

CONSTRUCTION TECHNOLOGY PROGRAM

CURRICULUM

Unit A - Industry Orientation

1. List levels of training for carpentry-related jobs
2. List job opportunities open to skilled carpenters
3. Select from a list the personal attributes or attitudes that an employer looks for in an employee
4. Select from a list the procedures for applying for a carpentry job
5. List documents that an applicant may need when applying for a job
6. Complete a personal information sheet
7. Write a resume

Unit B - Safety

1. Match terms associated with safety to their correct definitions
2. State reasons for safety consciousness on the job
3. State consequences of a worker using alcohol or drugs on the job
4. State job safety rules
5. List safety precautions pertaining to scaffolds
6. List safety precautions pertaining to ladders
7. List safety precautions pertaining to excavations
8. Match colors of the safety color code to their correct applications
9. Match terms associated with toxic substances to their correct definitions
10. State reasons for Material Safety Data Sheets (MSDS)
11. State ways toxic substances can enter the body
12. Define ways toxic substances affect the body
13. Identify personal safety equipment
14. Identify job-site and shop safety violations
15. State reasons why knowledge of first aid is important
16. Demonstrate the ability to properly lift a heavy object

Unit C - Hand Tools

1. Match terms associated with hand tools to their correct definitions
2. State guidelines for care and safe use of hand tools
3. Select from a list the hand tools a beginning carpenter needs
4. Match types of hammers to their correct uses
5. Match types of handsaws to their correct uses
6. Match types of squares to their correct uses
7. Match types of measuring instruments to their correct uses
8. Identify types of layout instruments
9. Identify types of boring and drilling hand tools
10. Identify types of screwdrivers
11. Match types of pliers to their correct uses
12. Identify types of wrenches
13. Identify types of files
14. Identify types of chisels
15. Identify types of clamps
16. Identify hand tools used to install drywall
17. Hone a wood chisel
18. Use a framing square and rule to lay out a corner
19. Use a level

Unit D - Power Tools

1. Match terms associated with power tools to their correct definitions. State general safety rules pertaining to power tools
2. Select from a list the general guidelines for proper care of power tools
3. List the uses of a table saw
4. State rules for the use of a table saw
5. List the uses of a jointer
6. State the rules for the use of a jointer
7. List the uses of a drill press
8. State rules for the safe use of a drill press
9. List the uses of combination belt-and-disc sanders
10. List the uses of a power miter saw
11. State rules for the safe use of a power miter saw
12. List the uses of a portable power saw
13. State rules for the safe use of a portable power saw
14. Distinguish uses between a router and a trimmer
15. State rules for the safe use of routers and trimmers
16. Distinguish among uses for a portable drill, screw gun, and hammer drill
17. State rules for the safe use of portable drills, screw guns, and hammer drills
18. List the uses of a portable power plane
19. State rules for the safe use of portable power planes
20. List the uses of metal shears
21. State rules for the safe use of metal shears
22. List the uses of pneumatic fasteners
23. State the rules for the safe use of pneumatic fasteners
24. Complete a safety test for all power tools being used
25. Perform straight and angle cut-off operations
26. Perform ripping operations
27. Make miter and compound miter cuts
28. Operate a power sander
29. Drill and bore holes
30. Perform jointing operations
31. Perform face-planing operations
32. Perform edge-shaping operations
33. Operate a pneumatic fastener

Unit E - Basic Math

1. Match terms associated with basic math to their correct definitions
2. Match symbols used in math problems to their correct names
3. Label the place values of a whole number
4. Add whole numbers
5. Subtract whole numbers
6. Multiply whole numbers
7. Divide whole numbers
8. Distinguish amount types of fractions
9. Reduce fractions to lowest terms
10. Convert mixed numbers to improper fractions
11. Convert improper fractions to mixed numbers
12. Add fractions
13. Subtract fractions
14. Multiply fractions
15. Label the place value of a decimal number
16. Add decimal numbers
17. Subtract decimal numbers
18. Multiply decimal numbers
19. Divide decimal numbers
20. Convert decimal fractions to common fractions

