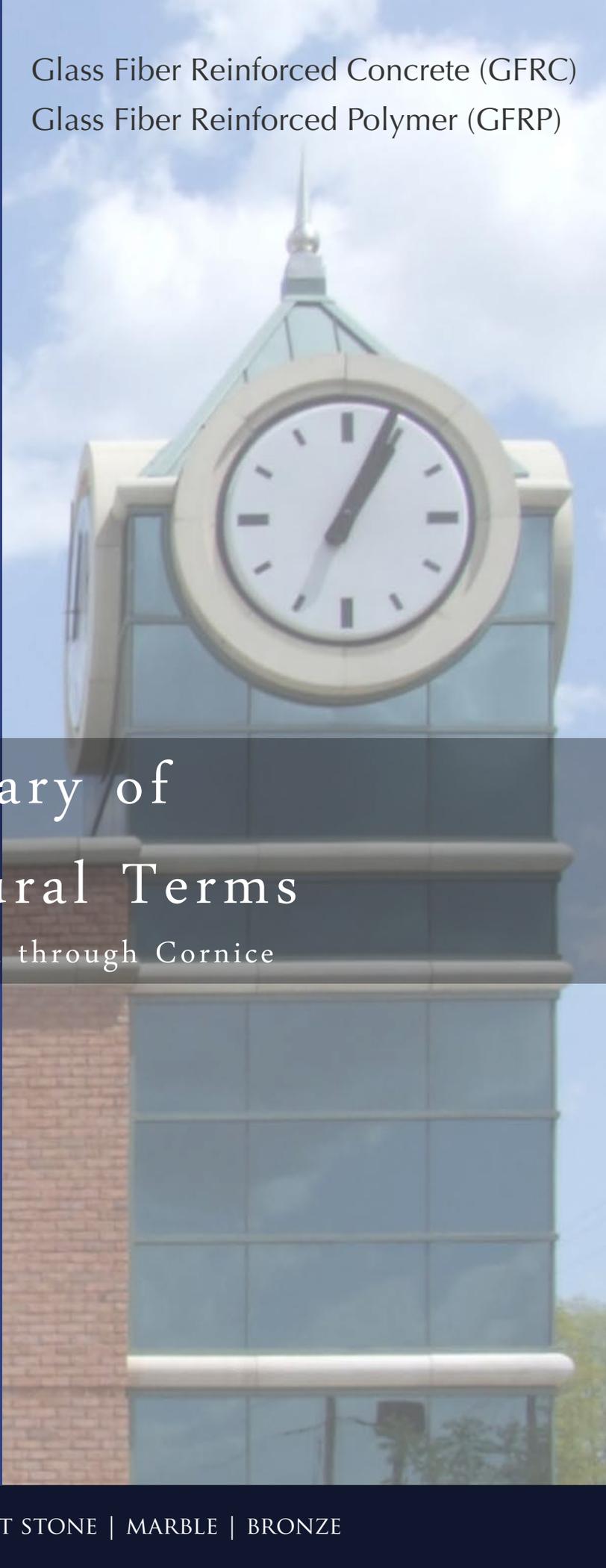


S T R O M B E R G
ARCHITECTURAL PRODUCTS

Glass Fiber Reinforced Concrete (GFRC)
Glass Fiber Reinforced Polymer (GFRP)



Glossary of Architectural Terms

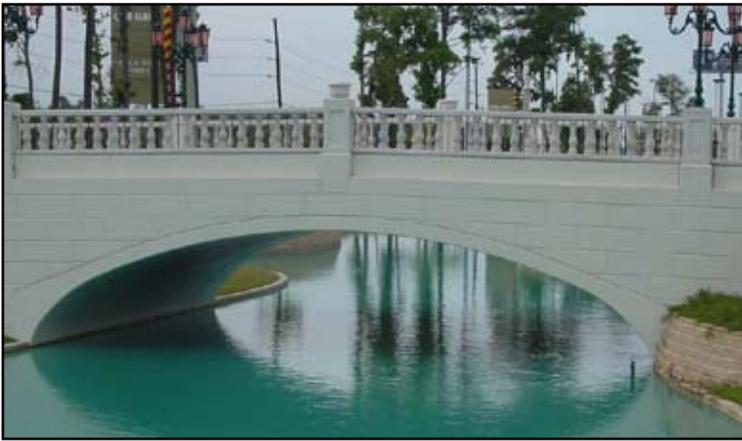
Volume II - Band through Cornice

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GFRC | GFRP | GFRG | CAST STONE | MARBLE | BRONZE



