

**CONSTRUCTION INSPECTOR'S CHECKLIST
FOR
PAVEMENT PATCHING**

This checklist has been prepared to provide the field inspector with a summary of easy-to-read step-by-step requirements relative to the proper construction of pavement patching (Section 442 of the Standard Specifications). The following questions are based on and referenced to information found in the Standard and Supplemental Specifications, Highway Standards, and appropriate sections of the Construction Manual.

Have you reviewed the contract Special Provisions, Supplemental Specifications and Plans . _____

1. TRAFFIC CONTROL AND PROTECTION

If the road is to remain open to traffic during the patching operations, are the protective devices as specified in Article 701.05(e) being furnished? (Art. 442.04) _____

a. Are you studying the plan Traffic Control Standards, Contract Special Provisions, and preconstruction conference minutes to determine the positioning of signs and flaggers and how the Contractor is to be paid for this work? _____

b. Are you preparing Form [OPER 725](#), "Traffic Control Authorization Request" when required by the Traffic Control Standard? _____

c. Is the Contractor keeping all vehicles and/or nonoperating equipment parked away from the moving traffic stream in conformance with the following? (Art. 701.04) _____

(1) During working hours; 2.5 m (8 feet) from pavement if parked for 2 hours or less. For longer periods of time park as follows: _____

(2) During nonworking hours; 9 m (30 feet) ROW permitting. Otherwise, 4.5 m (15 feet) from pavement. _____

(3) In addition to the above requirements of Article Art. 701.05(e), is the Contractor keeping all equipment, materials and vehicles off of the shoulder on the side of the pavement that is open to traffic? (Art. 701.04(b)(1)) _____

- d. Flaggers - Are two flaggers being furnished at each separate operation (two lane pavements)? Is one flagger being furnished at each separate activity of an operation that requires frequent encroachment in a lane open to traffic where traffic is restricted to less than the normal number of lanes on a multilane pavement? (Art. 701.04(c)) Are they equipped with vests and approved warning signs? (Art. 701.04(c)) _____
- e. Are flaggers being provided whenever there is a lane closure (not controlled by temporary traffic signals) on 2-lane, 2-way pavement? (Art. 701.04(c)(1)). Overnight lane closures on 2-lane roadways and ramps are not allowed except conditions beyond the Contractor's control. (Art. 701.05(e)(1)(d)) _____
- f. Are the flaggers certified and have in their possession a current flagger certification I.D.? (Art. 701.04(c)(4)) _____
- g. On two-lane pavements when one-way traffic is being maintained, are construction operations confined to one traffic lane, leaving the opposite lane open to traffic? (Art. 701.05(e)(1)(a)) (On four-lane pavement, one traffic lane in each direction must be open to traffic throughout the period of construction.) _____
- h. Is Traffic Control Surveillance ([Form BC 2240](#)) being furnished by the Contractor to inspect the barricades, lights, signing, etc. at least once every four hours during all hours that the Contractor is not working? (Art. 701.04(b)(2)) _____
- i. Are you periodically driving through the job to check the effectiveness of the Contractor's traffic control devices? _____
- j. Are you reviewing [Section 700](#) in the Construction Manual for traffic control inspection and reporting frequencies? _____

All inspections shall be recorded either form BC 726 or BT 726, **Traffic Control Inspection Report**. When major deficiencies are corrected, a small note stating that the correction was made along with the date and initials shall be added to the form which cited the deficiency, or in the project diary.

2. PAINTING PATCH LIMITS

- a. Initial Layout:

Prior to the Contractor beginning work, are you marking the pavement with abbreviated white paint marks at all locations where you feel patching is required? _____

Additional Information Required for Class A and B and C Patches

- i. Mandatory saw cut lengths (Class A and B) _____
- j. Dowel bar count (Class B) _____
- k. Tie bar count (Class A, B, and C) _____
- l. Reinforcement bars area (Class A) _____
- m. Pavement fabric area (Class B) _____

5. PLANT & MATERIALS APPROVAL

Has the plant where the concrete is to be produced been approved? (Art. 1103.02) _____

Has the plant where the bituminous mixture is to be produced been approved? (Art. 1102.01) _____

Are approved bituminous mix designs in the project files? (406.10) _____

Has the Contractor notified you of his/her proposed sources of materials prior to delivery? (Art. 106.01) _____

