

**Tennessee Department of Transportation
Division of Materials and Tests**

**Procedure for Obtaining, Handling, and Testing
Concrete Cores for Acceptance (SOP 4-2)**

Purpose- The purpose of this document is to establish the TDOT procedures for sampling, handling, and acceptance testing of concrete cores that will be used for the acceptance of concrete strength. The requirements in the TDOT Standard Specifications are not waived and must also be achieved.

Background- TDOT Standard Specifications permit concrete cores to be taken if the compressive strength results of acceptance cylinders fail to meet specified strengths. The strength of the concrete cores will become the strength of record and any price adjustments will be determined by using the concrete core results.

Pre-cast/pre-stressed concrete members and pre-cast drainage structures, noise wall panels, and earth retaining wall products will be accepted in accordance with TDOT Standard Operating Procedures 5-2 and 5-3 respectively.

Procedure- Coring of in-place concrete shall abide with the following:

- The Contractor shall not be allowed to core the structure and independently test cores to determine in-place strength, and then decide to core for TDOT acceptance.
- Cores shall be taken in general locations directed by TDOT to be representative of the concrete in question. Two (2) cores shall be taken and the average will be used to determine strength.
- The Contractor, or his coring sub-contractor, shall use a pachometer, or other electronic/magnetic means, and the steel placement layout in the plans, to best determine the location of reinforcing steel so that it can be avoided when coring. All coring shall take place in the presence of a TDOT representative.
- The cores to be tested should not have any reinforcing steel, however, TDOT will test the cores in an “as delivered” state.
- The Contractor, at his expense, will be responsible for providing any necessary traffic control in accordance with the MUTCD.

- Core diameters shall be between 3.75 and 4.00 inches, and desired core lengths are 7.5 to 8.0 inches. The desired core length/diameter (l/d) ratio is 1.9-2.1, but in no case shall it be less than 1.0. Any cores, after capping, with a l/d ratio 1.75 or less will have a correction factor applied to the strength in accordance with AASHTO T-24.
- All cores shall be clearly identified and submitted with a completed DT-0062 form cross referencing the failed concrete cylinder numbers. The date obtained and location of the cores shall be noted on the form.
- The Contractor shall obtain the cores in a timely manner so testing can be completed within 42 days of placement. The TDOT Specifications will govern the strength requirements depending on the age of the cores at the time of testing.
- Immediately after coring, the Contractor shall turn the cores over to TDOT for transporting to the Materials and Test Laboratory in Nashville for testing. As noted above, the Contractor shall obtain the cores in a timely fashion so testing can be completed within 42 days. The Contractor must communicate with the Regional Materials and Test Supervisor to determine when the cylinders will be delivered.
- All core holes shall be filled with concrete in-kind or with an approved concrete patching material from the TDOT Qualified Products List (QPL).
- The TDOT lab will prepare the cores for testing and test in an “as delivered” moisture condition.

Core Number		Core Number	
Core length (inches)		Core length (inches)	
#1		#1	
#2		#2	
#3		#3	
Average length = l		Average length = l	
Core diameter (inches)		Core diameter (inches)	
#1		#1	
#2		#2	
#3		#3	
Average diameter = d		Average Diameter = d	
l/d ratio		l/d ratio	
Correction factor		Correction factor	
Strength (psi)		Strength (psi)	
Corrected Strength (psi)		Corrected Strength (psi)	