



Wherever you go, there we are.®

Cast-in-Place Replaceable TWS Submittal Package



ADA Solutions, Inc.

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ADA Solutions, Inc. appreciates your interest in the Cast-in-Place, Wet Set Replaceable Panel (CIP REP). These Tactile Warning Surface (TWS) Panels are easy to install, fully replaceable and made with HD exterior grade fiberglass reinforced polymer composite material. TWS are also known as; Detectable Warning, Tactile Warning and ADA Pads.

This informative submittal package includes:

- **Product data sheet**
- **Product specifications**
- **Installation manuals**
- **Detail drawings**
- **Test results**
- **Cleaning and maintenance instructions**
- **Sample warranty form**
- **Sample certificate of compliance**
- **Standard Colors**

The information contained within this submittal document details the various design and functionality features that make ADA Solutions, Inc. TWS Panels best suited for your project requirements. However, if you require any additional information, such as project-specific detail drawings and specifications, we would be pleased to produce expedited detailed documents specific to your project requirements.

The principal features and benefits of ADA Solutions, Inc. TWS Panel System represents the latest design innovations for tactile warning and alert indicator panels. The primary features and benefits of ADA Solutions, Inc. TWS Panel Systems include but are not limited to the following:

- Manufactured in an ISO 9001 Facility.
- Complies with all ASTM, ULC Testing Requirements
- Meets all the requirements and standards set forth under the American with Disabilities Act of 1990 and the Public Rights of Way Accessibility Guidelines (PROWAG), California Title 24 and the International Standards organization (ISO-23599).
- Industry-leading Anti-Slip Surface performance.
- The only true Replaceable System – Allows for easy removal for maintenance or replacement
- Fiberglass Reinforced Polymer Composite Material
- The tactile body thickness is 0.22” (5.6mm) which excludes the 0.20” (5mm) truncated domes. It has a four (4) sided perimeter flange that is 0.75” (19mm) thick and contains air vents.
- 2” (51mm) Embedment into Concrete
- Superior 0.5” x 1.5” (13mm x 38mm) Heavy Duty Metal Bolts, Washers and Corrosion Resistant Concrete Anchor Inserts
- Industry-leading 4,500lb (2041kg) pull-down strength per metal concrete anchor
- Delivered pre-assembled and ready for a hassle-free installation into wet concrete
- Available in various sizes and colors.
- Industry-leading seven (7) Year Warranty

By specifying the ADA Solutions, Inc. Cast-In-Place Replaceable Panels will provide all project stakeholders with consistent, hassle-free, fully compliant installations each time. Use of ADA Solutions, Inc. CIP REP eliminates commonly experienced failures resulting from the chronic floating and lifting out from the concrete that routinely occurs when installing lightweight, ultra-thin alternative TWS Units that rely on shallow plastic anchors marginally secured with #2 all-purpose screws that achieve less than 1” (25mm) of concrete embedment depth.

We trust this overview of the ADA Solutions, Inc. TWS Panel System, together with the information contained in our submittal package is helpful in determining the ADA Solutions, Inc. TWS Panel System best suited to your project requirements. If you would like to speak directly with our sales or engineering representatives, please call us directly by dialing Toll-Free 800-372-0519.

Yours truly,

Brad D’Andrea

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CAST-IN-PLACE REPLACEABLE TACTILE WARNING SURFACE PANELS

SECTION 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions and Division 1 Specifications Section, apply to this Section.
- B. California Title 24
- C. ISO 23599:2012 - Assistive Products for Blind and Vision-Impaired Persons - Tactile Walking Surface Indicators.
- D. ISO 21542:2011 - Building Construction - Accessibility and Usability of the Built Environment
- E. ISO 9001 – Certificate No. 0502011, ISO 1409 and ISO/B 16949 Certified Manufacturing Facility located in Jefferson, OH

1.02 DESCRIPTION

- A. This Section includes Specifications for furnishing and installing Replaceable Cast-in-Place Tactile Warning Surface (TWS) panels with an in-line truncated dome pattern embedded in all curb ramps at the locations and to the dimensions shown on the Drawings, by the Contract Documents and as directed by the Engineer/Architect.

1.03 SUBMITTALS

- A. **Product Data Sheet:** Submit ADA Solutions, Inc. literature describing products, installation procedures and routine maintenance.
- B. **Samples for Verification Purposes:** Submit two (2) tactile warning surface samples. Samples shall be properly labelled and shall contain the following information: Name of Project, Submitted by Date of Submittal, and Manufacturer's Name.
- C. **Shop Drawings:** Submit Standard Manufacturer Shop Drawings showing all pertinent characteristics of the Cast-in-Place (Wet Set) Replaceable Tactile Warning Surface (CIP REP), including profile, sound on cane contact amplification feature, panel surface profile, metal bolt and anchor locations, plans of panel placement including joints, and material to be used as well as outlining installation materials and procedures.
- D. **Material Test Reports:** Submit all complete current test results from qualified, accredited independent testing laboratories by ASTM and UL/Canada guidelines and indicating that materials proposed for use follow specification requirements and meet or exceed the properties indicated on these specifications. Conduct all tests on the Cast-In-Place Replaceable TWSI panel.
- E. **Maintenance Instructions:** Submit copies of the manufacturer's specified installation and maintenance practices for each type of TWSI panel and accessories as required.

1.04 QUALITY ASSURANCE

- A. Provide Replaceable Cast-in-Place TWS panel and accessories as produced by a single manufacturer with a minimum of five (5) years' experience in the manufacturing of Replaceable Cast-in-Place TWS panels.
- B. Installer's Qualifications: Engage an experienced installer certified in writing by Replaceable Cast-in-Place TWS panel manufacturer as qualified for installation, who has completed installations similar in material, design, and extent to that indicated for the Contract.
- C. Replaceable Cast-in-Place Tactile Warning Surface Panels (CIP REP) shall meet or exceed the following test criteria using the most current test methods:

Test Reference	Test Description	Requirements
AASHTO-H20	Load Bearing at 7,257 kg (16,000lb)	No Damage
ASTM D 695	Compressive Strength	≥ 199 Mpa (29,800 psi)
ASTM D 790	Flexural Strength	≥ 202 Mpa (29,300 psi)
ASTM D 638	Tensile Strength	≥ 80 Mpa (11,600 psi)
ASTM D 696	Linear Coefficient of Thermal Expansion	2.32 x 10 ⁻⁵ / °C
ASTM C 1028	Static Coefficient of Friction	≥ 1.05 Wet / ≥ 1.18 Dry
ASTM E 84	Flame Spread Index – (Class A)	≤ 25
CAN/ULC S102.2	Smoke Developed Index – (Class A)	≤ 130
	Flame Spread Index – (Class A)	≤ 20
ASTM D 570	Water Absorption	≤ 0.07%
ASTM C 501	Abrasion Resistance (Iw)	≥ 549
ASTM G 155	Accelerated Weathering @ 2,000hrs	ΔE < 5
ASTM C 1026	Freeze/Thaw/Heat	No Disintegration
ASTM B 117	Salt Spray @ 200hrs	No Change
ASTM D 1037	Accelerated Aging	No Failure
ASTM D 543	Chemical Resistance	No Failure
ASTM 1308	Chemical Stain Testing	No Deterioration

- D. Polymer Composite Replaceable Cast-In-Place TWS panels manufactured with fiberglass and carbon reinforced polyester based Sheet Molding Compound (SMC). An exterior grade matte finish that is homogeneous, colorfast and UV stable throughout the entire panel, including the raised truncated domes. TWS Products that rely on surface paints, coatings or supplemental compounds are not permitted. The truncated domes must contain sufficient levels of fiberglass reinforcement to ensure durability. Panels manufactured without fiberglass reinforcement such as Vitrified Polymer Composite (VPC) shall not be used on this project. The panel shall incorporate an in-line pattern of truncated domes measuring nominal 0.2" (5mm) height, 0.9" (23mm) base diameter, 0.47" (12mm) top diameter, and spaced center-to-center 2.4" (61mm) as measured side by side.
- E. Stamped concrete, polymer concrete or concrete pavers/tile, brick, and cast-iron TWS Products are not acceptable for use on this Project.
- F. Fibreglass composite TWS (Replaceable Panels) shall utilize embedment hardware that is universally recognized and accepted by the concrete industry. Plastic anchors and all-purpose screws are not permitted for this project.
- G. TWS Panels must exceed the weight of 2.15 lb./Sq. Ft. (1,050Kg/Sq.M.) (installed).

- H. Panel body must meet or exceed 0.22" (5.6mm) thick (not including truncated domes).
- I. Panels must have four (4) sided perimeter flange; a minimum installed depth of 0.67" (17mm) and a minimum flange width of 0.75" (19.1mm) including the flared edge.
- J. Heavy Duty Metal Bolts shall be Hex Head with a minimum 0.37" (9.5mm) diameter x 1.25" (31.75mm) in length.
- K. Corrosion -Resistant Concrete Embedment Anchor Inserts must be made with heavy duty metal with a minimum insertion depth of 1.5" (38.10mm). Plastic anchors are not acceptable on this project.
- L. Embedment Anchors inserted in concrete and masonry elements must achieve minimum pull-down strength of 4,500 per anchor (2041kg per anchor).
- M. Each Embedment Anchor shall be recessed 0.5" (12.7mm) from the back side of TWS Panel to achieve 2" (50.8mm) minimum concrete insertion and embedment depth.
- N. Unprotected and open bolt and screw heads directly exposed to foot traffic and the elements are not permitted on this project.
- O. Dimensions: Replaceable Cast-in-Place TWS panels shall be held within the following dimensions and tolerances:

Part Number	Anchor #	Part Size		Part Weight
2424NV6REP	6	24" x 24" (610mm x 610mm)		11.2lb (5.08Kg)
2436NV8REP	8	24" x 36" (610mm x 915mm)		15.6lb (6.89 Kg)
2448NV8REP	8	24" x 48" (610mm x 1220mm)		17.2lb (7.80 Kg)
2460NV11REP	11	24" x 60" (610mm x 1524mm)		24.6lb (11.6 Kg)
3648NV9REP	9	36" x 48" (915mm x 1220mm)		42.50lb (19.27Kg)
3660NV12REP	12	36" x 60" (915mm x 1524mm)		53.50lb (24.27 Kg)
248RADREP	8	24" x 33.25" (For 10', 15', and 20' radii)	610mmx845mm (For 3048mm, 4572mm, 6096mm radii)	14lb (6.4Kg)

Note: Tolerances (Side to Side & End to End) $\pm 0.0049"$ (0.1250mm)

Note: 0.22" (5.6mm) Body Thickness & a 3/4" [thick] x 1" [wide] (19.1mm x 25.4mm) perimeter flange with air vents.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Cast-in-Place Replaceable TWS panels shall be suitably packaged or crated to prevent damage in shipment and handling. Finished surfaces shall be protected by sturdy plastic wrappings to protect the panel from concrete residue during installation.
- B. Cast-in-Place Replaceable TWS panels shall be delivered to a location at the building site for storage before installation. Store CIP REP panels in an area that is within an acceptable temperature range 40°F - 90°F (4°C - 32°C) and maintain the storage facility in a clean, dry condition to prevent contamination or damage to CIP REP panels.