Balustrade as bridge railing



Balustrade as parapet wall • Architectural Fiberglass (GFRP)



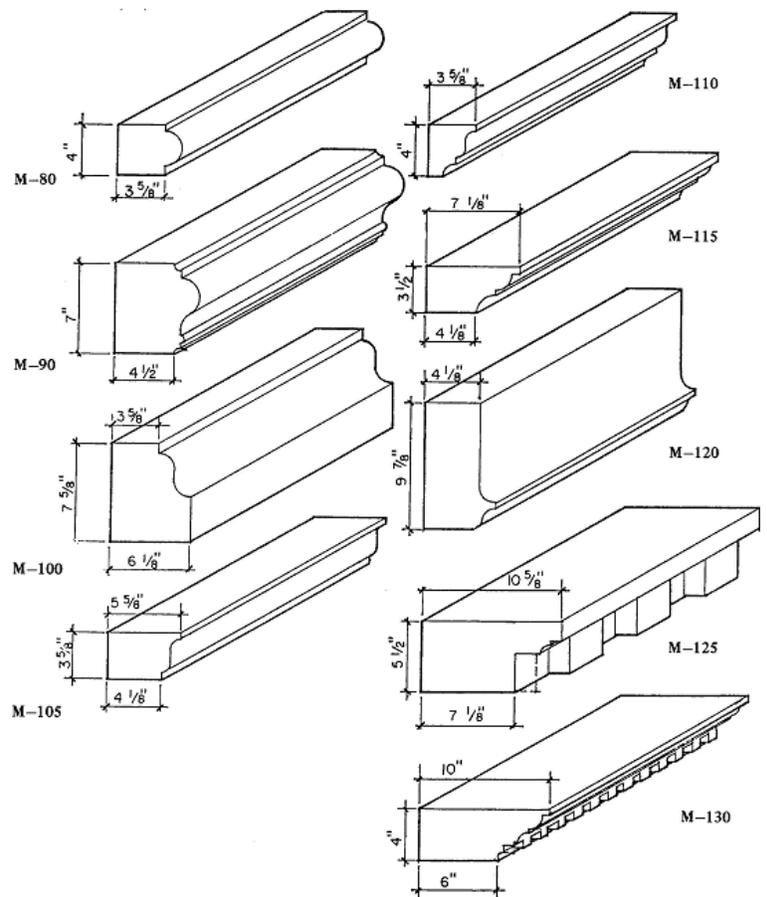
Balustrade at fountain • Style G29 baluster and style W10 baluster railing • Cast stone



