

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

SECTION 32 1314 – CONCRETE PAVEMENT FOR VEHICULAR AREAS

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information

Edit and finalize this Section, where prompted by Editor's notes, to suit Project specific requirements. Make selections for the Project at text identified in bold.

This Section uses the term "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
 - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

- A. This Section specifies the requirements for forming and placing reinforced concrete curbs and vehicular pavement to the lines and grades shown on the Drawings and constructed as specified herein.

1.3 APPLICABLE PUBLICATIONS

- A. Current editions of the publications listed below form a part of this Specification to the extent indicated by references thereto.
- B. Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT).
 - 1. Item 360 – Concrete Pavement
 - 2. Item 421 – Hydraulic Cement Concrete

<Insert A/E Name>

AE Project #: <Insert Project Number>

Concrete Pavement for Vehicular Areas

UH Master: 04.2021

32 1314 - 1

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

C. American Society for Testing and Materials Standards (ASTM):

1. ASTM D 1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction
2. ASTM A 653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
3. ASTM C 309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
4. ASTM A 615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
5. ASTM C 94 – Standard Specification for Ready-Mixed Concrete
6. ASTM C 31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
7. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
8. ASTM A 185 – Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
9. ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
10. ASTM D 994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Typed)

1.4 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

Describe all other project conditions or constraints that Contractor needs to know and accommodate:

[B. List and describe other project conditions]

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.

Retain paragraph and associated subparagraphs below if Project is to be LEED v4 certified.

- B. LEED Action Submittals (Projects authorized for LEED certification only):

1. Building Product Disclosure and Optimization - Sourcing of Raw Materials:
 - a. Leadership Extraction Practices
 - 1) Extended Producer Responsibility (EPR): Submit documentation indicating that manufacturers have a take back or recycling program for the product purchased.

<Insert A/E Name>

AE Project #: <Insert Project Number>

**Concrete Pavement for Vehicular Areas
UH Master: 04.2021**

32 1314 - 2

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

- 2) Recycled Content: For products having recycled content, indicate percentages by weight of post-consumer and pre-consumer recycled content.
 - a) Include statement indicating costs for each product having recycled content.
 - b. Sourcing of Raw Materials: For products that are required to comply with requirements for regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material.
 - 1) Include statement indicating distance to Project, cost for each regional material and the fraction by weight that is considered regional.
 - 2) Product Certificates: For materials manufactured within 100 miles of Project, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each raw material.
 2. Indoor Environmental Quality, Low Emitting Materials: Building Products must be tested and compliant with the California Department of Public-Health (CDPH) Standard Method V1.1-2010, using the applicable exposure scenario.
 - a. For paints, and coatings, wet applied, include printed statement of VOC content, showing compliance with the applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure for Architectural Coatings or the South Coast Air Quality Management District (SCAQMD) Rule 113-2011.
 - b. Adhesives and Sealants: For wet applied on site products, submit printed statement showing compliance with the applicable chemical content requirements of SCAQMD Rule 1168, effective July 1, 2005 and rule amendment date of January 7, 2005.
 - 1) Product Data: For installation adhesives, indicating VOC content.
 - c. Alternative tests for VOC include ASTM D 2369-10, ISO 11890, ASTM D 6886-03; or ISO 11890-2.
 - d. Methylene Chloride and perchloroethylene may not be added to paints, coating, adhesive or sealants.
 - e. Provide General Emissions Evaluation certificates for adhesives, sealants showing compliance with California Department of Public Health v1.1 emissions testing or equivalent.
 3. Laboratory Test Reports: For installation adhesives indicating compliance with requirements for low-emitting materials
- C. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

<Insert A/E Name>

AE Project #: <Insert Project Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 3

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

1.6 INFORMATONAL SUBMITTALS

- A. Material Test Reports: From a qualified testing laboratory indicating and interpreting test results for compliance with requirements indicated, based on comprehensive testing of current materials:

[Retain paragraph and associated subparagraphs below if Project is to be LEED v4 certified.](#)

- B. LEED Informational Submittals (Projects authorized for LEED certification only):

1. Building Product Disclosure and Optimization - Sourcing of Raw Materials:

- a. Raw Material Sources and Extraction Reporting: Submit Raw materials supplier corporate Sustainability Reports (CSRs); documenting responsible extraction; including extraction locations, long term ecologically responsible land use, commitment to reducing environmental harms from extraction and manufacturing processes, and a commitment to meeting applicable standards or programs that address responsible sourcing criteria.

