TECH CRAFTSMAN CAREER BUILDING TRADE SCHOOL

CURRICULUM GUIDE for

BUILDING CONSTRUCTION

TECHNOLOGY
2016

Dr. Laura L. Vedenhaupt
Interim Director, Proprietary School Certification
Missouri Department of Higher Education
PO Box 1469
Jefferson City, MO 65102-1469

INTRODUCTION

The curriculum was development through research on the web, the process was undertaken by Tech Craftsman Career Building attempt to develop a hands-on-curriculum for TCCBTS apprentices work not only in the classroom setting but to work in the field with professional in all areas of construction, on the job training.
TCCBTS's education program involves the active use of industry personnel to develop a Assigned Task Lists for the program.

TCCBTS Assigned Task Lists will reflect the current trends and skills necessary for an employee to:

1) Obtain a job in the construction industry nation wide
2) Retain a job once hired, being a master in their chosen field
3) To advance in the occupational field.

TCCBTS's Assigned Task Lists are grouped according to on the job activity areas generally used in industry settings. TCCBTS's duty areas of work/studies are used at different levels, starting:

- Intermediate apprentices
- Advanced Apprentice
- Higher Apprentice

Level 1 (Basic Apprenticeship) can include:

> Starts out with introduction
> Learning the basic's on tool and equipment
> Learning how to use those tools

Level 2 (Intermediate Apprenticeships) can include:

> GCSEs grades A*–C
> BTEC First Diplomas and Certificates
> OCR Nationals
> Key Skills Level 2
> NVQs at Level 2

Level 3 (Advanced Apprenticeships) can include:

> A Levels
> Advanced Extension Awards
> GCE in applied subjects
> International Baccalaureate
> Key Skills Level 3
> NVQs at Level 3
> BTEC Diplomas, Certificates and Awards
> BTEC Nationals
> OCR Nationals

Level 4+ (Higher Apprenticeships) can include:

> NVQs at Level 4 (see below)

Qualifications at a glance

Levels	Academic route	Vocational route
4	Credits towards Higher Education degrees	HNC/HND/Foundation Degree
5	Professional qualifications	NVQ Level 5

> BTEC Professional Diplomas, Certificates and Awards

- TCCBTS's follows the BTEC (Business and Technology Education Council) rules for Level 3 Extended Diploma is designed for a Missouri Proprietary School Certification including qualification and vocational qualification. Foundation Degrees

BTEC brand and it is equivalent to A-Levels.

> Honors (high respect) Degrees and more

- An honors Degree is an extra year of study on top of a three year Bachelor course, designed to qualify a student for higher degree of study > Job searching

Units in the TCCBTS's curriculum guide development process, as time proceed forward then apprentices will advance. All future curriculum activities are predicated on the premise that accurate pictures of industry needs are reflected in TCCBTS's Assigned Task Lists.

The TCCBTS curriculum guide does not dictate the level of instruction. The Assigned Task Lists List developed represents the entire occupational field. The advanced level of TCCBTS's apprentices and TCCBTS's instructors will determine what skills can be taught and what depth of instruction can be provided. TCCBTS's instructors must choose the Assigns to be taught from the curriculum guide but are free to determine how many or which ones can be incorporated into the field.

TCCBTS's advisory committees are used in this step to reflect local industry training and employability trends.

The advancement of any apprentices naturally depends on how much they participate and the knowledge they gain in classroom assignments and on-the-job-skills-training.

TCCBTS is using two different terms, "Internship" and "Apprenticeship" those two terms fit the many different programs we offer

✓ Internship: An internship is (a job) training for white collar and professional careers. Internships for professional careers are similar in some ways to apprenticeships for trade and vocational jobs. The Internship's lack of standardization and oversight leaves the term

open to broad interpretation.

✓ Apprenticeship: A person who works for another in order to learn a trade

An applicant must have a high school education with a grade C or above or have completed an Intermediate Apprenticeship. Higher apprentices work towards work based learning qualifications such as an NVQ Level 4 and, in some cases, a knowledge based qualification such as a Foundation degree.

TCCBTS's goal is to turn out the Construction Technicians to be the pride of any industry they are employed.

TABLE OF CONTENTS

ASSIGNED TASK LISTS:

TCCBTS has set the Assign list as others have, to set a set of occupational skills or "Assigns" “knowledge from class textbooks” “Knowledge from skill gained from on the job apprenticeship training”, these Assign are grouped by Units. Each Assign describes an occupational activity that, when performed, will result in a finished process and can vary, but should always allow an evaluation by on the same instructor which is classroom and on the job, the same instructor will use the standards which address the operation, appearance, dimensions, or similar characteristics.

TCCBTS Assigns in each UNIT represent the fundamental activities that should be required of any apprentice seeking institutional credit for performing at an acceptable level of competency. The Assigns are sequenced to reflect a progression from the curriculum standards which are unique to TCCBTS as an instructional program and which should be added upon approval of the administration of TCCBTS.

The capability for providing instructional experiences and practical application of the Assigns contained in each UNIT will determine the scope of the trade schools technical program.

Primary considerations will obviously be the equipment used on any type of construction job and the professionalism of the instructional classroom and construction staff.

Individual records of each apprentice’s progress based on the Assign list should be developed or adapted by the TCCBTS trade school institution for use in recording the apprentice's attainment of competency by Assign and UNIT. Each Assign has a specific performance objective and a series of enabling objectives.

The enabling objectives are steps in the procedure of attaining the knowledge and skill specified in the performance objective. Apprentice's progress is measured by successful completion of the enabling objectives by oral, written or performance testing on the job. TCCBTS trade school are provided competency profiles to accomplish the record keeping

duties involved in the measurement of the apprentices' progress. These are not required but can simplify the Assign for the TCCBTS's instruction. The profiles are available in flash drive format

Program Overview

Tech Craftsman Career Building Trade School academic overview on "Building Construction Technology," TCCBTS's program consists of three certificate/degree options that provide you with the skills you need to specialize in a specific segment of the construction industry: Building Construction, Construction Management; and Design/Build Remodeling. TCCBTS interns/apprentices wishing to pursue the two-year associate degree also have the opportunity to participate in cooperative education, a program that allows you to receive credit for on-the-job experience; while this is optional in the TCCBTS program, it is required in the Construction Management and Design/Build Remodeling options.

DEMONSTRATE EMPLOYABILITY SKILLS AND HABITS

01.01 Identify employment opportunities.
01.02 Apply employment seeking skills.
01.03 Interpret employment capabilities
01.04 Demonstrate appropriate work behavior.
01.05 Maintain a safe and healthy environment.
01.06 Develop a professional image.
01.07 Develop good working relationships with others.
01.08 Communicate on the job.
01.09 Adapt to change.
01.10 Demonstrate knowledge of successful business strategies.
01.11 Perform mathematical calculations.
01.12 Explain the purpose of the Uniform Building Code.
01.13 Compile a portfolio.

DEMONSTRATE SHOP AND OCCUPATIONAL SAFETY KILLS

02.01 Identify work safety issues.
02.02 Apply work area safety rules and procedures.
02.03 Apply fire safety rules and procedures.
02.04 Apply personal protection safety procedures.
02.05 Apply proper material handling techniques to prevent injury and accidents.
02.06 Apply electrical safety rules and procedures.

02.07 Apply rules for hazardous materials and operations safety.
02.08 Identify OSHA standards.

DEMONSTRATE KNOWLEDGE OF TYPES AND USES OF BUILDING MATERIALS AND ENERGY CONSERVATION STRATEGIES

03.01 Identify types of lumber and their uses.
03.02 Demonstrate knowledge of plywood.
03.03 Identify materials used for paneling, trim and moldings.
03.04 Explain how wood products are measured and ordered.
03.05 Demonstrate knowledge of building materials other than wood products.
03.06 Demonstrate familiarity with energy-saving construction techniques.
03.07 Describe construction methods for conserving energy.

APPLY MATH AND MEASUREMENT SKILLS

04.01 Identify basic mathematical terms and symbols.
04.02 Perform mathematical operations using whole numbers.
04.03 Perform calculations using fractions, decimals and percentages.
04.04 Demonstrate knowledge of basic geometry.
04.05 Perform measuring operations used in the building trades.

USE BASIC BLUEPRINT READING AND DRAWING SKILLS

05.01 Demonstrate plan reading skills.
05.02 Use Drafting Equipment, Measuring Scales, Drawing Media, Drafting Instruments and Consumable Materials.
05.03 Prepare Pictorial Drawings.

DEMONSTRATE PROPER USE AND MAINTENANCE OF HAND AND POWER TOOLS

06.01 Identify common carpenters' hand tools.
06.02 Demonstrate proper and safe use of common carpenters' hand tools.
06.03 Perform care and maintenance on common carpenters' hand tools.
06.04 Use power tools correctly and safely.

DEMONSTRATE KNOWLEDGE OF SITE PREPARATION, CONCRETE FORMS AND FORMING

07.01 Set up and use a transit and a builder's level.
07.02 Demonstrate basic knowledge of concrete footings and foundations.
07.03 Determine concrete volume by using the concrete calculator. http://www.concretenetwork.com/concrete/howmuch/calculator.htm Concrete Calculator; use this site to calculate concrete slab and Footing Pours; slabs; footings; columns, enter the depth, width and length of your concrete slab to calculate
07.04 Explain the use of reinforcing in footings and foundations.
07.05 Demonstrate the ability to test concrete.
07.06 Demonstrate the ability to recognize and use types of concrete forms, associated hardware and materials.
07.07 Demonstrate the ability to construct, strip and prepare continuous and pier footing forms.
07.08 Identify types of special foundations and determine local minimum depth for foundations.
07.09 Demonstrate the ability to construct edge and stair forms.
07.10 Demonstrate the ability to work with wall forms.
07.11 Demonstrate knowledge of on-grade curb forms.
07.12 Work with forming piers and columns.
07.13 Identify and construct beam forms.
07.14 Demonstrate knowledge of above-grade slab systems.
07.15 Demonstrate knowledge of fireproof encasement forms.
07.16 Demonstrate knowledge of bridge deck forms.

SHOW THE ABILITY TO CONSTRUCT FRAME FLOORS, SILLS, WALLS AND CEILINGS

08.01 Demonstrate a basic knowledge of floors and sills.
08.02 Apply basic knowledge of floors and sills.
08.03 Identify wall and partition members.
08.04 Estimate materials required for a single-story structure.
08.05 Frame a single-story structure.
08.06 Demonstrate the ability to work with metal framing systems.
08.07 Identify types of finish flooring.
08.08 Install finish flooring.

