

APPENDIX D

CONSTRUCTION SPECIFICATION TOLERANCES

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APPENDIX D

CONSTRUCTION SPECIFICATION TOLERANCES

I. PURPOSE

Below is a construction tolerance list to aid in the construction of subdivision improvements, and to provide technical guidelines for acceptance by Teller County. It is to be used by the owner/developer prior to any acceptance inspection for repairs or replacement of work to meet Teller County standards and specifications. It will be used by Teller County as guidelines during construction, probationary and final acceptances.

This list of construction specification tolerances are additions to the latest edition of the Colorado Department of Highways Standard Specification for Road and Bridge Construction, special provisions and revisions thereto and by the current subdivision regulations of Teller County, Colorado.

II. TOLERANCES

A. Curb, gutter and walk, crosspans, etc.

1. Any localized humps and/or depressions greater than 1/4 inch (as measured with a 10 foot straight edge) will require removal and replacement of the work in question.
2. No ponding of water greater than 3/8 inch shall be allowed.
3. Combination curb, gutter and walk and/or vertical curb and gutter flowline depth shall not vary from adopted standards by more than + 1/2 inch, measured vertically from the top of curb to the gutter invert.
4. Pedestrian walks shall have a minimum of 2.0 percent and a maximum of 2.5 percent slope toward the roadway.
5. Contraction and construction joints shall be placed at a maximum spacing of 10 feet in curb, gutter, sidewalks, crosspans, trickle channel, etc. A minimum spacing of 5 feet will be allowed for repairs.
6. Heave or settlement of sidewalk, relative to separate curb pour, greater than $\frac{1}{2}$ inch shall be cause for corrective action. This provision shall not apply to transverse sidewalk joints.

B. Roadways

1. Gravel Roadways

- a) If a gravel surface is the final surface for the roadway or shoulder, then the manholes, water valves, etc., shall be buried 7 inches below the final grade.

2. Asphalt Roadways

- a) All manholes, water valves, range boxes, etc., shall be 1/4 inch to $\frac{1}{2}$ inch below the final paved grade. The finish grade of pavement shall be 1/4 inch above the rim elevation with a 2 foot transition provided.
- b) Any humps and depressions greater than 1/4 inch as measured with a 10 foot straight edge shall be cause for corrective measures.
- c) Additional asphalt thickness of up to $\frac{1}{2}$ inch will be permitted at the joint of the roadway and gutter pan and will be included in the actual asphalt thickness. Corrective action may be required for additional asphalt in excess of $\frac{1}{2}$ inch. In no case will asphalt in excess of $\frac{1}{2}$ inch above the gutter pan be included in the asphalt thickness for acceptance purposes.

3. Concrete Roadways

- a) All manholes, water valves, range boxes, etc., shall be flush to 1/4 inch below the final surface roadway grade.
- b) Where the departure from the design cross slope exceeds $\frac{1}{2}$ inch in 10 feet, the pavement shall be removed and replaced.
- c) Areas showing high spots greater than 1/4 inch as measured with a 10 foot straight edge, but less than $\frac{1}{2}$ inch, shall be ground to within the specification of 1/4 inch.

III. GENERAL SPECIFICATIONS

A. Curb, gutter and walk, crosspans, etc.

1. No utility facilities shall be placed in curb, gutter or walk, crosspans, etc., unless shown on the approved construction plans. This includes water stop box, manholes, power poles, fire hydrants, water valves, etc.

2. Concrete Cracks

- a) At the time of initial inspection, no cracks will be accepted and shall be removed to the nearest control joints. Time of replacement (initial or final acceptance) shall be decided by the County Engineer or authorized representative.
- b) At the time of final acceptance inspection, the repair of all cracks will be completed.
 - 1) Individual non-connecting cracks that are less than 1/4 inch wide, exhibit no horizontal or vertical shifting, and do not meet the conditions in 2), 3), and 4) below may, at the discretion of Teller County, may be sealed by routing approximately 3/4 inch to 1 inch deep by 1/4 inch wide and filling with Sikaflex 1-A or a product that is equal to or exceeds.

- 2) Any crack that extends through a joint shall require removal and replacement of the entire cracked area.
- 3) Any crack in a 4 inch thick walk will require removal and replacement of the entire cracked section between joints.
- 4) Any longitudinal cracked section of concrete will require complete removal and replacement of that section between joints.
- 5) Repair action for hairline cracks as determined in 1) above may be waived at the discretion of Teller County. For the purpose of this section, a hairline crack is one that is reasonably immeasurable and without separation as determined by Teller County.
- 6) Two or more connecting cracks shall require removal and replacement of the entire cracked area.