Has all material been inspected, tested and approved before incorporation in the work? (Art. 106.03) _____

6. CLASS "A" PATCHES

Pavement Removal and Continuously Reinforced Portland Cement Concrete Replacement

a. Scoring:

(1) Are two transverse saw cuts being made perpendicular to the centerline and at each end of the patch? (Art. 442.05(a)) _____

(2) Is the saw cut located at the outside patch edge to a depth which is just above the longitudinal reinforcement? (Art. 442.05(a)) _____

(These saw cuts should be located not closer than 450 mm (18 inches) from the nearest tight transverse crack in pavement which is to remain. However, where cracks are very closely spaced it is sometimes necessary to place the patch edge as close as 150 mm (6 inches) to an existing tight transverse crack. If this condition exists, discuss the situation with your supervisor.) _____

- (3) Are the interior saw cuts full-depth or to a depth which will completely sever the longitudinal reinforcement and located from the patch edge as shown in the plans and/or standards? (Art. 442.05(a)) _____
- (4) Are the longitudinal edges of the patch formed by full depth saw cuts? (Art. 442.05(a)) _____
- (5) Are you prohibiting saw cut extensions into pavement that is to remain in place? (Art. 442.05(a)) _____
- (6) Are all saw cuts being made with an approved concrete saw? (Art. 442.05(a)) _____

b. Breaking and Removal:

- (1) Is the pavement between the full-depth saw cuts being removed by lifting? (Art. 442.05(a)) _____
- (2) Is the Contractor exercising sufficient care to minimize subbase disturbance and prevent spalling of the pavement that is to remain in place? (Art. 442.05(a)) _____
- (3) If you determine that the concrete has deteriorated to the extent that it is not practical to lift, is the pavement being broken into small pieces with equipment which shall not transfer an impact energy greater than 4000 Joules (3,000 foot-pounds) per blow to the pavement surface? (Art. 442.05(a)) _____

(Breaking shall be used as a last resort. The breaking of one patch should not automatically waive the lifting requirement for other patches.)

- (4) Is the concrete in the splicing area (between the full-depth and partial depth saw cuts) being removed using hand held hammers and hand tools? (Art. 442.05(a)) _____

If the contractor chooses to use the skid steer loader equipped with a hydraulic hammer does the hydraulic hammer have a maximum impact energy of 410 J (300 ft.-lbs.) and a maximum total mass (weight) of 215 kg (475 lbs.)? (Art. 442.03 & Art. 442.05) _____
- (5) To prevent underbreaking, is the face of the concrete below the partial-depth saw cut being inclined slightly into the patch? (Art. 442.05(a)) _____
- (6) After removal, are you inspecting the pavement structure to determine if it is sufficiently sound? _____

If the pavement is unsound due to Contractor negligence, is the patch being extended to remove the unsound area, at no cost to the Department? (Art. 442.05(a)) _____

- (7) Is the patch being extended when the Contractor's operations cause a spall having a width or depth greater than 25 mm (1 inch) in the pavement to remain in place at no cost to the Department? (Art. 442.05(a)) _____

c. Building Up Subbase:

- (1) Is the subbase material disturbed during pavement removal operations or determined unsuitable by the Engineer being removed and replaced with patch material? (Art. 442.05(a)) _____
- (2) If the subbase and subgrade material have been disturbed and/or removed to a depth in excess of plan pavement thickness plus subbase thickness from the surface of the pavement, is the concrete being placed in lifts, separated by a bond breaker and cured at least 1 day before completing the patch? (Art. 442.06(e)) _____

NOTE: The bond breaker may be Type III (white) membrane curing compound.

d. Forms:

- (1) Is the edge of pavement being formed full-depth with metal forms or nominal 50 mm (2 inch) thick wood forms? (Art. 442.03 Note 2, Art. 1103.05 & Art. 442.06(c)) _____
- (2) Is the centerline joint being formed by Method 1 or 2 of Article 442.06(b)? _____

e. Reinforcement:

- (1) Is the patch being extended at the Contractor's cost if more than 10 percent of the reinforcing steel in the splice area is damaged due to the Contractor's operations? (Art. 442.05(a)) _____
- (2) Are you inspecting the existing reinforcement steel for excess rusting or evidence of steel distress? If found, are you extending the patch? (Art. 442.05(a)) _____
- (3) Is the steel being placed as shown on the plans? (Art. 442.06(a)(2)) _____
- (4) Is each lap splice being tied with two secure ties? (Art. 442.06(a)(2)) _____

