Fundamentals—Level One

MODULE 27101-06 – ORIENTATION TO THE TRADE

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Videotape (optional), Careers in Construction: Carpentry Exploring Careers in Construction (optional)
- Television and videocassette recorder (optional)
- Module Examinations

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

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Samples of lumber containing:
  - Grade stamps
  - Natural defects
  - Manufacturing defects
- Samples of plywood containing grade stamps
- Samples of engineered sheet materials (OSB, particleboard, etc.)
- Samples of engineered lumber (LVL, PSL, glulam, etc.)
- Samples of various concrete blocks
- Samples of metal framing materials
- Samples of various kinds of:
  - Nails
  - Screws
  - Bolts
  - Anchors
  - Construction adhesives
MODULE 27102-06 – BUILDING MATERIALS, FASTENERS, AND ADHESIVES (continued)

Cross section of a tree trunk (optional)
Drill and bits
Hammer
Screwdriver
Calculator
Module Examinations
Performance Profile Sheets

MODULE 27103-06 – HAND AND POWER TOOLS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Soapstone
Yard-long lengths of 1” reinforcing rod
1 3 4 stock about 18” to 24” long
2 3 4s 18” to 24” long
2 3 4s 4’ long
6” 3 12” pieces of ¾” plywood
Pieces of crown molding 4’ long
Angle iron, steel rod, or pipe for cutting
Wood stock of various sizes
Laminate samples
Blocks of scrap wood
Fasteners (nails and staples) designed for the pneumatic fastener being used
Sheet metal stock
Folding rule or steel tape
Levels:
  Line
  Water
  Builder’s
  Transit
  Laser
Squares:
  Try
  Sliding T-bevel
  Speed square
  Miter
  Framing
  Adjustable T-square
Planes:
  Block
  Jack
  Smoothing
  Jointer
Clamps:
  Web
  Hand-screw
  Bar
  Spring
  Locking C
  Pipe
Saws:
  Hacksaw and replacement blades
  Backsaw
  Dovetail
  Compass
  Coping
  Chalkline
  Clamping device
  Portable circular saw
  Circular saw protractor
  Portable table saw
  Miter/compound miter saw
  Frame and trim saw
  Demolition saw
  Chop saw
  Miter gauge
  Ripping fence for portable circular saw
  Push stick
  Sawhorses or other solid support
  Drill press and chuck key
  Portable power plane and blades
  Power metal shears
  Router and router bits
  Laminate trimmer and bits
  Pneumatic fastener and manufacturer’s instruction manual
  Electric air compressor with air hose
Copies of Worksheet 1
Copies of Job Sheets 1 through 7
Module Examinations
Performance Profile Sheets
MODULE 27104-06 – READING PLANS AND ELEVATIONS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Set(s) of architect’s or general contractor’s drawings
- Examples of formal and informal construction specifications
- Example specification in the Construction Specification Institute (CSI) format
- Detailed copy of the Construction Specification Institute (CSI) specification format
- Copies of local building codes
- Copies of quantity takeoff forms
- Architect’s and engineer’s rule
- Calculator
- Copies of Worksheets 1 through 4
- Module Examinations
- Performance Profile Sheets

MODULE 27105-06 – FLOOR SYSTEMS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Floor adhesive (optional)
- Beam material
- Grout
- Plywood or OSB butt-joint panels to cover floor area
- Plywood or OSB (tongue-and-groove, 11/4”) to cover floor area
- Shim materials
- Sill sealer
- Steel bridging and instructions
- Termite shield
- 2 3 6s for sills
- 2 3 10s for joists and headers
- 1 3 4s or 2 3 10s for bridging
- 8d box nails for bridging
- 8d box, screw, or ring shank nails for flooring
- 16d box nails for joists and headers
- 8d doublehead box nails
- Pictures, photographs, etc., showing braced, balloon, platform, and post-and-beam framing
Sets of building working drawings and specifications
Examples of several floor plans and specifications
Pictures/photos of building damage that resulted from defective floor and sill framing (optional)
Tool box consisting of standard carpenter’s hand tools
Chalkline
Electric drill and assorted drill and flat bits
Framing square
Level
100’ tape
Power circular saw and extension cord
Reciprocating saw
Tin snips
Copies of Worksheets 1 through 3
Copies of Job Sheets 1 through 5
Module Examinations
Performance Profile Sheets

**MODULE 27106-06 – WALL AND CEILING FRAMING**

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- 8d common nails
- 16d box nails
- Floor plan
- 2 3 4 or 2 3 6 framing lumber for studs and joists
- 2 3 12 header material
- ¾” CD plywood for header spacers
- ½” CD plywood
- Stock for blocking
- Metal brace material
- Sheathing material
- Joist lumber
- Chalkline
- 25’ tape
- Steel tape
- Framing hammer
- Framing square or speed square
- Circular saw
- Extension cord
- 4’ level
- 6’ stepladder
- Copies of Job Sheets 1 through 5
- Module Examinations
- Performance Profile Sheets
MODULE 27107-06 – ROOF FRAMING

