



Smart Glass Specifications

Section 08 88 00 – Special Function Glazing (Switchable Smart Glass)

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About This Specification

This guide specification has been prepared by Smart Glass Group as an aid to design professionals developing written construction documents for electrically activated switchable smart glass - PriWatt, utilizing PDLC (Polymer-Dispersed Liquid Crystal), PNLC (Polymer-Network Liquid Crystal) and DLC (Dye Liquid Crystal) technologies.

Typical applications include: conference rooms, private offices, healthcare (patient rooms, ICU/CCU sliding doors, clinic partitions), bath and shower enclosures, residential and commercial interior partitions, security windows, skylights, and as the interior lite of insulated exterior glazing units.

This specification is organized per CSI Section Format and MasterFormat 2020. For project-specific assistance, contact Smart Glass Group at the address above.

Smart Glass Group reserves the right to update these specifications at any time. Current versions are available at www.priwatt.us. No expressed or implied warranties are made regarding accuracy or fitness for a specific application.

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included

Provide specialty switchable smart glass, glazing accessories, and associated electrical control equipment as indicated on the Contract Drawings, as specified herein, and as required for a complete and proper installation.

B. Related Documents

General Conditions, Supplementary Conditions, and Division 01 General Requirements apply to the work of this Section.

C. Related Sections

- a.** 07 92 00 – Joint Sealants
- b.** 08 11 13 – Hollow Metal Doors and Frames
- c.** 08 12 16 – Aluminum Frames for Interior Doors and Windows
- d.** 08 14 16 – Flush Wood Doors
- e.** 08 41 13 – Aluminum-Framed Entrances and Storefronts
- f.** 08 41 26 – All-Glass Entrances and Storefronts
- g.** 08 42 29 – Automatic Entrance Doors
- h.** 08 42 43 – ICU/CCU Sliding Doors
- i.** 08 44 13 – Glazed Aluminum Curtain Walls
- j.** 08 51 23 – Steel Windows
- k.** 08 63 00 – Metal-Framed Skylights
- l.** 08 80 00 – Glazing
- m.** Division 26 – Electrical

1.2 QUALITY ASSURANCE

A. Standards Compliance

Provide glazed units complying with the following standards as applicable to the product type specified in Part 2:

- 1.** GANA – Glass Association of North America Glazing Manual
- 2.** IGMA – Insulated Glass Manufacturers Alliance

B. Safety Glazing Certification

- 1.** CPSC 16 CFR 1201 Category II – Consumer Product Safety Commission
- 2.** ANSI Z97.1-2015 – Safety Glazing Materials Used in Buildings

C. Acoustic Performance

Sound transmission test data per ASTM E90; classification per ASTM E413:

Overall Thickness	Construction	STC Rating
7/16" (11 mm)	3/16" + 0.060" EVA + 3/16"	37
9/16" (14 mm)	1/4" + 0.060" EVA + 1/4"	39
1" (25 mm)	3/16" + 3/8" air + 7/16" lam	42

Table 1.2-C — STC Values by Glass Build-Up. * EVA = two 0.030" plies, combined 0.060".

D. Other Applicable Standards

1. IGCC – per ASTM E773 and E774, Class CBA
2. ASTM C920 – Elastomeric Joint Sealants
3. ASTM C162 – Terminology of Glass and Glass Products
4. ASTM C1036 – Flat Glass
5. ASTM C1048 – Heat-Treated Flat Glass
6. ASTM C1172 – Laminated Architectural Flat Glass
7. ASTM C1422 – Chemically Strengthened Flat Glass
8. ASTM C1464 – Bent Glass
9. ASTM D1003 – Haze and Luminous Transmittance of Transparent Plastics
10. ASTM E2190 – Insulating Glass Unit Performance and Evaluation
11. ASTM E2188 – Insulating Glass Unit Performance, Accelerated Weathering
12. ASTM E2189 – Resistance to Fogging in Insulating Glass Units
13. ASTM F1637 – Safe Walking Surfaces

1.3 SUBMITTALS

A. General

Comply with applicable provisions of Section 01 33 00 – Submittal Procedures.

B. Product Data

1. Complete materials list of products to be provided under this Section.
2. Manufacturer's specifications, technical data sheets, and optical performance documentation.
3. Manufacturer's recommended installation procedures.
4. UL listing documentation for the controller/transformer.
5. Documented haze test results per ASTM D1003 for each panel type, confirming haze less than 4% in the energized (clear) state.

C. Samples

1. Samples of each gasket type proposed.
2. Sealant samples with supplier certification of compatibility with specialty glass substrate.