- 1) Submit manufacturers' self-declared reports.
- 2) Submit third party verified corporate sustainability reports (CSR) using one of the following frameworks:
 - a) Global Reporting Initiative (GRI) Sustainability Report
 - b) Organization for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises
 - c) UN Global Compact
 - d) ISO 26000
 - e) USGBC approved program.

2. Building Product Disclosure and Optimization - Material Ingredients

- a. Material Ingredient Optimization: Submit manufacturer's Environmental Product Declaration (EPD) or at least one of the following:

- 1) GreenScreen V1.2 Benchmark: Third party report prepared by a licensed GreenScreen List Translator, or a full GreenScreen Assessment.
- 2) Cradle to Cradle: Manufacturer's published literature for the product bearing the Cradle to Cradle logo.
- 3) International Alternative Compliance Path - REACH Optimization
- 4) Declare: Manufacturer's completed Product Declaration Form
- 5) Other programs approved by USGBC

- b. Product Manufacturer Supply Chain Optimization: Submit documentation from manufacturers for products that go beyond material ingredient optimization as follows:

- 1) Are sourced from product manufacturers who engage in validated and robust safety, health, hazard, and risk programs which at a minimum document at least 99 percent (by weight) of the ingredients used to make the building product or building material, and

<Insert A/E Name>

AE Project #: <Insert Project Number>

Concrete Pavement for Vehicular Areas

UH Master: 04.2021

32 1314 - 4

University of Houston Master Specification

<Insert Project Name>
<Insert U of H Proj #>

<Insert Issue Name>
<Insert Issue Date>

- 2) Are sourced from product manufacturers with independent third party verification of their supply chain that at a minimum verifies:
 - a) Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation
 - b) Processes are in place to identify, document, and communicate information on health, safety and environmental characteristics of chemical ingredients
 - c) Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients
 - d) Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients
 - e) Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain
 - f) Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain.

- C. Material Certificates: Signed by manufacturers certifying that each of the following materials that are part of this Project complies with requirements:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Admixtures.
4. Curing compounds.
5. Applied finish materials.
6. Bonding agent or epoxy adhesive.
7. Joint fillers.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Energy Performance: Provide a minimum Solar Reflectance Index of 0.33 when determined in accordance with the Solar Reflectance Index method in ASTM E1980 using a convection coefficient of 2.1 Btu/h·ft² ·°F, based on three-year-aged solar reflectance and three-year-aged thermal emittance tested in accordance with ANSI/CRRC S100.

<Insert A/E Name>
AE Project #: <Insert Project
Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 5

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

2.2 CONCRETE

- A. Cement, aggregates, admixtures, and water shall conform to the specifications of TXDOT, Item 421. Preparation of concrete mix shall be in accordance with article 360.4 of TxDOT, Item 360
- B. Maximum size of aggregate 1-1/2 inches.
- C. Slump shall range from 2 to 5 inches.
- D. Air entrainment concrete mixture shall have an air content by volume of 3 to 5 percent when determined by means for the test for air content, ASTM C231.
- E. Concrete shall be mixed in accordance with TxDOT, Item 421.
- F. Ready mixed concrete conforming to ASTM C 94 may be used.
- G. Concrete mix shall be designed by a commercial testing laboratory and submitted for approval.

