

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

Pavers for Sand-Set Vehicular Use Installations



Stepstone, LLC also manufactures 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 321412

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 Paving Units for sand-set pedestrian and vehicular use installations.
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 Concrete

ASTM C666 Rapid Freeze/Thaw Resistance of Concrete

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.
3. Warranty: Provide certified copies of manufacturer's product warranties.
4. Shop drawings (Optional)
5. 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
6. Install a 3 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
7. Refer to Section ( ) for procedures. *Note to Specifier: Insert appropriate section.*
8. Proposed substitutions: No known equal.
   1. QUALITY ASSURANCE
9. Compliance with Regulations: Comply with requirements of state and local building codes and with rules and regulations relating to building accessibility.
10. Qualifications of Manufacturer: Company specializing in the manufacture of precast concrete paving units with a minimum of 10 continuous years of documented experience.
11. Qualifications of Subcontractor: Subcontractor shall submit evidence of skill and not less than 5 years of experience in this product type.
12. Pre-installation Conference: As directed by the Architect
13. Precast concrete paving units shall have a compressive strength of 5,000 psi minimum.
    1. DELIVERY, STORAGE AND HANDLING:
14. 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.
15. Handle and store precast concrete paving units in accordance with manufacturer's recommendations.
    1. WARRANTY
16. 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 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:

*(Specifier shall select style and confirm with size chart in Section 2.4.B)*

1. Narrow Modular Pavers – 4” thick only
2. False Joint Narrow Modular Paver – 4” thick
3. Diamond Paver – 4” thick
4. Wave Paver – 4” thick
5. Pavers shall have radius top edge to reduce chipping.
6. All pavers have drafted sides
   1. COLORS AND FINISHES
7. 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 Slag  1401 Granada White  1404 French Gray  1405 Iceberg Green  1406 Almond  1407 Cafe Brown  1410 Caramel  1412 Agave  1413 Porcelain  1416 Brick Red  1421 Kona  1424 Pebble  1425 Adobe | Without Slag  1801 Granada White  1804 French Gray  1805 Iceberg Green  1806 Almond  1807 Cafe Brown  1810 Caramel  1812 Agave  1813 Porcelain  1816 Brick Red  1821 Kona  1824 Pebble  1825 Adobe |

1. Finishes
2. All finishes shall be sandblasted.
3. 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 applied 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 | Paver Type | Sandblast  Finish | False Joint NMP | Residential  Use | Commercial  Use |
| 3” X 9” X 4” | Narrow Modular Paver | X |  | X | X |
| 3” X 12” X 4” | Narrow Modular Paver | X |  | X | X |
| 3” X 18” X 4” | Narrow Modular Paver | X |  | X |  |
| 6” X 12” X 4” | Narrow Modular Paver | X |  | X | X |
| 6” X 18” X 4” | Narrow Modular Paver | X | X | X |  |
| 12” X 12” X 4” | Narrow Modular Paver | X |  | X | X |
| 12” X 12” X 4” | Narrow Modular Paver | X | X | X | X |
| 24” X 4” X 12” X 4” | Diamond Paver | X |  | X |  |
| 24” X 6” X 12” X 4” | Diamond Paver | X |  | X |  |
| 3-7/8”X 12" X 4" | Wave Paver | X |  | X | X |

1. Unit size: Within 1/8” of designated length, width and thickness.
2. Integrated spacer tabs allow Narrow modular pavers to be placed together and maintain even spacing throughout the installation. Minor adjustments may be necessary to maintain consistent joint lines.
3. Weight: 4” thick - 44 pounds per square foot.
4. Water absorption: Not more than 6.0 % average, not more than 7.0 % for any individual unit for standard colors.
5. Pavers will contain on average 5% entrained air, with no individual piece under 4%.
6. Resistance to Freeze-Thaw: 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
7. Pavers shall be hand-made, wet-cast 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
8. Concrete for 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 7,200 psi).
9. 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

1. 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.
2. Contractor and/or Architect/Engineer shall verify that geotextiles, if applicable, have been placed according to specifications.
3. Contractor and/or Architect/Engineer must verify that aggregate base materials, thickness, compaction, surface tolerances, and elevations conform to the specifications.
4. 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.
5. Contractor and/or Architect/Engineer must verify base is dry, uniform, even and ready to support sand, precast concrete paving units, and imposed loads.
6. Installing the bedding sand and precast concrete paving unit installation constitutes acceptance of base and edge restraint installation.
   1. INSTALLATION –GENERAL
7. 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.
8. Installation shall comply with requirements of applicable building codes and state and local jurisdictions.
9. Pavers sizes approved for vehicular use shown in chart below:

|  |  |  |  |
| --- | --- | --- | --- |
| Size | Paver Type | Vehicular  Light Residential | Vehicular  Commercial Use |
| 3” X 9” X 4” | Narrow Modular Paver | X | X |
| 3” X 12” X 4” | Narrow Modular Paver | X | X |
| 3” X 18” X 4” | Narrow Modular Paver | X |  |
| 6” X 12” X 4” | Narrow Modular Paver | X | X |
| 6” X 18” X 4” | Narrow Modular Paver | X |  |
| 12” X 12” X 4” | Narrow Modular Paver | X | X |
| 12” X 12” X 4” | Narrow Modular Paver | X | X |
| 24” X 4” X 12” X 4” | Diamond Paver | X |  |
| 24” X 6” X 12” X 4” | Diamond Paver | X |  |
| 3-7/8” X 12" X 4" | Wave Paver | X | X |

1. Spread the bedding sand evenly over the base course and screed to a nominal 1 in. thickness. Do not exceed 1-1/4” thickness.
2. Lay the precast concrete paving units on top of compacted sand in the pattern as defined on the drawings. Maintain straight pattern lines.
3. Use low amplitude, high frequency plate vibrator to compact the pavers into sand bed. Provide separation layer between hard plate of vibrator and paver surface to avoid damaging paver surface, for example plywood sheets, (7/16” min thickness), to protect against surface scratching and evenly distribute the impact load during compaction. Pass vibrator across the short dimension of the paving units.
4. 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.
5. Fill gaps at edges of the paved area with cut precast concrete paving units
6. 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