



MBRICO

**Mbrico Porcelain Tile Roof
Deck System Specification
Guidelines**



SECTION 1 - OVERVIEW

1. MBRICO SUMMARY

- 1.1. Furnish a complete Mbrico Porcelain Deck Paver, Mbrico Track and Adjustable Pedestals roof deck support system with a minimum height of 1 7/8” and maximum system height of up to 40 inches.

1.2 TESTING & REFERENCES

- 1.2.1 Tile Council of North America (TCNA) & American Society for Testing and Materials (ASTM)
- 1.2.2 ASTM C484 – 99 (2014): “Thermal Shock Resistance of Glazed Ceramic Tile”
- 1.2.3 ASTM C648-04 (2014): “Standard Test Method for Breaking Strength of Ceramic Tile”
- 1.2.4 ASTM C674-13: “Standard Test Methods for Flexural Properties of Ceramic Whiteware Materials”
- 1.2.5 ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics Insulating
- 1.2.6 ISO 10545-5: “Determination of Impact Resistance by measurement of Coefficient of Restitution”
- 1.2.7 Flame ASTM E84: "Surface Burning Characteristics"
- 1.2.8 Wind ANSI: Wind Design Standard for Edge Systems used in Low Slope Roof Systems
- 1.2.9 ASTM E2768: "30 Minute Flame Tunnel Test"

Contact Mbrico for additional TCNA, ASTM and Wind-Up Lift Testing Requirements and Specifications

1.3 MBRICO SUBMITTALS

- 1.3.1 Samples:
 - 1.3.1.1 Porcelain Pavers: Submit samples for type, color and texture required.
 - 1.3.1.2 Pedestals: Submit sample of each pedestal & support component required.
 - 1.3.1.3 Track systems: Submit sample of each track component required.
- 1.3.2 Shop Drawings:
 - 1.3.2.1 Submitted by contractor showing all components required for the paver & pedestal requirements. Shop drawings shall include plan drawings showing layout of all paver areas and detail drawings showing how the various components of the system fit together. Include manufacturer’s literature completely describing all components of the paver pedestal systems and giving detailed installation recommendations and instructions. Also included detailed installation drawings for all Mbrico Deck Porcelain Pavers.
 - 1.3.2.2 For Wind Up Lift Projects Mbrico will provide drawings for engineer approval at cost. All wind load requirements and specifications are to be determined by project engineer and provided to Mbrico. Wind Load parameters required are to be supplied entirely by customer.
- 1.3.3 Installer Qualifications:
 - 1.3.3.1 Mbrico recommends that consumers contact a qualified installer in their area prior to placing an order to ensure all measurements, order quantities and installation is done accurately. Mbrico is a tile decking product manufacturer and tile distributor. All installations are done by a third-party installer of the consumer’s choice.
- 1.3.4 Special Consideration:
 - 1.3.4.1 The installer and or subcontractor must assume the responsibility for and take into consideration:

(1) the structural capability and adequacy of the structure to carry the dead and live load weight(s) involved, and

(2) that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane and/or insulation or foam.

1.4 MBRICO PROJECT CONDITIONS

- 1.4.1 Mbrico Rooftop Deck System specified are to be used with pedestrian traffic only & all four (4) sides of a deck system must restrain and contain the decking panels with perimeter blocking, curbs, parapets or walls. Decking panels must not be allowed to move laterally on ends not already secured by the Mbrico Track System.
- 1.4.2 All membrane waterproofing (ex. EPDM or TPO) and protection board surfaces to receive pedestals must be broom clean, frost free, and free of dirt, oil or any rough foreign matter, which may impair the waterproofing / roofing manufacturers guarantee or protection requirements. Membrane and waterproofing materials are not supplied by Mbrico.
- 1.4.3 The substrate that is to receive pedestals must have slope and provide positive and adequate drainage in accordance with good building practice and applicable building codes.
- 1.4.4 Decks over Roofing and Waterproofing: If high density closed cell extruded 60psi polystyrene insulation is installed on top of the membrane in a protected membrane system, Mbrico NM Series Pedestals may be installed directly on top of this type of insulation.
- 1.4.5 Do not use Mbrico over any insulation less than 60psi or with low density polystyrene (bead board) insulation.
- 1.4.6 Installation of additional items on top of the deck such as large planters, appliances, mechanicals, hot tubs, sculptures, vehicles, or industrial/construction equipment must be supported directly by additional tracks and or pedestals that are in addition to the main deck paver/tile pedestal system. Failure to adequately support the additional weight of any such features or items may cause significant damage to the Mbrico deck surface, underlying Mbrico support structure, or waterproofing membranes. Please discuss any significant additional surface items with Mbrico and project engineer prior to installation.