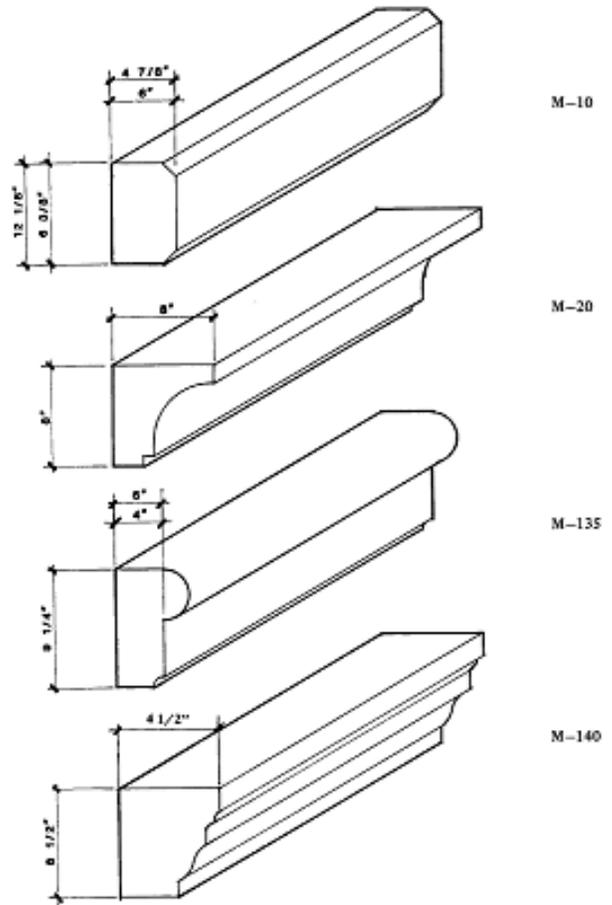
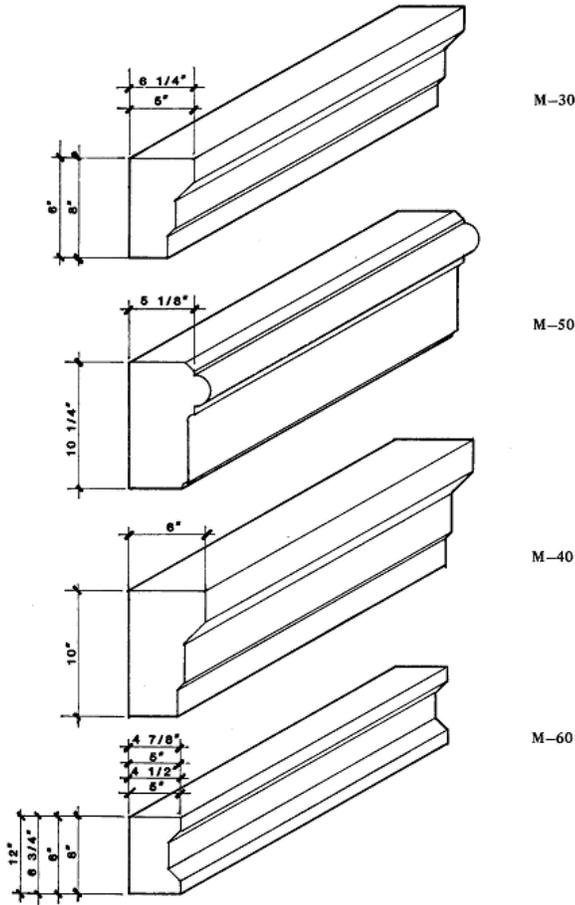
Band or band molding. The horizontal molding, projecting from the surface that wraps around a building. Also known as a belt course or watertable.



Cast stone



Band molding M80



Some of the standard belt courses and band moldings. Custom shapes and sizes are available in both GFRC and Architectural Fiberglass.

Banded

Masonry style where adjacent courses are of two different sizes, textures or types. For example, a brown, smooth Architectural Fiberglass, alternating with a white limestone Architectural Fiberglass.

Banded Column

A column where the column shaft has drums that alternate in texture or size.

Baroque

The style of architecture and decoration first developed in 17th-century Italy. Characterized by the conspicuous use of decoration, sculpture and decorative elements. Elements from the later phases of the Baroque, called for Rococo are characterized by profuse ornamentation. Elements of the Baroque are found in the late 19th century work of American architects McKim, Mead and White.

Barrel Roof

An arched, semi-cylindrical roof. Barrel roof in GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) are generally made in segments, withstanding standing seam joints and raised ribs.

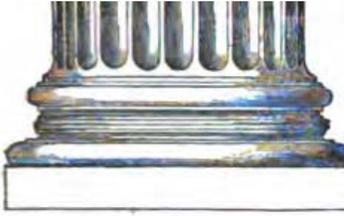


Barrel Vault

A semi-cylindrical, arched ceiling element. GFRP (architectural fiberglass) barrel vaults may be smooth or coffered.

Base

The lower part of a column, pier, pedestal or pilaster. Column bases may be either Attic column bases or Tuscan.



Attic column base features double rings found on the Corinthian order.



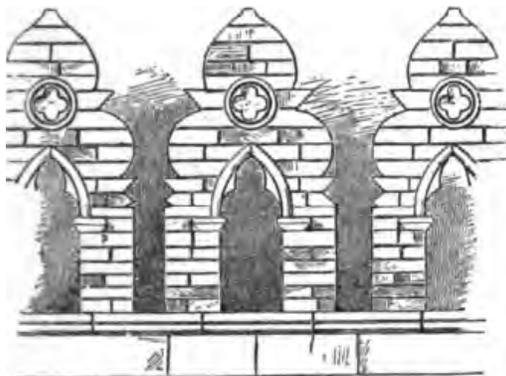
Base for a Tuscan column

Bas-Relief

A sculpted or carved work that extends slightly from the plane of its background. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) bas-reliefs, include plaques, monuments and medallions. What is believed to be the largest GFRC bas-relief sculpture in the world, was created by Stromberg in 2006. For the reproduction of bas-relief in glass fiber reinforced concrete, a model is produced in clay, wood or plaster. A mold is then made using silicone rubber and a hard shell of fiberglass. Once the mold is removed from the model, the GFRC is cast. Depending on the size of the glass fiber reinforced concrete bas relief, a metal armature on the interior, generally galvanized or stainless steel, may be cast in. The casting is then sand blasted or acid washed to remove the cement film from the surface of the glass fiber reinforced concrete and to obtain the desired finish.