- (5) Is the reinforcement steel being placed and supported on chairs in accordance with Article (421.06(a)) such that the unsupported lengths do not exceed 1.2 m (4 feet)? (Art. 442.06(a)(2)) _____
- (6) Is any uneven subbase being adjusted so that the reinforcement steel tolerance of ± 25 mm (1 inch) vertically is being met? (Art. 442.06(a)(2)) _____
- (7) Are patches 6 m (20 ft.) or longer tied to the adjacent lane of existing pavement, pcc shoulders, and curb and gutter with No. 20 (No. 6) transverse tie bars, 600 mm (24 inches) long embedded 200 mm (8inches) at 600 mm (24 inch) centers according to Article 420.10(b) of the Standard Specifications? (Art. 442.06(a)(1)) _____
- (8) Are half lane patches 6 m (20 ft.) or longer tied to the adjacent lane of existing pavement, pcc shoulders, and curb and gutter with No. 20 (No. 6) transverse tie bars, 600 mm (24 inches) long embedded 200 mm (8inches) at 600 mm (24 inch) centers according to Article 420.10(b) of the Standard Specifications? (Art. 442.06(a)(2)) _____

f. Prepour Inspection:

Prior to concrete placement, are you:

- (1) Check measuring the depth of patch? _____
- (2) Measuring the patch area for final documentation? _____

g. Concrete Placement:

- (1) Are you checking to see if the Contractor is using the proper class of concrete? (Art. 1020.04) _____
- (2) Is the coarse aggregate being used CA 7, CA 11, CA 13, CA 14 or CA 16? (Art. 1020.04) _____
- (3) Is the air content 4-7% (Art. 1020.04) and the slump a maximum of 100 mm (4 inches) unless a high range water-reducing admixture is used, in which case the maximum slump is 175 mm (7 inches)? (Art. 1020.05(b)) _____
- (4) Is the concrete being placed in accordance with Article 420.07? (Art. 442.06(e)) _____
- (5) Are the temperature requirements of Article 420.08 being met, except that the maximum temperature of the mixed concrete immediately before placing shall be 35°C (96° F)? (Art. 442.06(e)) _____

h. Concrete Consolidation and Finishing:

- (1) Is the concrete being consolidated by internal vibration with special attention given to the corners, edges and reinforcement? (Art. 442.06(f)) _____
- (2) Is the surface of the patch being struck-off with two passes of a vibratory or rolling screed? (Art. 442.06(f)) _____
- (3) Is the surface of the concrete being tested for trueness by means of a 3 m (10 foot) straightedge in accordance with Article 420.11? (Art. 442.06(f)) _____
- (4) Does the final finish match the surrounding pavement if it has not been overlaid? Is the patch surface broomed when the pavement has been overlaid? (Art. 442.06(g)) _____
- (5) Are the patch surfaces being cured for 3 days by one of the following methods? (Art. 1020.13, Index Table)
 - (a) Waterproof paper method? (Art. 1020.13(a)(1)) _____
 - (b) Polyethylene sheeting method? (Art. 1020.13(a)(2)) _____
 - (c) Wetted burlap method? 2 layers of moist burlap covered with an impermeable covering or 1 layer of moist burlap covered with a layer of burlene? (Art. 1020.13(a)(3)) _____
 - (d) Membrane curing method - As soon as water sheen has disappeared, are 2 separate applications, separated by at least one minute, of Type II (red) curing compound (Art. 1022.01) being uniformly applied at 0.16 L/m² (one gallon/250 sf)/application? (Art. 1020.13(a)(4) & Art. 442.06(h)) _____

Is the spraying device of at least 20 L (5 gallon) capacity and maintained with constant pressure by mechanical means? (1101.09(b)) _____

i. Sealing Joints:

Are the centerline and longitudinal joints adjacent to PCC shoulders being sealed in accordance with Article 420.14(a)? (Art. 442.06(j)(1)) _____

NOTE: Not required if bituminous resurfacing is on the same contract.

