

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: Course Aggregate Quality (Class C Gravel)

Course 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: Course 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: Course 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](#).