Battlement

Originally a fortification, a parapet or wall with higher and lower parts. The higher part is the Merlon, the lower the Crenelle or Crenel. The Raised part or Merlon was often pierced by a hole to allow for firing an arrow. The design was adopted for decoration and can be found on many older garden walls and eventually became a decorative element.



Battlement in Garden wall, Venice



Stromberg architectural fiberglass battlements, castle at Winstar

Battered

A term used to describe a surface that is inclined or tilted, wider at the bottom and narrower at the top, for example a battered wall.

Bead

A convex molding of semicircular section.

Beam

The term for a horizontal member, when used in Architectural Fiberglass or GFRP typically refers to a beam cover. Architectural Fiberglass beams may replicate stone or wood.



Architectural fiberglass "wood beam" by Stromberg

Beaux Arts Architecture

Architecture taught at and associated with, the Ecole des Beaux Arts. Characterized by formalism in design, heavily rusticated arches, mansard roofs, (continued on next page)

Beaux Arts Architecture - continued

Symmetrical plans, sculpted figures, banded columns, arched dormers, cartouches, cantons, floral patterns, ornamented keystones, quoins, engaged columns, paired columns, roof line balustrades and garlands. American architects who graduated from the Ecole, include Richard Morris Hunt, designer of the Breakers, William Ware, Charles McKim, Louis Sullivan and Julia Morgan. Facades are typically symmetrical, often with a projecting central pavilion. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) architectural elements are available in the Beaux Arts style including dentils, classical columns, enriched entablatures, pilasters, balconies, cornices, sculpted spandrels, pilasters, balconies, cornices, sculpted spandrels, sculpted figures, ornamental keystones, egg and dart moldings, leaf decorations, swags, wreaths, domes, fireplace surrounds and mantles, quoins, cartouches, dormers, fountains, domes, etc.

Bed Molding

A molding or moldings on the cornice of an entablature, below the corona.

**Belfry**

The part of a tower or steeple where bells are hung. Also called a bell tower.

The Bell Tower of "Big Ben" in architectural fiberglass by Stromberg with 120' tall with working clocks.

Bell Roof

A roof or dome shaped in section similar to a bell. In GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) typically cast in pie shape sections, and assembled on-site.

Bell Tower

Tower like structure for supporting one or more bells. Can contain real bells or play recorded music.

Belt Course

Horizontal band around the facade of the building, also called a band course or string course.

Belvedere

An elevated or rooftop gazebo or pavilion from which to enjoy a view.



*Belvedere pergola
GFRC and architectural
fiberglass*

Bevel

Also known as a chamfer, bevels are sometimes incorporated in the edges of architectural GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) to minimize chipping of sharp 90° corners.

Bollard

A short freestanding column designed to limit vehicle traffic or act as security.



GFRC Bollards at the US Capital

Bracket

A support that carries or appears to carry the weight of the cornice, eave or balcony. In GFRC (glass fiber reinforced concrete) (continued on next page)



Bracket - continued

and GFRP (architectural fiberglass) brackets are typically decorative covers, and do not actually carry any weight.

Bracketed Cornice

Any cornice, supported by brackets. In GFRC (glass fiber enforced concrete) and GFRP (architectural fiberglass) brackets may be molded into the cornice, or applied as separate pieces.



Bracketed trim in architectural fiberglass

Bracketed Hood

A projecting element above a door or window that provides shelter from the rain, and is supported by brackets.

Brick Panels

GFRP (architectural fiberglass) cast in panels with a brick texture and pattern, and used instead of brick. Architectural Fiberglass brick panels are lighter, thinner, and faster to install than traditional brick masonry.



Architectural fiberglass brick panels, Hershey's Times Square, New York

Broach

A spire, octagonal in shape, above a square tower.

