

**PART 3
STANDARD SPECIFICATIONS
FOR CONCRETE AND CONCRETE STRUCTURES**

CITY OF ONALASKA, WISCONSIN

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SECTION 301: CONCRETE

301.1 GENERAL

All concrete used on City of Onalaska public works projects shall comply with the following subsections of Section 501, Concrete Masonry, of the latest edition of the Standard Specifications for Highway and Structure Construction of the State of Wisconsin, Department of Transportation, Division of Highways, except as modified in the City Specifications, Special Provisions, or in writing by the Engineer.

Concrete shall be mixed in a batch mixer of a type approved by the Engineer. Other mixing methods shall be approved by the Engineer.

The volume of concrete mixed in ready mixed trucks shall not exceed the manufacturer's rated capacity and shall be discharged from the transporting vehicle within one hour after the introduction of the mixing water to the cement and aggregates; non-agitating type truck haulage of concrete shall not be permitted.

301.2 CONCRETE CHARACTERISTICS

Concrete shall have the following characteristics:

Compressive Strength	3500 psi in 28 days
Slump	Slip form, 1 ½ inch (Max.) Flat work, 3 inch (Max.)
Air Entrainment	Slip form, 7% plus or minus 1 ½% All other, 6% plus or minus 1 ½%
Minimum Cement Content	6, 94lbs. Bags per cubic yard

The cement content shall be reduced with fly ash that conforms to ASTM C618 Class C or slag that conforms to ASTM C 989, grade 100 or 120.

301.3 WATER

Water shall conform to Section 501.2.4 of the Standard Specifications.

No water shall be added when placing concrete unless approved by the Engineer. If water is added without consent of the Engineer, this shall be considered sufficient grounds for rejecting the concrete.

301.4 ADMIXTURES

All concrete exposed to the weather shall be air-entrained. Admixtures other than those required for air entrainment shall be approved by the Engineer.

301.5 COLD WEATHER CONCRETE

Cold weather concrete shall conform to Sections 415.3.15 and 501.3.9 of the Standard Specifications.

In addition to the requirements of Sections 415.3.15 and 501.3.9, all concrete placed between October 15 and May 15 shall be covered with plastic and insulated with hay or other approved insulation, for not less than 7 days or more than 14 days.

Regardless of the precautions taken, the Contractor shall be responsible for the protection of the concrete placed, and any concrete damaged by freezing or frost action during the first seven (7) days following its placement shall be removed and replaced by

the Contractor at the Contractor's expense. All methods of protection are subject to approval by the Engineer.

301.6 STEEL REINFORCEMENTS

Steel reinforcements shall conform to Section 505, (Steel Reinforcement) of the Standard Specifications.

301.7 TESTING OF CONCRETE

Prior to the start of construction, the Contractor or his suppliers shall have representative samples of the fine and coarse aggregates to be used, tested by an independent testing and engineering laboratory for preparation of a design mix under Section 501, of the Standard Specifications. The cost of testing and design mix shall be borne by the Contractor. The results of said testing and a design mix shall be submitted to the Engineer for approval.

301.8 MIX DESIGN

Contractors are required to submit a mix design for concrete for review and approval by the Engineer. Mix Designs shall be submitted whenever the supplier or aggregate source is changed. Placement of concrete will not be allowed prior to approval of the Mix Design.

301.9 FLY ASH AND SLAG

The Contractor may substitute fly ash and/or slag for cement in accordance with the specifications for concrete masonry in the latest edition of State of Wisconsin, Department of Transportation Standard Specifications for Highway and Structure Construction and supplements thereto.

301.10 BACKFILLING AND OPENING TO TRAFFIC

Backfilling may proceed after concrete reaches a minimum compressive strength of 3000 psi. When the Contractor backfills prior to the time specified, he does so at their own risk.

The Engineer reserves the right to determine the time when the pavement or structure shall be opened to traffic, either on the basis of test cylinders, minimum time periods, atmospheric temperatures, or mix design.

