The Colorado Department of Transportation's Requirements for Becoming a Tester in the State

The Colorado Department of Transportation (CDOT) defines the requirements for people in order to sample and test materials on CDOT projects. Specifically, all persons conducting tests used in acceptance must be qualified and the people conducting these inspections must be certified.

Persons performing sampling and testing used in the acceptance decision for hot mix asphalt (HMA), concrete, or soils shall be qualified by meeting the requirements listed in Table 1 for the element and possessing current certifications.

TABLE 1. Sampling and Testing Personnel Qualifications

AASTHO Test Designation	ASTM Test Designation	CDOT Test Designation	Test Description	ACI Concrete Field Testing Technician Grade I	ACI Aggregate Testing Technician - Level 1	ACI Aggregate Testing Technician - Level 2	ACI Concrete Lab. Testing Tech. Grade I (G) - Level 1 (L) - Both (B)	ACI Concrete Lab. Testing Tech. Grade II (G) - Level 2 (L) - Both (B)	ACI Concrete Strength Testing Technician	ACI Aggregate Base Testing Technician	WAQTC Embankment & Base Excavation & Embankment - Soil s Inspector	LABCAT A	LABCATB	LABCAT C	LABCATE
T 2	D 75	CP 30	Sampling Aggregates		х		В			X		X			х
T 84	C 128	CPL 4102	Specific Gravity and Absorption of Fine Aggregate		х		В								х
T 85	C 127		Specific Gravity and Absorption of Coarse Aggregate		х		В				х				х
T 11	C 117	CP 31	Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing		х		В						х		
T 248	C 702	CP 32	Reducing Samples of Aggregate to Testing Size		Х		В			Х			Х		
T 255	C 566		Total Moisture Content of Aggregate by Drying		х		В				Х				
T 27	C 136	CP 31	Sieve Analysis of Fine and Coarse Aggregates		х		В						Х		
T 112	C 142		Clay Lumps and Friable Particles in Aggregate			Х		G							х
T 96	C 131		Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine			х		G							х
	C 535		Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine			х		G							
T 176		CP 37	Plastic fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test			х									х
T 304			Un-compacted Void Content of Fine Aggregate			Х									Х
TP 61	D 5821	CP 45	Determining the Percentage of Fractured Particles in Coarse Aggregate												х

TABLE 1. Sampling and Testing Personnel Qualifications (Continued)

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T 104			Soundness of Aggregates by Freezing and Thawing			Х									X
	D 4791		Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate			х									х
T 327			Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus												х
T 166		CP 44	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens										х		
T 209		CP 51	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures										х		
		CP 81	In-Place Density of Bituminous Mixes Using the Nuclear Moisture-Density Gauge									х			
	D 3665	CP 75	Random sampling									X			
T 168		CP 41	Sampling Hot Mix Asphalt									X			
T 248		CP 55	Splitting Hot Mix Asphalt									X			
T 287		CP 85	Asphalt Content by Nuclear Method										х		
T 308		CPL 5120	Asphalt Content by Ignition Method										х		
T 312			Superpave Gyratory Compactor											X	
T 246		CPL 5106	Hveem Stability											Х	
T 283		CPL 5109	Resistance to Moisture Induced Damage											Х	
	C 1231	_	Unbonded Caps for Concrete Cylinders				В		Х						
	C 39		Compressive Strength of Cylindrical Concrete Specimens				В		Х						
	C 617		Capping Cylindrical Concrete Specimens				В		Х						
	C 1064		Temperature of Freshly Mixed Hydraulic-Cement Concrete	х											
	C 172		Sampling Freshly Mixed Concrete	х											
	C 143		Slump of Hydraulic-Cement Concrete	х											
	C 138		Density, Yield and Air Content (Gravimetric) of Concrete	х											

TABLE 1. Sampling and Testing Personnel Qualifications (Continued)

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	C 231		Air Content of Freshly Mixed Concrete by Pressure Method	X											
	C 31		Making and Curing Concrete Test Specimens in the Field	Х											
	C 42		Obtaining and Testing Drilled Cores and Sawed Beams					В							
	C 78		Flexural Strength of Concrete (Using Simple Method with Third- Point Loading)				L	G	х						
T 224		CP- 23	Correction for Coarse Particles in the Soil Compaction Test								Х				
T 310		CP 80	In-Place Density and Moisture Content of Soil and Soil- Aggregate by Nuclear Methods (Shallow Depth)								х				
T 89			Determining the Liquid Limits of Soils							Х	х				
T 90			Determining the Plastic Limit and Plasticity Index of Soils							Х	х				
T 99 T 180			Moisture Density Relations of Soils							Х	х				

New testers not qualified may conduct tests on CDOT projects under the direct, day- to-day, supervision of person that is qualified to conduct those tests. The qualified supervisor shall train the new tester, if needed, and then confirm in writing that this person is capable of performing the tests in accordance with the standards. The close day-to-day supervision shall continue until the new tester is qualified.

Asphalt:

The asphalt certification process for testers on CDOT projects is administered through the Colorado Asphalt Pavement Association (CAPA) for the following categories:

- Level A- Laydown
- Level B- Asphalt Plant Materials Control
- Level C- Mixture Volumetrics and Stability
- Level E- Aggregates

The training schedule and registration along with more information about CAPA can be found by clicking on the link. http://co-asphalt.com/education/certification.htm

Concrete:

The concrete certification process for testers on CDOT projects is through the American Concrete Institute and is administered by the Colorado Ready Mixed Concrete Association (CRMCA) for the following categories:

- ACI Field Testing Technician Grade 1
- ACI Aggregate Testing Technician Level 1
- ACI Aggregate Testing Technician Level 2
- ACI Laboratory Testing Technician Grade I Level 1
- ACI Laboratory Testing Technician Grade II Level 2
- ACI Concrete Strength Testing Technician

The training schedule and registration along with more information about CRMCA can be found by clicking on the link. http://crmca.org

Soils and Embankment:

The soils and embankment certification process is through the Western Alliance for Quality Transportation Construction (WAQTC) and is administered by Ground Engineering for the required tests. The WAQTC training schedule and registration information can be found by clicking on the link http://www.groundeng.com/waqtc/index.php.

More information about WAQTC can be found at www.waqtc.org.

Please note: To operate a nuclear gauge in Colorado, the tester must be certified as required from their company's Radioactive Materials License, issued by the Colorado Department of Public Health and Environment.