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Detectable Warning Systems:

Complying with current government accessibility and detectable warning guidelines.

Start



Learning Objectives:

Upon completion, you will better understand:

1. The importance of detectable warning for providing accessibility.
(what are detectable warnings, why are they used, and where are they required)
2. Current ADA Accessibility guidelines for the use of detectable warning.
3. Current state of California detectable warning surfaces accessibility guidelines.
4. The enforcement responsibilities of the current ADAAG governing bodies.
5. Various truncated dome tactile warning systems and their applications.

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Detectable Warnings and Accessibility



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Americans with Disabilities Act Accessibility Guidelines (ADAAG)

The Americans with Disabilities Act protects the civil rights of the people with disabilities.

The ADAAG ensures that buildings and facilities are accessible to the disabled community. The ADA sets accessibility requirements for state and local government facilities, public places of accommodation, and commercial facilities.

The federal Access Board has established, and maintains, design guidelines for accessible buildings and facilities. Known as the ADAAG or the ADA Accessibility Guidelines – the ADAAG offers guidance on a wide variety of facilities, establishing minimum requirements for new construction and alterations.

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Detectable Warnings and Accessibility

ADAAG Detectable Warning Guidelines:

In 1991, the ADAAG requirements regarding the use of detectable warning at curb ramps (4.7.7) and hazardous vehicular ways (4.29.5) , and transit platform edges (10.3.1 (8)) were enacted.

In 1994, the requirements for the use of detectable warning under the curb ramp section (4.7.7) and hazardous vehicular areas section (4.29.5) were suspended. The suspension was necessary to allow further research on the performance of various tactile warning surfaces.]

The suspension was allowed to expire in 2001 reinstating the requirement for detectable warnings.

In 2001, the access board released revised ADAAG guidelines. Due to extensive research which revealed that grooves, striations, and exposed aggregate did not meet ADA standards for detectability - thereby making truncated dome detectable warning systems the only option to meet ADA standards.

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Detectable Warnings and Accessibility

ADAAG Public Rights-of-way Guidelines (PROWAG):

The Access Board added new public rights-of-way provisions that ensure access for persons with disabilities wherever a pedestrian way is built, or altered. These provisions grant the same degree of convenience and safety to the disabled pedestrian that is already in place for the general public.

The Access Board released guidelines that address access to public streets, sidewalks, crosswalks, curb ramps, parking, and other components of public rights-of-way. These draft guidelines have been released as a supplement to the ADAAG – the Public-Rights-of-Way chapter within the revised ADAAG.

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Detectable Warnings and Accessibility

Governing Bodies and Enforcement

The lead federal agency responsible for the oversight of the ADA is the Department of Justice (DOJ). The Access Board is responsible for establishing minimum design standards for ADAAG compliance.

The Department of Transportation (DOT) is responsible for enforcing the ADA's Title II standards as well as implementing the regulations. (Overseeing State and local government.)

The Federal Highway Administration (FHWA) is the enforcement body regarding pedestrian discrimination issues under Title II. The FHWA is also responsible for the implementation of pedestrian access requirements. This is accomplished by oversight over all federal, state, & local governmental agencies that build and maintain highways and roadways whether they use federal funds or not.

The 1994 suspension of detectable warning was allowed to lapse in 2001 reinstating the requirement for detectable warning. The suspension was allowed to lapse because significant study showed the need for detectable warnings. The FHWA is obligated to enforce the requirements, and local and state governments are required to apply minimum design standards for new construction or the altering of pedestrian facilities.

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ADA Accessibility Guidelines



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ADA Accessibility Guidelines

Introduction

In order to comply with ADAAG, detectable warning surfaces incorporating truncated domes are required at the following locations:

- Curb Ramps
- Hazardous vehicular ways
- Transit Platform Edges

The current ADAAG has released specific guidelines regarding detectable warnings. These guidelines include but are not limited to location, size, and color contrast.