DEMONSTRATE A KNOWLEDGE OF ROOF CONSTRUCTION TECHNIQUES

09.01 Identify different roof framing members.
09.02 Construct a roof, including all openings and sheathing.
09.03 Demonstrate the ability to construct trusses.
09.04 Demonstrate the ability to erect trusses.
09.05 Demonstrate and apply knowledge of cornices and gable ends.
09.06 Discuss roof construction.
09.07 Apply roofing and flashing.

CONSTRUCT INTERIOR STAIRCASES

10.01 Identify types of special house designs and special framing projects.
10.02 Construct a housed staircase.
10.03 Identify types of handrails and railings.
10.04 Construct handrails and railings.

DEMONSTRATE KNOWLEDGE OF SHEATHING, SIDING AND EXTERIOR BUILDING MATERIALS

11.01 Identify different types of wall sheathing and siding.
11.02 Install different types of wall sheathing and siding.

DEMONSTRATE THE ABILITY TO INSTALL WINDOWS, EXTERIOR AND INTERIOR DOORS, AND ASSOCIATED TRIM

12.01 Identify different types of windows.
12.02 Demonstrate the ability to install various kinds of window units.
12.03 Install a complete entry including threshold, frame, door, hardware, trim and weather stripping.
12.04 Discuss interior door installation.
12.05 Install various types of door units, locks and trim.

DEMONSTRATE KNOWLEDGE OF INSULATION AND VAPOR BARRIERS

13.01 Discuss types of insulation and vapor barriers.

13.02 Install insulation and vapor barriers.

INSTALL INTERIOR WALLS AND CEILINGS

14.01 Demonstrate knowledge of drywall.

14.02 Install drywall materials.

14.03 Recognize the different types of wall and ceiling finish materials.

14.04 Install various types of wall and ceiling finish materials.

DEMONSTRATE KNOWLEDGE OF CABINETS AND SPECIAL BUILT-INS

15.01 Identify parts of a cabinet.

15.02 Install cabinets and shelves.

DEMONSTRATE FAMILIARITY WITH STRUCTURAL TIMBER AND POST AND BEAM CONSTRUCTION

16.01 Demonstrate the ability to build with structural timber.

16.02 Demonstrate knowledge of basic post and beam construction.

PERFORM ARC WELDING AND OXYACETYLENE CUTTING APPLICATIONS

17.01 Demonstrate the ability to arc weld.

17.02 Apply oxyacetylene cutting skills used in construction.

DEMONSTRATE KNOWLEDGE OF JOB COORDINATION

18.01 Demonstrate the ability to coordinate with other trades.

18.02 Demonstrate an awareness of inspection requirements.

UNIT 1

EMPLOYABILITY SKILLS AND HABITS

Assigned Task Lists:

01.01 Identify employment opportunities.
01.02 Apply employment seeking skills.
01.03 Interpret employment capabilities.
01.04 Demonstrate appropriate work behavior.
01.05 Maintain a safe and healthy environment.
01.06 Develop a professional image.
01.07 Develop good working relationships with others.
01.08 Communicate on the job.
01.09 Adapt to change.
01.10 Demonstrate knowledge of successful business strategies.
01.11 Perform mathematical calculations.
01.12 Explain the purpose of the Uniform Building Code.
01.13 Compile a portfolio.

EMPLOYABILITY SKILLS AND HABITS

01.01 Assigned Task Lists:

Identify employment opportunities.

PERFORMANCE OBJECTIVE: Given the information resources of a library, obtain and compile the information needed to seek a job.

ENABLING OBJECTIVES

1. Identify the requirements for a job/job description.
2. Investigate educational opportunities.
3. Investigate occupational opportunities.
4. Locate resources for finding employment.
5. Confer with prospective employers.
6. Identify job trends.
7. Research geographic locations.

01.02 Assigned Task Lists:

Apply employment-seeking skills.

PERFORMANCE OBJECTIVE: Given appropriate information, locate a job opportunity, prepare and take an interview for it, complete the required tests, forms and applications, and evaluate the job opportunity.

ENABLING OBJECTIVES

1. Locate a job opening.
2. Complete a resume.
3. Prepare for an interview.
4. Participate in an interview.
5. Complete tests required.
6. Complete forms required.
7. Complete an application letter.
8. Complete a follow-up letter.
9. Complete an acceptance letter.
10. Evaluate a job offer.
11. Evaluate a job rejection.

01.03 Assigned Task Lists:

Interpret employment capabilities.

PERFORMANCE OBJECTIVE: Given the assignment to explain how personal capabilities make a person employable, demonstrate how to match skills and experience to a job.

ENABLING OBJECTIVES

1. Match personal interest to job area.
2. Match personal aptitudes to job area.
3. Verify personal abilities.
4. Identify an immediate work goal.
5. Develop a career plan.

01.04 ASSIGNED TASK LIST:

Demonstrate appropriate work behavior.

PERFORMANCE OBJECTIVE: Given the responsibility of an employee in a new job, demonstrate knowledge of appropriate behavior in the work place.

ENABLING OBJECTIVES

1. Exhibit dependability.
2. Demonstrate punctuality.
3. Follow rules and regulations.
4. Explain the consequences of dishonesty.
5. Complete assignments accurately and on time.
6. Control personal emotions.
7. Take responsibility for decisions and actions
8. Take pride in work and be a loyal worker.
9. Learn to handle pressures and tensions.
10. Demonstrate ability to set priorities.
11. Demonstrate problem-solving skills.

01.05 ASSIGNED TASK LIST:

Maintain safe and healthy environment.

PERFORMANCE OBJECTIVE: Given the responsibility of an employee in a new job, demonstrate knowledge of safety in the workplace.

ENABLING OBJECTIVES

1. Comply with safety and health rules.
2. Select correct tools and equipment.
3. Use equipment correctly.
4. Use appropriate action during emergencies.
5. Maintain clean and orderly work area.
6. Demonstrate personal hygiene and cleanliness.
7. Identify and locate Material Safety Data Sheets (MSDS).

01.06 ASSIGNED TASK LIST:

Develop a professional image.

PERFORMANCE OBJECTIVE: Given a responsibility to perform the duties of a new job, with a new employer, demonstrate a knowledge of the actions and behaviors which will project a professional image.

ENABLING OBJECTIVES

1. Participate in company or agency orientation.
2. Demonstrate knowledge of company or agency products and services.
3. Exhibit positive behavior.
4. Read current job-related publications.
5. Support and promote employer's company image and purpose.
6. Maintain appearance to comply with company standards.

01.07 ASSIGNED TASK LIST:

Develop good working relationships with others.

PERFORMANCE OBJECTIVE: Given the responsibility to perform the duties of a new job, with a new employer, demonstrate knowledge of how to successfully work with others.

ENABLING OBJECTIVES

1. Work productively with others.
2. Show empathy, respect and support for others.
3. Demonstrate procedures and assist others when necessary.
4. Recognize problems and work toward their solution.
5. Minimize the occurrence of problems.
6. Channel emotional reactions in positive ways.

01.08 ASSIGNED TASK LIST:

Communicate on the job.

PERFORMANCE OBJECTIVE: Given the responsibility to perform the duties of a new job, with a new employer, demonstrate knowledge of how to successfully communicate with others.

ENABLING OBJECTIVES

1. Read and comprehend written communications and information.
2. Use correct grammar.
3. Speak effectively with others.
4. Use job-related terminology.
5. Listen attentively.
6. Write legibly.
7. Use telephone etiquette.
8. Follow written and oral directions.
9. Ask questions.
10. Locate information in order to accomplish Assigned Task List:s.
11. Prepare written communication.
12. Use keyboarding skills.
13. Use computer skills.

01.09 ASSIGNED TASK LIST:

Adapt to change.

PERFORMANCE OBJECTIVE: Given the responsibility to perform the duties of a new job, with a new employer, demonstrate knowledge of how to adapt to change.

ENABLING OBJECTIVES

1. Recognize the need to change.
2. Demonstrate a willingness to learn.
3. Demonstrate flexibility.
4. Participate in continuing education.
5. Seek challenge in the work place.
6. Adjust goals and plans when necessary.

01.10 ASSIGNED TASK LIST:
Demonstrate knowledge of successful business strategies.

PERFORMANCE OBJECTIVE: Given the opportunity to create a business plan, demonstrate a familiarity with successful business strategies.

ENABLING OBJECTIVES

1. Describe the planning required to start the business.
2. Discuss the opportunities for business ownership or management.
3. Describe ways of financing a business.
4. Identify the responsibilities of owners and managers.
5. List the responsibilities of employees.
6. List important ways of attracting customers.
7. Discuss factors that affect customer satisfaction.

01.10 ASSIGNED TASK LIST:
Perform mathematical calculations.

PERFORMANCE OBJECTIVE: Given mathematics problems associated with building trades applications, solve them accurately within a specified time period.

ENABLING OBJECTIVES

1. Add and subtract whole numbers, decimals and fractions.
2. Multiply and divide whole numbers, decimals and fractions.
3. Convert numbers between forms expressed as fractions, decimals and percent's.
4. Convert between standard American units of measure.
5. Convert between standard American units and metric units.

01.12 ASSIGNED TASK LIST:
Explain the purpose of the Uniform Building Code

PERFORMANCE OBJECTIVE: Given instruction and a copy of the Uniform Building Code, explain its purpose and its importance in the building construction trades.

ENABLING OBJECTIVES

1. Match terms associated with the Code to their correct definitions.
2. Interpret sections of the Code.
3. Discuss the importance of complying with Code requirements.

01.13 ASSIGNED TASK LIST:

Compile a portfolio.

PERFORMANCE OBJECTIVES: Given examples of portfolios and instruction on developing portfolios, students will compile and organize a portfolio of personal work assignments and information for presentation.

ENABLING OBJECTIVES

1. Define portfolio.
2. Explain the purpose of a portfolio.
3. List procedures for compiling and organizing a portfolio.
4. Demonstrate the ability to develop a portfolio.
5. Demonstrate the ability to present a portfolio.

UNIT 2
SHOP AND OCCUPATIONAL SAFETY SKILLS

Assigned Task Lists:

02.01 Identify work safety issues.
02.02 Apply work area safety rules and procedures.
02.03 Apply fire safety rules and procedures.
02.04 Apply personal protection safety procedures.
02.05 Apply proper material handling techniques to prevent injury and accidents.
02.06 Apply electrical safety rules and procedures.
02.07 Apply rules for hazardous materials and operations safety.
02.08 Identify OSHA standards.

SHOP AND OCCUPATIONAL SAFETY SKILLS

02.01 Assigned Task Lists:

Identify work safety issues.

PERFORMANCE OBJECTIVE: Given a sample job site, describe safety factors to observe as an employee.

ENABLING OBJECTIVES

1. Demonstrate the worker's responsibility for safety.
2. Recognize unsafe work conditions at the work place.
3. Recognize hazards that contribute to accidents and injuries.
4. List kinds of accidents and injuries.
5. Know how to get help: police, fire, ambulance, school health.
6. State consequences of a worker using alcohol or drugs on the job.

