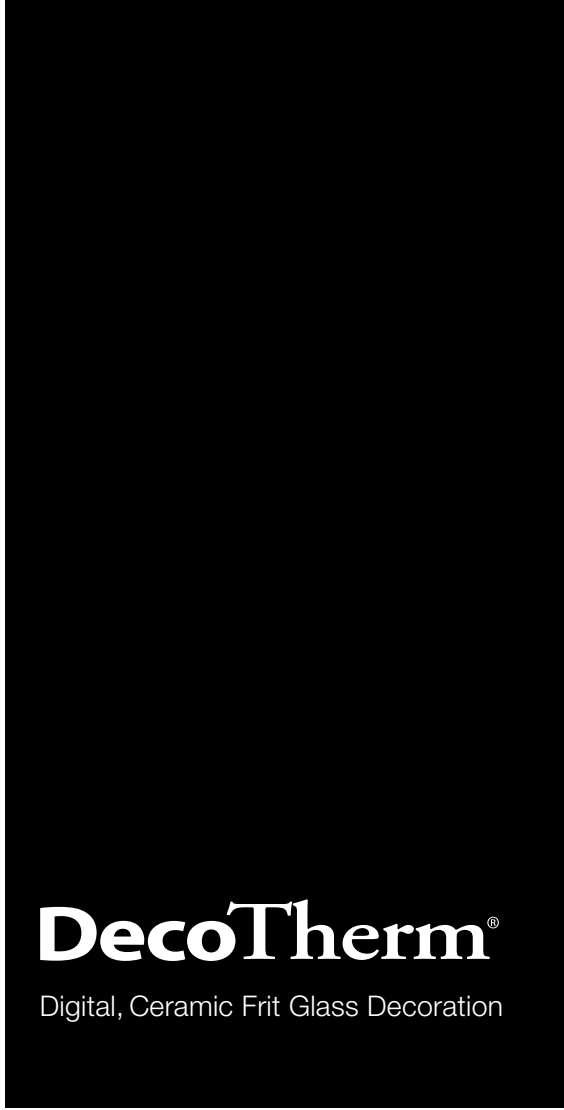
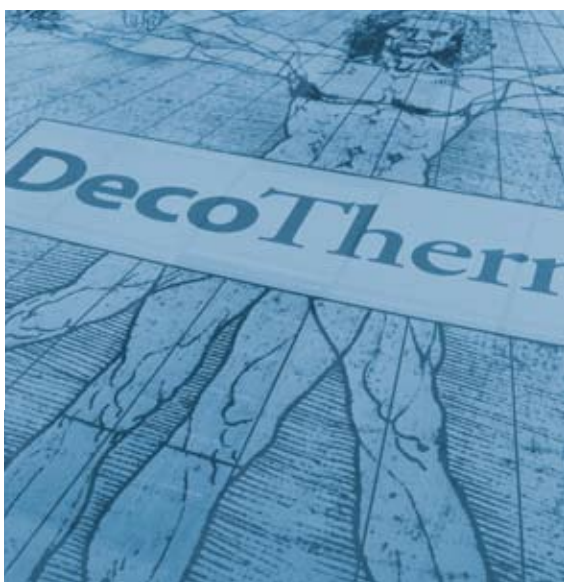


Images on Glass



DecoTherm®

Digital, Ceramic Frit Glass Decoration



Introducing

DecoTherm[®]

Digital, Ceramic Frit Glass Decoration



An innovative new way to decorate glass.

DecoTherm Digital, Ceramic Frit Glass Decoration is a patented process for placing graphic designs permanently on glass without sandblasting or screen printing. DecoTherm is a viable, economical alternative for custom and short-run flat glass decoration in commercial and residential applications.



