



corian.

Illumination Series Fabrication

Version 2

Corian® Illumination Series - Fabrication Highlights

The DuPont™ Corian® Illumination Series allows you to see Corian® in a whole new light. While some colors of Corian® sheet have always been translucent, the Corian® Illumination Series allows up to three times as much light to pass through the sheet, while still maintaining the Corian® properties you have come to count on. The Illumination Series is Class I (A) and ANSI/UL 94 5VA rated, thermoformable, repairable, seamable ... and comes only from DuPont.*

Fabrication/Installation Considerations for Backlit Corian® Illumination Series Applications

Overview

The Corian® Illumination Series can be fabricated in the same manner as Corian®. When there is no backlighting few changes in fabrication are required. When a light source is placed behind the sheet there are some additional considerations. This document will help you understand how to fabricate for best appearance.

This document discusses the basics of changes to fabrication techniques required by the higher translucency of these materials. Refer to the DuPont™ Corian® Fabrication Manual for details on fabrication techniques referenced in this document. The increased translucency and use of backlighting allows the use of this material in new and unique applications requiring advanced fabrication and lighting techniques beyond the scope of this bulletin. It is important to work with your customer, test samples to help demonstrate the design, and ensure your customer is satisfied with the final product.

The new Translucent White (TW) Corian® Joint Adhesive has been specially formulated to work with the Corian® Illumination Series. This adhesive is more translucent and will better match the appearance of the sheet when backlit. However, results will vary depending on fabrication/installation conditions.

It is important for backlit applications that all inspection and quality checks are done both with room lighting and with backlighting. Some fabrication defects will not be visible until the sample is backlit.

Seaming

Seam quality is critical for appearance. Seams may be more visible when backlit than with typical room lighting. A higher quality mirror-cut tight seam will minimize the visibility of the seam. Make sure no interior voids are present in the adhesive as they will be visible when the seam is backlit.

Place the seams where they are less likely to be noticed. This could include corners or locations where the light source or supports create a shadow.

* Selected Material Properties

- Flame resistance – Class I or Class A (ASTM E84, NFPA 255, UL 723)
- NSF/ANSI 51 Certified to the highest level, for food contact, for all food types.
- ASTM G21 & G22 – Surface does not promote the growth of mold, mildew and bacteria.
- Corian® is recognized & certified by Underwriters Laboratories to flammability specification ANSI/UL 94 5VA under yellow card listing number QMFZ2.E66600. "ANSI/UL 94 test data is used for determining the flammability of plastic materials used in the components and parts of end-use product devices and appliances, where the acceptability of the combination is determined by UL" (www.ul.com).

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If a tight seam is not achieved the seam may be visible. The visible adhesive may change appearance depending on the lighting, appearing darker than the sheet if not backlit, and lighter than the sheet if backlit. **Do not use excessive pressure.** Enough adhesive needs to stay in the joint to create a strong seam.

If the application involves backlighting, excess adhesive on the back side must be removed or it will create a shadow due to the increased thickness.

When removing the adhesive on the back side the finish should be blended in with the surrounding finish as extreme differences in finish may be perceived as lighter or darker areas. After seaming it is important to examine the seam with the type of backlighting to be used in the final installation. Lighting type, intensity, angle, etc all may affect seam visibility. Examine the quality of the seam and ensure that adhesive removal did not create a visible change in appearance.

Thermoforming

The Corian® Illumination Series can be formed using similar conditions and methods used for other Corian® colors except lower temperatures and heating times are recommended. While forming is the same, defects are more readily seen with backlighting and will appear differently when backlit.

Slight color shifts may occur during the thermoforming heating process. Due to the increased translucency in these colors the color change may be more noticeable. The change is a function of both the time and temperature of heating. To minimize color shift use the minimum time and temperature necessary to achieve the desired shape. ***The maximum time and temperature recommended is 12 minutes at 160°C when using platen heaters.*** If the formed sheet needs to be seamed with unformed sheet and color match is an issue, the flat sheet should be heated under the same conditions.

Any transfer of mold texture from the thermoforming mold to the sheet is more visible when backlit, particularly when the show side of the part is the side in contact with the mold. This can be eliminated by making the mold with a higher quality finish or by sanding the part after molding.

It is important for backlit applications that all inspection and quality checks are done both with room lighting and with backlighting representative of the lighting used in the final installation. Some fabrication defects will not be visible until the sample is backlit.

Finishing

The front surface finishing requirements do not change. If the application will have backlighting the back side may require some finishing. The appearance when backlit is relatively insensitive to backside sanding quality, scratches, etc., but the sanding level should be uniform. Damage to the back surface may show through as a shadow. Take care not to create extremely different finishes when finishing seams as the different finishes may show up as light or dark spots when viewed with backlighting. Always check with backlighting to ensure the area around the seam matches the rest of the sheet.



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Version 2

Supports

In backlit applications, if the application requires seam-reinforcing strips, the strips will be visible as shadows. Any perimeter or span supports will also be seen as shadows. Placing seams in conjunction with shadows caused by the supports will help hide the seam and reinforcing strips.

¼" Vertical Applications over Substrate

Applications of ¼" Illumination Series sheet over substrate may appear to have shadows if there are any color variations in the underlying wall. For the best appearance the underlying surface should be uniform in color and a clear adhesive should be used. Always check for shadows before beginning the installation by placing a sheet on the wall. Check for shadows from the adhesive as well.

Backlighting

Backlighting can be a key part of designs using the Corian® Illumination Series. Lighting technology, particularly LED lighting, is changing rapidly and each technology has its own design considerations. The preferred type of lighting will depend on the desired effect.

CAUTION: *While Class I (A) rated for flammability, the Corian® Illumination Series aesthetics are not intended to be used in applications lit with or near flames.*

NOTICE: *An important consideration in the overall design is the amount of heat generated from the light source. If Corian® sheet is heated from one side, thermal expansion may cause warp. In an enclosed lighting application, the design needs to accommodate the amount of heat generated by the light source and ensure that the enclosure does not overheat.*

NOTICE: *Corian® Illumination Series colors are not recommended for situations where product is exposed to direct sunlight.*

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