

Missouri Department of Transportation Job Description

Job Title: Intermediate Structural Designer

Title Code: R05630

Salary Grade: 8

Exemption Status: Non-Exempt

Supervisory Responsibilities: Lead Worker Only

District/Division: Central Office - Bridge

Effective Date: 06-01-2025

Replaces (Effective Date): 08-01-2024

General Summary

The intermediate structural designer is responsible for structural design computations and sketches for moderately difficult highway structures and for preparing bridge memoranda, layouts and preliminary cost estimates for routine structures and rehabilitations. Responsibilities are performed under moderate supervision.

Minimum/Required Qualifications

- Bachelor's degree in civil or structural engineering from an ABET-accredited college or university curriculum.
- Two years of experience in structural design or engineering applications. An advanced degree in civil engineering with an emphasis in structural design or engineering applications may be substituted for a maximum of two years of experience.

Special Working Conditions/Job Characteristics

- A postsecondary degree is the best measure to ensure candidates possess required engineering knowledge, including in applied physics and mathematics, drafting, engineering processes and procedures, project management, industry ethical standards, and analyzing and modeling data.

Examples of Work

1. Performs structural and hydraulic design computations and dynamic analysis for seismic designs; produces sketches for moderately difficult highway bridges, retaining walls, box culverts, and other miscellaneous structures.
2. Checks design and detailing performed by others, including department personnel and consultants, for conformance to standards, procedures, accepted practices, and computational errors.

3. Provides guidance to structural technicians and designers preparing plans for projects; provides advice and answers questions concerning constructability, structural theory, American Association of State Highway and Transportation Officials codes, and design manuals to detailers and other structural designers.
4. Determines material composition and geometric layout of proposed structures to produce the proper and most economical layout by determining items such as length, spans, and type of structures and foundations.
5. Prepares bridge memorandums and preliminary cost estimates for moderately difficult structures.
6. Performs supporting calculations, reviews history files and updates manuals to keep engineering library updated.
7. Evaluates the structural capacities of new or existing bridges as required by state statutes and national standards.
8. Analyzes structures for special permit or construction loadings; performs field checks at bridge sites for preliminary layouts; conducts special studies such as analyzing non-standard pipe and precise box culvert designs.
9. Attends project meetings and consults/advises all parties involved including other department personnel, city, county, state, and federal personnel and private consultants.
10. Evaluates and utilizes engineering software and develops comprehensive spreadsheets.
11. Performs lead worker responsibilities, which may include providing general instruction, assigning and reviewing work, coaching and training, providing guidance and instruction in the proper and most efficient methods of accomplishing tasks, and providing input to the direct supervisor on staffing decisions and performance management.
12. Performs other responsibilities as required or assigned.