DecoTherm Advantages are Clear:

- ⊗ **Custom Designs** - reproduce any design imaginable, from graphics, logos and text, to photographs and detailed custom designs - even sketches.
- ⊗ **Short Runs** - cost effective for low volume projects.
- ⊗ **Permanent** - ceramic frits and colorants bond to the glass for lasting beauty.
- ⊗ **Highly Detailed** - up to 400 dpi, from elaborate graphics to photos and more.
- ⊗ **Multi-Color** - highlight your designs with up to 3 colors.
- ⊗ **Easy to Clean** - durable, fingerprint-resistant for low maintenance and high clarity.
- ⊗ **Does Not Weaken Glass** - reduces potential for breakage.
- ⊗ **Catalog of Stock Designs** - enables you to add a whole new dimension to your glass, quickly and conveniently.



Your creativity with DecoTherm's flexibility - the sky is the limit.

Visit DecoTherm.net for more information, including:

- ⊗ *Searchable Catalog of Stock Designs*
- ⊗ *Colors*
- ⊗ *Photo Gallery*
- ⊗ *Full Specifications*
- ⊗ *Video*
- ⊗ *Sourcing / Providers*





DecoTherm enables multi-color decoration of flat glass for custom and short run projects at a fraction of the cost of screen printing. There is practically no limit to the designs you can create with DecoTherm, and our foundation colors give you even more options to express your creativity. Designs can contain up to 3 colors with the choices below.

Add tranquility to an office space by incorporating environmental imagery.

Current Colors



Visit www.DecoTherm.net for a complete list of available colors.



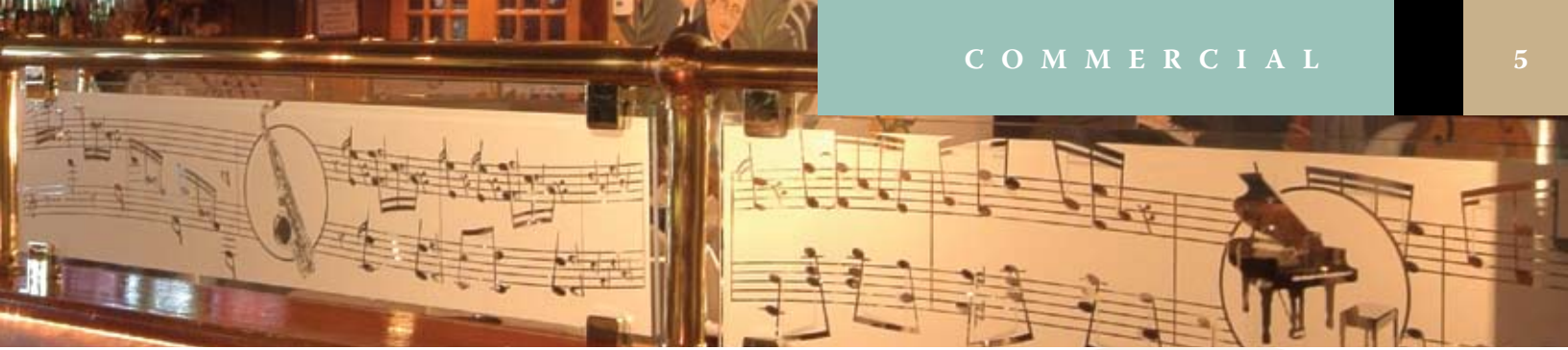
Photographs

Frost is a good choice for reproducing photographic images with fine, halftone detail and excellent resolution. Photos can be reproduced as a positive or negative image, depending on the lighting that is being used in a project.



Accents

DecoTherm allows color highlights and accents to be incorporated into any image without a significant cost increase. You can also add a splash of color – even if it's just one small area on an image. It's an eye-catching effect that just can't be achieved with sandblasting or screen printing.