7. CLASS "B" PATCHES

Pavement Removal and Jointed Portland Cement Concrete Replacement Using Dowels.

a. Scoring:

(1) Are two transverse full-depth saw cuts being made to outline the patch? Are they straight and perpendicular to the centerline, with a tolerance of 50 mm (2 inches) in 3.6 m (12 feet)? (Art. 442.05(b)) _____

Is the wedge of pavement formed by the interior (third) saw cut removed with a hand held hammer and hand tools prior to pavement liftout? (Art. 442.05(b)) _____

(2) Are you prohibiting saw cut extensions into pavement that is to remain in place? (Art. 442.05(b)) _____

(3) Are all saw cuts being made with an approved concrete saw? (Art. 442.05(b)) _____

(4) Are only full lane width patches being permitted? (Art. 442.05(b)) _____

b. Breaking and Removal:

(1) Is the pavement being removed by lifting? (Art. 442.05(b)) _____

(2) Is the Contractor exercising sufficient care to minimize subbase disturbance and prevent spalling of the pavement that is to remain in place? (Art. 442.05(b)) _____

(3) If you determine that the concrete has deteriorated to the extent that it is not practical to lift, is the pavement being broken into small pieces with equipment which shall not transfer an impact energy greater than 4000 J (3000 foot-pounds) per blow to the pavement surface? (Art. 442.05(b)) _____

(Breaking shall be used as a last resort. The breaking of one patch should not automatically waive the lifting requirement for other patches.)

(4) After removal, are you inspecting the pavement structure to determine if it is structurally sound? (Art. 442.05(b)) _____

(5) Is the patch being extended when the Contractor's operations cause a spall having a width or depth greater than 25 mm (one inch) in the pavement to remain in place, at no cost to the Department? (Art. 442.05(b)) _____

c. Building Up Subbase:

Is the subbase material disturbed during pavement removal operations or determined unsuitable by the Engineer being removed and replaced with patch material? (Art. 442.05(b)) _____

d. Forms:

(1) Is the edge of pavement being formed full-depth with metal forms or nominal 50 mm (2 inch) thick wood forms? (Art. 442.03 Note 2, Art. 442.06(c) & Art. 1103.05) _____

(2) Is the centerline joint being formed by Method 1 or 2 of Article 442.06(b)? _____

(3) Is a 6 mm (1/4 inch) bond breaker being placed at the centerline for the full length and depth of the patch? (Art. 442.06(c)(2)) _____

(4) Are the sealant reservoirs at patch boundaries being installed? (Art. 442.06(c)(2)) (See plans and/or standard) _____

e. Reinforcement and Dowel Bars:

(1) Are dowel holes being drilled at mid-depth of the existing pavement, excluding overlays and spaced as shown on the plans and/or standard? (Art. 442.06(a)(3)) _____

(2) Does the drilling machine have a positive stop to control the depth of hole? (Art. 442.03 Note 8) _____

(3) Are the dowel holes parallel to the grade and centerline of the pavement with a tolerance of 3 mm (1/8 inch) in 300 mm (12 inches)? (Art. 442.06(a)(3)) _____

(4) Are dowel holes being cleaned of dust and debris with a power brush/blower or with compressed air? (Art. 442.06(a)(3)) (Dowel bar protrusion shall be 9 ± 0.5 inches.) _____

(5) Are the grout and dowel bars being installed in accordance with Article (Art. 442.06(a)(3))? _____

(6) Are the dowel bars being cleaned and lightly oiled immediately prior to concrete placement? (Art. 442.06(a)(3)) _____

(7) Are patches 6 m (20 ft.) or longer tied to the adjacent lane of existing pavement, pcc shoulders, and curb and gutter with No. 20 (No. 6) transverse tie bars, 600 mm (24 inches) long embedded 200 mm (8 inches) at 600 mm (24 inch) centers according to Article 420.10(b) of the Standard Specifications? (Art. 442.06(a)(1)) _____

f. re-pour Inspection:

Prior to concrete placement are you:

- (1) Check measuring the depth of patch? _____
- (2) Measuring the patch area for final documentation? _____

g. Concrete Placement:

