

The following specification refers to the Stepstone, LLC product known as:

Large Scale CalArc Pavers

for Sand-Set Pedestrian Use Installations

Large Scale CalArc Pavers are part of the California Architectural Paver line manufactured by, Stepstone, LLC



Stepstone, LLC also manufactures Large Scale CalArc Pavers for Mortar-Set Installations that have their own unique three-part specification. If you need any additional information, please call Stepstone, LLC at 800-572-9029 or visit our website stepstoneprecast.com

July 2024

SAND-SET PRECAST CONCRETE PAVING UNITS

SECTION 321413

PART 1 ‑ GENERAL

* 1. SUMMARY
1. Perform all work required for a complete system, as indicated by the Contract Documents. Furnish all items necessary for the proper installation of the system.
2. System shall consist of precast concrete Large Scale CalArc Paving Units, for sand-set pedestrian use installation.
3. Related Sections: *Note to Specifier: Modify and/or insert appropriate sections.*
4. Section 321413.13 Interlocking Precast Concrete Unit Paving.
5. Section 321413.19 Porous Precast Concrete Unit Paving.
	1. REFERENCES
6. American Society for Testing and Materials (ASTM)

ASTM C33 Concrete Aggregates

ASTM C39 Concrete Compressive Strength

ASTM C144 Aggregate for Masonry Mortar

ASTM C150 Portland cement

ASTM C595 Standard Specification for Blended Hydraulic Cements

ASTM C642 Water Absorption, Density, Voids in Hardened Conc

ASTM C666 Rapid Freeze/Thaw Resistance of Conc

ASTM C979 Pigments for Integrally Colored Concrete

ASTM C1028 Coefficient of Friction

1. Paving installations should be designed in consultation with a qualified civil engineer, in accordance with established flexible paving design procedures.
	1. SUBMITTALS
2. Samples: Submit two full-sized samples of each type of precast concrete paving units to show the full range of color and texture of unit for selection and approval. If sealer is to be applied to precast concrete paving slab, apply sealer on one sample.

1. Warranty: Provide certified copies of manufacturer's product warranties.
2. Shop drawings (Optional)
3. Layout drawings showing pattern of pavers for each paved area, indicate pavers requiring cutting, indicate setting bed methods in each area, and indicate drainage. Include details of setting beds. Indicate details at curbs and vertical surfaces as applicable.
	1. MOCK-UP
4. Install a 6 ft x 10 ft minimum paver area as described in Article 3.2. Mock-up area to be used to determine joint sizes, lines, laying pattern, color(s) and texture of the job. Mock-up area to be the standard from which the work will be judged. Consideration will be given with regard to differences in age of materials from time of mock-up construction to the time of actual product delivery and installation.
	1. SUBSTITUTIONS
5. Refer to Section ( ) for procedures. *Note to Specifier: Insert appropriate section.*
6. Proposed substitutions: No known equal.
	1. QUALITY ASSURANCE
7. Compliance with Regulations: Comply with requirements of state and local building codes and with rules and regulations relating to building accessibility.
8. Qualifications of Manufacturer
9. Company specializing in manufacture of precast concrete paving units with a minimum of 10 continuous years of documented experience.

2. Must have a minimum of 5 years of documented experience manufacturing large-scale segmental paving units.

1. Qualifications of Subcontractor: Subcontractor shall submit evidence of skill and not less than 5 years of experience in this product type.
2. Pre-installation Conference: As directed by the Architect
3. Precast concrete paving units shall have a compressive strength of 5,000 psi minimum.
	1. DELIVERY, STORAGE AND HANDLING
4. 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.
5. Handle and store precast concrete paving units in accordance with manufacturer's recommendations.
	1. WARRANTY
6. Provide warranty covering precast concrete paving units against defects in material and workmanship for a period of 5 years. Unusual abuse and neglect are excepted.

PART 2 - PRODUCTS

* 1. MANUFACTURER

Stepstone, LLC

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* 1. MATERIALS
1. Precast concrete paving units shall be precast concrete Large Scale CalArc Pavers, consisting of Portland cement, aggregate, and color admixtures.
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. Precast Concrete Paving Unit style
7. Large Scale CalArc Pavers – 2-1/2” thick

*(Note to Specifier: Refer to Size and Finish Schedule in Section 2.4.B)*

1. Pavers shall have radius top edge to reduce chipping.
2. All pavers have drafted sides
	1. COLORS AND FINISHES
3. Colors: Davis Colors (or equal), integral color admixture. Integral color shall be throughout entire product. Finish color shall not be added as a face mix.