21. Convert common fractions to decimal numbers and percentages
22. Identify decimal fraction equivalents
23. Convert percentages to fractions and decimal numbers
24. Solve percentage problems
25. Match terms used in geometry to their correct definitions
26. Match types of geometric figures to their correct descriptions
27. Match units of measure to their correct equivalents
28. Calculate the area of geometric figures
29. Calculate volume of solid figures
30. Estimate cubic yards
31. Solve basic ratio and proportion problems

Unit F - Measuring

1. Match to their correct definitions the terms associated with measuring
2. Identify basic measuring tools used by carpenters
3. List common errors that contribute to incorrect measurements
4. Identify graduations on a carpenter's rule
5. Read a carpenter's rule to the nearest fraction of an inch
6. Convert fractional inches to hundredths of a foot
7. Identify graduations on an engineer's rule
8. Read an engineer's rule to the nearest hundredth of a foot
9. Identify graduations on a tape measure
10. Read a tape measure to the nearest fraction of an inch
11. Describe measuring methods used to square lines
12. Read measurements on carpenter's and engineer's rule
13. Measure dimensions of objects
14. Convert fractional inches to hundredths of a foot
15. Read measurements on a tape measure
16. Demonstrate the ability to use basic measuring tools and the 3-4-5 method to lay out the perimeter of a building on a concrete slab

Unit G - Plan Reading

1. Match terms associated with plan reading to their correct definitions
2. Match types of drawings usually included in a set of plans to their correct descriptions
3. List information found on types of drawings in a set of plans
4. Match lines in the alphabet of lines to their correct uses
5. Identify lines in the alphabet of lines
6. Identify selected architectural symbols commonly used to represent materials on plans
7. Identify selected electrical symbols commonly used on plans
8. Identify selected mechanical symbols commonly used on plans
9. Identify selected abbreviations commonly used on plans
10. Match architect's conventions to their correct representations
11. State the purpose of written specifications
12. Select from a list the basic information included in a set of written specifications
13. State the purpose of an engineer's scale
14. Use an engineer's scale
15. Use an architect's scale
16. Read plans
17. Interpret a finish schedule
18. Read written specifications

Unit H - Levels and Transits

1. Match terms associated with leveling instruments to their correct definitions
2. List uses of a level
3. Identify types of levels
4. Identify parts of a level

5. List uses of a transit
6. Identify types of transits
7. Label the major components of a transit
8. Identify parts of a transit
9. Identify different types of verniers
10. Interpret readings on different styles of verniers
11. List typical mistakes made in reading verniers
12. Label vertical and horizontal cross hairs and line of sight on a leveling instrument
13. State the rules of proper care of leveling instruments
14. Identify parts of a leveling rod
15. Match parts of a leveling rod to their correct uses
16. Describe commonly used direct-reading rods
17. Read direct-reading rods
18. Identify hand signals used by the instrument person to guide the rod person

Unit I – Roof Framing

1. Match terms associated with roof framing to their correct definitions
2. List types of roof supports
3. Identify roof-framing members
4. Label roof-framing units
5. Discuss slope and pitch ratios
6. Identify parts of a rafter
7. List methods of determining rafter length
8. Use a framing square to compute the length of a common rafter
9. Use a framing square to compute the length of a hip rafter
10. Use a framing square to compute the length of jack rafters
11. List types of vents used in roof construction
12. Estimate material needed to frame a roof
13. Demonstrate the ability to lay out rafter locations on top plate and ridge board on 2-foot centers
14. Demonstrate the ability to lay out, cut and erect rafters for gable roofs
15. Demonstrate the ability to frame a gable end with a vent opening
16. Demonstrate the ability to frame an opening in a roof
17. Demonstrate the ability to erect trusses for a gable roof
18. Demonstrate the ability to lay out, cut, and erect rafters for an intersecting hip roof with valley
19. Demonstrate the ability to lay out, cut, and erect rafters for hip roofs
20. Demonstrate the ability to apply roof sheathing

