

State of Nevada
Department of Transportation
Materials and Testing Division

STANDARD METHOD OF TEST FOR SAMPLING
FRESH CONCRETE

SCOPE

This method covers the procedure for obtaining representative samples of fresh concrete as delivered at the project site, from stationary and paving mixers, agitator, or dump trucks.

SIZE OF SAMPLE

The sample shall consist of not less than 1 cu. ft. (28 dm³) when it is to be used for strength tests. Smaller samples may be permitted for routine air content and slump tests.

A. SAMPLING CONCRETE USING RANDOM NUMBERS

Samples of concrete for test specimens shall be taken in accordance with the following:

Location of sample when frequency is based on volume the location to sample the material shall be determined by the use of the table of random numbers given in Figure 1.

Procedure:

This method depends upon the volume of the material the sample represents and the capacity of the delivery vehicle. The vehicle to be sampled is determined by the following procedure:

From the table of random numbers select any number; do not use the same number more than once in any one day. Multiply the random number times the volume of the material the sample represents. Then divide the volume obtained by the volume of the delivery vehicle. This number will represent the vehicle to be sampled. Use standard practice for rounding off, unless the random number selected indicates the unit to be sampled to be less than one. Then the unit to be sampled will be considered to be number one.

Example: Sampling concrete using Readymix delivery vehicles. Using block No. 1, column B, and random number .482. The sample frequency is one per 100 cu. yds. Multiply .482 x 100 cu. yds. = 48.2 cu. yds. Capacity of delivery vehicle is 10 cu. yds. Divide 48.2 cu. yds./10 cu. yds. = 4.82. 4.82 rounded off to next higher whole unit = 5. Samples would be taken from the 5th delivery vehicle.

B. PROCEDURE FOR SAMPLING

1. The procedures used in sampling shall include the use of every precaution that will assist in obtaining samples that are truly

representative of the nature and condition of concrete sampled as follows: (Note 1)

- a. Sampling from Stationary Mixers, Except Paving Mixers - Sample the concrete at two or more regularly spaced intervals during discharge of the middle portion of the batch. Take the samples, so obtained, within the time limit specified in 2 and composite them into one sample for test purposes. Do not obtain samples from the very first or last portions of the batch discharge. Perform sampling by passing a receptacle completely through the discharge stream, or by completely diverting the discharge into a sample container. If discharge of the concrete is too rapid to divert the complete discharge stream, discharge the concrete into a container or transportation unit sufficiently large to accommodate the entire batch and then accomplish the sampling in the same manner as given above. Take care not to restrict the flow of concrete from the mixer, container or transportation unit so as to cause segregation. These requirements apply to both tilting and nontilting mixers.
- b. Sampling from stationary mixers used for portland cement concrete pavement - Sample the fresh concrete after the contents of the mixer have been discharged into the conveying vehicle and moved to the testing platform. Obtain samples from at least five different portions of the batch and then composite them into one sample for testing purposes. This must be done in the time limit specified in 2.
- c. Sampling from Paving Mixers - Sample the concrete after the contents of the paving mixer have been discharged. Obtain samples from at least five different portions of the pile and then composite into one sample for test purposes. Avoid contamination with subgrade material or prolonged contact with an absorptive subgrade. To preclude contamination or absorption by the subgrade, sample the concrete by placing three shallow containers on the subgrade and discharging the concrete across the containers. Composite the samples so obtained into one sample for test purposes. The containers shall be of a size that is in agreement with the maximum aggregate size (Note 2).
- d. Sampling from Revolving Drum Truck Mixers or Agitators - Sample the concrete at two or more regularly spaced intervals during discharge of the middle portion of the batch. Take the samples so obtained within the time limit specified in 2 and composite them into one sample for test purposes. In any case do not obtain samples until after all of the water has been added to the mixer. Also do not obtain samples from the very first or last portions of the batch discharge. Sample by repeatedly passing a

Note 1 - Sampling should be performed as the concrete is delivered from the mixer to the conveying vehicles used to transport the concrete to the forms; however, specifications may require other points of sampling.

