

STANDARD SPECIFICATIONS

For

CONCRETE CURB & GUTTER – PRIVATE & ALLEY DRIVEWAYS

City of La Crosse, Wisconsin

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Up-dated March, 2007

1. SCOPE OF WORK:

This work shall consist of constructing concrete masonry curb, gutter, combination curb and gutter, and driveways of the dimensions and design as indicated, and placed in one course on the prepared subgrade or base, at the locations and to the required lines and grades; all as shown on the plans and provided by the contract.

2. CEMENT:

The cement shall be air-entrained Portland cement conforming to A.S.T.M. Designation C-175. Normal Portland cement conforming to A.S.T.M. Designation C-150 may be used, in the event air-entrained cement is not available, with the addition of an air-entraining agent approved by the Engineer and added in amounts designated by the manufacturer. Approval for use of air-entraining additives, if extended, shall be considered conditional only and contingent upon actual experience with the use of the material. Approval may be revoked at any time should unsatisfactory results be encountered.

3. WATER:

Water shall be used and paid for by the Contractor under the rules and regulations of the La Crosse Water Utility and shall be clean; free from oil, acids, alkali or vegetable matter.

4. FINE AGGREGATE:

Fine aggregate shall consist of sand, sandstone with similar characteristics, or a combination thereof. It shall meet requirements of the State of Wisconsin Sec. 501.3.6.3 of the Standard Specifications for Road and Bridge Construction.

The fine aggregate shall be well graded from coarse to fine and shall conform to the following requirements:

<u>SIEVE SIZE</u>	<u>% by WEIGHT PASSING</u>
3/8 inch	100
No. 4	95-100
No. 16	45-80
No. 50	10-30
No. 100	2-10

5. COARSE AGGREGATE:

Coarse aggregate shall consist of clean hard, durable gravel, crushed gravel, crushed boulders, or crushed stone. It shall meet the requirements of the State of Wisconsin Section 501.3.6.4 of the Standard Specifications for Road and Bridge Construction.

The coarse aggregate shall be well graded between the limits specified in the following:

<u>SIEVE SIZE</u>	<u>% by WEIGHT PASSING</u>
1 inch	100
3/4"	90-100
3/8"	20-55
No. 4	0-10
No. 8	0-5

6. PROPORTIONING:

The grade of concrete to be used shall be "A" air-entrained as set forth in State of Wisconsin Standard Specifications for Road and Bridge Construction, Section 501.5.2

Prior to the start of construction, the successful Contractor or his supplier 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 by the Standard Specifications, State of Wisconsin.

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 City Engineer for his approval.

Maximum allowable slump shall be 3”.

The above mix is designed to produce a minimum 28-day compressive strength 3500 P.S.I. In the event that the test cylinders show strengths inconsistent with the desired strength, the City reserves the right to alter the design mix to achieve such results.

The City shall continuously or intermittently inspect the batch plant or concrete supplier to see that the design mix is adhered to and if the correct proportions are not used, the work shall be suspended and the Contractor charged with any costs resulting therefrom. No guarantee of yield is expressed or implied by anything contained in these requirements.

7. MIXING:

Concrete shall be mixed in a batch mixer of a type approved by the engineer.

The volume of concrete mixed in ready-mixed trucks shall not exceed the manufacturers rated capacity. Non-agitating type truck haulage of concrete is not permitted.

8. PREPARATION OF SUBGRADE:

The subgrade shall be thoroughly compacted within two inches of proper elevation before the forms are set.

9. FORMS:

Forms shall be of wood or metal, and shall be straight and of sufficient strength to resist springing, tipping, or other displacement during the process of depositing and consolidating the concrete.

The forms shall be of the full depth of the required curb, gutter, or combination curb and gutter sections, and shall be of such design as to permit secure fastening.

They shall be set upon the prepared subgrade to proper line and grade and firmly staked in position. The fine grading shall then be completed and the subgrade thoroughly compacted by hand tamping. Before placing any concrete, the subgrade shall be thoroughly moistened and the contact surfaces of the forms shall be oiled.

10. PLACING CONCRETE:

Before placing concrete, the forms shall be finally checked as to line and grade. The concrete shall be deposited to the proper height, consolidated, spaded and struck off to the required cross section. Steel separator plates conforming to the true contour of the curb, gutter, or curb and gutter shall be spaced not less than six feet or more than 10 feet in length.

