

c|ssuncontrols

Horizontal & Vertical Sunshades, Skylight Shutters & Lightshelves

2007

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BuyLine 4363



C/S GROUP

cs sun controls

making buildings and people more efficient

For fifty years C/S has helped architects realize the aesthetic and functional benefits of using sun controls. **C/S Sun Controls not only reduce heat and glare, they reduce a building's overall energy cost.** With energy costs at an all-time high, saving 80% on a building's skin load air conditioning requirement can be significant. A savings of 50%-80% in lighting energy use can also be experienced by attaching C/S



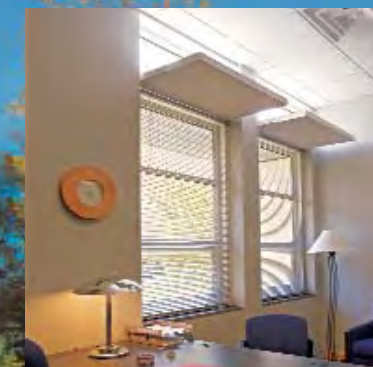
Lightshelves to our sun controls. **In fact, the USGBC's LEED® program awards architects up to six points for using external sunshades, lightshelves and other daylight strategies.** And several studies show that buildings employing daylight management systems **increases worker productivity, lowers absenteeism, and improves educational performance.** For details on our complete line of sun controls call 1-(800)631-7379.

LEED® Certified Old Dominion University



Exterior Sunshades

Custom cantilevered sunshades reduce heat and glare on the south and east elevations. ODU anticipates its LEED certified building will cut energy demands by 20% annually.



Interior Lightshelves

Custom lightshelves are attached to the exterior sunshades to reduce window glare while bringing daylight deeper into the building's classrooms.

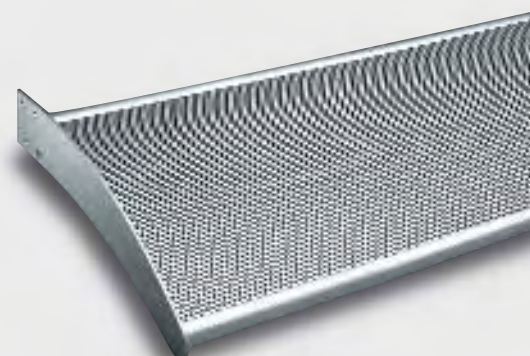
2 Unique Shading Systems That Provide Soft Filtered Light While Reducing Heat

Our new Shadowline and Perform Sunshades not only reduce a building's heat and glare but provide buildings with cutting edge aesthetics. Both products are highly customized to meet your building's sun control requirements.



C/S Shadowline Series Sunshades

This sunshade utilizes C/S' modular grille infill panels to produce an open, airy feeling combined with effective sun control. Six standard infill panels are offered; custom patterns available. See pages 4-5 for details.



C/S Perform Sunshades

Our new perforated sunshades, in a variety of patterns, create dramatic visual effects on any building facade while reducing direct sunlight. Two standard profiles are offered; custom profiles and patterns available. See pages 6-7 for details.

C/S Shadowline Sunshades create a dramatic visual statement.

The Shadowline System

This system combines several standard C/S Grille/Sun Control components to create a custom appearance.

Designed for Effective Sun Shading

With projections up to six feet, Shadowline Sunshades are perfect for use on curtainwalls and standard construction. Select from a variety of infill patterns, fascia and outrigger styles.

Shadowline's open design reduces the mass of traditional sunshades, while still providing effective shading.

All of our infill panels reduce heat and glare while providing filtered light. Choose from one of our six designs below.

Shadowline's single outrigger design attaches easily to curtainwall and standard construction.

Fascia Choices

Our four bold fascia styles are designed to match the buildings overall design.

Round Fascia

Rectangular Tube

Bull Nose Fascia

Wedge Fascia

How the System Works

The Shadowline Sunshade is comprised of perimeter tube frames mechanically fastened to a single outrigger through the use of 2" x 4" rectangular tubes. The Grille infill panels create an airy effect. These sunshades can project off buildings 2' to 6'.

- ① Choose Outrigger Style on Page 17
- ② Choose Infill Panel Below or Custom
- ③ Choose Fascia at right
- ④ Choose Finish on Page 17

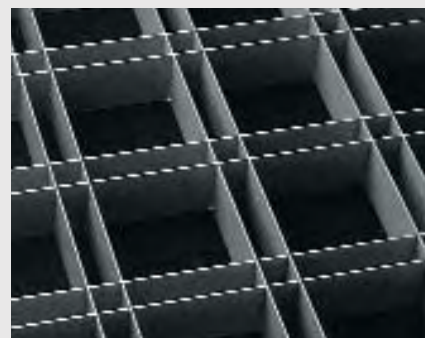
At the Children's Medical Services Building, located on the University of South Florida campus, Shadowline Sun Controls reduce midday heat and glare.



Infill Panel Choices Six standard designs are shown below. Call 888-640-5566 for custom patterns.



Modular



Lattice



Myriad XXX



Marquis



1"-4" Round or Rectangular Tubes



4" Airfoil

C/S Perform panels are the palette. Beautiful dappled light is the result.

