



## CONSTRUCTION CRAFT LABORER

### Competencies / Objectives

## Level One

### MODULE 00101-04 – BASIC SAFETY

1. Explain the role that safety plays in the construction crafts.
2. Describe the meaning of job-site safety.
3. Describe the characteristics of a competent person and a qualified person.
4. Explain the appropriate safety precautions to take around common job-site hazards.
5. Demonstrate the use and care of appropriate personal protective equipment (PPE).
6. Properly don and remove personal protective equipment (safety goggles, hard hat, and personal fall protection).
7. Follow the safety procedures required for lifting heavy objects.
8. Describe safe behavior on and around ladders and scaffolds.
9. Explain the importance of Hazard Communications (HazCom) and material safety data sheets (MSDSs).
10. Describe fire prevention and firefighting techniques.
11. Define safe work procedures to use around electrical hazards.

### MODULE 00102-04 – INTRODUCTION TO CONSTRUCTION MATH

1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.
2. Use a standard ruler and a metric ruler to measure.
3. Add, subtract, multiply, and divide fractions.
4. Add, subtract, multiply, and divide decimals, with and without a calculator.
5. Convert decimals to percentages and percentages to decimals.
6. Convert fractions to decimals and decimals to fractions.
7. Explain what the metric system is and how it is important in the construction trade.
8. Recognize and use metric units of length, weight, volume, and temperature.
9. Recognize some of the basic shapes used in the construction industry, and apply basic geometry to measure them.

### MODULE 00103-04 – INTRODUCTION TO HAND TOOLS

1. Recognize and identify some of the basic hand tools used in the construction trade.
2. Use hand tools safely.
3. Describe the basic procedures for taking care of hand tools.

### MODULE 00104-04 – INTRODUCTION TO POWER TOOLS

1. Identify power tools commonly used in the construction trades.
2. Use power tools safely.
3. Explain how to maintain power tools properly.

## **MODULE 00105-04 – INTRODUCTION TO BLUEPRINTS**

1. Recognize and identify basic blueprint terms, components, and symbols.
2. Relate information on blueprints to actual locations on the print.
3. Recognize different classifications of drawings.
4. Interpret and use drawing dimensions.

## **MODULE 00106-04 – BASIC RIGGING**

1. Identify and describe the use of slings and common rigging hardware.
2. Describe basic inspection techniques and rejection criteria used for slings and hardware.
3. Describe basic hitch configurations and their proper connections.
4. Describe basic load-handling safety practices.
5. Demonstrate proper use of American National Standards Institute (ANSI) hand signals.

## **MODULE 00107-04 – BASIC COMMUNICATION SKILLS**

1. Demonstrate the ability to interpret information and instructions presented in both written and verbal form.
2. Demonstrate the ability to communicate effectively in on-the-job situations using written and verbal skills.

## **MODULE 00108-04 – BASIC EMPLOYABILITY SKILLS**

1. Explain the construction industry, the role of the companies that make up the industry, and the role of individual professionals in the industry.
2. Demonstrate critical thinking skills and the ability to solve problems using those skills.
3. Demonstrate knowledge of computer systems, and explain common uses for computers in the construction industry.
4. Demonstrate effective relationship skills with teammates and supervisors, the ability to work on a team, and appropriate leadership skills.
5. Be aware of workplace issues such as sexual harassment, stress, and substance abuse.

## **MODULE 27101-06 – ORIENTATION TO THE TRADE**

1. Describe the history of the carpentry trade.
2. Identify the aptitudes, behaviors, and skills needed to be a successful carpenter.
3. Identify the training opportunities within the carpentry trade.
4. Identify the career and entrepreneurial opportunities within the carpentry trade.
5. Identify the responsibilities of a person working in the construction industry.
6. State the personal characteristics of a professional.
7. Explain the importance of safety in the construction industry.

## **MODULE 27102-06 – BUILDING MATERIALS, FASTENERS, AND ADHESIVES**

1. Identify various types of building materials and their uses.
2. State the uses of various types of hardwoods and softwoods.
3. Identify the different grades and markings of wood building materials.
4. Identify the safety precautions associated with building materials.
5. Describe the proper method of storing and handling building materials.
6. State the uses of various types of engineered lumber.
7. Calculate the quantities of lumber and wood products using industry-standard methods.
8. Describe the fasteners, anchors, and adhesives used in construction work and explain their uses.

