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Trade Profile IRONWORKER (REINFORCING)



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Trade Profile

Ironworker (Reinforcing)



Structure of the Trade Profile

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

Description of the Ironworker (Generalist) trade: an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

Task Matrix: a chart which outlines graphically the major work activities, tasks and subtasks of this standard

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities

Task: distinct actions that describe the activities within a major work activity

Sub-task: distinct actions that describe the activities within a task

Description of the Ironworker (Reinforcing) Trade

"Ironworker (Reinforcing)" is this trade's official Red Seal occupational title approved by the CCDA. This analysis covers tasks performed by an ironworker (reinforcing).

Ironworkers (reinforcing) cut, bend, lay out, hoist, place, tie, couple and weld reinforcing steel bars, welded wire fabric and composite materials in a wide variety of reinforced concrete products and structures such as buildings, highways, bridges, stadiums, wind turbines, solar panels, power-generating plants, 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 them for hoisting. While the reinforcing material is usually pre-cut and fabricated off-site, ironworkers (reinforcing) may be called upon to cut and bend them in the field 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 choosing and installing rigging such as 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 forces using hydraulic jacks and pumps and then may grout the tendons according to the system.

Ironworkers (reinforcing) work outside in various weather conditions. They may also work in underground work sites. They work in a variety of locations ranging from offshore and remote areas where they could work on platforms, dams, bridges or mining projects, to urban environments where they could work on high-rise buildings, parking garages, transit systems, tunnels, stadiums, roads or highways. 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 areas, confined spaces or at heights. Hazards include injury from repetitive motions, electrocution, falls or falling objects, lacerations, pinch points, crushing and overexertion. Ironworkers (reinforcing) typically work a 40-hour week; however, inclement weather such as rain, snow or high winds may shut down projects for extended periods and alternative deadlines and priorities may require overtime hours.

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 various conditions. A thorough knowledge of the principles of rigging, hoisting and positioning 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, material handling equipment and cranes.

Because of the nature of the work, a primary concern of the ironworker (reinforcing) is workplace safety. They 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), electricians, plumbers, crane operators, steel detailers, welders, carpenters, concrete finishers and metal fabricators.

Ironworker (Reinforcing) Task Matrix and Weightings

A - Performs common occupational skills

Task A-1 Sub-task A-1.01 Sub-task A-1.03 Sub-task A-1.02 Maintains safe and Maintains safe Uses personal Participates in healthy workplace work environment protective healthy and 24% equipment (PPE) respectful work and safety environment equipment Task A-2 Sub-task A-2.01 Sub-task A-2.02 Sub-task A-2.03 Uses and maintains tools Uses hand tools Uses bending tools Uses power tools and equipment and equipment and measuring 38% equipment Sub-task A-2.06 Sub-task A-2.04 Sub-task A-2.05 Uses mobile Uses material Uses ladders elevating work handling equipment platforms (MEWP) Sub-task A-2.07 Sub-task A-2.08 Sub-task A-2.09 Uses scaffolding Uses surveying Uses welding equipment equipment Sub-task A-2.10 Sub-task A-2.11 Uses mechanical Uses thermal cutting equipment cutting equipment Sub-task A-3.03 Organizes work Sub-task A-3.01 Sub-task A-3.02 Task A-3 Organizes Performs layout Uses drawings and 31% materials and documentation supplies Sub-task A-3.04 Plans tasks

24%

Task A-4	Sub-task A-4.01	Sub-task A-4.02
Maintains continuous	Upskills in new	Upskills in
learning	trade practices and	emerging
3%	procedures	technologies
Task A-5 Uses communication and mentoring techniques 4%	Sub-task A-5.01 Uses communication techniques	Sub-task A-5.02 Uses mentoring techniques

B – Performs rigging, hoisting and positioning, and participates in 24% crane and equipment mobilization and demobilization

Task B-6 Plans lift 21 %	Sub-task B-6.01 Assesses load	Sub-task B-6.02 Performs pre-lift analysis	Sub-task B-6.03 Selects rigging, hoisting and positioning equipment
	Sub-task B-6.04 Secures lift area		
Task B-7 Rigs, hoists and positions load 43%	Sub-task B-7.01 Inspects rigging, hoisting and positioning equipment	Sub-task B-7.02 Assembles rigging, hoisting and positioning equipment	Sub-task B-7.03 Attaches rigging equipment to load
	Sub-task B-7.04 Performs hoisting and positioning operations	Sub-task B-7.05 Secures load before rigging removal	
Task B-8 Performs post-lift activities 21%	Sub-task B-8.01 Conducts post-lift inspection	Sub-task B-8.02 Disassembles rigging, hoisting and positioning equipment	Sub-task B-8.03 Maintains rigging, hoisting and positioning equipment
Task B-9 Participates in mobilization and demobilization of cranes and equipment 15%	Sub-task B-9.01 Participates in mobilization of cranes and equipment	Sub-task B-9.02 Demobilizes cranes and equipment	

C- Fabricates and installs reinforcing material

Task C-10 Fabricates reinforcing materials on-site 31%	Sub-task C-10.01 Cuts reinforcing materials	Sub-task C-10.02 Bends reinforcing materials	
Task C-11 Installs reinforcing materials 69%	Sub-task C-11.01 Places reinforcing materials	Sub-task C-11.02 Ties reinforcing materials	Sub-task C-11.03 Splices reinforcing materials

D – Performs pre-stressing/post-tensioning

11%

41%

Task D-12 Places pre-stressed/post- tensioning systems 55%	Sub-task D-12.01 Lays out profile	Sub-task D-12.02 Places tendons and accessories	Sub-task D-12.03 Installs bursting steel and anchorages
	Sub-task D-12.04 Connects tendons to anchorages	Sub-task D-12.05 Protects exposed tendons	
Task D-13 Stresses tendons 27%	Sub-task D-13.01 Sets up stressing equipment	Sub-task D-13.02 Tensions tendons	Sub-task D-13.03 Cuts and caps tendons
	Sub-task D-13.04 Removes stressing equipment	Sub-task D-13.05 De-stresses tendons	
Task D-14 Grouts tendons 18%	Sub-task D-14.01 Sets up grouting equipment	Sub-task D-14.02 Installs grout	