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ADA Accessibility Guidelines

Detectable Warning Surfaces

The ADA Standards require that curb ramps include features called “detectable warnings.” Detectable warnings consist of a series of small domes that contrast in color with the surrounding sidewalk or street. They must be integrated into the walking surface, and there are specific measurements for the size and spacing of the domes. (Footnote ADA toolkit)

Detectable warnings are intended to function much like stop signs for pedestrians who are blind or have low vision. The warnings, which are intended to be felt with pedestrians’ feet, alert blind individuals and those with low vision that they are about to enter a street or other area where cars pass. A detectable warning alerts pedestrians who are blind or have low vision that they need to stop and determine the nature of the hazard – such as whether there is passing traffic – before continuing on their way.

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ADA Accessibility Guidelines

Detectable Warning Surfaces cont'd...

Under the ADA Standards, curb ramps are required to have detectable warnings that extend the full width and depth of the curb ramp. An example can be seen above.

The U.S. Department of Transportation (DOT), however, is encouraging the use of a different design for detectable warnings. Under this design, detectable warnings extend the whole width of the ramp, but cover only the two feet of the ramp closest to the street. DOT has deemed this departure from the ADA Standards to be permitted under Title II of the ADA. An example is seen above.

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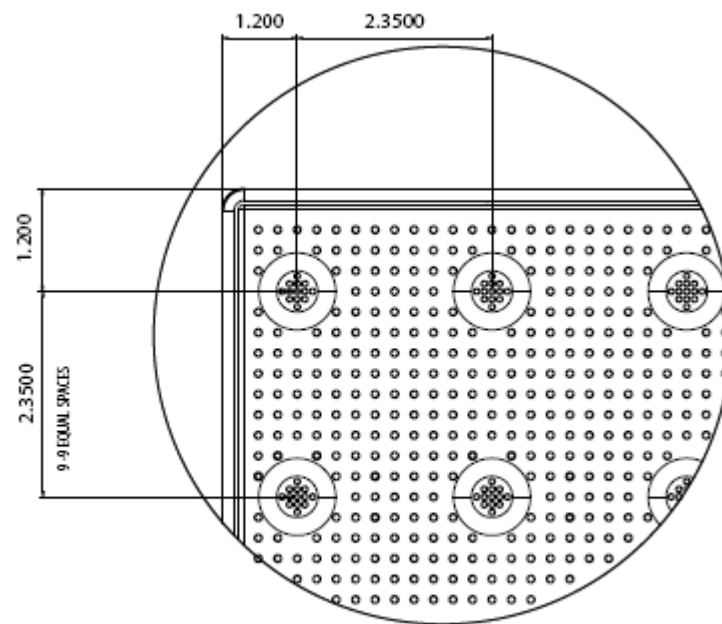
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ADA Accessibility Guidelines

Detectable Warning Surfaces cont'd...

Detectable warnings feature raised truncated domes of .9" in diameter, a height of 0.2". The domes spacing range between 1.6" and 2.4" Most manufacturers favor the 2.35" spacing for enhanced wheelchair and walker accessibility. The detectable warning must contrast visually with adjoining surfaces – either light on dark, or dark on light.

The material used to provide the visual contrast must be an integral part of the walking surface. Detectable warning used on interior surfaces must differ from adjoining walking surfaces in resiliency, or sound on cane contact.



DETAIL "A"

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ADA Accessibility Guidelines

Curb Ramps

Curb ramps or blended transitions are required to connect pedestrian access routes to street crossings and must be located within the width of each crosswalk.

Perpendicular Curb Ramps: Are distinguished by a running slope that cuts through a curb at right angles.

Parallel Curb Ramps: are distinguished by a running slope that is in line with the direction of sidewalk travel.

Blended Transitions: At a blended transition, the entire curb radius is at the same level as the street.

Blended transitions are discouraged against because single ramps can misdirect blind pedestrians who use the slope of curb ramps as a cue.

