

## CONCRETE BALUSTRADE SYSTEM 03 48 00



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This 3-part specification utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat*., *SectionFormat*. and *PageFormat* and is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and masterguide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This 3-part specification specifies concrete tile manufactured by Arto Brick California Pavers. Revise section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

### PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section Includes: Concrete balustrade system including balusters, handrails, and base.
- B. Related sections:
  - 1. Division 09 Section: Concrete and Masonry Coatings

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 01 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

#### 1.02 REFERENCES

- A. American National Standards Institute (ANSI)
- B. American Society of Testing and Materials (ASTM International)
  - 1. C33 Specification for Concrete Aggregates
  - 2. C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens
  - 3. C67 Test Methods for Sampling and Testing Brick and Structural Clay Tile
  - 4. C140 Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
  - 5. C150 Specification for Portland Cement
  - 6. C260 Specification for Air-Entraining Admixtures for Concrete
  - 7. C270 Specification for Mortar for Unit Masonry

## CONCRETE BALUSTRADE SYSTEM 03 48 00



8. C331 Specification for Lightweight Aggregates for Concrete Masonry Units
9. C482 Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste
10. C494/C494M Specifications for Chemical Admixtures for Concrete
11. C595 Specification for Blended Hydraulic Cements
12. C979 Specification for Pigments for Integrally Colored Concrete
13. C1116/C 1116M Specification for Fiber-Reinforced Concrete
14. C1602/C 1602M Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

### 1.03 SYSTEM REQUIREMENTS

#### A. Performance Requirements

1. Absorption (ASTM C67): Not more than 12%.
2. Compressive Strength (ASTM C39): Not less than 4000 psi (27,560 kPa).
3. Freeze Thaw Resistance (ASTM C67): Unaffected after 50 cycles.
4. Length Change (ASTM C157): +/-0.1% max.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 01 Submittal Procedures Section.

### 1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures Section.
- B. Product Data: Submit product data for specified products.
- C. Shop Drawings: Indicate layout including baluster spacing, corners, elevation changes, and terminals.
- D. Maintenance Data: Clean with pH-neutral cleanser if necessary and do not use acid or acid-based products. Test all products prior to wholesale application. Use fine grained sandpaper to remove marks and stains.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 01 Quality Assurance Section.

- E. Samples: Submit selection and verification samples of finishes, colors and textures.

### 1.05 QUALITY ASSURANCE

## CONCRETE BALUSTRADE SYSTEM 03 48 00



- A. Qualifications
  - 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project for a minimum of 5 years.
- B. Regulatory Requirements and Approvals: [Specify applicable requirements of regulatory agencies].
  - 1. [Code agency name].
    - a. [Report or approval number].

Specifier Note: Retain paragraph below for erected assemblies (either onsite or offsite) required for review of construction, coordination of work of several sections, testing or observation of operation. Mock-ups, when accepted or approved, establish standards by which work will be judged. Coordinate below with Division 01 Quality Control (Mock-Up Requirements) Section.

- C. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, texture and pattern and workmanship standard(s). Comply with Division 01 Quality Control (Mock-Up Requirements) Section.
  - 1. Mock-Up Size: [Specify mock-up size].
  - 2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required
  - 3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 01 Product Requirements Section.

### 1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 01 Product Requirements Section.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer

### 1.07 ENVIRONMENTAL REQUIREMENTS

- A. Install mortar, set and grout components when surface temperature is a minimum of 50 degrees F (10 degrees C) and rising but no greater than 90 degrees F (32 degrees C).

## CONCRETE BALUSTRADE SYSTEM 03 48 00



- B. Do not install mortar, set or grout components when inclement weather conditions are expected within 48 hours of completion.

### 1.08 EXTRA MATERIALS

- A. Extra materials: Provide \_ pcs of each component specified.

## PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

### 2.01 BALUSTRADE SYSTEM

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to 3-part specificaton. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Arto Manufacturing Company.
  - 1. Contact: 15209 S. Broadway St., Gardena, CA 90248-1823; Telephone: (310) 768-8500; Fax: (310) 768-8544; website: [www.artobrick.com](http://www.artobrick.com).