C/S Perforated Canopy Sunshade

This sunshade system provides buildings with effective sun control, yet offers stunning visual effects by admitting soft dappled light.

Two Styles, Dozens of Options

C/S Perform curved and flat canopies employ a slender custom designed tube support that mechanically captures our perforated sheet without the use of unsightly welding. The Perform system can be designed to meet any wind or snow load.

C/S Perform Sunshades can span 6' between outriggers.

How the System Works

Perform perforated canopies can project up to 2' 6" without intermediate supports. With supports these sunshades can project 4' or deeper.

- 1 Choose Curved or Flat Canopy
- 2 Select Projection Depth
- 3 Choose Infill Panel Style
- 4 Choose Finish on Page 17

C/S Perform Infill panels provide soft dappled light yet are highly effective at controlling heat and glare. Choose from one of our four perforated designs below.

Canopy Styles

Standard Curved

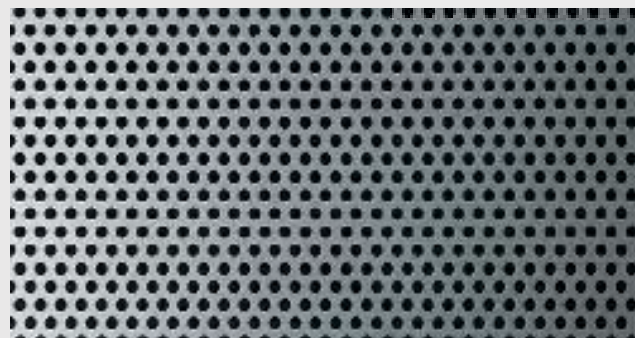
Our standard curved canopy projects up to 2' 6". With intermediate supports (at left) it can span 4'.

Standard Flat

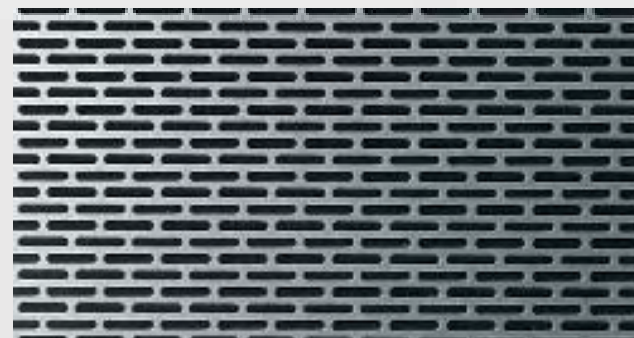
These canopies feature clean, architectural lines and can project up to 4' with an intermediate support.

C/S Perform Canopies reduce heat and glare on this mixed-use complex in South Florida.

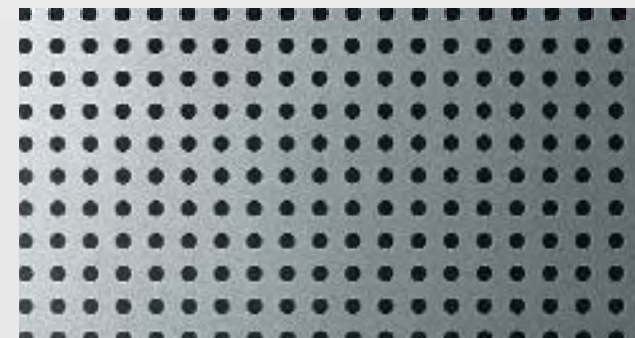
Perforated Infill Patterns Four standard designs are shown below. Call 888-640-5566 for custom patterns.



60° Staggered



Square Slot



Round Straight



Straight Center Square Hole



gallup university

Project Overview:

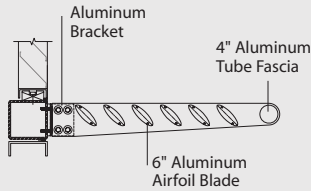
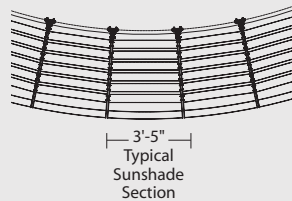
The Gallup Organization's campus in Omaha, NE, provides leadership training to 5,000 executives annually. A segmented C/S Cantilevered Sunshade with a 4' projection sits above the main entrance and classrooms to create a comfortable sun-lit environment without the associated heat and glare. Custom tapered aluminum outriggers secure

the airfoil blades and are finished with a tubular fascia.

Architect:
Gensler, Los Angeles, CA



Section View



Plan View



bmw performance center

Project Overview:

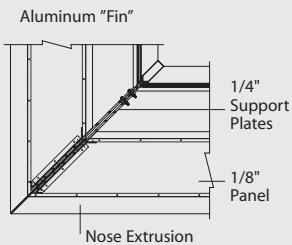
The exciting BMW Performance Center in Greer, SC, utilizes a multi-tiered demi-fin sunshade to reduce solar heat and glare. Each demi-fin is comprised of solid aluminum top and bottom panels with a wedge fascia at the front of each fin and a tubular shaped extrusion at the rear of the blade. The blades are attached to the

curtainwall through the use of custom outriggers.