02.02 Assigned Task Lists:

Apply work area safety rules and procedures.

PERFORMANCE OBJECTIVE: Given examples of building sites and shop situations, apply shop safety rules and procedures by identifying safe and unsafe practices.

ENABLING OBJECTIVES

1. Match terms associated with safety to their correct definitions.
2. Match the colors of the safety color code to their correct applications.
3. Discuss four broad classes of work area hazards.
    a. mechanical
    b. electrical
    c. chemical
    d. environmental
4. Discuss safety precautions around moving machinery regarding:
    a. clothing
    b. hair
    c. locking out machines
5. Describe safety precautions for working with ladders.
6. State safety precautions pertaining to scaffolds.
7. State safety precautions pertaining to excavations.
8. List safety precautions for working in extreme heat or cold.
9. List safety precautions for working in an enclosed area.
10. List procedure for evacuation of work area in case of an emergency.
11. Explain the importance of good housekeeping in a shop and on a job site.
12. Explain the importance of storing materials and supplies in a safe and secure manner.
13. Identify and explain warning signs posted in a shop and on a job site.
14. Demonstrate the correct use of hand signals in maneuvering vehicles and machinery.

02.03 Assigned Task Lists:

Apply fire safety rules and procedures.

PERFORMANCE OBJECTIVE: Given examples of types of fires, types of fire extinguishers, and job situations, apply fire safety rules and procedures by identifying safe
and unsafe practices. Learn to recognize fire hazards, and do everything possible to reduce or eliminate them.

ENABLING OBJECTIVES

1. Describe how fires start in work areas.
2. Prepare a list of the fire hazards in a shop and on a building site.
3. Describe procedures for preventing fires.
4. Match classes of fires to their correct descriptions.
5. List firefighting agents used on each class of fire.
6. Match types of fire extinguisher symbols to given classes of fires.
7. Demonstrate the proper procedure for handling, use and storage of a fire extinguisher.

02.04 Assigned Task List:

Apply personal protection safety procedures.

PERFORMANCE OBJECTIVE: Given examples of job situations, demonstrate personal safety procedures.

ENABLING OBJECTIVES:

1. List the different types of personal protective equipment.
2. Identify conditions that require eye protection.
3. Identify conditions that require ear protection.
4. Identify conditions that require head protection.
5. Identify conditions that require foot protection.
6. Identity conditions that require face protection.
7. Identify conditions that require respiratory protection.
8. Identify conditions that require special clothing or gloves.
9. Identify conditions for the use of a safety line or harness.
10. Explain the importance of wearing a back brace.
11. Explain personal safety precautions for welding, cutting, brazing.
12. Explain the methods for cleaning and storing safety equipment.
13. Complete a safety pledge form.
14. List personal safety rules.
15. List potential hazards associated with hazardous materials, solvents and chemicals.
16. Explain proper safety procedures for using compressed air.
17. State reasons why knowledge of first aid is important.

18. Describe why good housekeeping in a shop and on a job site is necessary for personal safety.

02.05 Assigned Task Lists:

Apply proper material handling techniques to prevent injury and accidents.

PERFORMANCE OBJECTIVE: Given examples of material that needs to be moved, relocated and lifted, apply proper handling techniques to prevent injury to self or others.

ENABLING OBJECTIVES:

1. Demonstrate proper lifting techniques for heavy objects.
2. Demonstrate proper techniques of team-handling heavy objects.

02.06 Assigned Task List:

Apply electrical safety rules and procedures.

PERFORMANCE OBJECTIVE: Given a checklist and appropriate safety manuals, identify electrical hazards and apply electrical safety rules and procedures. Electrical equipment, exposed wire, frayed cords, and deteriorated insulation must be indicated
in the checklist. Junction boxes, outlets, switches, and breaker switches must be identified as to their use.

ENABLING OBJECTIVES:

1. Explain the importance of labeling circuit breakers.
2. Explain the importance of grounding electrical equipment.
3. Explain proper use of drop lights and flexible extension cords.
4. Demonstrate safe use of electrically powered tools.
5. Describe effects of electric current on the human body.
6. Describe over-current protection devices.
7. List precautions to prevent electrical accidents.

02.07 ASSIGNED TASK LIST:

Apply rules for hazardous materials and operations safety.

PERFORMANCE OBJECTIVE: Given examples of hazardous waste materials, OSHA, EPA, and other manuals and guidelines, explain the proper handling, containment, storage, and disposal of such materials.

ENABLING OBJECTIVES:

1. Match terms associated with toxic and hazardous substances to their

correct definitions.

2. State reasons for Material Safety Data Sheets (MSDS).
3. Explain proper procedure for storage and disposal of hazardous materials.
4. List the common hazardous material injuries.
5. List common hazardous and toxic substances a building tradesperson may encounter on the job.
6. List forms of hazardous and toxic substances.
7. Identify ways toxic substances enter the body.
8. Explain effects of exposure to toxic substances on the body.
9. List exposure limits to hazardous materials.
10. List safe responses to sudden unexpected exposure to hazardous materials.

02.08 Assigned Task Lists:

Identify OSHA Standards.

PERFORMANCE OBJECTIVE: Given the OSHA manual, discuss OSHA and the purpose of OSHA.

ENABLING OBJECTIVES:

1. Define the purpose of OSHA.
2. Describe the inspection process by OSHA.
3. Describe the record keeping requirements for OSHA compliance.
4. List safety and health hazards that OSHA may inspect for in a shop or on a job site.
5. List OSHA safe working procedures that apply to building trades work assignments.

UNIT 3

BUILDING MATERIALS AND ENERGY CONSERVATION STRATEGIES

Assigned Task List:

03.01 Identify types of lumber and their uses.

03.02 Demonstrate knowledge of plywood.

03.03 Identify materials used for paneling, trim, and moldings.

03.04 Explain how wood products are measured and ordered.

03.05 Demonstrate knowledge of building materials other than wood products.

3.06 Demonstrate familiarity with energy-saving construction techniques.

03.07 Describe construction methods for conserving energy.

03.01 Assigned Task Lists:

Identify types of lumber and their uses.

PERFORMANCE OBJECTIVE: Given instruction, lists of uses, and samples of commonly used kinds of lumber, identify the different types, match them to their uses, and explain how to choose them.

ENABLING OBJECTIVES

1 General Terms

a. Match terms associated with lumber to their correct definitions.
b. Select from a list characteristics to consider in using lumber.
c. Identify common defects in lumber.

2. Hardwoods

a. Match common hardwoods to their correct uses.
b. Select from a list standard hardwood lumber grades.
c. Write actual sizes for given nominal sizes of hardwood lumber.

3 Softwoods

a. Match common softwoods to their correct uses.
b. Match types of softwood lumber to their correct grades.
c. Write actual sizes for given nominal sizes of softwood lumber.

03.02 Assigned Task Lists:

Demonstrate knowledge of plywood.

PERFORMANCE OBJECTIVE: Given appropriate instruction and samples, be able to identify and choose the appropriate plywood for various applications.

ENABLING OBJECTIVES

1. Match letters designating veneers used in softwood plywood to their correct descriptions.
2. Distinguish between standard interior and exterior softwood plywood grades by face veneer.
3. Match standard hardwood plywood grades to their correct descriptions.

03.03 Assigned Task Lists:

Identify materials used in wood paneling, trim and moldings.

PERFORMANCE OBJECTIVE: Given samples of paneling, trim and moldings, identify them as to type and composition.

ENABLING OBJECTIVES:

1. Select from a list solid softwoods used for paneling.
2. Select from a list solid hardwoods used for paneling.
3. Select from a list types of woods used for trim and moldings.
4. Identify types of trim and moldings.

03.04 ASSIGNED TASK LIST::

Explain how wood products are measured and ordered.

PERFORMANCE OBJECTIVE: Given a hypothetical job, demonstrate how lumber is ordered.

ENABLING OBJECTIVES:

1. Match types of lumber to their correct units of measure.
2. Compute lumber quantities.
3. Write a lumber requisition.

03.05 ASSIGNED TASK LIST::

Demonstrate knowledge of building materials other than wood products.

PERFORMANCE OBJECTIVE: Given examples of construction materials, identify their uses in modern building practice.

ENABLING OBJECTIVES:

1. Select from a list uses for each of the following materials in accordance with the Construction Specifications Institute (CSI) Code.
   a. plastics.
   b. aluminum.
   c. steel.
   d. masonry products.
2. Name components of metal stud systems.
3. List areas where metal stud systems are used.
4. Select from a list advantages of metal stud systems.

03.06 ASSIGNED TASK LIST:

Demonstrate familiarity with energy-saving construction techniques.

PERFORMANCE OBJECTIVE: Given instructional information and demonstrations, discuss the advantages of energy-saving construction techniques.

ENABLING OBJECTIVES:

1. Discuss the importance of conserving energy.
   a. To the owners/occupants of a building.
   b. To the nation and the world.

2. Describe techniques used in passive solar construction.
3. State advantages and disadvantages of passive solar construction.
4. Identify characteristics of active solar construction.
5. State advantages and disadvantages of active solar construction.
6. Explain types of earth-sheltered construction.
7. State advantages and disadvantages of earth-sheltered construction.
8. Explain the importance of r-factor in building construction.
9. Select from a list benefits of using insulation in a structure.
10. Explain the functions of the two basic kinds of insulation.
11. Name general classifications of insulation materials.
12. List areas where insulation should be used in residential construction.
13. List areas where insulation should be used in commercial construction.
14. List factors that determine the amount of insulation needed.
15. Interpret sections of the Uniform Building Code and appropriate state and local codes pertaining to insulation.

UNIT 4

MATH AND MEASUREMENT SKILLS

Assigned Task List: Listing:

04.01 Identify basic mathematical terms and symbols.

04.02 Perform mathematical operations using whole numbers.

04.03 Perform calculations using fractions, decimals and percentages.

04.04 Demonstrate knowledge of basic geometry.

04.05 Perform measuring operations used in the building trades.

MATH AND MEASUREMENT SKILLS

04.01 ASSIGNED TASK LIST::

Identify basic mathematical terms and symbols.

PERFORMANCE OBJECTIVE: Given examples of mathematical terms and symbols, correctly match them to their operations.

ENABLING OBJECTIVES

1. Match terms associated with basic math to their correct definitions.
2. Match symbols used in math problems to their correct names.

04.02 ASSIGNED TASK LIST:

Perform mathematical operations using whole numbers.

PERFORMANCE OBJECTIVE: Given mathematical problems involving whole numbers, determine their correct solutions.

ENABLING OBJECTIVES

1. Label the place values of a whole number.
2. Add whole numbers.
3. Subtract whole numbers.
4. Multiply whole numbers.

04.03 Assigned Task List:

Perform calculations using fractions.

