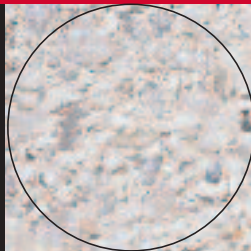


# HIGH PRECAST CONCRETE COLORS AND FINISHES GUIDE



CONCRETE INNOVATIONS & ANSWERS®



# ACROSS THE SPECTRUM: COLORS, TEXTURES, AND FINISHES

In addition to a variety of concrete mix designs to match the performance requirements of your project, High Concrete precast products come in an almost limitless palette of natural colors and finishes that can blend into any environment—whether modern or historic, formal or rustic. Precast concrete is also a great interior finish option—especially in large public spaces, gymnasiums and natatoriums or in buildings such as warehouses and manufacturing facilities or dormitories where impact-resistance and low-maintenance durability are required.

With such a versatile, visually rich material, you can choose color, form and texture to enhance the uniqueness of a project and express a particular design vision—while keeping within your budget—by careful attention to choice of:

- Aggregates
- Mixes
- Veneers
- Pigments
- Finishes
- Shapes

Matching caulk colors, stains and paint are also available.

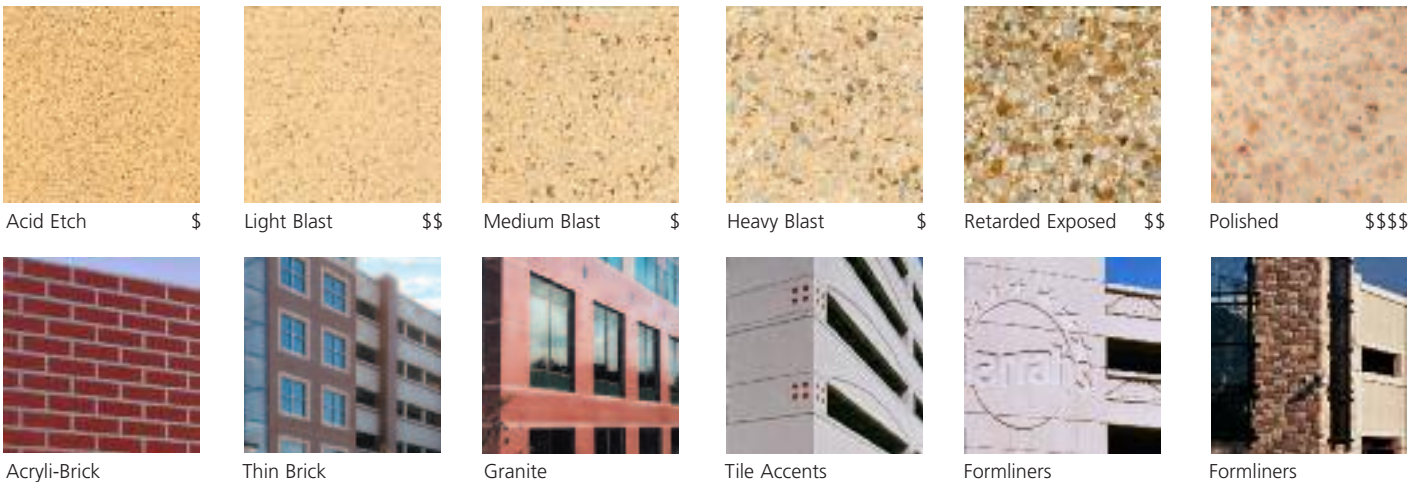
High Concrete is expert in matching color to existing buildings or other materials and will work with you from the earliest stages of a project to help you choose the finishes with the aesthetic and structural attributes you need and then manufacture components under factory controlled conditions to ensure a uniform, high-quality facade.

Custom precast concrete mixes for upper-level facades can even be made to match or complement natural granite or limestone veneers used on lower levels.

