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Section 088736 – Switchable Smart Films

This guide specification has been prepared by Gauzy, USA, to aid specifiers in preparing written construction documents for electrically charged switchable translucent smart films utilizing PDLC (Polymer-Dispersed Liquid Crystal) technology.

Common applications for switchable smart film for instant privacy and projection include Conference rooms, private offices, healthcare applications including clinics, patient room view windows, and ICU/CCU sliding doors. Residential and commercial uses include security windows, skylights, and the interior pane of insulated exterior glazing.

This guide specification is written around the Construction Specifications Institute (CSI), Section Format standards, and references to section names and numbers are based on MasterFormat.

For assistance with specifications for specific product applications, please get in contact with our offices above.

Gauzy, USA reserves the right to modify these guide specifications at any time. Updates to this guide specification will be posted to our website as they occur. Gauzy, USA makes no expressed or implied warranties regarding content, errors, or omissions in the information presented

Part 1 - General

1.1 SUMMARY

A. Section includes electronically controlled switchable film for interior and exterior applications.

B. Related Documents: General Conditions, Supplementary Conditions.

C. Related Sections:

1. Section 088000 “Glazing” for general glazing requirements.
2. Section 260519 “Low-Voltage Electrical Power Conductors and Cables” for wiring Switchable Films.
3. Section 26533 “Raceway and Boxes for Electrical Systems” for conduit and junction boxes for switchable film.
4. Section 262726 “ Wiring Devices” for wall switches and lighting-control devices for switchable film.

1.2 COORDINATION

A. Switchable Film Control System: Coordinate wiring path with doors, windows, storefront, glazing channels, and other glazing components to ensure wiring integrity.

1.3 ACTION SUBMITTALS

A. Product data available for each type of product by contacting Gauzy

1.4 PRODUCT HANDLING

To prevent damage to the film, adhere to the following guidelines:

AVOID CONTACT

- Do not lean objects against the film.
- Do not apply stickers or glue materials to the film

TEMPERATURE AND MOISTURE

- Do not expose the film to extreme temperature changes, as this might result in layer separation.
- Do not expose film to moisture.

HANDLING PRECAUTIONS

- Do not move the film when spread out and open to prevent pinches and damage.
- When moving the film, roll it to maintain control.
- Exercise caution during the handling and removing the film from the package. Do not fold aggressively, as this may cause irreversible damage to the film.

PROTECTIVE LAYER REMOVAL

- Carefully and slowly remove the protective layer on the adhesive side only during installation to prevent damage such as pinching and layer separation.
- Carefully and slowly remove the protective layer on the front side only after installation is complete to prevent damage such as pinching and layer separation.

GENERAL HANDLING TIPS

- Hold the film gently during work and preparation
- Be aware of your surroundings and pay special attention to the corners of the film to avoid damage during movement.
- Contact Gauzy for complete film handling guidelines.

While the manufacturer warrants products against defects in materials, the expected life of LC film is over 10 years, provided it is installed by a Gauzy-certified installer and properly maintained,

1.5 CLOSEOUT SUBMITTALS

MAINTENANCE AND CLEANING GUIDELINES

- Do not spray water or cleaning solutions directly on the film surface
- Do not use chemical cleaning materials to clean the film's surface
- Do not use hard accessories or sharp tools, such as steel wool, metallic sponge, or knives as they may damage the film surface.
- Do not try to peel the film from the glass.

WARRANTY

1.6 Provide 1-year limited manufacturer's warranty against electrical failure and delamination of Materials, including failure in workmanship if installed by a Gauzy-certified installer.

Part 2 - Products

2.1 SWITCHABLE PRIVACY GLASS

A. Acceptable Manufacturer:

1. Manufacturer's standard Polymer-Dispersed Liquid Crystal (PDLC) sheet, composed of polymer matrix and liquid crystals, with copper busbar and electrical wiring connected to a controller.

B Basis-of-Design Product: Subject to compliance with requirements, Gauzy High Performance (HP- LCG®)

C Net Film Thickness: 350 Microns

D Taber Abrasion Resistance, Scratch-Resistance Coating: Change in Hase is less than 2 percent, in accordance with ASTM D1044

E Pressure-Sensitive Adhesive Strength: Not less than 600g/in.

F Operating Temperatures: Between -10°C to +60°C

G UV Blocking: Not less than 99°

2.2 Photometric Characteristics:

A Parallel Visible Light Transmittance:

1 On Mode: 78°

2 Off Mode: 2.5°

B Total Visible Light Transmittance:

1 On Mode: 80°

2 Off Mode: 62.8°

C Transmission Haze:

1 On Mode: 2.5°

2 Off Mode: Greater than 99°

D Switching Times:

1 From Off to On Mode: 10ms

2 From On to Off Mode: 150ms

2.3 ELECTRICAL DEVICES AND CONNECTIONS

A. CE & UL Certified Controller:

1. For each fixed panel installation, provide a separate CE & UL Certified [Dimmable]

[On/Off] Controller for each 100 square feet or fraction thereof of panel surface.

The power source of 110-240 VAC, 60 Hz electricity must be supplied from a

minimum 15A GFI circuit (20 A dedicated circuit recommended).

2. Do not connect more than 18 panels to each 20A circuit.

3. The controller must stairstep up the voltage to the switchable smart film, and regulate the voltage so as to not create a high electrical transient pulse and have an overvoltage protection circuit.

4. Controller must employ a 42VAC - 70VAC true square wave output, to reduce power consumption and provide the best transparency.

5. Controller must have a DMX smart home/office interface.

6. Controller must have a DRY contact for wet applications.

7. Controller must have adjustable frequency control for on-site adjustments.

8. Controller must have a DIMM function.

9. Controller must have 0-10v option available.

B. Wall Switch: [Standard single pole switch] or [LCG® Dimmable Touch Panel]

Part 3 - Preparation

3.1 SURFACE CONDITIONS

A. Prepare and clean the glass to receive the switchable privacy film in accordance with the manufacturer's written instructions.

B. Preinstallation Testing: Prior to installation of switchable privacy film, conduct visual quality and functionality tests using the manufacturer's testing equipment and follow the manufacturer's written protocol.

3.2 ELECTRICAL SYSTEM INSTALLATION

A. Electrical System Installation and Testing: Comply with Division 26 requirements, Manufacturer's written instructions, and the following.

1. Connection to the power grid to be performed by a qualified electrical professional engineer.
2. Activate and test film using the manufacturer's testing equipment
3. Busbars: Seal and apply mechanical protection.

END OF SECTION 088736