

**STATE OF WYOMING**  
**ARCHITECTURE AND CONSTRUCTION CLUSTER AND**  
**RESIDENTIAL/COMMERCIAL CARPENTRY PATHWAY COMPETENCIES**

**ARCHITECTURE AND CONSTRUCTION CLUSTER**

***Cluster Level Core Competencies & Objectives***

**COMPETENCY**

**AC1            The student will understand and apply Occupational Safety and Health Standards (OSHA)**

**OBJECTIVES**

- AC1-1    Demonstrate knowledge of and apply safety concepts related to the safe use of hand-tools, power/pneumatic tools, clothing and hair
  - Examples: carrying tools properly, use of safety guard, inspection of tools, changing blades and bits
- AC1-2    Demonstrate knowledge of and employ proper maintenance, set-up and inspection procedures for tools
  - Examples: lubrication, cords, hoses, connections, placing of switch, safety guards
- AC1-3    Demonstrate knowledge of the use and purpose of personal protective equipment (PPE)
  - Examples: respirators, safety glass, steel toed shoes, fall protection, hard-hats, hearing, etc.
- AC1-4    Demonstrate familiarity with emergency situations and procedures, including: use and location of first aid supplies, fire extinguishers, eye washers, understanding of blood pathogens, and evacuation procedures
- AC1-5    Follow safe procedures when handling materials
  - Examples: Proper lifting and carrying, material stacking and storage

**COMPETENCY**

**AC2            The student will be able to demonstrate knowledge of applied mathematics**

**OBJECTIVES**

- AC2-1    Perform basic arithmetic functions with real numbers
- AC2-2    Convert fractions/decimals
- AC2-3    Convert metric/inch measurement
- AC2-4    Perform basic trigonometric and geometric functions, solving for unknown angles and sides
- AC2-5    Demonstrate measurement skills
- AC2-6    Calculation: add, subtract, multiply and divide with fractions

**COMPETENCY**

**AC3            The student will demonstrate knowledge of the different career paths and opportunities within a pathway**

- Example: Layout and assemble a floor deck using dimensional lumber

**Example: Technical Drafting – Student demonstrates an awareness of possible careers related to Technical Drafting and an awareness of the academic preparation needed to qualify for those possible careers**

**Architecture and Construction Cluster**  
**RESIDENTIAL/COMMERCIAL CARPENTRY PATHWAY**

**Pathway Core Competencies & Objectives**

**COMPETENCY**

**ACRCP1      The student will demonstrate job-site safety**

**OBJECTIVES**

ACRCP1-1      Properly place ladders

ACRCP1-2      Demonstrate knowledge of proper scaffolding placement

**COMPETENCY**

**ACRCP2      The student will demonstrate a general knowledge of the similarities and differences between residential and commercial construction**

**OBJECTIVES**

ACRCP2-1      Demonstrate knowledge of applicable codes and licenses (civil, commercial, residential, fire codes, metal vs. wood)

**COMPETENCY**

**ACRCP3      The student will read and interpret blueprints or plans**

ACRCP3-1      Apply measurements from a blueprint (plan) to a construction project or site

ACRCP3-2      Demonstrate knowledge of cross-sections, elevations, schedules

**COMPETENCY**

**ACRCP4      The student will demonstrate knowledge of site layout, walls, foundation and slabs**

**OBJECTIVES**

ACRCP4-1      Tool selection for specific tasks including; use of batter boards; measuring and locating building corners; and squaring using the 3-4-5 method, etc.

ACRCP4-2      Identify the three types of foundation construction (T-type, caissons, slab)

## **COMPETENCY**

### **ACRCP5      The student will demonstrate knowledge of framing**

#### **OBJECTIVES**

##### **Floor Framing:**

- ACRCP5-1      Identifying framing members (still plates, joists, beams, sheathing, hangers glues, fasteners)
- ACRCP5-2      Demonstrate layout and assembly techniques
  - Example: Layout and assemble a floor deck using dimensional lumber)

##### **Wall Framing:**

- ACRCP5-3      Identifying framing members (sole plate, studs, headers, trimmers, jack studs, corner techniques, wall intersections, top plates sheathing hangers, glues, fasteners)
- ACRCP5-4      Demonstrate layout and assembly techniques (layout of openings, windows, doors)
- ACRCP5-5      Describe and demonstrate the correct procedures for wall erection (bracing, order of construction)
- ACRCP5-6      Differentiate between bearing and non-bearing walls
- ACRCP5-7      Layout, assemble and erect a bearing and non-bearing walls

##### **Roof Framing:**

- ACRCP5-8      Identify conventional vs. trusses (stick-built vs. pre-fab)
- ACRCP5-9      Identify roof style/designs
- ACRCP5-10     Select and install appropriate hangers, fasteners
- ACRCP5-11     Application of roof sheathing
- ACRCP5-12     Layout, assemble and erect a roof frame

## **COMPETENCY**

### **ACRCP6      The student will demonstrate knowledge of exterior finishes**

#### **OBJECTIVES**

- ACRCP6-1      Demonstrate knowledge of the process/sequence for installation of doors (shim to be square and plumb)
- ACRCP6-2      Demonstrate knowledge of the process/sequence for installation of windows (shim to be square and plumb)
- ACRCP6-3      Identify fascia board and soffits
- ACRCP6-4      Identify types of siding by material (vinyl, wood, brick siding, stucco, etc.)
- ACRCP6-5      Identify siding by orientation (lap and vertical)
- ACRCP6-6      Demonstrate correct installation of siding and flashing (measurement and application)
- ACRCP6-7      Identify types of roofing materials (shingles, tiles, metal, etc.)
- ACRCP6-8      Correctly install underlayment, roofing material and appropriate flashing

## **COMPETENCY**

### **ACRCP7      The student will demonstrate awareness of Building Codes and Permits**

#### **OBJECTIVES**

- ACRCP7-1      Identify the process of obtaining permits

**COMPETENCY**

**ACRCP8      The student will create materials cost estimate from a set of plans**

**COMPETENCY**

**ACRCP9      The student will demonstrate knowledge of decks and rails**

**COMPETENCY**

**ACRCP10     The student will demonstrate knowledge of interior finishes**

**OBJECTIVES**

- ACRCP10-1     Demonstrate knowledge of application and installation of drywall
- ACRCP10-2     Identify tools and materials for drywall installation
- ACRCP10-3     Install of doors, casing, base and window trim
- ACRCP10-4     Order of installation for a door
- ACRCP10-5     Identify basic trim joints
- ACRCP10-6     Cut proper trim joints (coping joints, butt joints, miter joints)
- ACRCP10-7     Install casework (cabinets, countertops, vanities)
- ACRCP10-8     Identification of different paints and finishes
- ACRCP10-9     Identify different types of floor covering (hardwoods, tile, carpet, laminates, vinyl, concrete)

**COMPETENCY**

**ACRCP11     The student will demonstrate knowledge of concrete placement**

**OBJECTIVES**

- ACRCP11-1     Building forms for concrete placement
- ACRCP11-2     Placement of reinforcement for concrete
- ACRCP11-3     Calculate quantity per job
- ACRCP11-4     Flatwork finish and installation

**COMPETENCY**

**ACRCP12     The student will demonstrate knowledge of energy efficient construction**

**OBJECTIVES**

- ACRCP12-1     Demonstrate awareness and understanding of green building materials and techniques
- ACRCP12-2     Identify r-values
- ACRCP12-3     Know the difference between Passive solar and active solar energy construction
- ACRCP12-4     Demonstrate knowledge of different insulation types and the appropriate uses of each

***Other competencies NOT OFFERED STATEWIDE (and for which competencies have not been identified by this group):***

- DRYWALL FINISHING AND PAINTING
- HVACR/SHEET METAL
- MASONRY
- PLUMBING
- RESIDENTIAL WIRING
- HOME IMPROVEMENT REPAIR AND SERVICES