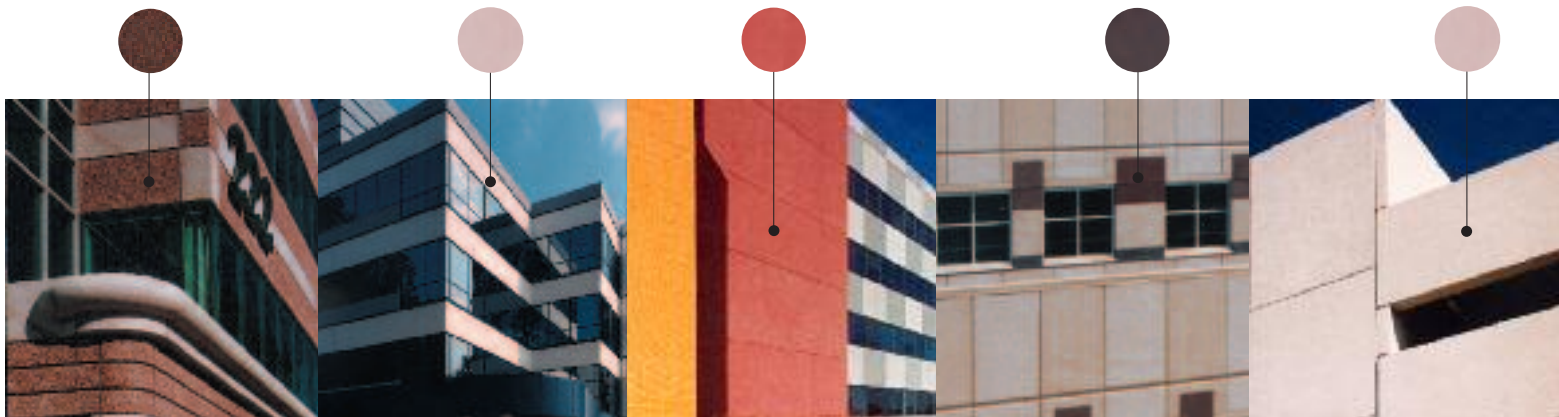
## Standard Color Package And Relative Cost Comparison



## Finish Options And Relative Cost Comparison



Concrete is made from natural materials which vary in the colors they yield over time. High Concrete has 12"x12" samples available to represent a color in the range of colors produced by a mix design. Older samples should only be used as a guide for initial color and finish selections. Fresh 12"x12" samples should always be used to make near-final color and finish selections. As with natural stone, mock-ups, produced near to the time of actual production, should be used for final color and finish selections. For samples, call 1.800.PRECAST and ask for the sales representative nearest you.



Water wash, acid etch, medium blast.

Form finished painted.

Medium blast.

Light and medium blasts, granite veneer cast into panels.

Light blast.

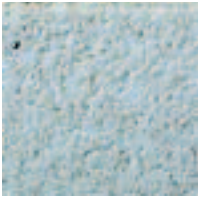

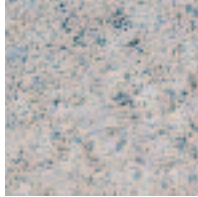

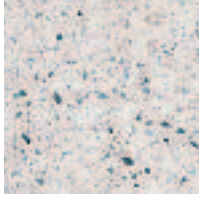




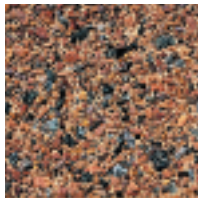


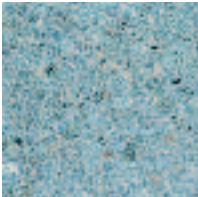
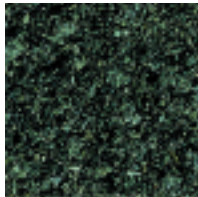




**Mix Designs for Beauty and Strength**

- Mix designs including environmentally friendly “green” mix designs that use recycled materials such as slag can improve concrete’s properties including resistance to moisture, impact, load carrying capacity, and even component size.

- Consult High Concrete to pick a mix and finish that works in your area, meets your aesthetic and performance requirements, and fits your budget.


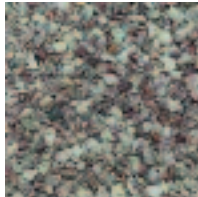




**The industry’s widest selection of additives, mixes, colors, and finishes offers total design flexibility.**

**Custom Range** And Relative Cost Comparison

					
101 SB-L      \$\$\$\$	109 SB-M      \$\$	110 SB-D      \$\$	126 SB-M      \$\$	286 SB-M      \$\$\$\$	189 SB-L      \$\$\$
					
285 R-M      \$\$\$\$	190 R-D      \$\$	314 SB-M      \$\$\$\$	399 R-M      \$\$\$	398 SB-L      \$\$\$\$	430 AE-L      \$\$\$
					
444 SB-M      \$\$\$\$	445 R-L      \$\$\$\$	498 AE-L      \$\$	524 SB-M      \$\$\$	548 R-M      \$\$\$	549 AE-M      \$\$\$

These numbers are from the Precast/Prestressed Concrete Institute *Architectural Precast Concrete Color and Texture Selection Guide*. For a free copy of the guide call 1-800-PRECAST.

**Aggregates** And Relative Cost Comparison

					
Dynamite Orange      \$\$\$\$	Lite Rose Quartzite      \$	Ottawa Red Granite      \$\$\$	Sun Set Red Granite      \$\$	Salt and Pepper Granite      \$\$	Snow White Calcite Stone      \$\$\$\$



Formliner acid etch, water washed.

Pigmented heavy blast.

Pigmented light and medium blast

Medium blast.

Acid etch, water wash.



