

FINISHED CHARACTERISTICS & TOLERANCES

At FormEffects we pride ourselves in being one of the nation's premier precast fabricators of GFRC (Glass Fiber Reinforced Concrete) panels. Concrete is a natural material in which we hand craft into custom, one of a kind products. Its distinct features and variations are what gives our products their truly unique characteristics. As we work with designers and our customers, we want to ensure they understand and value those characteristics the way we do.

TOLERANCES (Table A)

Length	+/- 1/8" per 6ft
Thickness	+/- 1/8"
Bowing	< Length/240
Warpage	1/16" per ft.
Linear Edge Straightness	+/- 1/8"
Joint Straightness	+/- 1/8" from centerline

HAIRLINE CRACKS

As glass fiber reinforced concrete begins to cure, the surface faces of the component experience a small amount of shrinkage and surface tension. This may cause a hairline crack, or sometimes known as a tension crack, in the surface of the concrete. This crack is typically less than 1/32" in dimension and cannot be felt, but may still be visible. Hairline cracks are an inherent characteristic of GFRC and do not affect the structural integrity of the product.



Hairline crack in an Acid Wash finish

CRAZING

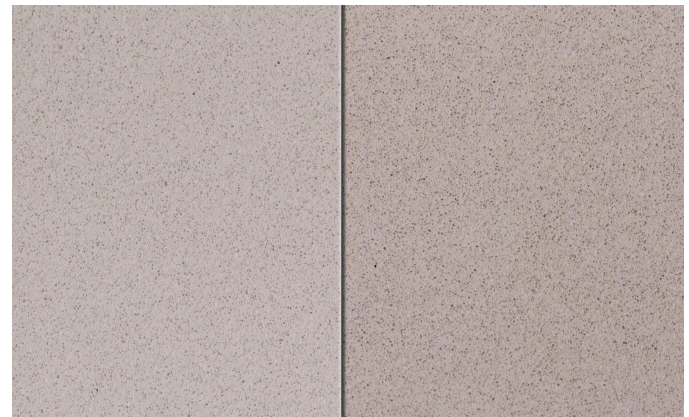
Crazing is a pattern, or an array, of hairline cracks similarly caused by surface tension during curing. These are often even smaller dimensionally than a stand alone tension crack and are nearly impossible to see when the GFRC product is dry. However, when the product is wet they will be noticeable as moisture highlights the crazing until the concrete dries. This characteristic is more likely to occur or be seen in very thick,

Acid Wash finish, exterior products. Proper sealer care and maintenance will significantly minimize moisture absorption

COLOR VARIATION

Concrete is a natural material and is subject to small amounts of color variation from component to component. Changes in raw material (sand and aggregate), air temperature, and humidity can all contribute to color variation. Ordering and approving scopes of work in full orders can help minimize the color variation on a project. FormEffects works to keep adjacent components in the same castings but there are still limitations that do not make it possible to eliminate color variation.

New control samples should be requested prior to the start of any new project. On large, high quantity projects it would be recommended to request a range of samples. This range would include 3-5 samples intentionally cast at separate times to replicate the potential color variation your project could experience.



Color variation in a Wainscott polished finish

JOINTS & SEAMING

All precast components are recommended to be seamed with 1/8" wide joints at a minimum. Our products are handcrafted, therefore a variance in joint width should be expected due to the linear edge straightness. Joints may vary in dimension +/- 1/8" from a linear centerline of the joint. For large panels or installations where there are many intersections of joints, it is recommended to use a joint larger than 1/8".

All joints should be filled with a siliconized caulk, such as Laticrete Latasil or TEC Accucolor, which are available in a wide

FINISHED CHARACTERISTICS & TOLERANCES

variety of colors. The caulked joint significantly helps reduce the appearance of the variation.



Joint variation in a Carbon polished finish

PORES

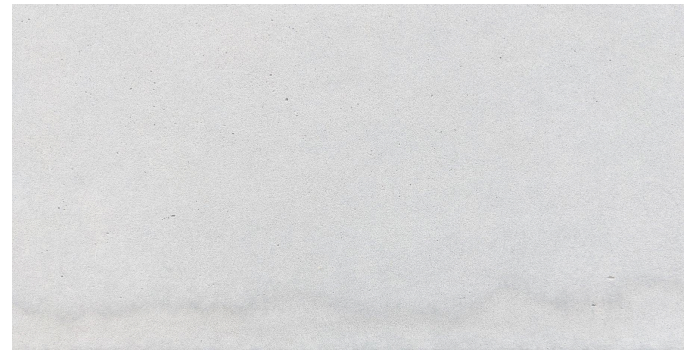
Pores are very small, round openings in the surface of the concrete, typically smaller than $\frac{1}{8}$ " in diameter and depth. For Polished finish GFRC products, these pores are typically closed or filled during the polishing process. The filled pores may have minor color variation. With Acid Wash finished products, the open pores are not filled unless they exceed $\frac{1}{8}$ " in diameter. Pores are an inherent characteristic of GFRC and do not affect the structural integrity of the product.



$\frac{1}{8}$ " diameter pores in an Acid Wash finish

EDGE SETTLING

The unique casting process of GFRC makes complex three dimensional products possible. Surfaces of the GFRC product may be cast in a vertical orientation in which the concrete mix may settle downward towards a bottom perpendicular face. This movement creates edge settling, which may appear as a wavy pattern of variation near an edge of the finished GFRC product.



Edge settling in a Cumulus Acid Wash finish

MOTTLING

Mottling is a pattern of irregular spots, streaks, blotches or patches of different shades or colors. This pattern of surface variation is a natural occurrence in the casting of GFRC.



Mottling in a Grammercy Acid Wash finish

RADII

Radiused shapes and surfaces often require significant hand work to prepare the molds for casting. Additional dimensional tolerance may be needed for these products.

INSTALL NOTE

Installers should take careful note of the tolerances listed in Table A. Our GFRC products are handcrafted to a specific size; they are not machine cut from large slabs. Installation often requires a more methodical effort for a successful finished installation. Installers should be prepared to dry-fit components, fine tune placement, and possibly make adjustments to the concrete. Having a sufficient setting bed dimension and joint width dimension are critical in efficiently installing GFRC components. We always suggest customers to purchase additional pieces or a small mock up to experience the installation means and methods as a trial.