BUILD SOMETHING INSPIRED

ARCHITECTURAL WINDOW COVERINGS

A GUIDE TO FABRIC SELECTION

HunterDouglas Architectural

ARCHITECTURAL INNOVATION

For more than 100 years, the architecture and design community has specified commercial products from Hunter Douglas, the world leader in window coverings. Our tradition of bringing breakthrough products to market makes us the company of choice for an array of commercial solar control solutions, including innovative options for interior and exterior roller shades.

From specification to installation, we work with architects, designers, and builders to manage light, heat, and acoustics. With our comprehensive line of shade fabrics – including high-performance, Cradle to Cradle Certified™, and anti-microbial – our design solutions optimize interior environmental quality and have helped many projects achieve LEED® Platinum, Gold, or Silver worldwide.

COVER & BACK COVER
KPMG Lakehouse
Lake Nona, FL
Architect: Gensler
Product: Automated RB 500+ Roller Shades
© John Randle

4 BENEFITS OF ROLLER SHADES

5 OPERATING SYSTEMS

6 ABC'S OF SELECTING A ROLLER SHADE FABRIC

10 UNDERSTANDING VIEW-THROUGH

12 MOTORIZATION & AUTOMATION TECHNOLOGY

University of Michigan, Ross School of Business
Ann Arbor, MI
Architect: KPF
Product: Automated RB 500+ Roller Shades
© Bob Perzel

Benefits of Roller Shades

Hunter Douglas Architectural Roller Shades help create environments that are comfortable, healthy, productive, and sustainable. Our products are constructed to minimize environmental impact while meeting the highest standards for commercial applications.

Daylighting

Increased daylight can increase occupant productivity, decrease occupant stress, and reduce the amount of energy used for traditional lighting. Roller shades help to manage and optimize this natural daylight while maintaining views to the outside.

Glare Control

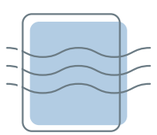
Roller shades allow occupants to control manually or through automation the direction and amount of sunlight entering their space, with light-filtering fabrics that eliminate glare and reflections. Hundreds of fabric choices enable precise levels of daylight control, including near-blackout, privacy, and more open weaves.

Management of Solar Heat Gain

Choosing the right interior or exterior window covering solution for managing solar heat gain is critical for occupant comfort. Roller shades, combined with the appropriate fabric, help to reduce heat gain at the window.

Energy Efficiency

Reducing the energy demand and increasing the efficiency of a building is critical to a buildings' performance. Automated roller shades help to reduce the HVAC load by dynamically adjusting based on the sun's angles throughout the day.



Indoor Air Quality

Poor air quality is a common source of occupant complaints. Many of our FR fabrics are certified for low emissions by the GREENGUARD Environmental Institute and pass the stricter requirements of GREENGUARD Gold. Careful selection of low-emitting materials minimizes the presence of contaminants, such as volatile organic compounds (VOCs), odors, and dust.

Operating Systems

Available with advanced automated systems and reliable manual chain- and crank-driven lifting hardware, our architectural roller shades meet and exceed a wide variety of commercial requirements.

Architectural Roller Shade Offering

RB 500+ Automated Roller Shades
From battery operated to intelligent wired, our flagship RB 500+ Automated Roller Shades combine engineering and motorization to control glare and maximize energy savings.

Key Features
- UL Certified options available on select automated roller shade systems
- Integrates with most third-party systems, including light control, HVAC, and all other forms of BMS integration
- ADA compliant and meets all Child Safety standards

RB 500+ Manual Roller Shades
With features to solve tricky conditions, our chain or crank-operated RB 500+ Manual Roller Shades can be installed in a wide range of shade sizes and positions.

Key Features
- Standard Duty and Heavy Duty clutch options are engineered to lift more weight than the industry standard
- Brackets and clutches designed to fit seamlessly together, creating a sleek profile
- Universal spring-loaded end plug mounts shades securely and provides for smooth and easy installation

Roller Shades FR
Providing a solid entry point for value-conscious projects, our manual Roller Shades FR fit a variety of window types.

