

***Note to specifier: Stepstone is the manufacturer of CalArc Steptreads. Stepstone is a manufacturer only, not an installer. Stepstone is not responsible for defects that are not related directly to the manufacture of the CalArc Steptreads.***

***The following is provided as a guide to specifying the various applications of CalArc Steptreads, but does not infer that Stepstone approves materials other than those provided by Stepstone. Installation methods specified herein are provided as a guide only.***

If you need any additional information please call Stepstone, Inc. at 800-572-9029 or visit our website at [www.stepstoneinc.com](http://www.stepstoneinc.com).

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Or for Hawaii, contact our Hawaii Distributor: Building Systems Hawaii, at:

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PRECAST CONCRETE STAIR TREADS

SECTION 034819

PART 1 ‑ GENERAL

* 1. SUMMARY:
1. Section Includes:

*Note to Specifier: Select one or more as required. Delete risers and landings if not required.*

1. Precast concrete stair treads, **risers and landings**, welded or bolted to supports on steel stairs.
2. Precast concrete stair treads, **risers and landings**, bolted to supports on wood stairs.
3. Related Sections:

*Note to Specifier: Delete and/or Modify - stair type which does not occur.*

1. Section 055100 (05510) Steel Stairs: Stairs and stringers designed, fabricated and installed to meet applicable building codes, including weld plates for field attachment of Steptread welding plates.
2. Section 062000 (06200) Wood Stairs: Stairs and stringers designed, fabricated and installed to meet applicable building codes, including blocking for field attachment of Steptreads.
	1. REFERENCES:
3. American Society for Testing and Materials (ASTM):

ASTM C33 Concrete Aggregates

ASTM C139 Concrete Compressive Strength

ASTM C 144 Aggregate for Masonry Mortar

ASTM C 150 Portland cement

ASTM C 642 Water Absorption, Density, Voids in Hardened Conc

ASTM C 979 Pigments for Integrally Colored Concrete

ASTM C 1028 Coefficient of Friction

* 1. SUBMITTALS:
1. Shop Drawings: Provide setting drawings and templates showing recommended installation of anchorage devices.

*Note to specifier: Delete sentence in bold type if sealer is not to be factory applied. See note hereafter for conditions of sealer application.*

1. Samples: Submit two 3” wide by full depth samples of each type of stair tread unit to show the full range of color and texture of treads and integral detectable warning stripes, for selection and approval. **If sealer is to be applied to stair tread surfaces, apply sealer on sample(s)**.
2. Manufacturer's Installation Details: Submit complete.
3. Warranty: Provide copies of manufacturer's product warranties.
	1. SUBSTITUTIONS:
4. Refer to Section ( ) for procedures. *Note to Specifier: Insert appropriate section.*
5. Proposed substitutions: No known equal.
	1. QUALITY ASSURANCE:
6. Compliance with Regulations: Comply with requirements of state and local building codes and with rules and regulations relating to building accessibility.
7. Qualifications of Manufacturer: Company specializing in manufacture of precast concrete stair treads with a minimum of 10 continuous years of documented experience.
8. Treads and connection shall be capable of supporting dead loads plus a uniform live load of 100 pounds per square foot.
9. Pre-installation Conference: As directed by the Architect
	1. DELIVERY, STORAGE AND HANDLING:
10. Deliver all materials to the installation site in the manufacturer's original packaging. Packaging shall contain manufacturer's name, customer name, order, identification number, and other related information.

*Note to specifier: Delete risers and landings if not required.*

1. Handle and store stair treads, **risers and landings** in accordance with manufacturer's recommendations. **Do not rest treads on the riser sections.**

1.7 WARRANTY

1. Provide warranty covering precast concrete stair treads, **risers and landings** against defects in material and workmanship for a period of 5 years. Unusual abuse and neglect are excepted.