- (1) Are you checking to see if the Contractor is using the proper class of concrete? (Art. 442.06(e)& Art. 1020.04) _____
- (2) Is the course aggregate being used CA 7, CA 11, CA 13, CA 14 or CA 16? (Art. 1020.04) _____
- (3) Is the air content 4-7% (720.04) and the slump a maximum of 100 mm (4 inches) unless a high range water-reducing admixture is used, in which case the maximum slump is 175 mm (7 inches)? (Art. 1020.05(b)) _____
- (4) Is the concrete being placed in accordance with Article 420.07? (Art. 442.06(e)) _____
- (5) Are the temperature requirements of Article 420.08 being met, except that the maximum temperature of the mixed concrete immediately before placing shall be 35°C (96° F)? (Art. 442.06(e)) _____

h. Concrete Consolidation and Finishing:

- (1) Is the concrete being consolidated by internal vibration with special attention given to the corners, edges and reinforcement? (Art. 442.06(f)) _____
- (2) Is the surface of the patch being struck off with two passes of a vibratory or rolling screed? (Art. 442.06(f)) _____
- (3) Is the surface of the concrete being tested for trueness by means of a 3 m (10 foot) straightedge in accordance with Article 420.11(c)? (Art. 442.06(f)) _____
- (4) Does the final finish match the surrounding pavement if it has not been overlaid? Is the patch surface broomed when the pavement has been overlaid? (Art. 442.06(g)) _____
- (5) Are the patch surfaces being cured for 3 days by one of the following methods? (Art. 1020.13, Index Table)
 - (a) Waterproof paper method? (Art. 1020.13(a)(1)) _____

- (b) Polyethylene sheeting method? (Art. 1020.13(a)(2)) _____
- (c) Wetted burlap method - 2 layers of moist burlap covered with an impermeable covering, or 1 layer of moist burlap covered with a layer of burlene? (Art. 1020.13(a)(3)) _____
- (d) Membrane curing method - As soon as the water sheen has disappeared, are 2 separate applications, separated by at least one minute, of Type II (red) curing compound (1022.01) being uniformly applied at the rate of 0.16 L/m² (one gallon/250 sf)/application? (Art. 1020.13(a)(4)& Art. 442.06(h)) _____
 Is the spraying device of at least 20 L (5 gallon) capacity and maintained with constant pressure by mechanical means? (Art. 1101.09(b)) _____

i. Joint Sealing:

Are all sealant reservoirs being filled in accordance with Article 420.14(a) and the manufacturer's recommendations? (Art. 442.06(j)(2)) _____

NOTE: Joint Sealing not required if bituminous resurfacing is on the same contract.

8. CLASS "C" PATCHES

Pavement Removal and Portland Cement Concrete Replacement.

a. Scoring:

- (1) Standard Reinforced Concrete Pavement
 Is the saw cut for scoring being made deep enough to cut the reinforcement? (Art. 442.05(c)) _____
- (2) Non-Reinforced Concrete Pavement
 - (a) Is the scoring of sufficient depth to provide a weakened plane so that the hammer will not fracture or distress remaining pavement? _____
 - (b) Is the scoring being done not closer than 150 mm (6 inches) from the marked face? (Art. 442.05(c)) (Exception: If resurfacing follows, scoring may be done directly over the marked face of the patch.) _____

- (c) If marginal bars are present in the pavement, are they being exposed and cut, the holes properly backfilled and all broken concrete removed prior to opening to traffic? (Art. 442.05(c)) _____
- b. Breaking and Removal:
 - (1) Are you ensuring that breaking equipment does not transfer an impact energy greater than 4000 J (3,000 foot-pounds) per blow to the pavement surface? (Art. 442.05(c)) _____
 - (2) Are you ensuring that the equipment and methods used for removing old pavement are such as to prevent cracking, shattering or spalling of the pavement remaining in place? (Art. 442.05(c)) _____
 - (3) Is all broken pavement being removed disposed of daily (off of the right-of-way) at the Contractor's expense? (Art. 701.05(e)(1)d.) _____
- c. Trimming the Patch:
 - (1) Is the patch face being trimmed with hand tools or other equipment approved by the Engineer? (Art. 442.05(c)) _____
 - (2) Is the vertical face of patch, from top to bottom, within a 40 mm (1 1/2-inch) vertical plane? (Abrupt breaks or deviations induce spalling) (Art. 442.05(c)) _____
- d. Forms:
 - (1) Is the edge of pavement being formed full-depth with metal forms or nominal 50 mm (2-inch) thick wood forms? (Art. 442.03, Note 2& Art. 1103.05) _____
 - (2) Is the centerline joint being formed by Method 1 or 2 of Article 442.06(b)? _____
- e. Reinforcement
Are patches 6 m (20 ft.) or longer tied to the adjacent lane of existing pavement, pcc shoulders, and curb and gutter with No. 20 (No. 6) transverse tie bars, 600 mm (24 inches) long embedded 200 mm (8inches) at 600 mm (24 inch) centers according to Article 420.10(b) of the Standard Specifications? (Art. 442.06(a)(1)) _____
- f. Building Up Subbase:
Are all areas of subbase that are below the required elevation of the finished subbase being built up at the Contractor's expense in the following manner? _____