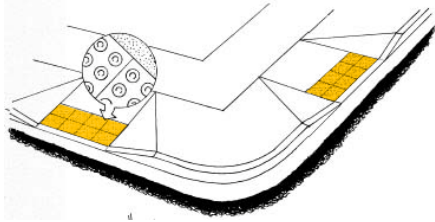
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ADA Accessibility Guidelines

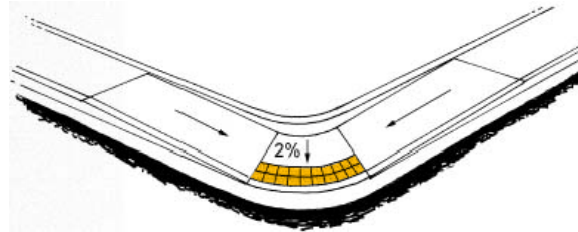
Curb Ramps cont'd...

Perpendicular Curb Ramp



Perpendicular curb ramps must have a running slope no greater than 1:12 and no less than 1:48 in order to distinguish them from blended transitions. A minimum 24"X48" level top landing is also required.

Parallel Curb Ramp



Parallel curb ramps must have a running slope no greater than 1:12, and no less than 1:48 to distinguish them from a blended transition. A minimum 24" X 48" level bottom landing is also required.

Blended Transition



Blended transitions are to have parallel and perpendicular slopes to the curb no greater than 1:48. If a transition has slopes greater than 1:48 they are to be treated as curb ramps.

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ADA Accessibility Guidelines

1992 The American with Disabilities Act

“The Americans with Disabilities Act (ADA) recognizes and protects the civil rights of people with disabilities and is modeled after earlier landmark laws prohibiting discrimination on the basis of race and gender.”*

“Under the ADA, the Access Board has developed and continues to maintain design guidelines for accessible buildings and facilities known as the ADA Accessibility Guidelines (ADAAG). ADAAG covers a wide variety of facilities and establishes minimum requirements for new construction and alterations.”

*Access board Draft guidelines June 17, 2002

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ADA Accessibility Guidelines

Under the ADAAG of 1992 Detectable warnings are required at the following locations:

Curb Ramps: “A curb ramp shall have a detectable warning complying with 4.29.2 The detectable warning shall extend the full width and depth of the curb ramp.” (4.7.7)

Hazardous Vehicular Ways: “If a walk crosses or adjoins a vehicular way, and the walking surfaces are not separated by curbs, railings, or other elements between the pedestrian areas and vehicular areas, the boundary between the areas shall be defined by a continuous detectable warning which is 36” wide, complying with 4.29.2” (4.29.5)

Transit Platform Edges: “Platform edges bordering a drop-off and not protected by platform screens or guard rails shall have a detectable warning. Such detectable warnings shall comply with 4.29.2 and shall be 24” wide running the full length of the platform drop-off.” (10.3.1(8))

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ADA Accessibility Guidelines

In 2002, the Public Rights-of-Way Guidelines or PROWAG is established.

This draft, clarifies the existing ADAAG requirements. The draft Public-Rights-of-Way guidelines propose that detectable warning surfaces (section 1108) be required to consist of a surface of truncated domes aligned in a square grid pattern, complying with the following requirements:

1108.1.1 Dome Size: a base diameter of 0.9” to 1.4”, a top diameter of 50% to 65% of the base diameter, and a height of 0.2”.

1108.1.2 Dome Spacing: Center-to-center spacing of 1.6” to 2.4” and minimum base-to-base spacing of 0.65”, measured between adjacent domes on the grid. The detectable warning manufacturers learned that truncated domes spaced at 2.35” has resulted in smoother travel for wheeled devices. (Wheelchairs, shopping carts, strollers, as well as walkers.)

1108.1.4 Size: Detectable warnings shall extend 24” minimum in the direction of travel and the full width of the curb ramp, landing, or blended transition.

