SECTION XI. CONCRETE SIDEWALKS

A. General Requirements
B. Excavation & Forming
C. Placing Concrete
D. Temporary Work Stoppage

A. GENERAL REQUIREMENTS

1. Extent of Work: The developer shall install concrete sidewalks as shown on the approved construction drawings. Sidewalks shall be installed on both sides of all public streets except when a partial street is allowed. Sidewalks at all intersections of public streets shall conform to current American Disabilities Act standards.

2. Damage: In the event existing sidewalks or curbs and gutters that have been accepted by the City are damaged at any time, the damaging party shall repair or replace the damaged items as per Section 7-3-1 of the City Code. Sidewalk, curb and gutter not accepted by the City and is damaged, will be replaced by the developer or the contractor.

B. EXCAVATION & FORMING

1. General Requirements: All excavation required for concrete sidewalks and preparation of sub-grade shall be made as herein contained. If the sidewalk under construction does not cover the entire area between the curb and the property line, then after the forms have been removed, the depressions along the edges of the sidewalk pavement shall be backfilled with approved material, properly moistened and hand tamped and the areas between the sidewalk and the curb and between the sidewalk and the property line shall be finished to a uniform slope, as shown on the plans, with fine material, free from stones and large lumps, and then neatly surfaced with hand rakes. Where the excavation extends into lawns, the sod shall be taken up, carefully preserved and re-laid by the contractor.

2. Forms: The forms shall comply with all applicable requirements of these specifications. The width of the material shall be equal to the full depth of the sidewalk pavement and the upper edge shall be set accurately to the required elevation of the finished surface.

3. Resetting Frames and Cover: Where there are existing structures within the area of the sidewalk being constructed, such as valve boxes, meter barrels, hydrant boxes, sewer manholes, etc., that require resetting of frames and covers, or the building up or cutting down of the structure to fit the grade of the sidewalk, then this work shall be done by and at the expense of the contractor, unless otherwise provided in these specifications. Every effort must be taken to keep the items listed above out of the sidewalk.

C. PLACING CONCRETE

1. Concrete:

a. Specified: In the construction of concrete sidewalks air entrained 4000 psi. concrete type II Portland cement shall be used.

b. Applicable Requirements; Vibration: The concrete materials and the proportioning, mixing, transporting, placing, protection and curing of the same shall conform to all the applicable requirements. Vibration will not be required.

2. One Course Sidewalk: The concrete shall be placed on the sub-grade, prepared as above described, to the full depth of the sidewalk, as shown on the plans, in one course. The full quantity of concrete required shall be deposited in as near its final position as practicable in one operation, and the placing shall be completed with shovels. Spades shall be used along the edges to bring the concrete into uniform and complete contact with the forms. Magnesium floats shall be used for bringing the material to a uniform surface, and after the surface has partially set, all edges shall be finished with an approved edging tool. The surface shall then be finished with a light broom finish. On steep grades, the surface shall be roughened.

3. Sidewalk Pavement: All concrete sidewalks shall be constructed to the lines, grades and dimensions as shown on the approved construction drawings.

4. Joints:

a. Construction: Expansion joints shall be constructed between the sidewalk and buildings abutting said sidewalk, hydrants, and/or other structures coming within or immediately adjacent to the sidewalk area and at such other points as shown on the approved construction drawings.

b. Filler: The expansion joint filler to be used shall be prepared resilient, non-extruding joint filler conforming to the requirements of ASTM specifications, designation D-544-52 T, or as last revised, cut or molded to proper dimensions, and it shall be so placed in relation to surface of sidewalk pavement to allow for pouring of joint sealer compound.

c. Marks: All concrete sidewalks shall be marked transversely with a marking tool, at intervals equal to the width of the sidewalk being built.

5. Unacceptable Concrete: Re-tempering concrete that has partly set will not be permitted. Concrete that for any reason has been mixed too wet shall not be used. Concrete that is partly set shall not be used in the work. Waste concrete shall be removed from City property and disposed of by the contractor in a satisfactory/timely manner.

6. Curing/Sealing: All Portland cement concrete shall be cured by acceptable means and as approved. The work shall be done in an efficient and systematic manner. The curing period for formed structures and concrete paving is not less than seven (7) days. All concrete shall be sealed with a sealer than contains a UV protectant.

7. Curing in Cold Weather: If the contractor desires to place concrete in cold weather, he shall assume all responsibility for damage that may be caused by freezing or by any other cause, even though permission to proceed may have been given by the City. In no case, however, shall concrete be placed when the temperature is forty five degrees Fahrenheit (45°F) and falling, unless the contractor has complied with the following requirements and such additional precautions as he/she may consider being necessary or advisable:

a. Heating Water: Provision shall be made for heating the water and, if necessary, the aggregates also. If the aggregates are heated, it shall preferably be done with steam by means of closed steam coils.

b. Temperature Of Concrete: The temperature of the mixed concrete when placed in the forms shall be between fifty degrees Fahrenheit (50°F) and seventy degrees Fahrenheit (70°F), depending on the temperature of the air.

c. Covering: When the concrete has been placed, the forms and concrete shall be covered with concrete blankets or other approved coverings to maintain the temperature at a minimum of fifty degrees Fahrenheit (50°F) for at least seventy two (72) hours, or as much time as is needed to ensure proper curing.

d. Self-Recording Thermometers: The contractor shall provide and use a sufficient number of maximum and minimum self-recording thermometers to adequately indicate the temperature that is being maintained around the concrete. The thermometers shall be placed against the surfaces of the concrete.

e. Admixture: The use of any admixture to lower the freezing point of the concrete is forbidden.

f. Frozen Sub-Grade And Materials: No concrete shall be placed upon a frozen sub-grade and no frozen materials shall be used in the concrete.

g. Salamanders: Salamanders shall not be used without approval. If the use of salamanders is permitted, then each salamander shall have a vessel containing water placed on it, in order to maintain the necessary humidity to prevent drying of the concrete. Water shall be maintained continuously in the vessel.

h. Material Free From Ice And Snow: The material shall be free from ice, snow and frozen lumps when introduced into the mixer.

8. Concreting in Hot And/or Dry Weather: Whenever the ambient temperature is above eighty degrees Fahrenheit (80°F) or the humidity is below ten percent (10%), trial batches to determine the period of initial set may be required. If weather conditions are such that the initial set is accelerated, the maximum period specified for mixing, placement and compaction shall be reduced to allow at least ten (10) minutes time before initial set. The term "initial set" shall be construed as the time at which the concrete is no longer workable. Necessary steps shall be taken to protect the concrete from undesirable effects of heat. These steps may include:

a. Spraying forms, reinforcing steel and sub-grade to prevent absorption of water from mix.

b. Erecting sun shades and wind breaks.

c. Protect slabs before final finishing by covering with waterproof or visqueen.

d. Spraying outside of forms to cool concrete.

e. Cooling mixing water.

f. Spraying coarse aggregate to reduce temperature.

D. TEMPORARY WORK STOPPAGE

If, for any reason, work is discontinued for a period long enough for the concrete to become set or partially set, then a construction joint shall be provided, preferably, at a transverse expansion joint, or if that is impracticable, then at a transverse contraction joint. A bulkhead shall be placed between and at right angles to the side forms and at right angles to the surface of the pavement. It shall extend through the full depth of the pavement and the upper edge shall be set flush with the upper edge of the forms. The concrete shall be finished against this bulkhead to the full depth of the pavement and any excess concrete shall be wasted. All work shall be done satisfactorily before work is stopped.