1.4 PRODUCT HANDLING, DELIVERY, AND STORAGE

A. General

Comply with Section 01 60 00 – Product Requirements and manufacturer's written recommendations.

B. Handling Requirements

1. Deliver and store glass in manufacturer's original crate. Lift panels vertically; do not slide.
2. Do not rest glass on an uncushioned or hard surface.
3. Do not lift or handle glass by its electrical connectors, bus bars, or wiring leads.
4. Do not allow glass edges to contact framing members or conductive surfaces prior to installation.
5. Store panels in a dry, climate-controlled environment away from construction traffic.

1.5 WARRANTY

A. Manufacturer's Limited Warranty

Manufacturer shall provide a 2-year limited warranty against electrical failure and delamination of materials, including failure due to defects in workmanship, from the date of substantial completion.

NOTE: The anticipated service life of PriWatt installations, with proper maintenance, exceeds 10 years. This statement reflects field performance data and does not constitute a warranty. Warranty coverage is defined solely by the written warranty document provided at time of purchase.

PART 2 PRODUCTS

2.1 SWITCHABLE PRIVACY GLASS

A. Basis-of-Design Manufacturer

1. Smart Glass Group, Pompano Beach, FL — www.priwatt.us
2. Substitutions: Submit per Section 01 25 00. Substitutes must demonstrate equivalent optical clarity, haze rating, switching speed, and film longevity.

B. General Requirements

1. All glass shall comply with ASTM C1036.
2. Provide the glass type, thickness, and configuration shown on the Contract Drawings or specified herein.
3. Panels shall not receive a permanently etched safety-certification label unless directed in writing by the Architect.

C. Glass Materials

1. Float Glass – Clear: Type I, Class 1, Quality q3, low-iron ultrawhite glass. Acceptable products:
 - a. Pilkington North America – Optiwhite
 - b. PPG Industries – Starphire Ultra-Clear
 - c. Guardian Industries – UltraWhite
2. Tempered Glass: Comply with ASTM C1048 and ANSI Z97.1 for heat-strengthened or fully tempered glass as required by code or application.
3. Lamination Interlayers: Two plies of 0.030-inch PVB or EVA, combined thickness 0.060 inch. Annealed glass with EVA interlayers typically qualifies as safety glazing; verify with applicable codes.
4. Switchable PDLC Film: Manufacturer's patented sheet composed of a polymer matrix and micro-encapsulated liquid crystals. Factory-laminated between glass lites under controlled heat and pressure. Bus bars and lead wires connected to a UL-listed controller.

D. Laminated Glass Fabrication

1. Glass shall consist of an outer and inner lite of [float] [heat-strengthened] [fully tempered] glass laminated to the manufacturer's PDLC film. Tint options: [clear] [bronze] [gray].
2. Panels exceeding 70 inches (1,778 mm) in width shall be fabricated with two butt-jointed PDLC film sections laminated into a single unit; the joint shall be concealed within the laminate.

E. Optical Performance — Energized (Clear) State

- 1. Visible Light Transmission (VLT): ≥78% (ASTM D1003)
- 2. Haze: <4% — panel-by-panel test results per ASTM D1003 required at submittal
- 3. View Angle: ≥170 degrees
- 4. Scattering Effectiveness (privacy / de-energized state): ≤1 inch visible scatter distance

NOTE: All haze measurements shall be documented and submitted per Clause 1.3.B.5. Panels failing the 4% haze threshold shall be rejected and replaced prior to shipment.

F. Fabricated Glass Thickness and Maximum Panel Sizes

The following maximum panel sizes apply for both 2-sided and 4-sided framing systems:

Glass Thickness	Construction	Max Width	Max Height
7/16" (11 mm)	3/16" + film + 3/16"	60" (1,524 mm)	120" (3,048 mm)
9/16" (14 mm)	1/4" + film + 1/4"	70" (1,778 mm)	144" (3,658 mm)

Table 2.1-F — Maximum Panel Sizes by Glass Thickness. Panels exceeding max width shall use multi-section butt-jointed construction per Clause 2.1.D.2.

G. Exterior Insulated Glass Units (IGU)

Where indicated on Drawings, exterior IGUs shall be: 3/16-inch fully tempered outer lite + 3/8-inch air space + 7/16-inch laminated switchable smart glass interior lite. Comply with ASTM E2190.

2.2 ELECTRICAL DEVICES AND CONNECTIONS

A. Controller / Step-Down Transformer

1. Provide one UL-listed step-down controller/transformer per 100 square feet (9.3 m²), or fraction thereof, of panel surface area.
2. Power supply: 110 VAC, 60 Hz from a minimum 15A GFCI-protected circuit. Dedicated 20A circuit recommended.
3. Do not connect more than 18 panels to a single 20A circuit.
4. Controller shall incorporate: soft ramp-up voltage switching, regulated output voltage, and over-voltage protection to maintain optical uniformity and protect the PDLC film.
5. Controller output: 48 VAC to 65 VAC to minimize power consumption and achieve optimal optical clarity in the energized state.