Unit J - Roofs

1. Match terms associated with roofing to their correct definitions
2. State safety rules pertaining to roofing
3. Identify the parts of a roof
4. Identify traditional residential roof designs
5. Name classes of roofing
6. Match minimum slope requirements to their specific roofing applications
7. List types of roofing materials
8. Identify basic types of asphalt shingles
9. List guidelines for applying underlayment
10. Describe general requirements for applying flashing
11. Select from a list the areas where flashing should be used
12. Select from a list the types of materials used for flashing
13. Match roofing equipment and tools to their correct uses
14. Select from a list the procedures for applying a double starter course of asphalt shingles
15. State procedures for applying shingles with cutouts that break the joint in half
16. Arrange in order the steps for installing flashing at open-valley locations
17. Estimate roofing materials needed for a three-tab asphalt shingled roof
18. Demonstrate the ability to apply asphalt shingles with 5-inch exposure

Unit K – Concrete Foundations

1. Match terms associated with concrete foundations to their correct definitions
2. State principal properties of good concrete
3. State factors that affect properties of concrete mixture
4. Match types of admixtures used in concrete to their concrete functions
5. State benefits of admixtures in concrete
6. State advantages of using vibrators in concrete
7. List methods used to estimate concrete volume
8. Estimate concrete using methods listed in objective eight
9. Name types of reinforcing used in concrete
10. Match common rebar numbers to their correct diameter sizes
11. Select from a list the common sizes of welded wire fabric
12. Label parts of a concrete foundation
13. Identify types of concrete footings and foundations
14. Discuss the design of footings and foundations
15. Arrange in order the steps involved when constructing concrete foundations
16. Estimate amount of concrete for a footing
17. Estimate amount of materials needed to pour a foundation

Unit L – Floors and Sills

1. Match the terms associated with frame floors and sills to their correct definitions
2. Identify floor and sill framing and support members
3. Name methods used to fasten sills to the foundation
4. Select from a list types of beams/girders
5. List types of floor joints
6. Label types of bridging
7. List types of flooring materials
8. Discuss functional designs used to lay sub-flooring
9. List purposes of sub-flooring and underlayment
10. Match fasteners used in floor framing to their correct uses
11. Estimate the amount of material needed to frame a floor assembly
12. Demonstrate the ability to lay out and construct a floor assembly
13. Demonstrate the ability to install bridging
14. Demonstrate the ability to install joists for a cantilever floor
15. Demonstrate the ability to install sub-floor materials
16. Demonstrate the ability to install a single floor system using tongue and groove materials

Unit M – Walls and Ceilings

1. Match terms associated with framing walls and ceilings to their correct definitions
2. Identify framing members used in wall and partition framing
3. Complete drawings of common methods used to construct outside corners of wall frames
4. Complete drawings of common methods used to construct partition T's
5. Label types of headers
6. Calculate the length of a regular stud
7. Compute rough opening (R.O.) dimensions for doors
8. Calculate the length of trimmers for window and door openings
9. Calculate the length of headers for rough openings
10. Select from a list construction details that should be added during wall framing
11. List methods used to brace walls
12. Select from a list pennyweights of nails most often used in framing
13. Select from a list the considerations to be made before selecting joist size and spacing
14. List methods used to support ceiling joists
15. List methods used to anchor joists to partition walls
16. Estimate materials for ceiling joists
17. Describe methods used to prevent joists from twisting or bowing

18. Calculate amount of materials for wall and partition framing
19. Demonstrate the ability to lay out wall and partition locations on floor
20. Demonstrate the ability to cut studs, trimmers, cripples, and headers to length
21. Demonstrate the ability to assemble corners, T's, and headers
22. Demonstrate the ability to construct wall sections for a single-story structure
23. Demonstrate the ability to lay out and install ceiling joists

Unit N – Exterior Walls and Trim

1. Match terms associated with exterior walls and trim to their correct definitions
2. Name types of wall sheathing
3. Identify styles of siding
4. Identify joint details for plywood siding
5. Identify types of exterior moldings and trims
6. List recommendations for waterproofing exterior walls
7. Estimate amounts of siding for given jobs
8. Estimate siding for a house with a gable roof
9. Estimate sheathing and siding for a house with a hip roof
10. Demonstrate the ability to install sheathing
11. Demonstrate the ability to install bevel siding
12. Demonstrate the ability to install sheathing and plywood siding

