EV Materials Corporation

1305 N. Knollwood Circle, Anaheim, CA 92801
T: 657-549-0255 F: 949-203-2235 www.evmaterials.com; info@evmaterials.com

EV 2nd Generation Wind Lock Down System Installation Guide Specifications

Section 07 555

Part 1 – General

1.01 RELATED DOCUMENTS

A. Drawings and general provision of contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work in this Section.

1.02 SUMMARY

A. Perform all work required to complete as indicated by the Contract Documents and furnish all supplementary items necessary for the proper installation of EV Porcelain Paver s.
B. EV Porcelain Paver and pedestal support systems, if used, are to be placed over roofing/waterproofing systems where indicated. Standard Porcelain Paver System to comply with IBC 1504.4 – ANSI/SPRI RP-4 for wind uplift.
C. Standard EV Porcelain Paver with Wind Lock Down System to meet ultimate design wind speed of 188 mph per ASCE 7-05 Section 6.6 Method 3 using full-scale wind tests. Full-scale wind tests comply with IBC 1504.4- ANSI/SPRI RP-4 and IBC 1609.1.1.2. Pedestal components are to meet ASTM D635 burn rate category CC1.
D. Related Sections include the following:
    1. Section 07 00 00 Modified Bituminous Sheet Membrane Waterproofing.
    2. Section 07 10 00 Waterproof Membrane.
    3. Section 07 10 00 Drains in Waterproofed Concrete Slabs above Conditioned Space

1.03 REFERENCES

A. Testing Standards

1. ASTM C-648-04 - Breaking Strength of Ceramic Tile.
2. ASTM C-293 - Concentrated Load Test
3. ASTM C-170-06 - Compressive Strength
4. ANSI A137.1 - Dynamic Coefficient of Friction
5. ASTM C-1028-07 - Static Coefficient of Friction
6. ASTM D-790 - Flexural Properties of Plastics
7. ASTM D-638 - Tensile Test of Plastics
8. ASTM D-635-14 - Rate of Burning of Plastics
9. CISCA Section 5- Pedestal Axial Load

SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data:
    1. Manufacturer's data sheets on each product to be used, including preparation instructions, installation methods, storage, handling requirements and recommendations.
    2. Submit test results for compliance with performance requirements specified herein.
    3. Submit written instructions for recommended maintenance.
C. Shop Drawings:
    1. Layout drawings of each paved area showing the pattern of pavers, indicate pavers requiring cutting, drainage patterns, drains and relationship of paving joints. Include details of setting beds, noting all materials and their thickness, and show details at curbs and vertical surfaces.
    2. Details of custom (nonstandard) curbs and stair tread/risers, include methods of installation.
D. Samples:
    1. Submit sample to be selected by Architect / Engineer / Landscape Architect / Owner from manufacturer's available standard and custom colors.

1.05QUALITY ASSURANCE

A. **Manufacturer Qualifications:** All products covered under this Section shall be produced by a manufacturer, unless otherwise specified, with a minimum of five (5) year experience manufacturing similar products.
B. **Installer Qualifications:** Installer shall have a minimum of five (5) years proven specialized construction experience with this product and be capable of estimating and building from blueprint plans and details, in addition to proper material handling. All work must comply with local, state/provincial licensing and bonding requirements.

1.06 MOCK-UP INSTALLATION

A. Prior to the start of paver work, construct mock-up of each type of paver size and pattern area for the owner and architect to review. The mock-up will be at the project site or at a location mutually agreed to by the owner and contractor.
    1. Construct the mock-up installation in a minimum 4-foot by 4-foot area with all setting beds, joints, edge and curb details as shown on the drawings.
    2. After review of the mock-up, it will be retained and used as a standard of quality for the paver work. At completion of the work, remove the mock-up installations and related materials from the project site. If the mock-ups are incorporated in the actual construction, record their locations and sizes on the actual built record drawings for the project.

