

Product Guide Specification (Revised January 2012)

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice*.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” when editing this section.

Section numbers and titles are from *MasterFormat* 2004 Edition.

SECTION 04 7200 CAST STONE (*Cast Stone Masonry*)

Specifier Notes: This section covers cast stone masonry as manufactured by Corinthian Cast Stone Inc. Cast stone is a highly refined architectural precast concrete product manufactured from earth-moist, steam cured concrete to simulate natural cut stone.

This casting method uses more carefully graded aggregate and a lower water cement ratio than precast concrete. Aesthetically cast stones appearance resembles that of natural cut stone while the physical properties exceed those of most natural stone and those of architectural precast concrete.

Consult Corinthian Cast Stone for assistance in editing this section for the specific application.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cast stone masonry.

1.2 RELATED SECTIONS

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to the cast stone.

- A. Section 04 0513 – Masonry Mortar (Masonry Mortaring).
- B. Section 04 0516 – Masonry Grout (Masonry Grouting).
- C. Section 04 0519 – Masonry Anchorage and Reinforcement (Masonry Anchorage and Reinforcing).
- D. Section 04 2000 – Masonry Units (Unit Masonry).
- E. Section 07 9000 – Joint Sealers (Joint Protection).

1.3 REFERENCES

Specifier Notes: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a listing of those used.

- A. ASTM C 150 – Standard Specification for Portland Cement.
- C. ASTM C 1364 – Standard Specification for Architectural Cast Stone.
- D. Cast Stone Institute Standard Specification (www.caststone.org).

1.4 DEFINITIONS

- A. Cast Stone: Highly refined architectural concrete stone product manufactured to simulate fine grain texture of natural stone.

1.5 SUBMITTALS

- A. Comply with Section 01 3300 – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data.

Specifier Notes: Corinthian Cast Stone offers a full range of purchasing packages to aid in your next purchase of custom cast stone. These packages are designed to allow our customers the ability to tailor their purchase of custom Cast Stone based on the time and budgetary requirements of their projects. The packages range from the most affordable, maximizing the use of our *Signature Series*™ components, to the most elaborate where custom molds are designed to meet all of your project requirements. Consult Corinthian Cast Stone for additional information.

Corinthian Cast Stone strongly suggests that it be retained to complete field measurements. All field dimensioning is done by our Laser Scan Metrology division (AES Global Services) utilizing either our Photon Scanner (480 foot diameter with accuracy of +_ 2mm or our Detail Scanner (perfect for replication of architectural ornamentation) with an accuracy of 1/2mm. Please visit www.corinthiandatacapture.com for more information

Specify **one** of the following **three** paragraphs.

- C. Shop Drawings: Submit manufacturer's shop drawings including profiles, cross sections, reinforcement, exposed faces, arrangement of joints, anchoring methods, anchors, annotation of components, and their locations in project as indicated on the Drawings. For restoration projects in addition to the above information the following is also required: Laser Scan documentation of the entire building (or areas covered in scope of engagement), existing parts and assemblies showing 3D model of each element, each assembly of elements and the relationship to adjacent materials. The 3D model is to be captured by a laser scan and graphically described in a point cloud format. Full scope documentation to be accurate +_ 2 mm and element and assemblies to be accurate to 1/2 mm.
- C. Shop Tickets: Submit manufacturer's shop tickets, derived from information gathered via laser scan metrology; including profiles, cross sections, modular unit lengths, reinforcement, exposed faces, and annotation of components proposed for use in project according to cross sections as indicated on the Drawings.
- C. Catalog Cuts: Submit manufacturer's catalog cuts showing page and product numbers of units proposed for use in project.
- D. All field dimensions shall be done using laser scan metrology and be completed by the cast stone manufacturer.
- E. Verification Samples: Submit pieces of actual cast stone components, 12 inches square, illustrating range of color and texture to be anticipated in components furnished for project.
- F. Test Results: Submit manufacturer's test results of cast stone components made previously by manufacturer using materials from same sources proposed for use in project.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A Cast Stone Institute Certified Producer, with a minimum of 10 years of experience in producing cast stone of types required for project. The manufacturer shall have an in house laser scan metrology division to perform existing conditions documentation.

