

**MICHIGAN CIVIL SERVICE COMMISSION
JOB SPECIFICATION**

CONSTRUCTION TECHNICIAN (TRANS)

JOB DESCRIPTION

Employees in this job participate in and oversee a variety of quality control inspection activities designed to ensure that highways, bridges, and allied transportation facilities conform to the plans and specifications contained in contractual construction agreements.

There are five classifications in this job.

Position Code Title – Construction Technician (Trans)-E

Construction Technician 8

This is the entry level. The employee works in a training capacity performing a range of transportation construction quality control inspection assignments while receiving close supervision.

Construction Technician 9

This is the intermediate level. The employee works in a developing capacity with increased responsibility for performing a range of transportation construction quality control inspection assignments.

Construction Technician E10

This is the experienced level. The employee performs a full range of transportation construction quality control inspection assignments using considerable independent judgment in making decisions in order to apply guidelines with considerable latitude to a variety of work situations.

Position Code Title – Construction Technician (Trans)-A

Construction Technician 11

This is the advanced level. The employee serves as a lead worker, assigning and directing the work of lower-level technicians, or as a senior worker, responsible for the most complex transportation construction quality control inspection assignments. Senior-level employees perform complex assignments beyond those expected at the experienced level which have been approved by Civil Service.

Position Code Title – Construction Technician (Trans)-2A

Construction Technician 12

There are two distinct classification concepts at this level. In the first instance, the employee serves as the sole technical assistant to a delivery engineer; or, the employee serves as a staff specialist utilizing specialized technical knowledge in performing highly complex construction technician assignments involving authority for an assigned

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program. Staff specialist positions are one of a kind, have sole and full-time responsibility for an assigned program area, and are recognized by Civil Service.

NOTE: Employees generally progress through this series to the experienced level based on satisfactory performance and possession of the required experience.

JOB DUTIES

NOTE: The job duties listed are typical examples of the work performed by positions in this job classification. Not all duties assigned to every position are included, nor is it expected that all positions will be assigned every duty.

Inspects a complete phase of construction, such as substructure concrete placement, substructure forming, and steel placement, retaining walls, and concrete or bituminous roadways.

Performs instrument work, such as computing and/or staking substructure lines and grades, foundation piles, structure excavation limits, curbs and gutters, sewers and underdrains, culverts, box culverts and major drainage structures, excavation and embankment grades, cross sections and slopes, rights-of-way for road or bridge layouts, vertical and horizontal alignments for roadways, and vertical controls for drainage.

Performs gradation testing, materials weighing, and inspection on such construction items as: tree and stump removal, culverts, sewers and drainage structures, shaping and depth of aggregate base or surface course, placement of guardrail, sodding and seeding, erosion control, and pavement patching.

Inspects placements of traffic signs, barricades, and flag persons for safe flow of traffic through construction area.

Inspects grade preparation for bituminous or concrete paving.

Checks tested materials and pay quantities in preparation for posting for payments.

Performs instrument work such as: beginning and advanced rodman, final measurement of construction items, setting grades, staking fences, and guardrails and clearing limits.

Performs various tests on concrete or bituminous paving materials to ensure quality control specifications are met.

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Confers with personnel employed by contractors, public utilities, city and county engineering departments, or consultants regarding coordination of construction project activities.

Performs office technician work such as: reviewing and making out daily reports, plans, proposals, specifications, construction manuals, and contract documents; setting up, reducing and checking field books; plotting cross sections; computing areas and volumes; preparing field books and sketches for land clearings; setting up and maintaining engineering file systems; and making contractor's payments.

Prepares field book data and sketches for drainage structures, earthwork and grades, curb and gutter, sewage facilities, utilities relocation, and rest area facilities.

Performs the inspection work of utilities relocation, rest area sewage facilities, structural steel erection, dewatering operations, and cofferdams, as required.

Stakes buildings, rest area facilities, and sheet pile layouts.

