

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

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| 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

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| 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

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| 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