

Section 04 72 00 — Architectural Cast Stone, Precast Concrete & GFRC

## Fireplace Surrounds & Mantels

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### PART 1 — GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. This Section includes:

1. Cast stone fireplace surrounds including legs (jambs), fascia, mantel shelf, and frieze panels
2. Cast stone overmantel panels and decorative elements
3. Cast stone hearth pads and raised hearth components
4. Cast stone outdoor fireplace surrounds and cap elements

B. Related Sections:

1. Section 03 49 00 — Glass Fiber Reinforced Concrete (GFRC surround panels)
2. Section 04 20 00 — Unit Masonry (firebox masonry substrate)
3. Section 07 92 00 — Joint Sealants (perimeter caulk at surround-to-wall joints)

#### 1.3 REFERENCES

- A. ASTM C1364 — Standard Specification for Architectural Cast Stone
- B. ASTM C1194 — Standard Test Method for Compressive Strength of Architectural Cast Stone and Precast Concrete
- C. ASTM C150 — Standard Specification for Portland Cement
- D. ASTM C33 — Standard Specification for Concrete Aggregates
- E. ASTM C666 — Standard Test Method for Resistance to Rapid Freezing and Thawing
- F. ASTM E119 — Standard Test Methods for Fire Tests of Building Construction
- G. CSI MasterFormat 04 72 00 — Cast Stone Masonry

#### 1.4 SUBMITTALS

- A. Product Data: Technical data sheets, standard profiles, and finish samples.
- B. Shop Drawings: Full-size or scaled surround elevations with all components labeled, section profiles through jambs and mantel shelf, joint locations, and anchorage details.
- C. Samples: Minimum 6" x 6" sample of each finish and color. Approved before production.
- D. Test Reports: ASTM C1364 compliance — compressive strength (min. 6,500 psi) and water absorption (max. 6% by weight).

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer: Minimum 10 years' experience in architectural cast stone production. Capable of producing complex profiles, moldings, and carved ornamental elements.
- B. Testing: Independent lab testing per ASTM C1364. Min. 6,500 psi. Max. 6% absorption.
- C. Pre-installation Conference: Coordinate with GC, mason, and fireplace installer before cast stone delivery.

#### 1.6 DELIVERY, STORAGE & HANDLING

- A. Delivery: On padded pallets or custom shipping frames. Label each with shop mark.
- B. Storage: Store horizontally on padded supports. Protect exposed finished surfaces.
- C. Handling: Lift with padded slings or by design pick points. Do not drag pieces.

### PART 2 — PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Mesa Precast, Mesa, AZ  
Contact: Jess Mason, 480-600-6776
  1. Additional manufacturing locations: Texas, Pennsylvania
  2. Representative: contact via archstoneglobal.polsia.app
- B. Substitutions: Equal products may be submitted 10 days prior to bid with test data and finish samples.

#### 2.2 MATERIALS — CAST STONE

- A. Portland Cement: ASTM C150, Type I or Type II.
- B. Aggregates: ASTM C33, washed and graded.
- C. Coloring: Inorganic iron oxide pigments, UV-stable. Uniformly dispersed through full unit.
- D. Mix Design: Minimum 6,500 psi compressive strength at 28 days and maximum 6% water absorption per ASTM C1364.

#### 2.3 PHYSICAL PROPERTIES (ASTM C1364)

- A. Compressive Strength: 6,500 psi minimum at 28 days.
- B. Water Absorption: 6% maximum by weight.
- C. Freeze-Thaw (ASTM C666): 300 cycles minimum, no visible deterioration.
- D. Modulus of Rupture: 1,200 psi minimum.

#### 2.4 COMPONENTS — FIREPLACE SURROUND SYSTEM

- A. Surround Legs (Jambs): Vertical side members framing the firebox opening.  
Standard height 42–54" to mantel shelf underside. Custom heights available.
- B. Fascia / Frieze Panel: Horizontal member spanning between legs above opening.
- C. Mantel Shelf: Projecting horizontal shelf. Standard projection 4–8" from fascia face.  
Shelf thickness minimum 2". Custom projections to 18" available.
- D. Corbels and Brackets: Integral support elements. Profiles include plain, scrolled,

- acanthus, and dentil per drawings.
- E. Overmantel Panels: Decorative panels above mantel shelf.
- F. Hearth Pad: Flush or raised hearth platform. Thickness minimum 2".