2.3 REINFORCEMENT

- A. Reinforcing steel shall meet the specifications of ASTM A615, Grade 60. Bars shall be deformed billet steel free of defects.
- B. In the event reinforcing bars manufactured outside of the Continental United States or its territories are used, two sets of tests from an independent testing laboratory acceptable to the Engineer shall be submitted showing that the steel meets ASTM Standards for tensile strength, phosphorus content, bend, deformations and such other requirements outlined in the ASTM Standards for the grade used. These tests shall be made by an independent testing laboratory at the Contractor's expense and shall be submitted for each 25 tons of steel supplied from each individual mill.

2.4 BOARD FILLER

- A. Filler board of selected stock. Use wood of density and type as follows:
 - 1. Clear, all-heart cypress weighing no more than 40 pounds per cubic foot, after being oven dried to constant weight.
 - 2. Clear, all-heart redwood weighing no more than 30 pounds per cubic foot, after being oven dried to constant weight.
- B. Board filler shall be free of defects that will impair usefulness as expansion joint fillers.

2.5 PRE-FORMED BITUMINOUS EXPANSION BOARD

- A. Pre-formed bituminous expansion boards shall meet the specifications for ASTM D 994 and D 1751.

<Insert A/E Name>

AE Project #: <Insert Project
Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 6

University of Houston Master Specification

<Insert Project Name>

<Insert U of H Proj #>

<Insert Issue Name>

<Insert Issue Date>

2.6 JOINT SEALING MATERIAL

- A. Curb and pavement joint sealing material shall meet the requirements and specifications of TxDOT Items 360.2F and 360.4D.
- B. Expansion joints shall use a pre-formed expansion board cap water stop. Water stop shall fit over the expansion board and provide wings for positive embedment in the concrete. Wings shall be a minimum of 1 ¼-inches from the top of the cap.
 - 1. Acceptable products:
 - a. Sika G-Seal Modified PVC Paving Cap Seal Model 605
 - b. JP Specialties Integrated Cap System Model JPEB375
 - c. Tex-Trude Tex-Cap Model T605

2.7 DEFORMED CONTRACTION JOINT METAL STRIPS

- A. Deformed contraction joint metal strips shall be 28 ga. steel, galvanized 1.25 oz. per square foot or heavier and meet the specifications of ASTM A 653.

2.8 CURING COMPOUND

- A. Curing compound shall conform to the specifications of ASTM C 309, Type 1 or Type 2, white pigmented.

2.9 LOAD TRANSMISSION DEVICES FOR EXPANSION AND CONTRACTION JOINTS

- A. Load Transmission devices shall be as detailed on Drawings and conform to the properties specified in ASTM A615, Grade 60 steel.

2.10 STEEL DOWEL BARS

- A. Steel dowel bars and steel reinforcement shall be deformed or smooth bars conforming in properties to ASTM A 615 Grade 40. Unless otherwise shown on the Drawings, all reinforcing steel shall be deformed bars, all dowel bars at joints shall be smooth bars, and all curb dowels shall be deformed bars.

Select either Paragraph below, or both, to suit Project.

- B. Greenstreak two component speed dowel system used at construction joints. Product submittal required for approval.
- C. Greenstreak two component speed load system used at expansion joints. Product submittal required for approval.

<Insert A/E Name>

AE Project #: <Insert Project Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 7

University of Houston Master Specification

<Insert Project Name>
<Insert U of H Proj #>

<Insert Issue Name>
<Insert Issue Date>

PART 3 - EXECUTION

3.1 GENERAL

- A. Curbs and vehicular pavement shall be constructed to the lines and grades shown on the Drawings.

3.2 EROSION PROTECTION

- A. Provide at all times adequate protection to newly graded areas to prevent soil erosion as specified in Section 31 2513 "Erosion and Sedimentation Control."
- B. Soil erosion that occurs prior to acceptance of the Work shall be repaired at no expense to the Owner.

