

Sidewalk Construction Standards Materials, Equipment and Construction Methods.

All construction shall be in accordance with the City of Madison ordinances, standard specifications and as hereinafter stated. All sidewalks hereafter constructed, repaired or rebuilt shall be constructed, repaired or rebuilt according to the following specifications.

Permits

Permits to install new or repair sidewalks must be obtained prior to construction. A permit can be obtained at the City Finance Office or City Engineer's Office. Construction of sidewalk for new building construction is covered under the building permit for that work.

Stakes/Grades

City Engineering staff will assist with setting line and grade of new sidewalk.

Preparation of Subgrade. The subgrade shall be prepared by excavating or filling to the required elevation of the bottom of the concrete. The subgrade shall be well drained and cleaned of all sod and organic material. Where necessary for the construction of ramps and drive approaches, the curb shall be cut for its full depth. Where necessary to cut or remove tree roots, adequate precautions shall be taken so as to protect exposed roots and preserve existing trees. Any material found to be unsuitable, such as muck, peat, marl, soft clay and other such materials subject to frost heaving, differential frost action or unable to provide adequate support for surface improvements, shall be excavated and removed from the job site. Any material so removed shall be replaced with granular material as specified in the current specifications. All fills shall be thoroughly compacted to the required grade. The width of all cuts and fills shall be such that they conform to the final grading requirements as hereinafter stated.

Slope and Width. The surface of all sidewalks and subgrade shall not exceed a cross slope of 2%. This slope shall be directed toward the street. Walk grades shall generally follow the top of curb elevation with a maximum longitudinal grade of five percent (5%). All new concrete sidewalks shall have a minimum width of four (4) feet eight (8) inches. Any exceptions shall be approved by the City Engineer.

Ramps. Barrier free ramps shall be constructed at all curb crossings per the American Disabilities Act and SDDOT Standard Specifications for Construction and City of Madison standard specifications. Sidewalk ramps shall be installed at all street intersections and constructed in accordance with "Sidewalk Ramp Details".

Forms. The forms shall be of such design of steel or wood as to insure the accurate maintenance of lines and grades. Flexible strips may be used where necessary on curves. After forms are completely set in place, the contractor shall call the Department to determine if a form inspection is necessary before any concrete is poured.

Joints.

Expansion Joints. Traverse expansion joints one-half ($\frac{1}{2}$) inch thick shall be placed at every fifty- (50) linear feet of sidewalk, and expansion joint material one-half ($\frac{1}{2}$) inch thick shall be placed between the backs of curbs and sidewalks or driveway approaches. Expansion joint material shall be pre-molded strip of bitumen filled fiber, and shall be placed at right angles to the centerline of

the sidewalk and perpendicular to the top surface, and it shall extend from the surface of the concrete to the subgrade.

Contraction Joints. Insofar as possible, contraction joints shall be placed at every five-(5) linear feet of sidewalk. They may be formed by the use of divider strips three-sixteenths (3/16) inches in thickness or by cutting after floating a depth of not less than one-quarter (1/4) of the thickness of the sidewalk. They shall be straight, perpendicular, and at right angles to the centerline of the sidewalk. When the sidewalk abuts buildings or any special structures, joint details shall be approved by the City Engineer.

Depth of Slab. All new concrete sidewalk, except at driveways is recommended to be at least four (4) inches thick and shall be placed over two (2) inches of granular materials compacted in place. Replacement sidewalk will consist of removal and disposal of existing concrete then placement of new concrete four (4) inches thick. Undercutting may be required at the Inspector's discretion. Any undercut areas will have to be replaced with granular materials compacted in place. New drive approaches and new sidewalk abutting a driveway approach shall have a minimum of six (6) inches of concrete (commercial and industrial driveways eight (8) inches) placed on six (6) inches of granular material compacted in place. Similarly, replacement drive approaches and replacement sidewalk abutting a driveway shall consist of removal and disposal of existing concrete and replacement with six (6) inches of new concrete (eight (8) inch concrete for commercial or industrial driveways).

Materials. All materials used in sidewalks shall conform to the standard specifications of the South Dakota Department of Transportation, Section 460.2 and the following sections as amended herein:

Concrete, Section 462.1

Granular Material Section 820.1

Joint Fillers Section 860.1

Concrete Curing Section 821.1

Concrete

The recommended cement mix shall meet the current specifications of the City Engineer's Office for Class M6 Concrete (4000 psi) as specified in the current SDDOT Standard Specifications.

Placing and Finishing. Section 460.3 K & 460.3 M The subgrade shall be thoroughly moistened and the concrete shall be deposited to the proper depth. The concrete along the edges of the forms and joints shall be well spaded against forms and the concrete shall be struck off until all voids are removed and the surface has the required grade and cross section. The surface shall be struck off with a straight edge, floated and troweled just enough to produce a smooth dense surface, free from irregularities. Brushing crosswise with a fine hare brush or broom is required. All joints and edges shall be rounded to a radius of one-quarter (1/4) inch with an approved finishing tool.

Curing and Protection. All sidewalk and approach surfaces shall be treated as per the Standard Specifications of the South Dakota Department of Transportation, Section 460.3 N & 460.3 O, as amended. The sidewalk shall be properly protected from the elements, travel and vandalism for the first 72 hours, except that pedestrian travel may be permitted after 48 hours. The contractor shall be responsible for the strength and quality of the concrete laid during cold weather and

concrete damaged by frost action and/or vandalism shall be removed and replaced at the contractor's expense.

Final Grading and Cleanup. After the concrete has set sufficiently, but not more than three (3) days, the forms shall be removed and spaces shall be backfilled with topsoil. The area between the sidewalk and curb shall be graded and leveled as required to provide a slope of three-eighths (3/8) to one-half (1/2) inch per foot toward the curb or roadway. The area between the sidewalk and property line shall be graded and leveled as required to meet the original ground surface. These areas shall also be left free of all rocks, concrete, roots or other debris. Disturbed areas larger than 6-inches in width along the length of the sidewalk shall be seeded or sodded at the inspector's discretion.

Inspections. Upon placement of the forms and preparation of the subgrade the contractor shall notify the City of Madison Engineering Office to perform a form and grade inspection. The contractor will be required to make any corrective actions as outlined under this section of the ordinance. The sidewalk can be poured once the form and grade inspection is approved. The City may, at its discretion, perform slump, cylinder, or other tests as outlined in the SDDOT specifications. Upon the completion of the sidewalk, the contractor shall notify the City of Madison Engineering Office for a final inspection of the poured sidewalk. Should the City Engineer determine that the sidewalk does not meet the standards set forth within this ordinance or the South Dakota Department of Transportation Standards, the contractor and/or property owner shall remove and replace the sidewalk slabs at its own expense and replace the same to meet the requirements as set forth herein.

Permits. The contractor shall obtain a permit from the City Engineers Office for construction and maintenance of sidewalks within its boundaries and any applicable permits from the South Dakota Department of Transportation to work within the road right-of-way. The contractor shall perform their work in compliance with the South Dakota Manual of Uniform Traffic Control Devices by providing proper traffic control devices for construction work, as amended.

Mudjacking or Grinding. If a sidewalk has displaced but is in otherwise good condition, the inspector may decide that mudjacking or grinding the sidewalk to correct the misalignment is acceptable. This method can be used, when the conditions warrant, rather than replacing the sidewalk.

Disposal of Old Concrete

The disposal of concrete taken out is the responsibility of the permit holder. Disposal shall be made at an approved site.