B. Wall Control Switch

1. Standard single-pole switch at locations shown on Electrical Drawings. Coordinate with Division 26.
2. Dimmer switches, occupancy sensors, or BAS interfaces may be provided where indicated. Confirm compatibility with controller prior to installation.

PART 3 EXECUTION

3.1 EXAMINATION AND SURFACE CONDITIONS

A. Pre-Installation Examination

Examine areas and conditions under which work of this Section will be performed. Do not proceed until unsatisfactory conditions are corrected. Correct site conditions are critical to proper installation and long-term performance.

B. Surface Preparation

1. Clean glazing channels, stops, and rabbets; make free from obstructions and substances that could impair the work.
2. Remove any protective coatings that could impair adhesion or interfere with sealant bonding.
3. Comply with manufacturer's written instructions for final surface wiping immediately prior to application of primer and glazing compounds or tapes.

3.2 INSTALLATION

A. Installer Qualifications

Use skilled workers thoroughly trained and experienced in specialty glass installation and familiar with the specified requirements and methods for this product.

B. Pre-Installation Inspection and Testing

1. Inspect each glass panel immediately prior to installation. Do not install units that are improperly sized, have damaged edges, or exhibit scratches, abrasion, delamination, or any other deficiency.
2. Test each PriWatt® glass unit electrically prior to installation. Verify correct switching performance before setting in the frame.
3. Do not remove manufacturer's labels until directed by the Architect.
4. Adhere to all manufacturer's written installation instructions.

C. Setting and Glazing

1. Locate sill setting blocks at quarter points of each glass lite, unless otherwise recommended by manufacturer.
2. Use setting blocks of proper durometer, size, and thickness. Do not use wood blocks.
3. Provide glass edge clearances per applicable codes and manufacturer's recommendations.
4. Set glass to produce the greatest practical uniformity of appearance across the installation.
5. In dynamic frames (operable windows, sliding doors), meet requirements of Section 08 80 00.
6. Glazing exposed to exterior or wet interior conditions shall be wet-sealed and impervious to moisture, with provisions for condensation weeping.
7. Do not use pressure glazing systems without positive positioning stops with this product.
8. Place electrical connections to allow access by the electrician. In wet environments, connections must exit at the head of the framing system.

D. Interior Butt Glazing

1. Minimum panel thickness for butt glazing: 7/16 inch (11 mm).
2. Use only neutral-cure silicone sealants. Acceptable: Dow Corning 791, 795, or 995.
3. For butt-joint infill, use Dow 1199 neutral-cure structural silicone. Do not use acetic-cure (acetoxxy) silicones — these can damage the film edge seal.
4. Maintain a minimum 1/4-inch (6 mm) separation between panels at butt joints.

E. Swinging and Sliding Doors

Door package shall be supplied complete with door header, door leaf, power transfer device, and all hardware required for a fully operational electrified door system. Coordinate with Division 26 for power connections.

F. Joint Sealants

Cut and seal glazing gasket joints per manufacturer's recommendations. Provide watertight and airtight seals at corners and all locations where joints are required.

3.3 PROTECTION

A. Post-Installation Protection

Protect glass from breakage after installation by promptly installing warning streamers or ribbons attached to framing and held free of the glass surface. Do not apply markings, tape, paint, or any other material directly to the glass except as specifically permitted by the manufacturer in writing.

CAUTION: Construction hazards — including windblown debris, welding sparks, grinding particles, and chemical splatter — may cause irreversible damage to the glass surface or PDLC film. Coordinate construction sequencing to minimize exposure. Damaged panels must be replaced prior to substantial completion.

3.4 TESTING AND CLEANING

A. Functional Testing

1. Inspect all installed units to confirm glazing is properly sealed and that glass edges and electrical components are protected from moisture intrusion.
2. Energize and test each installed PriWatt panel. Verify full switching cycle (opaque to clear and return). Document and correct any deficiencies prior to substantial completion.

B. Cleaning

1. Never use abrasive cleaners, razor blades, or harsh chemicals on any PriWatt surface.
2. Clean with a mild soap solution or dilute mild acid (e.g., white vinegar) on a soft, lint-free, grit-free cloth.
3. Rinse immediately with clean water. Squeeze excess water away. Wipe framing members dry.

END OF SECTION 08 88 00