## Colors and Textures in Concrete

The finished appearance of concrete comes from the combination of materials used to make it. Concrete is composed of aggregates—sand and small stones of varying sizes, cement and coloring agents (pigments) mixed with water. Many color and texture options are possible by varying aggregate color, size, pigments, cement color, finishing processes and depth of exposure. Sands and stones can be:

- Uniform
- Varied in color or aggregate sizes
- Hard—durable, and least water-absorbent
- Soft—will wear over time

Aggregate colors range from white to pastel to red, black and green. Cement can be grey or white. Grey cements usually cost less, but require pigments to assure color consistency. White cement is used where light or highly consistent color is required. Sometimes waste-byproduct pozzolans—in concrete terms, a powdered material that improves the strength or other properties of the concrete—such as fly ash, silica fume and slag are used to reduce the cement used in a mix.

Ground granulated blast-furnace slag, a manufactured pozzolan, can increase concrete durability in certain concrete mixtures. Certain pozzolans can affect color. Please see your High Concrete Group technical representative or call 1.800.PRECAST for details.

**A wide array of colors and textures can be achieved through the use of various aggregates, cements, pigments and finishing techniques. Almost any stone can be incorporated into a precast facade.**

Cement, pozzolans and sand are blended to form a matrix which surrounds the stone. This matrix can be colored—either using colored sand or powdered pigments or both—to either match or contrast with the stone.

The visual appeal of concrete is further influenced by its finish. Finishes include:

- Form finished
- Etched
- Blasted
- Stained
- Retarded
- Polished

## Using Surface Depth to Change Appearance

When separated by reveals or changes in surface height, two or more mix colors, and two or more levels of either acid etching, blasting or chemical retarding can be applied to the same panel, to create color and texture changes that can range from subtle to highly contrasting. Changes will be most subtle when matrix colors and stone colors are closely matched, and when small aggregates are used. Conversely, the greatest changes can be achieved when large stones are used with a contrasting matrix color.

## Reveals and Bullnoses

Surface projections such as bullnoses, sills and ledges, and recesses such as reveals or depressed planes are used to give definition to precast wall surfaces. They can be used to separate areas of different colors or finishes, or to provide surface relief, trim, shadowing or functional drip ledges. Recesses are the least costly way to create relief because they require relatively little forming—unlike projections which can require complex form build-ups. When designing reveals, height is more important than depth for contrast and shadow casting. Shallow reveals cost least; deep reveals may require panels to become thicker to protect steel reinforcing or to perform structurally. Shallow, continuous horizontal or vertical reveals with no intersecting reveals are the easiest to construct and are always the lowest cost option.

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## Formliners: Repetition is Key to Economy

Custom formliners are made from a variety of materials such as steel, urethane, foam, plastic and even steel to cast textures including ribs, stone, and brick as well as logos, words or artwork into a panel. Formliners are most economical when designed for re-use, either in whole, or in part.

## Choosing a Finish

Each finish provides a tactilely and/or visually different surface effect. Its depth can vary to expose a little or a lot of the stone used in the mix.

- **Form Finished:** The stone, surrounded completely by the cement and sand matrix, is not visible. Color tends to be uneven or mottled. If this is unacceptable, etched, blasted, retarded or polished finishes must be selected.
- **Acid Etched:** Acid etching uses a high-pressure sprayed acidic water wash to create a uniform surface by removing some cement and sand matrix surrounding the stone. The exposed stone yields a textured finish with the color of both matrix and stone. Acid etched finishes can be light, medium or heavy—to reveal only a little—or a lot of stone. With a light acid wash, the matrix color will dominate; with a deep acid wash, the stone will dominate.
- **Retarded:** Resembling acid etched finishes, retarded finishes, accomplished by using a chemical retarder that keeps the surface cement matrix from hardening, can be used to expose the most aggregate, yielding finishes that can be mostly stone. Retarded finishes can be light, medium, heavy or exposed aggregate.
- **Blasted:** Sand-blasted or LEED-friendly steel shot-blasted finishes have a similar appearance to acid-etched finishes and are created by using high-pressure sprayed media to remove the cement and sand matrix. The abrasive media used to blast the matrix away from the stone can scratch the stone and may create a slightly duller appearance than acid etched or retarded finishes. Like acid etched finishes, blasted finishes can be light, medium or heavy.
- **Honed or Polished:** Smooth, mechanically honed or polished surfaces have a uniform appearance and can range from mostly matrix to mostly aggregate finishes. When aggregates are exposed, finishes can resemble natural granite or terrazzo.

## Standard Colors and Finishes

Standard colors and finishes are designed to produce repeatable, highly consistent results. Standard colors employ a high percentage of local materials, which are stocked at the plant, and can be sampled and produced quickly. Standard finishes such as blasted are the most economical and repair-friendly.