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Scientific calculator
- 8d common nails
- 8d box nails
- 16d box nails
- 16d common nails
- Roof framing plan
- 2 3 4 or 2 3 6 framing lumber for rafters and ridgeboards
- Joist and header material for roof opening
- ½” CD plywood or other sheathing material
- Nails for sheathing
- H-clips
- Roof trusses
- 1 3 6 lumber or plywood for catwalk
- 2 3 4 lumber for braces and stakes
- Sample blueprints
- Chalkline
- String line
- Steel tape with markings at 16” OC
- Framing hammer
- Claw hammer
- Spreader for lifting trusses (if applicable)
- Crane for lifting trusses (if applicable)
- Rafter framing square
- Sawhorses
- Speed square and booklet
- Circular saw
- Extension cord
- Handsaw
- 4’ level
- 6’ stepladders
- Plumb bob and line
- Copies of Job Sheets 1 through 6
- Module Examinations
- Performance Profile Sheets
MO DULE 27108-06 – INTRODUCTION TO CONCRETE, REINFORCING MATERIALS, AND FORMS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Hand calculator
Concrete calculator
Copies of a concrete table
Form boards, stakes, braces, ties, and spreaders
16-gauge tying wire
Samples of various aggregates
Samples of concrete mix
Various bar supports and accessories
Various mechanical splices for reinforcement steel
Various sizes, types, and grades of reinforcement materials
Samples of various types and sizes of wire fabric
Exterior plywood or plyform
Steel tape or rule
Basic carpenter’s toolbox
Level
Plumb bob
String line
Duplex nails
Plan for simple form
Circular saw and extension cord
Copies of Worksheet 1
Module Examinations
Performance Profile Sheets
MODULE 27109-06 – WINDOWS AND EXTERIOR DOORS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Manufacturer’s catalogs and brochures on windows
Nails:
  4d finish
  6d finish
  8d finish or casing
  16d casing
Pre-hung window unit
Shims
Flash ing or drip cap
Pre-hung door unit
Wood shingles for blocking shims
Fiberglass insulation or sill sealer
Lockset with manufacturer’s instructions and template (if needed)
Weatherstripping
Screws for attaching weatherstripping
Threshold and manufacturer’s installation instructions
Concrete screw anchors and screws
Miter saw
Hand levels
Hand saw
Claw hammer
Framing square
Combination square
Steel tape
30” level
Nail set
Caulking gun and sealer
Boring jig (if available)
Wood chisels
Tin snips
Utility knife
Screwdriver
Drill
Drill bits
Copies of Job Sheets 1 through 6
Module Examinations
Performance Profile Sheets
MODULE 27110-06 – BASIC STAIR LAYOUT

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
  - Basic carpenter’s toolbox
  - Framing square
  - Level
  - Circular saw and extension cord
  - Hand saw
  - Stair gauges
  - Calculator
    - 2 3 12s for stringers
    - 2 3 12s for treads
    - 1 3 8s for risers
  - Handrail and brackets
  - 8d box nails
  - 16d box nails
  - 16d casing nails
  - Stair plans
  - Copies of Job Sheet 1
  - Module Examinations
  - Performance Profile Sheets
MODULE 27201-07 – COMMERCIAL DRAWINGS

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Set of commercial drawings
- Set of residential drawings
- Quick Quizzes
- Module Examination
- Performance Profile Sheet

MODULE 27202-07 – ROOFING APPLICATIONS

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Composition shingles
- Architectural shingles
- Roll roofing material
- Wood roofing shingles
- Wood roofing shakes
- Wood shingle panels
- Hardboard simulated shingle panels
- Metal simulated shingle panels
- Slate shingles
- Roofing tiles
- Metal roofing
- Synthetic tiles, shakes, and shingles
- Membrane roofing
- Corrugated metal roofing
- Installation literature on standing-seam metal roofing
- Scaffolding tags
- Roofing brackets
- Metal drip edge
- Flashing
- Fiberglass shingles
Torch-down roofing material
Single-ply roofing material
Ice edging
Prepared roof deck for composite shingles with a valley, hip roof intersection, horizontal abutment, and sidewall (all sheathed and with underlay in place)
Prepared roof deck for wood shingles with spaced sheathing and hip roof intersection
Prepared low-pitch (flat roof) roof with sheathing in place
2 x 4s to build saddle
Roofing nails
Plastic cement
Felt underlayment
Weatherproof membrane
Prefabricated soil pipe flashing
Backsaw
Power circular saw
Crowbar
Handsaw
Carpenter’s level
Nail apron
Sliding T-bevel
Keyhole saw
Pop riveter
Chalkline
Power saber saw
Angle square
Power drill
Caulking gun
Tin snips
Pry bar
Utility knife
Scribing compass
Drill bit set (regular and masonry)
Framing square
Claw hammer
Pneumatic nail guns
Shingle hatchet
Straightedge
Composition shingle knife
Roofing hammer
Slater’s tools
Score and snap tile cutter
Hand grinder with diamond wheel
Portable metal brake
Margin trowel
Scaffolding
Materials moving equipment
MODULE 27202-07 – ROOFING APPLICATIONS (continued)

- Ladders and jacks
- Full body harness with lanyard and decelerations device
- Damaged personal fall protection equipment
- Propane torch and tank
- Copies of the Quick Quiz
- Module Examinations
- Performance Profile Sheets

MODULE 27203-07 – THERMAL AND MOISTURE PROTECTION

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Flexible insulation
- Loose-fill insulation
- Rigid or semi-rigid insulation boards
- Reflective insulation
- Staples
- Hand or power stapler
- Calculator
- Samples of various vapor barrier materials
- Samples of various waterproofing materials
- Soffit baffles
- Wire mesh if needed
- Tape measure
- Utility knife or shears
- Pencil
- Prepared wall for insulation, vapor barriers, and building wraps
- Copies of the Quick Quiz
- Module Examinations
- Performance Profile Sheets
MODULE 27204-07 – EXTERIOR FINISHING

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Sample of building wrap
MSDS
Samples of aluminum and vinyl fascia and soffits and installation instructions
2 × 4s with different types of tail rafter cuts
2 × 4s for lookouts
2 × 4s for lookout ledger
2 × 6s for false fascia
1 × 8s for fascia
1 × 2s for frieze
Plywood for soffit
Galvanized 4d box nails for soffit
Galvanized 8d casing nails for fascia
8d box nails for lookout ledger
16d box nails for lookouts
Samples of various types of wood siding
Nails used to secure wood siding
Samples of vinyl or metal siding
Manufacturer’s installation instructions for metal and vinyl siding
Quantity of one style of vinyl or metal siding
Various manufactured vinyl or metal siding trim and starter components
Metal and PVC trim coils
Samples of various stucco, brick, stone, and synthetic stone veneer
Samples of DEFS/EIFS wall cladding
1 × 3s for story poles
6 bevel wood siding and or wood lap siding
Board-and-batten siding
Tongue-and-groove siding
Shiplap siding
Shingles and shakes
Panelized shake or shingle siding
4 × 8 plywood siding
4 × 8 panel and lap-style hardboard/particleboard siding
Lap and panel styles of fiber-cement siding
Manufacturer’s installation instructions for fiber-cement siding
Manufacturer’s installation instructions for plywood siding
Caulk
Inside and outside corner materials
Furring strips for starter course
Spacing gauges (fabricated)
MODULE 27204-07 – EXTERIOR FINISHING (continued)

Siding gauges (fabricated)
Drip caps
Flashing
Building paper
Nails
Radial arm saw
Framing square
Steel measuring tape
Claw hammer
4 level
Handsaw
Chalkline
Combination square
Water level
Circular saw or table saw
Fine-toothed, carbide-tipped, circular saw blade
Dry-diamond circular saw blade
Sawhorses or cutting table
Electric/pneumatic carbide-tipped power hand shears
Score-and-snap knife with tungsten carbide tip
Caulking gun
Pliers
Tin snips
Aviation shears
Steel awl
Putty knife
Utility knife
Snaplock punch
Vinyl siding unlocking tool
Nail hole punch
Flat-blade screwdriver
Portable brake
Copies of the Quick Quiz
Module Examinations

MODULE 27205-07 – COLD-FORMED STEEL FRAMING

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Various hand tools used when framing with steel, including:
- Powder-actuated stud driver
- Hammer-driven stud driver
- Power screwdriver
- Locking pliers (vise grips)
- Circular metal saw
- Hole punches
- Hole saw
- End circuit nippers and metal snips
- Channel stud sheer
- Metal lock fastener (crimper)
- Hand level
- Claw hammer
- Framing square

*Standard for Cold-Formed Steel — General Provisions*

Various fasteners used with steel framing, including:
- Self-tapping screws
- Drywall screws
- ⅜", ½" Type S or S-12 pan head screws
- ½" Masonry nails

Various samples of steel framing and framing materials, including:
- Studs
- Runners/tracks
- Metal furring channel and clips
- Resilient channel
- Cold-rolled channel
- Metal door frames, anchors, and clips
- Metal angles
- Tie wire
- Furring brackets for adjustable walls
- Breakaway clips
- Fine-gauge framing material
- Snap-in and standard runner track
- Stud shoes
- Standard resilient clips
- Resilient starter/finisher clips
- Plain drywall channel
- Metal joists
- Metal trusses
- Marked steel framing members

Non-structural steel framing members and accessories
MODULE 27205-07 – COLD-FORMED STEEL FRAMING (continued)

To the maximum extent possible, prebuilt samples to demonstrate techniques, including:
- Curtain wall framing
- Double top plate
- Held-back partition
- Metal stud secured to a steel beam
- Metal stud attached to a metal channel
- Window frame and header
- Simple 90° radius wall
- Combination wood/metal frame window
- Metal stud wall secured to a concrete wall
- Metal stud frame for glass wall