## **MODULE 27401-08 – SITE LAYOUT I: DiSTANCE MEASUREMENT AND LEVELING**

1. Describe the major responsibilities of the carpenter relative to site layout.
2. Convert measurements stated in feet and inches to equivalent measurements stated in decimal feet, and vice versa.
3. Use and properly maintain tools and equipment associated with taping.
4. Use manual or electronic equipment and procedures to make distant measurements and perform site layout tasks.
5. Determine approximate distances by pacing.
6. Recognize, use, and properly care for tools and equipment associated with differential leveling.
7. Use a builder's level and differential leveling procedures to determine site and building elevations.
8. Record site layout data and information in field notes using accepted practices.
9. Check and/or establish 90-degree angles using the 3-4-5 rule.

## **MODULE 27108-06 – INTRODUCTION TO CONCRETE, REINFORCING MATERIALS, AND FORMS**

1. Identify the properties of cement.
2. Describe the composition of concrete.
3. Perform volume estimates for concrete quantity requirements.
4. Identify types of concrete reinforcement materials and describe their uses.
5. Identify various types of footings and explain their uses.
6. Identify the parts of various types of forms.
7. Explain the safety procedures associated with the construction and use of concrete forms.
8. Erect, plumb, and brace a simple concrete form with reinforcement.

## **MODULE 27307-07 – FOUNDATIONS AND SLAB-ON-GRADE**

1. Establish elevations.
2. Identify various types of footing and foundations.
3. Select the appropriate footing for a foundation.
4. Lay out and construct a selected footing and foundation using an established gridline.
5. Install templates, keyways, and embedments.
6. Form and strip pier foundation forms and prepare for resetting at another location.
7. Identify the different classes of slabs-on-grade.
8. Identify edge forms and explain their purpose.
9. Construct and disassemble edge forms.
10. Install vapor barrier, reinforcement, and control joints.
11. Establish finish grade and fill requirements.

## **MODULE 27304-07 – REINFORCING CONCRETE**

1. Describe the applications of reinforcing bars, the uses of reinforced structural concrete, and the basic processes involved in placing reinforcing bars.
2. Recognize and identify the bar bends standardized by the American Concrete Institution (ACI).
3. Read and interpret bar lists and describe the information found on a bar list.
4. List the types of ties used in securing reinforcing bars.
5. State the tolerances allowed in the fabrication of reinforcing bars.
6. Demonstrate the proper use of common ties for reinforcing bars.
7. Describe methods by which reinforcing bars may be cut and bent in the field.
8. Use the tools and equipment needed for installing reinforcing bars.
9. Safely use selected tools and equipment to cut, bend, and install reinforcing materials.
10. Explain the necessity of concrete cover in placing reinforcing bars.
11. Explain and demonstrate how to place bars in walls, columns, beams, girders, joists, and slabs.
12. Identify lapped splices.

## **MODULE 27305-07 – HANDLING AND PLACING CONCRETE**

1. Recognize the various equipment used to transport and place concrete.
2. Describe the factors that contribute to the quality of concrete placement.
3. Demonstrate the correct methods for placing and consolidating concrete into forms.
4. Demonstrate how to use a screed to strike off and level concrete to the proper grade in a form.
5. Demonstrate how to use tools for placing, floating, and finishing concrete.
6. Determine when conditions permit the concrete finishing operation to start.
7. Name the factors that affect the curing of concrete and describe the methods used to achieve proper curing.
8. Properly care for and safely use hand and power tools used when working with concrete.

# Level Two

## MODULE 27308-07 – VERTICAL FORMWORK

1. Explain safety procedures associated with using concrete wall forms.
2. Identify the various types of concrete wall forms.
3. Identify the components of each type of vertical forming system.
4. Erect, plumb, and brace a selected wall.
5. Recognize various types of manufactured forms.
6. State the differences in construction and use among different types of forms.
7. Erect, plumb, and brace a column form.
8. Erect, plumb, and brace a stair form.
9. Locate and install bulkheads and embedded forms.