1.06 SITE CONDITIONS

- A. Environmental Conditions and Protection: Maintain a minimum temperature of 40°F (4°C) in spaces to receive Cast-in-Place Replaceable TWS panels for at least 24 hours before installation, during installation, and for not less than 24 hours after installation.
- B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

1.07 MANUFACTURER'S WARRANTY

- A. Cast-in-Place Replaceable TWS panels shall be warranted in writing for seven (7) years from the date of completion. The guarantee includes manufacturing defects, breakage, cracking, UV stability, deformation, workmanship and replaceability.

1.08 INSTALLATION WARRANTY

- A. Cast-in-Place Replaceable TWS panel installation shall be warranted in writing for two (2) years by the installer. Alternate products approved before the tendering phase must be guaranteed for three (3) years by the installer. Products must be guaranteed from defective work and loosening of panels.

SECTION 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Fiberglass Reinforced Polymer Composite Replaceable Cast-in-Place TWS Panel specifications by ADA Solutions, Inc. 323 Andover Street, Suite 3, Wilmington, MA 01887 – Toll-Free: 800-372-0519 brad@adatile.com, www.adatile.com.
- B. Existing engineered and field-tested products, which have been in successful service for five (5) years are subject to specification compliance, may be incorporated in the project and shall meet or exceed the specified test criteria and characteristics. Requests for Approved Equal Status must be submitted and approved by the Owner before the Tender Phase of the Project.
- C. Color: Color shall be homogeneous throughout the panel and domes.

Color	Color Standard	Color Description
Federal Yellow (Y)	Federal Standard 595B Table IV	Color No. 33538
Brick Red (R)	Federal Standard 595B Table IV	Color No. 20109
Clay Red (CR)	Federal Standard 595B Table IV	Color No. 22144
Safety Red (SR)	Federal Standard 595B Table IV	Color No. 31350
Black (B)	Federal Standard 595B Table IV	Color No. 37038
Dark Gray (G)	Federal Standard 595B Table IV	Color No. 36081
Safety Blue (B)	Federal Standard 595B Table IV	Color No. 15187
White (W)	Federal Standard 595B Table IV	Color No. 27925
Seattle Yellow (SY)	Federal Standard 595B Table IV	Color No. 23594
Houston Beige		Pantone #7529C

2.02 EQUIPMENT

- A. Contractor shall provide all tools, equipment and services required for satisfactory installation per manufacturer's instruction as Incidental Work. Equipment, which may be required include typical mason's tools, a 4-foot long level with electronic slope readout, 25lb (11.4Kg) weights, vibrator and rubber mallet with 2" x 4" x 10" (51mm x 102mm x 254mm) wood tamping plate, and a device for cutting the Tactile Warning Surface.

SECTION 3 - EXECUTION

3.01 PREPARATION

- A. During all concrete pouring and CIP REP Panel Installation procedures, ensure adequate safety guidelines are in place and that they are by the applicable industry and government standards.
- B. Before installation, Contractor to ensure all submittals have been reviewed and approved by the contract Engineer/Architect. CIP REP Panels shall be installed as per manufacturer's instructions.
- C. Before placement of the Replaceable Cast-in-Place TWS panel system, review manufacturer's instructions and contract drawings with the Contractor before the construction and refer all discrepancies to Project Engineer/Manager.
- D. The physical characteristics of the concrete shall be consistent with the Contract Specifications while maintaining a slump range of 4" – 7" (102mm – 178mm) to permit solid placement of the CIP REP Panel. An overly wet concrete mix will cause the CIP REP Panel to float. Under these conditions, suitable weights such as two (2) concrete blocks or sandbags 25lb (11.4Kg) shall be placed on each CIP REP Panel until the concrete sets.
- E. The concrete shall be poured and finished, true and smooth using typical mason's tools to the required dimensions and slope before CIP REP Panel placement. Immediately after finishing, use a 4ft (1.2m) long level with electronic slope readout to level to the required specified slope. The panel shall be placed true and square to the curb edge, or by the contract drawings/specifications.

3.02 INSTALLATION

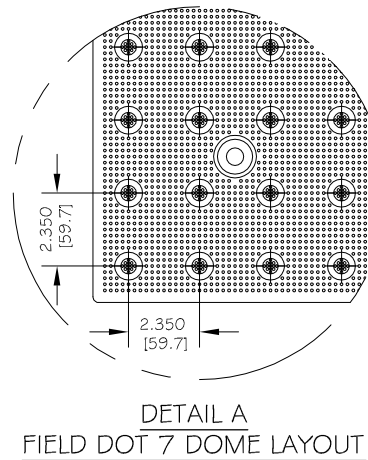
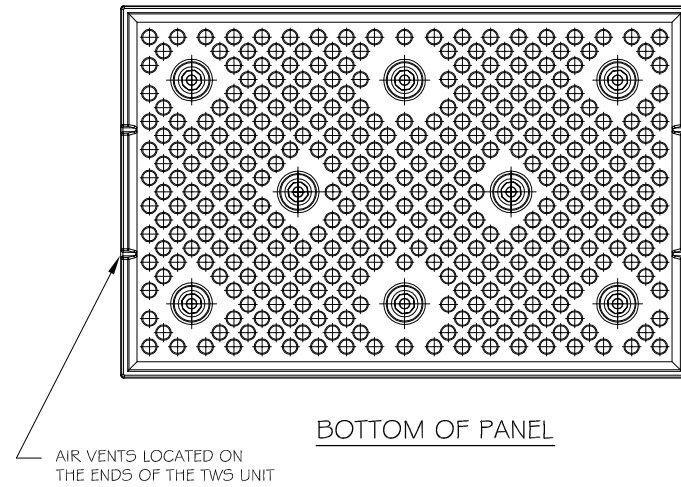
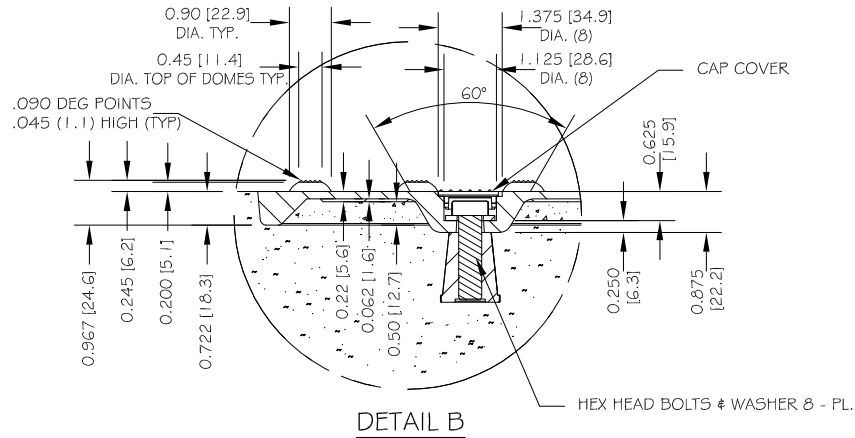
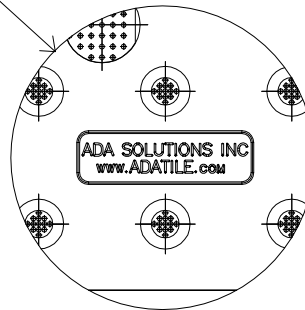
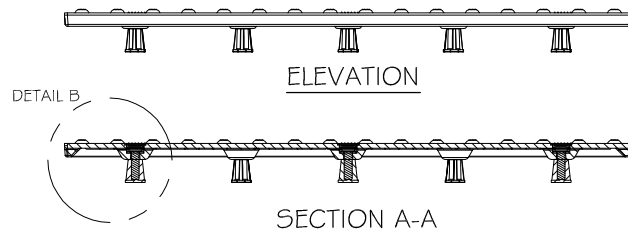
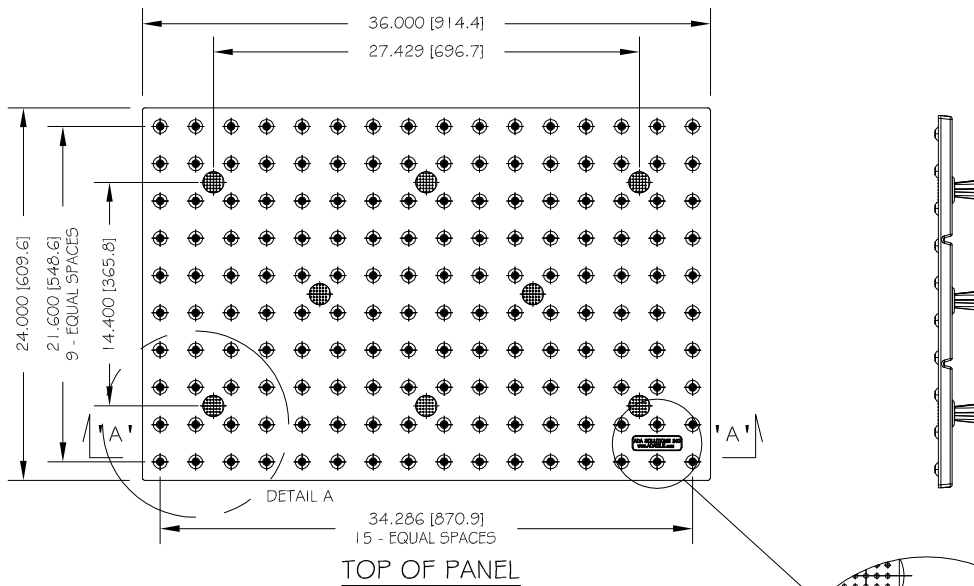
- A. In accordance with the Americans with Disabilities Act, California Tiles 24 and as per ISO 23599:2012 - Assistive Products for Blind and Vision-Impaired Persons - Tactile Walking Surface Indicators, the Replaceable Tactile Walking Surface Indicator Panels shall be set back from the curb ramp (back side) as per federal, state and local accessibility requirements by the full width of the curb ramp (flare to flare) and $\geq 22"$ (560mm) (recommended 24" (610mm)) in the path of travel. Contact ADA Solutions Support Center at (800)-372-0519 detailed information regarding layout applications relating to the accessibility code requirements.
- B. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- C. When preparing to set the panel, it is important that no concrete be removed from the area to accept the tile. It is recommended that the installation technique eliminate any air voids under the panels. Air vents along the side of the panel allow air to escape during the installation process.