11. SLIP FORM OPERATION:

The Contractor may, with the approval of the engineer, elect to use a machine for placing, forming, and consolidating curb, curb and gutter or combination curb and gutter. Such machine must be approved by the engineer and the resulting curb, curb and gutter or combination curb and gutter shall be of such quality, and as per standard details, to equal or exceed that produced by method herein before described.

Curb, curb and gutter, or combination curb and gutter shall have all contraction joints installed by sawing as defined in standard detail drawings. The sawing shall be done as soon as practicable after the concrete has set sufficiently to preclude raveling during the sawing and before shrinkage cracking takes place in the concrete.

A tape, at least 2-1/2 inches wide, made from curing paper, polyethylene or other suitable moisture retention material and provided with adhesive material near each edge, which will seal the tape to the pavement, shall be centered over the joint and pressed in place. The adhesive material shall be of the type, which can be readily removed from the pavement upon completion of the curing.

Alternate or other methods for curing joints may be used when approved by the engineer. Such methods shall satisfactorily prevent the escape of moisture from the concrete at the joint and leave no detrimental residue adhering to the pavement or joint surfaces.

The joint curing material shall be applied immediately following the sawing of the joint and removal of resulting dust or slurry. However, when the curing medium is sealed to the concrete by an adhesive material, the water on the pavement surface, resulting from sawing and removal of slurry, shall be allowed to dry sufficiently to provide proper adhesion of the material. The curing material shall extend down the slab edge for at least two inches below bottom of the saw cut or other approved means shall be employed to prevent the escape of moisture from the saw cut at the pavement edge.

The slip form paving operation of depositing, spreading, consolidating and finishing shall be such that, insofar as possible, continuous operation of the paver will be maintained. Starting and stopping of the paver should be kept to a minimum. The concrete shall be vibrated, either externally or internally, with sufficient intensity to consolidate it throughout its entire width and depth. Whenever, for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately, and not restarted until the forward motion of the paver resumes.

Vibrators, when used for full width consolidation of concrete pavement slabs, may be either the surface pan type or the internal type with either immersed tube or multiple spuds. Such vibratory equipment shall meet with the approval of the engineer. It shall operate attached to the concrete spreader, finisher, or may be mounted on a separate carriage, and shall not come in contact with the forms or joint assemblies. The frequency of the surface pan type vibrators shall not be less than 4,000 impulses per minute and the frequency of the internal type not less than 5,000 for tube vibrators and 7,000 for spud vibrators, unless modified by the engineer.

Single spud type internal vibrators, either hand operated or attached to spreaders or finishing machines, and used to consolidate concrete pavement adjacent to forms, joints or fixtures shall have a frequency of not less than 4.000 impulses per minute.

The vibratory equipment shall be capable, when operated in accordance with the manufacturer's recommendations, of thoroughly and uniformly consolidating the concrete for its full width and depth.

A uniform consistency shall be continuously maintained in consecutive batches of concrete. Slipform pavement concrete and formed pavement concrete consolidated by vibration shall have a slump of 1 to 2 inches.

Formed concrete pavement, placed and consolidated by machine methods without vibration, shall have a slump of 1-1/2 to 3 inches, except that when the Contractor elects to place Ready-Mixed Concrete and discharges the concrete directly upon the subgrade from truck mixers or agitators by use of spouts, the slump shall be from 1 to 2-1/2 inches.

Pavement concrete placed and consolidated by hand methods may have a slump not exceeding 3 inches.

Slump tests of concrete shall be made in accordance with the Method of Test for Slump of Portland Cement Concrete, AASHTO Designation: T 119.

12. EXPANSION JOINTS:

Expansion joints shall be placed at the end of all radii, i.e., street intersections, private or alley driveways, but in no case shall the distance between expansion joints exceed 160 feet.

The expansion joints shall be constructed by the installation of 1 inch preformed expansion joint filler conforming to the requirements for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving & 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. Also approved for expansion joint filler material is material conforming to A.S.T.M. D-1751 Specifications and/or U.S. Federal Specification HH-F-341e Type 1. It shall be placed 1/2 inch below the surface and extend to the subgrade. The joint shall be filled with Concrete Joint Sealer, Hot Poured, Elastic Type, A.S.T.M. Designation D1190 to the surface.

