

# Strands & Standards

## CONSTRUCTION TRADES FOUNDATION



### COURSE DESCRIPTION

A course that generally prepares individuals in the following areas: basic safety, introduction to blueprint reading, introduction to power tools, introduction to hand tools, and introduction to construction math. It also includes an industry overview, what to expect on the job and specific career opportunities. It is designed to allow for replica house building on a 1/4"=1'-0" scale. This course is based on the current National Center for Construction Education and Research (NCCER) task list.

#### License Type

CTE and/or  
Secondary

#### Required Endorsement

Carpentry, Plumbing, Electrician

Intended Grade Level: 10-12

Units of Credit: Minimum 0.5

Core Code: 40.08.00.00.035

CE Core Code: 40.08.00.13.035

Prerequisite: None

Skill Certification: 510

Test Weight: 0.5

# Strands & Standards

## **STRAND 1** Students will learn and practice basic safety skills.

- Standard 1** Describe how to avoid job-site accidents.
- Standard 2** Explain the relationship between housekeeping and safety.
- Standard 3** Appreciate the importance of following all safety rules and company safety policies.
- Standard 4** Explain the importance of reporting all on-the-job injuries, accidents, and near misses.
- Standard 5** Explain the need for evacuation procedures and the importance of following them.
- Standard 6** Explain their employer's substance abuse policy and how it relates to their safety.
- Standard 7** Explain the term Proximity Work.
- Standard 8** Recognize and explain personal protective equipment uses.
- Standard 9** Inspect and care for various types of personal protective equipment.
- Standard 10** Follow safe procedures for lifting heavy objects.
- Standard 11** Inspect and safely work with various types of ladders and scaffolds.
- Standard 12** Demonstrate an understanding of the OSHA Hazard Communication Standard.
- Standard 13** Explain the function of Material Safety Data Sheets.
- Standard 14** Practice fire prevention in dealing with various flammable materials.
- Standard 15** Practice safe work procedures around electrical hazards.

## **STRAND 2** Students will understand and demonstrate basic math skills.

- Standard 1** Add, subtract, multiply, and divide whole numbers, with and without a calculator.
- Standard 2** Use a standard ruler to measure.
- Standard 3** Add, subtract, multiply, and divide fractions.
- Standard 4** Add, subtract, multiply, and divide decimals, with and without a calculator.
- Standard 5** Convert decimals to percents and percents to decimals.
- Standard 6** Convert fractions to decimals and decimals to fractions.

## **STRAND 3** Students will recognize and demonstrate the hand tools.

- Standard 1** Recognize basic hand tools used in the construction trade.
  - Framing hammer
  - Key hole saw
  - Sledge hammer
  - Framing square
  - Speed square
  - Nail puller/cat's paw
  - Tape measure
  - Chalk box
  - Level
  - Utility knife
  - Coping saw
  - Wood chisel
  - Nail set
  - Screwdriver set – slotted, Phillips, Allen, Torx
  - Channel lock pliers
  - Needle nose pliers
  - Linemen pliers

- Vise grip pliers
- T-bevel square
- Adjustable wrench
- Socket sets
- Tin snips
- Hack saw
- Crow bar
- Combination file
- Tool belt
- C-clamp
- Shovel
- Pick
- Finish hammer

**Standard 2** Safely use these basic hand tools.

**Standard 3** Have an awareness of basic maintenance procedures on these hand tools.

## **STRAND 4** Students will recognize and demonstrate power tools.

**Standard 1** Identify commonly used power tools of the construction trade.

- Circular saw
- Reciprocating saw
- Jig saw
- Hammer drill
- Portable power planer
- Router
- Pneumatic and power fastening tools – framing nailer, finishing nailer, teco nailer, plastic top nailer, brad nailer, stapler
- Miter box saw
- Cordless drill
- Cordless reciprocating
- ½" drill
- Electric tin snips
- Powder actuated tool
- Electric impact wrench
- Laser builders level

**Standard 2** Recognize safe use of power tools.

**Standard 3** Explain the procedures to properly maintain these power tools.

## **STRAND 5** Students will identify and demonstrate how to read blueprints.

**Standard 1** Identify and recognize basic blueprint terms and symbols.

**Standard 2** Relate information on prints to real parts and locations.

**Standard 3** Identify the following:

- Plot/site plan
- Floor plan
- Elevation plan
- Foundation plan
- Mechanical plan
- Electrical plan
- Specifications sheet
- Door and window schedule

## **STRAND 6** Students will be able to understand and demonstrate the use of wood building materials, fasteners, adhesives.

