

Construction Technology II

Essential Curriculum

Goal 1

Introduction to Hand Tools-27202-01 (Level II)

Objectives:

1. Interpret a site plan, plot plan, and foundation plan and layout and construct a corresponding footing and foundation wall using a leveling transit.
2. Describe the major responsibilities of the carpenter relative to site layout.
3. Convert measurements stated in feet and inches to equivalent measurements stated in decimal feet,
4. Use taping and/or chaining equipment and procedures to make distance measurements.
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 or transit and differential leveling procedures to determine elevations.
8. Record site layout data and information in field notes using accepted practices.
9. Check and/or establish 90° angles using the 3/4/5 rule.

Goal 2

Building Materials, Fasteners, and Adhesives-27102-06 (Level I)

Objectives:

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

Goal 3:
Reading Plans and Elevations-27104-06 (Level I)

Objectives:

1. Identify and interpret various terms, components, symbols and classifications associated with construction drawings.
2. Describe the types of drawings usually included in a set of plans and list the information found.
3. Identify the different types of lines used on construction drawings.
4. Identify selected architectural symbols commonly used to represent materials on plans.
5. Identify selected electrical, mechanical, and plumbing symbols commonly used on plans.
6. Identify selected abbreviations commonly used on plans.
7. Read and interpret plans, elevations, schedules, sections, and details contained in basic drawings.

Goal 4:
Floor Systems-27105-06 (Level I)

Objectives:

1. Demonstrate the ability to identify and construct various types of concrete forms in a safe manner.
2. Identify the different types of framing systems.
3. Read and interpret drawings and specifications to determine floor system requirements.
4. Identify floor and sill framing and support members.
5. Name the methods used to fasten sills to the foundation.
6. Given specific floor load and span data, select the proper girder/beam size from a list of girders.
7. List and recognize different types of floor joists.
8. Given specific floor load and span data, select the proper joist size from a list of available joists.
9. List and recognize different types of bridging.
10. List and recognize different types of flooring materials.
11. Explain the purposes of sub flooring and underlayment.
12. Match selected fasteners used in floor framing to their correct uses.
13. Estimate the amount of material needed to frame a floor assembly.
14. Demonstrate the ability to layout and construct a floor with all components.

Goal 5:
Wall and Ceiling Framing-27106-06 (Level I)

Objectives:

1. Calculate girder load and layout and construct a floor through interpretation of a working drawing.
2. Identify the components of a wall and ceiling layout.
3. Describe the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and fire stops.
4. Describe the correct procedure for assembling and erecting an exterior wall.
5. Identify the common materials and methods used for installing sheathing on walls.
6. Lay out, assemble, erect, and brace exterior walls for a frame building.
7. Describe wall framing techniques used in masonry construction.
8. Explain the use of metal studs in wall framing.
9. Describe the correct procedure for laying out ceiling joists.
10. Cut and install ceiling joists on a wood frame building.
11. Estimate the materials required to frame walls and ceilings.

Goal 6:
Basic Stair Layout-27110-06 (Level I)

Objectives:

1. Interpret window and door schedules and install window and door units.
2. Identify the various types of stairs.
3. Identify the various parts of stairs.
4. Identify the materials used in the construction of stairs.
5. Interpret construction drawings of stairs.
6. Calculate the total rise, number and size of risers, and number and size of treads required.
7. Lay out and cut stringers, risers, and treads.
8. Build a small stair unit with a temporary handrail.

Goal 7:
Roof Framing-27107-06 (Level I)

Objectives:

1. Interpret working drawings and construct walls and partitions with rough openings and special framing components.
2. Understand the terms associated with roof framing.
3. Identify the roof framing members used in gable and hip roofs.
4. Identify the methods used to calculate the length of a rafter.
5. Identify the various types of trusses used in roof framing.
6. Use a rafter framing square, speed square, and calculator in laying out a roof.

7. Identify various types of sheathing used in roof construction.
8. Frame a gable roof with vent openings.
9. Frame a roof opening.
10. Erect a gable roof using trusses.
11. Estimate the materials used in framing and sheathing a roof.

Goal 8:

Basic Stair Layout-27110-06 (Level I)

Objectives:

1. Interpret window and door schedules and install window and door units.
2. Identify the various types of stairs.
3. Identify the various parts of stairs.
4. Identify the materials used in the construction of stairs.
5. Interpret construction drawings of stairs.
6. Calculate the total rise, number and size of risers, and number and size of treads required.
7. Lay out and cut stringers, risers, and treads.
8. Build a small stair unit with a temporary handrail.