Chalkline
100' steel tape
Plumb bob
Floor plan
Door frame jack
Two 1 × 25-gauge metal straps
Red or yellow spray paint
Thin boards
Wood wedges and blocks
Copies of the Quick Quiz
Module Examinations

MODULE 27206-07 – DRYWALL INSTALLATION

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Sample of gypsum board
Small samples of common types of gypsum board
Samples of the various edges found on gypsum board
Drywall panels
Metal or vinyl corners
Samples of nails used to secure drywall
Nails
Screws
Samples of sound isolation and firestopping materials
Various types of adhesives
Adhesive
Various tools used for gypsum board application including:
- Steel rule with cutting edge
- 4' T-square
- Hook-bill knife
Utility saw
Power cutout tool
Drywall or keyhole saw
Gypsum board lifter
Circle cutter
Drywall hammer
Nail pouch
Drywall rasp
Screw gun
Drywall lift
T-brace

Several tools used to apply adhesives to gypsum board
Samples of corner beads and casings
Local building codes
Firestopping devices
Samples of different types of firestopping material
Calculators
Copies of the Quick Quiz
Module Examinations
Performance Profile sheets
MODULE 27207-07 – DRYWALL FINISHING

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper

A Recommended Specification for Levels of Gypsum Board Finish

To the maximum extent possible, various samples of properly finished walls as defined in the Trainee Module, including:

- Level 0
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

Various types of joint reinforcing tape, including fiberglass, metal edge, and paper
Various compounds, including powder, premix, and quickset
Water
Mixing container
Mixing tools
Pieces of 2 × 4
Various trims, including corner bead with mesh flanges, L-bead, J-bead, and expansion joints
Various grades of sandpaper
Mesh cloth
Polyethylene sponges
Sanding tools
Various hand and automatic tools used to cut, hang, and finish drywall, including:

- Straight edge or T-square
- Utility knife
- Drywall saw
- Circle cutter
- Drywall hammer
- Caulking gun
- Screwdriver
- Broad knife
- Joint trowel
- Corner tool
- Mud pan or hawk
- Sanding block, pole sander, or electric sander
- Sponge sander
- Tape dispenser
- Banjo
- Putty knife
- Mud mashers
- Mud mixers
- Automatic finishing tools
Vacuum sander
Various tools used for creating texture patterns
Corner roller
Corner plow
Samples of textured finishes
Samples of common finished joint problems
Samples of common compound problems
Copies of the Quick Quiz
Module Examinations
Performance Profile sheets
Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Segments of flush hollow-core, solid-core, and panel doors
Door schedules
Assembled and unassembled metal doorframes with molding and accessories
Manufacturer’s warranty and installation instructions for wood doors
Assortment of doors, including:
   Bifold doors
   Bypass door
   Pocket door
   Wood folding door
   Metal door with door light
   Fire door
Manufactured prehung door units
Interior locksets and manufacturer’s installation instructions
Cylindrical, heavy-duty, and mortise locksets
Multiple lock keying systems
Electrical strikes
Electrical bolt locks
Electrical locksets/latches
Electromagnetic locks
Delayed exit alert locks
External doorstop
Door holder
Door closer
Touch bars
Cross bars
Flush bolts
Dustproof striker
Door coordinator
Smoke gasket
Open back strike
Finish nails
Anchor bolts
6 ¼” drywall screws (including coarse thread)
Closer sleeves
Assortment of anchors, including:
   Wood stud anchor
   Steel stud anchor
   Sill anchors
   Masonry wall anchors
Shims
8d 2¼ casing nails
Wood spreader bar
Expansion shields
Machine bolts
Wire
Pencil
Masking tape
Cardboard shim strips
Paraffin wax
Soft bar soap
Hinges
High-frequency usage hinge
Door jambs
Weatherstripping
Thresholds
6’ level
Magnetic level
Screwdriver set
Drill bit set
Masonry drill bit set
Electric drill
Telescoping braces
Measuring tape/ruler
Finishing sawhorses
Knife
Power saw
Hand saw
Fabricated door jack
Butt gauge
Soft-faced hammer
Wood chisel
Butt marker
Hinge butt template for doors and jambs
Door hanging system
Self-centering screw hole punch
Self-centering bit
Plane
Hole saw
Sledgehammer
Square
Door wedges
Router and operator’s manual
Copies of the Quick Quiz
Module Examinations
Performance Profile Sheet
MODULE 27209-07 – SUSPENDED CEILINGS