Broken Pediment

A pediment whose horizontal cornice is continuous, but whose angled cornice above ends before reaching the highest point of the pediment. The resulting opening is often filled with an urn or finial. Often found in Georgian style, Queen Anne Style, Colonial Revival, and Neoclassical Style buildings.

Brownstone

A reddish or brown sandstone used extensively for buildings in the eastern United States from the early 19th century through the 1920's. Stromberg GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) using pigments and select aggregates can replicate the color and texture of Brownstone.

Building Restoration

The re-creating of the form and details of a building, as it appeared at a particular time. GFRC (glass fiber reinforced concrete) is an accepted material of replacement for terra-cotta, carved stone, cut stone, brownstone and some cast iron elements.



BEFORE RESTORATION



AFTER RESTORATION

Building Stone

Stone used in building construction such as limestone, marble, granite or sandstone. Building Stone may be used as a facing on GFRP (architectural fiberglass) panels, or GFRC (glass fiber enforced concrete) can be cast with building Stone aggregates to replicate the look and appearance of cut stone.

Bull's-eye Window

A round window, surrounded by decorative molding often found in gables or pediments. Also called an oculus, oeil de boeuf, or ox eye window.

Camber Window

Window that has a slight arch at the top.

Campanario

Spanish word for bell tower.

**Canale**

In Spanish Colonial architecture, a waterspout used to direct rainwater through the face of the parapet and away from the walls. In modern times, canale made from GFRP (architectural fiberglass,) may be functional or merely decorative.

Decorative stylized canale in architectural fiberglass (GFRP,) Florida

Canton

An outside corner of a building, decorated with a projecting masonry course, pilasters or similar elements.

Capital

The uppermost element of a column or plaster. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) column capitals are available as Corinthian, Ionic, Doric, Tuscan, Scamozzi, Composite and temple of the winds as well as custom shapes.

Cartouche

An ornamented tablet or shield often framed by elaborate carving.



Cartouche in GFRC (also available in architectural fiberglass, cast stone, GFRC, GFRS)

Cast Iron Architecture

Ornamental cast iron that replicated stone columns and beams that was popular in many American cities especially New York, St. Louis, and New Orleans. The cast iron architecture was characterized by the use of repetitive modules. Many cast iron facades were created in the Italianate Style and Second Empire style. No longer readily available in cast iron, missing components of the structures are effectively replaced with GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass). Molds for the GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) may be taken from existing elements, or re-created from historic drawings or photographs.

Cavetto

A round concave molding or cornice continuing at least a quarter circle.

Ceiling Dome

A dome used for the interior ceiling. May be part of a double dome system with interior and exterior domes.



Ornamented ceiling dome being installed (GFRC)

Ceiling Medallion

An ornament for the ceiling, generally round, oval or hexagonal shape.



Architectural fiberglass ceiling medallion in art deco style

Cement

Made from heated limestone and shale, Portland cement when combined with aggregate, glass fibers and polymers is cast to create GFRC (glass fiber reinforced concrete).

Chateau Style

Also known as Chateausque style. A style of architecture based on the monumental French Chateau's of the 16th century. Chateau style was introduced in America by Richard Morris Hunt. GFRP (architectural fiberglass) and GFRC (glass fiber reinforced concrete) architectural elements that are available in the Chateau style include limestone facade, pilasters, pinnacles, dormers, finials, gables, balustrade, built courses, gargoyles, griffins, roof cresting, pedimented parapets, corner turrets, decorative chimneys, ornamental chimney caps, hood moldings, fireplace mantles, etc.

Chimney

The vertical structure that contains one or more flues and carries of smoke and combustion products from a fireplace. Chimneys can be important design elements, and the use GFRC (glass fiber reinforced concrete) chimney covers with a brick, Fieldstone, carved stone or other texture allows for light weight, weather resistant and noncombustible alternative to traditional chimney construction.

Chimney Cap

A cornice or coping that crowns the top of the chimney. GFRC (glass fiber reinforced concrete) chimney caps are noncombustible and protect masonry chimneys from rain and whether. GFRC chimney caps may have a molded profile, and a texture of sandstone, limestone, coral stone or other material.

**Chimney Hood**

Noncombustible covering that protects the opening at the top of the chimney from snow and rain but allows smoke to escape. GFRC (glass fiber reinforced concrete) is non combustible, weather resistant and relatively light and so an excellent choice for a chimney top.