PERFORMANCE OBJECTIVE: Given mathematical problems containing fractions and decimals, determine their correct solutions.

ENABLING OBJECTIVES

1. Distinguish among types of fractions.
2. Reduce fractions to lowest terms.
3. Convert mixed numbers to improper fractions.
4. Convert improper fractions to mixed numbers.
5. Add fractions.
6. Subtract fractions.
7. Multiply fractions.
8. Divide fractions.
9. Label the place values of a decimal number.
10. Add decimal numbers.
11. Subtract decimal numbers.
12. Multiply decimal numbers.
13. Divide decimal numbers.
14. Convert decimal fractions to common fractions.
15. Convert common fractions to decimal numbers and percentages.
16. Identify decimal and fractional equivalents.
17. Convert percentages to fractions and decimal numbers.
18. Solve percentage problems.
19. Solve basic ratio and proportion problems.

04.04 Assigned Task List:

Demonstrate knowledge of basic geometry.

PERFORMANCE OBJECTIVE: Given examples of geometric figures, demonstrate the ability to identify them and correctly calculate their area and volume.

ENABLING OBJECTIVES

1. Match terms used in geometry to their correct definitions.
2. Match types of geometric figures to their correct descriptions.
3. Match units of measure to their correct equivalents.
4. Calculate the area of geometric figures.
5. Calculate the volume of solid figures.
6. Estimate cubic yards.

04.05 Assigned Task List:

Perform measuring operations used in the building trades.

PERFORMANCE OBJECTIVE: Given proper tools, demonstrate the ability to accurately carry out assigned measuring activities.

ENABLING OBJECTIVES

1. Match to their correct definitions terms associated with measuring.
2. Identify basic measuring tools used by carpenters.
3. List common errors that contribute to incorrect measurements.
4. Identify graduations on a carpenter's rule.
5. Read a carpenter's rule to the nearest fraction of an inch.
6. Convert fractional inches to hundredths of a foot.
7. Identify graduations on an engineer's rule.
8. Read an engineer's rule to the nearest hundredth of a foot.
9. Identify graduations on a tape.
10. Read a tape to the nearest fraction of an inch.
11. Describe measuring methods used to square lines.
12. Read measurements on carpenter's and engineer's rules.
13. Measure the dimensions of objects.
14. Convert fractional inches to hundredths of a foot.
15. Read measurements on tapes.
16. Demonstrate the ability to use basic measuring tools and the 3-4-5 method to lay out the perimeter of a building on a concrete slab.

UNIT 5

BASIC BLUEPRINT READING AND DRAWING SKILLS

Assigned Task List:

05.01 Demonstrate plan reading skills.

05.02 Use Drafting Equipment, Measuring Scales, Drawing Media, Drafting Instruments and Consumable Materials.

05.03 Prepare Pictorial Drawings

BASIC BLUEPRINT READING AND DRAWING SKILLS

05.01 Assigned Task List:

Demonstrate plan reading skills.

PERFORMANCE OBJECTIVE: Given a set of plans as used in the building trades, correctly interpret their meaning.

ENABLING OBJECTIVES

1. Match terms associated with plan reading to their correct definitions.
2. Match types of drawings usually included in a set of plans to their correct descriptions.
3. List information found on types of drawings in a set of plans.
4. Match lines in the alphabet of lines to their correct uses.
5. Identify lines in the alphabet of lines.
6. Identify selected architectural symbols.
7. Identify selected electrical symbols commonly used on plans.
8. Identify selected mechanical symbols commonly used on plans.
9. Identify selected abbreviations commonly used on plans.
10. Match architects conventions to their correct representations.
11. State the purpose of written specifications.
12. Select from a list of basic information included in a set of written specifications.
13. State the purpose of an engineer's scale.
14. Use an architect's scale.
15. Use an engineer's scale.
16. Read plans.
17. Interpret a finish schedule.
18. Read written specifications.

05.02 Assigned Task List:

Use Drafting Equipment, Measuring Scales, Drawing Media, Drafting Instruments and Consumable Materials

PERFORMANCE OBJECTIVE: Given drafting equipment, measuring scales, drawing media, drafting instruments and consumable materials, demonstrate the proper usage of each.

ENABLING OBJECTIVES

1. Identify drafting equipment, i.e. T-square, parallel bar, drafting arm, scales, instruments, etc.
2. Demonstrate the ability to set up a drafting table with proper drafting equipment.
3. Identify a variety of measuring scales and applications of each.
4. Describe the care of measuring scales.
5. Identify drafting instruments, i.e. compass, dividers, etc.
6. Match the type of consumable materials used in drafting with their purposes, i.e. lead, pencils, ink, erasers, cleaning pads, etc.

05.03 Assigned Task List:

Prepare Pictorial Drawings

PERFORMANCE OBJECTIVE: Given the necessary drafting equipment, working drawing, materials and instruction, construct a variety of pictorial drawings.

ENABLING OBJECTIVES

1. List three types of pictorial drawings.
2. Identify the common application of the three types of pictorial drawings.
3. List advantages and disadvantages of each type of pictorial drawing.
4. Define axonometric projection.
5. Identify three types of axonometric projections.
6. Describe the procedure for making an isometric drawing.
7. Explain how to construct non-isometric lines.
8. Explain how to construct angles, curves and circles in isometric.
9. Name three types of obliques.
10. Explain the advantages of using oblique's to illustrate objects with one irregularly shaped surface.
11. Describe the procedure for constructing an oblique.
12. Define perspective drawings.

13. Describe procedures for constructing a perspective drawing.
14. List three types of perspectives.
15. Define terms associated with perspective drawings.
16. Describe the procedure for centering pictorial drawings.
17. Prepare pictorial drawings.

UNIT 6
USE AND MAINTENANCE OF HAND AND POWER TOOLS

Assigned Task List:

06.01 Identify common carpenters' hand tools.
06.02 Demonstrate proper and safe use of common carpenters' hand tools. 06.03 Perform care and maintenance on common carpenters' hand tools. 06.04 Use power tools correctly and safely.

USE AND MAINTENANCE OF HAND AND POWER TOOLS

06.01 Assigned Task List:
Identify common carpenters' hand tools.

PERFORMANCE OBJECTIVE: Given a standard carpenter's tool box, identify carpenters hand tools.

ENABLING OBJECTIVES

1. Match terms associated with hand tools to their correct definitions.
2. State guidelines for care and safe use of hand tools.
3. Select from a list hand tools a beginning carpenter needs.
4. Match the following types of tools to their correct uses:
   a. hammers
   b. handsaws
   c. squares
   d. planes
   e. measuring instruments
   f. pliers
   g. other types of miscellaneous hand tools
5. Identify the following types of tools:
   a. layout instruments.
   b. boring and drilling hand tools
   c. screwdrivers
   d. wrenches
   e. files.
   f. chisels.
   g. clamps.
   h. tools used to install drywall.

06.02 Assigned Task List:

Demonstrate proper and safe use of common carpenter's hand tools.

PERFORMANCE OBJECTIVE: Given a standard carpenter's tool box, properly and safely use carpenters' hand tools.

ENABLING OBJECTIVES

1. Safely and correctly use the following tools:
   a. hammers
   b. handsaws
   c. squares
   d. planes
   e. measuring instruments
   f. pliers
   g. layout instruments
   h. boring and drilling hand tools
   i screwdrivers
   j wrenches
   k. files
   l. chisels
   m. clamps
   n. tools used to install drywall
   o. hacksaw
2. Use a framing square and rule to lay out a corner.
3. Use a level.
4. Drill and tap a hole in a piece of metal.

06.03 Assigned Task List:

Perform care and maintenance on common carpenters' hand tools.

PERFORMANCE OBJECTIVE: Given a standard carpenter's tool box, maintain carpenters hand tools.

ENABLING OBJECTIVES

1. Hone a wood chisel.
2. Change a hammer handle.
3. Discuss the proper maintenance of handsaws.
4. Sharpen a plane.
5. Discuss the importance of keeping tools clean.

06.04 ASSIGNED TASK LIST:

Use power tools correctly and safely.

PERFORMANCE OBJECTIVE: Given jobs that require power tools, follow all safety rules and manufacturers' directions.

ENABLING OBJECTIVES

1 Match terms associated with power tools to their correct definitions.
2. State general safety rules pertaining to power tools.
3. Select from a list general guidelines for proper care of power tools.
4. Select from a list uses of the following tools:
   a. table saw
   b. radial arm saw
   c. jointer
   d. planer
   e. shaper
   f. table band saw
   g. bench grinder
   h. drill press
   i. combination belt and disc sander
   j. power miter saw
   k. sawbuck
   l. chop saw
   m. screw gun
   n. hand-held grinder
5. State rules for the safe use of a:
   a. table saw
   b. radial arm saw
   c. jointer
   f. planer
   g. shaper table band saw
   h. bench grinder
   i. drill press
   j. combination belt and disc sander
   k. power miter saw
   l. sawbuck
   m. chop saw
   n. screw gun
   o. hand-held grinder
6. Distinguish between uses of a portable angle grinder and a belt sander.
7. State rules for the safe use of portable angle grinders and belt sanders.
8. Distinguish among uses of portable power saws.
9. State rules for the safe use of portable power saws.
10. Distinguish between uses of a router and a trimmer.
11. State rules for the safe use of routers and trimmers.

12. Distinguish among uses of portable drills, screw-guns, and hammer drills.
13. State rules for the safe use of portable drills, screwguns, and hammer drills.
14. Select from a list uses of a portable power plane. 15. State rules for the safe use of portable power planes.
16. Distinguish between uses of a rotary hammer and a chipping hammer.
17. State rules for the safe use of rotary and chipping hammers.
18. Select from a list uses of metal shears.
19. State rules for the safe use of metal shears.
20. Distinguish between uses of pneumatic fasteners.
21. State rules for the safe use of pneumatic fasteners.
22. Identify the parts of a powder-actuated tool.
23. Select from a list uses of powder-actuated tools.
24. State rules for the safe use of a powder-actuated tool.
25. Match circular-saw blades to their correct uses.
26. Complete a safety test for specific tools.
27. Perform straight and angle cut-off operations.
28. Perform ripping operations.
29. Make miter and compound miter cuts.
30. Operate a power sander.
31. Drill and bore holes.
32. Perform jointing operations.
33. Perform a face-planning operation.
34. Perform edge-shaping operations.
35. Operate a pneumatic fastener.
36. Safely load and use a powder-actuated tool.
37. Safely use a chop saw.
38. Safely load and use a screw gun.
39. Demonstrate the safe use of a grinder.

