Course Outline

Building and Construction Trades **REVISED: April/2019**

Job Title
Construction Worker

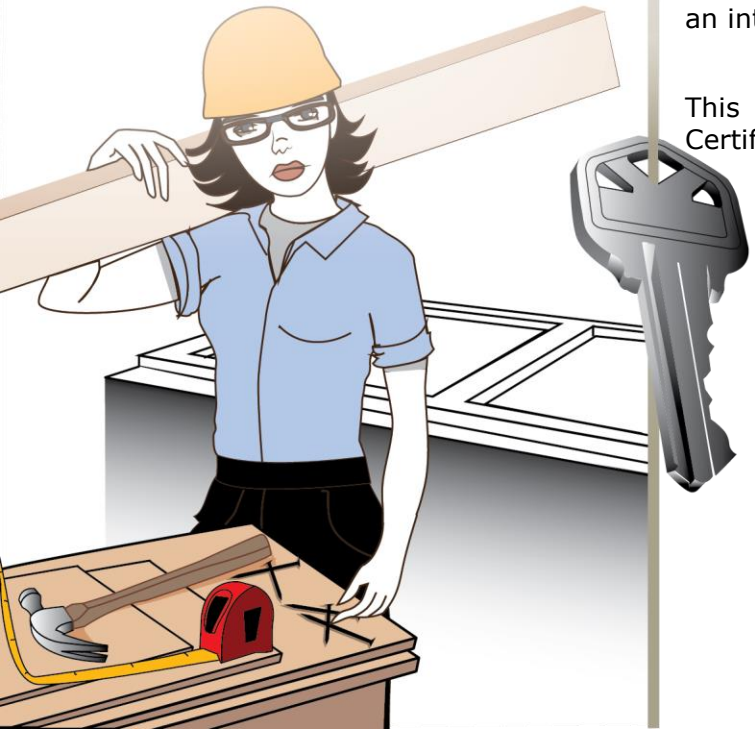
Career Pathway:
Residential and Commercial Construction

Industry Sector:
Building and Construction Trades

O*NET-SOC CODE:
47-2061.00

CBEDS Title:
Introduction to Building and Construction Trades

CBEDS No.:
5501



71-35-50

Construction Work/1

Credits: 15 **Hours:** 180

Course Description:
This competency-based course is the first in a sequence of three designed for construction work. It provides students with technical instruction and practical experience in basic residential and commercial construction using sustainable and green technology. Instruction includes an orientation, resource management, OSHA 10, trade mathematics, and employability skills. Emphasis is placed on the techniques, tools, and materials required for concrete work, masonry, floor and wall construction, and roof construction. The competencies in this course are aligned with the California High School Academic Content Standards and the California Career Technical Education Model Curriculum Standards.

Prerequisites:
None.

NOTE: For Perkins purposes this course has been designated as an introductory course.

This course cannot be repeated once a student receives a Certificate of Completion.

Los Angeles Unified School District
Division of Adult and Career Education
Instructional and Couseling Services Unit
Adult Curriculum Office
adultinstruction.org

COURSE OUTLINE COMPETENCY-BASED COMPONENTS

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

COURSE OUTLINE COMPONENTS	**LOCATION**
GOALS AND PURPOSES	Cover

The educational goals or purposes of every course are clearly stated and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course, and are written to be understandable by a prospective student.

PERFORMANCE OBJECTIVES OR COMPETENCIES	pp. 7-13

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition and In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction and assessment in competency-based education are: explicit, known, agreed upon, integrated, performance oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS (continued)

COURSE OUTLINE COMPONENTS	LOCATION
INSTRUCTIONAL STRATEGIES	p. 15
Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom. Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Adults with Disabilities.	
UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT	Cover
The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will learn at an optimum level. Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.	pp. 7-13
EVALUATION PROCEDURES	p. 15
The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved. Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, and simulations), paper and pencil exams, and standardized tests.	
REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT	Cover
After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.	

ACKNOWLEDGMENTS

Thanks to PAUL PIDOUX and MARCELA BAKER for developing and editing this curriculum. Acknowledgment is also given to ERICA ROSARIO for designing the original artwork for the course covers.

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1.0 Academics
Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Building and Construction Trades academic alignment matrix for identification of standards.

2.0 Communications
Acquire and accurately use Building and Construction Trades sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management
Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology
Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Building and Construction Trades sector workplace environment.

5.0 Problem Solving and Critical Thinking
Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety
Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment.

7.0 Responsibility and Flexibility
Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Building and Construction Trades sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities
Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork
Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution as practiced in the SkillsUSA career technical student organization.

10.0 Technical Knowledge and Skills
Apply essential technical knowledge and skills common to all pathways in the Building and Construction Trades sector, following procedures when carrying out experiments or performing technical tasks.

11.0 Demonstration and Application
Demonstrate and apply the knowledge and skills contained in the Building and Construction Trades anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and through the SkillsUSA career technical student organizations.

