

Section 02775

CONCRETE SIDEWALKS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following:
  - 1. Reinforced concrete sidewalks.
  - 2. Wheelchair Ramps.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.
  - 1. Payment for concrete sidewalks is on square foot basis.
  - 2. No payment will be made for work outside these limits or in areas where driveway has been removed or replaced for Contractor's convenience.
  - 3. Payment for wheelchair ramps of each type specified is on square foot basis. Staining of wheelchair ramps is included in cost of ramp.
  - 4. Refer to Section 01270 – "Measurement and Payment" for unit price procedures.
- B. Stipulated Price (Lump Sum). If the Contract is a Stipulated Price Contract, payment for work in this Section is included in the total Stipulated Price

1.03 REFERENCES

- A. ASTM C 31 Rev A- Standard Practice for Making and Curing Concrete Test Specimens in the Field.
- B. ASTM C 39 Rev B- Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- C. ASTM C 42 - Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- D. ASTM C 138 Rev A- Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
- E. ASTM C 172 Rev A- Standard Practice for Sampling Freshly Mixed Concrete.

- F. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
- G. Texas Accessibility Standards of the Architectural Barriers Act, Article 9102, Texas Civil Statutes

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 – “Submittal Procedures”.
- B. Submit certified testing results and certificates of compliance.

1.05 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01330 – “Submittal Procedures”
- C. Section 01454 – “Testing Laboratory Services”
- D. Section 01576 – “Waste Material Disposal”
- E. Section 02233 – “Clearing and Grubbing”
- F. Section 02320 – “Utility Backfill Materials”
- G. Section 02336 – “Lime-Stabilized Subgrade”
- H. Section 02752 – “Concrete Pavement Joints”
- I. Section 02753 – “Concrete Pavement Curing”
- J. Section 02761 – “Colored Concrete for Medians and Sidewalks”
- K. Section 02922 – “Sodding”
- L. Section 02951 – “Pavement Repair and Resurfacing”
- M. Section 03002 – “Concrete Pavement”

1.06 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Concrete: Conform to material and proportion requirements for concrete of Section 03002 – “Concrete Pavement”.
- B. Reinforcing Steel: Conform to material requirements of Section 03002 – “Concrete Pavement” for reinforcing steel. Use No. 3 reinforcing bars.
- C. Preformed Expansion Joint Material: Conform to material requirements for preformed expansion joint material of Section 02752 – “Concrete Pavement Joints”.
- D. Expansion Joint Filler: Conform to material requirements for expansion joint material of Section 02752 – “Concrete Pavement Joints”.
- E. Forms: Use straight, unwarped wood or metal forms with nominal depth equal to or greater than the proposed sidewalk thickness. The use of 2" by 4" lumber as forms will not be allowed.
- F. Sand Bed: Conform to material requirements for bank run sand of Section 02320 – “Utility Backfill Materials”.
- G. Sodding: Conform to material requirements for sodding of Section 02922 – “Sodding”.
- H. Coloring for wheelchair ramps: Conform to material requirements for colored concrete of Section 02761 – “Colored Concrete for Medians and Sidewalks”. Color shall be Brick Red or as shown on Plans.

2.03 – 2.04 NOT USED

PART 3 EXECUTION

3.01 GENERAL / MANUFACTURER(S) (NOT USED)

3.02 PREPARATION

- A. Identify and protect utilities which are to remain.
- B. Protect living trees, other plant growth, and features designated to remain.
- C. Conduct clearing and grubbing operations in accordance with Section 02233 – “Clearing and Grubbing”.
- D. Excavate subgrade 6 inches beyond outside lines of sidewalk. Shape to line, grade, and cross section. For soils with plasticity index above 40 percent, stabilize soil with lime in accordance with Section 02336 – “Lime-Stabilized Subgrade”. Compact subgrade to minimum of 90 percent maximum dry density at optimum to 3 percent above optimum moisture content, as determined by ASTM D 698.