UNIT 7

SITE PREPARATION, CONCRETE FORMS, AND FORMING

Assigned Task List:

07.01 Set up and use a transit and a builder's level.

07.02 Demonstrate basic knowledge of concrete footings and foundations.

07.03 Determine concrete volume.

07.04 Explain the use of reinforcing in footings and foundations.

07.05 Demonstrate the ability to test concrete.

07.06 Demonstrate the ability to recognize and use types of concrete forms, associated hardware and materials.

07.07 Demonstrate the ability to construct, strip and prepare continuous and pier footing forms.

07.08 Identify types of special foundations and determine local minimum depth for foundations.

07.09 Demonstrate the ability to construct edge and stair forms.

07.10 Demonstrate the ability to work with wall forms.

07.11 Demonstrate knowledge of on-grade curb forms.

0712 Work with forming piers and columns.

07.13 Identify and construct beam forms.

07.14 Demonstrate knowledge of above-grade slab systems.

07.15 Demonstrate knowledge of fireproof encasement forms.

07.16 Demonstrate knowledge of bridge deck forms.

SITE PREPARATION, CONCRETE FORMS, AND FORMING

07.01 ASSIGNED TASK LIST:

Set up and use a transit and a builder's level.

PERFORMANCE OBJECTIVE: Given a transit and a builder's level, correctly set them up and use them to prepare and lay out sites.

ENABLING OBJECTIVES

1. Match terms associated with leveling instruments to their correct definitions.
2. List uses of a level.
3. Identify types of levels.
4. Identify parts of a level.
5. List uses of a transit.
6. Identify types of transits.
7. Label the major components of a transit.
8. Identify parts of a transit.
9. Identify different types of Vernier's.
10. Interpret readings on different styles of Vernier's.
11. List typical mistakes made in reading Vernier's.
12. Label vertical and horizontal cross hairs and line of sight on a leveling instrument.
13. State the rules for proper care of leveling instruments.
14. Identify parts of a leveling rod.
15. Match parts of a leveling rod to their correct uses.
16. Describe commonly used direct-reading rods.
17. Read direct-reading rods.
18. Identify hand signals used by the instrument person to guide the rod person.
19. Accurately read various types of verniers on transits.
20. Set up and adjust a level.
21. Use a level to check elevations.
22. Use a level to perform differential leveling.
23. Tie a slip knot for adjusting a plumb bob.
24. Set up and adjust a transit.
25. Use a transit to locate building corners.
26. Measure and read angles in the field.
27. Set up and use laser instruments.
28. Establish elevation reference points from bench mark.
29. Establish footing grade.
30. Locate and square corners.
31. Set grade stakes.
32. Correctly mark a story pole.
33. Install batter boards.

07.02 ASSIGNED TASK LIST:

Demonstrate basic knowledge of concrete footings and foundations.

PERFORMANCE OBJECTIVE: Given lists and diagrams, correctly identify components, mixtures, and materials used in concrete footings and foundations.

ENABLING OBJECTIVES

1 Match terms associated with concrete foundations to their correct definitions.

2. State principal properties of good concrete.

3. State factors that affect properties of concrete mixture.

4. Match types of admixtures used in concrete to their correct functions.

5. State benefits of admixtures in concrete.

6. State advantages of using vibrators in concrete.

7. Select from a list types of vibrators used to consolidate concrete.

8. Label parts of a concrete foundation.

9. Identify types of concrete footings and foundations.

10. Discuss the design of footings and foundations.

11. Arrange in order steps involved when constructing concrete foundations.

12. Interpret sections of the Uniform Building Code and state and local codes that pertain to concrete construction.

07.03 ASSIGNED TASK LIST:

Determine concrete volume.

PERFORMANCE OBJECTIVE: Given dimensions of footings and foundations, calculate the amount of concrete required to build them.

ENABLING OBJECTIVES:

1. List methods used to estimate concrete volume.

2. Estimate concrete using methods listed in objective one.

3. Estimate amount of concrete for a footing.

4. Estimate amount of materials needed to pour a foundation.

5. Calculate the cubic yards of concrete needed to pour a structure

07.04 ASSIGNED TASK LIST:

Explain reinforcing in footings and foundations.

PERFORMANCE OBJECTIVE: Given examples of footings and foundations, identify correct reinforcing materials to use in each.

ENABLING OBJECTIVES:

1. Name types of reinforcing material used in concrete.
2. Match common rebar numbers to their correct diameter sizes.
3. Select from a list common sizes of welded wire fabric

07.05 ASSIGNED TASK LIST:

Demonstrate the ability to perform standard tests on concrete.

PERFORMANCE OBJECTIVE: Given the necessary tools, accurately test sample concrete.

ENABLING OBJECTIVES

1. List the purposes of various types of concrete tests.
2. Obtain representative fresh concrete test samples for a slump test.
3. Perform a slump test.
4. Make a cylinder test.
5. Discuss the requirements of the Uniform Building Code and state and local codes for satisfactory test results.

07.06 ASSIGNED TASK LIST:

Demonstrate the ability to recognize and use types of concrete forms, associated hardware, and materials.

PERFORMANCE OBJECTIVE: Given examples of various types of concrete forms, identify them as to use, assembly and associated materials.

ENABLING OBJECTIVES

1. Match to their correct definitions terms associated with forming.
2. Explain the purpose of forms.
3. Name five types of forms.
4. Match external factors that affect form design to their effects.
5. Identify parts of a form.
6. Name six types of hardware used on forms.
7. Identify and state the purpose of joint types used in concrete construction.
8. Write five precautions that reduce the development of skin irritation in the use of cement products.

07.07 ASSIGNED TASK LIST:

Demonstrate the ability to construct, strip, and prepare continuous and pier footing forms.

PERFORMANCE OBJECTIVE: Given information, tools and materials, demonstrate knowledge of how to construct footing and foundation forms, set the forms, and strip them for use in another location.

ENABLING OBJECTIVES:

1. Match terms associated with footing and foundation forms to their correct definitions.
2. Discuss external factors that affect footing and pier footing form design.
3. Name four types of footings.
4. Identify the parts of footing and pier footing forms.
5. Identify types of form ties and clamps.
6. Name methods of form construction for footings.
7. Demonstrate the ability to:
    a. Lay out, construct, and set forms for a continuous footing.
    b. Lay out, construct, and set forms for a pier footing.
    c. Strip pier-footing forms and prepare them for erection at another location.
    d. Lay out and construct forms for a grade beam.

07.08 ASSIGNED TASK LIST:

Identify types of special foundations and determine local minimum depth for foundations.

PERFORMANCE OBJECTIVE: Given examples of construction situations, determine the correct use of special applications foundations.

ENABLING OBJECTIVES

1. Match terms associated with special applications to their correct definitions.
2. Identify types of special foundations.
3. Discuss the classification of piers.
4. State the ratio of pier height to minimum transverse dimension.
5. Explain the need for different foundation types and sizes in various areas of the United States.
6. List types of loads that act on a structure.
7. Compute maximum height of piers.
8. Determine minimum foundation depth for frost

penetration.

07.09 ASSIGNED TASK LIST:

Demonstrate the ability to construct edge and stair forms.

PERFORMANCE OBJECTIVE: Given information, tools and materials, demonstrate the ability to build and use various types of edge forms.

ENABLING OBJECTIVES

l Match terms associated with edge forms to their correct definitions.
2. List three types of pours using edge forms.
3. Name materials used to construct edge forms.
4. Identify parts of edge forms.
5. Distinguish between screeds and bulkheads.
6. Identity different types of screeds
7. Set screeds on-grade.
8. Name reasons for using joints in pavements.
9. Identify types of joints used in pavements.
10. List types of sealants used in joints.
11. Identify types of curbs and curb and gutters.
12. Label types of stairs.
13. Identify parts of a stair form.
14. Name types of stair slabs.
15. Identify types of stair forms for each type of slab.
16. State rules for unit rise and run.
17. Calculate number of risers and number and width of treads for a stair of given dimensions.
18. Demonstrate the ability to:
    a. Construct and disassemble edge forms for a slab on grade without foundation.
    b. Construct and disassemble edge forms for a slab on grade with an existing foundation.
    c. Construct and disassemble edge forms for a slab on grade with an integral foundation.
    d. Construct edge forms for a patio with radius.
    e. Construct forms for a solid set of steps.
    f. Construct forms for earth-supported stairs.
    g. Construct forms for suspended stairs.

07.10 ASSIGNED TASK LIST:

Demonstrate the ability to work with wall forms.

PERFORMANCE OBJECTIVE: Given tools and materials, correctly build or assemble different types of wall forms.

ENABLING OBJECTIVES

1. Match to their correct definitions terms associated with wall forms.
2. Name four types of wall forms.
3. Select from a list types of materials used to construct wall forms.
4. Identity parts of a wall form.
5. Select from a list advantages of patented panel forms over built-in-place or erected-in-place-forms.
6. Demonstrate the ability to:
   a. Construct straight wall with patented forms.
   b. Construct gang forms for a battered wall.
   c. Construct radius wall forms.
   d. Construct panel and pilaster forms.
   e. Remove forms and prepare them for storage.

07.11 ASSIGNED TASK LIST:

Demonstrate knowledge of on-grade curb forms.

PERFORMANCE OBJECTIVE: Given specifications for curb and gutter work, demonstrate the ability to correctly construct the appropriate forms.

ENABLING OBJECTIVES

1.Match to their correct definitions terms associated with on-grade curb forms.
2 Identify types of curbs and gutters.
3. Name three types of forms used to form curbs and gutters.
4. Name methods of forming curbs and curbs and gutters.
5. Name methods of forming median barriers.
6. Demonstrate the ability to:
   a. Construct and strip straight curb forms.
   b. Construct and strip curb and gutter forms.
   c. Set metal curb and gutter forms.

07.12 ASSIGNED TASK LIST:
Work with forming piers and columns.

PERFORMANCE OBJECTIVE: Given plans which call for pier and column construction, demonstrate the ability to construct and set the appropriate forms.

ENABLING OBJECTIVES

1. Match to their correct definitions terms associated with piers and columns.
2. List factors that influence column form design.
3. Identify column shapes.
4. Name common types of materials used for column forms.
5. Identify types of clamps or yokes used on column forms.
6. Name methods of column form construction.
7. Demonstrate the ability to:
   a. Construct and strip forms for a square column.
   b. Set and strip a round column form.

07.13 ASSIGNED TASK LIST:
Identify and construct beam forms.

PERFORMANCE OBJECTIVE: Given tools, materials and plans, correctly identify and build the forms needed for various types of beams.

ENABLING OBJECTIVES

1. Match to their correct definitions terms associated with beam forms.
2. Identify the parts of a beam form.
3. Name types of beams.
4. List types of materials used to construct beam forms.
5. Identify types of beam shores.
6. Construct and strip:
   a. a spandrel beam form.
   b. an interior beam form.
   c. a plate girder beam form.

07.14 ASSIGNED TASK LIST:

Demonstrate knowledge of above-grade slab systems.