D. Residential and Commercial Construction Pathway

The Residential and Commercial Construction pathway provides learning opportunities for students interested in preparing for careers in construction and building design, performance, and sustainability. The standards focus on the manner in which residential and commercial structures are designed and built. The pathway includes instruction in the way in which these structures are built (Class B California License).

Sample occupations associated with this pathway:

- Plumber
- Electrician
- Building Inspector
- Estimator
- Carpenter

D1.0 Recognize the impact of financial, technical, environmental, and labor trends on the past and future of the construction industry.

D2.0 Apply the appropriate mathematical calculations used in the construction trades.

D3.0 Interpret and apply information from technical drawings, schedules, and specifications used in the construction trades.

D4.0 Demonstrate techniques for proper site preparation.

D5.0 Demonstrate foundation layout techniques to include setting forms, placing reinforcements, and placing concrete according to construction drawings, specifications, and building codes.

D6.0 Demonstrate carpentry techniques for the construction of a single-family residence.

D7.0 Demonstrate proper installation techniques of interior finish materials and protective finishes.

D8.0 Demonstrate the application of exterior finish materials and protective finishes in building construction.

D9.0 Understand, integrate, and employ sustainable construction practices in the building trades.

D10.0 Demonstrate skills necessary to complete a plumbing system in a single-family residence in accordance with accepted industry standards.

D11.0 Demonstrate skills necessary to complete an electrical system in a single-family residence in accordance with accepted industry standards.

CBE
Competency-Based Education

COMPETENCY-BASED COMPONENTS
for the Construction Work/1 Course

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
A. ORIENTATION AND SAFETY Understand, apply, and evaluate classroom and workplace policies and procedures used in accordance with federal, state, and local safety and environmental regulations.	1. Describe the scope and purpose of the course. 2. Describe the overall course content as a part of the Linked Learning Initiative. 3. Describe classroom policies and procedures. 4. Identify classroom and workplace first aid and emergency procedures. 5. Describe the different occupations in the Building Trades and Construction Industry Sector which have an impact on the role of the construction workers. 6. Describe the opportunities available for promoting gender equity and the representation of non-traditional populations in construction work. 7. Describe the impact of Environmental Protection Agency (EPA) legislation on the Building Trades and Construction Industry Sector practices. 8. Describe and demonstrate the procedures for contacting proper authorities for the removal of hazardous materials based on the EPA standards. 9. Describe and demonstrate the use of the Material Safety Data Sheet (MSDS) as it applies to the construction industry. 10. Describe the role of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ in increasing the use of sustainable and green building practices in California. 11. Describe the City of Los Angeles Building and Safety Codes and their applications to the construction industry. 12. Describe the provisions of the California Title 24 Energy Efficiency Standards (a.k.a. 2008 California Green Building Standards Code) as they relate to the Building Trades and Construction Industry Sector. 13. Describe the purpose of the California Occupational Safety and Health Administration (Cal/OSHA) and its laws governing construction workers. 14. Describe how each of the following insures a safe workplace: a. employees' rights as they apply to job safety b. employees' obligations as they apply to safety c. role of the Division of Workers' Compensation (DWC) d. safety requirements in buildings during construction	**Career Ready Practice:** 1, 5, 7, 12 **CTE Anchor:** Communications: 2.3, 2.4 Career Planning and Management: 3.4, 3.6 Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.11 Ethics and Legal Responsibilities: 8.2, 8.3 Leadership and Teamwork: 9.6 Technical Knowledge and Skills: 10.2 **CTE Pathway:** D1.1, D1.2, D1.3, D9.1, D9.2

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(5 hours)	e. safe use of scaffolding and ladder requirements f. basic laws regarding construction elevators g. safety laws applying to electrical tools 15. Pass the safety exam with 100% accuracy.	
B. OSHA-10 Understand, apply and practice OSHA-10 principles and techniques in the construction industry. (10 hours)	1. Discuss general safety and health provisions. 2. Discuss the importance of hazard communication. 3. Discuss handling hazardous materials. 4. Discuss the basics of cranes and rigging. 5. Discuss the basics of electrical safety. 6. Discuss the importance fall protection. 7. Discuss the safe handling of hand and power tools. 8. Discuss the basics to personal protective Equipment. 9. Discuss the basics of safety on ladders and scaffolds. 10. Pass 10 hour OSHA in construction industries.	**Career Ready Practice:** 2, 6 **CTE Anchor:** Communications: 2.2, 2.5 Health and Safety: 6.2, 6.3, 6.4, 6.7, 6.9, 6.11, 6.12 **CTE Pathway:** D1.2
C. RESOURCE MANAGEMENT Understand, apply, and evaluate resource management principles and techniques in the construction business. (1 hour)	1. Define the following: a. resources b. management c. sustainability 2. Describe the management of the following resources in the construction business: a. time b. materials c. personnel 3. List specific examples of effective management of the following in the construction business: a. time b. materials c. personnel 4. Describe the benefits of effective resource management in the construction business: a. profitability b. sustainability c. company growth 5. Describe the economic benefits and liabilities of managing resources in an environmentally responsible way.	**Career Ready Practice:** 2 **CTE Anchor:** Career Planning and Management: 3.5 Problem Solving and Critical Thinking: 5.2 Responsibility and Flexibility: 7.1, 7.4, 7.6 **CTE Pathway:** D1.1, D2.3