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Pictures of various types of suspended ceilings
Decibel meter
Set of blueprints
Scrap pieces of wall angle
Exposed grid ceiling system components
Metal pan ceiling system components
Direct-hung concealed grid ceiling system components
Drywall furring ceiling system components
Graph paper
Examples of different types of ceiling panels and tiles
Basic carpenter’s tool box
Framing square
Level
Driver/drill (electric and/or battery-operated) and assorted drill bits/driver bits
Ladders
Water level, builder’s level, and/or laser with a wall/ceiling mount or tripod
Aviation snips
Clamping pliers or vise grips
Chalkline
50’ or 100’ tape
Keyhole saw
Lath nippers
Magnetic punch
Scribes or compass
Tile knife
Pop-rivet gun
Powder-actuated fastening tool
Scaffold
Whitney punch
Plumb bob
Architect’s scale
Copies of the Quick Quiz
Module Examinations
Performance Profile Sheets
MODULE 27210-07 – WINDOW, DOOR, FLOOR, AND CEILING TRIM

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Assortment of custom and mill trim, including:
  - Prefinished moldings
  - Base, base cap, and base shoe molding
  - Casing and casing stop moldings
  - Crown, bed, and cove moldings
  - Quarter round, corner guard, chair rail, and wainscot cap moldings
- Rabbeted stools
- Pneumatically driven nails
- Assortment of fiberboard polystyrene, and other non-wood moldings
- Basic carpenter’s tool box
- Coping saw
- Backsaw
- Carpenter’s and dovetail trim saw
- Framing square
- Level
- Metal and wooden miter boxes and hacksaw
- Power and compound miter saws
- Pneumatic finish nailer
- Driver/drill (electric and/or battery-operated)
- Copies of the Quick Quiz
- Module Examinations
- Performance Profile Sheets
MODULE 27211-07 – CABINET INSTALLATION

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Literature on various types of kitchen cabinets
Examples of woods, plywood, particleboard, and other materials used in cabinet construction
Examples of cabinet doors and drawers
Examples of metal drawer guides
Examples of cabinet door hinges
Examples of cabinet door catches and knobs
Examples of plastic laminate and solid-surface materials used for countertops
Assortment of fasteners used for cabinet construction and installation
Wall base cabinet units
Shim shingles
2 × 4 scrap material
Countertop base and backsplash
Sheets of plastic laminate
Contact cement
Dowels or similar objects used to prevent unintentional contact between laminate and countertop cemented surfaces
Examples of blueprints, design sketches, and/or shop drawings of cabinet arrangements
Basic carpenter’s toolbox
Framing square
Level
Block plate
Circular saw and extension cord
Power/compound miter saw
Driver/drill (electric and/or battery-operated) and assorted drill bits/driver bits
Assortment of clamps
Sawhorses
J-rollers
Rollers/brushes for applying contact cement
Saber saw and blades
Biscuit jointer
Carpentry Levels 3 & 4 video Package. Video 2: Interior Carpentry: Ceilings/Cabinets (optional)
TV DVD/VCR player
Copies of the Quick Quiz
Module Examinations
Performance Profile Sheets
MODULE 27212-07 – CABINET FABRICATION

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Examples of woods, plywood, particleboard, and other materials used in cabinet construction
Examples of cabinet doors and drawers
Shaper cutting heads
Samples of cuts made with a shaper
Assortment of cabinet door, drawer, and shelf hardware
Examples of joints commonly used by cabinetmakers
Examples of plastic laminate and solid-surface materials used for countertops
Countertop base and backsplash
Contact cement
Dowels or similar objects for use to prevent unintentional contact between laminate and countertop cemented surfaces.
Scrap lumber, including:
   1 × 4
   1 × 6
   2 × 4
Scrap piece of ¼ lauan plywood
Wood glue
Biscuits and dowels
Basic carpenter’s tool box
Framing square
Level
Block plane
Assortment of clamps
Sawhorses
Router/laminate trimmer and assorted bits
Samples of various cuts that can be made with a router
J-rollers
Saber saw and blades
Belt sander and various abrasives
Rollers/brushes for applying contact cement
Biscuit jointer
Brad gun
Table saw
Radial arm saw
Several grades of sand paper
Semi-finished pieces
Compound miter saw
Jointer-planer
Router table
MODULE 27212-07 – CABINET FABRICATION (continued)

- Disc sander
- Thickness planer
- Samples of wood stock before and after using a thickness planer
- Drill press
- Scroll saw or band saw
- Wood sealers
- Wood filler

*Carpentry Levels 3 & 4 Video Package. Video 2: Interior Carpentry: Ceilings/Cabinets* (optional)

- TV/DVD/VCR player
- Copies of the Quick Quiz
- Module Examinations
- Performance Profile Sheets
Level Three

MODULE 27301-07 – RIGGING EQUIPMENT

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Manufacturer’s literature on different rigging hooks
- Various rigging hooks with wear, cracks, and corrosion
- Manufacturer’s literature on shackles
- Various types of shackles
- Various eyebolts
- Various lifting lugs
- Turnbuckles
- Manufacturer’s literature on plate clamps
- Various rigging plates and links
- Various types of slings
- Rigging pocket guide
- 29 CFR Section 1926.251, Rigging Equipment for Material Handling
- Samples of wire rope that have failed inspection
- Rope for tying knots
- Block and tackle lifting system
- Sample loads for lifting
- Spur-gearied chain hoist
- Electric chain hoist
- Ratchet-lever hoist or come-along
- Ratchet jack
- Screw jack
- Hydraulic jack
- Tugger