3.3 PAVEMENT

A. Preparation of Subgrade

- 1. The subgrade shall be a previously prepared subgrade, stabilized if required, compacted to a minimum of 95 percent standard density ASTM D-698, and graded to the required section and grades shown on the Drawings and as specified.
- 2. Rolling and sprinkling shall be performed to maintain the specified moisture content of the subgrade as necessary prior to placing concrete curbs.
- 3. Refer to Section 32 2213 "Site Grading" for applicable Specifications for materials and placement.
- 4. Take special care in working in the area of underground electrical and other conduit for pedestrian lights, street lights and security cameras.

B. Placing and Removing Forms

- 1. Forms shall be of wood or metal, properly treated to insure concrete does not adhere to the forms, straight, clean, free from warp or defect, and of sufficient depth.
- 2. Forms shall be so placed that when placed, each form section will be firmly in contact for its whole length and base width and exactly at the established grade.
- 3. Any subgrade under the forms below established grade shall be corrected using suitable material, placed, sprinkled, and rolled.
- 4. Forms shall be securely staked and tightly jointed and keyed to prevent displacement.
- 5. Sufficient stability of forms to support equipment operated thereon and to withstand its vibration without springing shall be required.
- 6. Forms shall remain in place not less than 24 hours after concrete is placed.

C. Joints in Concrete Pavement

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

1. Construct joints in the pavement slab at locations and according to details as shown on the Drawings. Stakes, braces, brackets or other devices shall be used as necessary to keep the entire joint assembly in true vertical and horizontal position.
 2. When prefabricated plastic strips are used to form joints, they shall be placed after the concrete surface has been leveled and before the finishing is completed. The strips shall be of a type specifically manufactured for the purpose of forming joints in concrete pavement and to the dimensions required to form the specified joints. The strips shall be removed after the concrete has set per the manufacturer's recommendations. Any blemishes caused by the removal of the strips shall be repaired immediately using approved methods.
- D. Tie Bars and Load Transmission Devices shall be accurately placed and held securely (parallel to pavement surface and perpendicular to joint) during placing and finishing of pavement.
- E. Expansion joints shall be constructed with board filler and sealed at top using a pre-formed expansion board cap water stop. Board filler shall be perpendicular to plane of concrete slab. Alignment of joint shall not vary more than 1/4 inch in 10 feet.
- F. Reinforcing steel shall be accurately placed as shown on Drawings and secured in place. Each bar intersection shall be tied. All bars shall be supported on steel or plastic bar chairs. Laps shall be a minimum of ten inches and tied. Wire fabric may not be used in vehicular pavement.
- G. Concrete Placing and Finishing
1. Concrete not placed as herein prescribed within 90 minutes after mixing shall be rejected.
 2. Concrete shall not be placed when temperature is below 40 degrees F and falling, but may be placed when the temperature is above 35 degrees F and rising, the temperature being taken in the shade and away from artificial heat.
 3. Concrete shall not be placed before the time of sunrise and shall not be placed later than will permit finishing of the pavement during sufficient natural light.
 4. Concrete shall be consolidated by a mechanical vibrator to remove all voids. Special care shall be exercised in placing and spading concrete against forms and at all joints to prevent the forming of honeycombs and voids and to prevent displacement of steel reinforcement and load transmission devices.
 5. Concrete shall be struck off with an approved strike-off screed to such elevation that when consolidated and finished, the pavement surface shall conform to the required section and grade. In no case shall the maximum ordinate from a 10 foot straight edge to the pavement be greater than 1/8 inch.
 6. The strike template shall be moved forward with a combined transverse and longitudinal motion in the direction the work is progressing, maintaining the template in contact with the forms and maintaining a slight excess of material in front of the cutting edge.
 7. After completion of a strike-off, consolidation and transverse screeding, a hand-operated longitudinal float shall be operated to test and level the surface to the required grade.
 8. Workmen shall operate the float from approved bridges riding on the forms and spanning the pavement. The longitudinal float shall be held in contact with the surface and parallel to the center line and operated with short longitudinal strokes while being passed from

<Insert A/E Name>

Concrete Pavement for Vehicular Areas

32 1314 - 9

AE Project #: <Insert Project
Number>

UH Master: 04.2021

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

one side of the pavement to the other. If contact with the pavement is not made at all points, additional concrete shall be placed if required, and screeded, and the float shall be used to produce a satisfactory surface. After a section has been smoothed so that the float maintains contact with the surface at all points in being passed from one side to the other, the bridges may be moved forward half the length of the float, and the operations repeated.