When opening of the pavement or structure to traffic is controlled by cylinder tests, the pavement may be opened, after expiration of the curing period or cold weather protection period, as the case may be, when the tests of cylinders show a compressive strength of the concrete of not less than 3000 psi.

301.11 PROTECTION

The Contractor shall always have materials available to protect the surface of the plastic concrete against rain. These materials shall consist of waterproof paper or plastic sheeting.

The Contractor shall be responsible for protecting concrete from damage due to either accident or vandalism. Replacement of damaged concrete shall be at the Contractor's expense.

END OF SECTION

SECTION 302: CURB AND GUTTER

302.1 GENERAL

A. DESCRIPTION

This work shall consist of constructing air-entrained concrete masonry curb and gutter, with or without reinforcement, of the dimensions and design as indicated, and placed in one course on the prepared foundation or base, at the locations and to the required lines and grades, all as shown on the plans and or as provided by the Contract.

B. EQUIPMENT

Equipment and tools necessary for performing all parts of the work shall be satisfactory as to design, capacity and mechanical condition for the purposes intended, and any equipment which is not maintained in full working order, or which as used by the Contractor is proven inadequate to obtain the results prescribed, shall be repaired, improved, replaced, or supplemented to obtain the progress and workmanship contemplated by the Contract.

302.2 CONSTRUCTION METHODS

302.2.1 PREPARATION OF FOUNDATION

The foundation shall be prepared by excavating to the lines, grades and cross section shown on the plans and required for placing the concrete curb and gutter. All soft or unsuitable material underlying the proposed curb and gutter shall be removed and replaced with crushed aggregate base course, gradation No. 2 or 3. The foundation shall be approved by the Engineer prior to the placement of the crushed aggregate.

A minimum of 4+of crushed aggregate base course, gradation No. 2 or 3, shall be placed under the curb and gutter to a minimum of one foot outside the form lines.

When so indicated on the plans or specifications, drainage of the curb and gutter foundation shall be provided for with pipe underdrains, constructed in accordance with the pertinent requirements of Section 612, of the %Standard Specifications,+at the locations shown on the plans or as directed by the Engineer.

302.2.2 CONCRETE PLACEMENT

The concrete shall be placed either by an approved slipform/extrusion machine, by the formed method, or by a combination of these methods.

A. MACHINE PLACEMENT

The slipform/extrusion machine approved shall be so designated as to place, spread, consolidate, screed, and finish the concrete in one complete pass in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogeneous concrete section. The machine shall shape, vibrate, and/or extrude the concrete for the full width and depth of the concrete section being placed. It shall be operated with as nearly a continuous forward movement as possible. All operations of mixing, delivery, and spreading concrete will be so coordinated as to provide uniform progress, with stopping and starting of the machine held to a minimum.

B. FORMED METHOD

The forms shall be of steel or wood construction and shall conform to the design of the type of curb and gutter being installed. Forms shall be free of the hardened concrete, mud, dirt and debris and shall be free of bands and twists. Flexible or rigid forms of proper curvature may be used for curves having a radius of 100 feet or less. Division plates shall be metal.

The front and back forms shall extend for the full depth of the concrete. All of the forms shall be braced and staked so that they remain in both horizontal and vertical alignment until their removal. They shall be cleaned and coated with an approved form-release agent before concrete is placed against them.

The concrete shall be deposited into the forms without segregation and then it shall be tamped and spaded or mechanically vibrated for thorough consolidation. Low roll or mountable curbs may be formed without the use of a face form by using a straightedge and template to form the curb face. When used, face forms shall be removed as soon as possible to permit finishing. Front and back forms shall be removed as soon as possible to permit finishing. Front and back forms shall be removed without damage to the concrete after it has set.

302.2.3 FINISHING

The plastic concrete shall be finished smooth by means of a wood float and then it shall be given a final surface texture using a light broom or burlap drag. Concrete that is adjacent to forms and formed joints shall be edged with a suitable edging tool to the dimensions shown on the plans. Any honeycombed areas occurring either along the front or back of curb shall be pointed with mortar conforming to the requirements set forth under Subsection 518.2.3 of the Standard Specifications, except that the cement shall be Portland cement.