Key Features
- Chain-drive clutch operating system allows precise control to help ensure a uniform look
- Universal mounting brackets allow for easy installation

Design Options

Fascia, Fascia With Top and Back Cover
Aluminum fascia with top or back cover to conceal shade mechanism from the front, sides, and top/back. Extruded pockets and closures also available

Blockout With Side Channels
Aluminum side channels, sill channels, and bottom bar, fitted with a light-blocking wool pile to prevent light leakage around edges and bottom of the shade

Reverse Roll
Fabric mounted to descend from the room-facing side, concealing the roll and creating a more finished appearance

Dual Shades
Add versatility to any space by allowing two different fabrics to be used on the same window

ABC's of Selecting a Roller Shade Fabric

Architects, designers, and owners should consider four primary factors when selecting a roller shade fabric: application, buildings' requirements, and the color and composition of the fabric.

Application

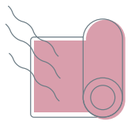
Consider how the building will be used: Is it a casual space for relaxing, or a more structured space for working? Is it somewhere in between like a school or a hospital where occupants can ideally do both? Consider how these activities drive the shades' functions: What is required of the shading system to deliver the intended design outcome?

Building / Location

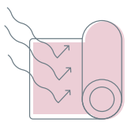
Consider the orientation and elevations. Is it west facing with direct sun throughout the day, is it north facing with very little direct sunlight? Consider the surroundings; are there neighboring buildings with mirrored windows, are there views to be highlighted, or conversely, hidden. Consider the size and structure of the glazing: what type of glass and in which color? What is the climate? Is it better suited to certain materials?

Color

Color represents perhaps one of the most important choices, not only for aesthetic reasons but also for how it affects shade performance in the window. Both dark and light fabrics have strengths and limitations – specifying a color appropriate for the application is essential.

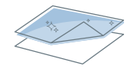


With their natural room-darkening properties, **dark-colored fabrics** reduce glare and improve visibility from the inside looking out. They also, from a street view aesthetic, blend well with a buildings' facade. On the downside, they absorb more solar energy than light-colored fabrics, allowing more radiant heat into the space, leading, at times, to a decrease in energy efficiency. The result is the opposite, however, when considering exterior applications. Because of this higher rate of absorption, dark colors are recommended on the exterior as they absorb solar heat before it hits the glass.



By contrast, **white and light-colored fabrics** inherently reflect light, reducing solar heat gain, preserving natural light, and potentially reducing the need for artificial lighting. Their ability to filter glare is not as strong, though, and the resulting room-brightening effect can lead to obscured views to the outside. Light-colored fabrics can also appear less appealing from the outside. Unlike dark fabrics, they don't blend as well with a buildings' façade.

Dual toned (or two-sided) fabrics offer an alternative to single-colored dark or light options. These fabrics provide a best-of-both-worlds solution with the lighter of the two colors facing the window glass to reflect heat and the darker of the two facing the interior to reduce glare. The combination results in a high-performing fabric that maintains its room-darkening capabilities and superior view-through. In cases where privacy is required, the exterior facing side can be coated with an opaque backing.

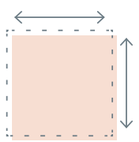


Metalized and IR, or heat-reflecting fabrics, are also becoming more common. With metal-backed fabrics, the back (or exterior facing) side, coated with a thin layer of aluminum, reflects energy through the glass to the outside. Heat reflecting fabrics, woven from yarn (or yarns) containing reflecting properties, eliminates the need for an additional coating.

Composition

The structure of fabrics and the materials used to weave them define both their performance and appearance. The "bones" of these fabrics are their core yarns, typically fiberglass or polyester, and determine their overall strength and stability. These core yarns, once ready for the weaving process, are either almost always coated or uncoated. Coatings can provide color, dimensional stability, and resistance to stretching, durability, UV protection, and other properties. Uncoated fabrics possess only the attributes of that original material and nothing more.

Within these two families, there are four which bear further discussion: PVC-coated fiberglass core, PVC-coated polyester core, 100% or uncoated polyester weaves, and TPO (thermoplastic olefin).