- D. CIP REP Panels shall be tamped, vibrated and cast into place to provide an adequate bond between the back side of the panel and the wet concrete; this will ensure that the CIP REP Panel is flush to the adjacent concrete surface or as the drawings indicate to permit proper water drainage and eliminate tripping hazards between adjacent finishes. **PLEASE NOTE:** In cold weather climates it is recommended that the CIP REP Panels be set deeper into concrete, this ensures that the top of the raised truncated domes sits flush to the adjacent concrete. This method will significantly reduce the possibility of damage caused by snow clearing operations. Again, care should be taken to finish the concrete on the side of the panel with the lower elevation, adding channels to allow water to drain from the field surface of the panel and eliminate tripping hazards.
- E. Although cutting panels is not recommended, ADA Solutions, Inc. understands that field cutting is inevitable. Fortunately, ADA Solutions, Inc. CIP REP panels can be cut into size and configuration as necessary and in accordance to Project Contract Drawings. We recommend the use of a 60-tooth carbide blade on a circular saw or mini-grinder. A table saw can be used as well. Use of a straightedge to guide cuts is recommended, where applicable. The top of the body of the CIP REP panels shall be fully seated and flush with the adjacent concrete substrate. For more specific instructions for cutting and placement, please contact the ADA Solutions Support Center (800-372-0519). **PLEASE NOTE:** When cutting CIP REP panels, the installer must take caution to avoid removal of fixed anchor locations. If cutting off an anchor location(s) is unavoidable it is imperative for the installer to add supplemental embedment hardware. Preferably, the appropriate addition of 0.25" x 1.5" (6.35mm x 38.1mm) HD metal bolts, washers and corrosion resistant concrete inserts to the CIP REP Panel before installation into freshly poured concrete. If necessary, the installer can add supplemental hardware after installation. In these instances calling the ADA Solutions, Inc. Support Center (800)-372-0519 is recommended. We strongly recommend using the ADA Solutions, Inc. CIP REP Radius panel to accommodate most radius conditions, this will significantly reduce the need to cut off embedment hardware locations. Contact ADA Solutions, Inc. Support Center for detailed guidance regarding the manual addition of supplemental hardware.
- F. Immediately after placement, the panel elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates. Ensure that the field surface of the panel is flush with the surrounding concrete and back of curb so that no ponding is possible on the panel at the back side of the curb.
- G. While concrete is workable, create a 1/4" (6.35mm) concrete-free recess around the perimeter of the panel. Use a 3/8" (9.525mm) radius edging tool to create a finished edge of the concrete. Then a steel trowel shall be used to finish the concrete around the perimeter of the panel, flush to the field level of the panel.
- H. During and after the panel installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the panel that may rock the panel causing a void between the underside of panel and concrete. Use proper safety barriers or cones to keep the general public away.
- I. Following panel placement, review installation tolerances to contract drawings and adjust panel before the concrete sets. Suitable weights of 25lb (11 kg) each may be required to be placed on each panel as necessary to ensure solid contact with the underside of the panel to concrete.
- J. Following the concrete curing stage, particularly under hot weather conditions $\geq 80^{\circ}\text{F}$ ($\geq 27^{\circ}\text{C}$), plastic sheeting will adhere strongly (resulting in difficult removal) to Tactile Warning Surface when not removed quickly. The protective plastic wrap is to be removed from the panel surface by cutting the plastic with a sharp knife, tight to the concrete/panel edge. If the concrete bled under the plastic, a soft brass wire brush would clean the residue without damage to the panel surface.

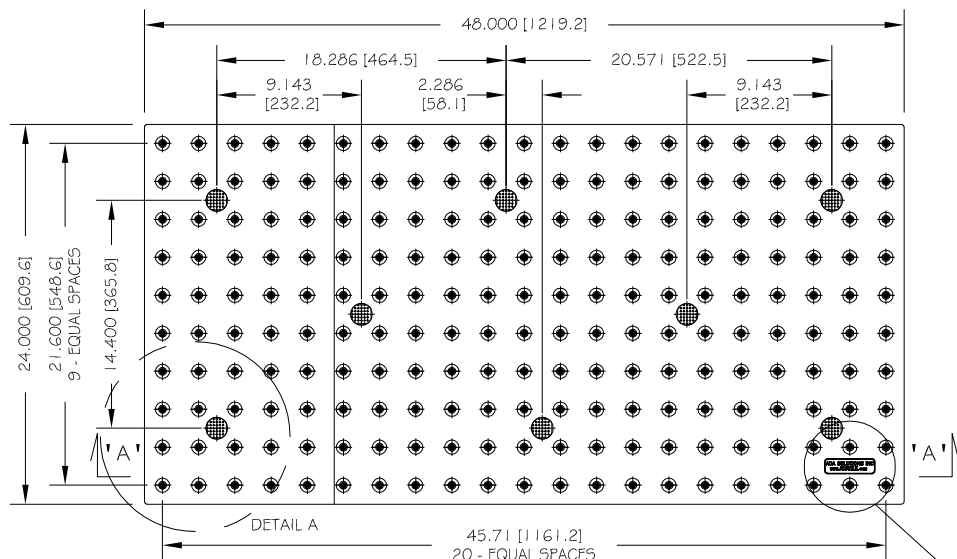
3.03 CLEANING AND PROTECTING

- A. Protect CIP REP Panels against damage during the construction period to comply with CIP REP Panels manufacturer's Specifications.
- B. Protect panels against damage from rolling loads following installation by covering with plywood or hardwood.
- C. Replace panels by the method specified by ADA Solutions, Inc.
- D. If requested by the Project Manager, clean CIP REP Panels not more than four (4) days before the date scheduled for inspection intended to establish the date of substantial completion in each area of the project. Clean CIP REP Panel by the method specified by ADA Solutions, Inc.
- E. Comply with ADA Solutions, Inc. maintenance manual for cleaning and maintaining panel surface. It is recommended to perform annual inspections for safety and panel integrity.

END OF SECTION
Updated 07/01/2018



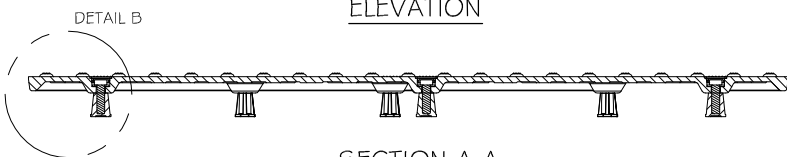
ALL DIMENSIONS NOMINAL PRIMARY DIMENSION INCHES mm IN PARENTHESES	
TRADE TACTILE WARNING SURFACE	PART NO. 2436NV8REP_
MATERIAL SMC COMPOSITE	
PROJECT WET SET ADA REPLACEABLE TACTILE WARNING SURFACE UNIT 8-BOLT LOCATIONS 2.350" (59.7mm) IN LINE TRUNCATED DOME PART SIZE 24" (610mm) x 36" (914mm) PLANS AND DETAILS	
DRAWING NO. ADA-REP2436	DATE 06-15-17
 ADA SOLUTIONS, INC. DETECTABLE WARNING SURFACES FOR PEDESTRIAN CROSSINGS WWW.ADATILE.COM PHONE: (800)372-0519 EMAIL: INFO@ADATILE.COM	



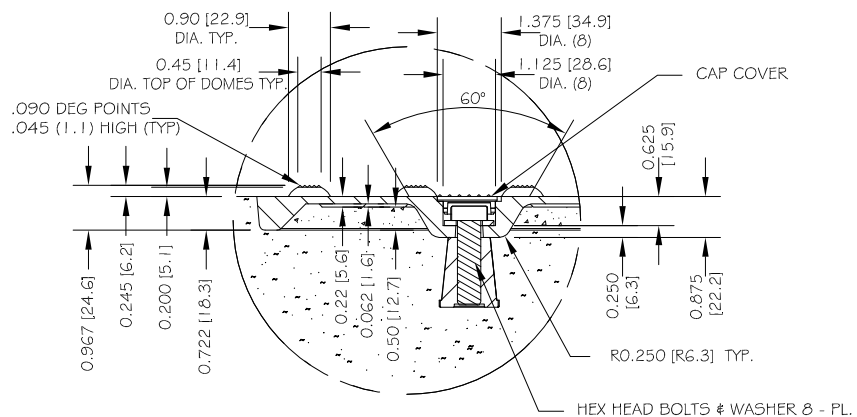
TOP OF PANEL



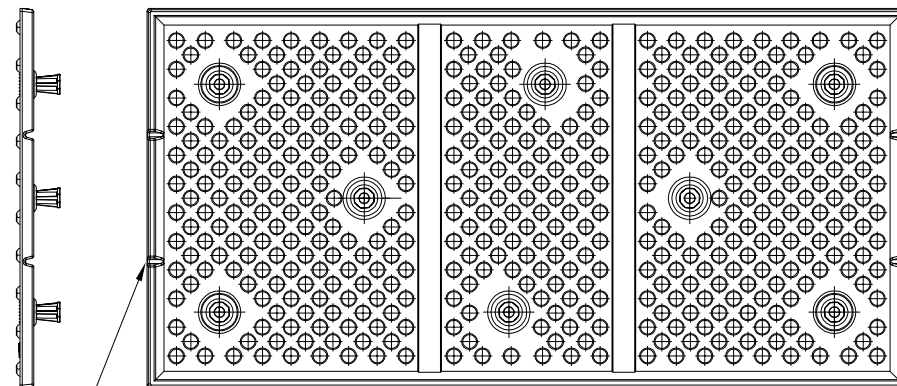
ELEVATION



SECTION A-A

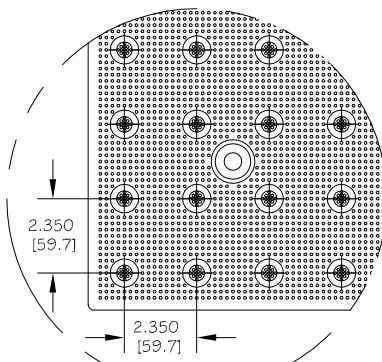
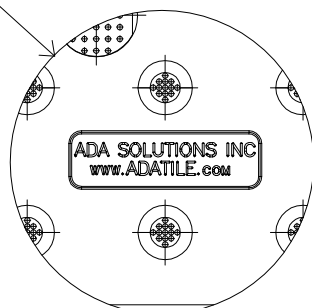