1.5 MBRICO WARRANTY

- 1.5.1 Mbrico Rooftop System (Fiber Reinforced Porcelain Pavers, Mbrico Track System, Pedestals and Connections) shall remain free from defects for a period of Thirty (30) years under typical residential/ single family conditions and Twenty (20) years under typical commercial/multifamily conditions. Complete product warranty conditions can be found at <http://www.mbricotiledecks.com/why-mbrico/warranty>

SECTION 2 – PRODUCTS & COMPONENTS

2.1 MANUFACTURERS

- 2.1.1 The Mbrico Rooftop Deck system specified herein are based upon products manufactured by: Mbrico LLC
- 2.1.2 Phone: 844-449-9214 E-mail: info@mbricotiledecks.com Website: www.mbricotiledecks.com














2.2 MBRICO ROOFDECK SYSTEM MATERIALS

- 2.2.1 PORCELAIN PAVERS: Mbrico Decking Tile System Specifications:
- 2.2.2 Nominal Sizes for order: 24x24", 12x24", 12x48", 24x48"
- 2.2.3 Nominal thickness with plate: (2CM), 7/8"
- 2.2.4 Gage/Weight: 10.6# PSF
- 2.2.5 Shape: Square (CNC verified to 1/32")
- 2.2.6 True sizes: Contact Mbrico for exact sizing of your order based on color, lot, and caliber

- 2.2.7 Thickness with plate: .91”
- 2.2.8 Gap spacing: 1/8”
- 2.2.9 Height: True Height of tile seated in aluminum track component: 1 5/8”
- 2.2.10 Finish: ADA approved Skid Resistant R11-R13 Rated, ASTM 1028 WET > 0.60
- 2.2.11 Collections:

+One, Area 51, Bluestone Design, Concrete, Earth, Earthen, Element, Essence, Farmhouse, Imprint, Limestone, Lith, Marble, Montauk, Mood Wood, New York, Pennsylvania, Quartz, Quartzite, Salem, Shale Stone, Sierra, Slate, Soul, Stone, Summit, Terrazzo, Tibur, Tivoli Stone, Trail, Travertine, Untamed, Wood

PORCELAIN PAVER PERFORMANCE DATA (20 mm)

PHYSICAL PROPERTIES	TEST ASTM	NORTH AMERICAN STANDARD A137.3*	RESULTS
 Water absorption *	C373	≤ 0.5%	COMPLY WITH ANSI A137.3
 DCOF Average dynamic coefficient of friction **	ANSI A.326.3	As reported	EW - Exterior, Wet
 Skid Resistance	EN 16165 (EX DIN 51097)	-	A+B+C
	EN 16165 (EX DIN 51130)		R11
 Resistance to freeze/thaw cycling *	C1026	As reported	RESISTANT
 Resistance to thermal shock	C484	As reported	RESISTANT
 Warpage (edge)	C485	Warpage ± 0.4% or ± 0.05 in	COMPLY WITH ANSI A137.3
 Warpage (diagonal)	C485	Warpage ± 0.4% or ± 0.07 in	COMPLY WITH ANSI A137.3
 Wedging	C502	± 0.25% or ± 0.03 in	COMPLY WITH ANSI A137.3
 Chemical resistance	C650	As reported	UNAFFECTED
 Resistance to stain	C1378	As reported	UNAFFECTED
 Thickness	C499	Range: 0.04 in	COMPLY WITH ANSI A137.3
 Breaking strength	C1050	2000 lbf	COMPLY WITH ANSI A137.3
 Module of Rupture	C1050	5000 psi	COMPLY WITH ANSI A137.3



