

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

Balustrades & Railings

CSI MasterFormat 04 72 00 · Mesa Precast · archstoneglobal.polsia.app

PART 1 — GENERAL

1.1 SUMMARY

A. This Section includes:

1. Precast architectural cast stone balustrade systems
2. Balusters, top rails, bottom rails, and newel posts
3. GFRC baluster components where scheduled

B. Related Sections:

1. Section 04 20 00 — Unit Masonry
2. Section 05 73 00 — Decorative Metal Railings
3. Section 07 92 00 — Joint Sealants

1.2 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 C666 — Standard Test Method for Resistance to Rapid Freezing and Thawing
- D. ASTM C947 — Flexural Properties of Thin-Section Glass-Fiber-Reinforced Concrete
- E. IBC Chapter 10 — Means of Egress; handrail and guardrail requirements
- F. ADA Standards for Accessible Design — handrail height and graspability

1.3 SUBMITTALS

- A. Product Data: Data sheets, mix designs, and test reports.
- B. Samples: Two samples minimum per baluster profile, each finish color.
- C. Shop Drawings: Layout, profiles, dimensions, anchoring and setting details.
- D. Test Reports: ASTM C666 freeze-thaw results; compressive strength.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Minimum 10 years' experience in architectural cast stone per ASTM C1364.
- B. Compressive Strength: Minimum 6,500 psi at 28 days.
- C. Absorption: Maximum 6% per ASTM C642.
- D. Freeze-Thaw: 300+ cycles per ASTM C666 with less than 0.10% mass loss.
- E. Railing Heights: Per IBC and ADA requirements unless noted otherwise.

1.5 DELIVERY, STORAGE & HANDLING

- A. Ship crated on padded racks. Label each piece with shop drawing mark.
- B. Store off ground. Protect from damage and moisture.
- C. Lift at design pick points. Do not impact or drop units.

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 by other certified manufacturers may be submitted 10 days prior to bid.

2.2 CAST STONE BALUSTRADES

- A. Material: Architectural cast stone per ASTM C1364.
- B. Mix Design: Portland cement, limestone aggregate, integral pigments, no fly ash in exposed faces.
- C. Baluster Profiles: As shown on drawings — turned / square / cylindrical.
- D. Top Rail: Flat / Molded / Beveled per drawings. Max 4" clear spacing between balusters.
- E. Newel Posts: Square / Turned / Custom as specified.
- F. Handrail Height: 34–38" above walking surface per IBC/ADA.
- G. Color: Portland Grey / Bucks County Buff / Old World Cream / Carbon Blend.
- H. Finish: Smooth-form, acid-washed, or sandblasted as specified.

2.3 PHYSICAL PROPERTIES (ASTM C1364)

- A. Compressive Strength: 6,500 psi minimum at 28 days.
- B. Absorption: 6% maximum by weight.
- C. Freeze-Thaw (ASTM C666): 300 cycles minimum.
- D. Dimensional Tolerances: $\pm 1/8"$ on cross-section. $\pm 1/4"$ in 10 feet from level.

2.4 GFRC BALUSTER COMPONENTS (Where Scheduled)

- A. Material: Glass fiber reinforced concrete per ASTM C947 and PCI MNL-128.
- B. Glass Fiber Content: Minimum 5% by weight, alkali-resistant.
- C. Use where lightweight profiles required for upper-story or rooftop installations.

2.5 ANCHORAGE

- A. Anchors: Stainless steel hardware required for all newel posts.
- B. Setting Shims: Plastic or stainless steel only.

PART 3 — EXECUTION

3.1 INSTALLATION

- A. Install per manufacturer's written instructions and shop drawings.
- B. Setting bed: Non-staining mortar. Do not use black mortar adjacent to light finishes.
- C. Anchor newel posts per shop drawings; stainless steel hardware required.
- D. Baluster spacing: Maximum 4" clear between balusters.
- E. Control joints in rail elements at maximum 20-foot intervals.
- F. Sealant at all horizontal joints: paintable polyurethane or silicone, color match, per Section 07 92 00.

3.2 TOLERANCES

- A. Variation in cross-section: $\pm 1/8"$.
- B. Variation in length: $\pm 1/8"$.
- C. Variation from level (top rail): $\pm 1/4"$ in 10 feet.
- D. Baluster spacing variation: $\pm 1/4"$.

3.3 CLEANING & PROTECTION

- A. Protection: Cover completed work during construction.
- B. Cleaning: Plain water or mild detergent. No acidic cleaners on limestone-colored units.
- C. Sealant: Backer rod and sealant at all perimeter and base joints per Section 07 92 00.

END OF SECTION 04 72 00

Material Selection Guide

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

Mesa Precast — Technical Sales Contact

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archstoneglobal.polsia.app · Mesa, AZ — also serving TX and PA