Note 2 -In some instances, the containers may have to be supported above the subgrade to prevent displacement during discharge.

regulate through the entire discharge stream or by completely diverting the discharge into a sample container. Regulate the rate of discharge of the batch by the rate of revolution of the drum and not by the size of the gate opening.

- e. Sampling from Open-top Truck Mixers, Agitators, Non-agitating Equipment, or Other Types of Open-top Containers - Take samples by whichever of the procedures described in a, b, c, or d is most applicable under the given conditions.
2. The elapsed time between obtaining the first and final portions of the composite samples shall be as short as possible, but in no instance shall it exceed 15 min.
- a. Fresh concrete tests such as slump, air, and unit weight are to be performed as close to the pour site as possible. The transporting of samples for these tests could alter the test results, and should be avoided. Samples for compressive strength cylinders may be transported, if deemed necessary, but must be remixed to ensure uniformity before using.
 - b. Tests for slump or air content or both, shall be started within 5 min. after the sampling is completed. These tests should then be completed as expeditiously as possible after the composite sample has been fabricated. The elapsed time between obtaining and using the sample shall be as short as possible and the sample should be protected from the sun, wind, and other sources of rapid evaporation, and from contamination.

TABLE OF
RANDOM NUMBERS

Test Method Rev. T425D

A	B	A	B	A	B	A	B	A	B
1 .576 .892 .669 .609 .971	.730 .948 .726 .482 .824	2 .430 .858 .501 .809 .902	.754 .025 .402 .140 .470	3 .271 .935 .231 .396 .997	.870 .114 .505 .025 .392	4 .732 .153 .009 .937 .892	.721 .508 .420 .310 .957	5 .998 .749 .517 .253 .640	.239 .291 .858 .761 .463
6 .053 .810 .081 .982 .095	.899 .159 .277 .468 .801	7 .554 .225 .035 .334 .576	.627 .163 .039 .921 .417	8 .427 .549 .860 .590 .251	.760 .405 .507 .806 .684	9 .470 .285 .081 .879 .522	.040 .542 .538 .414 .235	10 .904 .231 .986 .106 .398	.993 .919 .501 .031 .222
11 .509 .371 .165 .477 .788	.025 .059 .996 .535 .101	12 .794 .164 .756 .137 .434	.850 .838 .775 .155 .638	13 .917 .289 .851 .767 .021	.887 .169 .070 .187 .894	14 .751 .569 .815 .579 .324	.608 .977 .592 .787 .877	15 .698 .796 .368 .358 .698	.683 .996 .743 .595 .539
16 .566 .901 .470 .068 .874	.815 .342 .682 .242 .420	17 .622 .873 .412 .667 .127	.548 .964 .064 .356 .284	18 .947 .942 .150 .195 .448	.169 .985 .962 .313 .215	19 .317 .123 .925 .396 .833	.472 .086 .355 .460 .652	20 .864 .335 .909 .740 .601	.466 .212 .019 .247 .326
21 .897 .875 .190 .341 .846	.877 .969 .696 .688 .355	22 .209 .109 .757 .587 .831	.862 .843 .283 .908 .218	23 .428 .759 .666 .865 .945	.117 .239 .491 .333 .364	24 .100 .890 .523 .928 .673	.259 .317 .665 .404 .305	25 .425 .428 .919 .892 .195	.284 .802 .146 .696 .887
26 .882 .464 .123 .116 .836	.227 .658 .791 .120 .206	27 .552 .629 .503 .721 .914	.077 .269 .447 .137 .574	28 .454 .069 .659 .263 .870	.731 .998 .463 .176 .390	29 .716 .917 .994 .798 .104	.265 .217 .307 .879 .755	30 .058 .220 .631 .432 .082	.075 .659 .422 .391 .939
31 .636 .630 .804 .360 .183	.195 .673 .112 .193 .651	32 .614 .665 .331 .181 .157	.486 .666 .606 .399 .150	33 .629 .399 .551 .564 .800	.663 .592 .928 .772 .875	34 .619 .441 .830 .890 .205	.007 .649 .841 .062 .446	35 .296 .270 .602 .919 .648	.456 .612 .183 .875 .685

FIGURE 1

Test Method Nev. T425D

REFERENCE

ASTM Designation C172