2.3 PEDESTALS & EPDM PLATE BEARINGS:

2.3.1 Mbrico NM Series Adjustable Pedestals

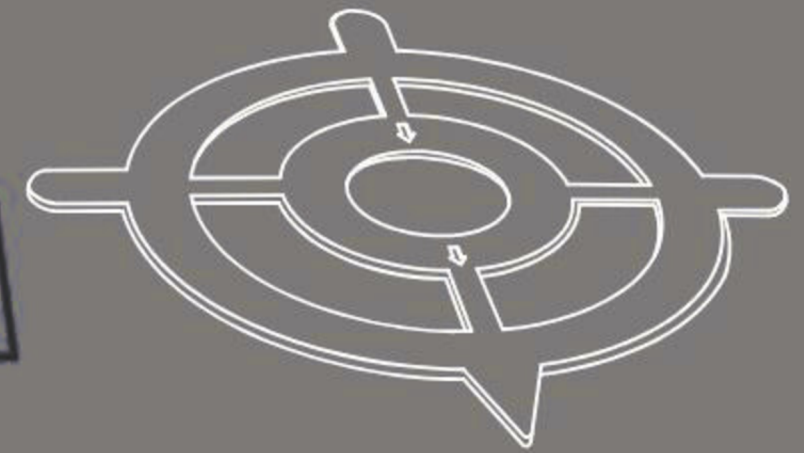
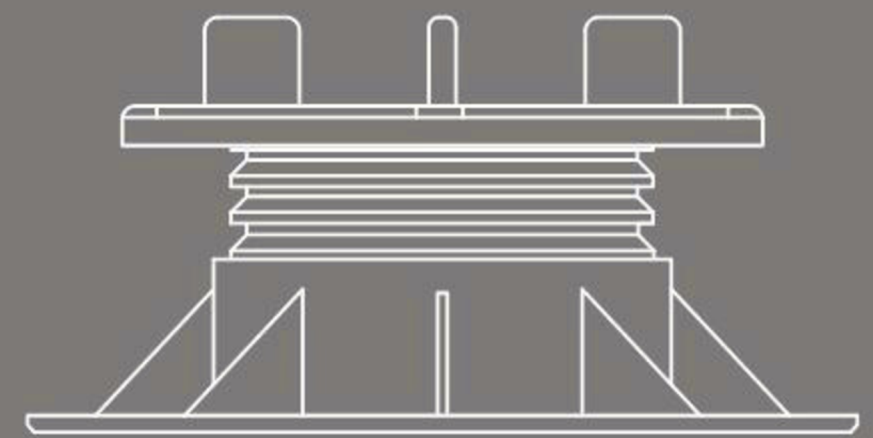
2.3.1.1 Five Standard Sizes for Mbrico NM Series Pedestals (NM1, NM2, NM3, NM4, NM5, NM EXT Ring).

Installer and specifier must account for track and tile height above pedestal (+1 5/8”) for complete system thickness.



Our NM Pedestal has a wide range of features such as the noise-reducing rubber head, the Adjustment Key, a wide range of adjustable heights and the pre-cut base for wall corner cuts, make the NM pedestal perfect for any kind of raised flooring applications. Featuring an above average loading capacity and a reliability that can only be offered by experts in the field of raised flooring supports, the NM pedestal is regularly selected and widely appreciated Internationally within the building industry. When installed on a slopping surface, shims or the slope compensator can be placed on the pedestal head to ensure a level support surface. The slope compensator can add up to 1% of slope.

Specifications



SELF-LEVELING HEAD



FEATURES

- Bi-Material Head Offers Anti-Noise & Anti-Slip
- Adjustable Heights
- Made from 100% Recycled Material
- Removable Spacer Tabs
- Smooth Base with Pre-Cut Lines
- Resistant to Weathering, Acids, UV Rays and Wear & Tear
- Resistant to Temperatures Ranging from -40F - 248F



DIMENSIONS

Base Diameter	8"
Head Diameter	6"
Tab Height	1/2"
Tab Width	5/32"
Load Capacity	3,300 lbs.
Height Range*	1" - 1.57" * Higher with Extensions

ADJUSTMENT KEY



NM - ADJUSTABLE PEDESTAL

Specifications



Pedestals



OPTIONS

- Slope Compensator to Level Final Grade
- Shims to Level Final Grade
- Height can be Added to any Pedestal with the Use of the NM Extension



LIGHT PAVERS



Light pavers require the use of our self-leveling head with locking fixed piece. This allows the head to be fixed, as the self-leveling head is not recommended due to the light weight of the tile. Installing our IPE wood deck tiles also require our four pins that allow the tile to lock into the head. Our EH fixed supports are also available for heights less than 1.125".



