

# Ironworkers (Reinforcing) Job Description

## Scope

Ironworkers (reinforcing) cut, bend, lay out, place and tie reinforcing steel, into a variety of structures such as buildings, highways, bridges, stadiums and towers. They also place and stress various post-tensioning systems in structures such as parking garages, bridges and stadiums where longer unsupported spans are required.

Ironworkers (reinforcing) unload fabricated or straight reinforcing materials and place it for hoisting as needed. While the reinforcing material is usually pre-cut and fabricated off-site, ironworkers (reinforcing) may be called upon to cut and bend them according to design specifications and drawings. Ironworkers (reinforcing) may pre-assemble reinforcing material by laying it out and connecting sub-assemblies on the ground prior to final placement. They organize the hoisting of the components by connecting cables and slings to the components and directing crane operators. They position, align and secure components according to drawings, using a variety of methods. After placing post-tensioning systems, they stress the tendons to predetermined specifications using hydraulic jacks and pumps.

Ironworkers (reinforcing) work outside in all weather. They may also work in underground work sites. They work in a variety of locations ranging from remote areas where they could work on dams, bridges or mining projects, to urban environments where they could work on high-rise buildings, parking garages, transit systems, tunnels or stadiums. The work may require that they be away from home for extended periods of time. The work often requires considerable standing, bending, crawling, lifting, climbing, pulling and reaching and is often conducted in cramped, confined spaces or at heights. Hazards include injury from electrocution, falls or falling objects.

Ironworkers (reinforcing) are required to have good mechanical aptitude, the ability to visualize finished products in three dimensions, and the ability to work at heights in varying extreme climates. A thorough knowledge of the principles of lifting and hoisting is required as is a familiarity with a variety of metal fastening and joining methods. All ironworkers (reinforcing) are required to be competent in the use and care of a variety of hand and power tools and equipment such as tying tools, pry bars, jacks, torches, cut-off saws, hydraulic benders, shears, welding equipment, stressing equipment and cranes.

Because of the nature of the work, a primary concern of the ironworkers (reinforcing) is workplace safety; therefore ironworkers (reinforcing) must be thoroughly familiar with the applicable sections of local, provincial and federal building and safety codes.

Ironworkers (reinforcing) tend to work in teams, and team coordination is a large component of the occupation especially when hoisting and placing large, heavy components high above the ground.

Ironworkers (reinforcing) interact and work cooperatively with a wide variety of construction tradespeople such as ironworkers (structural/ornamental), crane operators, steel detailers, welders, carpenters, concrete finishers and metal fabricators.

## Occupational Skills Ironworker (Reinforcing) Trade Skills

### **Interprets drawings and specifications.**

- knowledge of types of drawings such as placement drawings, structural drawings, architectural drawings and bar list fabrication
- knowledge of welding symbols
- knowledge of abbreviations and technical vocabulary
- knowledge of drafting techniques
- ability to interpret drawing symbols
- ability to correlate types of drawings such as structural drawings, architectural drawings, engineering drawings, detail drawings and erection drawings
- ability to distinguish types of views
- ability to relate drawings to worksite

### **Interprets standards, regulations and procedures.**

- knowledge of standards such as CSA, ANSI and CRSI
- knowledge of regulations such as OH&S Act, WHMIS and fall protection
- knowledge of the location of standards, regulations and procedures
- ability to apply procedures such as welding, assembly, placing, tensioning and grouting

### **Communicates with co-workers.**

- knowledge of types of communication
- knowledge of interpersonal communication techniques
- knowledge of trade vocabulary
- knowledge of barriers to communication
- ability to write clearly and concisely
- ability to actively listen
- ability to check to confirm understanding

### **Communicates with other disciplines.**

- knowledge of job-related terminology
- knowledge of report formats
- ability to actively listen
- ability to translate technical terms into layperson language
- ability to address others' concerns
- ability to write reports in prescribed formats
- ability to check to confirm understanding

### **Communicates with apprentices.**

- knowledge of capability of apprentice
- ability to listen, teach, coach and mentor

- ability to supervise
- ability to assess and record ongoing progress

#### **Uses hand signals.**

- knowledge of types of signals
- knowledge of hand signals
- knowledge of signal terminology
- ability to select type of signals
- ability to interpret signals
- ability to select signals for type of equipment

#### **Communicates electronically.**

- knowledge of types of electronic communication devices such as cellular telephones, two-way radios and lap-top computers
- knowledge of communication protocols and company reporting policies
- ability to operate electronic communication devices
- ability to send, receive and retrieve information from computers
- ability to communicate through two-way radios and cellular phones

#### **Uses hand tools.**

- knowledge of types and uses of hand tools
- knowledge of hand tool safety
- knowledge of manufacturers' specifications on the use and care of hand tools
- knowledge of types of measuring equipment
- ability to select hand tools required for task
- ability to identify damaged, worn or otherwise unsafe hand tools
- ability to clean and store hand tools
- ability to maintain hand tools