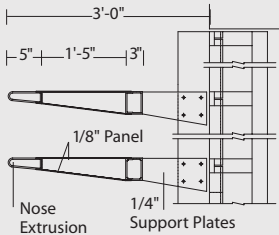
Architect:
O'Neal Inc., Atlanta, GA



Section



Plan at Corner



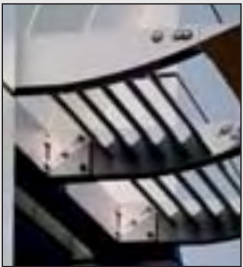
sun healthcare

Project Overview:

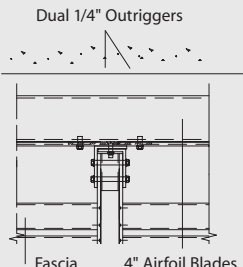
Two different C/S Sunshade systems are used to provide filtered light for each of the building's offices. On the upper level, a continuous cantilevered sunshade with 4" airfoil blades is used. The individual windows on the lower level are shaded by sunshades using 4" airfoil blades connected to tapered

outriggers with a triangular front fascia.

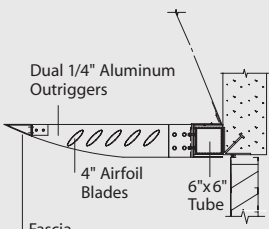
Architect:
Fanning Bard Tatum, Ltd., Architects, Albuquerque, NM



Section



Plan View



empire marine

Project Overview:

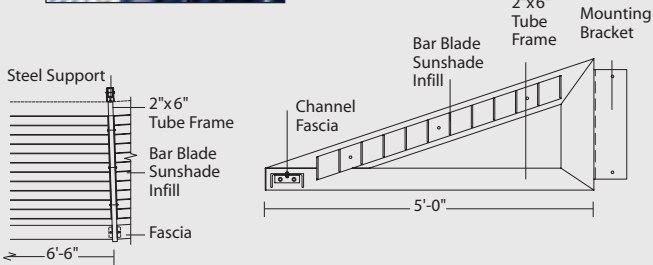
A curved C/S Suspended Sunshade with a five-foot projection sits atop this office complex to reduce heat and glare in the offices situated below the screen. Infill blades are 4" high flat bar stock, 1/4" thick. Tubular suspension brackets are installed 7' o.c. to meet specified wind and snow loads. A custom

C/S Tri-X metallic finish matches the Kawneer window system.

Architect:
Gensler, Denver, CO



Section



Plan View

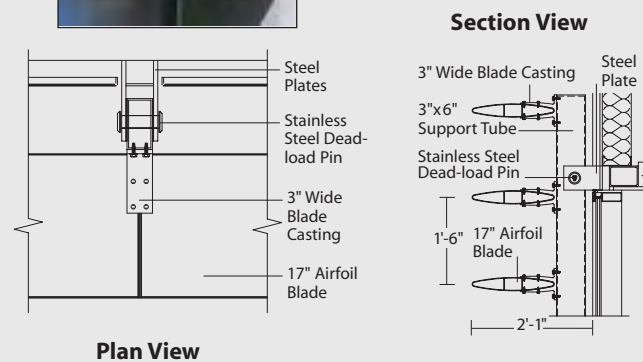


u.c. davis

Project Overview:

To reduce the effects of the sun's heat and glare at the magnificent University of California Davis Performing Arts Center, BOORA Architects specified a C/S Horizontal Sunshade featuring 17" airfoil blades. The blades are supported by cut aluminum brackets mounted to rectangular vertical tubes that are independent of the curtain wall. Blades are mounted 18" O.C.

Architect:
BOORA Architects, Inc.,
Portland, OR

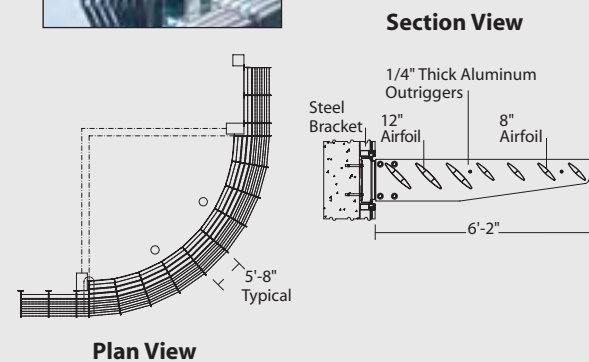


lincoln place

Project Overview:

This dramatic application features six-foot deep cantilevered sunshades on all seven floors of this South Florida office complex. Wrapping 90° around the southern elevation, the sunshade features 8" and 12" airfoil blades in custom tapered plate outriggers. The entire system was engineered to meet stringent Dade County wind load requirements.