Built up with compacted granular material, concrete or compacted bituminous material. (Art. 442.05(c)) _____

Note: Are all areas of unsuitable material in the subgrade being removed and replaced with satisfactory material and paid for in accordance with Article 109.04? (Art. 442.10) _____

g. Joints:

Are all expansion joints being replaced if required by the plans and/or standards? (Art. 442.07) _____

h. Prepour Inspection:

Prior to concrete placement are you:

(1) Check measuring depth of patch? _____

(2) Measuring the patch area for final documentation? _____

i. Concrete Placement:

(1) Are you checking to see if the Contractor is using the proper class of concrete? (Art. 442.06(f), Art.1020.04& Art. 1020.05) _____

(2) Are the air content 4-7% and the slump a maximum of 100 mm (3 inches)? (Art. 1020.04) _____

(3) Is the concrete being placed in accordance with Article 420.07? (Art. 442.06(e)) _____

(4) Are the temperature requirements of Article 420.08 being met, except that the maximum temperature of the mixed concrete immediately before placing shall be 35°C (96 °F)? (Art. 442.06(e)) _____

j. Concrete Consolidation and Finishing:

(1) Is the concrete being consolidated by internal vibration with special attention given to the corners, edges and reinforcement? (Art. 442.06(f)) _____

(2) Finishing may be performed by either machine or hand methods. (Art. 442.06(f)) _____

(3) Is the surface of the concrete being tested for trueness by means of a 3 m (10 foot) straightedge in accordance with Article 420.11(c)? (Art. 442.06(f)) _____

- (4) Does the final finish match the surrounding pavement if it has not been overlaid? Is the patch surface broomed when the pavement has been overlaid? (Art. 442.06(g)) _____
- (5) Are the patch surfaces being cured for 3 days by one of the following methods? (Art. 1020.13, Index Table) _____
 - (a) Waterproof paper method? (Art. 1020.13(a)(1)) _____
 - (b) Polyethylene sheeting method? (Art. 1020.13(a)(2)) _____
 - (c) Wetted burlap method - 2 layers of moist burlap covered with an impermeable covering or 1 layer of moist burlap covered with a layer of burlene? (Art. 1020.13(a)(3)) _____
 - (d) Membrane curing method - As soon as water sheen has disappeared, are 2 separate applications, separated by at least one minute, of Type II (red) curing compound (Art. 1022.01) being uniformly applied at the rate of 0.16 L/m²m (one gallon/250 sf)/application? (Art. 1020.13(a)(4)&Art. 442.06(i))

Is the spraying device of at least 20 L (5 gallon) capacity and maintained with constant pressure by mechanical means? (Art. 1101.09(b)) _____

9. REQUIREMENTS COMMON TO CLASS "A", "B", AND "C" PATCHES

a. Revolutions:

Are you immediately observing the revolution counter on all arriving truck mixers to ensure that the required number of revolutions at mixing speed has been obtained? (Art. 1103.01(b)) _____

Does the number fit within the allowable number of revolutions shown in the table below? _____

<u>Time Minutes</u>	<u>60 Mixing Revs. Required (Simultaneous Charging)</u>		<u>70 Mixing Revs. Required (Separate Charging)</u>	
	<u>Minimum</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Maximum</u>
10	60	100	70	100
15	66	125	72	125
20	76	150	82	150
25	86	175	92	175
30	96	200	102	200
35	106	225	112	225
40	116	250	122	250
45	126	275	132	275
50	136	300	142	300
55	146	325	152	325
60	156	350	162	350

b. Air Test (Manual of Test Procedures for Materials, Appendix C):