302.2.4 CONTRACTION JOINTS

Transverse weakened-plane contraction joints shall be constructed at right angles to the curb line at intervals not exceeding 10 feet. Joint depth shall average at least $\frac{1}{4}$ of the cross section of the concrete.

Contraction joints may be sawed, hand-formed, or made by 1/8-inch-thick division plates in the formwork. Sawing shall be done early after the concrete has set to prevent the formation of uncontrolled cracking. The joints may be hand-formed either by (1) using a narrow or triangular jointing tool or a thin metal blade to impress a plane or weakness into the plastic concrete, or (2) inserting 1/8-inch-thick steel strips into the plastic concrete temporarily. Steel strips shall be withdrawn before final finishing of the concrete. Where division plates are used to make contraction joints, the plates shall be removed after the concrete has set and while the forms are still in place.

302.2.5 EXPANSION JOINTS

Expansion joints shall be constructed at right angles to the curb line at immovable structures, excluding storm sewer inlets, and at points of curvature, at points of tangency, at intervals not exceeding 250 feet on straight sections, and between the curb and gutter and adjacent rigid structures. Filler material for expansion joints shall conform to requirements of ASTM D994, D1751, or D1752 and shall be furnished in a single half-inch thick piece for the full depth and width of the joint.

Expansion joints in a slipformed curb or curb and gutter shall be constructed with an appropriate hand tool by raking or sawing through partially set concrete for the full depth and width of the section. The cut shall be only wide enough to permit a snug fit for the joint filler. After the filler is placed, open areas adjacent to the filler shall be filled with concrete and then troweled and edged.

Alternately, an expansion joint may be installed by removing a short section of fresh extruded curb and gutter immediately, installing temporary holding forms, placing the expansion joint filler, and replacing and reconsolidating the concrete that was removed. Contaminated concrete shall be discarded.

Expansion joints shall not be placed within 15 feet either side of a storm sewer inlet. Slip formed curb and gutter construction leaving a gap for the inlet shall install two #6 reinforcing bars (or 3 - #4 rebars) into the pan section of the concrete. The rebars shall be a minimum of one foot in length and be equally spaced and set (6 inches) into each concrete segment.

302.3 PROTECTION

The Contractor shall always have materials available to protect the surface of the plastic concrete against rain. These materials shall consist of waterproof paper or plastic sheeting. For slipform construction, materials such as wood planks or forms to protect the edges shall also be required. The Contractor shall protect freshly placed curb & gutter from damage by rain events until adequately cured and resistant to damage. Concrete showing signs of damage as a result of a rain event will be removed and replaced at the Contractor's expense.

All concrete placed between October 15 and May 15 shall be covered with plastic and insulated for not less than 7 days or more than 14 days unless receiving prior approval from the Engineer. The Contractor must receive Engineer approval prior to placing concrete during this period.

When concrete is being placed in cold weather and the temperature may be expected to drop below 35 degrees Fahrenheit, suitable protection shall be provided to keep the concrete from freezing until it is at least 10 days old. Concrete injured by frost action shall be removed and replaced at the Contractor's expense.

302.4 CURING

Immediately after finishing has been completed and the free water has disappeared, the entire surface of the concrete shall be sealed by spraying thereon an impervious membrane that shall conform to the requirements of the Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete A.A.S.H.O. designation M148, Type 2, White Pigmented. Refer to Wisconsin Department of Transportation Standard Specifications for road & bridge construction, latest Edition.

Other methods of curing, such as, the wet fabric method and the paper method conforming to Section 415.5.10 of the Wisconsin State Highway Commission Standard Specifications for Road and Bridge Construction, may be used with approval of the Engineer.

302.5 REINFORCEMENT

Reinforcement shall be required in some utility trench crossings, but only when called out on the plans. Reinforcement shall consist of two #4 rebar, 15 feet long, centered on each crossing.