Architect:
Nichols Brosch Sandoval &
Associates, Miami, FL

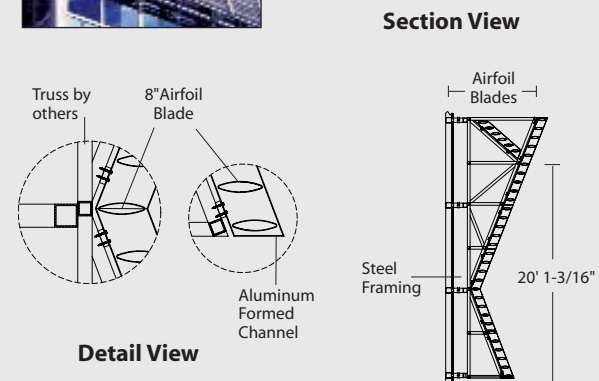


dan russell court house

Project Overview:

To support the U.S. Government's efforts to construct energy efficient buildings, this courthouse features C/S Sun Controls on five stories of this building's southern elevation. The sunshades utilize 8" airfoil blades set on steel framing. The long span blades are oriented at a 0° slope which maximizes solar protection and minimizes the viewing obstruction of the Mississippi Gulf Coast.

Architect:
R.M. Kliment & Frances Halsband
Architects, New York, NY and
Canizaro Cawthon Davis
Architects, Jackson, MS

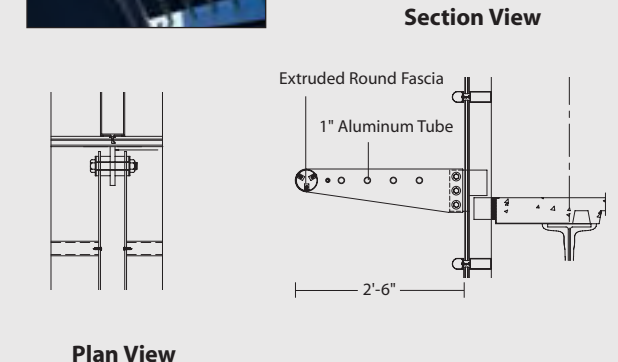


west corp

Project Overview:

C/S Cantilevered Sunshades are an elegant yet dramatic feature on the West Corporation, Omaha, NE. Holland Basham Architects specified a bold 4" round extruded fascia and 1" aluminum tubes to span between tapered outriggers 5' O.C. The sunshade is mounted above the windows, directly to the aluminum curtain wall via the outriggers.

Architect:
Holland Basham Architects,
Omaha, NE





old dominion university

Project Overview:

ODU's new Engineering and Computational Sciences Building is the first LEED® Registered Higher Education Building in Virginia.

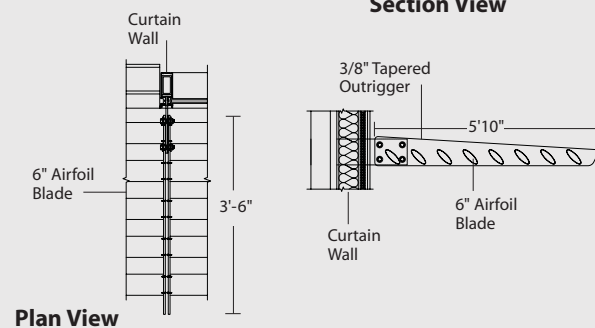


Moseley Architects specified cantilevered and vertical sunshades in conjunction with interior lightshelves for a complete C/S Daylight Management System. This combination reduces the overall building's energy costs and brings daylight deeper into the classrooms.

Architect:
Moseley Architects,
Virginia Beach, VA



Section View



stanford

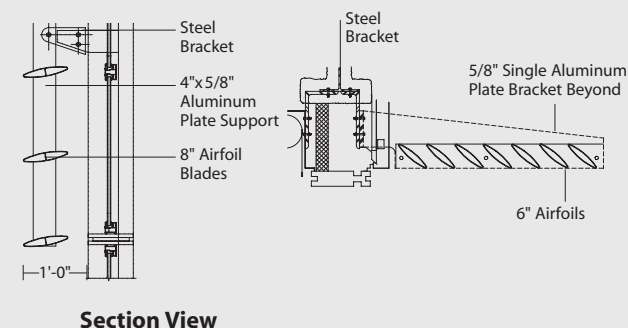
Project Overview:

At the Iris and B. Gerald Cantor Center for Visual Arts, a C/S Cantilevered 6" Airfoil Sunshade at the building's roofline reduces the heat and glare of the midday sun. On the building's southern and western facades, 8" airfoil blades are mechanically fastened to a special vertical bracket system that attaches directly to the custom curtain wall.

Architect:
Polshek Partnership Architects,
LLP, New York, NY



Section View



neilson media

Project Overview:

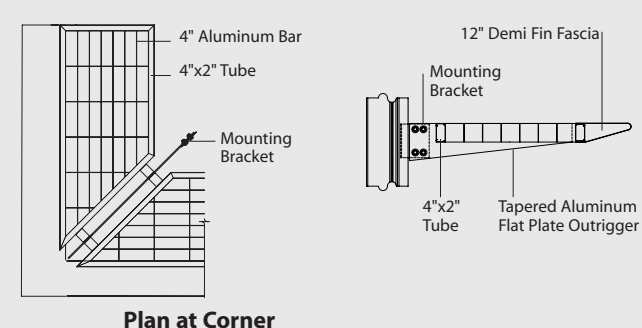
This high-tech building is complemented by C/S Shadowline Sunshades which effectively reduce heat and glare while allowing soft dappled light to enter the interior. The 2" x 4" perimeter tubular frames that hold C/S Modular Grilles are mechanically fastened to a single outrigger through mounting spacers. These custom

sunshades are 10' wide with a 3' projection and feature a 10' bullnose fascia.

