

**DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS
STREETS**

SECTION 2200 PAVING

Approved and adopted this 23rd day of May, 2001

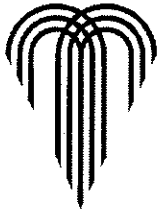
**Kansas City Metropolitan Chapter
of the American Public Works Association**

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CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

City of Kansas City, Missouri

Public Works Department

RESOLUTION


Be it resolved by the Director of Public Works of Kansas City, Missouri that the following Section of Division II, Construction and Material Specifications, approved and adopted May 23, 2001 by the Kansas City Metropolitan Chapter of the American Public Works Association, is hereby approved and adopted as the Official Specification for the Public Works Department of Kansas City, Missouri except as modified by the attached supplement.

Section 2200 PAVING

A copy of said specification and supplement are attached hereto and incorporated herein by reference.

This specification and City supplement shall become effective January 1, 2004 and shall supersede previously adopted Standard Construction and Material Specifications for the same topics and associated Supplement..

Approved and adopted as Official Document No. 030149 this 3rd day of NOV, 2003.


Larry W. Frevert, P.E.
Acting Director of Public Works
Kansas City, Missouri

2. The traveling stringline shall be constructed in such a manner that it does not vibrate or cause the sensor to make erroneous readings during the laydown operation. The length of the beam to be used shall be approved by the Engineer and shall be between 20 feet and 40 feet (6.1 and 12.2 m).
 3. The use of the automatic screed control devices on asphalt pavers will not be required for paving small irregular areas, entrances, approaches, or side street connections.
 4. Automatic screed control devices will be required for matching the joint with all previously laid strips, except for those areas noted above.
- B. Rollers: Compaction equipment shall consist of vibratory steel wheel, static steel wheel and pneumatic-tired rollers unless otherwise directed by the engineer. They shall be self-propelled and equipped with such controls that starting, stopping and reversing direction can be accomplished without displacing the hot asphaltic concrete pavement. ***Compaction equipment shall be in good working condition.***

Rollers shall be equipped with adjustable scrapers to keep the wheel surfaces clean and with efficient means of keeping them wet to prevent mixes from sticking. The roller surfaces shall have no flat areas, openings or projections that will mar the surface of the pavement.

1. **Steel-Wheeled Rollers:** Steel wheeled rollers shall be vibratory *or static* two-axle tandem rollers. ***Vibratory rollers*** shall develop contact pressure of 250 to 350 pounds per inch of width (45 to 62.5 kg per cm of width) (vibratory mode) ***and*** 150 to 180 pounds per inch of width (26.8 to 32 kg per cm of width) (static *mode*). ***Static rollers shall be an 8 to 12 ton roller. The weight of the roller will be varied, by order of the engineer, to obtain contact pressures that will result in the required density.***
2. **Pneumatic-Tired Rollers:** ***Pneumatic-tired rollers shall consist of two axles on which are mounted an odd number of pneumatic-tired wheels of equal size and diameter.*** The roller shall have at least nine pneumatic-tired wheels mounted in such a manner that the rear group of wheels will not follow in the tracks of the forward group, but shall be spaced to give essentially uniform coverage with each pass. ***There shall be a minimum of ¼ inch (0.636cm) overlap in the tracking between the forward and rear wheels.*** Axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. Tires shall be smooth and inflated to 90 psi. (620 kPa). Construction of the roller shall be such that each wheel is loaded to a minimum of 2,300 pounds (1043 kg). ***Wheel loadings may be varied by order of the Engineer to obtain contact pressures that will result in the required density.***

MCIB

2208.1 Summary: This section includes the construction of Portland Cement Concrete pavement.

2208.2 Materials:

A. Concrete Control and Quality: The current editions of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. (MCIB) are made a part hereof by reference. However, when the provisions of this Specification differ from the provisions of such "Bulletins" and "Sections" the provisions of this Specification shall govern.

B. Concrete:

- 1. Concrete shall conform to MCIB Section 1 entitled "Concrete Materials" and shall be MCIB Mix No. A658-1-2-0.365 or No. WA561-1-2- 0.410 or approved equal. All coarse aggregate shall be limestone from the Bethany Falls Ledge and meet the following gradation:**

Coarse Aggregate Gradation Limits, % Passing

		<i>Nominal Maximum Size</i>		
<i>Sieve Size</i>	<i>1"</i>	<i>3/4"</i>	<i>1/2"</i>	
<i>1 1/2"</i>	<i>100</i>			
<i>1"</i>	<i>93-97</i>	<i>100</i>		
<i>3/4"</i>	<i>62-82</i>	<i>90-97</i>	<i>100</i>	
<i>1/2"</i>	<i>25-60</i>	<i>45-70</i>	<i>80-97</i>	
<i>3/8"</i>	<i>16-44</i>	<i>20-55</i>	<i>40-70</i>	
<i>No. 4</i>	<i>0-10</i>	<i>0-10</i>	<i>0-15</i>	
<i>No. 8</i>	<i>0-5</i>	<i>0-5</i>	<i>0-5</i>	

Concrete for ultra-thin whitetopping (UTW) projects shall also include fiber reinforcement conforming to 2208.2.C.4., and shall have a maximum nominal coarse aggregate size of 1/3 the thickness of the concrete overlay.

If fly ash is to be substituted for cement in the production of concrete, it shall be in accordance with Sub- Section 2212 FLY ASH CONCRETE.