PERFORMANCE OBJECTIVE: Given plans requiring the use of above-grade slab systems, demonstrate the ability to correctly construct and use them.

ENABLING OBJECTIVES:

1. Match to their correct definitions terms associated with above-grade slab systems.
2. Identify parts of a slab forming system.
3. Identity types of forming systems used for concrete slabs.
4. Select materials used to manufacture pans and domes.
5. List five types of materials used for "leave in place" or permanent forms.
6. List three types of materials used to form concealed voids and ducts in concrete.
7. Name types of manufactured exposed void forms.
8. Demonstrate the ability to:
   a. Construct and strip forms for a two-way joist system.
   b. Construct and strip forms for a one-way joist system.
   c. Construct, set and strip a flying slab form.
   d. Set screeds on a deck for a flat slab.

07.15 ASSIGNED TASK LIST:

Demonstrate a knowledge of fireproof encasement forms.

PERFORMANCE OBJECTIVE: Given applications calling for fireproof encasement forms, demonstrate the ability to build them.

ENABLING OBJECTIVES:

1. Match to their correct definitions terms associated with fireproof encasement forms.
2. State the purpose of fireproof encasement.
3. List types of special hardware used to erect fireproof encasement forms.
4. Identify the parts of a fireproof encasement form.
5. List the major difference between erection of fireproof encasement forms and erection of structural concrete forms.
6. Demonstrate the ability to construct and strip fireproof encasement forms for beams.

07.16 ASSIGNED TASK LIST:

Demonstrate knowledge of bridge deck forms.

PERFORMANCE OBJECTIVE: Given construction operations calling for bridge deck forms, demonstrate the ability to correctly construct them.

ENABLING OBJECTIVES:

1. Match to their correct definitions terms associated with bridge deck forms.
2. Identify the parts of a bridge deck form.
3. Name methods of supporting deck forms.
4. Name two types of bridges that use reinforced concrete slabs.
5. Demonstrate the ability to construct and strip forms for a bridge deck.

UNIT 8

FRAME FLOORS, SILLS, WALLS AND CEILINGS

Assigned Task Lists:

08.01 Demonstrate a basic knowledge of floors and sills.

08.02 Apply basic knowledge of floors and sills.

08.03 Identify wall and partition members.

08.04 Estimate materials required for a single-story structure.

08.05 Frame a single-story structure.

08.06 Demonstrate the ability to work with metal framing systems.

08.07 Identify types of finish flooring.

08.08 Install finish flooring.

FRAME FLOORS, SILLS, WALLS AND CEILINGS

08.01 ASSIGNED TASK LIST:

Demonstrate a basic knowledge of floors and sills.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to lay out floor assemblies.

ENABLING OBJECTIVES

1. Match terms associated with frame floors and sills to their correct definitions.
2. Identify floor and sill framing and support members.
3. Name methods used to fasten sills to the foundation.
4. Select from a list types of beams/girders.
5. List types of floor joists.
6. Label types of bridging.
7. List types of flooring materials.
8. Discuss functional designs used to lay subflooring.
9. List purposes of subflooring and underlayment.
10. Match fasteners used in floor framing to their correct uses.
11. Select from a list considerations that determine size and spacing for:
    a. joists
    b. beams
    c. girders
12. Use the Construction Specifications Institute Manual to determine the correct materials to carry various loads over various spans.
13. Discuss common methods used to attach decks to structures.
14. Estimate the amount of material needed to frame a floor assembly.
15. Interpret Uniform Building Code and state and local code sections pertaining to floors, sills, walls and ceilings.

08.02 ASSIGNED TASK LIST:

Apply a basic knowledge of floors and sills.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to construct floor assemblies.

ENABLING OBJECTIVES

1. Install bridging.
2. Install joists for a cantilever floor.
3. Install subfloor materials.
4. Install a single floor system using tongue and groove material.

08.03 ASSIGNED TASK LIST:
Identify wall and partition members.

PERFORMANCE OBJECTIVE: Given plans and materials, identify wall and partition members of a single story structure.

ENABLING OBJECTIVES

1. Match terms associated with framing walls and ceilings to their correct definitions.
2. Identify framing members used in wall and partition framing.
3. Identify methods used to construct outside corners of wall frames.
4. Identify common methods used to construct partition T's.
5. Label types of headers.
6. Calculate the length of a regular stud.
7. Compute rough opening (R.O.) dimensions for doors.
8. Calculate the length of trimmers for window and door openings.
9. Calculate the length of headers for rough openings.
10. Select from a list construction details that should be added during wall framing.
11. List methods used to brace walls.
12. Select from a list pennyweights of nails most often used in framing.
13. Select from a list factors to consider before selecting joist size and spacing.
14. List methods used to support ceiling joists.
15. List methods used to anchor joists to partition walls.
16. Describe methods used to prevent joists from twisting or bowing.
17. Label the parts of a prefabricated rolling scaffold.
18. State safety precautions pertaining to scaffolds.

08.04 ASSIGNED TASK LIST:
Estimate materials required for a single-story structure.

PERFORMANCE OBJECTIVE: Given drawings and dimensions, estimate the materials required to frame a single story structure.

ENABLING OBJECTIVES

1. Estimate materials for ceiling joists.
2. Calculate the amount of materials required for wall and partition framing.

08.05 ASSIGNED TASK LIST:

Frame a single-story structure.

PERFORMANCE OBJECTIVE: Given plans, tools, and materials, frame a single story structure.

ENABLING OBJECTIVES

1. Demonstrate the ability to lay out wall and partition locations on a floor.
2. Cut studs, trimmers, cripples, and headers to length.
3. Assemble corners, T's, and headers.
4. Construct wall sections for a single-story structure.
5. Erect and brace wall sections for a single-story structure.
6. Set up a section of prefabricated scaffolding on a solid base.
7. Layout and install ceiling joists.

08.06 ASSIGNED TASK LIST:

Demonstrate the ability to work with metal framing systems.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to frame walls using metal stud construction systems.

ENABLING OBJECTIVES

1. Match terms associated with fireproof metal stud construction to their correct definitions.
2. Name components of metal stud systems.
3. Identify fasteners used for metal stud construction.
4. Identify tools and equipment used in metal stud construction.
5. List areas where metal stud systems are used.
6. Select from a list advantages of metal stud systems
7. List methods used to install fixture supports on metal stud systems.
8. Demonstrate the ability to:
   a. Lay out wall lines, corners, partitions. and openings.
   b. Install a metal stud wall with openings.
   c. Install a metal door frame.
   d. Install a metal knockdown door frames.
   e. Install a metal stud radius wall.

08.07 ASSIGNED TASK LIST:
Identify types of finish flooring.

PERFORMANCE OBJECTIVE: Given a list of building products and materials, identify those associated with finish flooring.

ENABLING OBJECTIVES

1. Match terms associated with floor finishes to their correct definitions.
2. Name types of underlayment for finish flooring.
3. Name types of finish flooring.
4. List factors to consider when selecting finish flooring.
5. Identify types of hardwood flooring.
6. List types of wood used for hardwood flooring.
7. Name types of resilient flooring.

08.08 ASSIGNED TASK LIST:
Install finish flooring.

PERFORMANCE OBJECTIVE: Given job specifications and standard tools, demonstrate the ability to correctly estimate, choose, and install specified flooring material.

ENABLING OBJECTIVES

1. Estimate the number of 4'x 8' sheets of underlayment needed to floor a room.
2. Estimate the number of tiles needed to floor a room.
3. Demonstrate the ability to:
   a. Install underlayment.
   b. Install tongue-and-groove hardwood strip flooring.
   c. Install block flooring.
   d. Install resilient tile.

UNIT 9

ROOF CONSTRUCTION TECHNIQUES

Assigned Task List:

09.01 Identify different roof framing members.

09.02 Construct a roof, including all openings and sheathing.

09.03 Demonstrate the ability to construct trusses.

09.04 Demonstrate the ability to erect trusses.

09.05 Demonstrate and apply knowledge of cornices and gable ends. 09.06 Discuss roof construction.

09.07 Apply roofing and flashing.

ROOF CONSTRUCTION TECHNIQUES

09.01 ASSIGNED TASK LIST:
Identify different roof framing members.

PERFORMANCE OBJECTIVE: Given examples, plans and materials, demonstrate the ability to identify roof framing members.

ENABLING OBJECTIVES

1. Match terms associated with roof framing to their correct definitions.
2. List types of roof supports.
3. Identify roof framing members.
4. Label roof framing units.
5. Discuss slope and pitch ratios.
6. Identify parts of a rafter.
7. List methods for determining rafter length.
8. Select from a list types of roof openings.
9. List types of vents used in roof construction.

09.02 ASSIGNED TASK LIST:
Construct a roof, including all openings and sheathing.

PERFORMANCE OBJECTIVE: Given tools, plans and materials, demonstrate the ability to correctly construct a roof.

ENABLING OBJECTIVES

1. Use a framing square to compute the length of a common rafter.
2. Use a framing square to compute the length of a hip rafter.
3. Use a framing square to compute the length of jack rafters.
4. Estimate material needed to frame a roof.
5. Lay out rafter locations on top plate and ridge board on 2 foot centers.
6. Lay out, cut, and erect rafters for gable roofs.
7. Frame a gable end with a vent opening.
8. Frame an opening in a roof.
9. Erect trusses for a gable roof.
10. Lay out, cut, and erect rafters for an intersecting hip roof with valley.
11. Lay out, cut, and erect rafters for hip roofs.
12. Apply roof sheathing.

09.03 ASSIGNED TASK LIST:
Demonstrate the ability to construct trusses.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to correctly construct trusses.

ENABLING OBJECTIVES

1. Match terms associated with trusses to their correct definitions.
2. Identify types of trusses.
3. Label the main parts of a truss.
4. Identify framing details for trusses.
5. Identify hardware used in truss construction.
6. List advantages of using trusses.
7. State considerations for weight and stress when designing trusses.
8. Identify common types of glue-laminated arches.

09.04 ASSIGNED TASK LIST:

Demonstrate the ability to erect trusses.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to correctly and safely erect trusses.

ENABLING OBJECTIVES

1. Match terms associated with rigging and material handling to their correct definitions.
2. Identify accessories used for load lifting.
3. Identify hitches used for attaching materials and equipment to the hoist.
4. Label elements of knots, bends and hitches.
5. Match types of knots to their correct uses.
6. State safety rules related to rigging and material handling.
7. State precautions to observe when caring for ropes.
8. Calculate the safe working load (SWL) of different types and sizes of ropes.
9. State the importance of spreading sling angles.
10. Calculate sling stress using a formula.
11. Distinguish among hand signals used in rigging operations.
12. Calculate safe working load (SWL) of different sizes of wire rope.
13. Select from a list types of cable fittings.
14. Select from a list good rigging practices.
15. Distinguish among types of knots.
16. Demonstrate the ability to:
    a. Tie knots
    b. Install wire rope clips.
    c. Rig and handle different types of loads using proper hand signals.
    d. Demonstrate safe and proper technique for rigging an off-center load.
17. Erect trusses with a light crane.
18. Construct a standard Howe truss.
19. Erect trusses by hand.
20. Apply roof sheathing.