DETAIL B



AIR VENTS LOCATED ON THE ENDS OF THE TWO UNIT

BOTTOM OF PANEL



DETAIL A
FIELD DOT 7 DOME LAYOUT

ALL DIMENSIONS NOMINAL
PRIMARY DIMENSION INCHES
mm IN PARENTHESES

TRADE TACTILE WARNING SURFACE	PART NO. 2448NV8REP_
MATERIAL SMC COMPOSITE	

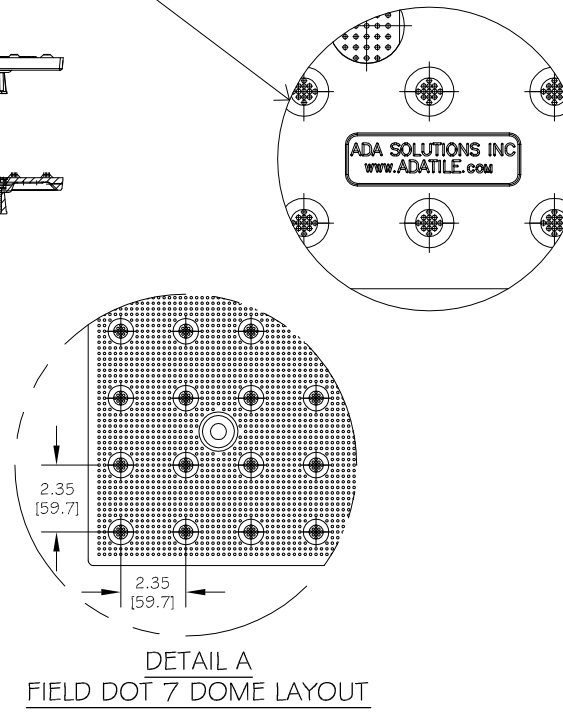
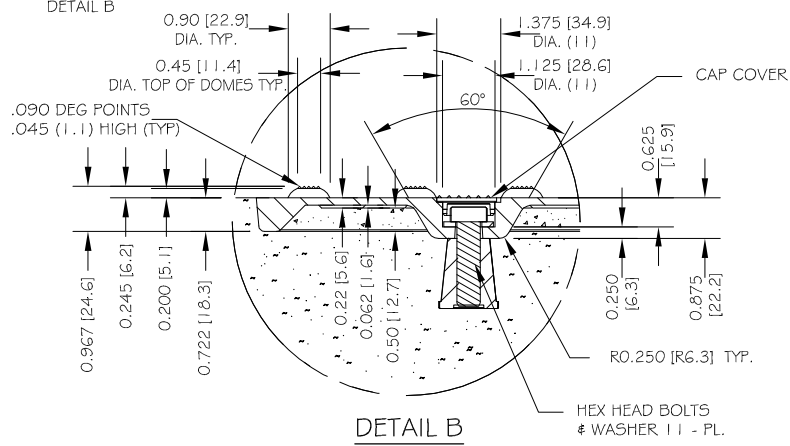
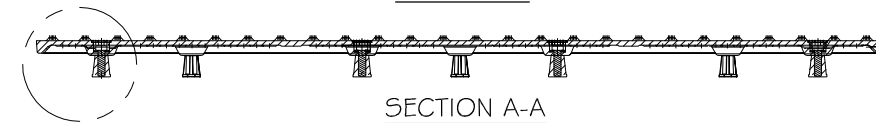
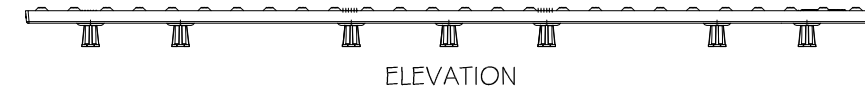
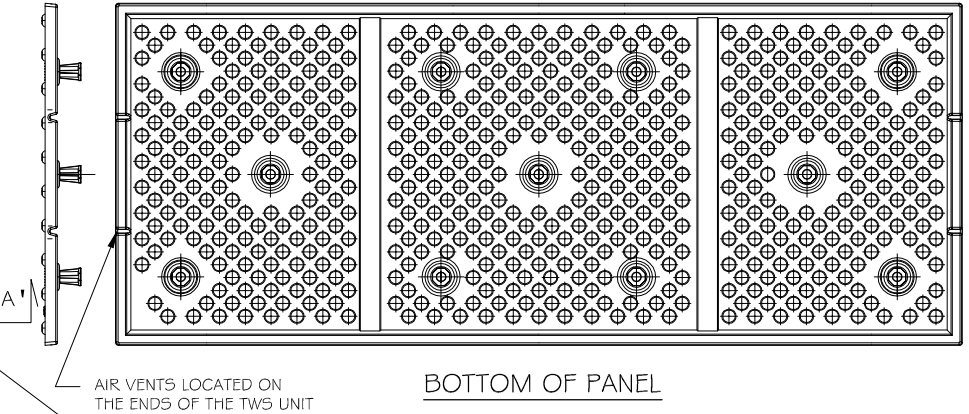
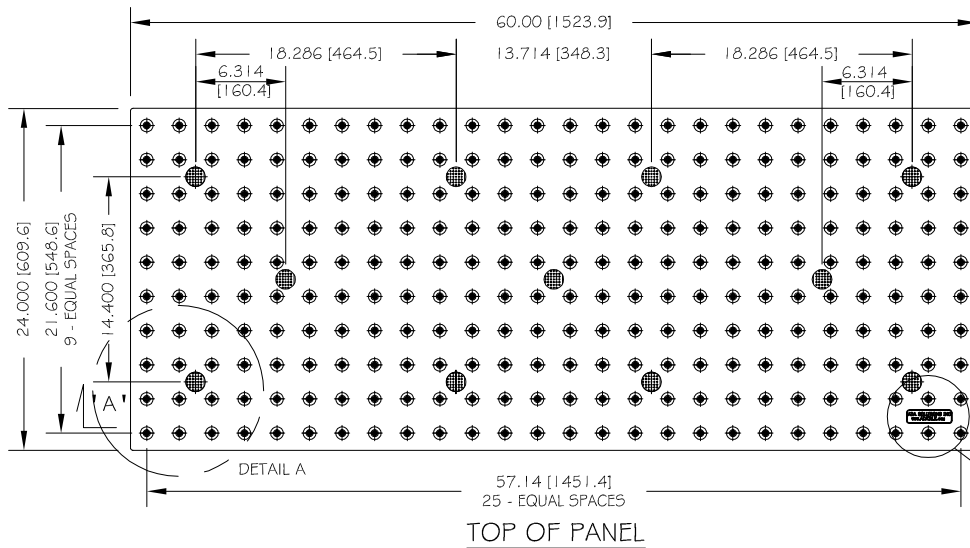
PROJECT

WET SET ADA REPLACEABLE TACTILE
WARNING SURFACE UNIT
8-BOLT LOCATIONS
2.350" (59.7mm) IN LINE TRUNCATED DOME
PART SIZE 24" (610mm) x 48" (1219mm)
PLANS AND DETAILS

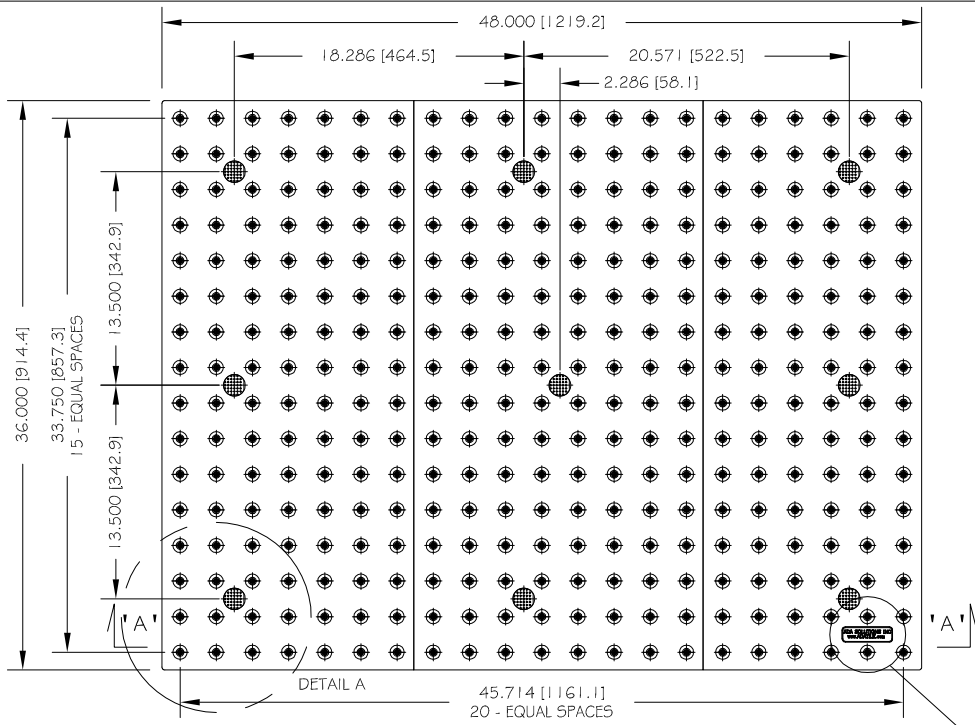
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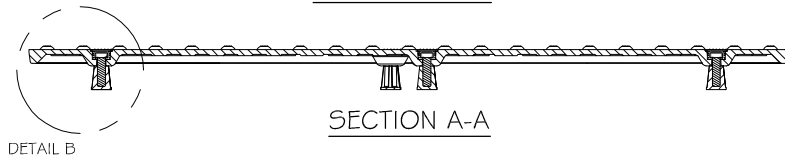
WWW.ADATILE.COM
PHONE: (800)372-0519
EMAIL: INFO@ADATILE.COM



