



## CONCRETE FINISHING

### Competencies / Objectives

## Level One

### MODULE 23101 - INTRODUCTION TO CONCRETE CONSTRUCTION AND FINISHING

1. Define terms associated with concrete construction.
2. Identify the composition and characteristics of concrete.
3. Identify the uses of concrete as a building material.
4. Identify the effect of craftsmanship on finished concrete.
5. Explain the concrete construction process.
6. Identify site operation work requirements.
7. Explain the career potentials in concrete construction and finishing.

### MODULE 23102 – SAFETY REQUIREMENTS

1. Describe and wear different types of safety gear for the work site.
2. State the guidelines for dressing appropriately for concrete work.
3. Describe how to safely handle concrete when forming, placing, curing, and finishing.
4. Describe safety precautions to follow when working in extreme heat and cold.
5. Describe safety precautions to follow when working with hazardous materials.
6. Describe proper procedures for handling and maintaining concrete construction tools safely.

### MODULE 23103 – PROPERTIES OF CONCRETE

1. Describe the properties of concrete.
2. Explain how the properties of concrete are used in construction.
3. Determine how the ingredients of concrete influence mix, placement, finishing, durability, and performance.
4. Describe quality-control tests on concrete ingredients, fresh concrete, and hardened concrete.
5. Mix a test batch of concrete.
6. Perform a slump test.

### MODULE 23104 – TOOLS AND EQUIPMENT

1. Name the tools used in placing and finishing concrete.
2. Name the power equipment used in placing and finishing concrete.
3. Describe how each tool is used.
4. Describe how the power equipment is used.
5. Associate trade terms with the appropriate tools and equipment.

## **MODULE 23105 – PREPARING FOR PLACEMENT**

1. Describe basic site layout using levels and measuring tools.
2. Properly locate, grade, and build forms for horizontal placement.
3. Perform compaction activities on subgrades.
4. Describe various joints and where to locate them.
5. Describe various reinforcements and how to place them.
6. Describe information needed when ordering concrete.

## **MODULE 23106 – PLACING CONCRETE**

1. Describe how concrete is conveyed and placed.
2. Draw up a pre-placement checklist.
3. Demonstrate the use of equipment and tools for placing concrete.
4. Demonstrate the process of depositing, spreading, consolidating, and striking off concrete in a form.
5. Associate trade terms with the appropriate processes and equipment.

## **MODULE 23107 – FINISHING, PART ONE**

1. Describe the basic finishing process.
2. Use the following finishing hand tools: float, edger, groover, and trowel.
3. Mark and cut joints with a saw.
4. Apply a broom finish.
5. Apply a rubbing finish.
6. Associate trade terms with the appropriate processes and equipment.

## **MODULE 23108 – CURING AND PROTECTING CONCRETE**

1. Describe the process of curing concrete.
2. Identify methods of curing concrete.
3. Describe how each method is applied.
4. Identify when each method is used.
5. Associate trade terms with the appropriate processes and equipment.

## **MODULE 23109 – INTRODUCTION TO TROUBLESHOOTING**

1. Describe a basic troubleshooting methodology that can be used to identify a variety of concrete construction problems and their causes.
2. Identify problems with fresh concrete and describe ways to prevent them.
3. Identify different concrete defects such as crazing, cracking, dusting, scaling, popouts, and efflorescence, and describe ways to prevent them.

# Level Two

## MODULE 23201 - PROPERTIES OF CONCRETE, PART TWO

1. Describe the properties of different admixtures and other materials used in concrete.
2. Identify anticipated changes in set time, workability, and finishing for various types of admixtures and mix designs.
3. Determine how the ingredients of concrete influence mix, placement, finishing, durability, and performance.

## MODULE 23202 - ESTIMATING CONCRETE QUANTITIES

1. Describe U.S. Customary and SI metric units of measure.
2. Read residential blueprints and identify concrete construction requirements.
3. Estimate the required quantities of materials for different structural members.

## MODULE 23203 - FORMING

1. Identify different types of forming materials and explain how they are used.
2. Erect on-grade forms for different types of construction.
3. Erect low wall and foundation wall forms.

## MODULE 23204 - SITE CONCRETE

1. Lay out, place, and finish curb and gutter.
2. Lay out, place, and finish site-built stairs.
3. Lay out, place, and finish small slabs for sidewalks, patios, and driveways.

## MODULE 23205 - ARCHITECTURAL FINISHES

1. Identify the four types of architectural concrete.
2. Identify various types of architectural finishes and surface treatments.
3. Apply various types of architectural finishes and surface treatments to concrete.

## MODULE 23206 - INDUSTRIAL FLOORS

1. Prepare an industrial floor area for placing concrete.
2. Place and finish concrete for an industrial floor.

## MODULE 23207 – SUPERFLAT FLOORS

1. Discuss the requirements for installing a superflat floor.
2. Prepare an area and materials for finishing a superflat floor.
3. Place and finish concrete for a superflat floor.

## MODULE 23208 - SURFACE TREATMENTS

1. Describe different surface treatments.
2. Apply common surface treatments.
3. Finish a concrete floor to receive toppings.

## **MODULE 23209 - QUALITY CONTROL**

1. Describe the purpose, frequency, sampling requirements, and procedures for performing common concrete tests.
2. Perform each concrete test.
3. Describe and perform preplacement inspections.

## **MODULE 23210 - MAKING REPAIRS**

1. Describe common surface defects.
2. Repair cracks.
3. Describe and locate delaminations.
4. Stone or sack rub surfaces.