**2.5 DIMENSIONS AND TOLERANCES**

- A. Length/width: ±1/8" on pieces under 24"; ±3/16" on pieces 24"–72"
- B. Thickness: ±1/8" from specified dimension.
- C. Profile tolerances: ±1/16" on molding profiles.

**2.6 FINISHES**

- A. Standard: Portland (warm gray), Bucks County (buff/tan), Old World (antique cream), Carbon (charcoal gray).
- B. Texture: Smooth (form finish), light sandblast, medium sandblast, acid-etch.
- C. Custom Colors: Match architect's sample. Minimum 4-week lead for color development.

**PART 3 — EXECUTION**

**3.1 EXAMINATION**

- A. Verify firebox opening dimensions and substrate plumb/level match shop drawings.
- B. Confirm substrate framing can carry the weight of cast stone components.
- C. Do not begin installation if conditions are unsatisfactory.

**3.2 INSTALLATION**

- A. Install per approved shop drawings and manufacturer's written instructions.
- B. Setting Bed: Type S mortar (ASTM C270) or approved flexible adhesive mortar.
- C. Joints: 1/4" nominal. Fill with matching sanded grout after mortar cures.
- D. Mantel Shelf: Secure with masonry anchors per engineer's recommendation. Stainless steel anchors for exterior and high-humidity applications.
- E. Hearth Pad: Install level. Minimum 1" mortar bed on concrete subfloor.
- F. Perimeter Caulk: Color-matched paintable caulk at cast stone-to-drywall joints. Do not use hard mortar at dissimilar material joints.

**3.3 TOLERANCES (INSTALLED)**

- A. Plumb of legs: ±1/8" per 4 ft of height.
- B. Level of mantel shelf: ±1/8" over full shelf length.
- C. Joint width: ±1/16" from specified joint width.

**3.4 CLEANING & PROTECTION**

- A. Protection: Cover completed surround during finish work.
- B. Cleaning: Water and pH-neutral detergent. Plastic scraper for mortar drips. Do not use acid cleaners or steel tools on finished face.
- C. Sealing: Apply penetrating silicone sealer to outdoor surrounds.

END OF SECTION 04 72 00

**Material Selection Guide**

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Property	Precast Concrete	Cast Stone	GFRC
<b>Compressive Strength</b>	3,500–4,500 psi	6,500 psi min	4,000 psi min
<b>Water Absorption</b>	<6% (ASTM C642)	<6% (ASTM C1364)	N/A (non-porous face)
<b>Freeze-Thaw Cycles</b>	300 (ASTM C666)	300 (ASTM C666)	300 (ASTM C666)
<b>Weight (approx.)</b>	~140 pcf	~135 pcf	~25–30 psf (panel)
<b>Dimensional Tol.</b>	±1/4"	±1/8" / ±1/4" in 10'	PCI MNL-128
<b>Key ASTM Standards</b>	C150, C33, C642, C1194	C1364, C1185, C947, C1194	C947, C1116, PCI MNL-128
<b>CSI Reference</b>	03 45 00	04 72 00	03 49 00
<b>Anchors / Sealant</b>	Stainless steel	Stainless steel	Galvanized / Stainless
<b>Sealant Ref.</b>	Section 07 92 00	Section 07 92 00	Section 07 92 00

**Part 3 Execution Notes — Key Requirements**

1. Mortar: Type N or S (ASTM C270). Full-coverage bearing on all units.
2. Joints: 3/8" nominal. Backer rod + sealant at all horizontal and perimeter joints (Section 07 92 00).
3. Anchors: Stainless steel or hot-dip galvanized steel. No uncoated ferrous metal in contact with stone.
4. Tolerances: ±1/8" dimensional. ±1/4" in 10 feet from level or plumb.
5. Cleaning: Plain water or mild pH-neutral detergent. No acid cleaners on limestone-colored finishes.
6. Cutting: Wet saw only. No hammer-and-chisel for structural cuts.
7. Submittals: Product data, shop drawings, samples, test reports required before fabrication starts.

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