PVC-Coated Fiberglass: In addition to reduced fraying, easy care and cleaning, and resistance to stretching, fiberglass core fabrics tend to be more dimensionally stable. Because of this, they are often the best choice for larger or taller window openings. Colorfastness and better view-through are also benefits.

PVC-Coated Polyester: Colorfastness, enhanced view-through, and dimensional stability are all benefits of choosing coated polyester. Polyester core does tend to be thicker in diameter than its fiberglass equivalent, though, as it requires a denser coating to counter-act natural stretching. The thicker core can result in a heavier fabric, and the thicker and heavier the material, the larger the hardware and roller tube assembly must be to avoid deflection. PVC-coated materials may contain detectable amounts of VOCs, which can lead to odors due to off-gassing.

ABC's of Selecting a Roller Shade Fabric

PVC-Free Polyester: Advancements in fabric design and construction over the past decade have led to the introduction of PVC-free fabrics. One of the most common of the PVC-free materials, %100 polyester, is widely known as the "sustainable" choice and can often claim designations such as recycled or Cradle to Cradle Certified™.

Containing low to no VOCs, these fabrics are ideal for spaces that may be more sensitive to odors, such as hospitals and schools. Often these accolades come with a higher price point, however, and the fabric itself can be challenging to clean.

Thermoplastic Olefin (TPO): Another of the more common PVC-free options is TPO. Free of VOCs, these fabrics are Cradle to Cradle Certified™ and an excellent alternative for interior spaces more sensitive to odors. TPO fabrics may experience color fading over time.

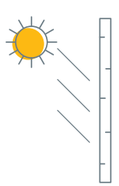
Additional Considerations when Choosing a Roller Shade Fabric

Fenestration

When reading a fabric card, you want to consider two properties: Thermal and Optical. Thermal relates to heat control and optical to the light that is visible to the human eye.

The thermal properties (Rs, As, and Ts), combined determine the total solar energy entering the space, using the RAT equation.
Rs + As + Ts values = 100%of total solar energy.
Rs = Solar Reflectance is the amount of light that bounces off the shade.
As = Solar Absorptance is the amount of light that the shade absorbs (turning it into heat).
Ts = Solar Transmittance is the amount of light that passes through the shade and into the room, providing daylight and potentially glare.

It is both the thermal and optical properties that determine the amount of solar energy admitted through the glass. SHGC or Solar Heat Gain Coefficient is expressed as a numerical value between 0 and 1. A value closer to 0 means better heat protection. A value closer to 1 signifies a higher heat gain.



Fabric Openness

The openness factor (or OF) of fabric affects two things, UV light levels and glare-filtering. For UV, a general rule of thumb is the amount of UV light blocked by a fabric is the inverse of its openness. This inverse means that a fabric with an OF of 3% blocks approximately 97% of UV light.

A fabric with an OF of 10%, about 90% of UV light. In terms of glare-filtering, the location of a building should influence fabric choice. Pay attention not only to the direction in which the façade faces but also to the geographic area.

Fabric Opacity

The three most common opacities are transparent, translucent, and privacy.

Transparent fabrics filter light, provide a clear view-through but offer minimal privacy. These are best suited to orientations with no direct sunlight or in spaces where the desire is direct light.

Translucent fabrics offer increased glare control, making these fabrics ideal in areas with direct sun exposure or high glare. Privacy levels are improved; however, with that comes a decreased view to the outside.

Privacy (or blackout) fabrics have the most significant control of light, but no view-through. Complete privacy makes these fabrics ideal for meeting rooms, guest rooms, and patient rooms.

Acoustical Performance

Two rating types determine acoustical performance: NRC, Noise Reduction Coefficient, and SAA, which is Sound Absorption Average. Both are similar in that they measure how much sound a product or material absorbs in a space. Each gives a numerical value between 0 and 1.

0 = no sound absorption, or "perfect reflection."
1 = all sound is absorbed, or "perfect absorption."

For additional information on selecting a roller shade fabric, or to request a CEU presentation, please contact the Regional Sales Manager in your area.