13. SEALING JOINTS:

Unless otherwise provided in the contract, all contraction and expansion joints in concrete pavement, which are required to be sealed, shall be sealed with Hot-Poured Elastic Type Joint Sealer.

The operation of sealing shall be performed as soon as practicable upon elapse of the curing period and in any event prior to the time traffic of any kind uses the pavement. The joints shall be thoroughly clean and free of all concrete spurs, dust, dirt or other foreign material when the joint is sealed. Application of the joint sealer shall be made when the joint surfaces are dry and the air temperature is 40 degrees F. or higher.

The sealing compounds shall be heated to the pouring temperature recommended by the manufacturer in an approved kettle or tank, constructed as double boiler, with the space between the inner and outer shells filled with oil or other satisfactory heat transfer medium. The heating kettle shall be equipped with a mechanical agitator, positive temperature control and an

Approved dial thermometer for checking temperatures of the compound. The heating kettle, if and when operated on concrete, shall be properly insulated against the radiation of heat to the concrete surface.

The sealing compound shall not be heated above the maximum safe heating temperature. The maximum safe heating temperature shall be that as determined from tests made on samples from each lot of shipment of the material delivered to the project. When so approved by the engineer, the manufacturer's recommended maximum safe heating temperature may be used in lieu of test determinations where relatively small quantities of sealer are used. Any material heated above the maximum safe heating temperature shall be discarded.

Pouring of joints shall be made when the sealing material is at the required temperature and, insofar as practicable, the sealing compound shall be maintained at uniform temperature during pouring operations. Pouring shall not be permitted when the temperature of the sealing compound in the applicator as it is applied to the joint, is more than 10 degrees F. below the recommended pouring temperature. Pouring of the molten sealer in the joint opening shall be done with such equipment that the sealer completely fills the joint opening without overflowing on the adjoining surface and when finished, after shrinkage, the sealer is approximately 1/8 inch below the adjoining surfaces. In the event satisfactorily sealing of a joint is not accomplished in a single pouring; the sealing compound shall be placed in two pourings. At least one half of the required amount shall be placed in the first pouring, and the second pouring shall follow the first as soon as practicable after the first pouring has attained maximum shrinkage but not later than one hour after the first pouring.

14. FINISHING:

The face surfaces of the curb, gutter, and combination curb and gutter shall be thoroughly troweled and brushed. Unless otherwise provided, the back edge of the curbs, the edge of the gutter adjacent to the pavement, and edges adjacent to expansion joints shall be rounded with an edge of 1/4" radius. Any honeycombed areas occurring along forms shall be pointed with mortar. Areas containing excessive honeycombed areas shall be removed and replaced by order of the engineer.

15. PROTECTION & CURING:

After finishing operations have been completed and removal of forms (within 72 hours), all exposed surfaces shall be sealed by spraying thereon an impervious membrane that shall conform to the requirements of the Standard Specifications of Liquid Membrane-Forming Compounds for Curing Concrete AASHTO Designation M 148, Type 2 White Pigmented.

The Contractor shall protect the new work from traffic damage at his expense. This includes erection and maintenance of barricades, warning lights or signs, and watchmen to direct traffic. Traffic shall be excluded from the new construction for not less than 7 days when the temperatures are generally 70 degrees F. or higher and not less than 10 days when temperatures are generally not lower than 60 degrees F. If the temperatures are lower than 60 degrees F, traffic shall be kept off for any length of time the engineer may require up to 21 days.

In special cases where conditions warrant and with authority of the engineer, the period of time for exclusion of traffic from the new work may be reduced to 5 days.

16. OPENING TO TRAFFIC:

The engineer reserves the right to determine the time when the pavement shall be opened to traffic either on the basis of test cylinders or minimum time periods related to atmospheric temperatures.

When opening of the pavement to traffic is controlled by cylinder tests, the pavement may be opened when the tests of cylinders show a compressive strength of the concrete of not less than 2,500 pounds per square inch.

At least two cylinders shall be tested in determining the attained strength of concrete for the purpose of opening the pavement to traffic. The average of test results for the two cylinders shall be used to determine compliance, except that neither cylinder may be less than 10 percent below the required strength. The cylinders shall be cured under conditions similar to those prevailing for the pavement, which they represent

When the opening is not controlled by cylinder tests, traffic shall be excluded from the newly constructed pavement for such periods as hereinafter designated:

For not less than 7 days when the atmospheric temperatures are generally 70 degrees F. or higher during the period.