Reinforcement shall be paid for by the Contract Unit Price Bid for No. 4 Reinforcing Bar. When the Contract does not provide this bid item, the work shall be considered as incidental to the curb and gutter bid item.

302.6 BACKFILLING AND RESTORING THE SITE

When the curb & gutter has been cured and the forms removed, the space along the back of the curb shall be backfilled with satisfactory soil and thoroughly compacted. The backfill shall conform to the section shown on the plans or as necessary to match the adjacent ground surface. The Contractor shall dispose of surplus excavation and shall restore the site of the work to a neat and workmanlike condition.

To aid in the erosion control of soils entering the gutter, the topsoil shall be placed to a minimum depth of six (6) inches and be one inch below the top of curb in areas where residential or commercial construction is expected. Curb & gutter, which is fronting publicly owned lands and properties that were previously developed, should be restored with a minimum of six (6) inches of topsoil matching the top of curb.

302.7 METHOD OF MEASUREMENT

Curb and gutter, completed in accordance with the terms of the Contract, will be measured by length in linear feet along the base of the curb face or along the flow line of the gutter, and such measurement shall be continuous along such line where the gutter is extended across driveway and alley entrance returns. No deduction in length will be made for drainage structures installed in the curbing such as catch basins, drop inlets, etc.

All excavation required for and performed during construction of curb and gutter, when covered by a separate bid item in the Contract, will be measured for payment as provided in the specifications: However, when the Contract does not provide a separate bid item for curb and gutter excavation such work required and performed will not be measured for payment but will be considered as incidental to and a part of the item of curb and gutter as the case may be.

302.8 BASIS OF PAYMENT

The footage, measured as provided above, shall be paid for at the Contract unit price per linear foot for concrete curb and gutter (size and type), as the case may be. This price shall be full compensation for all excavation, the preparation of foundation, and crushed aggregate base, and all special construction required at driveway and alley entrances; for furnishing all materials, including concrete masonry, expansion joints, and reinforcement tie bars/ for placing, finishing, protecting, and curing; for sawing of joints when permitted by the Engineer; and for all labor, tools, equipment and incidentals necessary to complete the work; including disposal of surplus material from excavation and restoring the site of the work, provided, however, that where the Contract provides a bid item for curb and gutter excavation, such item of work required for construction of curb, gutter, or combination curb and gutter will be paid for as provided in the Contract.

END OF SECTION

SECTION 303: SIDEWALK

303.1 GENERAL

This work shall consist of constructing sidewalks, furnishing all the necessary materials, tools, and labor, and doing all the necessary excavating and filling required for the placing of sidewalks in one course of the required design; all as shown on the plans and provided by the Contract or as directed by the Engineer.

All sidewalks shall be 5 feet in width unless otherwise specified by the Engineer.

303.2 CONSTRUCTION METHODS

303.2.1 PREPARATION OF FOUNDATION

The foundation shall be formed by excavating or filling to the required elevation of the bottom of the subbase. The foundation shall be thoroughly tamped or otherwise compacted to ensure stability. The subgrade shall be brought to proper alignment to that after being compacted and struck off it will be at the proper elevation. The top of all subgrades in a fill section shall not be less than 2 feet beyond each side of the finished sidewalk with a slope of 2:1 on the sides (2q in width to 1qdepth). All organic material shall be removed from the subbase.

303.2.2 FORMS

Forms shall be of wood or metal construction, and shall be straight and of sufficient strength to resist springing, tipping or other displacement during the process of depositing and consolidating the concrete. An approved flexible form shall be used for all curves having a radius of 100 feet or less. The forms shall be set to proper line and grade, staked in position and shall be sufficiently tight to prevent leakage of mortar. Forms shall have a depth at least equal to the depth of the sidewalk. Proper slope toward inner edge of the sidewalk shall be ¼ inch fall to each foot in width and no more, unless approved by the Engineer. All forms shall be cleaned thoroughly and coated with an approved form-release agent before the concrete is placed against them.