PART 2 - PRODUCTS

* 1. MANUFACTURER:

 Head Office:

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* 1. MATERIALS:
1. Stair treads shall be CalArc "Steptreads", precast concrete, consisting of Portland cement, aggregate, color admixtures, and reinforcing, factory formed to profiles indicated.
2. Portland Cement: ASTM C 150, Type III, high early strength.
3. Aggregate: ASTM C 33.
4. Color Admixture: By Davis Colors, or equal, as required to achieve color as selected.
5. Aggregate for exposed aggregate surface: As selected.
6. Reinforcement - Standard 2-1/2 inch Steptreads: Galvanized welded wire mesh, No. 7 and No. 10, 2 inch by 6 inch.
7. Reinforcement - Long Span Steptreads: Galvanized rebar cage.
8. Tread style:

*Note to Specifier: Select one or more as appropriate. Note that warning stripes are required on top and bottom treads on interior stairs and on all treads on exterior stairs. Not standard in Hawaii.*

1. Open Riser – available thickness noted by profile:
2. Bullnose profile. *(2-1/2 inch thickness only)*
3. Bullnose profile with integral detectable aggregate warning stripe. *(2-1/2 inch thickness only)*
4. Wedge profile. (2-1/2 inch or 3 inch thickness)
5. Wedge profile with integral detectable aggregate warning stripe. *(2-1/2 inch or 3 inch thickness)*
6. Closed Riser: *(2-1/2 inch thickness)*
7. Classic profile.
8. Classic profile with integral detectable aggregate warning stripe.
9. Modern profile.
10. Modern profile with integral detectable aggregate warning stripe.
11. Long-Span Closed Riser: *(3 inch thickness)*
12. Classic profile.
13. Classic profile with integral detectable aggregate warning stripe.
14. Modern profile.
15. Modern profile with integral detectable aggregate warning stripe.
16. Provide starter nosings with integral detectable warning stripe to match tread style and color.

*Note to specifier: Delete if no landings.*

1. Landings: Of size indicated or required, matching treads in color and texture.
	1. COLORS AND FINISHES:
2. Colors: Davis Colors, integral color admixture.

*Note to specifier: Select one or more of the following standard colors. Custom colors are available at additional cost.*

|  |  |  |
| --- | --- | --- |
| Sandblasted With Slag1401 Granada White1403 Santa Fe Buff1404 French Gray1405 Iceberg Green1406 Hawaiian Sand (Almond)1407 Cafe Brown1408 Espresso Brown1409 Malibu1410 Caramel1412 Agave 1413 Porcelain1416 Brick Red | Sandblasted Without Slag1801 Granada White1803 Santa Fe Buff1804 French Gray1805 Iceberg Green1806 Almond1807 Cafe Brown1808 Espresso Brown1809 Malibu1810 Caramel1812 Agave 1813 Porcelain1816 Brick Red | Broom or Aggregate \* Hawaii Standards501 \* Granada White503 Santa Fe Buff504 French Gray505 Iceberg Green506 \* Hawaiian Sand507 \* Cafe Brown508 \* Espresso Brown509 Malibu510 Caramel512 Agave 513 Porcelain516 Brick Red521 \* Kona Brown |

*Note to specifier: Delete "and landings" if landings are not required.*

1. Finishes: Walking surfaces of treads and landings shall have minimum coefficient of friction of 0.60, wet and dry.

*Note to specifier: Select one or more of the following as required.*

1. Broom
2. Exposed aggregate
3. Sandblasted

*Note to Specifier: Include or delete a factory applied sealer, (item C below*

1. Factory Application of Sealer: Factory to apply one coat of sealer to all surfaces of paving units. Sealer shall be non-staining suitable for exterior or interior use.
2. Field Application of Sealer:
3. Conform to sealer manufacturer's recommendations for application and maintenance of sealer.
	1. PHYSICAL PROPERTIES:
4. Compressive strength: Minimum 5,000 psi.
5. Size 12” wide x 2-1/2” thick or (12” wide x 3” thick for Long-Span), length as required for width of stair. *Note to Specifier: Standard widths are from 36” to 54” for 2-1/2” thick treads.* *Standard width for Long-Span treads, 3” thick, is from 49” up to 96”. (Maximum free span of 3” thick open riser treads is not to exceed 60”).*
6. Weight:
7. Open Riser: 30 pounds per square foot at 2-1/2 inches thick; 36 pounds per square foot at 3 inches thick.
8. Closed Riser: 37.2 pounds per lineal foot at 12 inch depth.
9. Long-Span Closed Riser: 48 pounds per lineal foot at 12 inch depth.
10. Landing Units: 30 pounds per square foot at 2-1/2 inches thick; 36 pounds per square foot at 3 inches thick.
11. Water absorption: Not more than 5% average, not more than 6% for any individual unit.
12. Unit size: Within 3/16 inch of designated length, width and thickness.
	1. ATTACHMENT ACCESSORIES:
13. For Bolting to Wood stringers:
14. 11 gauge galvanized steel angles, 1-5/8” x 3” x 7-1/4” long.
15. Non-corrosive threaded inserts with 3/8” bolts with flat washer and lock washer.
16. 3” x 3/8” plated lag bolts.
17. 4 gauge galvanized steel starter nosing brackets.
18. 11 guage galvanized steel (over the stringer ) angles 3” x 7 ¼” x 9”