1.07 DELIVERY, STORAGE AND HANDLING

A. In accordance with provisions of Section 01 60 00.
B. Porcelain pavers to be banded on pallets and delivered in original unopened packaging with legible manufacturer identification, manufacturing number and manufacture date.
C. Protect pavers during shipment, storage and construction against damage.

1.08 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity and ventilation). Do not install products under adverse environmental conditions.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer:
   Minimum 5 year experience manufacturing similar products.
B. Substitutions: Not permitted.

2.02 MATERIAL REQUIREMENTS

A. The EV 2nd Generation Wind Lock Down System shall include the following components:
   1. EV Porcelain Paver s,
   2. EV Pedestals,
   3. Stainless Steel sheets,
   4. EV Modified spacer disk and L-Shaped spacers.

2.03 PERFORMANCE REQUIREMENTS*

**Performance Requirements based on 24"x24"x3/4" porcelain paver*

A. *Paver Compressive Strength:* (ASTM C-170) The average compressive strength shall not be less than 11,000 psi with no individual unit less than 10,000 psi.
B. *Paver Flexural Strength:* (ASTM C-648-04) Shall not be less than 2400 psi.
C. *Paver Center Load:* (ASTM C-293) Porcelain paver units shall have a tested center load capacity of 2,500 lbs.
D. *Static Coefficient of Friction:* (ASTM C-1028-07): Wet: $\geq$ 0.70 and Dry: $\geq$ 0.90
E. *Sizing Dimensions:* Shall not differ by more than 1/16 inch (1.6 mm) from width, height, length or thickness. Unit shall conform to a true plane and not differ by more than 1/16 inch (1.6 mm) in either concave and/or convex warpage.
F. *Pedestal fire rating:* (ASTM D-635-15): CC1
G. *Wind Uplift Resistance:* (UL 580): Class 90 (maximum combined uplift pressure of 105 psf, maximum wind velocity of 188mph)

2.04 INSTALLATION MATERIALS

A. Components and Materials:
   1. EV pedestals: Plastic adjustable pedestals that ranging from 0.5 to 52 inches in heights. Slope compensation up to 5 degrees. Outside base dimension of 7.5" diameter for T-series pedestals (up to 22" height), and 10.25" diameter for K-series pedestals (up to 52" height). Maximum static load per T-series pedestal is 2300 lbs, and maximum static load per K-series pedestal is 5000 lbs.
   2. Burn Rates of EV plastic pedestal: meet burn rate category CC1 per ASTM D635-14 for plastic materials.
   3. EV Wind Lock Down System: The EV Wind Lock Down System consists of Stainless

Steel sheet that have tabs, modified spacer disk with L-Shaped spacer tabs that fit on the top of EV Pedestals.

B. Basic Use:
    1. EV Porcelain Paver s are designed for exterior application on roof decks, pool decks, plazas, parking garages, terraces and other flat or sloped surfaces structurally sound with required dead load capacity.
    2. The standard paver is an open joint system and will drain all water to waterproofing/roofing system below.
    3. The EV Wind Lock Down system complies with above sections.
C. Design Wind Speed
    1. UL 580 test has shown the EV Wind Lock Down System reaches an ultimate design wind speed of 188 mph. Paver units used in UL 580 test were 2 feet by 2 feet, 3/4 inches thick in size.
    2. The EV Wind Lock Down System provides a multiple paver static lift resistance to uplift. Factors of safety are computed based on specific wind uplift pressures generated at each paver system location on the building.

2.5 INSTALLATION MATERIALS

A. Pedestals and Accessories
    1. Pedestal Systems:
        a. EV Pedestals: Accommodates various pitches and height changes of the project area. Unit has outside dimension of 7.75 inches diameter (T-series) and 10.25 inches diameter (K-series). The adjustable pedestal heights ranging from 1/2 inches to a maximum of 52 inches.
        b. EV Wind Lock Down system: The EV Wind Lock Down System consists of Stainless Steel sheet that have tabs, modified spacer disk with L-Shaped spacer tabs that fit on the top of EV Pedestals.

