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## **Gardner Glass Products**

### **Dreamwalls® Color Glass**

Color glass, or back-painted glass, is an opportunity for architects and interior designers to add incredible color to interior environments. The advantages of Gardner Glass Products' Dreamwalls Color Glass include reflecting light and luminosity in a practical and easy-to-install material. It is easy to clean, hygienic, and durable due to Gardner Glass Products' unique application and heat-curing process. Gardner Glass Products stands behind every piece with a 5-year warranty.

**Dreamwalls Color Glass** outshines traditional wall coverings such as paint and wallpaper. Its sleek seamless installation options eliminate the need for visually cluttered grout lines. Residential or commercial projects. Backsplashes and kitchen areas. Wet bars and dining areas. Bathrooms and spas. Foyers and lobbies ... the possible applications of color glass are endless.

Dreamwalls Color Glass is manufactured by Gardner Glass Products Inc. using a two-coat proprietary paint technology developed specifically for superior adhesion to glass. The color coating is applied to the "second surface", or non-contact surface, of the glass, and heat-cured for exceptional durability. After installation, the color coating is not subject to degradation over time.

Extensive testing has been conducted on this coating to verify its reliability. It has shown superior resistance to color fading by UV light, non-yellowing properties, excellent resistance to a wide range of chemicals, cleaners, and moisture and humidity.

Colors are developed using a computerized intermix system with a database of over 25,000 colors. Virtually any color can be produced with extremely accurate and repeatable results.

Dreamwalls Color Glass is manufactured using 1/8 to 3/4 inch (3 to 19 mm) Starphire® Ultra Clear Glass by PPG Industries. This low-iron glass allows the color to be perfect without any greenish tint found in standard glass. This is particularly important for true reds, true whites, pastels and creams to keep colors warm and true.

**Gardner Glass Products** are experienced manufacturers and fabricators of mirror and decorative glass products with nationwide distribution. For further information, we recommend you contact Gardner Glass Products, Inc., North Wilkesboro, NC, (800)334-7267, [www.gardnerglass.com](http://www.gardnerglass.com).

**Specifier:** This document is organized according to CSI MasterFormat 2004 and SectionFormat 2007. Bold items require specifier selection. Convert bold to plain text and delete notes before publishing. This document is compatible with MASTERSPEC and SpecText editing tools.

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Solargray and Starphire are registered trademarks of PPG, Inc.

## SECTION 088113

### DECORATIVE GLASS GLAZING

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

Specifier: Edit paragraph and subparagraphs below to correspond to components required for this Project.

- A. Decorative color glass for interior applications, with finished edges.

##### 1.02 RELATED REQUIREMENTS

Specifier: Retain this optional Article and edit paragraphs below if desired to provide cross reference to related work results or requirements that are specified in other documents rather than in this Section.

- A. Division 01 Section "Sustainable Design Requirements" for general sustainable design requirements including LEED requirements that apply to work of this Section.
- B. Division 08 Section "Glazing" for standard glass products.
- C. Division 08 Section "Mirrors" for mirror glass.

##### 1.03 REFERENCE STANDARDS

Specifier: Retain this optional Article and edit to identify standards referenced elsewhere in the Section, complete with designations, dates, and titles, after editing the Section. Note that inclusion of a standard in this list does not require compliance with that standard; it must also be cited in the Section text.

- A. American National Standards Institute (ANSI):
  - 1. ANSI A118.7 – Polymer-Modified Cement Grouts.
- B. ASTM International (ASTM):
  - 1. ASTM C650 - Standard Test Method for Resistance of Ceramic Tile to Chemical Substances
  - 2. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
  - 3. ASTM C1036 - Standard Specification for Flat Glass.
  - 4. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror.
  - 5. ASTM D870 - Standard Practice for Testing Water Resistance of Coatings Using Water Immersion.
  - 6. ASTM D2197 - Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion.
  - 7. ASTM D 3359 - Standard Test Methods for Measuring Adhesion by Tape Test.
  - 8. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.
  - 9. ASTM D 4587 - Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings.
- C. United States Green Building Council (USGBC):
  - 1. LEED Green Building Rating System.

