

## **SECTION 417 - OPEN GRADED ASPHALT**

### **417.01 GENERAL**

This section shall be read in conjunction with Section 407 - Asphalt, and covers special requirements for Size 10 open graded asphalt surfacing that are in addition to, or override, the requirements for Section 407.

### **417.02 DESCRIPTION OF MATERIAL**

Open Graded Asphalt (OGA) is an asphalt manufactured essentially from a Size 10 one-sized aggregate to produce a mix with high air voids.

### **417.03 AGGREGATES**

Unless otherwise specified, properties of the aggregates used in OGA shall comply with the requirements for asphalt Type H as specified in Clause 407.03. Further to Clauses 407.03 and 407.09, no RAP shall be added to OGA.

### **417.04 BINDER**

Binder used in OGA shall be a Polymer Modified Binder (PMB), complying with the requirements of the AP-T41-06 Austroads Specification Framework for Polymer Modified Binders and Multigrade Bitumens.

Unless otherwise specified in Clause 407.23(a), the PMB to be used in OGA shall be one of the following grades:

A15E, A20E, A25E, A30P or A35P.

### **417.05 MIX DESIGN**

The asphalt mix proposed for use shall be registered in accordance with Clause 407.06.

The Contractor shall also provide the following information:

- (a) the class and test properties of the PMB proposed;
- (b) the results of the Binder Paste Drain Off tests meeting the requirements of Clause 417.06(d) and the selected maximum mixing temperature to avoid excess binder drain off.

The Indirect Tensile Modulus of the mix is not required to be submitted.

**417.06 MIX DESIGN REQUIREMENTS****(a) Grading Limits and Production Tolerances for Aggregates**

Unless otherwise specified or directed, the grading of mineral matter, and the production tolerances from the grading aim shall lie within the limits specified in Table 417.061.

**Table 417.061**

<b>Sieve Size AS (mm)</b>	<b>Grading Aim % Passing (by mass)</b>	<b>Production Tolerance from Grading Aim % Passing (by mass)</b>
13.2	100	Nil
9.5	95	±6
6.7	61	±6
4.75	30	±5
2.36	12	±5
1.18	10	±5
0.600	8	±5
0.300	6	±3
0.150	4	±3
0.075	4	±1.0

**(b) Added Filler**

The mix shall contain a minimum of 1% by mass of hydrated lime added filler.

**(c) Binder Content**

Unless otherwise specified or directed, the binder content of the mix shall be 6.5% with a production tolerance of ±0.3%.

**(d) Binder Drain Off Test**

A series of Asphalt Binder Drain Off tests over the range of likely mix temperatures shall be performed at the specified binder content to determine the maximum allowable mixing temperature to avoid excessive binder drainage. The mass of binder paste drain off shall not exceed 0.3% of the total mass of the sample of mix tested at the maximum allowable mixing temperature.

**417.07 TEMPERATURES OF BINDER, AGGREGATE AND ASPHALT**

Unless otherwise specified or directed, temperatures of binder, aggregate and asphalt shall comply with the requirements of Table 417.071.

**Table 417.071**

Material	Polymer Modified Binder Temperature °C	
	Min	Max
Binder delivered into plant storage	180	190
Asphalt at discharge from mixing plant	155	180
Asphalt at spreading plant	150	175

**417.08 AMBIENT CONDITIONS FOR PLACING**

OGA shall not be placed when the majority of the area to be paved has a surface temperature of less than 15°C.

**417.09 WATER RESISTANT BITUMINOUS BOND COAT**

A water resistant bond coat shall be applied to the existing surface consisting of cationic rapid setting bitumen emulsion (60% bitumen content) applied at a rate of application of not less than 0.5 litres per square metre using a calibrated sprayer to uniformly spray the emulsion. Hand spraying shall only be permitted on small irregularly shaped areas clear of the traffic path. A cationic rapid setting PMB emulsion with 60% to 70% binder content may be used to reduce the possibility of run off and excessive tackiness.

**417.10 SPREADING**

Heating of the paver screed shall cease while the paver is stationary and the screed is in contact with the asphalt mat.

The thickness at any point in the OGA layer shall not be less than 20 mm and the mean thickness of a test lot of OGA shall not be less than the specified thickness. For the purposes of this clause a test lot shall be defined as an area of up to a maximum of 4,000 m<sup>2</sup>.

Unless otherwise specified, all areas of the existing pavement surface that are not free draining shall be filled or regulated with dense graded asphalt as specified prior to placing OGA.

**417.11 JOINTS AND JUNCTIONS**

At junctions where the new asphalt mat is required to match the level of the existing pavement, and where the depth of the OGA cannot be used to match into the existing pavement, junctions shall be constructed with Size 10 Type H dense graded asphalt over the full width of carriageway as follows:

- Side streets and median openings - 600 mm
- Through carriageways with a speed limit of 75 km/h or less - 3 metres
- Through carriageways with a speed limit of more than 75 km/h - 6 metres

At any location where the layer is to be "feathered" to a depth of less than 20 mm, such "feathering" shall be carried out with Type N or H, size 7 or size 10 dense graded asphalt as specified. "Feathering" constructed in the direction of paving shall be placed by the paving machine.

**417.12 COMPACTION REQUIREMENTS**

Acceptance of compaction shall be based on the adoption of approved placing procedures.

Such procedures shall include not less than 5 passes with a static steel wheeled roller with a minimum overall mass of 6 tonnes. The Contractor shall provide a self propelled multi-wheel roller for secondary rolling of asphalt but the Superintendent may direct that its use be restricted or omitted altogether if it results in damage to the fresh OGA.