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BUREAU OF STANDARDS.

George K. Burgess, Director.

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UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR SURFACING MATERIALS FOR BITUMINOUS BUILT-UP ROOFING.

FEDERAL SPECIFICATIONS BOARD.

SPECIFICATION No. 82.

This specification was officially adopted by the Federal Specifications Board on December 29, 1923, for the use of the Departments and Independent Establishments of the Government in the purchase of surfacing materials for bituminous built-up roofing.

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1. GENERAL.

These specifications apply to surfacing materials intended for surfacing built-up bituminous roofing and may be used interchangeably, but must be applied in the manner described in the specification for application of the particular surfacing material. Surfacing materials shall consist of either roofing gravel, slag, crushed hard stone, promenade tile, or slate slabs.

(a) ROOFING GRAVEL.—Roofing gravel shall be hard, durable, waterworn, dry, and free from clay, loam, sand, and other foreign

substances. It shall be preferably within the following limits with respect to size:

	Per cent.
Passing a three-fourths-inch sieve. ....	100
Passing a five-eighths-inch sieve and retained on a one-fourth-inch sieve, not less than. ....	80
Retained on a one-eighth-inch sieve. ....	100

(b) ROOFING SLAG.—Roofing slag shall be crushed hard blast-furnace slag, dry, and free from sand, dirt, clay, or other foreign substances. It shall be preferably within the following limits with respect to size:

	Per cent.
Passing a three-fourths-inch sieve. ....	100
Passing a five-eighths-inch sieve and retained on a one-fourth-inch sieve, not less than. ....	80
Retained on a one-eighth-inch sieve. ....	100

(c) CRUSHED STONE.—Crushed stone for roofing shall be any hard, durable rock other than limestone which will crush to particles of a fairly cubical shape instead of long, thin, flat splinters. It shall be dry, free from sand, dirt, clay, or other foreign substances and shall be preferably within the following limits with respect to size:

	Per cent.
Passing a three-fourths-inch sieve. ....	100
Passing a five-eighths-inch sieve and retained on a one-fourth-inch sieve, not less than. ....	80
Retained on a one-eighth-inch sieve. ....	100

(d) PROMENADE TILE.—Promenade tile shall be first quality vitrified shale tile, square edged, sound, unwarped, and free from blisters, chipped edges, or other surface defects. The tile shall be grooved on the back, so as to afford an ample bond, and of the size and color specified in the contract. No dimension shall be more than 2 per cent above or below the size specified.

(e) SLATE.—Slate shall be of the quality, width, length, and color specified for the particular job. It shall be clear and shall have a minimum thickness of three-sixteenths inch with sides cut true.

## 2. SAMPLING.

Roofing gravel, slag, and crushed stone shall be sampled by the methods given in the Proceedings of the A. S. T. M., 1920, "Tentative methods for sampling of stone, slag, gravel, sand, and stone block for use as highway materials," D 75-20T, which are essentially as follows:

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.

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. The sampling and testing of promenade tile and slate will be left entirely to the inspector on the job.

### 3. LABORATORY EXAMINATION.

(a) SIEVE ANALYSIS OF ROOFING GRAVEL, SLAG, AND CRUSHED STONE.—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.

The sieves shall be of square mesh wire cloth in the following sizes: One-eighth inch, one-fourth inch, five-eighths inch, and three-fourths inch, these being the widths of the clear openings.

The sample shall be separated by means of the sieves, sifting being continued until not more than 1 per cent by weight of the sample passes any sieve during one minute. Each size shall be weighed on a balance or scale which is sensitive to 0.1 ounce (approximately 3 g).

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.

(b) PROMENADE TILE AND SLATE.—No laboratory examination will be made.

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