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## **Architecture & Construction: Carpentry Concentration End of Program Assessment Blueprint**

Applies to the following programs:

<b>CIP Code</b>	<b>Common Name</b>
46.0201	Carpentry
46.0415	Construction Technology

### **BASIC SAFETY (BS) 25%**

**TLO:** The student will demonstrate a working understanding of basic concepts critical to the safe execution of carpentry functions and tasks and the avoidance of job-site accidents

**BS1:** Explain the relationship between housekeeping and safety

**BS2:** Discuss the importance of following safety rules and policies including:

**BS2.1:** the reporting of on-the-job injuries, accidents, and near misses

**BS2.2:** following evacuation procedures

**BS3:** Discuss the relationship between substance abuse and safety

**BS4:** Demonstrate proper safety practices:

**BS4.1:** when executing lockout-tagout procedures

**BS4.2:** when lifting heavy objects

**BS4.3:** when working around electrical hazards

**BS4.4:** when working flammable materials

**BS5:** Describe the different types and uses of barriers and barricades

**BS6:** Describe the different types, uses, and proper care of personal protective equipment

**BS7:** Describe the different types and proper use of different types of ladders and scaffolds

**BS8:** Demonstrate an understanding of the OSHA Hazard Communication Standard

**BS9:** Describe Safety Data Sheets and their use

**BS10:** Compare and contrast the effectiveness of various fire extinguishers

**BS11:** Discuss general rules for the safe operation of hand and power tools

**BS12:** Demonstrate an understanding of Codes/Regulations

**HAND (HPT) 5%**  
**AND POWER TOOLS 15%**

**TLO:** The student will demonstrate a working understanding of hand and power tools critical to the execution of construction and carpentry functions and tasks

**HPT1:** Describe the different types (and uses) of hand tools commonly used in the construction trades, in general, and in carpentry, in particular

**HPT2:** Describe the different types (and uses) of portable power tools commonly used in the construction trades, in general, and in carpentry, in particular

**HPT3:** Describe the different types (and uses) of stationary power tools commonly used in the construction trades, in general, and in carpentry, in particular

**HPT4:** Discuss general rules for the proper maintenance of hand and power tools

**HPT5:** Demonstrate the proper use of hand tools, portable power tools, and stationary power tools commonly used in the construction trades, in general, and in carpentry, in particular

**CONSTRUCTION MATH (CM) 13%**

**TLO:** The student will demonstrate a working understanding of math concepts critical to the execution of carpentry functions and tasks

**CM1:** Demonstrate ability to add, subtract, multiply, and divide:

**CM1.1:** whole numbers

**CM1.2:** fractions

**CM1.3:** decimals

**CM2:** Demonstrate ability to use a calculator to add, subtract, multiply, and divide whole numbers and decimals

**CM3:** Demonstrate ability to convert:

**CM3.1:** decimals to percentages and percentages to decimals

**CM3.2:** fraction to decimals and decimals to fractions

**CM4:** Demonstrate ability to use standard rulers

**CM5:** Perform a quantity takeoff for materials

**CM6:** Identify methods used to calculate the length of a rafter

**CM7:** Calculate square foot, linear foot, board foot, volume, and area

## **BUILDING MATERIALS, FASTENERS, AND ADHESIVE (BM)**

5%

**TLO:** The student will demonstrate a working understanding of building material, fasteners, and adhesives used in the execution of carpentry functions and tasks

**BM1:** Explain common wood and lumber terminology

**BM2:** Discuss uses of various types of hardwoods and softwoods

**BM3:** Discuss various types of lumber imperfections

**BM4:** Describe and interpret lumber grades

**BM5:** Discuss how plywood is manufactured and graded

**BM6:** Describe the uses of the various types of building boards, pressure treated lumber, and engineered lumber

**BM7:** Discuss proper care methods for lumber and wood building materials at job sites

**BM8:** Fasteners and Adhesives- screw, nails, etc.

## **BLUEPRINTS (BP)**

2%

**TLO:** The student will demonstrate an entry-level understanding of how to read blueprints critical to the execution of carpentry functions and tasks

**BP1:** Explain basic blueprint terminology and symbols

**BP2:** Discuss information presented in various drawings commonly included in a set of plans

**BP3:** Demonstrate ability to:

**BP3.1:** read plans, elevations, schedules, etc., contained in basic construction drawings

**BP3.2:** use a scale ruler

## **FRAMING (F)**

35%

**(includes Wall (15%), Roof (5%), Floor (10%), and Stairs (5%))**

**TLO:** The student will demonstrate a working understanding of wall, roof, floor, and stair framing

**F1:** Recognize terms associated with roof framing

**F2:** Identify roof-framing members used in gable and hip roofs

**F3:** Identify different types of floor framing systems

**F4:** Identify floor and sill framing and support members

**F5:** Describe methods used to fasten sills to the foundation

**F6:** Describe different types of floor joists

- F7:** Discuss the purposes of subflooring and underlayment
- F8:** Demonstrate ability to use appropriate fasteners to frame a floor
- F9:** Identify components of a wall and ceiling layout
- F10:** Describe the proper procedure for laying out a wood frame wall (including plates, corner posts, door and window openings, partition T's, bracing, and firestops)
- F11:** Describe the proper procedure for assembling and erecting an exterior wall
- F12:** Describe the common materials used for installing sheathing on walls
- F13:** Identify the difference between load bearing and non-load bearing walls
- F14:** Explain the meaning of the terms rise, run, tread, riser, and stringer
- F15:** Identify important measurements necessary in laying out a stair
- F16:** Explain the meaning of the term "headroom" in stair construction
- F17:** Discuss the relationship between unit rise and unit run
- F18:** Demonstrate ability to:
  - F18.1:** calculate the proper number of rises needed given a known finish floor to finish floor measurement
  - F18.2:** calculate the individual riser height and appropriate tread run using commonly accepted carpentry formulas for stair construction