1. GROUTPRO-N1: RECOMMENDED PROCEDURE FOR FIELD SAMPLING AND TESTING SSNA SS MORTAR®

1.1 GENERAL

The only grout to be used in the NMB Splice-Sleeve® is the SS Mortar®. This document provides instructions for quality assurance of non-metallic SS Mortar® provided by Splice Sleeve North America (SSNA). Measurement of consistency of the grout is necessary in order to determine and maintain the proper amount of mixing water to assure a smooth pumpable/workable grout matrix. Compressive strength of the grout is one of the main factors in determining the performance of the NMB Splice-Sleeve®.

1.2 CONSISTENCY TEST

Testing tools: PVC pipe of 2" inside diameter and 4" high, a smooth non-absorptive surface (plastic) square plate of 10" or larger, tape measure, trowel, cloth and steel rod. Any smooth non-absorbent flat surface or table may be used if the plastic plate is not available.

Testing procedure: Consistency flow test is outlined below and shown in Figure I-6:

1) Clean PVC pipe and the plate with wet cloth. Place the pipe on the center of the plate. Check for good fit to plate with no seepage.
2) Pour mixed grout into PVC pipe in two layers, each layer being tamped 8 times with steel rod.
3) Remove excess grout with trowel and level the surface. Clean spilled grout on the plate with cloth.
4) Lift the pipe slowly and vertically until all the grout has run out.
5) The diameter of the resulting puddle of grout is then measured in two directions (at right angles) and the average diameter is the consistency measurement. This consistency measurement should be recorded. The consistency measurement should fall in the range of 6" to 9.25".

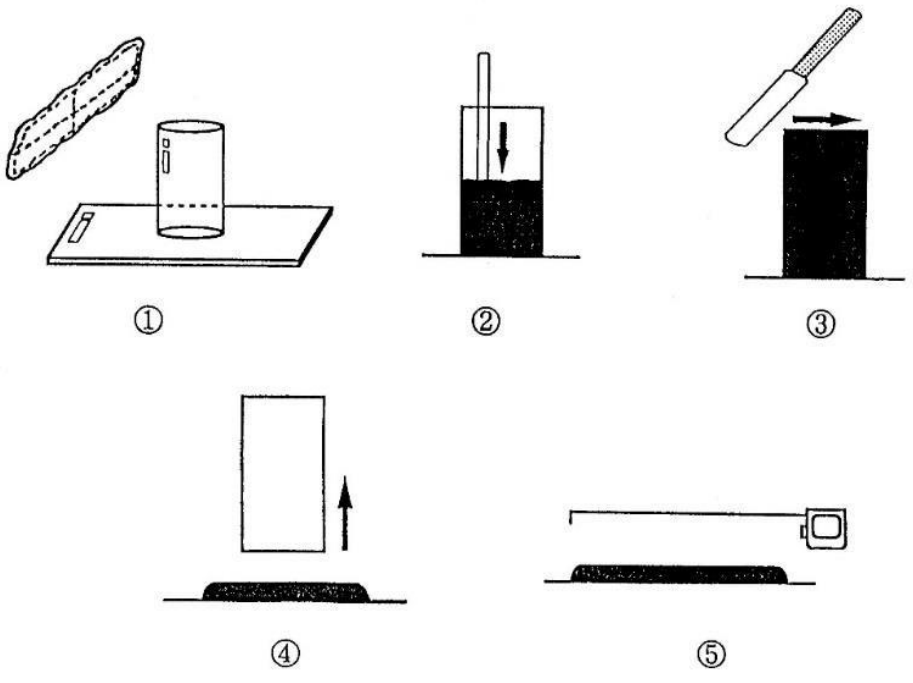

Figure I-6: Step by Step Procedure to Measure the Flow of SS Mortar®

1.3 PREPARATION, STORAGE, CURING AND TESTING OF FIELD SPECIMENS FOR COMPRESSIVE STRENGTH

1.3.A PREPARATION, STORAGE AND CURING

Tools: A 3-gang cube steel or brass mold (plastic or thin aluminum mold is not acceptable), Tamper of 1/2" x 1" cross section, a wooden hammer, cloth and curing box.

The step by step procedure is outlined below and shown in Figure I-7:

1. Grout is poured into the mold in two equal layers, each layer being tamped eight (8) times with the tamper and compacted by tapping the sides of the mold several times with a wooden hammer.
2. Remove excess grout with trowel and clean top edge of mold very carefully.
3. Cover the molds with a heavy plate and wet cloth, then place the specimens undisturbed for at least 24 hours in a curing box.
4. Strip the cubes following day, mark to identify on top trowel surface and cure them in water for 28 days or until tested.

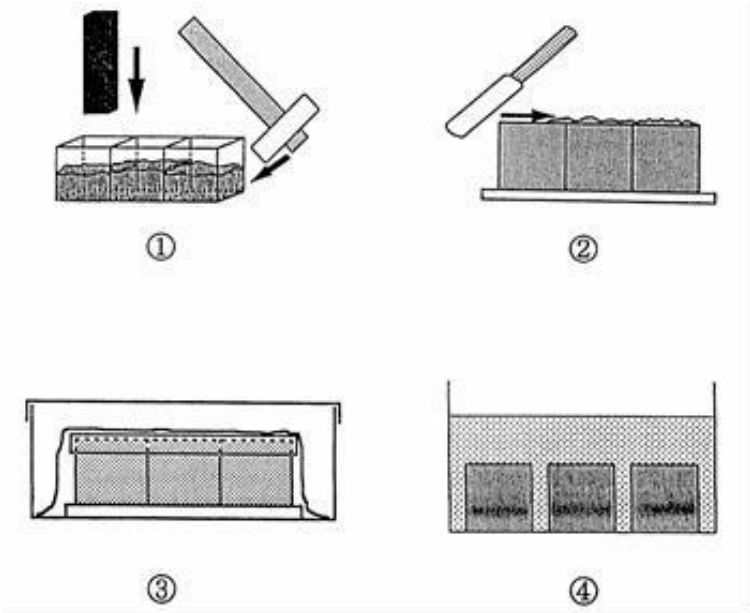

Figure I-7: Step by Step Procedure to Prepare the Grout Cube Specimens

1.3.B TESTING OF CUBE SPECIMENS

Specimens should be located at the exact center of the loading plates during loading/testing of cube specimens for compressive strength in order to avoid significant errors. Do not load top (troweled) surface. Apply the load to specimen faces that were in contact with the true plane surfaces of the mold.

The calculation of average strength should be based on the average of two cube tests made from the same sample of grout. In the event there is a wide deviation in results between the tests of two specimens, a third cube specimen of the same age will be tested, and the strength shall be considered as the average of the two closest results.

Reference:

ASTM C109- Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch or 50 mm Cube Specimen).

ASTM 942- Standard Test Method for Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory.