

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES ▼  
HUMAN RESOURCES ENTERPRISE  
**MATERIALS FABRICATION INSPECTOR 1**

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**DEFINITION**

Performs sampling, inspection and/or testing work of a limited scope and character associated with materials production/fabrication or with structured metal material fabrication at producer plants, performs related sampling, inspection, and testing of materials used on construction and maintenance project sites; 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**

Performs a variety of sampling, testing and/or inspection procedures on various materials to insure production quality and compliance with contract requirements.

Inspects welding operations to ensure the quality of work and the use of proper procedures.

Observes the sandblasting and cleaning of fabricated components to assure a smooth and clean surface for proper paint adhesion.

Determines the thickness of protective coatings such as paint and zinc galvanizing.

Visually inspects the various fabrication processes of metal structures by observing manufacturing and testing on a daily basis; inspects the production/ fabrication processes for other products on a periodic basis.

Checks the physical dimensions of camber, sweep and designed thickness of fabricated components and/or completed products; documents the level of prepayment which should be authorized.

Visually inspects and records quantity and quality of metal products received at the contractor's plant for project fabrication; maintains a record of the heat numbers and identity of the main steel structure members.

Administers weld procedure and operation qualification tests.

Monitors non-destructive testing procedures (radiography, magnetic particles, liquid penetrant and ultrasonic testing); monitors and verifies testing and inspection materials documentation and records performed by the manufacturer/ fabricator.

Maintains logs and/or written documentation concerning design problems, shop discrepancies and/or material problems and advises a technical supervisor concerning these problems.

Monitors the quality control process of the manufacturer/producer/fabricator to assure conformance with accepted practices; observes testing and documentation of quality control personnel, performs monitor aggregate gradation testing, witness air and slump tests on Portland Cement concrete.

Samples finished products from materials sources/producers for quality testing or validation of quality control testing performed at the source/producers laboratory.

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Designated positions perform duties related to snow and ice removal, which include: accessing the Roadway Weather Information System (RWIS), weather reports, and other related computer software applications to record and receive data and make decisions regarding times, temperatures, weather conditions, and material usage to operate snow and ice removal equipment such as, but not limited to single or tandem axle dump trucks that may be equipped with tailgate or hopper spreader, straight blades or V-plows, and underside ice blades; includes preparing and spreading abrasives and de-icing chemicals on the roadway by using a loader for mixing abrasives and chemicals; may perform other maintenance duties as assigned.

**COMPETENCIES REQUIRED**

Knowledge of the fundamentals of welding, metallurgy, and materials inspection as it relates to the fabrication of metals.

Knowledge of basic engineering terminology.

Knowledge of some common causes and acceptable methods of detecting and repairing faulty weldments.

Knowledge of the fundamental equipment, methods, materials, procedures, and quality work/product levels associated with production welding.

Knowledge of the standard principles, methods, procedures, and policies relative to the sampling, inspection, and testing of materials used in the construction and maintenance of highways.

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

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 aggregate bag, 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 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, understand, and apply basic bridge design plans, shop drawings, codes, standards, specifications, and guidelines to the development and manufacture of structural steel and other metal components.

Ability to measure surfaces accurately using tapes, roughness guides, fit up and welding gauges, wet and dry film gauges, and transits.

Ability to accurately perform mathematic calculations and maintain record logs and other materials associated with the inspection process.

Ability to operate the tools and equipment specific to materials fabrication inspection including gauges, transits, measuring devices, and welding devices.

Skill in the operation of a transit.

Sufficient manual dexterity and mobility to allow the successful physical inspection of large steel structures and components before, during, and after fabrication.

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Designated positions will also require the:

Knowledge of effects of weather on road surfaces.

Knowledge of winter maintenance operations, such as anti-icing and de-icing principles.

Ability to drive equipment with a manual transmission and clutch.

Ability to appropriately use anti-icing or de-icing materials.

Skill in use of Roadway Weather Information System (RWIS), weather reports and other related computer software applications.

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

Works and communicates with all clients and customers providing polite 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 four years of full-time work experience in the sampling, testing and inspection of materials used in highway construction and maintenance projects;

OR

an equivalent combination of education and experience substituting the equivalent of one year (thirty semester hours) of post high school education in engineering technology, engineering, physics or the physical sciences for one year of the required full-time work experience to a maximum of two years;

OR

substitution of one year of full-time journey level work experience in the design, production, construction, inspection and/or repair of weldments fabricated to a code, standard or specification for each year of the above-required full-time experience to a maximum substitution of two years;

OR

employees with current continuous experience in the state executive branch that includes the equivalent of one year of full-time experience as a Materials Technician 3.

#### **NECESSARY SPECIAL REQUIREMENTS**

Designated positions in this class require possession of a valid Commercial Learner's Permit upon hire. Within a timeframe determined by the appointing authority, a valid Class A Commercial Driver's License with the required endorsements and applicable restrictions must be obtained and subsequently maintained in order to continue employment.

If a CDL is not designated, all positions are required to have and maintain a minimum of a valid Class C Non-Commercial Operator's License.

In conjunction with Title 49 of the Code of Federal Regulations (parts 40 and 382), designated positions in this job class require a pre-employment drug screen and will require ongoing participation in the employer's random drug and alcohol testing program and will be subject to the regulations regarding the Federal drug and alcohol testing program.

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

Employees in designated positions must be able to work up to 16 consecutive hours.

Effective Date: 11/17 SA