9. After completion of the straight-edge testing, a pass with a burlap drag shall be made as soon as construction operations permit and before the water sheen has disappeared from the surface. This shall be followed by as many passes of the drag as required to produce the desired surface texture.
10. After completion of dragging and about the time the concrete becomes hard, the edge of the slab and joints shall be left smooth and true to line.

H. Curing

1. Concrete pavement shall be cured by protecting it against excessive loss of moisture for a period of not less than 72 hours from the beginning of curing operation.
2. Immediately after finishing operations have been completed, the entire surface of the newly laid concrete shall be covered and cured in accordance with the requirements of "Membrane Curing," TxDOT Item 360.4I.
3. Special care shall be exercised to keep spraying curing compound out of pavement joints.

I. Contraction Joints

1. Contraction joints shall be provided at the type, size, and spacing shown on the Drawings. Contraction joints shall be sawed to provide a minimum depth of 1/4 of the thickness of the concrete and sealed as shown on the Drawings or with Sonneborn SL-1 or approved equal. Sawing shall begin as soon as the concrete has obtained adequate strength to resist raveling of the joint edges, generally between 4 and 24 hours. The joints shall be flushed or blown clean immediately after sawing to keep the residue from setting up.
2. Sawed Joints: The groove of contraction joints shall be not less than 1/4 inch nor greater than 3/8 inch in width for the entire depth of saw cut shown on the Drawings. The upper portion of the groove is to be widened to not less than 3/8 inch nor more than 5/8 inch for a depth of 1/4 of the pavement thickness, plus or minus 1/8 inch, below the pavement surface.
 - a. The time of sawing shall be varied, depending on existing and anticipated weather conditions. Uncontrolled cracking of the pavement shall be prevented. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting the concrete without excessive chipping, spalling, or tearing. The sawed faces of joints shall be inspected for undercutting or washing of the concrete due to early sawing. If this action is sufficiently deep to cause structural weakness or excessive cleaning difficulty, as determined by the Engineer, the sawing operation shall be delayed until directed to resume. The sawing operation shall be carried on regardless of weather conditions. The joints shall be sawed at the required spacing consecutively in the sequence of the concrete placement. A chalk line or other suitable guide shall be used to mark the alignment of the joints. The

<Insert A/E Name>

Concrete Pavement for Vehicular Areas

32 1314 - 10

AE Project #: <Insert Project Number>

UH Master: 04.2021

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

saw cut shall be straight from edge to edge of the pavement and shall not vary more than 1/2 inch from the true joint alignment. Before sawing a joint, the concrete shall be examined closely for cracks. The joint shall not be sawed if a crack has occurred near the location chosen for a joint. Sawing shall be discontinued when a crack develops ahead of the saw cut.

- b. The surface of pavement cured with membrane-curing compound shall be wetted with water in the region of the intended saw cut prior to sawing to protect the curing membrane from abrasion. Workmen and inspectors shall wear clean, rubber soled footwear, and the number of persons walking on the pavement shall be limited to those actually performing the sawing operation. Immediately after each joint is sawed, the saw cut and adjacent concrete surface shall be thoroughly flushed with water until all waste from sawing is removed from the joint. Any membrane-cured surface damaged during the sawing operations shall be re-sprayed as soon as the free water disappears. The sawing equipment shall be adequate in number of units and power to complete the sawing at the required rate. An ample supply of saw blades shall be available on the job before concrete placement is started. At least one standby sawing unit in good working order shall be available at the job site at all times during the sawing operations.