 Bottom tread angle to be broke in field to correct height and properly bolted

 to the concrete by the installer, to fit.

1. For Welding to Steel stringers:
2. 11 gauge galvanized weld plate, 4” x 7-1/4” for 2-1/2” thick Treads.
3. 3/8” galvanized weld plate, 6” x 6” for 3” thick Long-Span Closed and Open Riser Treads.
4. Starter Nosings have a galvanized weld plate/angle (2-1/2” x 2-1/2” x 3/16”) the full length of the tread.
5. For Bolting to Steel stringers:
6. 11 gauge galvanized steel angles, 1-5/8” x 3” x 7-1/4” long.
7. 4 gauge galvanized steel starter nosing brackets.
8. Non-Corrosive threaded inserts with 3/8” bolts, flat washer and lock washer.
9. Bolting not available on Long-Span Closed and Open Riser Treads.
	1. FABRICATION:
10. Stair treads, risers and landing planks shall be hand-made, wet-cast of cement conforming to ASTM C 150, Type III, and aggregates conforming to ASTM C 33.
11. Reinforcement - Standard 2-1/2” thick Steptreads: Galvanized welded wire mesh, No. 7 and No. 10, 2 inch by 6 inch.
12. Reinforcement - Long Span Steptreads: Galvanized rebar cage.
13. Reinforcement – Landing Planks: Galvanized rebar cage.
	1. SOURCE QUALITY CONTROL:
14. Concrete for Steptreads and risers shall be tested frequently to assure that mixes provide units having not less than 5,000 psi compressive strength at 28 days (average test strength not less than 4,500 psi).

PART 3 - EXECUTION

* 1. EXAMINATION:
1. Verify that structural components of stairs are in place, aligned and level, within tolerances for proper installation of stair treads and risers, and required structural inspections have been completed.
	1. INSTALLATION - GENERAL:
2. Installation shall comply with requirements of applicable building codes and state and local jurisdictions.
3. Install stair treads aligned, level and with uniform treads and risers throughout the extent of the stair. Where cutting is necessary, use powered masonry saw.

*Note to specifier: Minor chipping of edges and corners is to be expected in handling and installing units. This should not be cause for rejection, unless it is severe.*

1. Do not install stair treads having excessively stained, defaced, or damaged faces, edges, or corners where to remain exposed. Remove dust and dirt from stair tread units using oil-free compressed air.
	1. INSTALLATION: BOLTED TO WOOD STAIR SUPPORTS:
2. Steptreads and risers: Bolt to wood stringers and blocking as indicated on approved submittals, using lag bolts supplied with the Steptreads and risers.
	1. INSTALLATION: WELDED TO STEEL STAIR SUPPORTS:
3. Weld plates on Steptreads shall be welded to structural steel stairs as indicated on approved submittals.
4. Welding shall comply with AWS D1.1, Structural Welding Code.
	1. CLEANING:
5. Clean exposed surfaces of stair treads and risers. Use cleaners appropriate for precast concrete finishes and colors. Acid based cleaners may alter finish and color.
	1. SEALING:
6. If precast concrete paving units are factory sealed, test for compatibility before applying additional sealer.
7. Follow sealer manufacturer’s instructions for application and maintenance of the sealer.

3.7 COMPLETION:

1. Protect precast concrete paving units from damage due to subsequent building operations.
2. After installation and before completion, inspect precast concrete paving units for construction damage and obtain new precast concrete paving units if required.
3. Immediately prior to final acceptance of project, clean precast concrete paving units.

END OF SECTION