#### 1.04 ADMINISTRATIVE REQUIREMENTS

Specifier: Retain one or both paragraphs below if complexity of decorative color glass work justifies requirements.

- A. Preinstallation Meetings: Conduct pre-installation conference at the site to coordinate Work of this Section with related work.
- B. Sequencing: Schedule installation of decorative color glass to follow adjacent work against which decorative color glass terminates. Schedule installation to follow nearby work whose execution may damage completed decorative color glass work.

#### 1.05 ACTION SUBMITTALS

Specifier: Action submittals require responsive action by Architect.

- A. Product Data: Submit manufacturer's printed data sheets or catalog pages illustrating decorative color glass products and accessories.

Specifier: Ordinarily delete requirement for Shop Drawings when Drawings adequately indicate layout of decorative color glass work; retain when Shop Drawings are required due to complexity of application.

- B. Shop Drawings: Submit shop drawings prepared specifically for the Project illustrating layout, edge details, dimensions, and other data necessary for satisfactory installation that are not shown in the contract documents.
  - 1. Indicate decorative color glass types using designations used in this Section.
- C. Samples: For each exposed product and for each color and texture specified:

Specifier: Retain subparagraph below if decorative color glass color selections are not indicated.

- 1. Decorative color glass for initial selection.
- 2. Decorative color glass for verification.
- 3. Size: 5 by 5 inch (127 by 127 mm).
- 4. Exposed joint sealants.
- 5. Exposed fasteners.

#### 1.06 INFORMATIONAL SUBMITTALS

Specifier: Informational submittals do not require responsive action by Architect.

- A. Certificates: Submit certificates required in Quality Assurance Article.
- B. Test Reports:
  - 1. Product test reports: Submit copies of manufacturer's test reports indicating compliance with requirements.
- C. Manufacturers' Instructions: Submit handling, storage, and installation instructions.
- D. Sustainable Design Submittals: Submit certifications required in Quality Assurance Article.

Specifier: Early submittal of proposed manufacturer warranty is recommended in order to verify compliance of proposed warranty with requirements of this Section.

- E. Warranty: Sample of proposed manufacturer warranty.

#### 1.07 CLOSEOUT SUBMITTALS

- A. Maintenance data for decorative color glass.

#### 1.08 MAINTENANCE MATERIAL SUBMITTALS

- A. Extra Stock Materials: Furnish extra materials matching products installed, packaged with protective covering and labeled.
  - 1. Decorative Color Glass: Full-size units of decorative color glass equal to [**five**] percent of amount installed for each size indicated, but no fewer than [**two**] units of each size and color.

#### 1.09 QUALITY ASSURANCE

Specifier: Retain applicable paragraphs below for projects intended to be LEED-certified. Add additional requirements that apply. Verify credits required and availability of materials from manufacturer(s). Refer to USGBC LEED Reference Guide for detailed information.

- A. Sustainability Standards Certifications: Provide the following LEED Submittals:
  - 1. Credit EQ 4.1: Product data for glazing sealants and adhesives, including printed statement of VOC content.

Specifier: Retain paragraph below when layout, patterns, or substrate present installation quality challenges best addressed by viewing of field mockups.

- B. Mock-ups: Build mockup of each type of decorative color glass installation to demonstrate quality standards for installation.
  - 1. Approved mockups may be incorporated in the completed Work.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver materials to project site in original sealed packages, with manufacturer's label, and with storage and handling directions.
- B. Storage and Handling Requirements: Store and handle materials in accordance with manufacturer's instructions.
  - 1. Store in clean, dry location with adequate ventilation for air circulation.
  - 2. Protect from damage from weather, excessive temperature and construction operations
- C. Packaging Waste Management
  - 1. Recycle damaged material and packaging waste according to manufacturer's instructions and requirements of Division 01 Section "Construction Waste Management."

## PART 2 - PRODUCTS

## 2.01 MANUFACTURERS

- A. Basis-of-Design Product: Project design is based upon product of Gardner Glass Products, North Wilkesboro, NC, (800)334-7267, [www.gardnerglass.com](http://www.gardnerglass.com).
  - 1. Substitution Limitations: Provide basis of design product or comparable product approved by Architect [**prior to bid**] [**in accordance with Division 01 requirements**].