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ADA Accessibility Guidelines

Draft Public Rights-of-Way Guidelines cont'd... (PROWAG 2002)

In addition, the draft Public Rights-of-Way guidelines propose detectable warning surfaces incorporating truncated domes shall be located per the requirements of Section 1108 as follows:

1108.2.1 Curb Ramps and Blended Transitions: The detectable warning surface shall be located so that the edge nearest the curb line is 6" minimum and 8" maximum from the curb line. The curb line is defined as a line at the face of the curb that marks the transition between the sidewalk and the gutter or roadway.

1108.2.2 Rail Crossings: The detectable warning surface shall be located so that the edge nearest the rail crossing is 6" minimum and 8" maximum from the vehicle dynamic envelope.

1108.2.3 Platform Edges: Detectable warning surfaces at platform boarding edges shall be 24" wide and shall extend the full length of the platform.

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ADA Accessibility Guidelines

Draft Public Rights-of-Way Guidelines cont'd... (PROWAG 2002)

Draft guidelines propose pedestrian crossings, including curb ramps and blended transitions, certain median and refuge islands, and rail lines have detectable warnings for the visually impaired.

1103.7.1: Where rail systems intersect pedestrian facilities that are not shared with vehicular ways, a detectable warning shall be provided in compliance with section 1108.

1104.3.2: Detectable warning surfaces complying with section 11108 shall be provided, where a curb ramp, landing, or blended transition connects to a crosswalk.

1105.4.2: Medians and refuge islands shall have detectable warnings complying with section 1108. Detectable warnings at cut-through islands shall be separated by a 24" minimum length of walkway without detectable warnings.

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ADA Accessibility Guidelines

In 2005, the Public Rights-of-Way Guidelines (PROWAG) are finalized.

R304 Detectable Warning Surfaces

R304.1 General. Detectable Warnings shall consist of a surface of truncated domes aligned in a square or radial grid pattern and shall comply with R304.

R304.1.1 Dome Size. Truncated domes in a detectable warning surface shall have a base diameter of 23mm (0.9 in) minimum to 36 mm (1.4 in) maximum, a top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and a height of 5mm (0.2 in)

Advisory R304.1.1 Dome Size. Where domes are arrayed radially, they may differ in diameter within the ranges specified.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R304.1 General. Detectable Warnings shall consist of a surface of truncated domes aligned in a square or radial grid pattern and shall comply with R304.

R304.1.1 Dome Size. Truncated domes in a detectable warning surface shall have a base diameter of 23mm (0.9 in) minimum to 36 mm (1.4 in) maximum, a top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and a height of 5mm (0.2 in)

Advisory R304.1.1 Dome Size. Where domes are arrayed radially, they may differ in diameter within the ranges specified.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R304.1.2 Dome Spacing. Truncated domes in a detectable warning surface shall have center-to-center spacing of 41mm (1.6 in) minimum and 61 mm (2.4 in) maximum, and a base-to-base spacing of 17mm (0.65 in) minimum, measured between the most adjacent domes.

Advisory R304.1.2 Dome Spacing. Where domes are arrayed radially, they may differ in center-to-center spacing within the range specified.

R304.1.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent gutter, street or highway, or walkway surface, either light-on-dark or dark-on-light.

Advisory R304.1.3 Contrast. Contrast may be provided on the full ramp surface but should not extend to the flared sides. Many pedestrians use the visual contrast at the toe of the ramp to locate the curb ramp opening from the other side of the street.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R304.1.4 Size. Detectable warning surfaces shall extend 610 mm (24 in) minimum in the direction of travel and the full width of the curb ramp (exclusive of flares), the landing, or the blended transition.

R304.2 Location and Alignment.

R304.2.1 Perpendicular Curb Ramps. Where both ends of the bottom grade break complying with R304.3.4 are 1.5m (5.0 ft) or less from the back of the curb, the detectable warning shall be located on the ramp surface at the bottom grade break. Where either end of the bottom grade break is more than 1.5 m (5.0 ft) from the back of curb, the detectable warning shall be located on the lower landing.

