

Section 4120. Granular Surfacing and Granular Shoulder Aggregate

4120.01 DESCRIPTION.

Uniform mixture of fine and coarse particles of crushed stone, gravel, or a combination of these materials with sand. Crushed recycled materials are to total no more than:

- 30% of the shoulder aggregate for new construction.
- 50% of the total for existing granular shoulders.

4120.02 GRANULAR MATERIAL.

A. Granular Surfacing.

Furnish material meeting the requirements of [Article 4120.04](#), or when specified in the contract documents, meet the requirements of [Article 4120.03](#), [4120.05](#), or [4120.06](#).

B. Granular Shoulders.

1. Furnish material meeting the requirements of [Article 4120.04](#) or recycled materials. When specified in the contract documents, meet the requirements of [Article 4120.05](#) or [4120.06](#). For recycled materials, meet the following requirements:
 - Recycle PCC, RAP, or composite pavements to meet the requirements of [Materials I.M. 210](#).
 - Crush PCC or composite pavement to meet the requirements for Gradation No. 11 of the [Aggregate Gradation Table](#), [Article 4109.02](#).
 - Process RAP to pass the 1.5 inch (37.5 mm) sieve.
2. The contract documents may allow a Class C gravel and crushed aggregate mixture for granular shoulders meeting the following:
 - 30% to 50% crushed stone meeting soundness and abrasion requirements of [Article 4120.05](#). Meet the requirements for Gradation No. 10 of the [Aggregate Gradation Table](#), [Article 4109.02](#) with the exception of 8% to 16% passing the No. 200 (75 µm) sieve.
 - 30% to 50% recycled crushed PCC or composite materials meeting the above requirements for Granular Shoulders. Meet the requirements for Gradation No. 10 of the [Aggregate Gradation Table](#), [Article 4109.02](#) with the exception of 8% to 16% passing the No. 200 (75 µm) sieve.
 - 30% to 50% RAP processed to pass the 1.5 inch (37.5 mm) sieve.

4120.03 CLASS C GRAVEL.

Meet the requirements for gradation No. 10 of the [Aggregate Gradation Table](#), [Article 4109.02](#) and Table 4120.03-1:

Table 4120.03-1: Coarse Aggregate Quality (Class C Gravel)

Coarse Aggregate Quality	Maximum Percent Allowed	Test Method
C Freeze	15	Office of Materials Test Method No. Iowa 211, Method C
Shale (+ No. 4 (4.75mm) sieve)	10	Materials I.M. 372
Total of Clay Lumps and Friable Particles, plus % passing No. 200 (75µm) sieve	15	I.M.s 368 and 306
Total of Shale, Clay lumps and friable particles, plus % passing. No. 200 (75 µm) sieve	20	Materials I.M.s 372, 368, and 306

4120.04 CLASS A CRUSHED STONE.

Meet the requirements for Gradation No. 11 of the [Aggregate gradation Table](#), [Article 4109.02](#) and Table 4120.04-1:

Table 4120.04-1: Coarse Aggregate Quality (Class A Crushed Stone)

Coarse Aggregate Quality	Maximum Percent Allowed	Test Method
Abrasion	45	AASHTO T 96
C Freeze	15	Office of Materials Test Method No. Iowa 211, Method C
Clay Lumps and Friable Particles	4	Materials I.M. 368
Note: For shoulders only, abrasion limits may be raised to 55 if Alumina does not exceed 0.7 or A Freeze does not exceed 10.		

4120.05 CLASS B CRUSHED STONE.

Meet the requirements for Gradation No. 11 of the [Aggregate Gradation Table, Article 4109.02](#) and Table 4120.05-1:

Table 4120.05-1: Coarse Aggregate Quality (Class B Crushed Stone)

Coarse Aggregate Quality	Maximum Percent Allowed	Test Method
Abrasion	55	AASHTO T 96
C Freeze	20	Office of Materials Test Method No. Iowa 211, Method C
Total of Abrasion & C Freeze	65	
Clay Lumps and Friable Particles	4	Materials I.M. 368

4120.06 CLASS D CRUSHED STONE.

Refer to the contract documents for gradation and quality requirements.

4120.07 AGGREGATE FOR PAVED SHOULDER FILLETS.

Crushed stone or recycled materials meeting the requirements for Gradation No. 11 of the [Aggregate Gradation Table, Article 4109.02](#), and meeting the quality requirement of [Article 4120.04](#). For recycled materials, meet the requirements of [Article 4120.02, B](#).