1. Plant shall have adequate capacity to furnish quality, sizes, and quantity of cast stone required without delaying the project.
2. Products previously produced by plant and exposed to weather shall exhibit satisfactory appearance.

B. Standards: Unless otherwise specified in this section, cast stone shall comply with the following:

1. ASTM C 1364- 10b
2. Cast Stone Institute Standard Specification. (latest edition)

Specifier Notes: Mock-ups are optional and will add expense to the project. Please indicate the scope of the mock-up clearly in the specification or graphically describe on the construction documents.

Mock-ups allow the Architect to verify:

1. The color and texture of the cast stone.
2. The fit of adjacent components.
3. The quality of construction.
4. The quality of repair methods, if needed.

Revise the following paragraph as required for the project. Delete if mock-ups are not required.

C. Mock-ups: Provide full-size cast stone components for installation in mock-up of exterior wall. Approved mock-ups will become standard for appearance and workmanship.

Specifier Notes: Delete **one** of the following **two** sentences.

1. Mock-ups shall remain as part of the completed Work.
1. Mock-ups shall not remain as part of the completed Work. At Architect's direction, demolish mock-ups and remove debris.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Deliver cast stone components secured to shipping pallets and protected from damage and discoloration.
2. Protect corners from damage.
3. Number each piece individually to match shop drawings and schedules.

B. Storage:

1. Store cast stone components and installation materials in accordance with manufacturer's instructions.
2. Store cast stone components on pallets with non-staining, waterproof covers.
3. Ventilate under covers to prevent condensation.
4. Prevent contact with dirt.

C. Handling: Protect cast stone components during handling and installation to prevent chipping, cracking, or other damage.

Specifier Notes: Revise the following article as required for the project. Delete if not required.

1.8 SCHEDULING

- A. Schedule and coordinate production and delivery of cast stone components with unit masonry work to optimize on-site inventory and to avoid delaying the Work.

PART 2 PRODUCTS

2.1 MANUFACTURER

Corinthian Cast Stone, Website www.corinthiancaststone.com

E-Mail info@corinthiancaststone.com

115 Wyandanch Ave, Wyandanch NY 11798 phone 631-920-2340 fax 631-920-23431

2.2 CAST STONE MASONRY

- A. Cast Stone:
 - 1. Compressive Strength: ASTM C 1364 10b
 - 2. Absorption, Cold Water: ASTM C 1364 10b
 - a. Cast Stone shall contain integral water repellent – WR Grace Dryblock II additive which is mixed throughout the zero slump cast stone matrix by the computer controlled batch plant within Qualified DRY-BLOCK facility. The admixtures provide effective water-repellency in typical masonry construction.
 - 3. Linear Shrinkage: ASTM C 1364 10b
 - 4. Freeze Taw Resistance: ASTM 1364 10b (independent laboratory test ASTM C-666)
- B. Surface Texture: ASTM C 1364 10b
- C. Color and Finish:

Specifier Notes: Corinthian Cast Stone has can assist in the color selection process by either providing color samples from the wide assortment of existing colors or by custom color matching a color or material chosen by the Architect. Specify **one** of the following **four** sentences.

- 1. Match sample on file at Architect's office.

Specifier Notes: Insert Corinthian Cast Stone color number.

- 1. Corinthian Cast Stone Standard Color No.: _____.
- 1. Corinthian Cast Stone Premium Color No.: _____.

Specifier Notes: Insert name of brick, natural stone, or other material to be matched.

- 1. Match Color: _____.

D. Permissible Variation in Color:

- 1. Total Color Difference: ASTM C 1364 10b, 6 units.
- 2. Hue Difference: ASTM C 1364 10b, 2 units.

