

Section 652

**SECTION 652
PERMEABLE ASPHALT DRAINAGE COURSE,
TYPES P-78M AND P-57**

652-1 DESCRIPTION

Perform the work covered by this section including, but not limited to, the construction of a plant mixed permeable asphalt drainage course (PADC) properly laid upon a prepared surface in accordance with these Specifications and in conformity with the lines, grades, thickness and typical sections shown on the plans; producing, weighing, transporting, placing and rolling the plant mix as specified in Section 610; furnishing the asphalt binder, anti-strip additive and all other materials for the plant mix; furnishing and applying tack coat as specified in Section 605; furnishing scales; providing QC as specified in Section 609 as modified for PADC; making any repairs or corrections to the friction course that may become necessary; and maintaining the friction course until final acceptance of the project.

652-2 MATERIALS

Refer to Division 10.

Item	Section
Anti-strip Additives	1012-1(G)
Asphalt Binder	1020-2
Coarse Aggregate	1012-1(B)
Fine Aggregate	1012-1(C)

The coarse aggregate shall meet Article 1012-1 except that that portion of the coarse aggregate retained on the No. 4 sieve shall contain at least 60% by weight of crushed pieces having 2 or more mechanically induced fractured faces.

652-3 COMPOSITION OF MIXTURE

(A) General

Formulate the PADC from a mixture of crushed aggregate, asphalt binder, anti-strip additive and other additives as required to produce a mix meeting Table 652-1.

Submit in writing a mix design (M&T 601 only) and proposed JMF targets for each required mix type and combination of aggregates to the Engineer for review and approval at least 10 days before start of asphalt mix production. The JMF will be established in accordance with Article 610-3. Establish the asphalt binder content at the midpoint of the range specified in Table 652-1 or as approved. Submit the mix design and proposed JMF targets on forms and in a format approved by the Department.

The formula for each mixture will indicate the blend percentage of each aggregate fraction to be used, a single percentage of combined aggregate passing each required sieve, the percentage and grade of asphalt binder (by weight of total mixture) to be incorporated into the mixture, the percentage of anti-strip additive to be added to the asphalt binder and the temperature at that the mixture is to be discharged from the plant.

Have on hand at the asphalt plant the approved mix design and JMF issued by the Department, before beginning the work.

The JMF for each mixture will remain in effect until modified in writing, provided the results of QMS tests performed on material currently being produced conform with specification requirements.

If a change in sources of aggregate materials needs to be made, a new mix design and JMF will be required before the new mixture is produced.

When unsatisfactory results or other conditions make it necessary, the Engineer may establish a new JMF.

(B) Mix Design

Design PADC mixtures conforming to the gradation requirements and other mix design criteria in Table 652-1 for the mix type specified.

Use the asphalt binder grade shown in Table 652-1 for the mix type specified or as approved.

Use an anti-strip additive in all PADC mixes. It may be hydrated lime or a chemical additive or both. Add chemical anti-strip additive at a rate of 0.5% by weight of asphalt binder. Add hydrated lime at a rate of 1.0% by weight of dry aggregate. Use an approved source and grade.

When requested, submit samples of mix components to the Materials & Tests Unit. Submit sample sizes as noted below or as requested. Provide the samples at least 20 days before the anticipated beginning placement of PADC mixture.

250 lb of each coarse aggregate

150 lb fine aggregate

2 gal. of asphalt binder

1 pint of anti-strip additive

Aggregate samples when combined according to the Contractor's proposed aggregate blend percentages shall be within the gradation range defined by the target values of Table 652-1 for each sieve or the samples will not be representative.

The mixing temperature at the asphalt plant will be established on the JMF.

**TABLE 652-1
PERMEABLE ASPHALT DRAINAGE COURSE
GRADATION AND MIX DESIGN CRITERIA**

Sieve Size (mm)	Total Percent Passing	
	Type P-78M	Type P-57
37.5	-	100
25.0	-	95 - 100
19.0	100	-
12.5	95 - 100	25 - 60
9.50	75 - 100	-
4.75	20 - 45	10 - 20
2.36	3 - 15	5 - 10
0.075	1.0 - 3.0	1.0 - 3.0
Asphalt Binder Content, %	2.5 - 3.5	2.0 - 3.0
Mixing Temperature at Plant (Established by the Engineer)	240 - 270°F	260 - 290°F

652-4 CONSTRUCTION METHODS

Produce, transport to the site and place the asphalt plant mix in accordance with Section 610, except as otherwise provided herein.

Incorporate the asphalt binder into the asphalt plant mix in accordance with Section 620. Add the anti-strip additive to the asphalt binder in accordance with Article 620-3.

A prime coat or tack coat will not be required.

When the PADC is placed in trench sections, the rolling equipment and rolling sequences required by Article 610-9 will not apply. Compact the PADC to a degree acceptable to the Engineer.

Section 654

1 Following placement of the PADC mixture to the appropriate line, grade and thickness, begin
2 rolling when the mat has cooled sufficiently to support the weight of an 8 to 12 ton steel-
3 wheel tandem roller. Mat temperature at the time of initial rolling shall be approximately
4 175°F to 225°F. The number of roller passes will be 2 or 3, unless otherwise directed.
5 Consolidate the drainage layer sufficiently with rolling so as to support the weight of
6 equipment that will place the next layer of pavement. Do not compact the drainage layer to
7 the extent that it is not free draining or that the aggregate is crushed.

8 No construction traffic will be allowed to travel on any PADC layer. Only equipment
9 necessary to place the next layer of pavement will be allowed on the drainage layer.

10 Do not place PADC that will not be covered with the next layer of pavement during the same
11 calendar year or within 15 days of placement if the PADC is placed in January or February.

12 **652-5 QUALITY MANAGEMENT SYSTEM FOR ASPHALT PAVEMENTS**

13 Produce the PADC in accordance with the Section 609.

14 **652-6 MEASUREMENT AND PAYMENT**

15 *Permeable Asphalt Drainage Course, Type ____* will be paid as the actual number of tons of
16 drainage course incorporated into the completed and accepted work. The drainage course will
17 be measured by being weighed in trucks on certified platform scales or other certified
18 weighing devices.

19 *Asphalt Binder for Plant Mix* will be paid in accordance with Article 620-4.

20 Payment will be made under:

Pay Item	Pay Unit
Permeable Asphalt Drainage Course, Type P-78M	Ton
Permeable Asphalt Drainage Course, Type P-57	Ton

21 **SECTION 654**
22 **ASPHALT PLANT MIX, PAVEMENT REPAIR**

23 **654-1 DESCRIPTION**

24 Perform the work covered by this section including, but not limited to, repairing of existing
25 pavement with asphalt plant mix in order to provide a safe, passable and convenient condition
26 for traffic, or to replace pavement removed in order to remove or to place pipe lines.

27 Perform the work by cutting the existing pavement to a neat vertical joint and uniform line;
28 removing and disposing of pavement, base and subgrade material as approved or directed;
29 coating the area to be repaired with a tack coat; furnishing, placing and compacting asphalt
30 plant mix; and replacing of the removed material with asphalt plant mix.

31 Make the repairs in accordance with the plans, or as approved or directed.

32 **654-2 MATERIALS**

33 Where a pavement repair detail is not shown in the plans, use an approved asphalt plant mix.

34 Where a pavement repair detail is shown in the plans, the type of plant mix shall be in
35 accordance with the pavement repair detail except where the Specifications permit the
36 substitution of another type of plant mix or where approved.

37 In areas where the existing pavement is not to be resurfaced, the Contractor will not be
38 allowed to substitute a different type of surface course from that shown on the pavement
39 repair detail.