May inspect bridge deck forming, underwater bridge repair, sandblast cleaning operations, and bridge painting operations.

Trains seasonal and other employees in surveying practices and inspection activities.

Performs related work as assigned.

Additional Job Duties

Construction Technician 11 (Lead Worker)

Oversees the work of other construction technicians by making and reviewing work assignments, establishing work priorities, coordinating activities in the work area, and resolving problems related to the work.

Participates in, and oversees, the inspection of such construction as foundations, buildings and related rest area facilities; superstructure preparation and resteel placement, forming and concrete placement; portland cement concrete paving, grading; and test pile driving.

Construction Technician 11 (Senior Worker)

Regularly performs transportation construction quality control inspection activities recognized as the more difficult and complex assignments.

Construction Technician 12 (Technical Assistant)

Serves as the sole technical assistant to a delivery engineer.

Assists the delivery engineer in staffing projects, determining equipment needs, and controlling construction engineering costs.

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Oversees the technical functions and daily activities of assigned projects.

Prepares work orders and contract modifications for work item changes.

Can serve as a final authority to stop work on a project when the work is not in compliance with department plans and specifications.

Reviews preliminary plans and contracts and makes recommendations to the delivery engineer. Provides interpretation of formal contracts, proposals, project plans and specifications, etc.

Represents the department at meetings with the public, other agencies, utility companies, contractors, etc.

Reviews project documents and quality of work in order to support the payment or denial of payment to contractors.

Recommends fines for contract violations.

Construction Technician 12 (Staff Specialist)

Exercises independent authority and responsibility for an assigned program area.

Serves as a recognized expert within a program area, and provides technical assistance to other departmental staff.

JOB QUALIFICATIONS

Knowledge, Skills, and Abilities

NOTE: Some knowledge in the area listed is required at the entry level, developing knowledge is required at the intermediate level, considerable knowledge is required at the experienced level, thorough knowledge is required at the advanced level, and extensive knowledge is required at the second, advanced level.

Knowledge of terminology used in construction.

Knowledge of source documents such as proposals, plans, specifications, standard plans, supplements, memorandums, and manuals.

Knowledge of mathematics including algebra, geometry, and trigonometry.

Knowledge of proper use of survey equipment, grade and line, temperature corrections in chaining, survey accuracy requirements, documentation requirements, and field notes requirements.

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Knowledge of the proper use of a variety of testing equipment used in transportation construction.

Knowledge of personal and construction safety practices on highway construction projects.

Skill in the use of a variety of testing equipment.

Skill in the use of surveying instruments and equipment.

Ability to compute areas and volumes.

Ability to work on high structures, carry equipment and materials, walk about rough terrain of construction projects, and stand for long periods of time.

Ability to inspect selective clearing and topsoil removal.

Ability to inspect aggregate yield, shaping, placing, compacting, priming, and sealing.

Ability to inspect portland concrete forming, density, joint sealing and finishing, foundation piling, concrete curb and gutter, bituminous surfacing, and shoulders.

Ability to inspect traffic sign and guardrail placement and maintenance.

Ability to inspect landscaping, seeding, sodding, slopes, erosion, and ditches.

Ability to inspect temporary roads.

Ability to inspect and identify project safety requirements.

Ability to oversee work in progress.

Ability to work under extreme weather conditions, and environmental conditions of work site.

Ability to communicate effectively.

Ability to maintain favorable public relations.

Additional Knowledge, Skills and Abilities

Construction Technician 11 (Lead Worker)

Ability to explain instructions and guidelines to others effectively.

Ability to organize and coordinate the work of the unit.

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Ability to determine work priorities and assign work to employees.

Construction Technician 11 (Senior Worker)

Ability to perform the most complex construction technician assignments.

Construction Technician 12 (Technical Assistant)

Knowledge of contract administration.

Ability to explain instructions and guidelines to others effectively.