Commercial Applications

- ⊗ *Corporate Offices*
- ⊗ *Retail Stores*
- ⊗ *Healthcare Facilities*
- ⊗ *Hospitality*
- ⊗ *Government Buildings*
- ⊗ *Transportation*
- ⊗ *Public Spaces*
- ⊗ *Cultural, Museums*
- ⊗ *Donor Walls*
- ⊗ *Religious*
- ⊗ *Furniture Makers*
- ⊗ *Cabinet Manufacturers*
- ⊗ *Identification Signage*
- ⊗ *Way Finding*
- ⊗ *Privacy Screens*
- ⊗ *Light Diffusion*
- ⊗ *Decorative Displays*

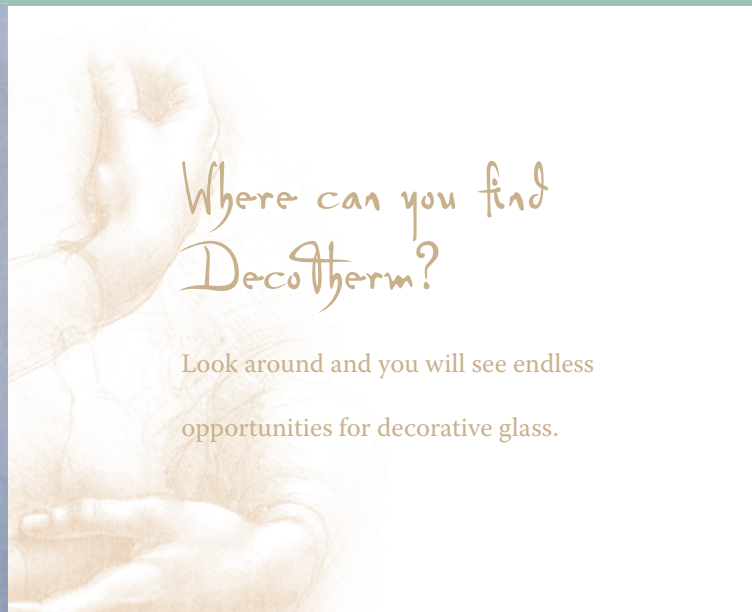
Whatever you can imagine in glass decoration, DecoTherm can show it in a whole new light.



DecoTherm opens the door to unlimited possibilities in glass decoration for commercial applications — with a process that is fast, easy and cost-effective. Wherever there is flat glass to be decorated, there is a place for DecoTherm.



Greet visitors with a company logo in the reception area. Emphasize the front window display of a retail shop. Beautify restaurants and enhance privacy for customers with decorated glass partitions. Add elegance to furniture with decorated glass doors, panels and table tops.



Where can you find DecoTherm?

Look around and you will see endless opportunities for decorative glass.

<
*BI Express, a division of Business Interiors
Irving, TX
Designer: NeeLey Jordon
Colors: Frost, Terracotta*

<
The doors of this restored mansion were decorated to match historic wallpaper.

>
*The Delano
Las Colinas, TX
Designer: Greg Pershyn
DecoTherm Design Studio
Color: Frost*



<
*Air Canada Lounge
Toronto, Canada
Color: White*



>
*Attorney's Office
Toronto Ontario
Color: White*



>
*New Era Cap Retail Store
Buffalo, NY
Designer: Jim Wannamacher
New Era Cap
Color: White*



^
*Corporate Stair Rail
Portland, ME
Colors: Frost, Nordic Blue*



>
*World Travel
Eastern PA
Colors: Ocean Blue, Beige*



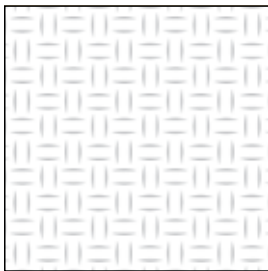
<
*Spyce Spa & Hair Studio
Barrie, Ontario
Color: Frost*

>
*Boy Scouts of America
Kiosk Display
Louisville, KY
Designer:
Kenneth VonRoenn
Architectural Glass Art
Louisville, KY
Color: Frost*



A complete catalog of over 300 in-stock designs is available online at www.DecoTherm.net

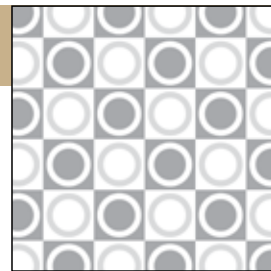
Browse by theme, style or pattern and choose one for your next project.