09.05 ASSIGNED TASK LIST:

Demonstrate and apply knowledge of cornices and gable ends.

PERFORMANCE OBJECTIVE: Given lists, diagrams, tools and materials, demonstrate the ability to correctly identify terms associated with cornices and gable ends; use this knowledge to construct one or more examples.

ENABLING OBJECTIVES

1. Match terms associated with cornices and gable ends to their correct definitions.
2. Label types of cornice designs.
3. Identify parts of a box cornice.
4. Identify parts of a boxed rake section.
5. Identify types of cornice moldings.
6. Label types of tail-rafter cuts.
7. Select from a list materials used for soffits.
8. Select from a list hardware and fasteners used on or with cornices.
9. Name exterior wall coverings used on gable ends.
10. Estimate material needed for cornices and gable ends.
11. Demonstrate the ability to:
    a. Build a horizontal box cornice.
    b. Apply siding to a gable end.

09.06 Assigned Task List:

Discuss roof construction.

PERFORMANCE OBJECTIVE: Given diagrams, lists, tools and materials, demonstrate knowledge of roofing practices.

ENABLING OBJECTIVES

1. Match terms associated with roofing to their correct definitions.
2. State safety rules pertaining to roofing.
3. Identify the parts of a roof.
4. Identify traditional residential roof designs.
5. Name classes of roofing.
6. Match minimum slope requirements to their specific roofing applications.
7. List types of roofing materials.
8. Identify basic types of asphalt shingles.
9. Distinguish between the definitions of wood shingles and wood shakes.
10. Interpret sections of the Uniform Building Code and state and local codes that pertain to roofs and roofing.

09.07 ASSIGNED TASK LIST:
Apply roofing and flashing.

PERFORMANCE OBJECTIVE: Given diagrams, lists, tools and materials, demonstrate the ability to correctly apply roofing and flashing.

ENABLING OBJECTIVES

1. State decking requirements for applying:
   a. wood shingles
   b. wood shakes
   c. tile
   d. metal
   e. slate
   f. asphalt shingles

2. State procedures for applying:
   a. wood shingles
   b. wood shakes
   c. tile
   d. metal
   e. slate
   f. asphalt shingles

3. List guidelines for applying underlayment.
4. Describe general requirements for applying flashing.
5. Select from a list areas where flashing should be used.
6. Select from a list types of materials used for flashing.
7 Match roofing equipment and tools to their correct uses.
8. Select from a list procedures for applying double starter course of asphalt shingles.
9. State procedures for applying shingles with cutouts that break joint in half.
10. Arrange in order steps for installing flashing at open-valley locations.
11. Estimate roofing materials needed for a three-tab asphalt shingle roof.
12. Demonstrate the ability to:
    a. apply asphalt shingles with 5-inch exposure.
    b. apply wood shingles with 5-inch exposure over spaced sheathing.
    c. apply metal roofing.
    d. apply tile roofing.
    e. apply slate roofing.
13. Discuss appropriate installation of roof gutters.

UNIT 10

INTERIOR STAIRCASES

Assigned Task List: Listing

10.01 Identify types of special house designs and special framing projects.

10.02 Construct a housed staircase.

10.03 Identify types of handrails and railings.

10.04 Construct handrails and railings.

INTERIOR STAIRCASES

10.01 ASSIGNED TASK LIST:

Identify types of special house designs and special framing projects.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate knowledge of special framing techniques.

ENABLING OBJECTIVES

1. Match terms associated with special framing to their correct definitions.
2. Identify types of special house designs.
3. Identify special framing projects.
4. Match terms associated with stairs to their correct definitions.
5. Identify parts of a staircase.
6. Identify basic types of stairs.
7. List factors that must be considered when building a staircase.
8. State rules of thumb for unit rise and unit run. .
9. Label methods used to secure stringers.

10.02 ASSIGNED TASK LIST:

Construct a housed staircase.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, apply knowledge of special framing techniques.

ENABLING OBJECTIVES

1. Match terms associated with housed staircases to their correct definitions.
2. Calculate number and size of risers and treads for a stair of given dimensions.
3. Estimate materials for housed stairs.
4. Construct a housed stair.

10.03 ASSIGNED TASK LIST:

Identify types of handrails and railings.

PERFORMANCE OBJECTIVE: Given lists and examples, demonstrate knowledge handrails and railings.

ENABLING OBJECTIVES

1. Match terms associated with handrails and railings to their correct definitions.
2. List factors that must be considered when selecting handrails and railings.
3. Discuss requirements of the Uniform Building Code and state and local codes that pertain to handrails and railings.

10.04 ASSIGNED TASK LIST:

Construct handrails and railings.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, fabricate and install handrails and railings.

ENABLING OBJECTIVES

1. Estimate materials needed for a handrail or railing.
2. Determine the correct fasteners to use with handrails and railings.
3. Correctly install a handrail and a railing.

UNIT 11

SHEATHING, SIDING, AND EXTERIOR BUILDING MATERIALS Assigned

Task List: Listing

11.01 Identify different types of wall sheathing and siding.

11.02 Install different types of wall sheathing and siding.

SHEATHING, SIDING, AND EXTERIOR BUILDING MATERIALS

11.01 ASSIGNED TASK LIST:

Identify different types of wall sheathing and siding.

PERFORMANCE OBJECTIVE: Given examples of exterior building materials, identify them according to their appropriate uses.

ENABLING OBJECTIVES

1. Match terms associated with exterior walls and trim to their correct definitions.
2. Name types of wall sheathing.
3. Identify styles of siding.
4. Identify joint details for plywood siding.
5. Identify types of exterior moldings and trims.
6. List recommendations for waterproofing exterior walls.
7. List advantages and disadvantages of the following types of exterior materials:
   a. wood
   b. aluminum
   c. plastics
   d. cement block
   e. brick
   f. stucco
   g. concrete ("stand-up slabs")
   h. stone

11.02 ASSIGNED TASK LIST:

Install different types of wall sheathing and siding.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to correctly install various types of sheathing and siding.

ENABLING OBJECTIVES

1. Estimate amounts of siding for given jobs.
2. Estimate siding for a house with a gable roof.
3. Estimate sheathing and siding for a house with a hip roof.
4. Install sheathing.
5. Install bevel siding.
6. Install sheathing and plywood siding.

UNIT 12

WINDOWS, EXTERIOR AND INTERIOR DOORS, AND ASSOCIATED TRIM

Assigned Task List: Listing

12.01 Identify different types of windows.

12.02 Demonstrate the ability to install various kinds of window units.

12.03 Install a complete entry including threshold, frame, door, hardware, trim and weather stripping.

12.04 Discuss interior door installation.

12.05 Install various types of door units, locks and trim.

WINDOWS, EXTERIOR AND INTERIOR DOORS, AND ASSOCIATED TRIM

12.01 ASSIGNED TASK LIST:

Identify different types of windows.

PERFORMANCE OBJECTIVE: Given a list of products and materials, demonstrate the ability to identify various types of windows.

ENABLING OBJECTIVES

1. Match windows and accessories to their correct descriptions.
2. Name types of sliding windows.
3. Name types of swinging windows.
4. Name types of fixed windows.
5. Select from a list types of materials used to construct windows.
6. Identify parts of a window installation.
7. Select from a list types of materials used for window panes.

12.02 ASSIGNED TASK LIST:

Demonstrate the ability to install various kinds of window units.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, install various types of windows.

ENABLING OBJECTIVES

1. State information a carpenter should know when installing windows.
2. State recommendations for a good window installation.
3. Demonstrate the ability to install:
   a. a double-hung wood window unit.
   b. Fixed windows.
   c. Swinging windows.
   d. Aluminum frame window units.

12.03 ASSIGNED TASK LIST:

Install a complete entry including threshold, frame, door, hardware, trim and weather stripping.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to correctly install a complete entry.

ENABLING OBJECTIVES

1. Match terms associated with exterior doors to their correct definitions.
2. State basic classifications of exterior doors.
3. Identify types of entry doors.
4. List advantages and disadvantages of sliding glass and patio doors.
5. Identify parts of an exterior door installation.
6. List materials used in door construction.
7. Name materials used for exterior door sills.
8. Select from a list standard sizes of exterior doors.
9. Explain the numbering system for doors.
10. Complete statements about recommended finish clearances and dimensions for hanging doors.
11. Identify door swing (hand).
12. Identify hardware used with exterior doors.
13. List types of thresholds used with entrance doors.
14. Demonstrate the ability to:
    a. Install a metal threshold on a concrete floor.
    b. Install an exterior pre-hung door unit.
    c. Install entry door frame, casing, door, and lock.
    d. Install weather stripping.
    e. Install door frame and inside jambs for an overhead garage door.
15. Install bronze weather-stripping.

12.04 ASSIGNED TASK LIST:

Discuss interior door installation.

PERFORMANCE OBJECTIVE: Given a list of products and materials associated with interior doors, identify them according to their uses.

ENABLING OBJECTIVES

1. Match terms associated with interior doors and trim to their correct definitions.
2. State the general types of interior door construction.
3. State the basic classifications of interior doors.
4. Identify types of interior doors.
5. Identify parts of an interior door unit.
6. Select from a list standard sizes of interior doors and jambs.
7. Identify hand of a door.

12.04 ASSIGNED TASK LIST:

Install various types of door units, locks and trim.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to select, install and trim interior doors.

ENABLING OBJECTIVES

1. Select from a list recommended finish clearances and dimensions for hanging doors.
2. Compute rough opening size for interior doors.
3. Identify hardware used with interior doors.
4. Identify types of interior trim.
5. Estimate material needed to trim a room.
6. Demonstrate the ability to:
   a. Install interior door frame, hang door, lock, and trim.
   b. Install a split-jamb pre-hung door unit.
   c. Install a solid-jamb pre-hung door unit.
   d. Install a bi-fold door unit.
   e. Install a pocket door unit.
   f. Install window trim.

UNIT 13
INSULATION AND VAPOR BARRIERS

Assigned Task List: Listing

13.01 Discuss types of insulation and vapor barriers.

13.02 Install insulation and vapor barriers.

INSULATION AND VAPOR BARRIERS

13.01 ASSIGNED TASK LIST:
Discuss types of insulation and vapor barriers.

PERFORMANCE OBJECTIVE: Given a list of insulation products and vapor barrier materials, identify them according to their standard uses.