HEAVY PAVERS



Concrete or porcelain pavers should be installed using exclusive self-leveling, bi-component head that allows automatic compensation of the imperfections and the slope of the substrate. Our EH fixed supports are also available for heights less than 1.125".



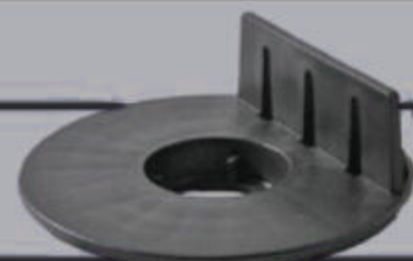
ALUMINUM JOISTS



Aluminum joists are an option as a substrate for an elevated system. Our special aluminum joist head locks the aluminum joist to the head. Aluminum tabs anchor the decking in a simple and reliable way for the installer. Can be used with wood and ceramic decking applications.



WOOD JOISTS & PLANKS



Our pedestal supports can be used for all types of substructure joists including wood joists. For this application our standard SE support is used with our exclusive self-leveling wood joist head that is supplied with screw slots to secure the wood joist to our head.



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2.3.1.2 Mbrico NM Series Pedestals are the conventionally specified pedestal for Mbrico Roof Deck Applications unless shorter overall system cavity clearance is required.

2.3.1.3 Mbrico Fixed Height Pedestals can be used under Mbrico Porcelain Deck Pavers if finished floor heights do not allow for conventional Pro Line Pedestals and Track. EPDM Plate bearings are to be stacked no more than 3 high. They are placed at least on each corner of a 24x24" nominal tile and provide vertical spacing tabs to space tiles 1/8" to match track system spacing.



EH-12
1/2"



EH-15
5/8"



EH-20
3/4"



RUB-14
1/4"



RUB-38
3/8"



Star B extension for Star T
3/16"



Star T
3/8"-9/16"



Ultra Low Pedestal Support
2-2/5" (from tip to top of tabs); 1/2" (from base to top of tabs)



Ultra Low Rubber Pedestal
1/16"

2.3.2 Mbrico NM Series Extension Rings can be used in conjunction with all NM Series Pedestals. NM Series Extensions Rings are available in 5.7" size.

2.3.2.1 Overall pedestal height should be no more than 40 inches from bottom of pedestal to top of pedestal without prior Mbrico and Engineer review.

2.3.2.2 Projects with Wind Up-Lift requirements are subject to alternate specified pedestal spans, types and heights.

2.3.3 Fastening/Anchor Component: Material: Stainless Steel

2.3.3.1 Gage/weight: Included in system weight Size: 7.5"

2.3.3.2 Shape: #10 x 2.5" Star Drive Flat Head 305 Stainless Screw 1.75M Grade

2.3.4 Mbrico Track Systems

2.3.4.1 Mbrico T-Tracks, Mbrico L-Tracks and Mbrico Offset-L Tracks

2.3.4.2 Material: Aluminum (6063) Gage/weight: Included in system weight

2.3.4.3 Size: 144"/12'

2.3.4.4 Shape: Extruded Aluminum Profile Grade: 6063, T6, Black Anodized

2.3.5 Tile FRP Substrate Component (completed at Mbrico)

2.3.5.1 Material: Fiberglass (Polyester, Polyglas F) Gage/weight: Included in system weight Shape: To tile

dimensions

2.3.5.2 Thickness: 1/8"

2.3.5.3 Grade: Fiber reinforced polymer, polyester resin, non-porous, class A fire rated optional

2.4 MBRICO PERIMETER CONTAINMENT AND SUPPORT

- 2.4.1 The complete assembly of insulation (if used), protection board (if used), drainage mat (if used), pedestals and Porcelain Pavers must be restrained at the perimeter of the deck area.
- 2.4.2 Perimeter parapet walls, concrete dividers or other perimeter restraint must be capable of resisting lateral forces (including seismic and wind). Cumulative movement in excess of 1/8 inch will void the Mbrico Rood Deck System warranty.