For not less than 10 days when the atmospheric temperatures are generally not lower than 60 degrees F. during the period.

For not less than such a length of time up to 21 days as the engineer may require, taking into consideration the temperatures and protective measures, if any, when the atmospheric temperatures are generally lower than 60 degrees F.

When High-Early-Strength Concrete is used in the work, the above specific periods of 7, 10 and 21 days may be reduced to 3, 4 and 7 days respectively, under like conditions.

In all cases, the pavement shall be cleaned, and the joints shall be cleaned, filled, and sealed as hereinbefore provided, before traffic of any kind is permitted to use the pavement.

Any part of the pavement damaged by traffic or otherwise damaged prior to its acceptance shall be repaired or replaced by and at the expense of the Contractor in a manner satisfactory to the engineer. The Contractor shall protect the pavement against both public traffic and the traffic caused by his own employees and agents.

The Contractor shall have available materials for protecting the unhardened concrete against damage by rain. When rain is imminent, the unhardened concrete shall be immediately covered with paper, plastic film or other suitable material, and planks or forms placed along slip-formed pavement edges.

All ditches and drains shall be in such condition as to provide effective drainage.

17. GUARANTEE:

Contractor shall be responsible for maintenance of curb and gutter and appurtenant items included in this contract, as a result of faulty materials or poor workmanship, for a period of one-year following installation.

18. TEST SPECIMENS:

Cylinders for testing shall be taken as ordered, during placement of each 1500 feet of curb and gutter. Two cylinders for 7 day and two cylinders for 28-day tests shall be required for the footage specified. Contractor shall furnish cylinders and pay all transportation and testing charges. Unit costs for curb and gutter shall include such charges.

The Contractor shall have these cylinders tested at an independent test laboratory approved by the City.

19. COLD WEATHER AND NIGHT CONCRETING:

Except by specific written permission, concreting operations shall not be continued when a descending air temperature in the shade and away from artificial heat falls below 40 degrees F. nor resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 degrees F. When operations are so permitted, and for all concrete pavements placed on and after October 1 and on or prior to May 15, the temperature of the mixed concrete as placed shall be not less than 50 degrees F or more than 80 degrees F.

If necessary, the water or aggregates or both may be heated. When the aggregates are frozen or contain frost, they shall be heated. Aggregates may be heated by steam or by other means in a manner which will heat the mass uniformly and preclude the possible occurrence of overheated areas. Mixing water shall be heated in such a manner that its temperature is accurately controlled.

The temperature of either the mixing water or the aggregates shall not be in excess of 100 degrees F. when placed together with the cement in the mixer, and the temperature of the water and the aggregates shall be such that the temperature of the batch of mixed concrete will not be less than 50 degrees F. nor more than 80 degrees F. If either the aggregate or the mixing water is heated to a temperature in excess of 100 degrees F the water and the aggregates shall first be mixed together in such a way that the resulting temperature of the combined water and aggregates is not in excess of 100 degrees F. before being mixed with the cement.

The Contractor shall take all precautions necessary to prevent freezing of the concrete and to produce quality concrete.

Beginning not later than October 1 or prior to May 16, as the case may be, the Contractor shall provide along the work a sufficient supply of curing paper to protect all of the concrete pavement placed within the preceding 72 hours. In lieu of the curing paper clear, black or white polyethylene sheeting; clear, black or white polyethylene coated burlap; or other curing paper which as determined by the engineer has water resistance strength and insulating properties suitable for the purpose, may be used. When the official Weather Bureau forecast for the construction area predicts freezing temperatures or below within the next 24 hours, all of the concrete pavement placed within the preceding 72 hours shall be covered with the curing paper. The paper shall remain in place until at least 7 but not more than 14 days shall have expired for the date of placement of the concrete.

Beginning on October 15, the Contractor shall cover with curing paper all concrete pavements placed regardless of temperature. The paper shall be placed, except on concrete placed prior to October 15 when freezing temperatures were not forecast, as soon as the concrete has been finished and has set sufficiently to prevent excessive marring of the surface. The paper shall be placed with not less than 12-inch end and side laps on adjacent sheets and necessary means shall be employed to hold the paper in place to form a closed joint. The paper shall extend sufficiently far over the pavement edges to completely seal and insulate the concrete. The paper covering

shall remain in place until at least 7 but not more than 14 days shall have expired from the date of placement of the concrete.

