Arkansas CTE

Carpentry: Grades 9, 10, 11, 12

Adopted 2014

Demonstrate appropriate safety procedures in a construction lab

1.1 Demonstrate safe work practices and procedures in accordance with OSHA standards.

1. Explain the idea of a safety culture and its importance in the construction crafts Explain the role of OSHA in job-site safety. Explain OSHA's General Duty Clause and 1926 CFR Subpart C. 1.1.1
2. Identify causes of accidents and the impact of accident costs. Recognize hazard recognition and risk assessment techniques. 1.1.2
3. Explain fall protection, ladder, stair and scaffold procedures and requirements. 1.1.3
4. Identify struck-by hazards and demonstrate safe working procedures and requirements. Identify caught-in-between hazards and demonstrate safe working procedures and requirements. 1.1.4
5. Define safe work procedures to use around electrical hazards. 1.1.5
6. Demonstrate the use and care of appropriate personal protective equipment (PPE). 1.1.6
7. Explain the importance of hazard communications (HazCom) and Safety Data Sheets (SDSs). 1.1.7
8. Identify other construction hazards on your job site, including hazardous material exposures, environmental elements, welding and cutting hazards, confined spaces, and fires. 1.1.8

1.2 Recognize hazards and follow safety procedures required for materials handling.

1. Define a load. Establish a pre-task plan prior to moving a load. 1.2.1
2. Use proper materials-handling techniques. 1.2.2

Demonstrate knowledge of building materials, fastener, adhesives, and tools

2.1 Identify and describe building materials used in construction.

1. Identify various types of building materials and their uses. 2.1.1
2. Identify the different grades and markings of wood building materials. 2.1.2
3. State the uses of various types of hardwoods and softwoods. 2.1.3
4. Identify the safety precautions associated with building materials. Describe the proper method of storing and handling building materials. 2.1.4
5. State the uses of various types of engineered lumber. 2.1.5

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6. Calculate the quantities of lumber and wood products using industry-standard methods. 2.1.6

2.2 Identify and describe the various fasteners and adhesives in construction.

1. Research the fasteners, anchors, and adhesives used in construction work 2.2.1
2. Compare appropriate uses of fasteners, anchors, and adhesives in construction work. 2.2.2

2.3 Demonstrate the safe and proper use of hand and power tools.

1. Identify and appropriately use the hand tools commonly used by carpenters. 2.3.1
2. Locate and apply the general safety rules for operating and maintaining all power tools, regardless of type. 2.3.2
3. Identify the portable power tools commonly used by carpenters and describe their uses. 2.3.3

Demonstrate knowledge and use of plans, elevations and floor systems

3.1 Apply the techniques for reading and using blueprints and specifications.

1. Compare the information found in each type of drawing usually included in a set of plans. 3.1.1
2. Identify and draw the different types of lines and architectural symbols commonly used on construction drawings. 3.1.2
3. Identify and draw selected electrical, mechanical, and plumbing symbols commonly used on plans. 3.1.3
4. Identify selected abbreviations commonly used on plans. 3.1.4
5. Read and interpret plans, elevations, schedules, sections, and details contained in basic construction 3.1.5
6. Describe the purpose of written specifications including the parts of a specification. 3.1.6
7. Demonstrate how to perform a quantity takeoff for materials. 3.1.7

3.2 Demonstrate framing basics and procedures for laying out and constructing a floor system.

1. Identify the different types of framing systems. 3.2.1
2. Read and interpret drawings and specifications to determine floor system requirements. 3.2.2
3. Identify floor and sill framing, support members, and methods used to fasten sills to foundation. 3.2.3
4. Recognize different types of floor joists. 3.2.4
5. Recognize different types of bridging. 3.2.5

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6. Recognize different types of flooring materials. 3.2.6
7. Explain the purposes of subflooring and underlayment. 3.2.7

8. Compare selected fasteners used in floor framing and their correct uses. 3.2.8
9. Estimate the amount of material needed to frame a floor assembly 3.2.9
10. Demonstrate the ability to:
Lay out and construct a floor assembly
Install bridging
Install joists for a cantilever floor
Install a subfloor using butt-joint plywood/OSB panels
Install a single floor system using tongue-and-groove plywood/OSB panels 3.2.10

Demonstrate knowledge and use of construction framing

4.1 Demonstrate the procedures for laying out and framing walls and ceilings.

1. Identify the components of a wall and ceiling layout. 4.1.1
2. Describe the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and fire stops. 4.1.2
3. Identify the common materials and methods used for installing sheathing on walls. 4.1.3
4. Layout, assemble, erect, and brace exterior walls for a frame building. 4.1.4
5. Describe wall framing techniques used in masonry construction. 4.1.5
6. Explain the use of metal studs in wall framing. 4.1.6
7. Demonstrate the correct procedure for laying out ceiling joists. 4.1.7
8. Cut and install ceiling joists on a wood frame building. 4.1.8
9. Estimate the materials required to frame walls and ceilings. 4.1.9

4.2 Investigate the various types of roof framing.

1. Understand the terms associated with roof framing. 4.2.1
2. Identify the roof framing members used in gable and hip roofs. 4.2.2
3. Demonstrate the methods used to calculate the length of a rafter. 4.2.3
4. Identify the various types of trusses used in roof framing. 4.2.4
5. Use a rafter framing square, speed square, and calculator in laying out a roof. 4.2.5
6. Identify various types of sheathing used in roof construction. 4.2.6
7. Frame a gable roof with vent openings Frame a roof opening. 4.2.7
8. Erect a gable roof using trusses. 4.2.8
9. Estimate the materials used in framing and sheathing a roof. 4.2.9

Demonstrate knowledge and use of concrete and reinforcing materials and stair layout

5.1 Investigate and demonstrate the various types of concrete and reinforcing materials.

1. Identify the properties of cement. 5.1.1
2. Describe the composition of concrete. 5.1.2
3. Perform volume estimates for concrete quantity requirements. 5.1.3
4. Identify types of concrete reinforcement materials and describe their uses. 5.1.4

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5. Identify various types of footings and explain their uses. 5.1.5
6. Identify the parts of various types of forms. 5.1.6
7. Explain the safety procedures associated with the construction and use of concrete forms. 5.1.7
8. Erect, plumb, and brace a simple concrete form with reinforcement. 5.1.8

5.2 Investigate various types of stairs and building codes related to stairs.

1. Compare the various types of stairs. 5.2.1
2. Identify the various parts of stairs. 5.2.2
3. Compare the materials used in the construction of stairs. 5.2.3
4. Interpret construction drawings of stairs. 5.2.4
5. Calculate the total rise, number and size of risers, and number and size of treads required for a stairway 5.2.5
6. Lay out and cut stringers, risers, and treads. Build a small stair unit with a temporary handrail. 5.2.6

Demonstrate knowledge of types and the installation of windows and doors

6.1 Investigate the various types and installation procedures for windows and skylights.

1. Identify various types of fixed, sliding, and swinging windows. 6.1.1
2. Identify the parts of a window installation. 6.1.2
3. Research the requirements for a proper window installation. 6.1.3
4. Install a pre-hung window. 6.1.4

6.2 Investigate the various types and installation procedures for exterior doors.

1. Identify the common types of exterior doors and explain how they are constructed. 6.2.1
2. Identify the parts of a door installation. 6.2.2
3. Identify the types of thresholds used with exterior doors. 6.2.3
4. Install a pre-hung exterior door. 6.2.4
5. Compare the various types of locksets used on exterior doors and explain how they are installed. Install a lockset. 6.2.5