Advisory R304.2.1 Perpendicular Curb Ramps . Detectable warnings are intended to provide a tactile equivalent underfoot of the visible curblines; those placed too far from the street edge because of a large curb radius may compromise effective crossing analysis.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R304.2.2 Landings and Blended Transitions. The detectable warning shall be located on the landing or blended transition at the back of the curb.

R304.2.3 Alignment. The rows of truncated domes in a detectable warning surface shall be aligned to be perpendicular or radial to the grade break between the ramp, landing or blended transition and the street.

Advisory 304.2.3 Alignment. Where a ramp, landing or blended transition provides access to the street continuously around a corner, the vertical rows of truncated domes in a detectable warning surface should be aligned to be perpendicular or radial to the grade break between the ramp and the street for a 1.2 meter-wide (4.0 ft) width for each crosswalk served.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R304.2.4 Rail Crossings. The detectable warning surface shall be located so that the edge nearest the rail crossing is 1.8 m (6 ft) minimum and 4.6 m (15 ft) maximum from the centerline of the nearest rail. The rows of truncated domes in a detectable warning surface shall be aligned to be parallel with the direction of wheelchair travel.

R305 Pedestrian Crossings

R305.1 General. Pedestrian crossings shall comply with R305.

R305.2 Crosswalks. Crosswalks shall comply with R305.2 and shall contain a pedestrian access route that connects to departure and arrival walkways through any median or pedestrian refuge island.

R305.2.1 Width. Marked crosswalks shall be 1.8 m (6 ft) wide minimum.

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ADA Accessibility Guidelines

R304 Detectable Warning Surfaces cont'd...

R305.2.2 Cross Slope.

R305.2.2.1 Crossings with stop control. The cross slope shall be 2percent maximum.

R305.2.2.2 Crossings without Stop Control. The cross slope shall be 5 percent maximum.

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State of California Regulations

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State of California Regulations

Introduction

Current State of California regulations require detectable warnings at the following locations:

- Curb Ramps
- Transit boarding Platforms
- Hazardous Vehicular Areas

Although the specifications are similar to those found in the ADAAG, the state of California is very specific regarding some characteristics and placement of detectable warning.

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State of California Regulations

Detectable Warning Surfaces

Title 24 defines a detectable warning surface as a “Standardized surface feature Built into or applied to walking surfaces or other elements to warn visually impaired persons of hazards in the path of travel.”

Under Title 24, detectable warnings are required to consist of truncated domes with a diameter of 0.9” at the base tapering to 0.45” at the top, a height of 0.2” and a center-to-center spacing of 2.35.” (1117A.4.7)

Subsequent designs introduced in-line domes tactile warning that is also California approved. Depending on the configuration, the rows of truncated domes will be aligned with, or at a 45 degree angle to the curb, platform edge, or the direction of travel.

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State of California Regulations

Curb Ramps

Curb ramps are required to have detectable warnings that cover the full depth of the flat panel of the curb ramp (inside the grooved border) when the ramp slope is less than 1:15 (6.7%). A ½" beveled lip is required at the lower end of the ramp.

The detectable warning must contrast visually with the adjoining surfaces. Either light-on-dark or dark-on-light. The material used to provide contrast must be an integral part of the walking surface. The truncated domes may be cast-in-place or surface mounted.

The detectable warning is to be Federal yellow (federal color 00000). If the color contrast between the yellow warning and the main walking surface is less than 70%, a 1" wide black strip is required to separate the yellow detectable warning from the main walking surface.

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State of California Regulations

Transit Boarding Platforms

Transit boarding platforms require a 24" to 36" wide detectable warning installed the full length of the loading area and placed at the edge of the drop off or safe area.

The detectable warning must be durable, non-slip material with a surface texture composed of raised, truncated domes in a staggered pattern (see slide 22). The surface of the detectable warning must be able to be differentiated from the adjoining walking surfaces by resiliency, or sound on cane contact.