Architect:
Alfonso Architects, Inc.,
Tampa, FL



Section View



motorola

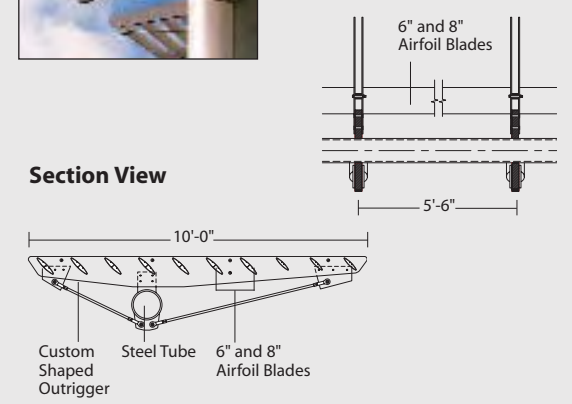
Project Overview:

Custom dual cantilevered C/S Sunshades that are balanced above a center steel tube create a dramatic design statement at this office complex. Tapered outriggers incorporate 6" and 8" airfoil blades angled at a 45° to provide shading for both the cafeteria and seating areas. The sunshades are designed to follow the building's curvilinear shape.

Architect:
Globetrotters Engineering,
Chicago, IL

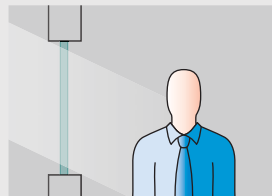


Plan View

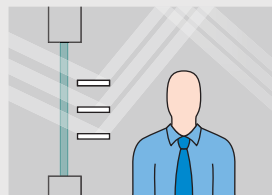


introducing 100% energy efficient lighting—the sun!

The perfect solution to glare



Heat and glare from unprotected windows can make building occupants uncomfortable and inefficient



Lightshelves connected to sunshades reduce heat and glare and bring soft diffused light deep into a building's interior

Controlling the sun on the exterior of a building is only part of Daylight Management. Bringing natural daylight deeper into a building's interior can not only make the building more energy efficient, but it can have positive benefits on the building's occupants as well.

By marrying the strengths of our sunshades with our lightshelves and skylights shutters, C/S offers more ways for buildings to benefit from natural daylight than anyone.

C/S Lightshelves reduce energy costs while bringing daylight deeper into the building's interior. Our standard lightshelf is a 30" wide panel with a highly reflective top surface. A variety of edge treatments and mounting styles are available.

C/S Skylight Shutters allow softly diffused light into building interiors while minimizing solar heat gain. Framed shutters may be free standing or attached to the skylight structure. C/S Skylight Shutters can be controlled by a solar tracking device to regulate the amount of light entry.



C/S Lightshelves

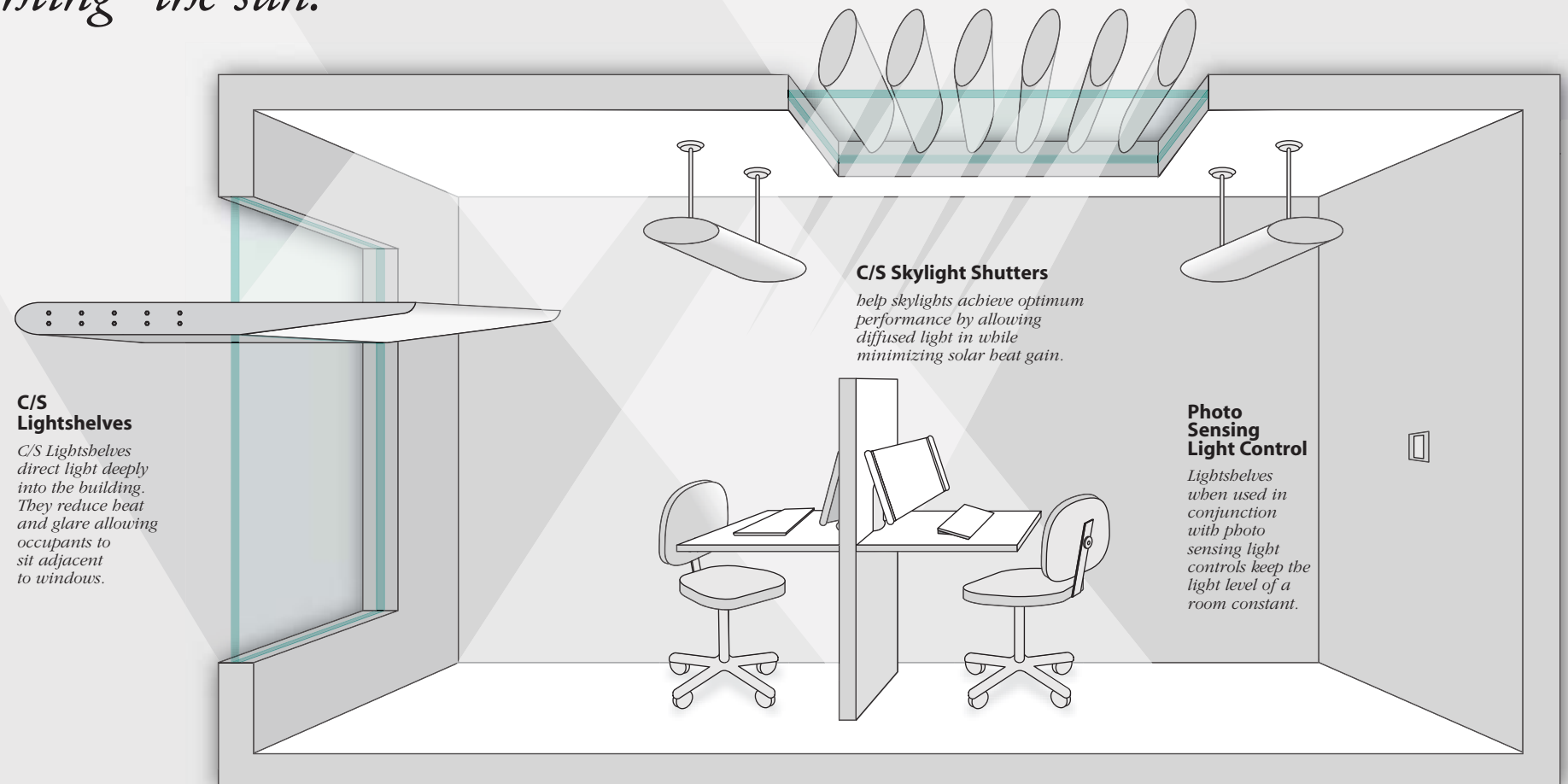
C/S Lightshelves direct light deeply into the building. They reduce heat and glare allowing occupants to sit adjacent to windows.