**Standard 1** Identify various types of imperfections that are found in lumber.

- Holes

- Knots
- Pitch
- Decay

**Standard 2** Identify the uses of pressure-treated lumber.

- Landscape timbers
- Sill plates
- Foundations
- Decks
- Porches
- Docks

**Standard 3** Identify the safety precautions associated with pressure-treated lumber.

- When cutting pressure-treated lumber, always wear eye protection and a dust mask.
- Wash any skin that is exposed while cutting or handling the lumber.
- Wash clothing that is exposed to sawdust separately from other clothing.
- Do not burn pressure-treated lumber as the ash poses a health hazard.
- Be sure to read and follow the manufacturer's safety instruction.

**Standard 4** Describe the proper method of caring for lumber and wood building materials at the job site.

**Standard 5** State the uses of various types of engineered lumber.

- Headers
- Floor joists

**Standard 6** List the basic nail and staple types and their uses.

- Nails: Common and finish
- Chisel staples

**Standard 7** Describe the common types of adhesives used in construction work and explain their uses.

## **STRAND 7** Students will be able to understand and demonstrate framing of flooring systems, walls and ceilings and roofing systems.

**Standard 1** Identify floor and sill framing and support members.

**Standard 2** List and recognize different types of floor joists.

**Standard 3** Demonstrate the ability to:

- Layout and construct a floor assembly.
- Install a single floor system using tongue and groove plywood/OSB panels.

**Standard 4** Identify the components of a wall.

**Standard 5** Layout, assemble, erect, and brace exterior walls for a frame building.

**Standard 6** Understand the use and installation of roofing members.

**Standard 7** Understand the members and installation of stairs.

## **STRAND 8** Students will be able to understand and demonstrate installation of windows, exterior and interior doors.

**Standard 1** State the requirements for a proper window installation.

**Standard 2** Install a pre-hung window.

**Standard 3** Install a pre-hung exterior door with weather-stripping.

**Standard 4** Install a lockset.

**STRAND 9** Students will be able to understand and demonstrate drywall installation and finishing.

**Standard 1** Select fasteners for drywall installation.

- Nails
- Drywall screws
- Adhesives

**Standard 2** Identify the hand tools used in drywall finishing and demonstrate the ability to use these tools.

**Standard 3** Identify materials used in drywall finishing and state the purpose and use of each type of material, including:

- Compounds
- Joint reinforcing tapes
- Trim materials
- Textures and coatings

**STRAND 10** Students will be able to understand and demonstrate interior finishing.

**Standard 1** Identify different types of interior doors.

**Standard 2** List and identify specific items included on a typical door schedule.

**STRAND 11** Students will gain and understanding of Construction industry as a profession and will develop professional skills for the workplace.

**Standard 1** As a participating member of the SkillsUSA student organization complete the SkillsUSA Level 1 Professional Development Program.

- Complete a self-assessment inventory and identify individual learning styles.
- Discover self-motivation techniques and establish short-term goals.
- Determine individual time-management skills.
- Define future occupations.
- Define awareness of cultural diversity and equity issues.
- Recognize the benefits of conducting a community service project.
- Demonstrate effective communication skills with others.
- Participate in a shadowing activity.
- Identify components of an employment portfolio.
- Demonstrate proficiency in program competencies.
- Explore what is ethical in the workplace or school.
- Master a working knowledge of SkillsUSA.
  - State the SkillsUSA motto.
  - State the SkillsUSA creed.
  - Learn the SkillsUSA colors.
  - Describe the official SkillsUSA dress.
  - Describe the procedure for becoming a SkillsUSA officer.

**Standard 2** Understand the use of construction and how it relates to career opportunities.

**Standard 3** Display a professional attitude toward the instructor and peers.

\* SkillsUSA PDP requirements - recommended

## Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Construction Trades Foundation	510	9	12	8	7	15	4	14	3	4	6	82	65

## Performance Objectives