The detectable warning is to be Federal yellow in color (Federal color 33538). The detectable warning must also contrast visually with the adjoining surface – either light-on-dark, or dark-on-light. The material used to provide the contrast must be an integral part of the walking surface.

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State of California Regulations

Transit Boarding Platforms cont'd...

Transit boarding platforms are also required to have a detectable directional texture located directly behind the yellow detectable warning surface. The directional texture shall align with all doors of the transit vehicles where passengers embark.

The directional texture must be 0.1" in height, tapering to 0.04" with bars raised 0.2" from the surface. The raised bars must be 1.3" wide and spaced 3" from center-to-center. The width of the texture must be equal to the width of the transit vehicle's door opening with a depth not less than 36".

The directional texture is required to be safety yellow (Federal color 33538) and must be easily differentiated from adjoining walking surface in resiliency or sound on cane contact.

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State of California Regulations

Transit Boarding Platforms cont'd...



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State of California Regulations

Hazardous Vehicular Areas

Title 24 states: “If a walk crosses or adjoins a vehicular way, and the walking surfaces are not separated by curbs, railings or other elements between the pedestrian areas and vehicular areas the boundary between the areas shall be defined by a continuous detectable warning which is 36” wide.”

Per Title 24: This detectable warning is to be Federal yellow in color (Federal color 33538). The detectable warning must also contrast visually with the adjoining surface – either light-on-dark, or dark-on-light. The material used to provide the contrast must be an integral part of the walking surface.

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Detectable Warning Systems

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Detectable Warning Systems

Introduction

There are several types of detectable warning systems available today:

- Cast-in-place systems
- Surface applied systems (retrofit)
- Replaceable (wet-set) systems

Each system comes in a variety of colors:

Black, White, Yellow, Grey, Brick red and Blue, Clay Red

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Detectable Warning Systems

Cast-in-Place Systems

Cast-in-place detectable warning systems are set directly into freshly poured concrete. These systems do not require glue or anchors.

Since the cast-in-place system doesn't require a surface preparation, they are easily installed and cost effective.

Cast-in-place tactile are available in various sizes including: 24"X36", 24"X48", 24"X60", 36"X48" and 36"X60".

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Detectable Warning Systems

Cast-in-Place Installation

- A. The physical characteristics of the concrete shall be as specified in the contract documents, while maintaining a slump range of 4-7, to permit the solid placement of the Cast-in-Place Composite Tactile (CIP) in the wet cement.
- B. The concrete shall be poured and finished level, true and smooth to the required dimensions, prior to the placement of the tile.
- C. Place the CIP 6-8 inches from the curb line. Working in a grid pattern, tamp the CIP into the wet concrete using a rubber mallet and a scrap piece of wood. Continue this process until all of the air has been released, and the tile surface is flush with the surrounding area.

IMPORTANT: You should always avoid striking the surface of the tile directly.

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Detectable Warning Systems

Cast-in-Place Installation cont'd...

- D. Following the placement, the CIP elevation should be checked to the adjacent surface with a straight edge. The CIP elevation should be consistent with the contract drawings and specifications. Any required adjustments must be made before the concrete begins to set.
- E. When you are confident that the CIP is in place, and no further adjustments are needed, place a cinder block on both ends to hold the CIP in place while the concrete sets.
- F. During and after the installation, as well as the concrete curing stage, no walking or external forces can be placed on the CIP. The area must be protected from pedestrian traffic until concrete is cured. The surface will be ready for pedestrian traffic within 1 – 2 days.

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Detectable Warning Systems

Cast-in-Place Installation cont'd...

G. Be sure to clean all debris from the face of the CIP before concrete can cure.

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Detectable Warning Systems

Surface Applied Systems

Designed for retrofitting existing concrete surfaces. Excellent product to upgrade an existing facility for the visually impaired.

Surface mounted tiles are 1/8" thick with 1/2" perimeter beveled edges for a smooth transition with surrounding materials.