C/S Skylight Shutters

help skylights achieve optimum performance by allowing diffused light in while minimizing solar heat gain.

Photo Sensing Light Control

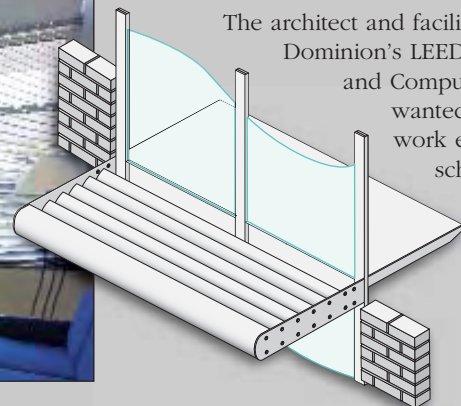
Lightshelves when used in conjunction with photo sensing light controls keep the light level of a room constant.



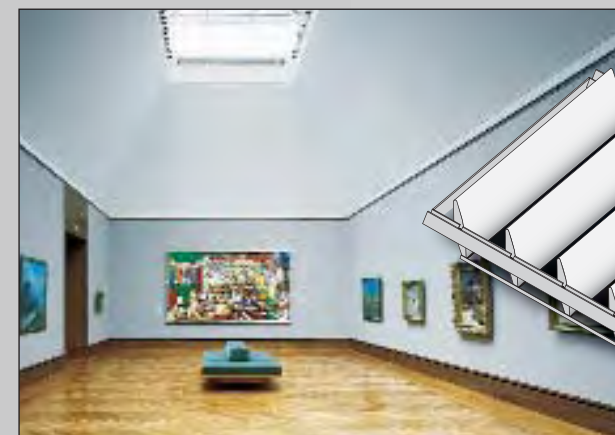
C/S Lightshelves @ ODU



The architect and facilities staff of Old Dominion's LEED® accredited Engineering and Computational Science Building wanted to create a comfortable work environment for the school's employees while reducing lighting energy costs. They accomplished their goal.



C/S Skylight Shutters @ The Getty Center



The J. Paul Getty Art Center is designed to maximize the use of natural light. But since direct exposure to UV rays can damage the priceless collection of artwork, Richard Meier specified C/S Skylight Shutters to control solar penetration. The shutter blades move to regulate the amount of light entry depending on the time of day and season.

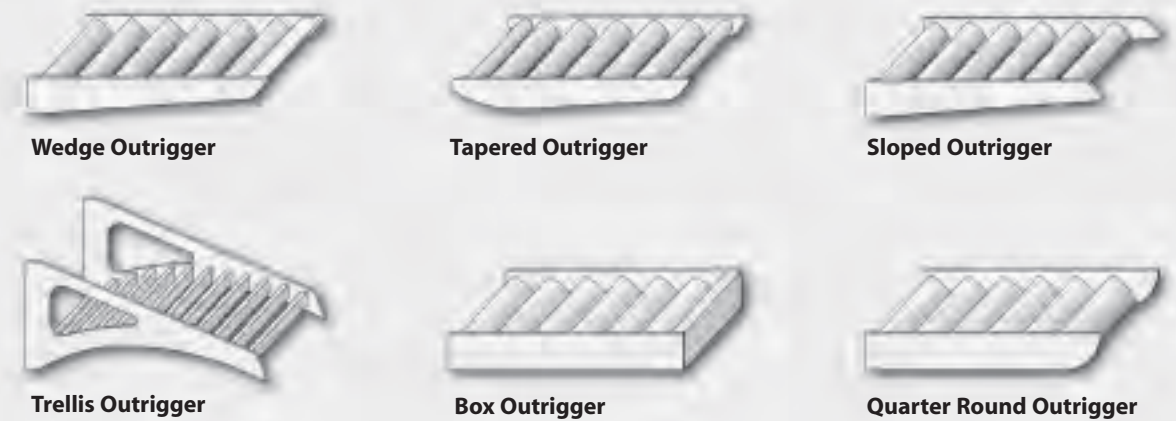
BLADE STYLES

C/S Sun Controls can be manufactured with any of the blade styles shown below in a large variety of sizes. All blades are manufactured from extruded aluminum (formed aluminum blades also available). C/S can also create custom blade styles should your project call for them. Call the C/S Sun Control team at 1-800-631-7379.



