

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

Narrow Modular Pavers (NMP)

for Mortar-Set Concrete Vehicular Installations

Narrow Modular Pavers are part of the California Architectural Paver line manufactured by, Stepstone, Inc.



Stepstone, Inc. also manufactures

Narrow Modular Pavers

for Sand-Set Installations that have their own unique three-part specification. If you need any additional information please call Stepstone, Inc. at 800-572-9029 or visit our website www.stepstoneinc.com.

December 2021

MORTAR-SET TILING WITH PRECAST CONCRETE PAVING UNITS (NMP)

SECTION 093236

PART 1 ‑ GENERAL

1.1 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 Narrow Modular Paving Units, (NMP), with Portland cement mortar-set on an engineered concrete slab for pedestrian or vehicular use installations.
3. Related Sections: *Note to Specifier: Modify and/or Insert appropriate sections.*
	1. Section 093036 Concrete tiling
	2. Section 093033 Stone tiling
	3. Section 036000 Grouting
	4. REFERENCES
4. 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. Concrete Tile Manufacturer’s Association (CTMA) Handbook for Concrete Tiles.
	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)
	1. 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.

1.4 MOCK-UP

1. 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.

1.5 SUBSTITUTIONS

1. Refer to Section ( ) for procedures.

 *Note to Specifier: Insert appropriate section.*

1. Proposed substitutions: No known equal.

1.6 QUALITY ASSURANCE

1. Compliance with Regulations: Comply with requirements of state and local building codes and with rules and regulations relating to building accessibility.
2. Qualifications of Manufacturer: Company specializing in manufacture of precast concrete paving units with a minimum of 10 continuous years of documented experience.
3. Qualifications of Subcontractor: Subcontractor shall submit evidence of skill and not less than 5 years of experience in this product type.
4. Pre-installation Conference: As directed by the Architect
5. Precast concrete paving units shall have a compressive strength of 5,000 psi minimum.

1.7 DELIVERY, STORAGE AND HANDLING

1. 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.
2. Handle and store precast concrete paving units in accordance with manufacturer's recommendations.

1.8 WARRANTY

1. 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

2.1 MANUFACTURER

Stepstone, Inc.

17025 South Main Street

Gardena, CA 90248

(310) 327-7474

(800) 572-9029

FAX (310) 217-1424

[www.stepstoneinc.com](http://www.stepstoneinc.com)

2.2 MATERIALS

1. Precast concrete paving units shall be Narrow Modular Pavers, (NMP), precast concrete, consisting of Portland cement, aggregate, and color admixtures.
	1. Portland Cement: ASTM C 150, Type III, high early strength.
	2. Aggregate: ASTM C 33.
	3. Color Admixture: By Davis Colors, or equal, as required to achieve color as selected.
	4. Aggregate for exposed aggregate surface: As selected.
	5. Portland Cement Mortar that meets or exceeds ANSI A118.4 requirements when mixed with water or a latex admixture, and is designed for installation of large format tile – Pedestrian and vehicular Installation.
	6. Grout that meets or exceeds ANSI A118.7 when mixed with water or a latex admixture.
2. Precast concrete paving unit style

*Note to Specifier: Select one or more paving unit style and thickness.*

* 1. Narrow Modular Pavers – 4” thick (Refer to Size and Finish Schedule in Section 2.4.B)
	2. False Joint Narrow Modular Paver – 4” thick
	3. Pavers shall have radius top edge to reduce chipping.
	4. All pavers have drafted sides

2.3 COLORS AND FINISHES

1. 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
	1. All finishes shall be sandblasted.
	2. 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
	1. In geographic regions exposed to freeze-thaw conditions field-applied sealing the entire paving area, including joints, after installation is mandatory.
	2. Conform to sealer manufacturer's recommendations for application and maintenance of sealer.

2.4 PHYSICAL PROPERTIES

1. 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 | False Joint NMP |
| 2-7/8" x 8-7/8" x 4” | X |  |
| 2-7/8" x 11-7/8" x 4” | X |  |
| 5-7/8” x 11-7/8” x 4” | X | X |
| 11-7/8" x 11-7/8" x 4” | 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
	1. Narrow Modular Paver: 4 inches 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. Narrow Modular Pavers will contain on average 5% entrained air, with no individual piece under 4%.
6. Resistance to Freeze-Thaw: Narrow Modular Pavers will resist 300 freeze thaw cycles in accordance with ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

2.5 FABRICATION

1. Narrow Modular 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.

2.6 SOURCE QUALITY CONTROL

1. Concrete for Narrow Modular 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).
2. 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

3.1 EXAMINATION

1. Examine all surfaces.
2. Verify all dimensions of in-place and subsequent construction.
3. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work.
4. Do not proceed with the work until unsatisfactory conditions have been corrected.
5. Installation of precast concrete pavers and associated construction constitutes acceptance of the adjacent and underlying construction.

3.2 INSTALLATION - GENERAL

1. Installation shall comply with requirements of applicable building codes and state and local jurisdictions.
2. Install Narrow Modular Pavers in a mortar bed in accordance with the specifications defined in the CTMA Handbook for Concrete Tiles, available at <http://www.stepstoneinc.com/docs/ctma_handbook.pdf> Maintain straight pattern lines.
3. 100% paver bonding coverage is recommended, with a minimum acceptable coverage of 95% for exterior installations or 80% for interior installations. Backbuttering is mandatory to obtain a minimum of 95% coverage.
4. Clean any mortar off the face of the pavers immediately. Never leave a ‘cement haze’ on the concrete paver’s surface.
5. Provide for expansion and control joints as specified per TCA detail EJ-171-current year. Follow expansion and control joint materials manufacturer’s instructions.
6. 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”.”)

*Note to Specifier:* Narrow *Modular Paver joints are typically narrow and deep therefore grouting the joints is not typical. Items 3.2.G and 3.2.H are provided if grout is used in the Narrow Modular Paver joint. Refer to item 3.2.I and 3.2.J if using sand joint in a mortar-set installation.*

1. Place grout between California Architectural Pavers in accordance with the specifications defined in the CTMA Handbook for Concrete Tiles, available at <http://www.stepstoneinc.com/docs/ctma_handbook.pdf>
2. Narrow Modular Pavers are concrete and the cementitious material in grout will permanently bond to the pavers. Clean any grout off the face of the pavers immediately. Never leave a 'cement haze' on the concrete paver’s surface.

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

1. Fill joints completely with polymeric joint sand designed for use over an impervious base, such as a concrete slab. Follow polymeric joint sand manufacturer recommendations for installation of joint sand. Note: do not allow polymeric sand residue to stain/discolor the surface of the paver.
2. After sand is compacted seal sand with sealer appropriate for joint sand and concrete pavers. Follow sealer manufacturer recommendations for installation of sealer.

3.3 CLEANING:

1. Clean exposed surfaces of precast concrete paving units. Use cleaners appropriate for precast concrete finishes and colors. Acid based cleaners will permanently alter finish and color.

3.4 SEALING

1. 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.
2. 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.

3.5 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