SECTION 3 – PROJECT EXECUTION

3.1 MBRICO PROJECT SITE CONDITIONS

- 3.1.1 Prior to starting work inspect the substrate to ensure that it has been properly prepared to accept the Mbrico Roof Deck System. The substrate and or surface shall be clean and free of any projections, equipment, building products and debris which may impair the performance of the pedestal and or the roof deck system. Verify all elevations, required pedestal heights and deck dimensions. Commencement of work shall imply acceptance of surfaces & deck conditions.
- 3.1.2 If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 MBRICO PREPARATION

- 3.2.1 The substrate surface that will receive the Pedestal System must be well compacted (on Grade) or structurally capable of carrying the dead and live loads anticipated.
- 3.2.2 Installation on raised pedestal system is used mainly on large, regular surfaces, or above previous floors rooftops or balconies provided these shows no signs of infiltration. The open gaps between the slabs allow the rain water to drain off into the cavity created under the panels. Thus, a flat, even floor is obtained, while the underlying waterproof layer will have the gradient required to drain off the rain water. The load-bearing structure is made of polypropylene feet with a large base and rounded edges, to prevent damage to the insulating layer. This solution allows for passage of any underlying elements and offers a practical passage for pipes and wiring.
- 3.2.3 Insulation OVER the membrane: (Option 1) Insulation and/or protection board (if specified) must be applied over the waterproofing substrate and/or specified drainage mat. Install the system according to the membrane manufacturer's recommendations and specifications.
- 3.2.4 Insulation UNDER membrane: (Option 2) Insulation required to be installed within a roofing system below deck supports must meet the roofing membrane manufacturers' specifications and must have a minimum core density of 60psi.
- 3.2.5 Protection Board: (for asphalt type systems used over waterproofing) Full coverage 1/8-inch asphaltic composition protection board is recommended. When protection is specified only under the pedestal cut protection board pads to extend beyond the outside perimeter of the pedestal system base or buffer pad by a minimum of TWO (2) inch.
- 3.2.6 Drainage Mat: (when desired or specified) Install drainage mat according to the manufacturers recommendations to avoid crushing.

3.3 MBRICO ROOFDECK SYSTEM INSTALLATION

- 3.3.1 Install in accordance with Mbrico LLC and other contributing manufacturer's instructions. Installation requirements vary for each individual project site. Mbrico Tile Decking paver or tile used, size, pattern, grid layout, control point, and finished elevation should be shown on plan view shop drawings, which have

- been prepared by Mbrico and approved by the designer, installing contractor and/or owner prior to order. Mbrico is not responsible for collecting on site project measurements unless agreed to by Mbrico.
- 3.3.2 Refer to Mbrico Shop Drawings for control point location as marked and used to calculate tile quantities. This should be considered when installing and ordering as it will impact cut rows, material waste and material take off.
- 3.3.3 Complete Mbrico Roof Deck Installation Guidelines can be found at:
http://www.mbricotiledecks.com/installation/installation-details.html?installation_id=2

3.4 MBRICO DECK PERIMETER CONTAINMENT

- 3.4.1 Any area of the pedestal deck not secured by an Mbrico track and that is not restrained by a parapet, curb, wall or foundation wall must be 'boxed-in' and contained. The deck panels will move if all sides are not adequately restrained. This is typically done with the Mbrico track system but will require structural capture when tracks are not used.
- 3.4.2 Perimeter framing and edging boards located at the outside of the deck perimeter must be installed to provide restraint. No movement should be allowed at the perimeter of the deck system greater than 1/8".

3.5 MBRICO FIELD QUALITY CONTROL

- 3.5.1 Inspect often during installation to assure that grid spacer lines are being maintained in a straight and consistent pattern and that deck Mbrico Porcelain Pavers or tiles are level and not rocking. All Mbrico Roof Deck Systems should be installed as snug as possible into Mbrico track system to avoid any unwanted movement. Particular attention should be made to assure that all pedestrian entry or access points to the deck are level and that the deck surface tiles are not randomly raised or uneven creating a tripping or safety hazard.

3.6 MBRICO DELIVERY CONFIGURATION

- 3.6.1 Tile: Crated pallets:
48"x31"x31" Approx.
Weight: 2,400# max.
- 3.6.2 Aluminum materials:
Crated pallets: 144"x18"x24"
Approx. weight: Material quantity dependent

3.7 MBRICO MAINTENANCE

- 3.7.1 When properly installed, complete Mbrico Roof deck Systems will require zero routine maintenance. Tiles can be hosed down if needed. Self-spacing mechanisms designed into the system do not allow tiles to unexpectedly shift horizontally or vertically. The porosity of Italian porcelain tiles do not allow for staining, require sealing, or scratch. No touch up, pedestal adjusting, sealing, or refinishing required.