STANDARD TEST METHOD FOR PARTICLE SHAPE, TEXTURE AND UNCOMPACTED VOID CONTENT OF FINE AGGREGATE

1.0 SCOPE

1.1 This method covers the determination of loose uncompacted void content of a fine sample of aggregate.

1.2 This method uses a standard sand grading that can be obtained from the individual sieve fractions in a typical fine aggregate sieve analysis.

2.0 APPLICABLE DOCUMENTS

2.1 ATT-57 Reducing Samples to Testing Size

2.2 ATT-25 Sieve Analysis

2.3 ATT-26 Sieve Analysis 20,000 μm minus

2.4 ASTM C128 Standard Test Method for Specific Gravity and Absorption of Fine Aggregate

2.5 ASTM C1252 Standard Test Methods for Uncompacted Void Content of Fine Aggregate (Test Method A)

2.6 AASHTO T304 Uncompacted Void Content of Fine Aggregate (Method A)

3.0 PROCEDURE

Follow the procedure as per the above test methods but with the following modifications:

3.1 Sampling

The sample is washed over a 160 μm or 80 μm sieve in accordance with the method in ATT-26 and then air dried and sieved into separate size fractions using ATT-25 procedures. Maintain the necessary size fractions obtained from one (or more) sieve analysis in a dry condition in separate containers for each size.

3.2 Preparation of Test Sample

Weigh out and combine the following quantities of dry sand from each of the sizes:

Individual Size Fraction	Mass, grams
2500 μm to 1250 μm	44
1250 μm to 630 μm	57
630 μm to 315 μm	72
315 μm to 160 μm	17

The tolerance on each of these amounts is ± 0.2 g.

3.3 Calculations

The calculations are as per AASHTO T304.

Note: For most aggregate sources the fine aggregate specific gravity does not vary much from sample to sample or from size to size finer than the 2500 μm sieve. Therefore, unless the specific gravity of individual sizes is appreciably different, it is intended that the value used in this calculation may be from a routine specific gravity test of an as-received grading of the fine aggregate. If significant variations between different samples is expected, the specific gravity should be determined on material from the same field sample from which the uncompacted void content sample was derived. Normally the as-received grading can be tested for specific gravity. However, it may be necessary to test the graded 2500 μm to 160 μm sizes for specific gravity for use with the graded void sample. A difference in specific gravity of 0.05 will change the calculated void content about one percent.

4.0 REPORT

For the Standard Graded Sample report:

4.1 The Uncompacted Voids (U_s) in percent to the nearest one-tenth of a percent.

4.2 The specific gravity, measured to the nearest 0.001, used in the calculation.