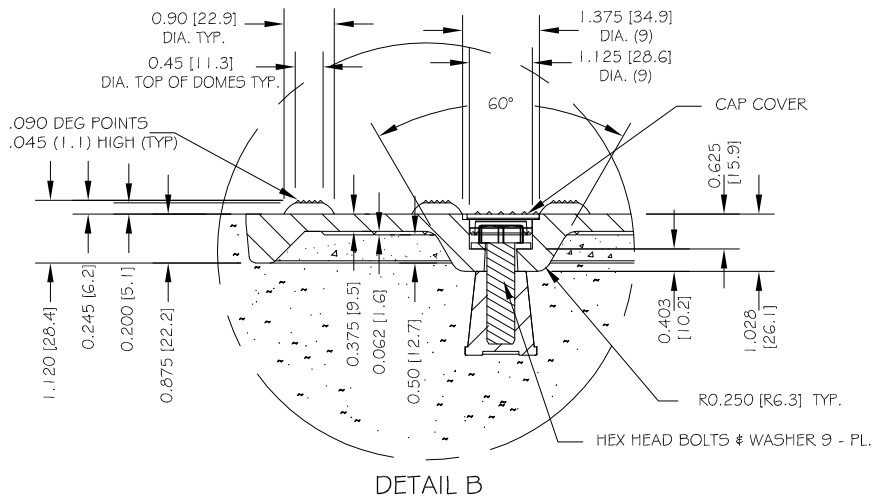
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DRAWING NO. ADA-REP2460	DATE 06-15-17
 WWW.ADATILE.COM PHONE: (800)372-0519 EMAIL: INFO@ADATILE.COM	



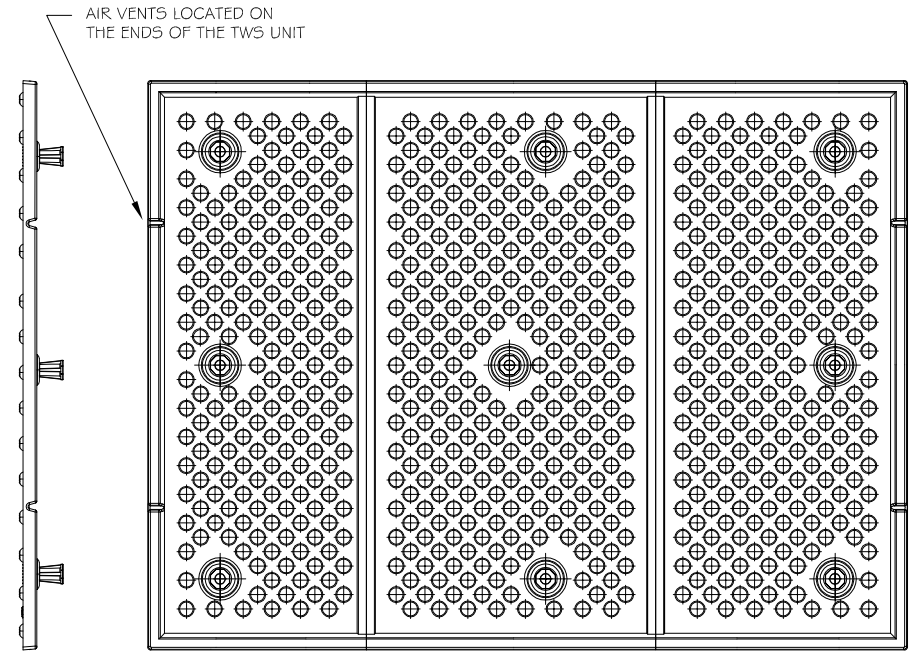
TOP OF PANEL



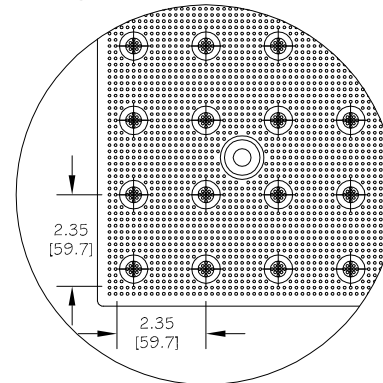
SECTION A-A



DETAIL B



BOTTOM OF PANEL



DETAIL A
FIELD DOT 13 DOME LAYOUT

ALL DIMENSIONS NOMINAL
PRIMARY DIMENSION INCHES
mm IN PARENTHESES

TRADE TACTILE WARNING SURFACE	PART NO. 3648REP_
MATERIAL SMC COMPOSITE	

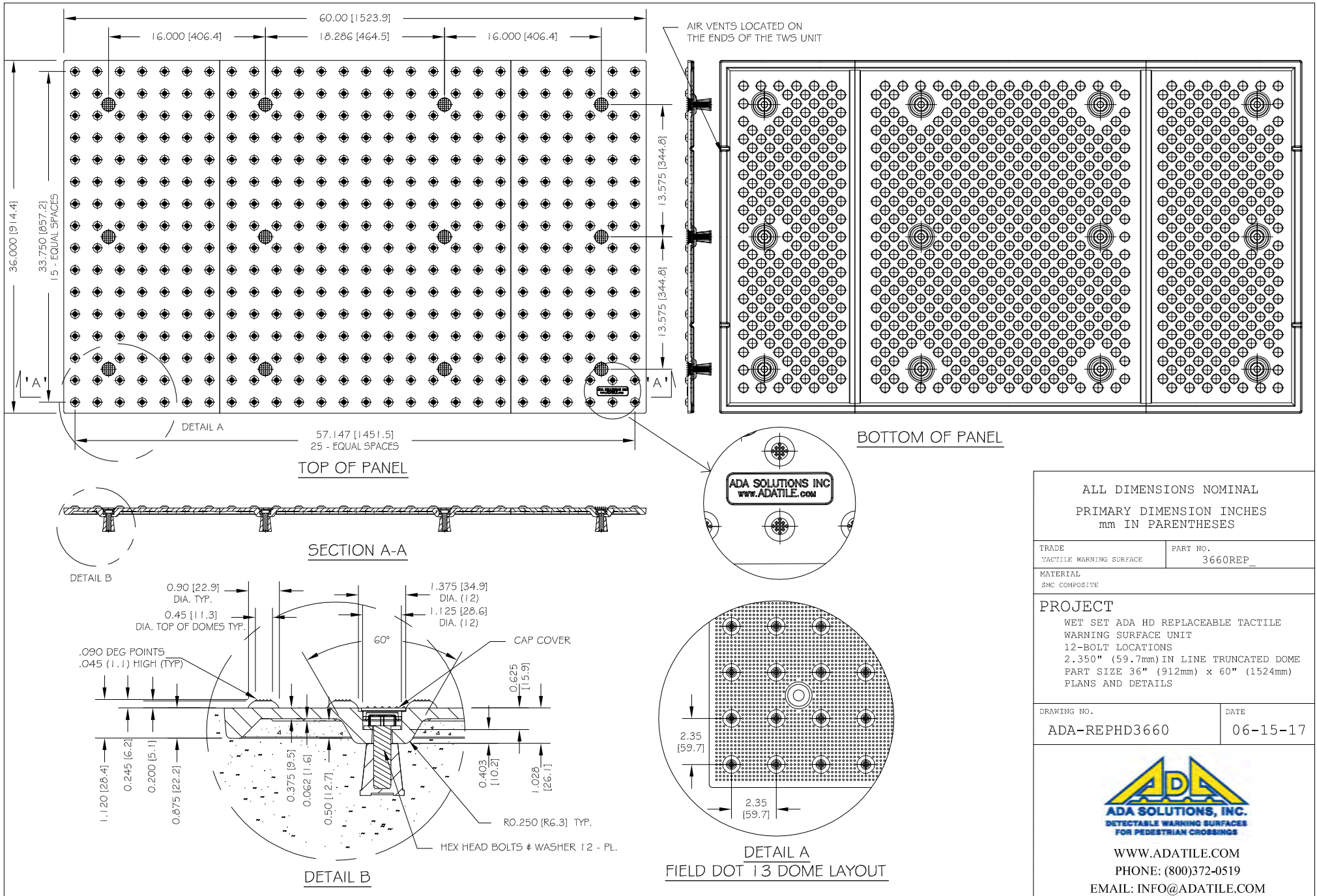
PROJECT

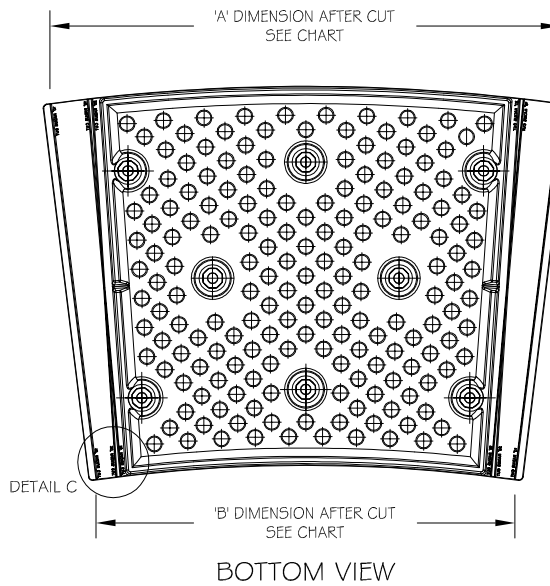
WET SET ADA HD REPLACEABLE TACTILE
WARNING SURFACE UNIT
9-BOLT LOCATIONS
2.350" (59.7mm) IN LINE TRUNCATED DOME
PART SIZE 36" (914mm) x 48" (1219mm)
PLANS AND DETAILS