303.2.3 THICKNESS

The thickness of sidewalks in residential districts shall not be less than 4 inches, and in business districts not less than 5 inches. Sidewalks through private driveways shall not be less than 6 inches thick.

303.2.4 PLACING AND FINISHING CONCRETE

Except as otherwise revised or amended herein, all the pertinent requirements of Section 501 of the Standard Specifications shall be applicable to the concrete masonry involved. The foundation and forms, and reinforcement when required shall be checked and approved by the Engineer before the concrete is placed. The concrete shall be placed on a moist foundation deposited to the required depth and consolidation and spaded sufficiently to bring the mortar to the surface, after which it shall be struck off and floated. Before the mortar has set, the surface shall be steel troweled (Hand or Fresno) and brushed. Before the concrete is given the final surface finish, the surface of the walk shall be checked with a 10-foot straightedge, and any areas which show a variation or departure from the testing edge of more than ¼ inch shall be corrected by adding or removing concrete as necessary while the concrete is still plastic.

303.2.5 JOINTS

Joints shall be made transversely and at right angles to the centerline of the walk at intervals so that the resultant squares or rectangles shall be of equal width (approx. 5 foot squares). All edges of the sidewalk along forms and joints shall be rounded with an edger of ¼ inch radius.

No joint shall deviate more than 5 degrees from a position perpendicular to the surface of the finished sidewalk nor shall the axis of any joint deviate more than ½ inch either way from a straight line.

When the sidewalk is constructed in partial width slabs, transverse joints in adjacent slabs shall be placed in line with like joints in the previously constructed slabs.

Expansion joint material shall consist of ½ inch expansion joint filler conforming to the requirements of the Standard Specifications for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction, AASHTO Designation: M153, Types I, II, or III, or the Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction, AASHTO Designation: M213, as per State D.O.T. Standard Specifications Latest Designation.

One-half inch transverse expansion joint filler shall be placed through the sidewalk at uniform intervals of not more than 100 feet. In locations where the sidewalk extends from the back of curb to the lot line or building, 1/2 inch expansion joint filler shall be placed between the sidewalk and back of abutting parallel curb and between sidewalk and building or other rigid structure. In all cases where sidewalk is constructed from curb to lot line, a construction joint shall be placed 1 foot behind the curb and parallel to it for ease of removal for placing of conduit or repairing of wiring for lighting and traffic signals. One-half inch expansion joint filler shall be placed between all approach walks and the main walk and between approach walks and the curb.

One-half inch expansion joint filler shall also be placed at all private and alley driveways, along lot lines extended of each street, along the outer edge of sidewalks extended and along the curb where such aprons meet.

When sidewalk is constructed adjacent to a building which is not on the lot line and the property owner wishes to pour a continuous walk from the curb to the building, the ½ inch expansion joint filler may be moved from the lot line to the building foundation; providing, however, that the distance between the building and the lot line does not exceed 2 feet. This portion that is between the lot line and building will not be considered as part of the Contract.

303.3 COLORING

Where coloring matter is required it shall be mixed dry with the cement until the mixture is of uniform color. The quantity and quality of coloring matter shall be such as shall not impair the strength of the sidewalk. Follow manufacturer's recommendations for installation of colored concrete.

303.4 PROTECTION

The Contractor shall always have materials available to protect the surface of the plastic concrete against rain. These materials shall consist of waterproof paper or plastic sheeting. For slipform construction, materials such as wood planks or forms to protect the edges shall also be required. The Contractor shall protect freshly placed sidewalk from damage by rain events until adequately cured and resistant to damage. Concrete showing signs of damage as a result of a rain event will be removed and replaced at the Contractor's expense.

The Contractor shall protect the new work from traffic or physical damage at his expense until adequately cured and of required strength. This includes erection and maintenance of barricades and warning lights.

Except by specific written authorization, concreting operations shall not be continued when a descending air temperature in the shade and away from artificial heat falls below 40 degrees Fahrenheit, nor resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 degrees Fahrenheit.

