

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT**

CLASSIFICATION TITLE Lead Structural Steel Inspector (NDT)	DISTRICT/DIVISION/OFFICE HQ/Maintenance/Specialty Investigations	
WORKING TITLE Lead Structural Steel Inspector (NDT)	POSITION NUMBER 913-625-3380-918	EFFECTIVE DATE

As a valued member of the Caltrans team, you make it possible for the Department to improve the mobility across California by being innovative and flexible; reporting to work as scheduled; working cooperatively with team members and others; and treating others fairly, honestly and with respect. Your efforts are important to each member of the team, as well as those we serve.

GENERAL STATEMENT:

Under the direction of a Senior Bridge Engineer, the Lead Structural Steel Inspector (Nondestructive Testing) (NDT) leads, directs and inspects the work of Structural Steel Inspectors (NDT) during the performance of routine, fracture critical member and special field investigations of welded, riveted or bolted steel highway structures on the state and local highway networks. The incumbent is required to develop inspection plans, locate and identify cracks or other steel distress, recommend any required maintenance or corrective action necessary to keep the bridges in a safe and functional condition, and report the results of the investigations in a written report. The Lead Structural Steel Inspector (NDT) performs inspection of welded, riveted and bolted steel bridge structures using visual, ultrasonic, liquid penetrant, or any other applicable nondestructive test method, for which they are qualified and provides assistance in the training and administration of the re-certification procedure for the Structural Steel Inspector (NDT).

TYPICAL DUTIES:

Percentage Job Description
Essential (E)/Marginal (M)¹

- 50% (E) Under the general direction of a Senior Bridge Engineer the Lead Structural Steel Inspector (NDT) leads, performs, monitors, and is responsible for the inspection of existing welded, riveted or bolted steel bridge structures using visual, ultrasonic, liquid penetrant, eddy current, magnetic particle, radiography or any other applicable nondestructive test method for which he is qualified. The Lead Structural Steel Inspector (NDT) is required to properly perform specific calibrations, nondestructive testing, and evaluations for acceptance or rejection

¹ ESSENTIAL FUNCTIONS are the core duties of the position that cannot be reassigned
MARGINAL FUNCTIONS are the minor tasks of the position that can be assigned to others

according to existing codes, standards and specifications. Makes recommendations for specification changes. Acts as the Office Nondestructive Testing Level III inspector assisting in interpreting codes, standards, specifications, and designating the particular NDT methods, techniques, procedures, and acceptable criteria when none are otherwise available. Assists on the overseeing of research projects which relate to the development of techniques, procedures and/or nondestructive equipment for existing and next-generation material.

- 25% (E) Write and review reports detailing the results of field investigations and recommend required bridge maintenance work.
- 15% (M) Gather physical and statistical data pertaining to bridge structures and maintain data in a comprehensive master database.
- 5% (E) Review plans for the repair of structures and directs the work during the repair. Performs repair work on existing structures including welding and cutting. Directs the removal and testing of structural steel samples. Takes samples from steel structures and witness tests performed at both the State and private laboratories.
- 5% (E) Assist in the training of structural steel inspectors, engineers, and other Caltrans personnel in the areas of NDT and welding, and performs other technical duties associated with inspection of bridges and bridge materials.

SUPERVISION EXERCISED OVER OTHERS

The Lead Structural Steel Inspector (NDT) will not supervise, but will lead, direct, and inspect the work of Structural Steel Inspectors (NDT).

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS

The Structural Steel Inspector (NDT) must be able to direct, monitor, and perform nondestructive inspections using methods such as ultrasonic, dye penetrant, radiography, or magnetic particle at the journeyman's level equal to Level III as described in the Office of Structure Maintenance and Investigations' Written Practice. This includes equipment calibration, evaluating results, and interpreting specifications for acceptance and rejection according to written instructions.

The Structural Steel Inspector (NDT) must have knowledge of procedures and equipment used in the fusion welding of structures. The incumbent must perform journeyman's level fusion welding and cutting with carbon arc and oxyacetylene torch.