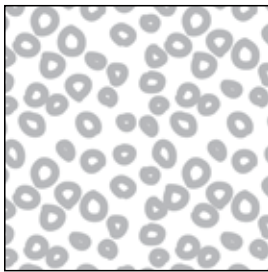
DT3013



DT3014



DT3015



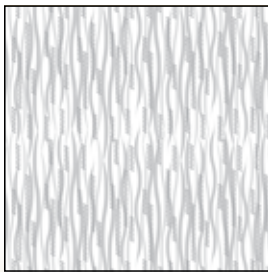
DT3016



DT3017



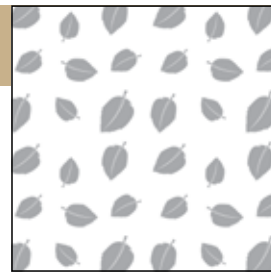
DT3018



DT3019



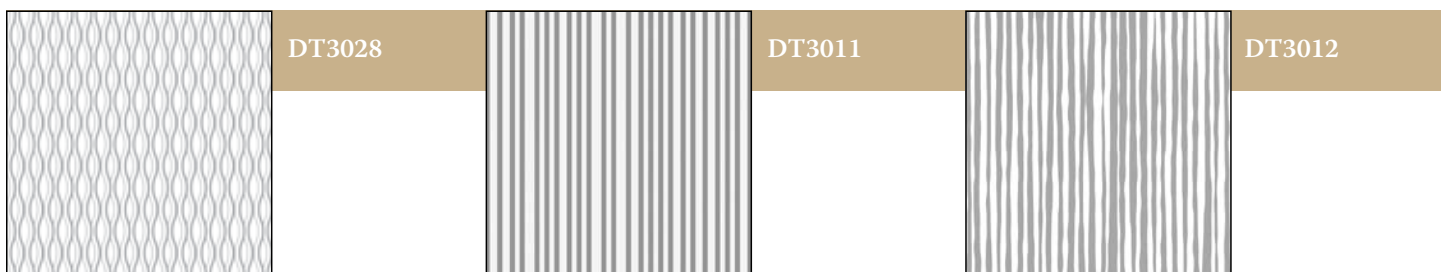
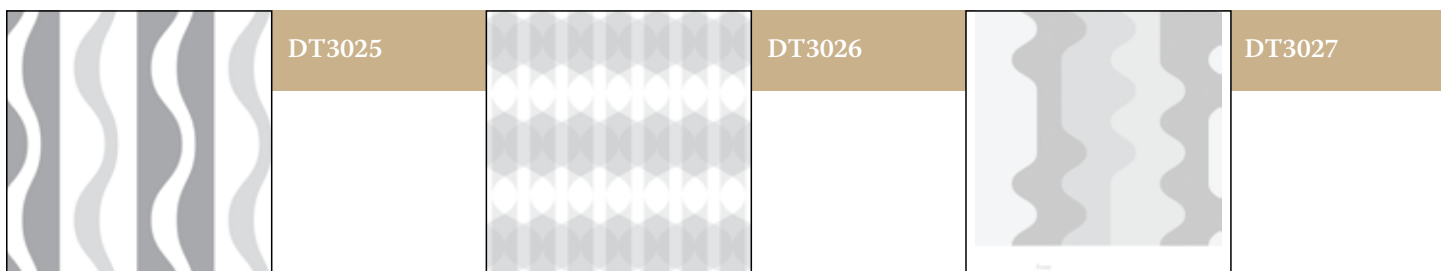
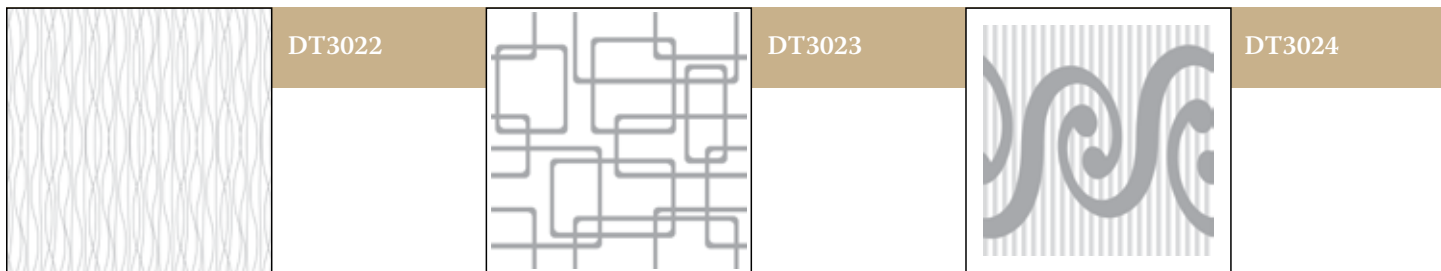
DT3020