DRAWING NO. ADA-REPHD3648	DATE 06-15-17
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EMAIL: INFO@ADATILE.COM



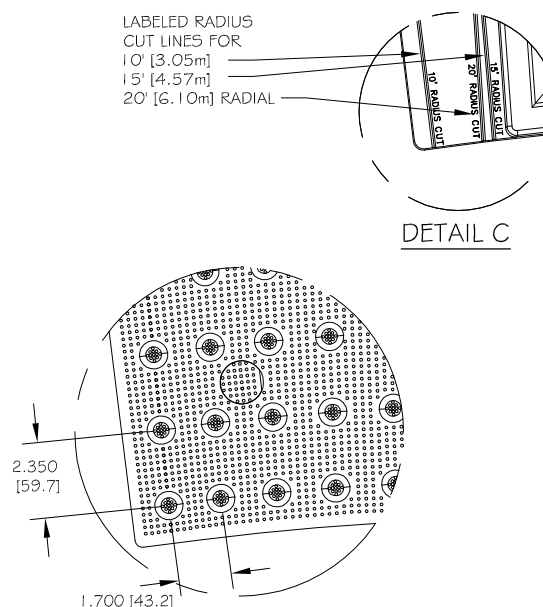
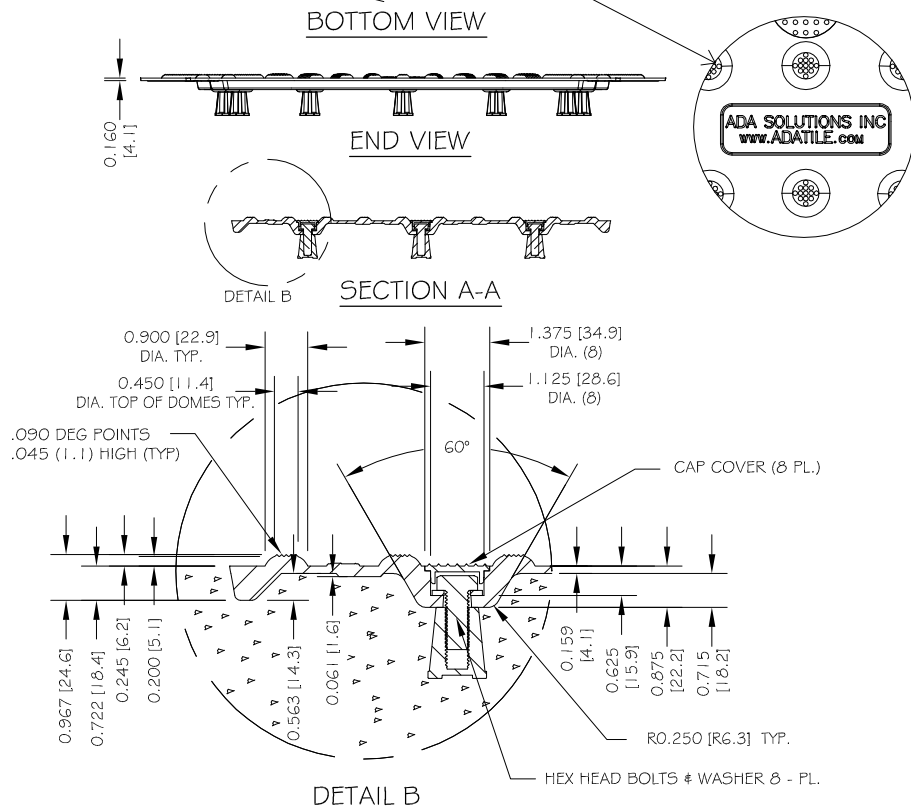


Curb Radius	'A' Dimension	'B' Dimension
10'	2' - 8 ⁵ / ₁₆ "	2' - 2 ⁷ / ₁₆ "
15'	2' - 3 ⁵ / ₈ "	1' - 11 ⁷ / ₁₆ "
20'	2' - 3 ¹ / ₁₆ "	1' - 11 ¹⁵ / ₁₆ "

IMPERIAL UNIT CHART

Curb Radius (m)	'A' Dimension (mm)	'B' Dimension (mm)
3.05	821	671
4.57	702	595
6.10	687	608

METRIC UNIT CHART



DETAIL A
FIELD DOT 13 DOME LAYOUT

ALL DIMENSIONS NOMINAL
PRIMARY DIMENSION INCHES
mm IN PARENTHESES

U.S. PATENT #9,365,984

TRADE TACTILE WARNING SURFACE	PART NO. 248RADREP_
MATERIAL SMC COMPOSITE	

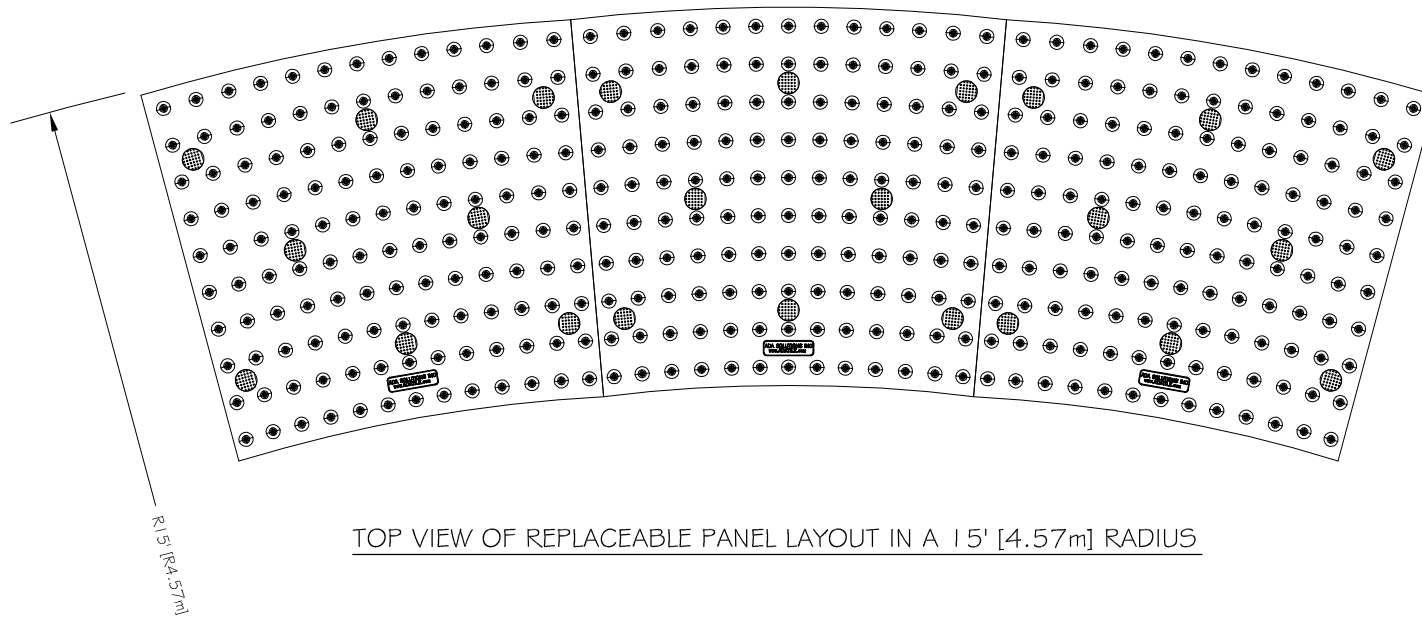
PROJECT

WET SET ADA REPLACEABLE TACTILE
WARNING SURFACE UNIT
8-BOLT LOCATIONS
2.350" (59.7mm) IN LINE TRUNCATED DOME
PART SIZE 24" (610mm) x 10" (3.05m),
15" (4.57m), 20" (6.1m) RADIAL
PLANS AND DETAILS

DRAWING NO.	DATE
ADA-REP24RAD	06-15-17



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PHONE: (800)372-0519
EMAIL: INFO@ADATILE.COM



TOP VIEW OF REPLACEABLE PANEL LAYOUT IN A 15' [4.57m] RADIUS

ALL DIMENSIONS NOMINAL
PRIMARY DIMENSION INCHES
mm IN PARENTHESES

U.S. PATENT #9,365,984

TRADE TACTILE WARNING SURFACE	PART NO. 24RAD8REP_
MATERIAL SMC COMPOSITE	

PROJECT

ADA WET SET REPLACEABLE
TACTILE WARNING SURFACE UNIT LAYOUT
2.350" (59.7mm) IN LINE TRUNCATED DOME
PART SIZE 24" x 15' RADIAL
(610mm x 4.57m RADIAL)

DRAWING NO. ADA-REP24RADLAY	DATE 06-15-17
--------------------------------	------------------



WWW.ADATILE.COM
PHONE: (800)372-0519
EMAIL: INFO@ADATILE.COM



Wherever you go, there we are.®

Composite Tactile Walking Surface Indicator (TWSI) Products

MAINTENANCE GUIDELINES:

1. ADA Composite TWSI Products:
 - A. [Surface Applied \(SA\)](#) TWSI Panels
 - B. [Cast-In-Place \(CIP\)](#) Permanently Embedded Composite Shell TWSI Panels
 - C. [Cast-In-Place Replaceable \(CIPR\) Wet Set](#) TWSI Panels
2. Cleaning of ADA Composite TWSI Products:
 - A. All Composite TWSI Products can be periodically pressure washed as required for cleanliness.
 - B. Using 20,684kPa to 27,579 kPa (3,000psi to 4,000psi) water pressure nozzle at a minimum of 305mm (12") distance between the spray nozzle and the surface of the TWSI Panel to be cleaned.
 - C. Any standard industrial cleaning solution can be used to clean the TWSI products.
 - D. Gum, Asphalt, and similar contaminants: Carefully scrape material off TWSI Products. A solvent such as acetone or xylene may be used to dissolve any residual contamination.
3. Fasteners: [Surface Applied](#) and [Cast-In-Place Replaceable \(Wet Set\)](#) Tactile Walking Surface Indicators Products only.
 - A. Inspect [Surface Applied](#) fasteners and [Cast-In-Place Replaceable \(Wet Set\)](#) caps to ensure they are securely installed and at appropriate finish grade.
 - B. Adjust fastener installation as necessary.
4. Sealant: [Surface Applied](#) TWSI Panels only.
 - A. Inspect sealant for integrity.
 - B. Replace any loose, damaged, or missing sealant.
 - C. Clean TWSI Panel and Substrate.
 - D. Install new sealant in accordance with sealant manufacturers recommendations (generally on a clean, dry substrate in a temperature range of 5°C to 35°C (41°F to 95°F).