- E. Immediately after subgrade is prepared, cover with compacted sand bed to depth as shown on Plans. Lay concrete when sand is moist but not saturated

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Placement

1. Setting Forms: Straight, unwarped wood or metal forms with nominal depth equal to or greater than proposed sidewalk thickness. Use of 2 by 4s as forms will not be allowed. Securely stake forms to line and grade. Maintain position during concrete placement.
2. Reinforcement:
  - a. Install reinforcing bars.
  - b. Install reinforcing steel as shown on the Plans. Lay longitudinal bars in walk continuously, except through expansion joints.
  - c. Use sufficient number of chairs to support reinforcement in manner to maintain reinforcement in center of slab vertically during placement.
  - d. Drill dowels into existing paving, sidewalk and driveways, secure with epoxy, and provide headers as required.
  - e. Use sufficient number of chairs for steel reinforcement bars to maintain position of bars within allowable tolerances. Place reinforcement as shown on Plans. In plane of steel parallel to nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of spacing between bars. In place of steel perpendicular to nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch.
3. Expansion Joints: Install expansion joints with load transfer units in accordance with Section 02752 – “Concrete Pavement Joints”.
4. Colored Concrete: Apply coloring agent in accordance with Section 02761 – “Colored Concrete for Medians and Sidewalks”.
5. Place concrete in forms to specified depth and tamp thoroughly with “jitterbug” tamp, or other acceptable method. Bring mortar to surface.
6. Strike off to smooth finish with wood strike board. Finish smoothly with wood hand float. Brush across sidewalk lightly with fine-haired brush.
7. Apply coating to wheelchair ramp with contrasting color in accordance with Section 02761 – “Colored Concrete for Medians and Sidewalks”.

8. Unless otherwise indicated on Plans, mark off joints 1/8 inch deep, at spacing equal to width of walk. Use joint tool equal in width to edging tool.
9. Finish edges with tool having 1/4-inch radius.
10. After concrete has set sufficiently, refill space along sides of sidewalk to top of walk with suitable material. Tamp until firm and solid, place sod as applicable. Dispose of excess material in accordance with Section 01576 – “Waste Material Disposal”. Repair driveways and parking lots damaged by sidewalk excavation in accordance with Section 02951 – “Pavement Repair and Resurfacing”.

B. Curing

Conform to requirements of Section 02753 – “Concrete Pavement Curing”.

3.04 REPAIR/RESTORATION

- A. Replace sidewalks and slope paving, which are removed or damaged during construction, with thickness and width equivalent to one removed or damaged, unless otherwise shown on Plans. Finish surface (exposed aggregate, brick pavers, etc.) to match existing sidewalk.
- B. Provide replaced and new sidewalks with wheelchair ramps if sidewalk intersects curb at street or driveway.

3.05 NONCONFORMING CONCRETE

- A. Remove and replace areas that fail compressive strength tests, with concrete of thickness shown on Plans.
- B. Replace nonconforming sections at no additional cost.

3.06 FIELD QUALITY CONTROL

- A. Testing shall be performed under provisions of Section 01454 – “Testing Laboratory Services”.
- B. Compressive Strength Test Specimens: Four test specimens for compressive strength test shall be made in accordance with ASTM C 31 for each 30 cubic yards or less of sidewalk that is placed in 1 day. Two specimens shall be tested at 7 days. The remaining two specimens shall be tested at 28 days. Specimens shall be tested in accordance with ASTM C 39. Minimum compressive strength: 3,000 psi at 7 days and 3,500 psi at 28 days.
- C. Yield test for cement content per cubic yard of concrete shall be made in accordance with ASTM C 138. If such cement content is found to be less than that specified per

cubic yard, reduce batch weights until amount of cement per cubic yard of concrete conforms to requirements.

- D. If the Contractor places concrete without notifying the laboratory, the Project Manager will have the concrete tested by means of a core test as specified in ASTM C 42. When concrete does not meet specification, the cost of the test will be deducted from payment.
- E. Sampling of fresh concrete shall be in accordance with ASTM C 172.
- F. Take slump tests when cylinders are made and when concrete slump appears excessive.
- G. Concrete shall be acceptable if the average of the two, 28-day compression tests is equal to or greater than minimum 28-day strength specified.
- H. If either of two tests on field samples is less than average of two tests by more than 10 percent, that entire test shall be considered erratic and not indicative of concrete strength. Core samples will be required of in-place concrete in question.
- I. If 28-day laboratory test indicates that concrete of low strength has been placed, test concrete in question by taking cores as directed by Project Manager. Take and test at least three representative cores as specified in ASTM C 42 and deduct cost from payment due

3.06 – 3.08 NOT USED

3.09 PROTECTION

- A. Maintain sidewalks in good condition until completion of the Work.
- B. Replace damaged areas.

3.10 SCHEDULES (NOT USED)

END OF SECTION