303.5 CURING

Immediately after finishing has been completed and the free water has disappeared, the entire surface of the concrete shall be sealed by spraying thereon an impervious membrane that shall conform to the requirements of the Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete A.A.S.H.O. designation M148, Type 2, White Pigmented. Refer to Wisconsin Department of Transportation Standard Specifications for road & bridge construction, latest Edition.

Other methods of curing, such as, the wet fabric method and the paper method conforming to Section 415.5.10 of the Wisconsin State Highway Commission Standard Specifications for Road and Bridge Construction, may be used with approval of the Engineer.

303.6 BACKFILLING AND RESTORING THE SITE

Bid proposal items shall include the cost of all reasonable clean-up, backfill and the proper disposal of all debris, to the satisfaction of the Engineer or his authorized representative. Where the sidewalk does not abut the curb, gutter, pavement or other structures, and when the concrete in such sidewalk has been cured and the forms removed, the spaces along the sides shall be backfilled with satisfactory soil and thoroughly compacted. The backfill shall conform to the section shown on the plans or as necessary to match the adjacent ground surface. The Contractor shall dispose of surplus excavation and shall restore the site of the work to a neat and workmanlike condition.

303.7 METHOD OF MEASUREMENT

Sidewalks shall be measured by area in square feet, and the quantity measured for payment shall be the amount actually completed and accepted in accordance with the terms of the Contract, computed from dimensions as shown on the plans, or as altered by order of the Engineer.

303.8 TREE & STUMP REMOVAL

Tree removal item shall include costs for complete removal of tree and its stump. Stump removal item shall include costs for complete removal of stump where trees have been removed previously by others.

303.9 WORK INCLUDED

Sidewalk construction shall also include the following work:

Excavation or fill to 6 inch depth.

Unit price bid includes proper root removal to avoid damage to new or replaced walks.

Where adjoining existing walks are not on the established grade, the walk in place shall be raised, lowered, or replaced by the Contractor at no extra cost. The maximum slope shall be ¼ inch per foot. Any damage resulting from this work shall be repaired by the Contractor without charge.

303.10 SCHEDULE OF WORK

Walks shall be installed in each area in accordance with work orders issued by the Sidewalk Inspector.

303.11 SAWCUTTING

Saw cutting, as directed by the Engineer, may be required at certain locations. Saw cutting shall be measured and paid for only at the designated locations. The cut shall be at least 2 inches in depth, and shall run straight and true with the item to be cut. Saw cutting required to deepen joints or to correct a slab damaged by the Contractor, which was to remain in place, shall not be a part of this item of work, and will not be measured or paid for.

303.12 CURB BOXES

If curb boxes are encountered with sidewalk or approach removal, care should be taken to preserve them. The Contractor will not be responsible for replacement of defective curb boxes, unless they are damaged through carelessness in the Contractor's operations. Defective curb boxes must be brought to the attention of the Engineer prior to sidewalk or approach removal. All curb boxes will have a 4+ PVC collar installed around the top to facilitate operation after installation.

303.13 SPRINKLER SYSTEMS

If sprinkling systems are encountered with sidewalk or approach removal, care should be taken to preserve the line and heads. If it is determined that the sprinkling system will be damaged as a result of construction, the abutting property owner should be notified and given time to remove and relocate the sprinkling system as necessary. The Contractor is responsible for repair of the sprinkling system when damaged through carelessness or unworkmanlike operations.

303.14 DAMAGE TO ADJACENT AREAS

Damage to areas adjacent to sidewalk occasioned by negligence of the Contractor's operation, i.e. asphalt paving, flagstone, brick walk, etc. shall be replaced in kind by Contractor to the satisfaction of the Engineer and at no additional charge. Contractor shall adjust or raise slabs adjacent to work in progress where designated by the Engineer to improve line, pitch, and/or drainage.

Contractor shall take all necessary precautions to prevent damage to boulevard areas and drive approaches (e.g. use of plywood sheeting, lighter loads and placing concrete with wheelbarrows). Contractor will be responsible for any damage done during Contractor's operation or that of any subcontractors. Repairs will be made to the satisfaction of the Engineer.

