CENTRIA

C/S offers a complete line of fixed, drainable and storm resistant louvers that are designed to integrate seamlessly in CENTRIA's Formawall® Dimension Series metal panel systems. The system features:

- Fully integrated louvers with Dimension series joinery, sealing systems and sight lines.
- Simplified installation and framing requirements.



Accessing C/S Louvers technical data, photos and specifications has never been easier. Just visit: www.c-sgroup.com.

C/S Louvers Product Information Is Also Available In:

Tech Manual

THE C/S GROUP OF COMPANIES:

CONSTRUCTION SPECIALTIES, INC. • C/S CONSTRUCTION SPECIALTIES COMPANY MANUFACTURING/SALES LOCATIONS

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Note: *the products shown in this catalog may be covered by one or more of the following patents:*

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