## 2.02 DECORATIVE COLOR GLASS, BACK-COATED

- A. Back-Coated Color Glass: Mirror-quality glass with color coating applied to second surface.
  - 1. Basis of Design Product: Gardner Glass Products, Inc., Dreamwalls.
  - 2. Glass for White and Color Coatings: ASTM C 1036 and ASTM C 1503, Mirror Select Quality; ultraclear (low-iron) float glass with a minimum 91 percent visible light transmission.
    - a. Basis of Design Product: PPG Industries, Inc., Starphire Ultra Clear Mirror.
    - b. Nominal Thickness: 3.0 mm.
  - 3. Glass for Black Coating: ASTM C 1036 and ASTM C 1503, Mirror Glazing Quality.
    - a. Basis of Design Product: PPG Industries, Inc., Solargray.
    - b. Nominal Thickness: 3.0 mm.
    - c. Tint Color: Gray.

Specifier: Dual coating and heat curing of applied coating gives Dreamwalls added protection against damage or deterioration.

- 4. Coating: Acrylic epoxy and protective paint layers applied to second surface and heat-cured.

- B. Sustainability Requirements:
  - 1. VOC Content of Interior Adhesives and Sealants: Provide installation adhesives, sealants, and sealant primers for interior use that meet the following limits for VOC content per 40 CFR 59, Part 59, Subpart D (EPA Method 24):
    - a. General Adhesive: 70 g/L.
    - b. Architectural Sealants: 250 g/L.

## 2.03 PERFORMANCE CRITERIA

- A. Provide decorative color glass meeting or exceeding the following physical characteristics:
  - 1. Coating Adhesion: ASTM D 3359, DIN 53141: 5 of 5.
  - 2. Water Immersion, 65 deg. C, 40 days: ASTM D 870: Pass.
  - 3. Salt Spray: ASTM C 1503: Pass 600 hours.
  - 4. Hardness: ASTM D 3363: Pass 1H pencil after 24 hour aging.
  - 5. Scratch Test: ASTM D 2197: Pass 1.9 kg weight.
  - 6. UV Resistance: ASTM D 4587 313 Method, second surface: Pass 1000 hours.
  - 7. Chemical Resistance: ASTM C 650: Pass vinegar alkali test.

## 2.04 ACCESSORIES

Specifier: Retain first paragraph below if installing decorative color glass in showers or other wet environments.

- A. Edge Sealer: Acetone-free silicone coating compatible with glass coating and approved by manufacturer for use in protecting against long-term deterioration.

Specifier: Retain one or more of the following three adhesive types based on manufacturer's recommendations for substrates.

For projects with interior VOC limits such as LEED projects, retain option in first paragraph below and retain named products with low VOC content from those listed in following subparagraphs.

- B. Mastic Adhesive: Adhesive mirror setting compound, asbestos-free, certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and mirror substrates. **[Use adhesive with VOC content of 70 g/L or less per 40 CFR 59, Subpart D (EPA Method 24).]**
1. Available Products:
    - a. Palmer Products Corporation, Mirro-Mastic.
    - b. Glazier's Choice, Mirror Mastic.

Two products listed below may meet low VOC requirements; confirm VOC data with manufacturers.

- c. Franklin International; Titebond Division, Titebond VOC-Compliant Heavy Duty Construction Adhesive.
- A. Silicone Adhesive: Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25 or 50.
- B. Adhesive Grout: Polymer-Modified Tile Grout: ANSI A118.7, with acrylic resin or styrene-butadiene rubber in liquid-latex form, unsanded.
- C. Adhesive Tape: Rubber double-sided tape, 1/16- or 3/32-inch thick: 3M, 4466W or 4462W.
- D. Mirror Channels: **[Clear anodized aluminum] [Bronze anodized aluminum] [Chrome-plated steel] [Nickel-plated steel] [Stainless steel] [Brass] <insert other color anodized or powder coated finish>**, matched set of bottom and top channels, width to match decorative color glass thickness.
- E. Mirror Clips: **[Chrome-plated steel] [Nickel-plated steel] [Stainless steel] [Brass] [Clear polycarbonate] [fixed] [adjustable] [square] [round]** accommodating mirror thickness.
- F. Rosettes: **[Chrome-plated steel] [Nickel-plated steel] [Stainless steel] [Brass] [round] [star]** mirror rosettes with **[#8 by 1 inch]** tapped-head **[wood] [sheet metal]** screws, felt washers, and rubber sleeves.
- G. Fasteners: Appropriate to framing or backing provided, with finish matching mirror hardware.