Note: Our Architectural Roller Shade binder houses some of our top-selling high-performance, sustainable, and blackout fabric options. Visit HDarchitectural.com for our complete offering and most up to date information. With openness factors ranging from 0% to 25%, our extensive collection of FR fabrics offer solutions for every application.

Understanding View-Through

As we know, the color and the openness of a fabric plays a significant role in determining views to the outside. Darker colors absorb light, allowing for greater view through, while lighter fabrics reflect light, resulting in decreased views.

A higher openness factor means a looser weave, resulting in more transparent views. The opposite is true for a lower openness factor whereby the tighter weave means reduced views to the outside. The images below help to illustrate how both color and openness affect views to the outside.

Photos featuring Mermet Sun Control Textiles

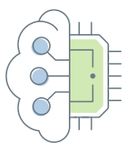
Motorization & Automation Technology

The motorization or automation of shading solutions is one of the fastest-growing and dynamic segments of the industry. Continually evolving to suit the growing need to improve energy efficiency, accessibility, safety, and aesthetics in design, there are many motor technology platforms available with each serving to address a specific project requirement. Before we walk through the main three, let's consider the difference between motorization and automation. Although often used to describe the same desired outcome, there is a distinct difference between the two.

Motorization vs. Automation

Motorization

Motorization means simply "to equip with a motor." For example, flip a switch up, and the shade motor rolls up, flip a switch down, and the shade motor rolls down. Typically, a more straightforward means of operation which requires the occupant to actively participate in telling the shade what to do.



Automation

Automation or automatic control is more complex and almost always involves various control systems for operating a shading system. These systems can operate independently, requiring minimal or reduced occupant intervention, within the guidelines we program or input. Often referred to as intelligent control, the primary goal of automating shading systems is to improve energy efficiency. Additional benefits include improved accessibility, ease of operation, and overall convenience.

Motor Technology Platforms

There are three basic types of systems commonly used in the commercial market today for automating solar control systems.

Standard Motor with Centralized Intelligence

Recommended for projects that require simple commissioning, Standard Motor with Centralized Intelligence is the oldest of the three platforms. Standard, or sometimes referred to as "dumb," these AC motors are used in conjunction with an external shade controller (wall switch, hand-held device, etc.), which provides intelligence and automation potential to a simple motor.

Intelligent Wireless

Recommended for site conditions where running wire for controls is a challenge, Intelligent Wireless motors can be AC, DC, rechargeable lithium-ion battery, or a combination of all three. Once powered, they require no additional wiring. Control devices operate a smart wireless motor via radio frequency (RF) communication and can include wall switches, hand-held remotes, smartphones/tablets, sun sensors, or third-party control devices.

Intelligent Wired

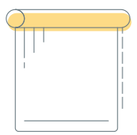
Recommended for mid to large-sized projects as a stand-alone system or integrated with automation systems, building management systems, solar tracking, and two-way communication, Intelligent Wired motors are the most sophisticated of the platforms. This system – powered by AC, DC, or a combination of both – offers a virtually unlimited number of timers, control input devices, and the highest level of third-party integration available.

Considerations When Choosing, and Specifying an Automated System

There are several factors to consider in choosing an automated system. The most critical include project location, building orientation, and finally, the desired design outcome.

Project Location & Building Orientation

Where is the project located? Southern climates closer to the equator experience different heat and light levels compared to more Northern climates and are likely to have different performance requirements. Consider the buildings' orientation and elevation. Is it west facing with direct sun throughout the day, is it north facing with very little direct sunlight? Which windows face West and South (two critical areas of late afternoon sun exposure)?



Design Intent

Finally, what is the ultimate design intention? Is it maximizing energy efficiency or glare control? Room darkening vs. room brightening to mitigate light-levels? A combination of all of the above?

Together, all of these factors can help determine the most appropriate motor technology platform for your project.

For additional information on our Automation and Motorization programs, or to request a CEU presentation, please contact the Regional Sales Manager in your area.

HDarchitectural.com

800.727.8953

HunterDouglas
Architectural

800.727.8953
HDarchitectural.com