*Note to Specifier: Select one or more of the standard colors. Custom colors are available.*

|  |  |
| --- | --- |
| With Slag1401 Granada White1404 French Gray1405 Iceberg Green1406 Almond1407 Cafe Brown1410 Caramel1412 Agave1413 Porcelain1416 Brick Red1421 Kona1424 Pebble1425 Adobe | Without Slag1801 Granada White1804 French Gray1805 Iceberg Green1806 Almond1807 Cafe Brown1810 Caramel1812 Agave1813 Porcelain1816 Brick Red1821 Kona1824 Pebble1825 Adobe |

1. Finishes: All finishes shall be sandblasted. Walking surfaces of precast concrete paving units shall have minimum coefficient of friction of 0.60, wet and dry.

*Note to Specifier: Select one or more of the finishes listed below.*

1. Light Sandblasted
2. Medium Sandblasted
3. Heavy Sandblasted

*Note to Specifier: Include or delete a factory applied sealer, (item C below). Factory applied sealer provides minimal protection against freeze-thaw climates.*

*Field applied sealer is mandatory in freeze-thaw climates. Specifier shall indicate if field applied sealer is required.*

1. Factory Application of Sealer: Factory apply one coat of penetrating sealer to all surfaces of paving units. Sealer shall be non-staining, penetrating material, suitable for exterior or interior use, type which does not discolor or darken the surface.
2. Field Application of Sealer:
3. In geographic regions exposed to freeze-thaw conditions field-applied sealing the entire paving area, including joints, after installation is mandatory.
4. Conform to sealer manufacturer's recommendations for application and maintenance of sealer.
	1. PHYSICAL PROPERTIES
5. Compressive strength: Minimum 5,000 psi.

*Note to Specifier: Select one or more of the sizes and finishes listed below.*

1. Size and Finish Schedule

|  |  |  |
| --- | --- | --- |
| Size | Sandblast | Exposed Aggregate |
| 5-7/8” x 11-7/8” x 2-1/2” | X | X |
| 5-7/8” x 17-7/8” x 2-1/2” | X | X |
| 5-7/8” x 23-7/8” x 2-1/2” | X | X |
| 5-7/8” x 35-7/8” x 2-1/2” | X | X |
| 5-7/8” x 47-7/8” x 2-1/2” | X | X |
| 7-7/8" x15-7/8"x 2-1/2" | X | X |
| 7-7/8" x 23-7/8"x 2-1/2" | X | X |
| 7-7/8" x 35-7/8"x 2-1/2" | X | X |
| 7-7/8" x 47-7/8"x 2-1/2" | X | X |
| 11-7/8” x 11-7/8” x 2-1/2” | X | X |
| 11-7/8” x 17-7/8” x 2-1/2” | X | X |
| 11-7/8” x 23-7/8” x 2-1/2” | X | X |
| 11-7/8” x 35-7/8” x 2-1/2” | X | X |
| 11-7/8” x 47-7/8” x 2-1/2” | X | X |
| 11-7/8” x 59-7/8” x 2-1/2” | X | X |
| 17-7/8” x 17-7/8” x 2-1/2” | X | X |
| 17-7/8” x 23-7/8” x 2-1/2” | X | X |
| 17-7/8” x 35-7/8” x 2-1/2” | X | X |
| 17-7/8” x 47-7/8” x 2-1/2” | X | X |
| 23-7/8” x 23-7/8” x 2-1/2” | X | X |
| 23-7/8” x 35-7/8” x 2-1/2” | X | X |
| 23-7/8” x 47-7/8” x 2-1/2” | X | X |
| 23-7/8” x 59-7/8” x 2-1/2” | X | X |
| 35-7/8” x 35 7/8” x 2-1/2” | X | X |
| 29-7/8” x 29-7/8” x 2-1/2” | X | X |
| 11-7/8” x 35-7/8” x 2-1/2” (False Joint) | X | X |
| 11-7/8” x 47-7/8” x 2-1/2” (False Joint) | X | X |
| 23-7/8” x 35-7/8” x 2-1/2” (False Joint) | X | X |
| 23-7/8” x 47-7/8” x 2-1/2” (False Joint) | X | X |

1. Unit size: Within 1/8” of designated length, width and thickness.
2. Weight: Large Scale CalArc Paver: 2-1/2” thick -28 pounds per square foot.
3. Water absorption: Not more than 6.0 % average, not more than 7.0 % for any individual unit for standard colors.
4. Large Scale CalArc Pavers will contain on average 5% entrained air, with no individual piece under 4%.
5. Resistance to Freeze-Thaw: Large Scale CalArc Pavers will resist 300 freeze thaw cycles in accordance with ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
	1. FABRICATION
6. Large Scale CalArc Pavers shall be fabricated of cement conforming to ASTM C 150, Type III, aggregates conforming to ASTM C 33, and pigments for integrally colored concrete conforming to ASTM C979.
	1. SOURCE QUALITY CONTROL
7. Concrete for Large Scale CalArc Pavers 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).
8. Minor chips, hairline cracks, air voids and slight variations in color and finish are normal in precast concrete. When viewed in typical daylight illumination from a distance of 20 feet, minor chips, hairline cracks and air voids that cannot be seen with the naked eye are not grounds for rejection.