303.15 LANDSCAPING

All landscaping and site restoration shall meet the requirements of Part 8.

303.16 GUARANTEE

By execution of the Contract, the Contractor guarantees that should any defect appear or develop resulting from or caused by the use of improper materials, equipment, careless or improper workmanship or construction, or non-adherence to specified line and grade, the Contractor agrees to forthwith repair or cause the same to be corrected upon notification by the City. In case the Contractor fails to make such repairs or corrections, or cause the same to be made within a reasonable time, it is agreed that the City shall have the right to make such corrections or repairs and the Contractor will reimburse the City for all such expenditures. Effective period of guarantee shall be for one year following acceptance of work. Surety Bond shall contain the required provisions for this guarantee.

303.17 CURB RAMP DETECTABLE WARNING FIELD

303.17.1 DESCRIPTION

The work shall consist of furnishing all material, equipment and labor necessary for the placement of detectable warning devices at curb ramps, complete and ready for service at all new sidewalk curb ramps.

The devices shall comply with the Detectable Warnings on Walking Surfaces section of the Americans With Disabilities Act (Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 Detectable Warnings on Walking Surfaces).

303.17.2 DIMENSIONS

Detectable warning surfaces shall extend 24 inches minimum in the direction of travel and the full width of the curb ramp flush surface (generally 48 inches wide).

The detectable warning surface shall be located so that the edge nearest the curb line is 6 inches minimum and 8 inches maximum from the surface of the curb line.

Domes shall be aligned on a squared grid, aligned in rows parallel and perpendicular to the predominant direction of travel. Domes must not be skewed diagonally to the direction of travel.

303.17.3 APPLICATION & GUARANTEE

Detectable warning devices shall be installed in accordance with manufacturer's specifications and in accordance with the specification, or as otherwise specified on the plans and detail sheet. The finished surface shall be uniformly profiled to match the adjoining surfaces without lips or obstructions and shall drain completely.

The Contractor and manufacturer shall jointly warrant in writing the installed surface to last no less than five years without losing more than 2% of the truncated domes due to delaminating as a result of produce failure, and shall further warrant the surface for a minimum of five years against fading, chipping, peeling, cracking, deformation, loosening of tiles or loss of original shade due to sunlight, salt or exposure to weathering. Color shall be Federal Yellow.

303.17.4 MANUFACTURERS

Only those manufacturers listed on the latest version of the Wisconsin Department of Transportation's Approved Manufacturer List shall be allowed to be installed on City projects.

303.17.5 MEASUREMENT AND PAYMENT

The number of detectable warning devices shall be the actual number individual surfaces furnished and in place at each ramp, complete and accepted. This item shall be complete and include all work necessary to provide a complete and useable detectable warning device. This shall include but not be limited to: layout, bedding, surface preparation and placement of the device.

Per unit payment shall include all costs of furnishing material, equipment, and labor necessary for the placement of detectable warning device, and shall be in addition to the overlapping payment for square foot payment for forming, finishing and installing the curb ramp. If the detectable warning field area is larger than 8 square feet (where directed by the Engineer) extra payment will be made based on the bid item price divided by eight to determine a per square foot rate.

303.18 METHOD OF SIDEWALK MEASUREMENT

Sidewalks shall be measured by area in square feet, and the quantity measured for payment shall be the amount actually completed and accepted in accordance with the terms of the Contract, computed from dimensions as shown on the plans, or as altered by order of the Engineer.

303.19 BASIS OF PAYMENT

The area, measured as provided above, shall be paid for at the Contract unit price for the items of Concrete Sidewalk, which price shall be full compensation for furnishing all materials, including concrete masonry, reinforcement, and expansion joints; for all excavation and preparation of foundation and slab subbase, backfilling, and disposal of surplus material; for sawcutting, placing, finishing, jointing, protection, and curing; and for all labor, tools, equipment and incidentals necessary to complete the work and restore the site of the work. However, when the Contract provides a bid item for landscaping and restoration, these costs will be paid for separately as provided in the Contract.

END OF SECTION