Chimney Pot

A round decorative shape on top of the chimney, used to increase its height and as a decorative element. Custom GFRC (glass fiber reinforced concrete) chimney pots are available in a range of styles and sizes, generally used with a cast stone or terra-cotta color. Since GFRC is non combustible and relatively light, it is a safe and intelligent material to use in this application.

Cinquefoil

A pattern having five lobes divided like cusps, found in windows in the Gothic revival style.

**Circular Window**

A window having the shape of a full circle. Often with keystones set at four points, in a radial manner.

Cladding

The exterior covering of a building. GFRP (architectural fiberglass) and GFRC (glass fiber reinforced concrete) cladding may be supplied with a metal framework behind the cladding, or as individual panels.

Classical Revival Style

Style architecture typified by simplicity dignity and purity of design sometimes referred to as Jeffersonian classicism, because it is often associated with the work of Thomas Jefferson. Examples include Jefferson's home at Monticello, the University of Virginia, and the Virginia State Capitol. It was later revived with some modifications and referred to as the neoclassical style. GFRP (architectural fiberglass) elements that are available in the classical revival style include triangular pediments, columns in the Doric or Tuscan order, Roman Ionic and Corinthian orders. Dentils, triglyphs, fireplace surrounds, door surrounds, moldings, cornice, mantles and balustrade.

Clock Tower

A tower for a clock. May feature chimes.

Architectural fiberglass clock tower with working clocks and chimes

**Coffer**

Recessed panels in the ceiling, arch or dome; they may be square or octagonal and sometimes are highly ornamented. GFRC (glass fiber reinforced concrete) or GFRP (architectural fiberglass) coffers are used for exterior applications or GFRG for interiors.



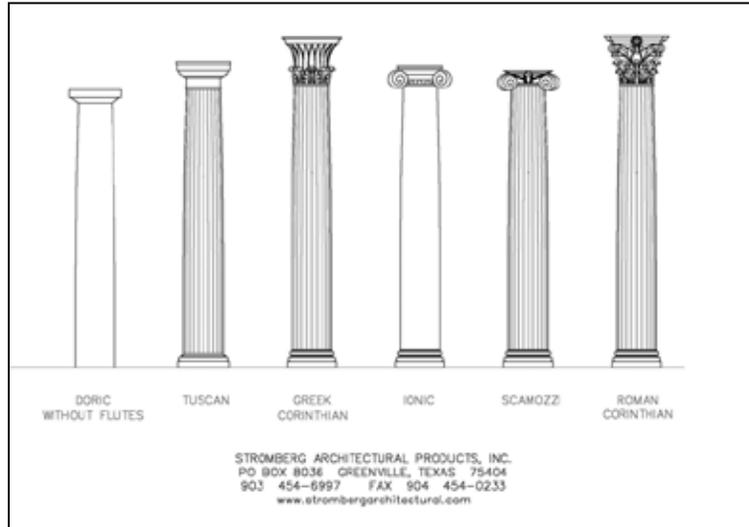
GFRG Ceiling Coffers



Coffers of GFRG

Column

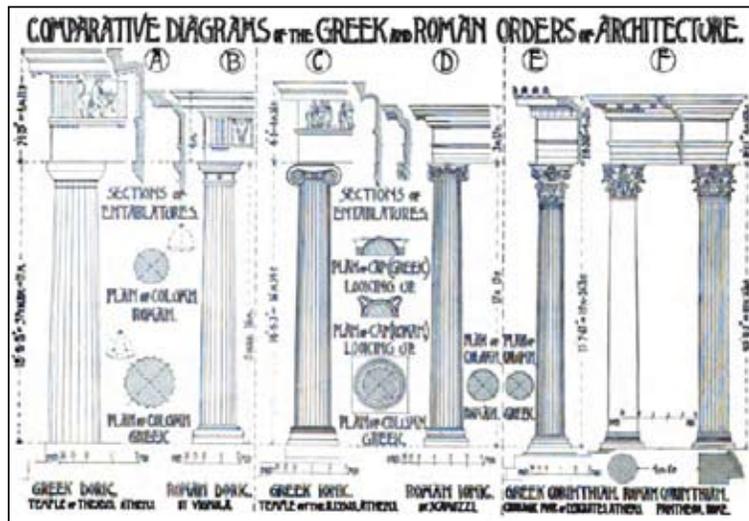
In classical architecture consists of the capital the shaft and a base shaft may be either monolithic (one piece,) built up of a number of cylinders, or may be split vertically, to wrap a structural column. GFRC (glass fiber reinforced concrete) columns have a typical average wall thickness of between 1/2" and 1".