Unit O – Windows

1. Match windows and accessories to their correct descriptions
2. Name types of sliding windows
3. Name types of swinging windows
4. Name types of fixed windows
5. Select from a list types of materials used to construct windows
6. Identify parts of a window installation
7. Select from a list types of materials used for windowpanes
8. State information a carpenter should know when installing windows
9. State recommendations for a good window installation
10. Demonstrate the ability to install a double-hung wood window unit

Unit P – Exterior Doors

1. Match items associated with exterior doors to their correct descriptions
2. State basic classifications of exterior door installation
3. Identify types of entry doors
4. Identify parts of an exterior door installation
5. List materials used in door construction
6. Name materials used for exterior doorsills
7. Select from a list the standard sizes of exterior doors
8. Explain the numbering system for doors
9. Complete statements about recommended finish clearances and dimensions for hanging doors
10. Identify door swing (hand)
11. Identify hardware used with exterior doors
12. List types of thresholds used with entrance doors
13. Demonstrate the ability to install a metal threshold on a concrete floor
14. Demonstrate the ability to install an exterior pre-hung door unit
15. Demonstrate the ability to install an entry doorframe, casing, door, and lock
16. Demonstrate the ability to install a doorframe and inside jams for an overhead garage door

Unit Q – Insulation

1. Match items associated with insulation to their correct descriptions
2. Explain the functions of the two basic kinds of insulation
3. Select from a list the benefits of using insulation in a structure

4. List types of insulation commonly used in residential construction
5. Name general classifications of insulation materials
6. List areas where insulation should be used in residential construction
7. List factors that determine the amount of insulation needed for walls, ceilings, and floors
8. Name types of materials used for vapor barriers
9. Select from a list methods used to apply insulation and vapor barriers
10. Estimate the packages of insulation needed to insulate a structure
11. Demonstrate the ability to install a vapor barrier and insulation for a concrete slab on grade
12. Demonstrate the ability to install blanket insulation in walls

Unit R - Drywall

1. Match items associated with drywall to their correct descriptions
2. Name types of drywall
3. Select from a list standard sizes of drywall
4. Identify standard edge shapes of drywall
5. State benefits of using drywall
6. Describe types of base or construction where drywall is used
7. Identify hardware and fasteners used with drywall
8. Select from a list the types of finishes that may be applied to drywall
9. Estimate materials needed to drywall a structure
10. Demonstrate the ability to install drywall
11. Demonstrate the ability to finish drywall joints and depressions

Unit S – Interior Doors and Trim

1. Match items associated with interior doors and trim to their correct descriptions
2. State the general types of interior door construction
3. State the basic classifications of interior doors
4. Identify types of interior doors
5. Identify parts of an interior door unit
6. Select from a list the standard sizes of interior doors and jambs
7. Identify hand of a door
8. Select from a list recommended finish clearances and dimensions for hanging doors
9. Compute rough opening size for interior doors
10. Identify hardware used with interior doors
11. Identify types of interior trim
12. Estimate material needed to trim a room
13. Demonstrate the ability to install interior doorframe, hang door, lock, and trim
14. Demonstrate the ability to install a split-jamb pre-hung door unit
15. Demonstrate the ability to install a solid-jamb pre-hung door unit
16. Demonstrate the ability to install a bi-fold door unit
17. Demonstrate the ability to install a pocket door unit
18. Demonstrate the ability to install window trim

Unit T – Cabinet and Special Built-Ins

1. Match items associated with cabinet installation and special built-ins to their correct descriptions
2. Name types of cabinets
3. Identify parts of a cabinet
4. Name the standard sizes of base and top cabinets
5. Label types of cabinet door installations
6. Label types of joints used in cabinet construction
7. Identify hardware used on cabinets
8. List types of material used on counter tops
9. List types of special built-ins
10. Demonstrate the ability to install a factory-built cabinet
11. Demonstrate the ability to install shelves in a closet