    2. Base slop corrector and slope shim:
        a. Base slop corrector can be turned to adjust slope from 1 to 5 degree. The base of the pedestal is designed to fit into the Base slope corrector.
        b. Rubber slop shim is a round disk that is thicker on one side. Each slope shim can be used to adjust 1 degree slope.
    3. EV Edge Spacer:
        a. EV Edge Spacer fits on top of EV Pedestals. The Edge Spacer provides tabs between pavers and perimeter walls and prevents pavers from hitting the walls. Recommended space between wall and paver is 1/8”. Therefore the thickness of the tabs are also 1/8”.

PART 3 – EXECUTION

3.01 INSPECTION

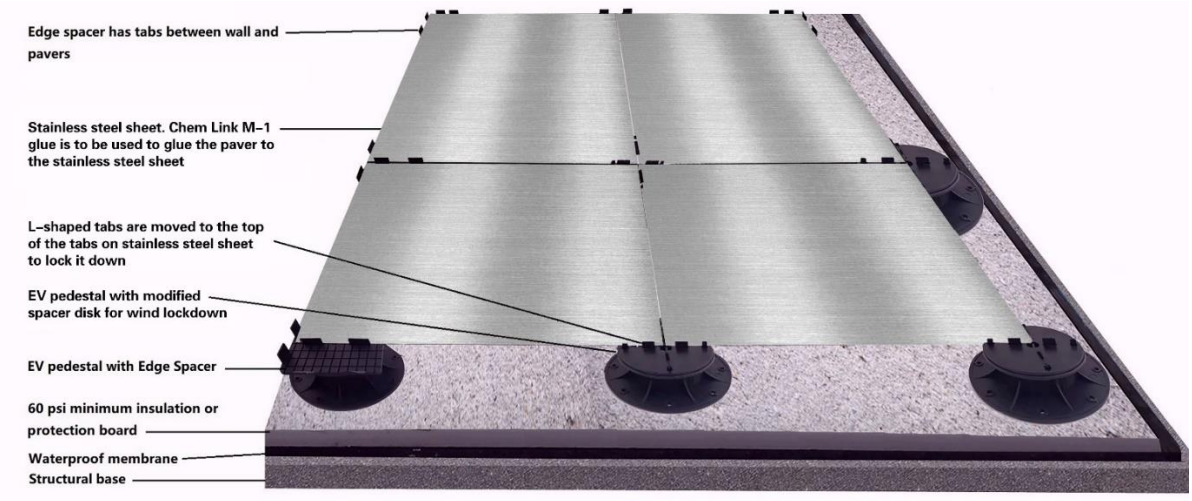
A. Examine all jobsite surfaces to receive the parts of the paving materials. Notify the contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected. Installation of EV Porcelain Paver

s or EV Pedestals and associated construction constitutes acceptance of the adjacent and underlying construction.