The Structural Steel Inspector (NDT) must have a good working knowledge of the procedure used for the fabrications and erection of structural steel and manufacture of related structural steel products.

The Structural Steel Inspector (NDT) must be well-versed on inspection and testing procedures used in the fabrication of structural steel members. Must possess a working knowledge of standards and specifications used by Caltrans, such as American Society for Testing and Materials (ASTM), American Welding Society (AWS), American Association of State Highways and Transportation Officials (AASHTO), and the California Standard Specifications.

The Structural Steel Inspector (NDT) must be able to perform basic engineering calculations related to the inspection and nondestructive testing of steel products, and record and prepare inspection reports.

CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS

The Lead Structural Steel Inspector (NDT) is directly responsible for the performance of special field investigations of existing highway structures to identify and locate steel cracks or other steel distresses, maintenance and repair needs. The incumbent makes decisions related to defects in structures which, in the most serious consequence of error, could result in the catastrophic failure of a publicly-traveled transportation structure due to critical flaws that were not properly identified during an inspection.

PUBLIC AND INTERNAL CONTACTS

The Lead Structural Steel Inspector (NDT) routinely confers with other State representatives, both within and outside of Caltrans on matters relating to inspection and testing of steel and other manufactured structural elements. The incumbent must maintain open and direct communications with State, District, and Local Agency personnel.

PHYSICAL, MENTAL AND EMOTIONAL REQUIREMENTS

The employee is required to make critical safety decisions in emergency conditions relative to bridge structural stability with little supervision. The employee must be able to participate in first aid/safety training and may be required to administer first aid in the field in the event of an injury.

Hearing and sight are both essential to job performance because the employee must be able to hear directions, traffic and equipment and must see to perform his/her duties safely. The employee should be able to travel with and work closely with other engineers and act as a team member. The employee is required to sit for long periods of time while driving or using a keyboard and video display terminal.

A bridge inspection might require an employee to walk up or down a steep incline, climb fences as high as eight (8) feet, and push or pull doors or scaffolding. Incumbent may be required to climb interior or exterior ladders, catwalks or scaffolding, and perform inspection duties at heights as high as 700 feet above water or land.

The employee is required to lift and operate bridge inspection tools and equipment, which weigh as much as 65 pounds. These operations require grasping, fine manipulation, reaching overhead with the tools or equipment, twisting, lifting, squatting, crouching, balancing or bending while carrying

the tools and equipment through confined spaces, on ladders or scaffolds, and then observing and recording the results of their operations.

The employee may also be required to work in streambeds and river crossings that are underneath bridge structures, in water depths that may exceed six (6) feet. This involves the ability to wade in water at those depths, or utilize flotation devices. Employee must have the ability to safely access and operate boats or other equipment in strong water currents and under adverse weather conditions. The employee is required to operate a variety of bridge inspection equipment, including under bridge inspection trucks, lift equipment and boats. This requires the employee to utilize his/her motor skills to operate and manipulate gears, drills, foot controls and other vehicle parts that control the motor or machinery.

The incumbent must possess and maintain a California Drivers License.

WORK ENVIRONMENT

The work environment is split approximately 50% between a base of operation and various field locations throughout California. Extensive travel (both in-state and out-of-state) may be required, therefore, incumbent must be able to travel using a car or commercial transportation. Travel might involve being away from the base of operations for a significant amount of time consecutively. While at their base of operation, the employee will work in a climate-controlled office under artificial lighting. While in the field, the employee is required to drive State vehicles and work outdoors, sometimes at night, and may be exposed to animals (such as snakes, bats or owls), dirt, dust, loud noises, chemicals, uneven surfaces, plants, and a variety of sometimes extreme weather conditions and climates that occur in California. While in the field, the employee could be exposed to various physical conditions that exist around bridge structures including working at heights, around water, in confined spaces, in close proximity to traffic, in boats and on under bridge inspection equipment or lift equipment.