Quick Quiz*

Module Examinations**

Performance Profile Sheets**
MODULE 27302-07 – RIGGING PRACTICES

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Walkie-talkies
Throat microphone
Hardwired communication system
ASME B30.5 Consensus Standard
29 CFR 1926.550
Completed lift plan
Crane manufacturer’s literature
Typical teeter-totter and weights
Various lifting eyebolts
Rigging hardware
Quick Quiz*
Module Examinations**
Performance Profile Sheets**

MODULE 27303-07 – PROPERTIES OF CONCRETE

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Copies of a concrete table
Concrete calculator
Samples of various aggregates
Concrete admixtures
Portland cement
Water
Containers for mixing concrete
Samples of different types of concrete
ASTM C173
Hoe or other tools to mix concrete
Various containers for collecting concrete samples
Source of freshly mixed concrete
Shovels
Hand scoops
ASTM standardized cone mold and steel tamping rod
MODULE 27303-07 – PROPERTIES OF CONCRETE (continued)

- ASTM standardized cylindrical mold and steel tamping rod
- Steel tape or rules
- Wood for building a curing box
- Basic carpenters tools
- Quick Quiz*
- Module Examinations**
- Performance Profile Sheets**

MODULE 27304-07 – REINFORCING CONCRETE

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Pieces of marked rebar
- Copies of ASTM standards
- Bent bars
- Bar lists
- Hooks and spirals
- Steel wire bar supports
- Precast concrete bar supports
- Plastic bar supports
- Standees
- Welded-wire fabric
- Deformed welded-wire fabric
- ACI standards for concrete coverage
- Bolt cutters
- Electric shears
- Hickey bar and jigs
- Tie wire
- Pliers
- Spliced rebar
- Mechanically spliced rebar
- Copies of Quick Quiz*
- Module Examinations**
- Performance Profile Sheet**
MODULE 27305-07 – HANDLING AND PLACING CONCRETE

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Equipment for moving, placing, and consolidating concrete, including:
Moveable chutes (such as used with mixer trucks)
  Drop chutes
  Elephant trunk
  Wheelbarrow
  Power buggy and/or carts
  Crane and bucket
  Belt conveyor
  Concrete pump
  Pneumatic gun
  Internal vibrator
  Rollerbug tamper

Equipment for screeding, leveling, and finishing concrete, including:
  Manual/power screeds
  Knee boards
  Darby floats/bullfloats
  Pointed trowels
  Edgers
  Jointers (groovers)
  Power saws
  Hand floats
  Hand trowels
  Finishing machines
  Brooms
  Assortment of combination tools
  Pointing and margin trowels
  Cement hammers
  Carborundum rubbing stones
  Sprayers
  Power grinders
  Properly-constructed concrete formworks

Sand
Boxes to contain wet sand
Copies of Quick Quiz*
Module Examinations**
Performance Profile Sheet**
MODULE 27306-07 – TRENCHING AND EXCAVATING

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Samples of different types of soils
Access to a trench for inspection
Soil density testing equipment
Sample stormwater permit and pollution prevention plan
Several types of pumps
Safety video or DVD (optional)
TV with VCR or DVD player (optional)
Plastic boxes
Sand
Tools for digging
Water
Boxes of sand or dirt
Module Examinations*
Performance Profile Sheet*

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

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Plumb bob and line
Leveling rods and accessories
Direct elevation rod
Project plans
Automatic leveling instruments
Builder’s level
Tripod
Laser level
Batter boards
Hub stakes
Marker stakes
Color-coded stakes or markers
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
MODULE 27307-07 – FOUNDATIONS AND SLAB-ON-GRADE (continued)

Steel tape (100’)
Gammon reel
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Steel tape (100’)
Gammon reel
Field notebook
Transit level
2’ or 4’ level
String line
Samples of rebar and WWR
Pier foundation forms
Manufacturer’s literature on wall forms
Manufacturer’s literature on leave-in-place forms
Edge forms
Copies of Quick Quiz*
Module Examinations**
Performance Profile Sheet**

MODULE 27308-07 – VERTICAL FORMWORK

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Sheets of plywood
Components used to construct wall forms, including assembly hardware, walers, strongbacks, braces, and stakes
Manufacturers’ literature on different types of gang forms
Manufacturers’ literature on different types of flexible wall forms
Tools and materials to construct a wall form
Materials to construct blockouts and embedments
Materials inventory
Tools and materials to construct column forms
Circular saw
Form assembly hardware
OSHA Standard 1926:700-701
Walers
Strongbacks
Manufacturers’ literature on different types of wall-forming systems
Manufacturers’ literature on different types of column forms
Drawings with design details
Manufacturers’ literature on stay-in-place polystyrene forms
Basic stair form
MODULE 27308-07 – VERTICAL FORMWORK (continued)

Tools and materials to construct a stair form
Copies of Quick Quiz*
Module Examinations**
Performance Profile Sheet**