Thank you,

Brad D'Andrea

ADA Solutions, Inc.



Wherever you go, there we are.®

Tactile Walking Surface Indicators (7) Year Product Warranty

Contract Number: (INSERT HERE)
Completion Date: (INSERT HERE)
Project Description: (INSERT HERE)
No. – Type of Panels: (INSERT HERE) | (INSERT HERE)
Project Installer: (INSERT HERE)
Project Owner: (INSERT HERE)

**Warranty becomes effective 24 hours after the date of installation*

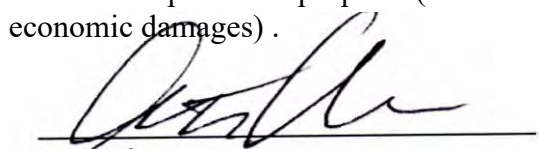
ADA SOLUTIONS, INC. ("ADA Tactile Systems") warrants to the Project Owner and Project Purchaser that the Tactile Walking Surface Indicators ("TWSI") product supplied by ADA is free from defects in workmanship and material including deformation, discoloration, severe fading, and breakage for a period of Seven (7) Years from the date of acceptance of the Project. The warranty is valid only upon completion of the job, proper maintenance of the TWSI product, and payment in full to ADA.

EXCLUSIVE REMEDIES: ADA, at its cost, will repair or replace any defective material promptly reported during the warranty period to ADA. This warranty includes labour costs and the cost of removal of the TWSI product(s). Repair or replacements will be done on site.

All TWSI products manufactured by ADA Solutions, Inc. are hereby warranted to comply fully with all applicable American with Disabilities Act of 1992 and the Public Rights of Way Accessibility Guidelines (PROWAG), California Title 24, ISO 23599:2012, and ISO 21542:2011.

WARRANTY LIMITATIONS: ADA's warranty does not apply to conditions resulting from improper use, improper installation, external causes, acts of God, intentional misuse or abuse, neglected or improper annual maintenance, vandalism, modifications to the TWSI product, with the exception of the Owner's right to immediately eliminate an unsafe condition.

DISCLAIMER OF WARRANTY: The above warranty is the Owner's and Purchaser's exclusive warranty. No other warranty expressed or implied shall apply. ADA specifically makes no warranty of merchantability and/or fitness for a particular purpose. (In no event will ADA be liable for any damages, lost profit, consequential or economic damages) .


Scott Ober

Vice President
ADA Solutions, Inc.

323 Andover Street - Suite 3 ■ Wilmington, MA 01887
Tel: 800.372.0519 Fax: 978.262.9125
www.adatale.com



Wherever you go, there we are.®

Certificate of Compliance

Contract Number: (INSERT HERE)

Date: (INSERT HERE)

Project Description: (INSERT HERE)

Installer: (INSERT HERE)

Owner: (INSERT HERE)

MANUFACTURER: ADA Solutions, Inc.

SUBJECT: Tactile Walking Surface Indicators

PRODUCT: Fiberglass and carbon reinforced polyester based composite. Sheet moulded compound (SMC) Colour-fast and UV stable; Cast-in-Place Pavers, Cast-in-Place Replaceable and Cast-in-Place Radius Replaceable as well our line of Cast Iron TWSI products.

All products manufactured by ADA Solutions, Inc. comply fully with all requirements of the Buy America Act 165(a) and amendments applicable to regulation in 49 CFR part 661 and as well as all Buy America Provisions.

We at this moment certify that the above material(s) conform(s) with all Tactile Walking Surface Indicator requirements as specified by the:

- ISO 23599:2012 - Assistive Products for Blind and Vision-Impaired Persons - Tactile Walking Surface Indicators.
- ISO 21542:2011 - Building Construction - Accessibility and Usability of the Built Environment.
- American with Disabilities Act of 1990
- Public Rights of Way Accessibility Guidelines (PROWAG)
- California Title 24

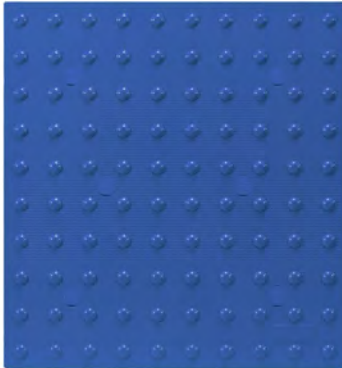
Please feel free to contact us with any questions or requests for additional information.

Sincerely,

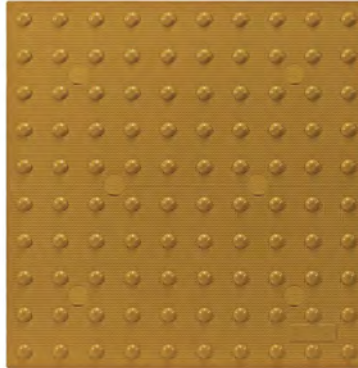
Brad D'Andrea
ADA Solutions, Inc.
brad@adatile.com
O: (978) 262-9900
C: (978) 831-3060



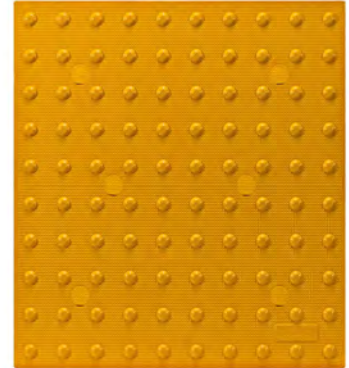
Color Chart



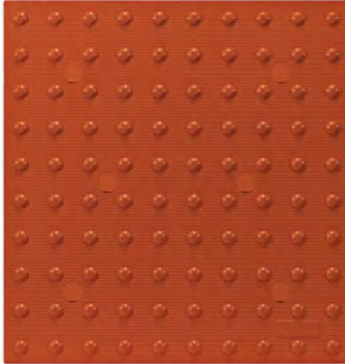
Safety Blue (B) Color No. 15187



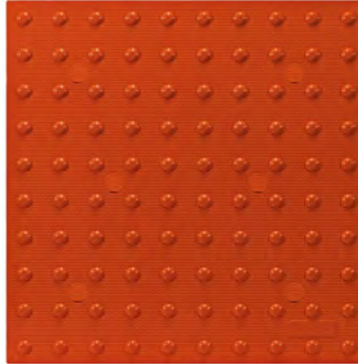
Seattle Yellow (SY) Color No. 23594



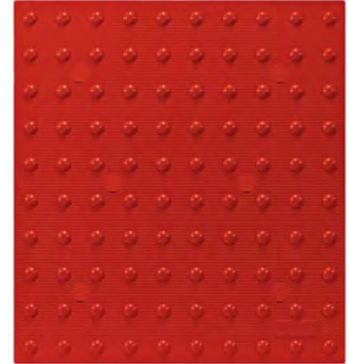
Federal Yellow (Y) Color No. 33538



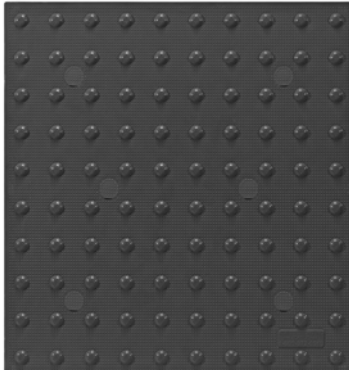
Clay Red (CR) Color No. 22144



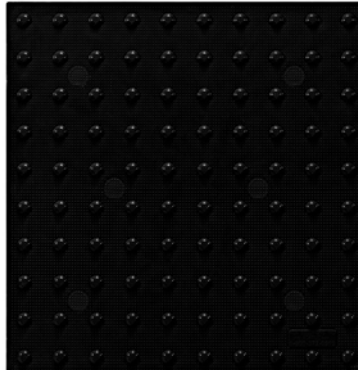
Brick Red (R) Color No. 20109



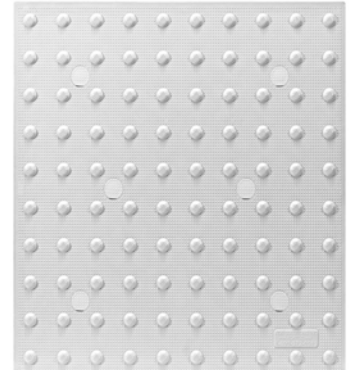
Safety Red (SR) Color No. 31350



Dark Gray (G) Color No. 36081



Black (B) Color No. 37038



White (W) Color No. 27925



Material Safety Data Sheet

Prepared By: Scott Ober

1. MATERIAL IDENTIFICATION

Product Name: Reinforced Molding Compound

Chemical Family: Polyester/Vinyl Ester

Chemical Formula: Proprietary

Material Use: Sheet Molding Compound

Manufacturer: ADA Solutions, Inc.

2. INGREDIENTS

Hazardous Ingredients	Approximate Concentration %	CAS No. or UN No.	Exposure Limits
Organic Peroxide	0.1 – 1.5%	CAS#614-45-9	N/A
Carbon Black	0.01 – 0.05%	CAS#1333-86-4	N/A

3. PHYSICAL DATA

Appearance and Odor: Solid mass, no odor

Specific Gravity: 1.1 – 2.0

Freezing Point: N/A

Solubility in Water: N/A

% Volatile by Volume: N/A

Boiling Point: N/A

pH: N/A

4. FIRE AND EXPLOSION INFORMATIONHEALTH HAZARD DATA

Flammability: Class A Rating

Means of Extinction: Water or Chemical Fire Extinguisher

Special Procedures: None

Explosion Data: None Known

Sensitivity Mech. N/A

Impact:

Hazardous Combustion: None Known

Auto Ignition Temp.: 490 Degrees C

Sensitivity to Static: N/A

5. HEALTH HAZARD DATA

Permissible Exposure: N/A for product (See section 2)

6. REACTIVITY DATA

Chemical Stability: Yes
Reactivity: N/A

7. SPILL OR LEAK PROCEDURES

Spill: None (Solid Mass Product)
Waste Disposal: Recycle or deposit in landfill in accordance with
Local, State & Federal Regulations.