ENABLING OBJECTIVES

1. Match terms associated with insulation to their correct definitions.
2. Explain the functions of the two basic kinds of insulation.
3. Select from a list benefits of using insulation in a structure.
4. List types of insulation commonly used in residential construction.
5. Name general classifications of insulation materials.
6. List areas where insulation should be used in residential construction.
7. List factors that determine the amount of insulation needed for walls, ceilings, and floors.
8. Name types of materials used for vapor barriers.

13.02 ASSIGNED TASK LIST:
Install insulation and vapor barriers.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to install insulation and vapor barriers.

ENABLING OBJECTIVES

1. Select from a list methods used to apply insulation and vapor barriers.
2. Estimate the packages of insulation needed to insulate a structure.
3. Demonstrate the ability to:
   a. Install vapor barrier and insulation for a concrete slab on grade.
   b. Install blanket insulation in walls.

UNIT 14

INTERIOR WALLS AND CEILINGS

Assigned Task List: Listing

14.01 Demonstrate knowledge of drywall.

14.02 Install drywall materials.

14.03 Recognize the different types of wall and ceiling finish materials. 14.04 Install various types of wall and ceiling finish materials.

INTERIOR WALLS AND CEILINGS

14.01 ASSIGNED TASK LIST:

Demonstrate a knowledge of drywall.

PERFORMANCE OBJECTIVE: Given a list of drywall products and materials, identify them according to their correct uses.

ENABLING OBJECTIVES

1. Match terms associated with drywall to their correct definitions.
2. Name types of drywall.
3. Select from a list standard sizes of drywall.
4. Identify standard edge shapes of drywall.
5. State benefits of using drywall.
6. Describe types of base or construction where drywall is used.
7. Identify hardware and fasteners used with drywall.
8. Select from a list types of finishes that may be applied to drywall.

14.02 ASSIGNED TASK LIST:

Install drywall materials.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to correctly install drywall materials.

ENABLING OBJECTIVES

1. Estimate materials needed to drywall a structure.
2. Install drywall.
3. Finish drywall joints and depressions.

14.03 ASSIGNED TASK LIST:

Recognize the different types of wall and ceiling finish materials.

PERFORMANCE OBJECTIVE: Given a list of building products and materials, identify those used to finish walls and ceilings.

ENABLING OBJECTIVES

1. Match terms associated with wall and ceiling finishes to their correct definitions.
2. List materials used to finish walls and ceilings.
3. Name styles of paneling.
4. Identify joint treatments for paneling.
5. List factors that influence type of ceiling tile to be used.
6. List materials used to fabricate ceiling tile.

14.04 ASSIGNED TASK LIST:

Install various types of wall and ceiling finish materials.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to finish walls and ceilings.

ENABLING OBJECTIVES

1. Estimate the number of 4' x 8' sheets needed to panel a room.
2. Estimate the number of ceiling tiles needed to finish a ceiling.
3. Install V-grooved paneling and trim.
4. Install panel wainscot and trim.
5. Install furring strips on a masonry wall.
6. Install ceiling tile over drywall.
7. Install furring strips on ceiling joists and ceiling tile on furring.

UNIT 15

CABINETS AND SPECIAL BUILT-INS

Assigned Task List: Listing

15.01 Identify parts of a cabinet.

15.02 Install cabinets and shelves.

CABINETS AND SPECIAL BUILT-INS

15.01 ASSIGNED TASK LIST: Identify parts of a cabinet.

PERFORMANCE OBJECTIVE: Given a list of cabinets and built-ins, identify them as to use.

ENABLING OBJECTIVES:

1. Match terms associated with cabinet installation and special built-ins to their correct definitions.
2. Name types of cabinets.
3. Identify parts of a cabinet.
4. Name the standard sizes of base and top cabinets.
5. Label types of cabinet-door installation.
6. Label styles of cabinet doors.
7. Label types of joints used in cabinet construction.
8. Identify hardware used on cabinets.
9. List types of material used on counter tops.
10. List types of special built-ins.

15.02 ASSIGNED TASK LIST: Install cabinets and shelves.

PERFORMANCE OBJECTIVE: Given appropriate tools and materials, demonstrate the ability to correctly install cabinets and shelves.

ENABLING OBJECTIVES

1. Install a factory-built cabinet.
2. Install shelves in a closet.

UNIT 16

STRUCTURAL TIMBER AND POST AND BEAM CONSTRUCTION Assigned Task List:

16.01 Demonstrate the ability to build with structural timber.

16.02 Demonstrate knowledge of basic post and beam construction.

STRUCTURAL TIMBER AND POST AND BEAM CONSTRUCTION

16.01 ASSIGNED TASK LIST:

Demonstrate the ability to build with structural timber.

PERFORMANCE OBJECTIVE: Given plans, tools and materials, demonstrate the ability to build with structural timber.

ENABLING OBJECTIVES

1. Match terms associated with structural timber construction to their correct definitions.
2. Identify the basic components used in structural timber construction.
3. List factors that have contributed to the more efficient use of structural timber in modern construction.
4. List factors that determine the size of the components in structural timber construction.
5. Identify connecting devices used with structural timbers.
6. Identify hardware items used in structural timber construction.
7. Identify types of decking.
8. Demonstrate the ability the construct a structural timber picnic shelter.

16.02 ASSIGNED TASK LIST:

Demonstrate knowledge of basic post and beam construction.

PERFORMANCE OBJECTIVE: Given a list of materials used in post and beam construction, demonstrate the ability to correctly identify them.

ENABLING OBJECTIVES

1. Match terms associated with post and beam construction to their correct definitions.
2. Identify the basic components used in post and beam construction.
3. List factors that have contributed to the more efficient use of posts and beams in modern construction.
4. List factors that determine the size of posts and beams.
5. Identify connecting devices used with posts and beams.
6. Identify hardware items used in post and beam construction.
7. Construct a post and beam carport.

UNIT 17

ARC WELDING AND OXYACETYLENE CUTTING APPLICATIONS

Assigned Task List:

17.01 Demonstrate the ability to arc weld.

17.02 Apply oxyacetylene cutting skills used in construction.

ARC WELDING AND OXYACETYLENE CUTTING APPLICATIONS

17.01 ASSIGNED TASK LIST:

Demonstrate the ability to arc weld.

PERFORMANCE OBJECTIVE: Given materials, components to be welded, and equipment, perform arc welds with different rods.

ENABLING OBJECTIVES:

1. Match terms associated with arc welding to their correct definitions.
2. State safety precautions to observe when welding.
3. Match types of personal safety devices to their uses.
4. Select from a list common equipment used in arc welding.
5. Identify hand tools used in welding.
6. Identify power tools used in welding.
7. State guidelines for safe use and care of hand tools.
8. State general safety rules pertaining to power tools.
9. State guidelines for proper care of power tools.
10. Distinguish between reverse and straight polarity.
11. Select from a list factors that determine the correct polarity to use.
12. Select from a list purposes of electrode flux.
13. List factors to consider when choosing electrodes.
15. Describe the effects of raising and lowering welding machine amperes.
16. Name methods of striking an arc.
17. Select from a list characteristics of proper arc length.
18. Identify parts of the welding process.
19. Match types of welds to their correct descriptions.
20. Label types of weld joints.
21. Label parts of groove and fillet welds.
22. List positions used in arc welding.
23. List reasons for poor welds.
24. List types of electrode motions (rod manipulations).
25. State characteristics of a good weld.
26. Match elements of welding symbols to their correct descriptions.
27. Draw symbols showing location of welds.
28. Identify basic weld symbols.
29. Distinguish between correct and incorrect drawings of symbols with one vertical side.
30. Identify supplementary symbols.
31. Interpret finish symbols used with contour symbols.
32. Construct a pad weld.
33. Construct a butt weld.
34. Construct a lap-joint fillet weld.
35. Construct a T-joint fillet welding in the vertical up position.

17.02 ASSIGNED TASK LIST:

Apply oxyacetylene cutting skills used in construction.

PERFORMANCE OBJECTIVE: Given materials and equipment, safely cut metal using correct oxyacetylene techniques.

ENABLING OBJECTIVES:

1. Match terms associated with oxyacetylene cutting to their correct definitions.
2. State color codes for oxygen and acetylene.
3. Arrange in order stages in the oxyacetylene cutting process.
4. Identify parts of an oxyacetylene cutting outfit.
5. Identify parts of a torch body and cutting attachment.
6. State safety rules for working with oxyacetylene equipment.
7. Identify types of oxyacetylene cutting flames.
8. Distinguish between flashbacks and backfire.
9. Arrange in order steps to follow in case of flashback
10. Select from a list causes of backfire.
11. Match common cutting-torch tips to their correct uses.
12. Identify a multi flame heating nozzle (rosebud) and tip.
13. List uses of a multi flame heating nozzle (rosebud).
14. Identify temperature sticks (temp-sticks).
15. Describe the selection and use of temperature sticks (temp-sticks).
16. Cut mild steel at a 90-degree angle, stop, and restart the cut.
17. Cut round stock.
18. Cut 1/2 inch wire rope.

JOB COORDINATION
Assigned Task List:

18.01 Demonstrate the ability to coordinate with other trades.

18.02 Demonstrate an awareness of inspection requirements.

JOB COORDINATION

18.01 ASSIGNED TASK LIST:

Demonstrate the ability to coordinate with other trades.

PERFORMANCE OBJECTIVE: Given a job schedule, identify activities that require consultation/cooperation with other trades.

ENABLING OBJECTIVES

1. Select from a list activities that may affect the work of:
   a. plumbers.
   b. electricians.
   c. mechanical contractors.
   d. glaziers.
2. Identify structural problems that may be caused by plumbing and electrical installation.
3. Discuss the importance of correctly orienting knockouts on BCIs and other prefabricated materials.
4. Explain the importance of placing large fixtures before framing is completed.
5. Discuss the reasons for minimizing the number of plumbing vents in metal roofs.
6. Explain the importance of nailing directly over studs when doubling top plates.
7. Point out the reasons carpenters should know basic wiring and plumbing practices, especially when remodeling.

18.02 ASSIGNED TASK LIST:

Demonstrate an awareness of inspection requirements.

PERFORMANCE OBJECTIVE: Given a job schedule and knowledge of the Uniform Building Code, National Electrical Code, state and local codes and ordinances, and lending institution schedules, demonstrate the ability to schedule required inspections.

ENABLING OBJECTIVES

1. Explain the purpose of the Uniform Building Code.
2. Explain the purpose of the National Electrical Code.
3. Discuss the importance of knowing state and local codes and ordinances.
4. Match activities on a job schedule with required inspections.
5. Identify required building permits.
6. Visit the Building Inspector's Office.
7. Determine the average lead-time required to get an inspector on site.
8. Observe building and electrical inspections.
9. Discuss the importance of complying with lending institution schedules.