#### **Uses power tools.**

- knowledge of types and uses of power tools such as pneumatic, electric, gas powered and hydraulic
- knowledge of power tool components
- knowledge of operating procedures for power tools
- knowledge of power tool safety
- knowledge of manufacturers' recommended uses, limitations and maintenance of power tools
- ability to select power tools required for task
- ability to identify damaged, worn or otherwise unsafe power tools
- ability to clean and store power tools
- ability to maintain power tools

#### **Uses bending tools and equipment.**

- knowledge of types and uses of bending equipment
- knowledge of manufacturers' recommended uses and limitations
- knowledge of potential hazards and safety issues
- ability to select bending equipment
- ability to set up and calibrate bending equipment
- ability to identify damaged, worn or otherwise unsafe bending equipment

#### **Uses aerial work platforms.**

- knowledge of types and uses of aerial work platforms
- knowledge of aerial work platform safety
- knowledge of aerial work platform regulations and certification requirements
- knowledge of aerial work platform components and accessories
- knowledge of operating procedures of aerial work platforms
- knowledge of manufacturers' specifications for use of aerial work platforms
- ability to identify damaged, worn or otherwise unsafe aerial work platforms and equipment
- ability to position aerial work platforms
- ability to store aerial work platforms

#### **Uses ladders.**

- knowledge of types and uses of ladders
- knowledge of safe operating procedures for ladders
- knowledge of manufacturers' specifications for use and care of ladders
- ability to position ladders
- ability to secure ladders
- ability to dismantle and store ladders
- ability to identify damaged, worn or otherwise unsafe ladders

#### **Uses scaffolding.**

- knowledge of regulations pertaining to scaffolding
- knowledge of types of scaffolding
- knowledge of installation and dismantling procedures
- knowledge of manufacturers' recommended uses and limitations of scaffolding
- ability to position and erect scaffolding and install planking, guardrails and toe plates
- ability to secure scaffolding, planking, guardrails, toe plates and related components
- ability to dismantle and store scaffolding
- ability to identify damaged, worn or otherwise unsafe scaffolding and planking

#### **Uses personal protective equipment (PPE).**

- knowledge of types and uses of PPE such as hard hats, safety glasses, hearing protection, welding PPE, safety footwear and fall arrest equipment
- knowledge of PPE safety
- knowledge of manufacturers' recommended uses, limitations and maintenance of PPE
- knowledge of workplace rules and regulations

- ability to select PPE for conditions encountered
- ability to use fall arrest equipment such as harnesses, safety belts and lines
- ability to identify damaged, worn or otherwise unsafe PPE
- ability to store PPE

#### **Uses welding equipment.**

- knowledge of provincial/territorial and applicable welding regulations
- knowledge of Canadian Welding Bureau (CWB) standards
- knowledge of welding processes and procedures
- knowledge of welding symbols
- knowledge of welding hazards
- knowledge of welding equipment
- knowledge of welding consumables
- knowledge of welding defects
- ability to set up welding equipment
- ability to perform welding processes
- ability to adjust welding parameters to suit site conditions
- ability to identify damaged, worn or otherwise unsafe welding equipment
- ability to store welding equipment

#### **Uses oxy-fuel cutting equipment.**

- knowledge of cutting processes
- knowledge of cutting equipment
- knowledge of cutting consumables
- ability to set up equipment
- ability to inspect equipment
- ability to adjust cutting parameters
- ability to recognize cutting hazards
- ability to identify damaged, worn or otherwise unsafe cutting equipment
- ability to store cutting equipment and consumables

#### **Organizes materials and supplies.**

- knowledge of placing and assembly
- knowledge of equipment capabilities and limitations
- knowledge of site preparation
- knowledge of shipping documentation
- knowledge of storage principles
- ability to schedule material and supplies required for job
- ability to unload materials
- ability to place and sort materials and supplies
- ability to reconcile load with shipping documents
- ability to secure equipment and materials

#### **Marks layouts.**

- knowledge of drawings
- ability to interpret drawings
- ability to use measuring devices and layout tools
- ability to apply marking and layout techniques
- ability to visualize finished product
- ability to transfer drawing information to accommodate site conditions

**Maintains safe work environment.**

- knowledge of safety regulations
- knowledge of building codes
- knowledge of applications of safety equipment such as fall arrest, fall restraint and work positioning
- knowledge of safe work practices and limitations
- ability to apply safety standards applicable to workplace
- ability to install safety equipment such as guard rails, static lines, lifelines, screens, temporary flooring, warning signs and barriers
- ability to maintain good housekeeping

**Assesses site hazards.**

- knowledge of policies and procedures
- knowledge of codes and procedures
- ability to recognize hazards such as floor openings, leading edges and obstructions
- ability to control hazards

**Plans work tasks.**

- knowledge of specifications and drawings
- ability to interpret specifications and drawings
- ability to improvise to suit site conditions
- ability to maintain schedule
- ability to select materials and supplies required for task
- ability to select equipment and tools required for task

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