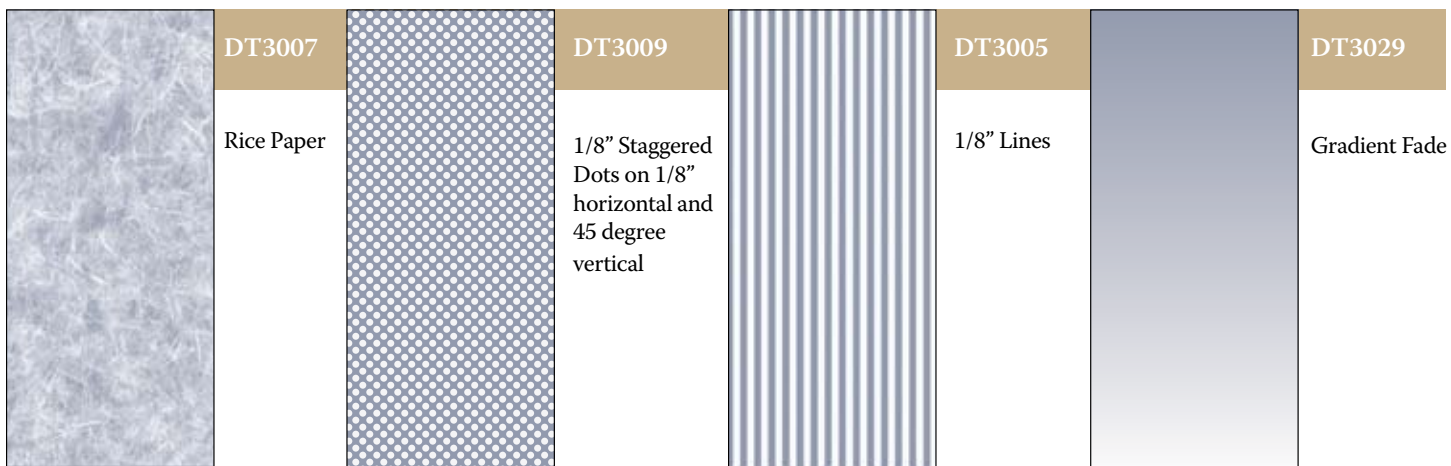
DT3021

YOUR DESIGNS – Our in-house Design Studio team can create a custom design for your project. Even if you have just a rough sketch, our team of talented graphic artists and designers can turn your idea into a work of art. If you have a corporate logo or image already designed, we can accept the image in digital format.

Note: Please refer to Pages 10-11 for Specifications and Design Guidelines



Standard Patterns – use to diffuse light and create privacy.