Beginning not later than October 15 a sufficient supply of straw or hay shall be provided along the work to protect the entire concrete pavement placed within the preceding 72 hours. All concrete pavement placed on or after October 15 shall be covered with paper as prescribed above and whenever the official Weather Bureau forecast for the construction area predicts freezing temperatures or below within the next 24 hours, all of the concrete pavement placed within the preceding 72 hours shall be covered with not less than 12 inches of loose, dry straw or hay. Other approved materials, including treated straw or hay, may be used in lieu of the loose, dry straw or hay, when such materials are placed to the thickness necessary to provide the same insulating protection as the 12 inches of loose, dry straw or hay. Such covering shall remain in place until at least 7 but not more than 14 days shall have expired from the date of placement of the concrete.

When High-Early-Strength Concrete is used, the above-required periods for covering may be reduced to not less than four days.

Where removal of the coverings is necessary to saw joints or to perform other required work, such removal shall be done as directed by the engineer and for the minimum time required.

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 7 days following its placement shall be removed and replaced by the Contractor at his expense.

Heating of cement will not be permitted. The addition of salt or chemical admixtures to the concrete mix to prevent freezing will not be permitted.

Concrete shall not be placed on a frozen subgrade.

Concreting operations shall be discontinued due to insufficient natural light, unless an adequate and approved artificial lighting system is provided and operated.

20. ACCELERATED HARDENING OF CONCRETE:

Concrete pavement may, when permitted by the engineer, have calcium chloride added to the mix to accelerate the hardening of the concrete.

The quality of calcium chloride to be used per batch shall be determined by the engineer and the quality shall not exceed 2 pounds of Type 1, or 1.6 pounds of Type 2, per sack (94 pounds) of cement.

Calcium chloride, in solution, shall be added by an approved procedure to the batch ingredients at the time they are placed in the mixer. Sufficient water shall be used to completely dissolve the calcium chloride. The solution shall be of a uniform and known concentration. The quantity of mixing water shall be reduced by the quantity of solution used. Positive means shall be used to introduce in the mixer the correct quantity of calcium chloride.

21. REMOVING FORMS:

Forms shall not be removed until the concrete has set for at least 24 hours.

22. METHOD OF MEASUREMENT:

Curb, gutter, and combination 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 such line extended across alley entrance returns, but not across Special Curb and Gutter Drive Section. Special Curb and Gutter Drive Section will be computed as width of driveway to end of radii, or in adjoining another driveway or alley will be computed as width of driveway plus radii.

23. REMOVAL & REPLACEMENT:

The Contractor shall be compensated for removal and replacement to a point 2.5 feet back of new construction. Outside those limits, removal and replacement shall be at the Contractor's expense except when extra work is approved by the Engineer. Replacement of fill back of completed curb and gutter shall be done as soon as possible after forms are removed to avoid hazards and personal injury liability for which the Contractor is responsible.

24. TOPSOIL:

Topsoil shall consist of the natural loam, sandy loam, silt loam, silty clay loam or clay loam humus-bearing soils adapted to the sustenance of plant life, and such topsoil shall be neither excessively acid nor excessively alkaline. The Contractor must submit a report from the County Agent as to the quality of topsoil he intends to use. Topsoil shall only be deposited in areas where developed lawns were in existence at the time of construction and shall be paid for by cubic yard in place as per detail, raked and treated with such additive as the soil report may recommend, the cost of which must be included in cost bid for topsoil.

For widening projects, topsoil shall be placed at all locations along the route of construction and basis of payment shall be same as above.

25. TREE AND 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 previously removed by others.

The formula for determining diameter inches for complete tree removal shall be to measure the circumference 4 feet above the ground and divide by three; stump removal circumference inches measured at trees and stumps over 5 inches in diameter.

26. CURB & GUTTER REMOVAL:

Removal of curb and gutter adjacent to pavement shall be done in such a manner so as not to damage said pavement. Pavement that must be removed to allow form setting shall be limited to a uniform width to avoid unnecessary damage or replacement expense, the width of pavement removal subject to approval by the engineer. Paving material removed, such as brick or block, shall be segregated and stored as per order of the engineer. The Contractor shall be responsible for any repair or replacement caused by failure to abide by the above specifications.