8. PROTECTIVE EQUIPMENT TO BE USED

Protective Gloves: Wear resistant gloves
Eye Protection: Safety glasses when cutting tiles

9. LEGAL DISCLAIMER

The information contained in this data sheet is furnished in good faith and without warranty, representations, or inducement or license of any kind, except that it is accurate to the best of ADA Solutions, Inc.'s knowledge, or was obtained from sources believed by ADA Solutions, Inc. to be reliable. The accuracy, adequacy or completeness of health and safety precautions set forth herein cannot be guaranteed, and the buyer is solely responsible for ensuring that the product is used, handled, stored, and disposed of safely and in compliance with applicable federal, state and local laws. ADA Solutions, Inc. disclaims liability for loss, damage, or personal injury that arises from, or is in any way related to, use of the information contained in this data sheet.



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 1: Identification of the Substance / Mixture and of the Company / Undertaking

1.1 Product Identifier

Product Molded SMC (Sheet Molding Compound) Parts.

1.2 Relevant Identified Uses of the Substance or Mixture

Use: PROWAG, ADA/ABA, CBC-2013 compliant Tactile Warning Surface and Wayfinding Products to warn pedestrians of curb ramps, hazardous vehicular areas and vertical drop-offs such as platform edges.

1.2 Details of the Supplier of the Safety Data Sheet

Continental Structural Plastics

255 Rex Boulevard

Auburn Hills, MI 48326

Telephone : (248) 823-5664 or (248) 237-7800

ADA Solutions, Inc.

323 Andover Street – Suite 3

Wilmington, MA 01887

Telephone: (800) 372-0519 or (978) 262-9900

1.2 Emergency Telephone Number

Emergency Number 24 Hour Contact CHEMTREC 1-800-424-9300

SECTION 2 : Hazards Identification

2.1 Classification of the Substance or Mixture

GHS – US Classification None

2.2 Label Elements

GHS - US Labelling:

Hazard Pictograms (GHS-US) None

Signal Word (GHS-US) None

Hazard Statement (GHS-US) None

Precautionary Statements (GHS-US)

P264 - Wash hands and face thoroughly after handling.

P280 - Wear protective gloves and eye protection.

P302+P352 - If on skin : wash with soap and water.

P305+P351+P338 - If in eyes : rinse cautiously with water for several minutes. Remove contact lenses if present and continue rinsing.

P501 - Dispose of contents in compliance with federal, state and local regulation.

2.3 Other Hazards

No Additional Information Available.



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 3 : Composition / Information on Ingredients

3.1 Substances

Not Applicable.

3.2 Components of Sheet Molding Compound

Ingredient Name	Product Identifier	GHS-US Classification
None	(CAS No.) : N/A	Not Classified

Sheet Molding Compound Molded Parts would be considered "articles" as defined under Section 29 CFR 1910.1200 (c). This Safety Data Sheet is prepared for dust generating processes (grinding, cutting, drilling, etc.) from the molded SMC parts.

SECTION 4 : First-Aid Measures

4.1 Description of First-Aid Measures

First-Aid Measures after Inhalation	Assure fresh air breathing. Allow the person to rest.
First-Aid Measures after Skin Contact	Do not rub affected area. Wash with plenty of soap and water. If skin irritation occurs, get medical advice / attention.
First-Aid Measures after Eye Contact	Rinse immediately with plenty of water. Obtain medical attention if pain blinking or redness persists. Direct contact with eyes is likely irritating.
First-Aid Measures after Ingestion	Rinse mouth. DO NOT induce vomiting. Seek emergency medical attention.

4.2 Most Important Symptoms and Effects, both Acute and Delayed

Symptoms / Injuries	None other than listed in sections below
Symptoms / Injuries after Inhalation	Shortness of breath
Symptoms / Injuries after Skin Contact	Causes skin irritation

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No Additional Information Available.

SECTION 5 : Firefighting Measures

5.1 Extinguishing Media

Extinguishing Media	Foam. Dry powder. Carbon dioxide. Water spray. Sand.
---------------------	--

5.2 Special Hazards Arising from the Substance or Mixture

Fire Hazard	Not applicable
Explosion Hazard	Not applicable

5.3 Advice for Firefighters

Firefighting Instructions	Use water spray or fog for cooling containers. Exercise caution when fighting any fire. Avoid firefighting water to enter environment. In case of fire : evacuate area.
Precaution during Firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 6 : Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

General Measures Not Applicable

6.1.1 For Non-emergency Personnel

Emergency Procedures Not Applicable

6.1.2 For Emergency Responders

Protective Equipment Not Applicable

Emergency Procedures Ventilate area

6.2 Environmental Precautions

Precautionary Actions Not Applicable

6.3 Methods and Material for Containment and Clean-up

Methods for Cleaning Up On land; sweep, shovel or lift into suitable containers.

6.4 Reference to Other Sections

See Section 8. Exposure Controls and Personal Protection.

SECTION 7 : Handling and Storage

7.1 Precautions for Safe Handling

Precautions for Safe Handling Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking or leaving work. Provide good ventilation in process area to prevent formation of dust. Keep away from sources of ignition - no smoking. Obtain special instructions before use. Wash hands and face thoroughly after handling.

7.2 Conditions for Safe Storage - Including any Incompatibilities

Storage Conditions Not Applicable

Incompatible Products Not Applicable

Incompatible Materials Not Applicable

Storage Area Not Applicable

7.3 Specific End Use(s)

Molded Fiberglass Reinforced Plastic Parts.

SECTION 8 : Exposure Controls / Personal Protection

8.1 Exposure Parameters / Control

SMC Dust (CAS No. N/A)

USA ACGIH ACGIH TWA (mg/m³) 10 mg/m³ Inhalable Dust

USA OSHA OSHA PEL (TWA) (mg/m³) 15 mg/m³ Total Dust



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 8 : Exposure Controls / Personal Protection (Continued)

8.2 Exposure Controls

Appropriate Engineering Controls	Ensure that eyewash stations and safety showers are close to the workstation location. Ensure exposure below occupational exposure limits. Proper ventilation required.
Personal Protective Equipment	Avoid all unnecessary exposure. Safety glasses and gloves.
Hand Protection	Wear protective gloves.
Eye Protection	Safety glasses or goggles.
Respiratory Protection	Wear approved mask when Necessary.

SECTION 9 : Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical State	Solid
Color	Various
Odor	None
Odor Threshold	Not Applicable
pH	Not Applicable
Relative Evaporation Rate (butyl Ac=1)	Not Applicable
Melting Point	Not Applicable
Freezing Point	Not Applicable
Boiling Point	Not Applicable
Flash Point	Not Applicable
Self Ignition Temperature	No Data Available
Decomposition Temperature	No Data Available
Flammability (Solid, Gas)	Not Applicable
Vapor Pressure	Not Applicable
Relative Vapor Density @ 20 deg. C	Not Applicable
Relative Density	Specific Gravity - (1.15 - 2.00)
Solubility	Insoluble in water
Viscosity (Kinematic)	Not Applicable
Viscosity (Dynamic)	Not Applicable
Explosive Properties	Not Applicable
Oxidizing Properties	No Data Available
Explosive Limits	Not Applicable

9.2 Other Information

No Additional Information Available.



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 10 : Physical and Chemical Properties

10.1 Reactivity

No reactivity hazard other than the effects described in sub sections below.

10.2 Chemical Stability

Stable

10.3 Possibility of Hazardous Reactions

Not Applicable

10.4 Conditions to Avoid

Not Applicable

10.5 Incompatible Materials

Not Applicable

10.6 Hazardous Decomposition Products

Not Applicable

SECTION 11 : Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity	Not classified
Skin Corrosion / Irritation	May cause skin irritation.
Eye Damage / Irritation	May cause eye irritation.
Respiratory or Skin Sensitization	Not classified
Germ Cell Mutagenicity	Not classified based on available data, the classification criteria not met.
Carcinogenicity	Persistence and degradability
Reproductive Toxicity	Not classified based on available data, the classification criteria not met.
Specific Target Organ Toxicity (1-Expos.)	Not classified based on available data, the classification criteria not met.
Specific Target Organ Toxicity (Repeat)	Not classified based on available data, the classification criteria not met.
Aspiration Hazard	Not classified based on available data, the classification criteria not met.
Potential Adverse Human Health Effects	Not classified based on available data, the classification criteria not met.
Symptoms / Injuries after Inhalation	Possible shortness of breath.
Symptoms / Injuries after Skin Contact	May cause skin irritation.

SECTION 12 : Ecological Information

12.1 Toxicity

No additional information available.

12.2 Persistence and Degradability

Molded SMC Parts

Persistence and degradability Not applicable

12.3 Bio accumulative Potential

Molded SMC Parts

Bio accumulative potential Not applicable

12.4 Mobility in Soil

Not applicable

12.5 Other Adverse Effects

None known



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 13 : Disposal Considerations

13.1 Waste Disposal / Treatment Methods

Waste Disposal Recommendations Dispose of in a safe manner in accordance with local, state and federal regulations.

SECTION 14 : Transportation Information

**** THIS PRODUCT NOT REGULATED BY USDOT ****

14.1 UN Number

UN-No. (DOT) Not applicable

14.2 UN Proper Shipping Name

DOT Proper Shipping Name Not applicable

14.3 Additional Information

Other Information Not applicable

SECTION 15 : Regulatory Information

15.1 US Federal Regulations

Sheet Molding Compound

EPA TSCA Regulatory Flag Not applicable

SARA Section 311 / 312 Hazard Classes Not applicable

SARA Section 313 TRI - Emission Reporting

Not Applicable

Material			Material		

15.2 US Federal Regulations

CANADA

EU - Regulations

Classification According to Regulation (EC) No.1272 / 2008 [CLP]

Classification According to Directive 67 / 548 / EEC or 1999 / 45 / EC

15.2.2 National Regulations

No additional information available.

15.3 US State Regulations

Not regulated.



Safety Data Sheet: Molded SMC Tactile Warning Surface and Wayfinding Products

According to Federal Register / Vol.77, No.58 / March 26, 2012 / Rules and Regulations

SECTION 16 : Other Information

Date Prepared: January 27, 2016

HMIS Label – SMC	
0	FIRE HAZARD
1	HEALTH HAZARD
0	REACTIVITY
B	PERSONAL PROTECTION

SDC – US (GHS HazCom – 2012)

The information herein contained is given in good faith, but no warrants expressed or implied are made.