## MODULE 27309-07 – HORIZONTAL FORMWORK

1. Identify the safety hazards associated with elevated deck formwork and explain how to eliminate them.
2. Identify the different types of elevated decks.
3. Identify the different types of flying form systems.
4. Identify different types of handset form systems.
5. Erect, plumb, brace, and level different types of handset deck form systems.
6. Install edge forms, blockouts, embedments, and construction joints.
7. Identify typical bridge and culvert form systems.

## MODULE 28207 – ELEVATED WORK (MASONRY)

1. Describe the appropriate steps necessary for setting up and maintaining elevated workstations.
2. Properly operate material handling and hoisting equipment.
3. Describe the safety requirements and guidelines employed in elevated and high-rise construction.
4. Describe basic activities that can be used on the job to prevent elevated workstation accidents.
5. Understand scaffolding positioning and how it affects laying technique.

## MODULE 21101-04 – ORIENTATION TO THE TRADE

1. Identify career opportunities in the mobile crane industry.
2. Describe the duties and responsibilities of mobile crane operators.
3. Describe the physical requirements for mobile crane operators.
4. Name the different categories of mobile cranes and describe how each is used.
5. Identify common mobile crane attachments and explain how each is used.

## **MODULE 30101 – INTRODUCTION TO THE TRADE (IRONWORKING)**

1. Identify the personal qualities that contribute to successful employment.
2. Describe the historical development of the trade.
3. Identify the organization and purpose of apprenticeship training.
4. Identify employer and employee safety obligations.

## **MODULE 26102-08 – ELECTRICAL SAFETY**

1. Recognize safe working practices in the construction environment.
2. Explain the purpose of OSHA and how it promotes safety on the job.
3. Identify electrical hazards and how to avoid or minimize them in the workplace.
4. Explain safety issues concerning lockout/tagout procedures, confined space entry, respiratory protection, and fall protection systems.
5. Develop a task plan and a hazard assessment for a given task and select the appropriate PPE and work methods to safely perform the task.

## **MODULE 27406-08 – INTRODUCTION TO LIGHT EQUIPMENT**

1. Identify and explain the operation and use of various pieces of light equipment, including:
  - Aerial lifts
  - Skid steer loaders
  - Trenchers
  - Generators
  - Compressors
  - Compactors
  - Forklifts
  - Backhoe
2. State the safety precautions associated with light equipment.
3. Operate selected items of light equipment.

## **MODULE 22206-06 - FORKLIFTS**

1. Describe the uses of a forklift.
2. Identify the components and controls on a typical forklift.
3. Explain the safety rules for operating a forklift.
4. Perform prestart inspection and maintenance procedures.
5. Start, warm up, and shut down a forklift.
6. Perform basic maneuvers with a forklift.
7. Perform basic lifting operations with a forklift.
8. Describe the attachments used on forklifts.
2. Understand and apply block and brick construction techniques typically employed in high-rise construction.
3. Understand and apply safety guidelines employed in high-rise construction.
4. Safely work with materials handling equipment in high-rise construction.

## **MODULE 29102-03 – OXYFUEL CUTTING**

1. Identify and explain the use of oxyfuel cutting equipment.
2. Set up oxyfuel equipment.
3. Light and adjust an oxyfuel torch.
4. Shut down oxyfuel cutting equipment.
5. Disassemble oxyfuel equipment.
6. Change empty cylinders.
7. Perform oxyfuel cutting:
  - Straight line and square shapes
  - Piercing and slot cutting
  - Bevels
  - Washing
  - Gouging
8. Operate a motorized, portable oxyfuel gas cutting machine.

## **MODULE 28301-05 – MASONRY IN HIGH-RISE CONSTRUCTION**

1. Recognize and explain the use of high-rise construction equipment.
2. Identify construction sequence in high-rise construction.
3. State the safety procedures in high-rise construction.
4. Safely work with materials handling equipment in high-rise construction.
5. Properly put on a safety harness, lanyard, and lifeline.
6. Demonstrate hand signals used for lifting materials.