

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES ▼
HUMAN RESOURCES ENTERPRISE
MATERIALS TECHNICIAN 5

DEFINITION

Serves as a lead worker and performs limited administrative, and advanced highly technical work in the planning, organizing, and coordinating of a materials inspection and/or materials testing program related to highway construction and maintenance projects; performs related work as required.

The Work Examples and Competencies listed are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

WORK EXAMPLES

Assist the supervisor by instructing employees, answering questions and distributing, balancing and checking work; may make suggestions on appointments, promotions performance and reassignments.

Assists a materials engineer in coordinating and directing materials inspection and testing within multiple sections of specialized areas in the central materials laboratory District or a satellite office.

Reviews and interprets reports and specifications related to materials testing and inspection activities; recommends changes in reporting requirements, specification revisions, testing methods, and/or procedures and equipment.

Reviews and evaluates materials inspection reports and test results for accuracy and credibility; advises staff on methods for improved effectiveness of reporting requirements and record keeping procedures.

Reviews equipment and vehicle maintenance, usage and needs; makes recommendations to the District Materials Engineer.

Plans, directs, and participates in training seminars and short courses in a specialized materials area.

Plans, directs, and schedules the work of lower level technicians in specialized pavement and bridge testing operation.

Conducts field reviews of production or fabrication plants, quarries, project job sites, or the District offices in order to correlate field inspection techniques or procedures, resolve technical problems, insure specification compliance, and make recommendations to supervisors, inspectors, and/or design engineers.

Participates in various quality control programs conducted by the National Institute for Standards Technology; reviews and recommends the use of American Association of State Highway and Transportation Officials (AASHTO) specifications and/or American Society for Testing and Materials (ASTM) specifications.

Calibrates testing machines and equipment; maintains records; inventories testing supplies and repair parts; makes recommendations regarding equipment upgrades or replacements to improve efficiency or create a safer work environment.

Reviews and evaluates materials inspection reports and test results for accuracy and credibility; advises staff on methods for improved effectiveness of reporting requirements and record keeping procedures.

Advises technical and engineering staff in the testing and use of materials within a specialized area such as welding and metals fabrication procedures, electronics and instrumentation, bituminous mix design, nuclear testing, and/or the coordination of District laboratories, materials inspection, and testing.

COMPETENCIES REQUIRED

Knowledge of principles and practices of materials inspection and testing in order to perform specialty technical training for materials personnel.

Knowledge of the requirements and intent of applicable codes, standards, and specifications for materials used in the construction and maintenance of highways.

Knowledge of the techniques, methods, procedures, and policies involved in the sampling, testing, and inspection of materials used in the construction and maintenance of highways.

Knowledge of the occupational hazards and safety precautions applicable to the work.

Knowledge of the principles of physical science.

Knowledge of the equipment and procedures used by materials producers and manufacturers and by fabricators of structural elements.

Knowledge of basic engineering principles and practices as applied to the use and production of materials used in the construction and maintenance of highways.

Ability to plan, train, and coordinate the activities of lower level technicians.

Ability to perform mathematical calculations.

Ability to perform basic scientific tests to determine the physical properties of materials used in the construction and maintenance of highways.

Ability to read and write English.

Ability to understand and follow verbal and written directions/instructions given in English.

Ability to operate computers and/or other electronic devices and use programs/applications to conduct Department of Transportation business.

Ability to read and understand engineering plans and specifications.

Ability to relate abstract ideas to actual needs and adopt an effective course of action in resolving technical problems relating to the adaptation of policies and/or procedures to new equipment or methods.

Ability to occasionally (1-33% of the time) lift/lower, carry and push/pull various amounts of force within the "heavy work" as defined by the US Department of Labor; team lift or mechanical assist recommended for weights over 75 pounds. Related work examples: 70 pound bag of aggregate, 60 pound asphalt hot box, 118 pound beam breaker, and 80 pound concrete beam in mold, etc.

Ability to work outdoors in all types of weather conditions, day or night, in normal and emergency situations.

Ability to climb, kneel, crouch, crawl, stoop and twist and perform duties using appropriate tools and equipment within safety standards.

Ability to walk over uneven ground.

Ability to drive vehicles in a safe and conscientious manner.

Ability to operate and evaluate various types of sampling, testing, and inspection equipment used in the materials analysis process.

Ability to read, understand, and apply complex design plans, shop drawings, codes, standards, specifications, and guidelines in order to plan, direct, and enforce testing and inspection procedures.

Displays high standards of ethical conduct. Refrains from dishonest behavior.

Works and communicates with all clients and customers providing polite, quality professional service.

Displays a high level of initiative, effort, attention to detail and commitment by completing assignments efficiently with minimal supervision.

Follows policy, cooperates with supervisors and aligns behavior with the goals of the organization.

Fosters and facilitates cooperation, pride, trust, group identity and team spirit throughout the organization.

Exchanges information with individuals or groups effectively by listening and responding appropriately.

EDUCATION, EXPERIENCE, AND SPECIAL REQUIREMENTS

The equivalent of seven years of full time experience in the sampling, testing, or inspection of materials used in highway construction and maintenance projects;

OR

an equivalent combination of education and experience substituting one year (30 semester hours or equivalent) of college, university, or technical school course work with an emphasis in engineering, metallurgy, geology, or chemistry for each year of the required experience;

OR

employees with current continuous experience in the state executive branch that includes the equivalent of eighteen months of full time experience as a Materials Technician 4 or Materials Fabrication Inspector 2 or the equivalent of thirty months of full time experience as a Materials Technician 3.

NECESSARY SPECIAL REQUIREMENTS

Designated positions are required to have and maintain a minimum of a valid Class C Non-Commercial Operator's License.

Prior to starting employment, all persons are required to have a post offer pre-employment physical verifying the physical ability to perform the duties described.

Positions require certification for testing materials and operating specialized equipment as required by the Iowa Department of Transportation's Technical Training and Certification Program for Highway Materials and Construction; and/or other certifications as required.

NOTES

Employees in designated positions must be able to travel and may be required to stay away from home overnight during assignments.

Effective Date: 10/13 BR