PART 3 - EXECUTION

1. EXAMINATION
2. Contractor and/or Architect/Engineer shall certify that sub-grade preparation, compacted density and elevations conform to the specifications. Compaction of the soil sub-grade to at least 98% Standard Proctor Density per ASTM D 698 is recommended. Stabilization of the sub-grade and/or base may be necessary with weak or saturated sub-grade soils. The Contractor and/or Architect/Engineer should inspect sub-grade preparation, elevations and conduct density tests for conformance to specifications.
3. Contractor and/or Architect/Engineer shall verify that geotextiles, if applicable, have been placed according to specifications.
4. Contractor and/or Architect/Engineer must verify that aggregate base materials, thickness, compaction, surface tolerances, and elevations conform to the specifications.
5. Contractor and/or Architect/Engineer must verify location, type, installation and elevations of edge restraints around perimeter of area to be paved. Perimeter containment must surround the entire paving area.
6. Contractor and/or Architect/Engineer must verify base is dry, uniform, even and ready to support sand, precast concrete paving units, and imposed loads.
7. Installing the bedding sand and precast concrete paving unit installation constitutes acceptance of base and edge restraint installation.

3.2 INSTALLATION – GENERAL:

1. Pavers set on surface of over a 5 degree (or 8.33%) slope requires specific engineering for containment edge support and drainage of the paver system.
2. Installation shall comply with requirements of applicable building codes and state and local jurisdictions.
3. Spread the bedding sand evenly over the base course and screed to a nominal 1” thickness. Do not exceed 1-1/4” thickness.
4. **For all Large Scale CalArc Paver sizes other than 5-7/8 inch wide**: Lay the precast concrete paving units on top of screeded sand in the pattern as defined on the drawings. Maintain straight pattern lines.
5. Check sand bed for deviations in elevation that exceed +/- 3/8” over a 10 foot straightedge. If there are any deviations that exceed this then the elevations shall be corrected with more base material, not more bedding sand.
6. Use low amplitude, high frequency plate vibrator to compact the pavers into the sand bed. CalArc pavers to be covered with an isolation layer, for example plywood sheets (minimum of 7/16 inch thick), to protect against surface scratching and evenly distribute the impact load during compaction. Other isolation techniques, such as a roller attachment or a dense polyurethane sheet covering the entire plate may be used, if they protect the CalArc paver surface and avoid compactor impact from cracking the CalArc pavers.

1. **For all 5-7/8 inch wide Large Scale CalArc Pavers**: Use low amplitude, high frequency plate vibrator to compact the sand bed.
2. After compacting the sand bed, check bed for deviations in elevation that exceed +/- 3/8” over a 10 foot straightedge. If there are deviations that exceed this then the elevations should be corrected with more base material, not with more bedding sand.
3. After compacting the sand bed, rake the compacted surface and re-screed the raked sand before installing the pavers.
4. Lay the precast concrete paving units, on top of the re-screeded sand in the pattern as defined on the drawings. Maintain straight pattern lines.
5. Typical joints between the pavers at the top of paving surface shall be roughly 3/16” to 1/4” wide. Refer to Section 2.4.C for standard dimensional paver tolerances. (Note: Recommended minimum spacing at bottom of pavers is 1/16”.”)
6. Fill gaps at edges of the paved area with cut precast concrete paving units
7. Fill joints with sand.

*Note to Specifier: Select one of the following joint sand options:*

1. Joint sand to meet specifications ASTM C 144 mixed with joint sand stabilizer per manufacturer’s recommendations.
2. Polymeric sand per manufacturer’s recommendations.
	1. CLEANING:
3. Clean exposed surfaces of precast concrete paving units. Use cleaners appropriate for precast concrete finishes and colors. Acid based cleaners will alter finish and color.
	1. SEALING:
4. Field-applied sealer for the prevention of freeze-thaw is optional in mild climates. If precast concrete paving units are factory sealed, test for compatibility before applying additional sealer.
5. In geographic regions exposed to freeze-thaw conditions field-applied sealing the entire paving area, including joints, after installation is mandatory in order to maintain Stepstone's warranty. Follow sealer manufacturer’s instructions for application and maintenance of the sealer.
	1. COMPLETION:
6. Protect precast concrete paving units from damage due to subsequent building operations.
7. After installation and before completion, inspect precast concrete paving units for construction damage and obtain new precast concrete paving units if required.
8. Immediately prior to final acceptance of project, clean precast concrete paving units.

END OF SECTION