Are you testing the concrete for air entrainment at least once each 40 m³ (50 cu. yd.)? (Sampling Schedule 3, PPG or Special Provisions) Record and retain in job records. _____

c. Slump Test (Manual of Test Procedures for Materials, Appendix C):

Are you testing the concrete for slump at least once each 75 m³ (100 cu. yd.) with a minimum of 1 each day? (Sampling Schedule 3, PPG or Special Provisions) Record and retain in job records. _____

d. Strength Test (Manual of Test Procedures for Materials, Appendix C):

):

Are you casting 2 test specimens (150 mm x 150 mm x 750 mm) (6" x 6" x 30" beams) at the site of work daily? (Art. 1020.09& Art. 701.05(e)(2)) _____

Strength requirements = 4.1 MPa (600 psi) flexural strength in 2 days, (701.05(e)(2)(b)) or, _____

= 22 MPa (3200) psi compression strength in 2 days _____

Report on Form MI-655, "P.C. Concrete Strengths."

e. Smoothness Test (Art. 442.06(f))

Are you testing the completed patches for smoothness using a 3 m (10 ft.) straightedge set for 5 mm (3/16")? _____

Are surface variations which exceed 5 mm (3/16”) being removed by the contractor with an approved grinding device? (Art. 442.06(f)) _____

f. Opening to Traffic:

(1) Prior to opening to traffic are the side forms removed, shoulders backfilled with satisfactory compacted material, and all waste material removed from shoulders and adjacent row? (Art. 442.08& Art. 701.05(e)(2)) _____

(2) Are all patches being opened to traffic as soon as strength of 4.1 MPa (600 psi) is reached by test specimen? (Art. 701.05(e)(2)) _____

During holiday periods, Article 107.09 applies.

10. CLASS “D” PATCHES

Pavement Removal and Bituminous Concrete Replacement

a. Scoring:

(1) Standard Reinforced Concrete Pavement
Is the saw cut for scoring being made deep enough to cut the reinforcement? (Art. 442.05(c)) _____

(2) Non-Reinforced Concrete Pavement
(a) Is the scoring of the patch perimeter being done not more than 3 days prior to the removal operation? (Art. 442.05) _____

(b) Is the scoring of sufficient depth to provide a weakened plane so that the hammer will not fracture or distress remaining pavement? _____

(c) Is the scoring being done not closer than 150 mm (6 inches) from the marked face? (Art. 442.05(c)) (Exception: If resurfacing follows, scoring may be done directly over the marked face of the patch.) _____

(d) If marginal bars are present in the pavement, are they being exposed and cut in accordance with Article 442.05(c) and all broken concrete removed prior to opening to traffic? (Art. 442.05(c)) _____

b. Breaking and Removal:

- (1) Are you ensuring that breaking equipment does not transfer an impact energy greater than 4000 J (3,000 foot-pounds) per blow to the pavement surface? (Art. 442.05(c)) _____
- (2) Are you ensuring that the equipment and methods used for removing old pavement are such as to prevent cracking, shattering or spalling of the pavement remaining in place? (Art. 442.05(c)) _____
- (3) Is all broken pavement removed, disposed of daily (off of the right-of-way) at the Contractor's expense? (Art. 701.05(e)(1)(c)& Art. 202.03) _____

c. Trimming the Patch:

- (1) Is the patch face being trimmed with hand tools or other equipment approved by the Engineer? (Art. 442.05(c)) _____
- (2) Is the vertical face of patch, from top to bottom, within a 40 mm (1 1/2 inch) vertical plane? (Abrupt breaks or deviations induce spalling) (Art. 442.05(c)) _____

d. Building Up Subbase:

Are all areas of subbase that are below the required elevation of the finished subbase being built up at the Contractor's expense in the following manner? _____

Built up with compacted granular material, concrete or compacted bituminous material. (Art. 442.05(c)) _____

Note: Are all areas of unsuitable material in the subgrade being removed and replaced with satisfactory material and paid for in accordance with Article 109.04? (Art. 442.10) _____

e. Pre-Placement Inspection:

Prior to bituminous placement are you:

- (1) Check measuring depth of patch? _____
- (2) Measuring the patch area for final documentation? _____

f. Filling Holes:

- (1) Temperature Limitations:

