

## MATERIALS, SURFACING, FOR BUILT-UP BITUMINOUS ROOFING

### I. GENERAL SPECIFICATIONS

There are no general specifications applicable to this specification.

### II. TYPES

Surfacing materials for bituminous built-up roofing shall be of the following types; and the type desired shall be stated in invitations for bids:

- Type I. Roofing Gravel.
- Type II. Roofing Slag.

### III. MATERIAL

Material shall be as specified under Detail Requirements, section V hereof.

### IV. GENERAL REQUIREMENTS

There are no general requirements applicable to this specification.

### V. DETAIL REQUIREMENTS

1. *Type I. Roofing Gravel.*—Shall be hard, durable, waterworn, dry, and free from clay, loam, sand, and other foreign substances. It shall preferably be within the following limits with respect to size:

|                                                                                                | Percent |
|------------------------------------------------------------------------------------------------|---------|
| Passing a $\frac{3}{4}$ -inch sieve                                                            | 100     |
| Passing a $\frac{1}{2}$ -inch sieve and retained on a $\frac{3}{4}$ -inch sieve, not less than | 80      |
| Retained on a $\frac{1}{2}$ -inch sieve                                                        | 100     |

2. *Type II. Roofing Slag.*—Shall be crushed, hard, blast-furnace slag, dry, and free from sand, dirt, clay, or other foreign substances. It shall preferably be within the following limits with respect to size:

|                                                                                                | Percent |
|------------------------------------------------------------------------------------------------|---------|
| Passing a $\frac{3}{4}$ -inch sieve                                                            | 100     |
| Passing a $\frac{1}{2}$ -inch sieve and retained on a $\frac{3}{4}$ -inch sieve, not less than | 80      |
| Retained on a $\frac{3}{4}$ -inch sieve                                                        | 100     |

### VI. METHODS OF SAMPLING AND TESTING

1. Roofing gravel and slag shall be sampled by the methods given in A.S.T.M. Standards, 1930, part II, p. 622, "Sampling Stone, Slag, Gravel, Sand and Stone Block for use as Highway Materials", D-75-22, which are essentially as follows:

a. Samples of the materials shall be taken from the bins or storage piles of the screening or washing plant, preferably while the material is being loaded from these supplies. Samples shall be taken from different parts of the stock pile, care being taken to avoid sampling a segregated area of coarse-grained material which is likely to exist at the base of the pile. In sampling from a bin, separate samples shall be taken from the top of the bin and at the outlet of the loading chute. At the latter place at least one half cubic yard of material shall be run off and representative samples taken from it. These samples shall be well mixed in a composite sample and a 25-pound sample for test obtained by the quartering method shall be plainly marked and transmitted to the laboratory for examination.

b. Where it is not practical to visit the plant, samples shall be taken from different parts of the car, boat, or wagon during unloading. Separate samples shall be taken from the top, middle, and bottom of the car, boat, wagon, etc. These samples shall be well mixed into a composite sample and a 25-pound sample obtained by the quartering method shall be plainly marked and transmitted to the laboratory for mechanical analysis.

**2. Laboratory Examination.—Sieve Analysis of Roofing Gravel or Slag:**

a. A representative test sample of the surfacing material, which in an air-dry condition weighs about 5 pounds, shall be selected from the sample submitted to the laboratory by quartering or by the use of a sampler.

b. The sieves shall be of square-mesh wire cloth in the following sizes:  $\frac{1}{8}$ -inch,  $\frac{1}{4}$ -inch,  $\frac{3}{8}$ -inch, and  $\frac{1}{2}$ -inch, these being the widths of the clear openings.

c. The sample shall be separated by means of the sieves, sifting being continued until not more than 1 percent by weight of the sample passes any sieve during one minute.

d. Each size shall be weighed on a balance or scale which is sensitive to 0.1 ounce (approximately 3 grams).

e. The percentage by weight of the total sample passing each of the sieves shall be determined, and the percentage reported to the nearest whole number.

**VII. PACKING AND MARKING**

Not applicable to this specification.

**VIII. NOTES**

1. This specification applies to surfacing materials intended for surfacing built-up bituminous roofing. Materials may be used interchangeably, but must be applied in the manner described in the specifications for application of the particular surfacing material.

2. Materials shall be purchased by weight or volume as specified in the contract.

3. The use of this specification for the commodity covered herein is mandatory on all procuring agencies of the Army.

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**NOTE;** Copies of this specification may be obtained from the Office, Chief of Engineers, U. S. Army, Washington, D. C.