27. CLEANUP OF SITE OF OPERATIONS:

The Contractor shall remove all materials, equipment, and miscellaneous debris from the street and boulevard promptly upon completion of concreting and other operations, and final payment for each location will not be authorized until such work is completed to the satisfaction of the Board of Public Works. Boulevards are to be given special attention and placed in good condition within the scope of operations (see Removal and Replacement section). Payment is included in bid proposal items.

28. CATCH BASINS & CATCH BASIN CONNECTIONS:

The construction of catch basins and catch basin connections shall meet the requirements of the City of La Crosse Storm Sewer Specifications.

GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.

2. THE SHIP SHALL BE CONSTRUCTED OF STEEL UNLESS OTHERWISE NOTED.

3. THE SHIP SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF THE MICHIGAN MARITIME CODE AND THE MICHIGAN MARITIME REGULATIONS.

4. THE SHIP SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF THE MICHIGAN MARITIME CODE AND THE MICHIGAN MARITIME REGULATIONS.

5. THE SHIP SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF THE MICHIGAN MARITIME CODE AND THE MICHIGAN MARITIME REGULATIONS.

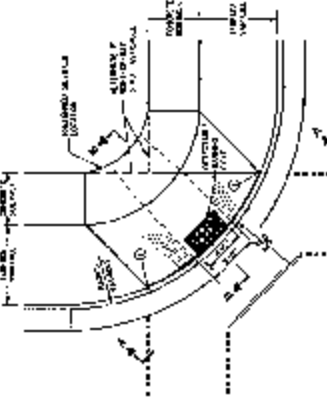
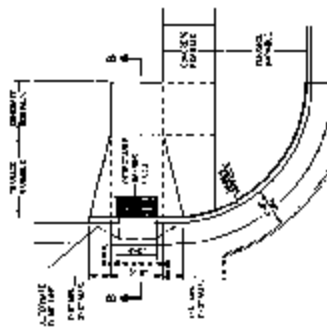
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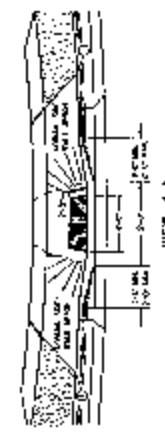
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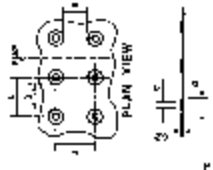
10. THE SHIP SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF THE MICHIGAN MARITIME CODE AND THE MICHIGAN MARITIME REGULATIONS.



LEGEND

- - - - - 1/4" WELDED JOINT
 - - - - - 1/4" WELDED JOINT
 - - - - - 1/4" WELDED JOINT
 - - - - - 1/4" WELDED JOINT
 - - - - - 1/4" WELDED JOINT



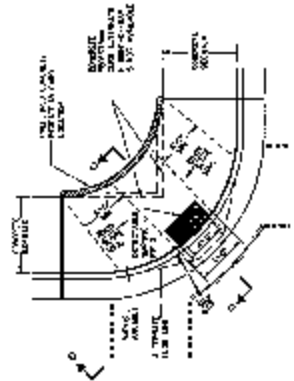


MIN.	MAX.
1	10
2	10
3	10
4	10

TRUNCATED CONES
DETECTABLE WARNING
PATTERN DETAIL

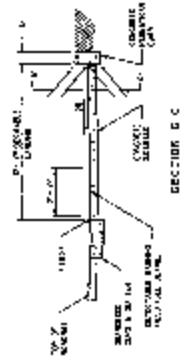


PLAN VIEW
DETECTABLE WARNING
FIELD (TYPICAL)



PLAN VIEW
TYPE 3-A RAMP
1/4" = 1'-0"

- LEGEND
- 3/4" DOMES 4" ON CENTER
 - - - 3/4" RAMP 10' x 10' AREA
 - - - 1" RAMP 10' x 10' AREA
 - - - 1" RAMP 10' x 10' AREA



SECTION D-C



VIEW D-D

CONTRACT NUMBER
TYPE 1-A

STATE OF MISSISSIPPI
DEPARTMENT OF TRANSPORTATION

DATE: 10/1/66

BY: [Signature]

ADDENDUM #1

TO

STANDARD SPECIFICATIONS FOR CONCRETE CURB & GUTTER – PRIVATE & ALLEY DRIVEWAYS

**The following section for Truncated Domes
Warning Field at Curb Ramps shall be added to
these Standard Specifications.**

TRUNCATED DOMES WARNING FIELD AT CURB RAMPS:

DESCRIPTION:

This 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.)