Composite Capital

A Roman modification of the Corinthian capital has volutes similar to an Ionic capital. Since the composite capital is less widely used than the other orders, it is available in only a few stock sizes in GFRP (architectural fiberglass,) and is generally a custom piece.

Composite Order Diagram



Composite Order

The Composite Order developed late in the Roman period as modified version of the Corinthian Order.

The acanthus leaves of the normal Corinthian capital were combined with the volutes of the Ionic Order. The other details of the columns and the entablature resemble those of the Corinthian Order. While the Ionic and Corinthian Orders are two of the three Greek Orders of Architecture, the Composite order was not used by the Greeks. The composite order is less widely used than other orders and is available in fewer stock sizes in GFRP (architectural fiberglass,) but can be custom fabricated.

Concrete Matrix

The concrete portion of GFRC (glass fiber reinforced concrete,) which is formed by mixing an aggregate, such as crushed stone or sand, with Portland cement, polymers and water.

Console

A bracket, in the form of the scroll which projects from a wall and supports a door head, cornice, fireplace mantel, shelf, etc. also known as an ancon. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) corbels and brackets may be modified and used as consoles.



Coquina

A limestone formed from prehistoric shells and coral. Coquina stone was used in the construction of Spanish colonial dwellings in early Florida. GFRC (glass fiber reinforced concrete) with Coquina stone texture and feel, is produced using a special manufactured mold, produced from quarried Coquina stone, and a specially designed GFRC mixture. Coquina stone columns, piers and trim are available as well as coquina window and door surrounds and other architectural components in GFRC. Coquina stone GFRC is available in a range of mottled pastel colors. Because the areas where coquina stone was once quarried are now either developed or in environmentally sensitive locations, GFRC cast coquina is an environmentally

(continued on next page)

Coquina - continued

superior solution. The coquina texture is also available in panels, brackets, keystones, etc in GFRP (architectural fiberglass).

Coral Stone

A sedimentary limestone, formed from fossilized coral and seashells. Coral stone was widely used in construction of many of the great mansions in southern Florida, and was popularized by architects such as Addison Mizner. Coral Stone GFRP (architectural fiberglass) is available in a range of pastel colors and white. GFRP coral stone is stronger than quarried coral stone and architectural fiberglass is readily available and is more environmentally friendly. GFRP (architectural fiberglass) cast with coral stone texture, provides a material which is virtually indistinguishable from quarried coral stone. Coral stone ashlar, coral stone columns, coral stone brackets, coral stone piers, balusters, trim, wall cap and other coral stone shapes are all available in Architectural Fiberglass.



Coral stone trim in GFRC

Fossil Stone texture similar to coral stone but with a heavier texture and more fossils.



Corbel

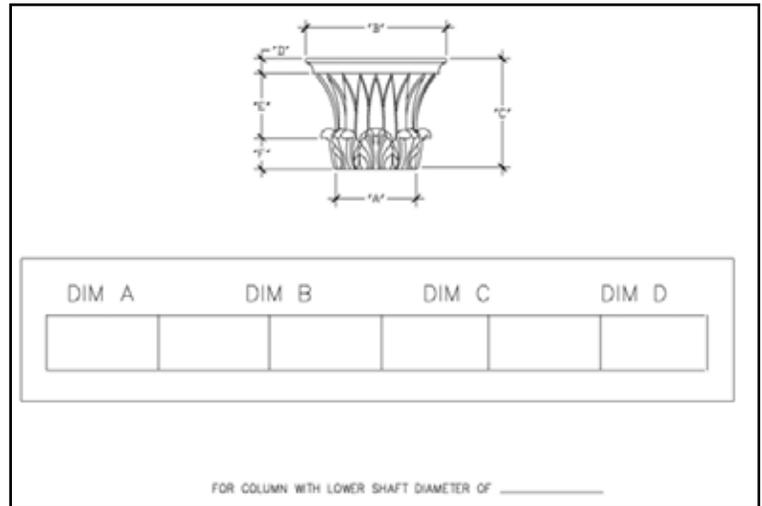
A projecting bracket, often decorated, designed to support an architectural element above it. A variety of stock mold GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) corbels and brackets are available.