OUTRIGGERS

The outriggers on C/S Sun Controls can take any form an architect chooses to design. Six standard designs are shown below. C/S Outriggers are attached to a building in a variety of methods depending on the type of building skin, the required codes, wind and snow loads. See page 19 for attachment methods or call us at 1-800-631-7379.



FASCIAS

C/S Fascias add a dramatic design element to any of our sun controls. Select from one of the four standard shapes shown below or call 1-800-631-7379 to discuss custom profiles.



FINISHES



The C/S Group of Companies offers the building industry the widest range of tested finish options currently available. From our dramatic range of custom-hued Kynar 500®/Hylar 5000® colors to our Mica II and Tri-x Metallic finish, architects can be assured that the specified finish will meet their design and performance criteria. See www.c-sgroup.com.

USING THIS GUIDE

Below is important data that will help you understand the effects of wind and snow on your project's sunshade. We've also included typical attachment details to help you in your design. The information included on these pages is generic in nature and should be used as a guide only. For specific information, call the C/S Sun Control Design Group at 1-800-631-7379.

DEFINITIONS

Wind Load

Pressure that is applied to a sunshade or its blade as a result of wind expressed in psf (pound per square foot).

Span

The length of a blade between point of attachment.

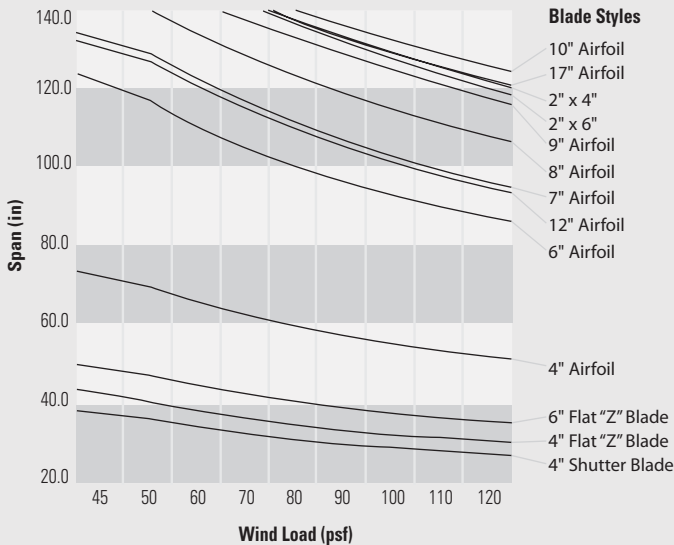
Snow Load

Pressure that is applied to a sunshade or its blade as a result of built up snow expressed in psf (pound per square foot).

Deflection

The amount of sag up, down, in or out that a blade will move when snow or wind load are applied.

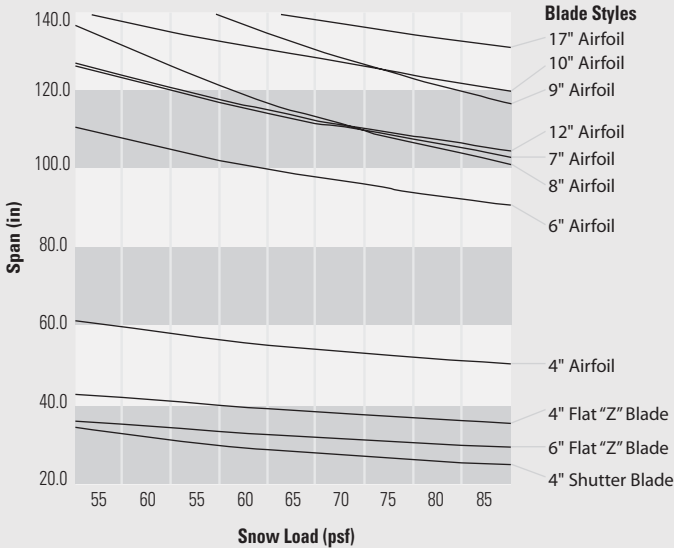
MAXIMUM WIND LOAD SPAN BY BLADE STYLE



Basic Wind Speed	PSF	KPA
85	46	2.2
90	52	2.5
100	64	3.0
110	77	3.7
120	92	4.4
130	107	5.1
140	125	5.9
150	143	6.9

Mean Eave Height = 78'
Element Height = 71'
Building Category = III
Importance Factor = 1.15
Roof Zone = 3
Exposure GCp = -1.80