## 2.05 FABRICATION

- A. Decorative Color Glass: Cut decorative color glass to sizes required for Project. Fabricate cutouts without damage to visible surfaces, closely fitting penetrations.
- B. Glass Edge Treatment: **[Flat polished] [Pencil polished] [Beveled] [Clean cut/raw]**.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Verification of Conditions: Verify that substrates to receive decorative color glass are plumb, level, smooth, clean, dry, and sound. Correct deficiencies prior to commencing installation.
- B. Verify compatibility of proposed adhesives with substrate.

### 3.02 PREPARATION

- A. Surface Preparation: Comply with adhesive manufacturer's recommendations. Correct minor defects in substrate using leveling compounds acceptable to decorative color glass and adhesive manufacturer. Prime substrate where recommended.

### 3.03 DECORATIVE COLOR GLASS INSTALLATION

- A. Wall-Mounted Decorative Color Glass: Install decorative color glass units in accordance with manufacturer's recommendations[ **and approved shop drawings**].
- B. Install glass units with adhesive and mirror mounting hardware. Mechanically attach glass units securely to substrates with fasteners installed with anchors or inserts.

Specifier: Select applicable subparagraphs below that correspond to desired installation method. Gardner recommends using mechanical fasteners in addition to using adhesive mounting of large glass units.

- 1. Mirror Channels: Install set of channels along bottom and top of installation, adjusting so channels are level and evenly spaced. Cut glass to exact length required to set into channels with full support. Apply adhesive to substrate and set glass.
  - 2. Mirror Clips: Place felt or plastic pad between glass unit and each clip. Locate clips as indicated, or if not indicated, symmetrically placed and evenly spaced. Apply adhesive and set glass. Adjust clips to provide support.
  - 3. Rosettes: Drill hole in glass sized to accommodate sleeve, felt washer, rosette, and screw at each corner of glass units, located minimum 3 inches (75 mm) from edge of glass. Do not allow screw to touch glass. Do not use adhesive. Hand-tighten screws.
  - 4. Adhesive: Apply barrier coat to mirror backing when recommended by mirror and adhesive manufacturer. Apply adhesive as recommended by manufacturer. Align glass units and press into place.
  - 5. Grout: Align units using 1/8 inch (3 mm) spacers to allow for even grout joints.
- C. Tolerances: Install decorative color glass to allow for anticipated structural movement. Space selected units 1/32 inch horizontally, with blackened substrate where vertical joint may open over time. Allow for vertical settling between decorative glass units and adjacent components.

### 3.04 CLEANING

- A. Wash exposed surfaces of decorative color glass as recommended by manufacturer not more than three days prior to scheduled inspection for Substantial Completion.

### 3.05 PROTECTION

- A. Protect decorative color glass from damage resulting from construction activities.

END OF SECTION

### **Additional Specifiers Notes**

**Substitution Reviews:** When reviewing substitution requests for other products for compliance with this specification, Gardner Glass recommends particular attention to the following issues:

Quality of glass substrate.

Range of available colors.

Performance characteristics of applied coating.

Terms and conditions of available warranty.

**Coordination with Drawings:** Make sure you coordinate the following:

Location of each color of decorative color glass, using designations from specification or schedule.

Size and shape of each mirror unit, and sizes, shapes, and locations of cutouts and notches.

Detail of edges.

Safety glass locations unless all mirrors are to be safety glass and are so specified.

Method of mounting or support. Include trim, clips, or other forms of mirror hardware, with or without mirror mastic.