3. Final Grade

- a) A light broom finish (not to expose the aggregate) to all concrete shall be required.
- b) All concrete work shall have the proper finished grade. No reversal of the flow path will be accepted by Teller County.
- c) No abrupt changes in grade shall be allowed, i.e., curb returns from new to existing, driveway entrances, etc.

B. Roadways

1) Asphalt

- a) Individual and non-deflecting cracks in the asphalt shall, at the discretion of Teller County, be sealed with rubberized asphalt sealant approved by Teller County, to include cracks or open sawed joints at patch areas.

2) Concrete

- a) All panels with cracks wider than 1/8 inch shall be repaired by a partial or total removal of the panel and replacement as required by the criteria herein. At the time of initial acceptance, no cracks will be allowed and shall be repaired on a full panel basis.
- b) All panel cracks 1/8 inch and narrower may be routed and sealed.
- c) There shall be no more than one (1) structural crack per panel. Panels with more than one structural crack shall be repaired by a partial or total panel removal and replacement.

- d) At probationary acceptance, the minimum section for removal of any panel shall be 1/3 of the panel width but in no case less than 4 feet. All partial panel removals shall be full panel length (longitudinal).
- e) All sections removed shall have edges approximately parallel to adjacent panel joints.
- f) All saw cuts for removal of slabs shall be full depth cuts.
- g) No panel shall be allowed which has a crack meeting an adjacent panel at an angle more acute than 45 degrees to a finished edge or control joint.
- h) All corner cracks to a panel shall be removed and replaced as required by the criteria contained herein.
- i) Any vertical differential movement across a crack greater than 3/16 inch shall be repaired by either partial or total panel removal and replacement.
- j) All panels with faulted joints resulting from settlement, pumping, and/or curing of the edges shall be repaired by removal and replacement, or in the case of curling, may be repaired by grinding at the discretion of the Representative of the County.
- k) All joint seal damage that allows the intrusion of water or foreign material shall be cleaned and replaced in accordance with County standards.
- l) All compaction shall meet the requirements of Chapter 8.

3) AC-20 Rubberized Plantmix Sealcoat

Section 702 of the CDOT Standard Specifications is hereby revised to include the following:

Asphalt Cement (AC-20) (Rubberized)

AC-20 (Rubberized) shall be asphalt cement thoroughly blended with a minimum of two (2%) percent by weight of rubber and shall conform to the following requirements:

PROPERTY	SPECIFICATIONS Min. Max.	AASHTO TEST NO.
Viscosity 140°F, poises	1600	T-202
Viscosity 275°F, centistoke	210	T-201
Penetration 77°F (100g, 5 sec.)	40	T-49
Ductility 39.2°F (5 cm/min) cm	50	T-51
Toughness, inch-pounds	110	*CPL2210
Tenacity, inch-pounds	75	*CPL2210
Viscosity 140°F, poises	8000	T-202
Ductility 39.2°F (5 cm/min), cm	25	T-51

*Colorado Procedure

C. Requirements and Specifications for Concrete Road Repair Prior to Final Acceptance

1. All panels with cracks wider than 1/8" shall be repaired by a partial or total removal of the panel and replacement as required by the criteria herein.
2. All panel cracks 1/8" and narrower may be routed and sealed.
3. There shall be no more than one (1) structural crack per panel. Panels with more than one structural crack shall be repaired by a partial or total panel removal and replacement.
4. The minimum section for removal of any panel shall be 1/3 of the panel length or width but in no case less than 4 feet.
5. All sections removed shall have edges approximately parallel to adjacent panel joints.
6. All saw cuts for removal of slabs shall be full depth cuts.
7. No panels shall be allowed which has a crack meeting an adjacent panel at an angle more acute than 45 degrees to a finished edge or control joint.
8. All corner cracks to a panel shall be removed and replaced as required by the criteria contained herein.
9. Any vertical differential movement across a crack greater than 3/16" shall be repaired by either partial or total panel removal and replacement.

10. All panels with faulted joints resulting from settlement, pumping, and/or curling of the edges shall be repaired by removal and replacement, or in the case of curling, may be repaired by grinding at the discretion of the County Engineer or authorized representative.
11. All joint seal damage that allows the intrusion of water or foreign material shall be cleaned and replaced in accordance with County standards.
12. All compaction shall meet 95% or greater Standard Proctor at plus or minus 2% optimum moisture content.