MODULE 27309-07 – HORIZONTAL FORMWORK

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Walers
Strongbacks
Manufacturers’ literature on deck framing systems
Manufacturers’ literature on flying decks
Manufacturers’ literature on column-mounted tables
Hand tools
Levels
Bracing materials
Shoring deck systems
Edge forms
Manufacturers’ literature on different types of pan forms
Manufacturers’ literature on shoring
Wood shore
Metal post shores
Manufacturers’ literature on aluminum shoring
Samples of exterior grade plywood
Plyform®
Stringers
Joists
Blockouts
Embedded items
Materials for construction joints
Manufacturers’ literature on bridge deck forms
Manufacturers’ literature on culvert forms
OSHA 1926.703
Copies of Quick Quiz*
Module Examinations**
Performance Profile Sheet**
MODULE 27310-07 – TILT-UP WALL PANEL

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Variety of inserts and embedments
Reinforcing bar
Wood or other materials to form reveals.
Wood for building panel forms
Hand tools
Fasteners
Concrete mix
Water
Wheelbarrow or concrete mixer
Tools to mix and spread concrete
Drawing of panel forms
Copies of Quick Quiz
Module Examinations
Performance Profile Sheet
Level Four
MODULE 27401-08 – SITE LAYOUT I: DISTANCE MEASUREMENT AND LEVELING

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Site plot plans for selected construction sites
Assortment of hubs, stakes, and laths
Assortment of different colored flagging tape
Permanent markers for marking stakes
Field notebooks for recording data
2” × 4” or 2” × 6” ledger boards
2” × 4” batter boards
Nylon string
Calculator
100 foot steel tape
Range poles
Plumb bobs/gammon reels
Hand sight levels
Tension spring
Chaining pins
Builder’s level
Transit level
Tripods
Laser level
Assortment of leveling rods and accessories
Quick Quizzes
Module Examinations
Performance Profile Sheets

MODULE 27402-08 – SITE LAYOUT II: ANGULAR MEASUREMENT

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Site plot plans
Rotating beam laser instrument
Electronic laser beam detector
Transits
Optical theodolite
Electronic transit and theodolite
Electronic distance measurement instruments (EDMIs)
Prisms
Total station
Electronic filed books
Direct elevation (Lenker) rod
Tripods
Building stakes
Scientific calculator
100-foot steel tape
Plumb bobs
Quick Quizzes
Module Examinations
Performance Profile Sheets

MODULE 27403-08 – ADVANCED ROOF SYSTEMS

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Metal bars
Angle iron samples
Metal channel samples
Metal beam samples
Glulam samples
LVL samples
Open-web steel joists
Angle iron bridging
Smooth rod bridging
Galvanized steel roof panels
Aluminized steel roof panels
Corrugated lap seam roof metal panel
Fasteners for a lap seam metal roof
Tape sealant
Standing-seam metal roof panel
Standing-seam metal roof clips and fasteners
Reinforcing plates
Cinch straps
Batten strips
Ridge covers
Insulation boards
Rolled roofing felt
Stone aggregate
Bitumen
Seaming tools
Quick Quiz
Module Examinations
Performance Profile Sheets

**MODULE 27404-08 – ADVANCED WALL SYSTEMS**

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Various types of board and sheet paneling
Wainscoting
Drywall backer board
Partial wall for example installation
Outlet box
Chalk
Various firestopping materials
Furring strips
Drywall compound
8d nails
Paneling nails
Flat black paint
General-purpose adhesive
Vapor barrier materials
Tape measure
Knife
Straightedge
Power saw
Hollow-ground blade
Cordless drill
Chalkline
Steel square
Power sander
Hammer
Plane
Level
Combination square
Miter box or miter saw
Nailset
Caulking gun
Vertical saw
Keyhole saw
Scribe
Wire brush
Sander
Fine tooth panel saw
Adjustable wrench
Screwdriver
Quick Quiz
Module Examinations
Performance Profile Sheets

**MODULE 27405-08 – ADVANCED STAIR SYSTEMS**

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Samples of various styles of stair finish and balustrade components
Typical stair and balustrade component installation kits
Photographs or drawings from architectural firms or building materials manufacturers that show specific types of stairways (both finished and under construction)
Manufacturers’ literature for various styles of rails, newel posts, landing newels, fittings, and blusters
Stair installation kits, hardware, and tools commonly used for stair component installation
Materials used to construct service stairs
Manufactured riser and tread templates
Pre-drilled balustrade components
Finish nails

