

Chapter 10. CONCRETE SIDEWALKS & OTHER CONCRETE FACILITIES

10.1 General

This chapter sets forth the minimum criteria to be used in the design of all sidewalks, access ramps and other concrete facilities. Roadway typical sections including sidewalks and curb and gutter shall be as specified by these STANDARDS AND SPECIFICATIONS.

10.1.1 ADA Requirements

All pedestrian facilities shall be designed in accordance with American Disabilities Act (ADA) regulations and the requirements of these Standards; whichever is safer for pedestrians.

10.2 General Layout & Design Criteria

10.2.1 Sidewalks

Sidewalks on Both Sides of Streets

Sidewalks shall be designed and constructed on both sides of all roadways unless specifically deleted by action of City of Northglenn. Bikeways may be constructed on both sides of the streets as required by the standard sections or through the Unified Development Ordinance requirements.

Minimum Width

All sidewalks used in conjunction with vertical curb and gutter shall have a minimum width of five feet (5') and as shown on the standard street sections.

In-Fill Sidewalk, Curb, & Gutter

In all existing areas previously developed, sidewalks, curbs, and gutter may be required to match existing conditions or Standards, as determined by the Engineering Division.

Thickness

All detached sidewalks less than 8 feet in width and not within driveways shall be a minimum of 4-inches thick concrete. All detached sidewalks greater than eight feet (8') wide shall be a minimum of six inches (6") thick. All sidewalks within a driveway area shall be six inches (6") thick. Sidewalks shall be a minimum of eight inches (8") thick were crossed by commercial traffic.

Slope

- **Cross Slope.** Maximum cross slope for sidewalks shall be ¼ inch per foot (1:48).
- **Longitudinal Slope.** Longitudinal slope of attached sidewalks shall be consistent with the street slopes and ADA requirements.
- **ADA Requirements for Steeper Slopes.** Sidewalks detached from the curb, with greater than five percent (5%) longitudinal slopes, shall be constructed to meet ADA requirements.
- Preferred design cross slope 1.5 - 1.8%.

Horizontal & Vertical Curves

- **Horizontal Curves.** When designed with horizontal directional changes, they shall be adjusted with no less than a ten (10') foot radius curve.
- **Vertical Curves.** All sidewalks with vertical grade changes shall be designed with a vertical curve that smoothly transitions the vertical grade changes.

Vertical Clearance

Any sidewalk shall have a minimum vertical clearance of eight (8') feet.

Horizontal Clearance

All sidewalks shall have a minimum horizontal clearance of two (2') feet.

Sidewalks

All sidewalks shall be detached from the curb and gutter. Combination curb, gutter and walk are limited to local streets that have limited width and are specifically approved by the Engineering Division.

Joints

All curb and gutter or curbside shall have joints every 10 feet. When removing sections of curb and gutter or curbside, the entire section shall be removed and replaced. If the Contractor damages a portion of the adjacent stone, the Engineering Division will require the Contractor to replace the stone. For all sidewalks during construction or rehabilitation, the Contractor shall remove only from joint to joint.

10.2.2 Access Ramps

Locations

In accordance with [CRS 32-2-107(2)], access ramps shall be installed at all intersections and at certain mid-block crosswalks and other special situations for all new construction or reconstruction of curb and sidewalks, as follows:

- Access ramps shall be constructed in accordance with the Standard Drawings.
- All "T" intersections shall have a minimum of three access ramps in accordance with the Standard Drawings.
- Type of ramps directional or standard
 - Directional Ramp. Refer to Standard Drawings.
 - Standard Corner Ramp. Refer to Standard Drawings.
- Cul-de-sacs. Either an access ramp or a driveway that meets access ramp requirements shall be provided in all cul-de-sacs. If a public walkway or bikeway intersects the street, a ramp shall be provided to connect the walkway or bikeway to the street. The ramp must line up with the walkway.
- Access ramps may be shown at all curb returns or called out by a general note on the development plans but must be shown (located) on all "T" intersections. Whenever referencing an access ramp, call out the specific detail drawing to construct that ramp.
- Access ramps are to be poured monolithic with the abutting curb and gutter.

- The ramp portion shall be constructed with “Truncated Domes/Detectable Warning Devices” in accordance with the Standard Drawings in **Appendix G.4**. The truncated domes shall be cast iron.
- Inlets and other Drainage structures shall not be placed in line with access ramps. Location of access ramps shall take precedence over location of the drainage structure.

10.2.3 Curb Cuts

Drainage

Where curb cuts are allowed based on traffic considerations, concentrated storm water runoff must not be discharged across the sidewalk. These flows must be directed to a sidewalk chase section. If this is not possible due to grading restraints, radius returns and a crossspan shall be used.

Standard Design

Curb cuts and driveways shall be constructed in accordance with the Standard Drawings in **Appendix G.4**.

Residential Use

Curb cuts should not be used for commercial/industrial or high-volume residential driveways. In general, when the number of parking spaces serviced by the driveway exceeds ten (10), radius returns should be used.

Crosspans

Crosspans shall be constructed in accordance with the Standard Drawing in **Appendix G.4**. Crosspans are not permitted across collector or arterial roadways, nor are they allowed on roadways with storm sewer systems. Double crosspans may be used parallel to collectors or arterial roadways to convey storm runoff across residential roadways.

The use of double crosspans elsewhere or the use of any crossspan on roadways where the vertical grade exceeds four-and-one-half percent (4.5%) will be considered only after all alternatives have been exhausted.

Inlets

Inlets shall be located to intercept the curb flow at the point curb flow capacity is exceeded by storm runoff. Refer to **Chapter 9 – Storm Drainage & Other Concrete Facilities** and the Mile High Flood District Criteria Manual (Latest Edition) for curb capacity. Inlets shall also be installed to intercept cross-pavement flows at points of transition in superelevation. Due to the presence of ADA ramps, inlets shall not be allowed in the curb return but shall be located outside the tangent points of the curb returns. Gutter transition sections abutting inlets shall not be within the curb return.

Sidewalk Chases

Storm water from concentrated points of discharge shall not be allowed to flow over sidewalks but shall drain to the roadway or storm inlet by use of chase sections. Sidewalk chase sections shall not be located within a curb cut or driveway. Hydraulic design shall be in accordance with the Mile High Flood District Criteria Manual (Latest Edition). Sidewalk chase sections shall be constructed in accordance with the Standard Drawing in **Appendix G.4**.

Temporary Erosion Control

Temporary erosion control is required along and at the ends of all roadways that are not completed due to project phasing, subdivision boundaries, etc., in accordance with **Chapter 6 – Earthwork & Erosion Control** of these STANDARDS AND SPECIFICATIONS.



Construction Stakes

The Contractor's surveyor shall provide all stakes required for curbs, gutters, walks and structures and shall furnish all necessary information relating to lines and grades. The contractor shall be held responsible for the reasonable preservation of all such stakes. The Contractor shall not remove stakes until three (3) working days after placement of concrete unless approved by the Engineering Division.

Backfilling

When side forms are removed, the space adjoining the concrete shall be backfilled in a timely manner with suitable material properly compacted and brought flush with the surface of the concrete and adjoining ground surface. In embankments, the backfill shall be level with the top of the concrete for at least two feet (2') and then sloped to the property line. Maximum slope shall be four to one (4:1). Where detached walks occur, the space between the curb and walk shall be backfilled on a straight line from the top of walk to the top of curb.

Connections with Existing Concrete Curb, Gutter, & Drives

Where new construction abuts existing, the work shall be accomplished so that no abrupt change in grade between the old and new work results.