With hundreds of *DecoTherm* Stock Designs from which to choose, you will find a variety of ways to show your creativity, make a bold statement, enhance privacy and more. But you are not limited to using these designs exactly the way you see them. All designs can be modified to meet the requirements of your particular project. All of our designs are in digital format, giving us great flexibility to meet your exact needs and panel sizes.

Here are some examples of how you can personalize these stock designs.

COMBINE DESIGNS – Decorate a front door and sidelights with three different designs. Personalize different offices with a variety of images. You can also create unique variations of our stock designs by repeating images on a single pane of glass

VARIABLE TEXT – DecoTherm allows you to image one design on multiple pieces of glass and change lines of text on each. For example, room numbers, department names, etc.

COLORIZE – With up to 3 color capability, you can colorize stock designs to match your décor, room patterns, architectural style, etc. Choose from an array of etch or opaque colors (See page 4 for details on colors).

POSITIVE IMAGE – All stock designs are shown on pages 8-9 as a positive image, where white represents the printed image and the grey background represents the clear glass surface.

REVERSE IMAGE – Designs can be provided as a reverse image by adding a background and reversing the light and dark areas of the image.

ADD BACKGROUND – Backgrounds can be added to any stock design. The background can cover the full panel of glass, or can be a partial background of any size you specify.

ADD OR REMOVE A BORDER – You can add a border to any stock design, or for designs with a border, it can be removed if you prefer.

FLIP OR FLOP IMAGES – Designs can be flipped to face the opposite direction shown in our portfolio to accommodate your specific needs, such as a left or right hand door. Designs can also be turned upside down

MULTI PANEL – A single design can be used across multiple panels. For ordering purposes, each panel is considered a separate item.

DESIGN GUIDELINES

GENERAL

- Most forms of artwork are acceptable. Digital is preferred.
Acceptable file formats:
 - Adobe Illustrator - Mac or PC, Version CS2 or below.
 - Adobe Photoshop - Mac or PC, Version CS2 or below.
 - EPS, TIFF, JPEG/JPG, DWG, DXF, WMF
- Line weight minimum is 1 pt.
- Minimum San Serif Type 10 pt.
- Minimum Serif Type 12 pt.
- Convert all fonts to Outlines, or Curves.
- Text intensive files (ie. Donor Boards) should be submitted as vector files to obtain best results.
- Areas with lots of small detail reproduce best as reverse images where the detail is clear glass.

COLOR

- Up to 3 colors per image.
- Colors should not touch. Keep a 1/16" (1.6 mm) gap between colors to minimize registration and trapping issues.

HALFTONES

- DecoTherm images are printed at 400 dpi with a 60-line screen – Areas of tint or shade will be printed as dots.
- Bold, graphic, high-contrast vector images reproduce best.
- Lightest halftone in large flat areas should be no less than a 20% tint or dot.
- Darkest halftone in large flat areas should be no more than an 80% dot.
- When using halftones, keep as much contrast between tints as possible. When creating vector images with a full tonal range, tints should be 15% to 20% apart (ie. 100%, 80%, 60%, 40%, 20%).

PHOTOGRAPHY

- Know the primary viewing direction of the finished piece. Photography depends on highlight areas and shadow areas to make the image look correct. Photos must be black & white.
- Images can be printed as positives (color = shadows) or negatives (color = highlights). Since we are working with glass, either the shadow or highlight will be the color, while the other will be clear glass and what is seen through it.
- Light color frits work best as the highlight and the clear glass as the shadow.

A. SCOPE

This specification covers the manufacture of decorative architectural glass products manufactured by the DecoTherm application process.

B. APPLICABLE SPECIFICATIONS

GANA 95-1-31 Decorative Architectural Flat Glass
 GANA Glass Informational Bulletin GANA 01-0300 - Proper Procedures for Cleaning Architectural Glass
 ASTM C724-91 Durability of Decorated Glass

C. OBJECTIVE

The objective of this document is to provide guidelines to the user in determining the acceptability of architectural glass decorated with the DecoTherm process.