Corbels supporting a cornice

Corinthian Capital

The capital for the Corinthian column. A series of acanthus leaves, surrounding a central bell.



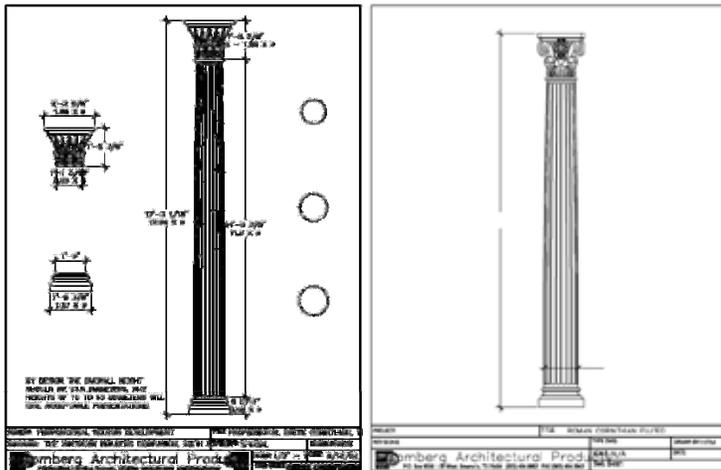
Corinthian Order

One of the three classical orders of architecture. While the Corinthian order takes its name from the city of Corinth in Greece. It actually seems to have been developed in Athens during the fifth century BC. The leaves surrounding the capital represent stylized acanthus leaves. The legend of its origin is that a sculptor, visiting the grave of a young girl, found an urn filled with her possessions, on top of her grave, covered with a square tile on top to protect the contents. An acanthus plant had grown around the urn, curling over at the corners of the tile. Moved and inspired by the sight, he created a column capital in the shape of a round urn encircled with acanthus leaves. The details of the Corinthian column base, shaft and entablature are similar to the

(continued on next page)

Corinthian Order - continued

Ionic order. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) Corinthian columns are available as standard mold items, and even-numbered diameters (10 inch, 12 inch, 14 inch, etc.) GFRC (glass fiber and first concrete) and GFRP (architectural fiberglass) Corinthian pilasters are available in the same sizes. As a loose rule of thumb, Corinthian columns are typically 8 to 12 diameters in height, for example a 1 foot diameter (measured lower shaft) column would be eight to 12 feet tall, and a 2 foot diameter column would be 16 to 24 feet in height.



Corinthian pilasters in GFRC (The Stromberg stone faced architectural fiberglass)

Corner Pilaster

An engaged pilaster, located at the corner of the building or colonnade.

Cornice

A molded horizontal projection that crowns the top of a wall where it meets with the edge of a roof. The term cornice, is also used to refer to the top section of an entablature (resting on the frieze) or to refer to the ornamental molding at the top of a door or window surround. GFRC (glass fiber reinforced concrete) and GFRP (architectural fiberglass) cornices offer architects a number of design possibilities. Shape selection is virtually unlimited. Cornices can be designed in traditional or contemporary styles. Custom shapes can be used, or you can select a stock profile from our extensive collection. Dentils, reveals, cantilevered projections, carved details, can all be incorporated into the cornice. At Stromberg, shape selection is virtually unlimited. Stone textures, acid washed concretes, colors, terra-cottas, and even metallic are all possible finish options.

The light weight and strength of Stromberg GFRC and Architectural Fiberglass, combined with modern technology and repetitive casting techniques makes it affordable to use complex shapes and profiles.

Because of the relatively light weight and strength of GFRC and Architectural Fiberglass, the cornice can cantilever beyond the buildings structure without costly additional support. Wind and other loads are transferred back to the building's structure.

Cornices provide the visual finishing touch to the roof line. Cornices in glass fiber reinforced concrete and architectural fiberglass also serve the purpose of shading to reduce energy costs and protecting the wall below from the weather.

Cornices should be detailed to maintain a continuously uniform water barrier at the interface between wall and roof components. Roof membrane and flashing can extend under the cornice, or roofing can be brought up the backside and over the top of the cornice, covering the entire back panel including caulk joints. Stromberg GFRC and GFRP offer you a number of options, depending upon your unique requirements. If you need further assistance, please give us a call or email. We are here to help.