2.3 CAST STONE MATERIALS

- A. Portland Cement: ASTM C 150, Type I, white to ensure color consistency.
- B. Coarse Aggregate: ASTM C 1364 10b. Granite, quartz, or limestone., appropriately gap graded.
- C. Fine Aggregate: ASTM C 1364 10b. Natural or manufactured sands. appropriately gap graded
- D. Coloring Pigments: ASTM C 1364 10b. Inorganic iron oxides.

- E. Chemical Admixtures: ASTM C 1364 10b.
- F. Water: Potable.

Specifier Notes: Specify galvanized, epoxy, stainless steel or fiberglass coated reinforcing bars when reinforcing is required for safe handling, setting, and structural stress.

- G. Reinforcement: Where required by ASTM C 1364. [Galvanized] [Epoxy coated] [Stainless Steel] [Fiberglass rod].

Specifier Notes: Fiber reinforcement in the form of fibrous nylon to control plastic shrinkage and thermal cracking will be used

- H. Fiber Reinforcement: ASTM C 1116, fibrous nylon.

2.4 MORTAR MATERIALS

Specifier Notes: Specify the mortar.

- A. Mortar: [Cast Stone Institute Standard Specification] [As specified in Section 04 0513].

2.5 ACCESSORIES

Specifier Notes: Specify Type 304 stainless steel anchors for highly corrosive environments, such as coastal areas, and for 100-year type construction.

Anchor pins and dowels should be stainless steel. Shelf angles and other similar structural items should be galvanized or stainless steel dependent upon environmental or geographical location.

Corinthian Cast Stone will provide, as a line item PE calculations and stamp for anchor design and structural reinforcement within the cast stone.

Consult Corinthian Cast Stone for assistance in specifying anchors for the specific application.

- A. Anchors: Non-corrosive type, sized for conditions. [Hot-dip galvanized steel] [Type 304 stainless steel].
- B. Sealants: As specified in Section 07 9000.

Specifier Notes: Corinthian Cast Stone is an authorized Proso[®] distributor, please consult your representative for help choosing the correct wash down product.

- C. Cleaner:
 1. Manufacturer's standard-strength, general-purpose cleaner designed for removing mortar and grout stains, efflorescence, and other construction stains from new masonry surfaces without discoloring or damaging masonry surfaces.
 2. Approved for intended use by cast stone manufacturer and approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.

2.6 FABRICATION

- A. Shapes: Unless otherwise indicated on the Drawings, provide:
 1. Suitable wash on exterior sills, copings, projecting courses, and components with exposed top surfaces.
 2. Drips on projecting components, wherever possible.
- B. Reinforcement:
 1. As required to withstand handling and structural stresses.
 2. Comply with ASTM C 1364 10b.

3. Minimum of 0.25 percent of cross-sectional area of panels which exceed 24 inches (600 mm) in width.
4. Minimum Reinforcing Cover: Twice diameter of reinforcing bars.
5. Units less than 24 inches in either transverse or longitudinal direction may be unreinforced in that direction if structural conditions allow.

C. Curing:

Specifier Notes: Curing cast stone components with a Kraft Energy[®] direct-fired steam generator as used at Corinthian Cast Stone provides the following benefits:

1. Increases the first-day strength of the cast stone.
2. Increases the hardness of the corners of the cast stone.
3. Minimizes efflorescence. The carbonation in the steam interacts with the concrete matrix to prevent salts from traveling to the cast stone surface.
4. Corinthian Cast Stone offers Fast Track Fabrication – if a piece is broken on site and needs to be replaced immediately in order that the job does not stop, just call in the piece before 12:00 noon and the piece will be available for next day delivery or pick up.

1. Cure cast stone components with a direct-fired steam generator at a minimum temperature of 105 degrees F (41 degrees C) for a minimum of 10 hours, within 8 hours of fabrication.
2. Cure cast stone components in presence of carbon monoxide and carbon dioxide to promote carbonation at surface, to minimize efflorescence.