To create a durable bond, retrofit tactile units are secured to the existing substrate with anchors and structural adhesive. The perimeter is then caulked.

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Detectable Warning Systems

Surface Applied System Installation

- A. The installation area should be cleaned of all debris, oil, grease, making sure the area is completely free of any moisture. Surface Applied unit may be surface mounted on existing, pre-cleaned substrate.
- B. Lay out unit on the substrate as it will appear when installed. If required, the unit may be cut using a table saw and carbide tipped blade.
- C. Place a $\frac{3}{8}$ " bead of adhesive on the frame of the bottom of each unit. Adhesive yield: 10SF per 10 ounce cartridge, 18-24SF per 30 ounce cartridge.
- D. Set the unit in the installation area. Make all necessary adjustments prior to fastening.

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Detectable Warning Systems

Surface Applied System Installation cont'd...

- E. Fasteners shall be installed in pre-formed fastener locations. Holes shall be drilled using a hammer drill with $\frac{1}{4}$ " x 2" min SDS bits. The drilled holes must be a minimum of 2 inches deep. Place fasteners in hole and hammer into place. If additional fasteners are required, use a $\frac{1}{2}$ ", five point, 82 degree countersink to add a new fastener location. Follow same drilling method for installing the fastener.
- F. Caulk around perimeter of entire installation using Sonneborn NP1 Sealant or equivalent. All concrete dust present on the TWS Panel resulting from the drilling process must be cleaned off of the unit prior to using any caulking materials.
- G. Upon completion, all surfaces shall be cleaned to the satisfaction of the Engineer/Owner.

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Detectable Warning Systems

Replaceable (Wet-Set) Composite

A composite detectable warning system with a replaceable surface.

The replaceable detectable warning system turns replacement from a construction issue into a maintenance issue. After initial installation, simply unbolt the surface of the old unit and install a new one. It's that simple –It's the detectable warning system that will last as long as the ramp itself.

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Detectable Warning Systems

Replaceable (Wet-Set) Composite Installation

ADA replaceable (wet-set) composite units for commercial applications.

- 1. Submittals/Approvals:** Contractor will not be allowed to install ADA Replaceable (Wet-Set) Composite Unit (ADAREP) until all submittals have been reviewed and approved by the Engineer.
- 2. Truncated Dome Alignment:** When successive ADAREP Units are installed, or when cutting to a radius, take care to insure that the truncated domes are properly aligned (to the maximum extent possible) for the best possible function and architectural finish.
- 3. Concrete Substrate:** Generally, the ADAREP Unit shall be installed when the slump value of the concrete substrate is in the 4 – 7 range. The ADAREP Unit is best installed in a somewhat “stiff” concrete mix. Excessively “wet” concrete mixes are undesirable.

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Detectable Warning Systems

Replaceable (Wet-Set) Composite Installation cont'd...

ADA replaceable (wet-set) composite units for commercial applications.

4. **Installation:** The ADAREP Units shall be tamped with a rubber mallet (Avoid striking directly by using a cut 2"x4" piece of wood) or vibrated into the fresh concrete to ensure that there are no voids or air pockets, and the field level of the ADAREP unit is flush to the adjacent concrete surface, or as the drawings indicate, to permit proper water drainage and to eliminate tripping hazards between adjacent finishes.

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Detectable Warning Systems

Replaceable (Wet-Set) Composite Installation cont'd...

ADA replaceable (wet-set) composite units for commercial applications.

5. **Maintain a Level Profile:** Depending upon the “stiffness” of the concrete mix, it is possible that there might be a minor tendency of successive ADAREP Units to float slightly relative to one another. If and when such a condition arises, and to insure that ADAREP Units are level relative to one another, place a small piece of plywood (to distribute the load) with suitable weight on it to span the joint line between successive ADAREP Units. The weight may be removed once initial set of the concrete is achieved.

