

Construction and Remodeling Techniques 1

Course Outcome Summary

Course Information

Organization	Madison Area Technical College
Developers	Allie Berenyi
Development Date	6/10/2005
Course Number	31-410-328
Instructional Level	One-Year Technical Diploma
Potential Hours of Instruction	180
Total Credits	5

Description

This course continues instruction on roof framing and introduces installation methods for roof shingles, windows and doors, soffits and fascia, exterior trim and siding. Basic stair construction is also included. Building science topics of insulation, drainage planes and greener building techniques are also discussed.

Types of Instruction

Instruction Type	Contact Hours	Credits
Classroom Presentation	18	5
Actual Work Experience	108	
On-Campus Lab	54	

Textbooks

Freirer and Freirer. *Carpentry and Building Construction*. McGraw Hill. 2004. **Edition:** 6th. **Pages:** 992. **ISBN:** 0-07-822702-X. **Source:** MATC Bookstore.

Learner Supplies

Safety Glasses. **Price:** \$5.

Hard Hat. **Quantity:** 1. **Price:** \$5.

Basic Hand Tools. **Price:** \$15.

Prerequisites

(31-410-301) Introduction to Construction
 (31-410-399) Fundamentals of Construction
 (31-410-302) Plans, Site and Formwork
 OR consent of instructor

Exit Learning Outcomes

Core Abilities

- A. Critical thinking
- B. Mathematics
- C. Self-management
- D. Social interaction

Program Outcomes

- A. Solve construction problems using accepted principles, tools and skills
- B. Apply techniques and principles appropriate to building science
- C. Investigate basic construction business operational strategies
- D. Model professional and ethical behavior
- E. Demonstrate appropriate interpersonal relationship skills
- F. Analyze the environmental impacts of building practices
- G. Apply safety practices and procedures in the work area

Competencies

Unit 1. Roof Construction

A. Field frame a roof

You will demonstrate your competence:

- A.1. by field framing a roof
- A.2. by taking an exam

Your performance will be successful when:

- A.1. you follow safety procedures
- A.2. roof parts are the correct length
- A.3. rafters fit snugly to ridge and top plate
- A.4. rafters are adequately nailed
- A.5. rafters are spaced at prescribed on-center spacing
- A.6. roof has the prescribed slope
- A.7. roof is sheathable

B. Frame cornice, fascia, soffit and rake

You will demonstrate your competence:

- B.1. by framing for cornice, fascia, soffit and rake
- B.2. by taking an exam

Your performance will be successful when:

- B.1. you follow safety procedures
- B.2. cornice and rake are the prescribed dimensions
- B.3. cornice and rake are the prescribed style
- B.4. cornice and rake are adequately nailed
- B.5. cornice and rake can be sheathed and shingled
- B.6. soffit framing is level
- B.7. fascia and rakes are straight
- B.8. soffit and fascia material can be installed over the cornice and fascia

C. Sheath a roof

You will demonstrate your competence:

- C.1. by sheathing a roof

Your performance will be successful when:

- C.1. you follow safety procedures
- C.2. sheathing is adequately nailed
- C.3. sheathing is spaced correctly
- C.4. sheathing has h-clips between rafters
- C.5. roof can be shingled

D. Install roof shingles

You will demonstrate your competence:

- D.1. by installing asphalt roof shingles
- D.2. by taking an exam

Your performance will be successful when:

- D.1. you follow safety procedures
- D.2. roof drip edge is correctly and attractively installed
- D.3. underlayment is correctly installed
- D.4. shingles are adequately and correctly nailed
- D.5. shingles lay flat
- D.6. shingles have the correct exposure
- D.7. joints between shingles are staggered

Unit 2. Special Framing**A. Construct stairs****You will demonstrate your competence:**

- A.1. by building open stringer stairs
- A.2. by taking an exam

Your performance will be successful when:

- A.1. you follow safety procedures
- A.2. stairs are constructed of appropriate materials
- A.3. stairs comply with applicable building codes
- A.4. stairs are correctly installed
- A.5. stairs do not squeak
- A.6. nosing at top of stairs matches the other nosings

Unit 3. Insulation, Vapor Barriers, Drainage Planes**A. Install insulation****You will demonstrate your competence:**

- A.1. by installing insulation
- A.2. by taking an exam

Your performance will be successful when:

- A.1. you follow health and safety procedures
- A.2. insulation completely fills all exterior cavities
- A.3. insulation fills gaps between doors/windows and framing
- A.4. insulation is cut around plumbing, electrical work and duct work
- A.5. openings in the framing are sealed with caulk or foam
- A.6. openings in electrical boxes are sealed with caulk

B. Install vapor barriers**You will demonstrate your competence:**

- B.1. by installing a vapor barrier
- B.2. by taking an exam

Your performance will be successful when:

- B.1. vapor barrier completely covers exterior walls
- B.2. vapor barrier is smooth
- B.3. vapor barrier is adequately stapled

C. Create drainage planes with flashing**You will demonstrate your competence:**

- C.1. by installing flashing
- C.2. by taking an exam

Your performance will be successful when:

- C.1. you follow safety procedures
- C.2. flashing directs water away from the inside of the structure
- C.3. flashing is cleanly and attractively bent and cut
- C.4. flashing is correctly nailed using the proper fasteners
- C.5. flashing is appropriately and attractively augmented with caulk

Unit 4. Windows and Doors

A. Install windows

You will demonstrate your competence:

- A.1. by installing a window
- A.2. by taking an exam

Your performance will be successful when:

- A.1. you follow safety procedures
- A.2. windows are correctly located
- A.3. window is square and level
- A.4. window is properly shimmed
- A.5. window is adequately nailed with correct fasteners
- A.6. window operates properly
- A.7. window is flashed to create drainage planes

B. Install exterior doors

You will demonstrate your competence:

- B.1. by installing an exterior door
- B.2. by taking an exam

Your performance will be successful when:

- B.1. you follow safety procedures
- B.2. door is plumb
- B.3. door is properly shimmed
- B.4. door is adequately fastened
- B.5. door is correctly flashed to create drainage planes
- B.6. door functions properly
- B.7. door hardware is correctly installed

Unit 5. Exterior Finish

A. Install various exterior trims

You will demonstrate your competence:

- A.1. by installing exterior trim
- A.2. on an exam

Your performance will be successful when:

- A.1. you follow safety procedures
- A.2. you identify different elements of exterior trim
- A.3. exterior trim is installed plumb and level
- A.4. exterior trim is adequately fastened with correct fasteners
- A.5. exterior trim is installed to create drainage planes
- A.6. exterior trim is attractively installed

B. Install various siding materials

You will demonstrate your competence:

- B.1. by installing siding
- B.2. by taking an exam

Your performance will be successful when:

- B.1. you follow safety procedures

- B.2. siding is back and front primed as necessary
- B.3. siding is level
- B.4. siding is adequately nailed with correct fasteners
- B.5. siding is installed to allow for seasonal movement
- B.6. siding is installed to create drainage planes
- B.7. siding is attractively installed

C. Install fascia and soffit finishing materials

You will demonstrate your competence:

- C.1. by installing soffit and fascia

Your performance will be successful when:

- C.1. you follow safety procedures
- C.2. wood soffits and fascia are backprimed
- C.3. soffits are level
- C.4. soffits and fascia are adequately nailed with correct fasteners
- C.5. soffit and fascia are attractively installed