D. Finishing: Remove blemishes from exposed surfaces before packaging for shipment.

E. Manufacturing Tolerances: Manufacture cast stone components within tolerances in accordance with Cast Stone Institute Standard Specification.

2.7 SOURCE QUALITY CONTROL

A. Sampling and Testing: ASTM C 1364 10b

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine construction to receive cast stone components. Notify Architect if construction is not acceptable. Do

not begin installation until unacceptable conditions have been corrected.

B. Visual Inspection:

1. Visually inspect cast stone components for fit and finish in accordance with ASTM C 1364 before installation.
2. Do not install unacceptable components.

3.2 INSTALLATION

A. General: Install cast stone components in conjunction with masonry, complying with Section 04 7200.

B. Setting:

1. Drench cast stone components with clear, running water immediately before installation.

2. Do not use pry bars, wire rope slings or other equipment that could damage cast stone components, cast stone units over 250 lbs are manufactured with lifting embedments to facilitate handling and setting.
 3. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
 4. Set cast stone components in a full bed of mortar, unless otherwise indicated on the Drawings.
 5. Fill vertical joints with mortar.
 6. Make joints 3/8 inch, unless otherwise indicated on the Drawings.
 7. Leave head joints in copings and similar components open for sealant.
 8. Rake mortar joints 3/4 inch for pointing.
 9. Sponge face of each stone to remove excess mortar.
 10. Tuck point joints to a slight concave profile.
- C. Sealant Joints:
1. Comply with Section 07 9000.
 2. Prime ends of cast stone components, insert properly sized foam backing rod, and install required sealant using sealant gun.
 3. Provide sealant joints at following locations and as indicated on the Drawings.
 - a. Cast stone components with exposed tops.
 - b. Joints at relieving angles.
 - c. Control and expansion joints.

3.3 SETTING TOLERANCES

- A. Tolerances: Comply with Cast Stone Institute Standard Specification.
1. Variation from Plumb: Do not exceed 1/8 inch in 5 feet or 1/4 inch in 20 feet or more.
 2. Variation from Level: Do not exceed 1/8 inch in 5 feet, 1/4 inch in 20 feet, or 3/8 inch maximum.
 3. Variation in Joint Width: Do not vary joint width more than 1/8 inch or 1/4 of nominal joint width, whichever is greater.
 4. Variation in Plane Between Adjacent Surfaces: Do not exceed 1/8-inch difference between planes of adjacent components or adjacent surfaces indicated to be flush with components.

3.4 REPAIR

- A. Surface Repair:
1. Repair chipping and other surface damage noticeable when viewed in direct daylight at 20 feet.
 2. Repair with matching patch kit provided by manufacturer and in accordance with manufacturer's instructions.
 3. Repair methods and results to be approved by Architect.

3.5 FIELD QUALITY CONTROL

- A. Inspection and Acceptance: Cast Stone Institute Standard Specification.

3.6 CLEANING

- A. In-Progress Cleaning:
1. Clean cast stone components as work progresses.
 2. Remove mortar fins and smears before tooling joints.
- B. Final Cleaning:
1. Clean exposed cast stone, after mortar is thoroughly set and cured.
 2. Cleaner:

- a. Comply with written instructions from Cleaner manufacturer.

Specifier Notes: The following article is optional. Delete if not required. Consult Corinthian Cast Stone for additional information regarding the use of water repellent.

3.7 WATER REPELLANT

- A. Apply silane or siloxane water repellent for weatherproofing cast stone in accordance with manufacturer's instructions.
- B. Apply water repellent after pointing, repair, cleaning, inspection, and acceptance are completed.

3.8 PROTECTION

- A. The manufacturer shall package all cast stone components on hardwood pallets with non staining dunnage and shrink-wrapping for transit and jobsite protection
- B. The site personnel shall protect cast stone components from splashing and other damage.

END OF SECTION