6. **Spacing:** The Installer must leave a 1/8” nominal gap between successive ADAREP Units. UNDER NO CIRCUMSTANCES SHALL SUCCESSIVE ADAREP UNITS BE INSTALLED WITHOUT THE 1/8” NOMINAL JOINT OR ALLOWED TO OVERLAP.

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Detectable Warning Systems

Replaceable (Wet-Set) Composite Installation cont'd...

ADA replaceable (wet-set) composite units for commercial applications.

Plastic Joint Materials:

To insure that a uniform 1/8" wide nominal joint is created between successive ADAREP Units, use 1/8" PLASTIC TILE SPACERS, as manufactured by Superior Bilt or equal, between successive ADAREP Units – this is the preferred approach. Alternatively, a plastic joint material such as "SPEED-E-JOINT" ("Zip-Strip"), as manufactured by W.R. Meadows, Inc., may be installed between successive ADAREP Units. Equivalent joint materials/systems may be used so long as a uniform 1/8" wide joint is created and so long as sealant may be properly applied to the 1/8" wide nominal joint.

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Course Summary

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Course Summary

Accessibility and Detectable Warnings

The Access Board developed and maintains design standards for accessible buildings and facilities known as the ADAAG – ADA Accessibility Guidelines.

Years of extensive research led to the current ADAAG (ADA Accessibility Guidelines) requirement of Detectable Warnings with truncated domes at curb ramps, hazardous vehicular ways, and transit platforms.

The FHWA (Federal Highway Administration) is the enforcement authority regarding pedestrian discrimination issues related to detectable warnings.

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Course Summary

Accessibility and Detectable Warnings

The current ADAAG requires detectable warnings at curb ramps, hazardous vehicular ways, and transit platform edges. The detectable warning must consist of truncated domes that contrast visually with adjoining surfaces.

For curb ramp applications, detectable warnings must extend the full width and depth of the curb ramp? Hazardous vehicular ways must be defined by continuous detectable warning 36" wide. Transit platform edges must have a 24" wide detectable warning running the full length of the passenger drop-off.

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Course Summary

California Regulations

Title 24, in the state of California requires detectable warnings at curb ramps, transit boarding platforms, and hazardous vehicular areas. Title 24 and the ADAAG are similar, but Title 24 is more specific.

Title 24 requires detectable warnings to be safety yellow and consist of truncated domes with a diameter of 0.9" at the base tapering up to 0.45" at the top. The truncated domes are required to be 0.2" in height and have a center to center dome spacing of 1.66" - 2.4"

Curb ramps must have detectable warning 36" deep. Transit platforms must have 24" wide of detectable warning the full length of the loading area. Hazardous vehicular areas must have a continuous 36" wide of detectable warning.

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Course Summary

California Regulations

Today, there are many different types of detectable warning systems available. A few examples include Cast-in-Place, Replaceable wet-set, Surface-applied, modular, guidance and directional tactiles.

The latest and most cost effective detectable warning system is the Replaceable wet set. This system allows the tactile surface to be replaced, without incurring the cost of replacement construction.

For new construction, Replaceable and Cast-in-Place systems are set directly into freshly poured concrete. This is cost effective as the detectable warning is completed on the same day as the concrete pour eliminating the extra cost required to retrofit these areas.

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Course Summary

California Regulations cont'd...

Guidance tactile helps guide the visually impaired across roadways and pedestrian crossings, while directional bar tiles can be used to aid boarding at bus stops and transit platforms.

Detectable warning systems are required at curb ramps, hazardous vehicular ways, parking areas, pedestrian crossings, stairwells, escalator approaches, transit platforms and multi-modal transit areas.

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ADA Accessibility Guidelines

Additional Information

The Access Board

www.access-board.gov

Department of Justice

www.ada.gov

Accessible Design for the Blind

www.accessforblind.org

Department of Transportation

www.dot.gov

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Conclusion

If you are interested in AIA/CES, CSI and/or state licensing continuing education credits, please click the link below to access the online examination. After completion, a representative will contact you with the results. With a score of 80% or better, you will be provided a certificate of completion.

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