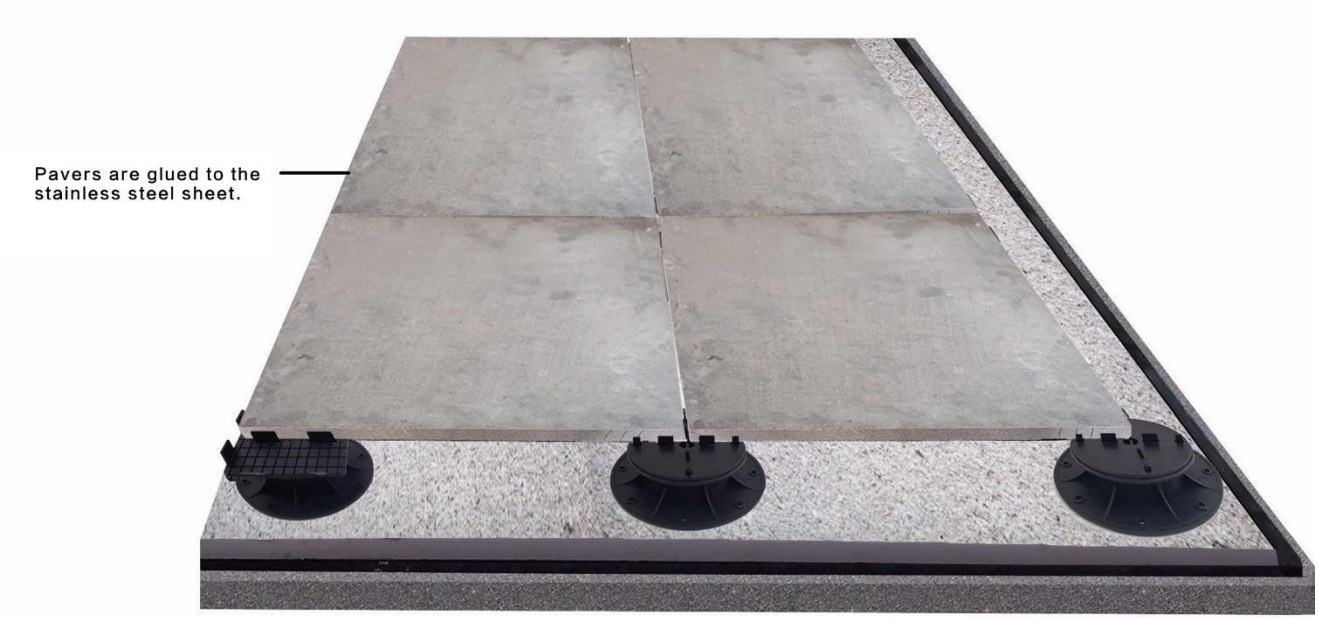
3.02 INSTALLATION OF LOK DOWN SYSTEM

A. Install in accordance with EV Materials Corporation:

1. Install in accordance with contributing manufacturer's instructions. Installation requirements vary for each individual project site. Pavers used, pattern, grid layout, starting point and finished elevation should be shown on plan view shop drawings which have been prepared and approved by the designer, installing contractor and/or owner.
2. Inspection of deck and fixed elevation locations. All height or location problems to be corrected before installation.
3. Compare layout of deck to shop drawings or architectural drawings. All variances of field conditions to drawings to be reviewed and corrected prior to starting installation.
4. Set EV pedestals as a set of grid patterns.
5. Set EV Edge spacers on top of pedestals around perimeters.
6. Install EV Modified Spacer Disk (with 4 L-shaped tabs) on top of the pedestals that are not along the perimeters. The L-shaped tabs are used to lock down Stainless Steel sheet to the pedestals.
7. Level surface installation by turning each pedestal to adjust its height. No variances to system allowed.
8. Minor height and pitch adjustments to pedestal are handled with 1mm or 2mm rubber shims.
9. Rubber noise reduction pad can be placed on the bottom of the pedestals to reduce noise from walking (optional).
10. Place Stainless Steel sheet on top of the pedestals, move the L-shaped tabs to lock the Stainless Steel sheet and apply Chem Link M-1 glue on top of the Stainless Steel sheet.
11. Set paver on top of the Stainless Steel sheet and press it down.



Typical EV Wind Lock Down System Installation



B. Placement Tolerance:
    1. Maximum of 1/16-inch (1.6 mm) height variation between adjacent pavers.
    2. Individual pavers shall not vary more than 1/16 inch (1.6 mm) from level across width of the paver.
    3. Paved areas shall not vary more than 1/4 inch (6 mm) in a distance of 10 feet (3 m) measured at any location and in any direction.
    4. The surface elevation of pavers shall be 1/8 inch to 1/4 inch (3 mm to 6 mm) above adjacent drainage inlets, concrete collars or channels.
    5. Joints between pavers to be greater than 1/8 inch (3.5 mm), but no more than 3/16" (5mm).

3.3 CLEANING AND PROTECTION

A. Wash entire surface with neutral cleaner, rinse with clean water and allow to dry thoroughly.