

STRANDS AND 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.

Intended Grade Level	10-12
Units of Credit	Minimum 0.5
Core Code	40.08.00.00.035
Concurrent Enrollment Core Code	40.08.00.13.035
Prerequisite	None
Skill Certification Test Number	510
Test Weight	0.5
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Carpentry
Endorsement 2	Plumbing
Endorsement 3	Electrician



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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.

Performance Skill

Practice basic safety skills.

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

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.

Performance Skill

Understand and demonstrate basic math skills.

- Add, subtract, multiply, and divide whole numbers.
- Use a standard ruler to measure.
- Add, subtract, multiply, and divide fractions.

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- Add, subtract, multiply, and divide decimals, with and without a calculator.
- Convert decimals to percents and percents to decimals.
- Convert fractions to decimals and decimals to fractions.

STRAND 3

Students will recognize and demonstrate hand tools.

Standard 1

Recognize basic hand tools used in the construction trade.

Framing hammer	Sledge hammer
Key hole saw	Utility knife
Coping saw	Wood chisel
Framing square	Nail set
Speed square	Channel lock pliers
Nail puller/cat's paw	Needle nose pliers
Tape measure	Linemen pliers
Screwdriver set- Slotted, Phillips, Allen, Torx	Level
Vise grip pliers	Chalk box
t-bevel square	Combination file
Adjustable wrench	Tool belt
Socket sets	c-clamp
Tin snips	Shovel
Hack saw	Pick
Crow bar	Finish hammer

Standard 2

Safely use these basic hand tools.

Standard 3

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

Performance Skill

Recognize and demonstrate hand tools.

- Recognize basic hand tools used in the construction trade.
- Safely use these basic hand tools.
- 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

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- 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.

Performance Skill

Recognize and demonstrate power tools.

- Identify commonly used power tools of the construction trade.
- Recognize safe use of power tools.
- 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

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- Specifications sheet
- Door and window schedule

Performance Skill

Identify and demonstrate how to read blueprints.

- Identify and recognize basic blueprint terms and symbols.
- Relate information on prints to real parts and locations.

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

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Standard 6

List the basic nails 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.

Performance Skill

Understand and demonstrate the use of wood building materials, fasteners, adhesives.

- Identify various types of imperfections that are found in lumber.
- Identify the uses of pressure-treated lumber.
- Identify the safety precautions associated with pressure-treated lumber.
- Describe the proper method of caring for lumber and wood building materials at the job site.
- State the uses of various types of engineered lumber.
- List the basic nails and staple types and their uses.
- 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 wall for a frame building.

Standard 6

Understand the use and installation of roofing members.

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Standard 7

Understand the members and installation of stairs.

Performance Skill

Understand and demonstrate framing of flooring systems, walls and ceilings, and roofing systems.

- Identify floor and sill framing and support members.
- List and recognize different types of floor joists.
- Identify the components of a wall.
- Layout, assemble, erect, and brace exterior wall for a frame building.
- Understand the use and installation of roofing members.
- 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.

Performance Skill

Understand and demonstrate installation of windows, exterior and interior doors.

- State the requirements for a proper window installation.
- Install a pre-hung window.
- Install a pre-hung exterior door with weather-stripping.
- 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

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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

Performance Skill

Understand and demonstrate drywall installation and finishing.

- Select fasteners for drywall installation.
- Identify the hand tools used in drywall finishing and demonstrate the ability to use these tools.
- Identify materials used in drywall finishing and state the purpose and use of each type of material.

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.

Performance Skill

Understand and demonstrate interior finishing.

- Identify different types of interior doors.
- List and identify specific items included on a typical door schedule.

STRAND 11

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 1.

Standard 1

Understand and demonstrate the attitude of cooperation.

- Develop awareness of cultural diversity and equality issues.
- Demonstrate effective communication with others.
- Apply team skills to a group project.
- Identify and apply conflict resolution skills.

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Standard 2

Understand and demonstrate the ability of being resourceful and innovative.

- Discover self-motivation techniques and establish short-term goals.
- Measure/modify short-term goals.
- Review a professional journal and develop a three- to five-minute presentation.

Standard 3

Plan for your future career.

- Complete a self-assessment and identify individual learning styles.
- Define future occupations.
- Identify the components of an employment portfolio.
- List proficiency in program competencies.
- Complete a survey for employment opportunities.
- Create a job application.
- Assemble your employment portfolio.
- Employability skills: evaluate program comprehension.

Standard 4

Understand and demonstrate the ability to manage a project.

- Apply team skills to a group project.
- Observe and critique a meeting.
- Demonstrate business meeting skills.
- Explore supervisory and management roles in an organization.
- Identify and apply conflict resolution skills.
- Demonstrate evaluation skills.
- Manage a project and evaluate others.

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