D. GENERAL REQUIREMENTS

D.1 Appearance

- a. DecoTherm glass to be viewed in a vertical position from a distance of 3 feet (1 meter) illuminated under overhead incandescent lighting conditions.
- b. Acceptable quality - cosmetic appearance (see Table 1). Any voids, scratches, discolorations, or gross opacity shifts that are noticeable when viewed from 3 feet (1 meter) away will be deemed unacceptable.

TABLE 1 Specifications for Cosmetic Appearance of DecoTherm Decorated Glass Viewed from 1 meter (3 feet)		
Blemish	Specification	Comments (viewed at 1 meter)
Voids & Craters	None greater than 1/16" (1.6 mm)	All others Non-Visible
Ghosts	None greater than 1/16" (1.6 mm)	Non-Visible
Mottle	Some variation may occur	Non-Visible
Opacity	Some variation may occur	Some variation may occur
Pinholes	Scattered pinholes are permissible	Non-Visible
Cracks	None greater than 1/2" (12.7 mm) in length	All others Non-Visible

D.2 Pattern registration tolerances

- a. Pattern can be off parallel from the decal edge up to 1/8" (3.2 mm) over a 10 ft. (3.1 mm) length.
- b. For line patterns, the maximum variation in line width or distance between lines will be 1/32" (0.8 mm).
- c. All images need to leave at least 1/8" (3.2 mm) clear area from the edge on all sides of the glass.

D.3 Glass & image size restrictions

Minimum Glass Panel Size	12" x 18" (30.5 x 45.7 cm) (12" x 12" for samples) (30.5 x 30.5 cm)
*Maximum Glass Panel Size	STD: 54" x 120" (137.2 x 304.8 cm)
Maximum Image Area Size	STD: 35.4" x 120" In cases where there are clear areas in a design, more coverage (tiling) is possible.
Colors	Up to 3 colors per image
Minimum Glass Thickness	3/16" (5 mm)
Maximum Glass Thickness	3/4" (19 mm)

*NOTE: Select DecoTherm Licensees can process DecoTherm glass panels and images larger than 54" x 120"

E. SAMPLE APPROVAL

If DecoTherm samples are requested for a job, the quality will be an exact representation of the actual job. Upon approval of the sample(s), customer accepts that quality level for the actual job. All samples will contain a DecoTherm Watermark.

