

# Construction and Remodeling

Program Number: 31-410-6

## One-Year Technical Diploma

Construction Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

## About the Program

The Construction and Remodeling Program prepares students for a career in residential construction and/or remodeling. Through intensively hands-on coursework students learn how to take a project from prints and specifications through final finish work. They will learn about site preparation, layout and foundations. In a semester long hands-on course students frame floors, walls, ceilings and roofs. In another course devoted to learning by doing students install roof shingles, windows, doors, stairs, exterior trim, siding, cabinets and interior trim. All phases of home construction are covered, including estimating materials, understanding building codes and maintaining tools and equipment.

## Unique Requirements for Graduation

32 credits with a GPA of 2.0 (C) or above. Average of 2.0 (C) or above for occupational specific courses.

## Curriculum

		Hrs/week	
		Credits	Lec-Lab
<b>First Semester</b>			
31-410-301	Introduction to Construction .....	5	2-8
31-410-302	Plans, Site- and Formwork.....	2	2-2
31-410-337	Workplace Safety*.....	1	4-0
31-410-399	Fundamentals of Construction .....	3	1-5
31-410-328	Construction & Remodeling Techniques 1.....	5	2-8
31-804-379	Vocational Math 1.....	1	2-0
<b>Semester Total</b>		<b>17</b>	

<b>Second Semester</b>			
31-410-308	Codes and Regulations.....	2	2-2
31-410-329	Construction & Remodeling Techniques 2.....	5	2-8
31-410-345	Construction Materials and Estimating .....	2	2-2
31-410-336	Machine Maintenance*.....	1	0-4
31-410-385	Construction Drawing.....	2	2-2
31-410-363	Construction Science .....	2	1-3
31-801-356	Communications 1*.....	1	2-0
<b>Semester Total</b>		<b>15</b>	

\*Meets for 9 weeks.

### Notes:

- Safety procedures required in all labs.
- Prerequisites can be waived with center approval.
- Advanced standing may be gained through center dean.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of center dean.

*Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.*

## Program Courses

**31-403-308 Codes and Regulations 2 credits**

Units of instruction include zoning requirements, residential and commercial building codes, sanitary regulations, permit applications, building permits and inspection procedures. Contract documents and office practice are also discussed.

**31-410-301 Introduction to Construction 5 credits**

This course provides instruction in the fundamentals of floor, wall, ceiling and roof framing. A variety of building methods are discussed in the context of current understanding of how buildings work and why they fail. Corequisites: 31-410-337 and 31-410-399.

**31-410-302 Plans, Site- and Formwork 2 credits**

This course provides instruction in interpretation of plans, specifications and building codes, site preparation, the layout of footings and foundations and setting concrete forms. Corequisites: 31-410-301 or consent of instructor.

**31-410-328 Construction and Remodeling Techniques 1 5 credits**

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. Prerequisites: 31-410-301 or consent of instructor.

**31-410-329 Construction and Remodeling Techniques 2 5 credits**

This course emphasizes interior finish including, but not necessarily limited to, installing wall board, hanging interior doors, installing interior trim, installing kitchen and bathroom cabinets, and completing a punch list. Prerequisites: 31-410-301 and 31-410-328 or consent of instructor.

**31-410-336 Machine Maintenance 1 credit**

The fundamentals of tool maintenance and care are emphasized. This includes the identification of maintenance problems and the care of woodworking tools and machines. The study of the principles on which machines operate and preventative maintenance is included. Lab work involves the maintenance of tools and machinery used in the construction classes.

**31-410-337 Workplace Safety 1 credit**

This course will cover several key areas of OSHA workplace safety, including: erection of ladders and scaffolds, HASCOM (Hazardous Materials Communication), selection and use of PPE (Personal Protective Equipment), proper machined guarding, and prevention of slips, trips and falls.

**31-410-345 Construction Materials and Estimating 2 credits**

The costs and applications of various building materials used in residential construction is explored. Instruction includes plan reading for the purpose of preparing material takeoffs and calculating costs. Estimating using computer software is introduced. Prerequisite: 31-410-301 or consent of instructor.

**31-410-363 Construction Science 2 credits**

Units of instruction include the mechanical properties of building materials, the building envelope, the house as a system, water and moisture management and green building materials and methods. Prerequisite: 31-410-301 or consent of instructor.

**31-410-385 Construction Drawing 2 credits**

This course introduces drawing and estimating as they relate to construction occupations. Areas of drawing instruction include sketching techniques, orthographic projection and isometric, oblique and perspective drawings. Methods of estimating materials and construction costs, reading prints and interpreting drawings are included.

**31-410-399 Fundamentals of Construction 3 credits**

This course provides an introduction to the identification, safe use and care of hand and portable power tools. Lab work includes the construction of sawhorses using techniques learned in class. Corequisites: 31-410-301 and 31-410-337 or consent of instructor.

## Career Potential:

- Rough/Finish Carpenter
- Remodeler
- Product Sales Representative
- Estimator

With additional education and/or work experience, graduates may find employment as:

- Master Carpenter
- Supervisor
- Head Estimator
- Teacher
- Inspector

*More detailed and updated information on this program may be available at: [malcmadison.edu](http://malcmadison.edu). The college reserves the right to make changes in the regulations and courses announced in this publication without notice.*

*Madison Area Technical College provides equal opportunity in education and employment.*

*Rev. 01/10*