2. *A mix design, for all concrete mixes to be used, shall be submitted to the City for review a minimum of 14 days before use and be approved prior to placement. The mix design shall contain the following information as a minimum:*
- *Mix design designation required by project*
 - *Project name, location, project number and date*
 - *Name and location of ready mix plant or plants*
 - *List the source and type of all materials from each plant supplying mix*
 - *CA and FA Sieve Analysis and quality checks from each plant supplying mix. CA-Ledge, quarry or mine name and location. FA-Sand plant name, location and source (MO or Kaw River)*
 - *Cement chemical analysis*
 - *Certifications on admixtures*
 - *Specific gravity of all materials*
 - *All materials tests and certifications shall be performed no more than six months prior to the placement of any concrete mix*
 - *The mix design shall be based on one cubic yard of concrete or one cubic meter if required*
 - *The mix design shall contain the weight and volume of each mix component (S.S.D.)*
 - *The results of 7-day and 28-day compressive strengths shall be submitted when required*
 - *Special requirements for fly ash concrete mixes*
 - *Certification of cement and aggregate scales calibration-date calibrated and company (performed yearly)*
 - *On bridge deck pours the concrete shall be supplied from only one plant*

C. Reinforcement:

1. **Bars:** Bars shall conform to ASTM A 615.
2. **Welded Steel Wire:** Welded steel wire fabric shall conform to ASTM A 185.
3. **Supporting Elements:** Representative samples of supporting elements shall be submitted and approved by the Engineer prior to their use in the project.
4. **Fibers:** Where required, fibers shall be applied at the rate of 3 pounds per cubic yard (1.8 kg per cubic meter) of concrete. Fibers for concrete reinforcement shall be composed of only 100% virgin homopolymer polypropylene, fibrillated and graded. Fibers shall contain no reprocessed olefin materials, and shall be specifically manufactured to an optimum gradation for use as secondary concrete reinforcement, meeting the requirements of ASTM C 1116, Type III, 4.1.3, and ASTM C 1116 Performance Level 1, and a minimum residual strength of 30 psi (210 kPa) per ASTM C 1399, average of 4 beams sampled at the point of discharge (or when appropriate, the point of placement).

D. Isolation Joint Fillers: Isolation joint fillers shall conform to ASTM D 1752.

SECTION 2209 CURBING

2209.0 General: *The term expansion joint, when used in plans, standard drawings or other specifications shall be understood to mean isolation joint.*

Referenced Standards: The following standards are referenced directly in this section. The latest version of these standards shall be used.

MCIB – all sections

2209.1 Summary: This includes the construction or reconstruction of curbing.

2209.2 Materials: Concrete shall conform to 2208.2.B. and shall be MCIB Mix No. WA610-1-4-0.410 *or* WA561-1-2-0.410 *or approved equal, except in the Central Business District of Kansas City, MO (defined as being bounded by Interstate Highway I-70 on the north and east, Alt I-70 and I-670 on the south, and I-35N on the west) where Mix No. WA585-3/4-2-0.410 or Mix No. WA634-3/4-4-0.410, both with special aggregate, shall be used. The special aggregate shall be Iron Mountain Trap Rock, Nepheline Syenite, Sioux Quartzite (quarried in South Dakota or Minnesota) or approved equal conforming to the gradation requirements of 2208.2.B. In addition to the gradation requirements, the following shall be required for the special coarse aggregate:*

The fitness modulus for the aggregate shall not vary more than plus or minus 0.20 from the fineness modulus of the gradation on which the mix is designed.

The combined weight of sulfides such as Pyrite, Marcasite and Chalcopyrite shall not exceed 0.1% of the weight of the special aggregate sample. Material finer than the No. 200 (75µm) sieve shall not exceed 1% of the weight of the special aggregate sample. Methods of sampling and testing shall conform to the applicable portions of Section 10 of ASTM Designation C33, Concrete Aggregates.

Class F fly ash or slag shall be added as necessary to offset any ASR potential in the mix. Fly Ash shall conform to ASTM C 618. Slag shall conform to ASTM C989, Strength Grade 120.

Material submittals and testing shall conform to Section 2702.3.

2209.3 Construction Details: The curbing shall be constructed or reconstructed to the configuration and to the lines and grades shown on the plans. Generally the curbing shall be placed prior to the placement of pavement or sidewalk sections, except when curb and gutter is integral with the pavement.

2212.4

2212.5

- I. Each shipment or load of fly ash delivered to the ready mix plant from the approved source shall carry the following statement:***

“This is to certify that this fly ash meets the requirements of the contract specifications and was loaded from a tested and certified source.”

Name of Manufacturer

Shipping Facility

Date Tested

By _____
Signature

2212.5 Mix Design Requirements and Prequalification Tests: A specific combination of both fly ash and cement sources shall be approved for a project. A change in the cement source will not require a new mix design provided the cement type does not change.

- A. 28-day strength tests, ASTM C 39, of fly ash concrete mixes are required from a private testing lab to assure that the design strengths are attained.***
- B. The maximum cement reduction for mix design of fly ash concrete shall be 25%.***
- C. Calculations for W/C ratio and yield for fly ash concrete shall be based on cement plus fly ash (W/C+P) for total cementitious material.***
- D. Sources of all ingredients used in the mix design for fly ash concrete shall be included with the submitted certified mix design.***