

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 23 mm (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 5 mm (0.2 in).

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

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

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 R303.3.4 are 1.5 m (5.0 ft) or less from the back of 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 curbline; those placed too far from the street edge because of a large curb radius may compromise effective crossing analysis.

R304.2.2 Landings and Blended Transitions. The detectable warning shall be located on the landing or blended transition at the back of 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 R304.2.3 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.

R304.2.3 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.

R305.2.2 Cross Slope

R305.2.2.1 Crossings with Stop Control. The cross slope shall be 2 percent maximum.

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

R305.2.2.3 Midblock Crossings. The cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.

R305.2.3 Running Slope. The running slope shall be 5 percent maximum, measured parallel to the direction of pedestrian travel in the crosswalk.

R305.3 Pedestrian Signal Phase Timing. All pedestrian signal phase timing shall be calculated using a pedestrian walk speed of 1.1 m/s (3.5 ft/s) maximum. The crosswalk distance used in calculating pedestrian signal phase timing shall include the entire length of the crosswalk.

R305.4 Medians and Pedestrian Refuge Islands. Medians and pedestrian refuge islands in crosswalks shall comply with R305.4 and shall contain a pedestrian access route, including passing space, complying with R301 and connecting to each crosswalk.

R305.4.1 Length. Medians and pedestrian refuge islands shall be 1.8 m (6.0 ft) minimum in length in the direction of pedestrian travel.

Advisory R305.4.1 Length. The edges of cut-throughs and curb ramps are useful as cues to the direction of a crossing. This should be considered when planning an angled route through a median or island. Curb ramps in medians and islands can add difficulty to the crossing for some users. There are many factors to consider when deciding whether to ramp or cut-through a median or island. Those factors may include slope and cross slope of road, drainage, and width of median or island.

R305.4.2 Detectable Warnings. Medians and pedestrian refuge islands shall have detectable warnings complying with R304 at curb ramps and blended transitions. Detectable warnings at cut-through islands shall be located at the curblines in-line with the face of curb and shall be separated by a 61 cm (2.0 ft) minimum length of walkway without detectable warnings. Where the island has no curb, the detectable warning shall be located at the edge of roadway.