DIMENSIONS:

Detectable warning surfaces shall extend 24 inches (610 mm) 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 (150 mm) minimum and 8 inches (205 mm) 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.

APPLICATION & GUARANTEE:

Detectable warning devices shall be installed in accordance with manufacturer's specifications and in accordance with this 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 two percent of the truncated domes due to delaminating as a result of product 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.

MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

“Advantage cast in place Tactile” manufactured by Advantage Tactile Systems, Inc.,”
“MetaPanel” manufactured by MetaDome, LLC or “Neenah Detectable Warning Plate”
manufactured by Neenah Foundry Company or pre-approved equal.

Other manufacturers must submit all items indicated in “Submittals” section for approval by the City Engineer at least ONE WEEK prior to bid opening to be approved for installation of their warning device. The City Engineers decision regarding approval of a manufacturer’s product is final.

The color of the detectable warning field shall be:

Advantage Tactile, Federal Yellow
MetaDome, Federal Yellow
Neenah Foundry, Federal Yellow

SUBMITTALS:

Product Data: Submit manufacturer’s literature describing products, installation procedures and routine maintenance.

Samples for Verification Purposes: Submit two (2) tile samples minimum 6”x8” of the kind proposed for use.

Shop drawings are required for products specified showing fabrication details; composite structural system; plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.

Material Test Reports: Submit test reports from qualified independent testing laboratory indicating that materials proposed for use are in compliance with requirements and meet the properties indicated. All test reports shall be conducted on a cast-in-place tactile tile system as certified by a qualified independent testing laboratory.

Maintenance Instructions: Submit copies of manufacturer’s specified maintenance practices for each type of tactile tile and accessory as required.

INSTALLATION:

The specifications of the concrete sealants and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers.

The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast-In-Place Tile System. An overly wet mix will cause the Cast-In-Place System to float, therefore under these conditions suitable weights such as 2 concrete

blocks or sandbags (25 lb) shall be placed on each tile.

The concrete pouring and finishing operations require typical mason's tools, however, 25 lb. weights, vibrator and small sledge hammer with 2" x 6" x 20" wood tamping plate are specific to the installation of the Cast-In Place system.

The concrete shall be poured and finished, true and smooth to the required dimensions and slope prior to tile placement. Immediately after finishing the concrete, the contractor shall check that the required slope is achieved. The tile shall be placed true and square to the sidewalk edge in accordance with the standard detail drawings. The Cast-In-Place Tiles shall be tamped or vibrated into the fresh concrete to ensure that the field level of tile is flush to the adjacent concrete surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes. The tolerance for elevation differences between tile and adjacent surface is 1/16".

Immediately after tile placement, the tile elevation is to be checked to adjacent concrete. The tile elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates.

While concrete is workable a steel trowel shall be used to trowel the concrete around the tile perimeter to the field level of the tile.

During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile to rock the tile, causing a void between the underside of tile and concrete.

Following tile placement, review installation tolerances to standard drawings and adjust tile before the concrete sets, 2 suitable weights of 25 lb each shall be placed on each tile as necessary to ensure solid contact of tile underside of concrete.

Following the curing of the concrete, the protective plastic wrap is to be removed from the tile face by cutting the plastic with a sharp knife tight to the concrete/tile interface. If concrete bleeding occurs; a wire brush will clean the residue without damage to the tile surface.

Environmental Conditions and Protection: Maintain minimum temperature of 40 degrees F in spaces to receive tactile tiles for at least 48 hours prior to installations, during installation, and for not less than 48 hours after installation. Store tactile tile material in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 40 degrees F in areas where work is completed.

CLEANING AND PROTECTING:

Protect tiles against damage during construction period to comply with tactile tile manufacturer's specification.

Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.

After installation and other work are complete at a location the contractor shall clean the tactile tile by a method specified by the tile manufacture.

MEASUREMENT & 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 eight 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.