38
Handrail stock
Wood screws
Handrail posts
Tread and riser stock
Handrail brackets
Cove molding
Glue or construction adhesive
Paraffin wax
Starting step
Starting newel posts and mounting systems
Tread nosing
Lag bolts
Rail bolts
Volute
Landing (balcony) newel
Gooseneck fitting
Balusters
Baluster mounting screws or pins
Quarterturn
Wood plugs
Opening cap
Rosette or half-newel
Preassembled stair rail system
False tread kit
Hammer
Power compound miter saw
Nail set
Knife
Framing square
Power drill with bits
Screwdriver set
Tape measure
Fabricated tread and rise templates
Wrench set
Wood file
Combination square
Torpedo level
4” level
Wood chisel
Reciprocating saw
Vise grip pliers
Bar clamps
Plumb bob
Baluster spacing sphere
Baluster drilling guides
Tramme d bar and points
Straightedge
Tempered hardboard or plywood
Quick Quizzes
Module Examinations
Performance Profile Sheets

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

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Aerial lift and operator’s manual
Skid steer loader and operator’s manual
Trencher and operator’s manual
Portable generators and accessories
Portable generator operator’s manual
Portable air compressor and accessories
Portable air compressor operator’s manual
29 CFR 1926.453
Compaction equipment
Compactor operator’s manual
Forklift and operator’s manual
Backhoe and operator’s manual
Quick Quiz
Module Examinations
Performance Profile Sheets

**MODULE 27407-08 – WELDING**

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Tape measure
Soapstone
Penknife
Chipping hammer
Friction lighter
Tip manuals and tip manufacturer’s charts
Vendor cutting tip chart
Appropriate personal protective equipment, to include:
  Safety goggles
  Face shields
  Welding helmets or shields
  Ear protection
  Welding cap
  Leather jacket
  Leather pants or chaps
  Gauntlet-type welding gloves
  Respirators
Brass valves
MSDS for cutting products
Oxygen cylinder with cap
Fuel gas cylinder with cap
Regulators (oxygen and fuel gas)
Hose set
SMAW setup
Workpiece clamps
Wire brush
Pliers
Pneumatic slag chipper
Scaler
Flash arrestor
Reverse flow check valve
Grinding equipment
One-piece cutting torch
Combination cutting torch and torch tips
Assorted acetylene, liquefied fuel gas, and special-purpose cutting torch tips
Welding electrodes
MSDS for electrodes
Welding coupons
Samples of welded metal
Cutting tips
Tip cleaners
Tip drills
Mechanical guide
Cylinder cart
Motorized oxyfuel track cutter
Framing squares
Combination squares with protractor head
Wrenches (torch, hose, and regulator)
Examples of good and bad cuts
Steel plate
   Thin (16 to 10 gauge)
   Thick (¼ inch to 1 inch)
Steel pipe
Vises and pipe jacks to hold steel for cutting
Safety video/DVD (optional)
TV/VCR/DVD player (optional)
Quick Quiz
Module Examinations
Performance Profile Sheets

**MODULE 27408-08 – COMMERCIAL FINISH WORK**

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Project drawings which include a finish schedule
Manufacturers’ literature on epoxy paints, fiberglass reinforced panels, and stone veneers
Manufacturers’ literature on paint additives
Manufacturer’s literature on Compasso™ trim
Manufacturer’s literature on drywall grid system ceilings
MSDSs for wood, cork, and bamboo flooring
Manufacturer’s literature on wood, cork, and bamboo flooring
Manufacturer’s literature on exterior insulation and finish systems and direct-applied exterior finish systems
Manufacturer’s literature on concrete masonry units
Manufacturer’s literature on stucco
Quick Quiz
Module Examinations
Performance Profile Sheets

**MODULE 27409-08 – SITE PREPARATION**

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Sample site/plot drawings
*EPA Guide to Developing a Stormwater Pollution Prevention Plan*
Army Corps of Engineers literature on disposal of demolition debris
Sample Stormwater Pollution Prevention Plan
Concrete calculator
One-Call cards
Soil samples
Typical construction site signs
Quick Quiz
Module Examinations
Performance Profile Sheets
Level Five

MODULE 27501-03 – CABINETMAKING

Overhead projector and screen
Whiteboard/chalkboard
Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Examples of woods, plywood, particleboard, and other materials used in cabinet construction
Examples of cabinet doors and drawers
Assortment of cabinet door, drawer, and shelf hardware
Examples of plastic laminate and solid-surface materials used for countertops
Assortment of fasteners used for cabinet construction and installation
Countertop base and backsplash
Sheets of plastic laminate
Contact cement
Dowels or similar objects for use to prevent unintentional contact between laminate and countertop cemented surfaces
Scrap lumber, including:
  1 × 4
  1 × 6
  2 × 4
Scrap piece of ¼" lauan plywood
Wood glue
Biscuits
Basic carpenter’s tool box
Framing square
Level
Block plane
Assortment of clamps
Sawhorses
Router/laminate trimmer and assorted bits
J-rollers
Belt sander
Rollers/brushes for applying contact cement
Biscuit jointer
Brad gun
Table saw
Radial arm saw
Compound miter saw
Jointer-planer
Shaper
Router table
MODULE 27501-03 – CABINETMAKING (Continued)

- Disc sander
- Belt sander
- Spindle sander
- Thickness planer
- Drill press
- Scroll saw or band saw
- Module Examinations*
- Performance Profile Sheets*