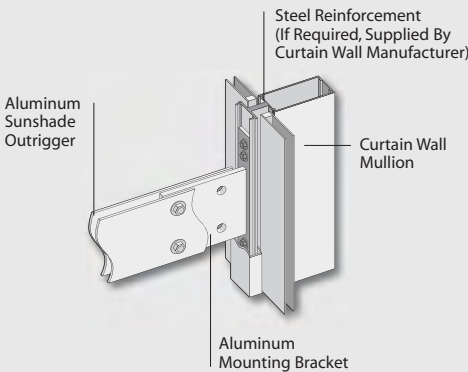
MAXIMUM SNOW LOAD SPAN BY BLADE STYLE



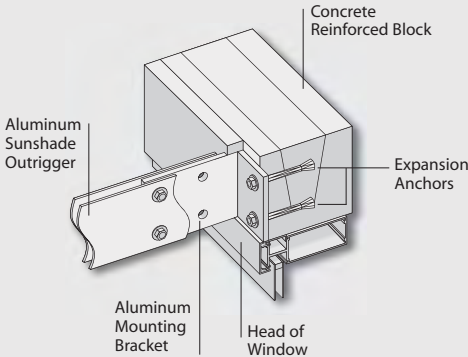
Ground Snow Load	PSF	KPA
5	48	2.3
10	59	2.8
15	70	3.4
20	81	3.9
25	86	4.1
30	89	4.3
35	93	4.4

Exposure Factor = 1
Thermal Factor = 1.2
Importance Factor = 1.1
Ht. from Element to Eave = 7'-0"
ASCE 7-98

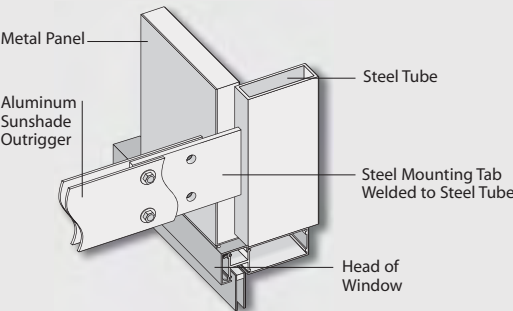
TYPICAL MOUNTING OPTIONS (ALUMINUM TEE AND STEEL PLATES) Call for help with your particular conditions



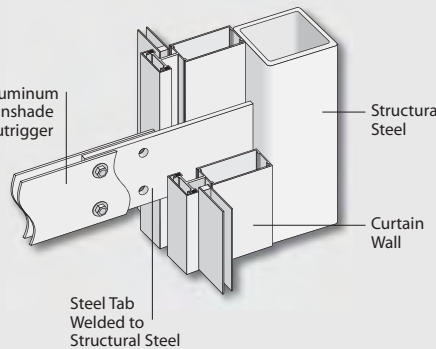
On Curtain Wall



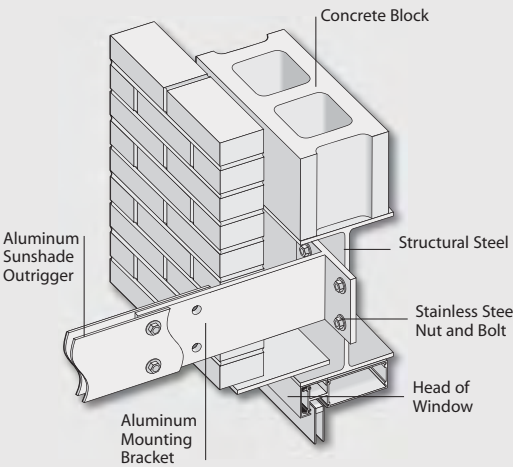
Bolted to Concrete Lintel



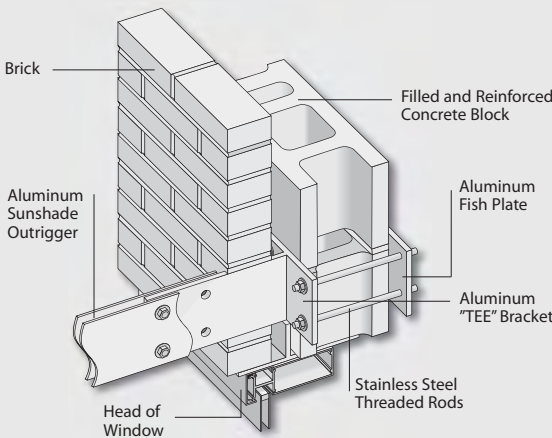
Steel Tab Welded to Steel Tube Behind Metal Panel



Steel Tab Welded to Vertical Steel



Bolted to Steel Behind Brick



On Block, Behind Brick

Accessing C/S Sun Controls drawings,
photos and specifications has never been easier.
Just visit: www.c-sgroup.com.



C/S Sun Controls Product Information Is Also Available In:



*Sun Control CAD &
Specification Manual*



*Project
Showcase CD*



*C/S Grilles
Catalog*

THE C/S GROUP OF COMPANIES:

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U.A.E. Dubai Tel:+9714-331-2167/Fax:+9714-331-5023/cs-dubai@emirates.net.ae

For phone number of nearest representative, call toll free (800)631-7379 in U.S.A. and (888)895-8955 in Canada.

For assistance with overseas requirements, fax C/S International (908)236-2903.

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Printed in U.S.A.

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