## To Seal or Not To Seal

Breathable sealers are used to keep panels clean and reduce or eliminate rain or dew-induced shadowing. While sealers are not required to “waterproof” high-strength precast concrete, they prevent streaking caused by uneven drying after

**Cast-in thin brick replicates the look of brick, is highly impervious, and results in substantial cost savings, especially on taller buildings. Shapes include standard and oversized flat faces and a full complement of trim pieces such as corners, edge caps and corner edge caps.**

a rainfall and runoff from glazing systems and they resist surface mold growth. The two basic kinds of surface-applied sealers are penetrating sealers and face-filling sealers. Face-filling film sealers prevent moisture absorption

## Tile, Thin Brick, and Acrylic Veneers

- **Thin Brick:** Glazed ceramic tile veneers and thin bricks—hard-faced tile-like sections of brick—have specially molded backs that lock into wet concrete. They are cast into concrete backers using formliners to hold them in place while the panel is cast on top of them. Formliners can provide either a crisp, machine-laid, or a more irregular, hand-laid appearance. A variety of joint details and an ever-expanding variety of brick sizes, colors and textures are available. Tiles and thin bricks can either cover precast panels completely or be designed to work with exposed concrete areas.

Thin brick is highly impervious compared to full- or half-bricks due to its molding process. Because an impervious precast panel backer replaces traditional pervious “mortar” joints, water will not get behind a thin-brick veneered panel and cause bricks to pop off.

- **Acryli-Brick:** These two- or three-step colored and textured stenciled acrylic finishes resemble brick—at a lower cost. Available in a wide variety of colors and patterns, when viewed from a distance, they can be hard to distinguish from real brick.

## Stone Veneers and Matching Finishes

Granite, limestone and marble veneers (e.g., 1½"–2" thick) can be drilled, fitted with stainless steel pins, and cast into rigid precast backers to provide large, fully or partially veneered panels. Stone-veneered precast panels can be an efficient way to clad high-rise buildings. For economy, natural stone veneers are often used on lower levels of buildings with matching custom-mixed all-precast panels on the upper levels. These veneers also eliminate the fireproofing required to protect steel-framed curtainwall assemblies. To ensure best quality, and to speed installation, sealing between stone joints can be done in the factory, leaving only the sealing between panels to be completed in the field.



## Shape, Size, Accent, and Finish Options

	Appearance Uniformity	Relative Cost		Appearance Uniformity	Relative Cost
<b>Accents</b>			<b>Finishes</b>		
Plain (no reveals)	■	\$	Form Finish	■	\$
Shallow Reveals (3/4" or less)	■	\$\$	Paint/Stain/Stucco	■	\$\$
Deep Reveals	■	\$\$\$	Light Blast	■	\$\$\$
Reliefs (repetitive)	■	\$\$\$	Medium or Heavy Blast	■	\$\$
Precast Trims and Projections	■	\$\$\$\$\$	Acid Etched	■	\$\$
<b>Colors</b>			Retarded (exposed aggregate)	■	\$\$\$
Standard Mixes (where available)	■	\$	Honed or Polished (where available)	■	\$\$\$\$\$
Custom Mixes	■	\$-\$-\$	Form-Finished Edges	■	\$
Grey Cement	■	\$	Other Edge Finishes	■	\$\$
White Cement	■	\$\$	Integral Sealant (optional)		\$
Light Pigments	■	\$\$	Surface Sealant (optional)		\$\$
Dark Pigments—high dosage	■	\$\$\$-\$\$\$\$\$	Standard High-Repetition Formliner (ribs, molded brick, stone, etc.)	■	\$\$\$
Locally-Sourced Aggregates	■	\$	Custom or Low Repetition Formliner	■	\$\$\$-\$\$\$\$\$
Quartz & Marble Aggregates	■	\$\$-\$\$\$\$\$	Acrylic Brick (where available)	■	\$\$\$-\$\$\$\$\$
Granite Aggregates (non local)	■	\$\$-\$\$\$\$\$	Thin Brick or Tile	■	\$\$\$\$-\$\$\$\$\$
Two Mix Colors per Piece	■	\$\$\$-\$\$\$\$\$	Stone Veneer (stone by others)	■	\$\$\$

■ Low ■ Medium ■ High

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### High Concrete Group LLC

With 50 years of experience in architectural precast concrete and a firm commitment to innovative thinking and quality manufacturing, High Concrete Group has become a nationally recognized leader in the design, manufacture and installation of architectural and structural precast concrete products. High's facilities serve Southern New England, the Mid-Atlantic, the Ohio Valley and the Midwest. Products include architectural cladding, high-performance insulated wall panels, parking garages, precast commercial and multi-unit residential structures and recreational structures. Call us today to learn more about how our state-of-the-art information, products, and services can help you achieve your project design, performance, cost and schedule objectives—or to find how High can help you get AIA HSW CEUs to maintain your professional standing.

### High Concrete Group LLC

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