F. CLEANING

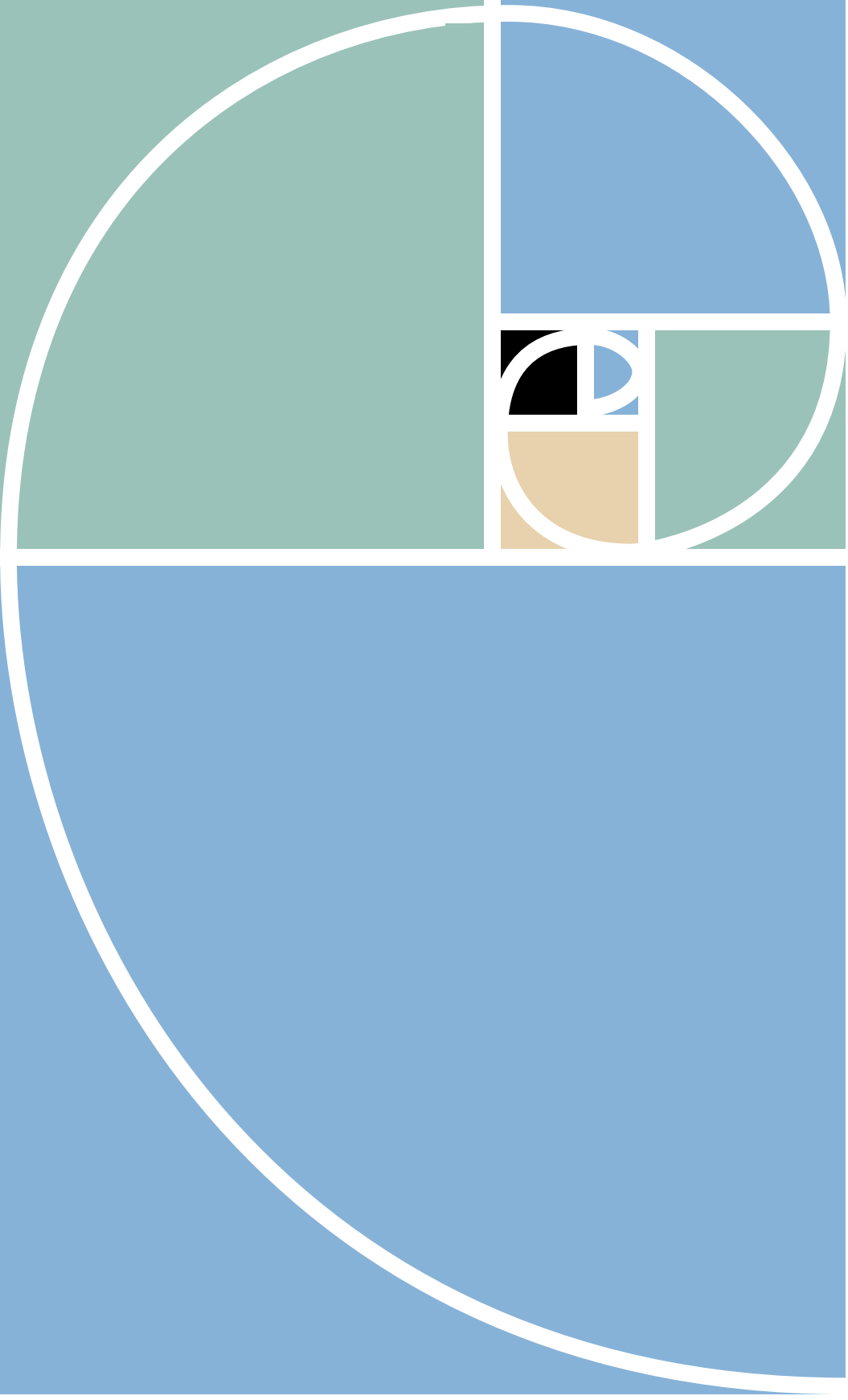
Read the entire GANA specification before cleaning any DecoTherm decorated glass. (GANa Glass Informational Bulletin GANA 01-0300 - Proper Procedures for Cleaning Architectural Glass). In general, glass should be cleaned when dirt and residue appear. Glass should be cleaned with a mild, non-abrasive window cleaning solution. Do not use razors or scrapers to clean glass. Test clean a small portion of glass and inspect for damage.

G. DECOTHERM LIMITED WARRANTY

DecoTherm, decorative glass frit image, is warranted for a period of 5 years from the date of manufacture for durability and colorfastness of the fritted image applied to the glass per the DecoTherm specifications, fully tempered and used under normal conditions. DecoTherm is not warranted for unprotected outdoor use. For the purposes of this limited warranty, durability is defined as meeting ASTM C724-91 Specification, and colorfastness is defined as no appreciable deterioration in the image, making it unacceptable for its intended application, as determined by customary standards of the industry, when viewed from the intended viewing distance. Not responsible for glass breakage, product failure due to improper usage, incompatibility with other coatings, sealants, lubricants, or failure caused by harsh cleaners, solvents, acids or other harsh chemicals.

H. DISPOSAL

As with normal disposal procedures with any float glass product, discarded glass imaged with DecoTherm should be placed in suitable containers for disposal in a licensed landfill or treatment facility in accordance with all applicable local/municipal, state/provincial, and federal regulations. DecoTherm imaged glass panes are considered non-hazardous waste in accordance with USEPA RCRA regulations (40 CFR Part 261). Wear appropriate protective clothing and provide adequate ventilation during clean-up.



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DecoTherm®

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