3.4 CURBS

A. Dowelled on Curb

1. After curing the concrete pavement, doweled on curbs, using secure forms, shall be constructed to the size shown on the Drawings.
2. Dowels may be placed in the pavement slab before the concrete has set or placed in drilled holes using epoxy adhesive to secure the bars in place.
3. Pavement joints shall extend through the curbs. Expansion joint material shall be the same thickness, type and quality as specified for the pavement.
4. When sawed joints are provided, the placement of curb shall be delayed until all transverse joints are sawed.
5. Weakened plane joints shall be formed by inserting an asphaltic board strip cut to conform to the shape of the curb.
6. All joints should be tool finished after sufficient curing of the concrete.
7. The concrete, reinforcement and curing of the curbs shall conform to the requirements specified for the concrete pavement.
8. In finishing the curbs, a thin coating of mortar shall be worked into the exposed face of the curb in order to obtain a brush finish free of all blemishes and form or tool marks.
9. Curbs shall have a straightness tolerance of 1/8 inch in 10 feet, measured longitudinally along the back and face of the curb.
10. The top of the curb shall not vary vertically in height more than 1/8 inch when measured up from the concrete pavement.

B. Monolithic Curbs and Curb and Gutter

<Insert A/E Name>

Concrete Pavement for Vehicular Areas

32 1314 - 11

AE Project #: <Insert Project Number>

UH Master: 04.2021

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

1. Monolithic curbs and curb and gutter shall conform to the Specifications for doweled on curb and the details shown on the Drawings.
2. Monolithic curbs and curb and gutter shall be constructed after final grading of the subgrade and before placement of the base material.
3. These curbs shall be cured for at least 72 hours and shall be properly backfilled behind the curb by hand tamping to 95 percent standard proctor density ASTM D 698 before placing the base material.

3.5 APPLICATION OF JOINT SEALING COMPOUND

- A. Joints shall be thoroughly cleaned of loose scale, dirt, dust, and curing compound. When necessary, existing joint material shall be removed to the depth as shown on the Drawings.
- B. Joints shall be filled to the full depth of the joint opening. Pouring shall be done in a neat and workman like manner to give satisfactory results. Sufficient joint sealer shall be poured into the joints so that upon the completion of the work the surface of sealer within the joint shall be 1/4 inch above top of the pavement surface.

3.6 TESTS

A. Concrete Test Specimens

1. Test cylinders for compressive strength shall be taken and cured in accordance with ASTM C 31 and tested in accordance with ASTM C 39.
2. Not less than three specimens shall be made for each test, nor less than one test for each 50 cubic yards or fraction thereof of concrete placed or for each day's pour.
3. Laboratory technician will prepare concrete test cylinders.

B. Testing of Concrete Surface

1. After finishing is complete and while the concrete is still workable, the surface shall be tested for trueness with an approved 10 foot steel straightedge.
2. The straight edge shall be operated from the side of the pavement placed parallel to the pavement center line and passed across the slab to reveal any high spots or depressions.
3. The straight edge shall be advanced along the pavement in successive stages of not more than 1/2 its length. A tolerance of 1/8 inch in 10 feet shall be met.
4. Any correction of the surface required shall be accomplished by adding concrete if required and by operating the longitudinal float over the area.
5. The surface test with the straight edge shall then be repeated.

3.7 OPENING PAVEMENT TO TRAFFIC

- A. The pavement shall be closed to all traffic, including vehicles of the Contractor, until the concrete is at least 7 days old or has attained a minimum average of 3000 psi compressive strength.

<Insert A/E Name>

AE Project #: <Insert Project
Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 12

University of Houston Master Specification

<Insert Project Name>

<Insert Issue Name>

<Insert U of H Proj #>

<Insert Issue Date>

- B. Any damage to the pavement prior to acceptance by the Owner shall be repaired by the Contractor at no extra cost to the Owner.
- C. These steps do not relieve the Contractor from normal liabilities and maintenance responsibilities, implied or otherwise, for the pavement or other items.

END OF SECTION 32 1314

<Insert A/E Name>

AE Project #: <Insert Project
Number>

Concrete Pavement for Vehicular Areas
UH Master: 04.2021

32 1314 - 13