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 01 Project Requirements (Product Substitutions Procedures) Section.

- B. Substitutions: No substitutions permitted.

Specifier Note: Paragraphs below list proprietary products offered by Arto Brick California Pavers. All measurements are nominal; consult manufacturer regarding exact measurements and product options. Select product characteristics required; delete characteristics not required.

### 2.02 BALUSTERS

- A. Size
  - 1. 24.5" x 6" x 6"
  - 2. 30" x 6" x 6"
- B. Colors
  - 1. Antik Gray
  - 2. Artillo
  - 3. Artillo Café
  - 4. Beachwood Flash
  - 5. Buff
  - 6. Café Olay

## CONCRETE BALUSTRADE SYSTEM 03 48 00



7. Cauqi
8. Charcoal
9. Charley Brown
10. Chicago
11. City Hall Red
12. Cotto Dark
13. Cotto Gold
14. Desert
15. Early Gray
16. Flagstone
17. Gold
18. Grey Myst
19. Hacienda
20. Hacienda Flash
21. Hancock
22. Jose Gray
23. Lopez Brown
24. Mission Red
25. Natural Gray
26. Ocean Green
27. Old California
28. Plumish
29. Red Flash
30. Rosa
31. Rosa White Wash
32. Sangria
33. Sidewalk Gray
34. Smoke
35. Sonora Sunset
36. Tuscan Mustard

## CONCRETE BALUSTRADE SYSTEM 03 48 00



Specifier Note: Refer to Arto color chart to view color options. Request samples from Arto or distributor to approve color variation.

### C. Surface Textures

1. Standard
2. Limestone
3. Luna
4. Travertine
5. Vintage
6. Acid Wash
7. Sand Blast

## 2.03 HANDRAILS

### A. Handrail 1

1. Base: 9"
2. Height: 4.5"
3. Length: 52"

### B. Handrail 1 Corner

### C. Handrail 1 Terminal

1. Length: 60"

### D. Handrail 2

1. Base: 8" (overall width: 12")
2. Height: 4.25"
3. Length: 54"

### E. Handrail 2 Corner

### F. Handrail 2 Terminal

1. Length: 60"

## 2.04 BASE RAIL

### A. Base Rail

1. Base: 11.5"
2. Height: 4.75"
3. Length: 54"

## CONCRETE BALUSTRADE SYSTEM 03 48 00



- B. Base Rail Corner
- C. Base Rail Terminal
  - 1. Length: 60"

### 2.05 STARTER

- A. Cap
  - 1. Base: 12.5" x 12.5" (overall width: 15")
  - 2. Height: 3"
- B. Column
  - 1. Base: 12" x 12"
  - 2. Height: 36"
- C. Base
  - 1. Base: 14" x 14"
  - 2. Height: 6.5"

### 2.06 MATERIALS

- A. Mortar
  - 1. ASTM C270; Type S.
- B. Grout
  - 1. Fill joints between units with Type S mortar or grout appropriate for specified joint width.
- C. Sealer (optional)
  - 1. Seal all components with penetrating sealer to protect surface finish and color.
  - 2. Sealing is recommended in areas subject to freeze thaw conditions.

## PART 3 EXECUTION

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to this three-part specification. Retain or delete paragraph below per project requirements and specifier's practice.

### 3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

## CONCRETE BALUSTRADE SYSTEM 03 48 00



### 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

### 3.03 PREPARATION

- A. Ensure all substrates are clean and free of contaminants.
- B. Concrete substrates shall have roughened or troweled surfaces.

### 3.04 CLEANING

- A. Clean with water and soft nylon brushes only; do not allow mortar to set up on surfaces.
- B. Do not use acid or alkali cleansers which may damage the surface of the product.
- C. Fine grained sandpaper may be used to remove marks and stains, depending on color.
- D. Test all products before wholesale application.

### 3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Repair or replace damaged products prior to Substantial Completion.

**END OF SECTION**