Are bituminous mixtures being placed only on days when the air temperature in the shade is 5°C (40° F) or more? (Art. 442.09(c)) _____

Are you checking occasional truckloads of mixture to insure that the delivery temperature is between 120°C - 175°C (250° F and 350° F)? (Art. 406.15) _____

(2) Bituminous Material Selection:

Unless otherwise specified, is the Contractor filling each hole with layers of bituminous concrete mixture conforming to the requirements of Section 406 of the Standard Specifications for Bituminous Concrete Binder Course. (Art. 442.09(c)) _____

(3) Truck Requirements:

Do the trucks hauling the mixtures meet the following requirements? (Art. 406.14)

(a) Have tight and clean dump bodies? _____

(b) Completely insulated with at least 20 mm (3/4 inch) insulating material on all sides, ends and bottom of dump body when the air temperature is below 15°C (60°F)? _____

(c) Equipped with a cover of canvas that shall extend at least 300 mm (12 inches) over the sides and end of the dump body? It shall be used if any one of the following conditions are present:

(1) If ambient air temperature is below 15°C (60° F). _____

(2) If the weather is inclement. _____

(3) If the temperature of the dumped mixture is below 120°C (250°F). _____

Is the canvas rolled back at the time of dumping the bituminous mixture into the patch? _____

(4) Mixture Placement: (Art. 442.09(c))

Are the holes being filled with the patching mixture and compacted in 2 layers, the top layer being at least 50 mm (2 inches) thick? _____

If density cannot be obtained in 2 layers, are subsequent patches being placed in three or more compacted layers? _____

(5) Compaction: (Art. 442.09(c))

Is each layer being satisfactorily compacted with:

(a) A mechanical tamper or a vibrating tamper? _____

or;

(b) Self-propelled roller?

Note: When the self-propelled roller is used on lower layers of patches of sufficient length, a mechanical tamper or a vibrating tamper will be required at areas inaccessible to the roller _____

or;

(c) A vibratory roller? _____

(6) Opening to Traffic:

Is the entire ROW adjacent to the patching area cleaned of waste material and the backfill along the pavement edge compacted before removing the barricades and opening the patched lane to traffic? (Art. 701.05(e)(1)(d)) _____

Except for conditions beyond the Contractor's control, are all lanes opened to traffic at the conclusion of each day's work? (Art. 442.09(a)) _____

(7) Density: (Art. 442.09(d))

After final compaction does the finished patch have a density of not less than 93 percent of the theoretical density of the mixture? (Art. 442.09(d)) _____

Is the density being measured by nuclear testing methods or by core specimens? (Art. 442.09(d)) _____

(8) Additional Compaction:

Are the patches opened to traffic for at least 3 days before additional bituminous material is placed to fill depressions, or before any bituminous resurfacing is started? (Art. 442.09(e) & art.442.09(f)) _____

(a) If bituminous resurfacing is not being constructed, are the depressions in the patches being filled with a Bituminous Surface Course Mixture or a B Binder Mixture and compacted with a three-wheeled or tandem roller? (Art. 442.09(f)) _____

- (b) If bituminous resurfacing is being constructed, are the depressions being filled and compacted as part of the first course of the resurfacing operation? (Art. 442.09(f)) _____

11. DOCUMENTATION OF CONTRACT QUANTITIES

Are the patches being measured, documented and paid for at the contract unit price per square meter (square yard) by one of the following specified classes and types:

- a. Class A Patches, Type I, II, III or IV (Include mandatory saw cuts lengths, tie bar count, and reinforcement area) _____
- b. Class B Patches, Type I, II, III or IV (Include mandatory saw cut lengths, dowel and tie bar counts, and pavement fabric area) _____
- c. Class C Patches, Type I, II, III or IV (Include tie bar count) _____
- d. Class D Patches, Type I, II, III or IV _____
- e. Pavement Patching, Type I, II, III or IV _____
(When the pay item is pavement patching, the Contractor has the option of using either Class C or Class D Patches.)

The Final Pay Quantity shall be based upon measurement taken of the authorized completed patch area in place, in square meters (square yards). (Art 442.10) Field measurements and computations must be recorded and keep on file. ([Documentation Section](#) of the Construction Manual)

Revised to conform with the
Standard Specifications for Road and Bridge Construction
Adopted January 1, 2002