Ability to organize and coordinate the work of multiple projects.

Ability to advise and assist the delivery engineer in relation to on-going or proposed construction projects.

Ability to evaluate consultants and contractors.

Ability to negotiate contract amendments and changes to plans.

Ability to interpret and provide guidance on construction standards and practices.

Construction Technician 12 (Staff Specialist)

Ability to organize and operate an assigned program area.

Ability to adapt new technology and methods to increase program effectiveness.

Working Conditions

Work is performed in field locations and may require movement from one location to another, as well as exposure to working along busy highways and adverse weather conditions.

Some jobs require work on high structures; exposure to hazardous work environments, travel, and work in tunnels and crawl spaces.

Depending on seasonal workloads and/or agency need, employees may be temporarily assigned some duties typical of other Civil Technician-related classifications.

Physical Requirements

The job duties require an employee to: bend and reach for extended periods of time, bend or stoop in confined spaces, climb ladders, walk for extended periods of time, work under stressful conditions, and move heavy objects.

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Education

Possession of an associate's degree in civil technology, construction technology, or surveying technology.

Experience

Construction Technician 8

No specific type or amount is required.

Construction Technician 9

One year of experience performing technical quality control inspection activities related to the construction of highways, roads, bridges and allied transportation facilities equivalent to a Construction Technician 8.

Construction Technician E10

Two years of experience performing technical quality control inspection activities related to the construction of highways, roads, bridges, and allied transportation facilities equivalent to a Construction Technician, including one year equivalent to a Construction Technician 9.

Construction Technician 11

Three years of experience performing technical quality control inspection activities related to the construction of highways, roads, bridges and allied transportation facilities equivalent to a Construction Technician, including one year equivalent to a Construction Technician E10.

Construction Technician 12

Four years of experience performing technical quality control inspection activities related to the construction of highways, roads, bridges, and allied transportation facilities equivalent to a Construction Technician, including two years equivalent to a Construction Technician E10 or one year of equivalent to a Construction Technician 11.

Alternate Education and Experience

Four years of construction technician experience or engineering technician experience consisting of materials and testing may be substituted for the associate's degree.

OR

Completion of 60 semester (90 term) credits including 8 semester (12 term) credits of mathematics and 24 semester (36 term) credits in any combination of course work in at least three of the following areas: structures, materials, soils, hydrology, surveying, drafting/design, bituminous, concrete, aggregates, chemistry, physics, geology, environmental science, computer science, or thermodynamics may be substituted for the associate's degree.

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OR

Possession of a bachelor's degree or higher with 16 semester (24 term) credits in job specific or related course work qualifies for the Construction Technician E10 level.

Special Requirements, Licenses, and Certifications

Construction Technician 11

Possession of one of four industry certifications as described below and current certification in Comprehensive Soil Erosion and Sedimentation Control.

Construction Technician 12

Possession of two of four industry certifications as described below and current certification in Comprehensive Soil Erosion and Sedimentation Control.

Any positions performing sampling and testing of highway materials for federal-aid projects on the National Highway System (NHS), subsequent to June 29, 2000, must be performed by qualified technicians, certified in the requisite Bituminous (Hot Mix), Concrete, Density Testing or Aggregate Gradation per a Civil Technician qualification program to ensure compliance with the Quality Assurance Procedures for Construction 23 CFR 637, dated June 29, 1995.

Some positions may require possession of a Commercial Driver's License (CDL) issued by the Secretary of State as required by Public Act 346 of 1988 to operate a designated state vehicle.

NOTE: Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION

Job Code
CONSTRCH

Job Code Description
Construction Technician (Trans)

<u>Position Title</u>	<u>Position Code</u>	<u>Pay Schedule</u>
Construction Technician (Trans)-E	CONSTCHE	L32-006
Construction Technician (Trans)-A	CONSTCHA	L32-012
Construction Technician (Trans)-2A	CONTCH2A	L32-013