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
D. TRADE MATHEMATICS AND BLUEPRINTS Understand, apply, and evaluate the mathematical requirements in construction work.	1. Describe the practical applications of math in construction work. 2. Describe and demonstrate problem-solving techniques involving whole number problems, using arithmetic operations (addition, subtraction, multiplication, and division). 3. Describe and demonstrate problem-solving techniques involving various fraction problems using arithmetic operations. 4. Describe and demonstrate problem-solving techniques involving various decimal problems using addition, subtraction, multiplication, and division. 5. Describe and demonstrate techniques for changing fractions to decimals. 6. Describe and demonstrate techniques for changing decimals to fractions. 7. Describe the English system of measuring length. 8. Describe the English system of measuring weight. 9. Describe the English system of measuring volume or capacity. 10. Describe the relationships between various English system linear units of measurement, such as inches, feet, yards, and miles. 11. Describe the relationships between various English system units of volume or capacity, such as cups, pints, quarts, and gallons. 12. Describe and demonstrate problem-solving techniques for various English system measuring problems using arithmetic operations. 13. Describe and demonstrate measuring techniques for objects by using the English system measuring tools common to the trade. 14. Describe and demonstrate problem-solving techniques for geometric problems. 15. Describe and demonstrate problem-solving techniques for algebraic problems. 16. Describe and demonstrate problem-solving techniques using percentages. 17. Describe and demonstrate techniques for reading and interpreting graphs. 18. Describe and demonstrate techniques for using a calculator. 19. Define and describe the purpose and importance of a set of plans. 20. Identify and define various parts of a set of plans. 21. Identify the various views of a drawing that is included in a set of plans 22. Describe their relationship among the various views of a drawing. 23. Explain the process of getting a set of plans approved through all the local governmental agencies. 24. Identify and define material symbols, abbreviations and lines used in drawings. 25. Explain the meaning of “scale”.	**Career Ready Practice:** 1, 2, 5, **CTE Anchor:** Communications: 2.1 Problem Solving and Critical Thinking: 5.2, 5.4 Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.1 **CTE Pathway:** D1.1, D2.1, D2.2, D2.3, D3.1, D3.2, D3.3, D3.4, D3.5, D3.6

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(30 hours)	26. Explain the use of fractional and metric rules to calculate measurements. 27. Explain how an architect's and engineer's scale is used to measure lines. 28. Explain detail references and the detail sheets "D" and how to use them in building design. 29. Describe how to recognize, locate and determine missing dimensions. 30. Describe "S" structural drawings and how to build from them. 31. Describe architectural drawings. 32. Describe shop drawings. 33. Explain the meaning of plot or site plan. 34. Identify commonly used architectural symbols. 35. Identify commonly used graphic symbols. 36. Identify abbreviations used in plans, drawings and blueprints. 37. Explain the importance of "Notes" on each sheet and the sheets labeled "Notes". 38. Explain the process in getting approval of changes on the plans. 39. Define and Describe topography lines, grading plans, pad locations and bench mark-BM.	
E. CONCRETE Understand, apply, and evaluate the techniques, tools, and materials required for concrete work.	1. Identify the different types of the following concrete tools and materials: a. digging tools b. trowels c. anchoring and reinforcing devices 2. Describe and demonstrate the use, maintenance, and storage of the following: a. digging tools b. trowels 3. Define the following: a. formwork b. slab c. postholes 4. Describe and demonstrate how to do formwork. 5. Describe the correct proportions of sand, cement, gravel, and water for various applications. 6. Describe and demonstrate the techniques for preparing and pouring cement for a flat concrete slab. 7. Describe and demonstrate the techniques for preparing and pouring cement for postholes. 8. Explain the size and designs for concrete footings. 9. Compare and contrast the differences and benefits between monolithic pours, separate footing and slab pours. 10. Describe the bracing and elements of foundation formwork. 11. Research codes to find size and spacing of reinforcing steel, anchor bolts and hold downs. 12. Diagram layouts and squaring techniques for slabs and footings.	**Career Ready Practice:** 1, 2, 5, 11 **CTE Anchor:** Communications: 2.1, 2.3, 2.5 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.1, 6.2, 6.3, 6.5 Responsibility and Flexibility: 7.5 Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.1, 10.2, 10.5 **CTE Pathway:** D2.1, D2.2, D2.3, D3.1, D3.7, D4.1, D4.3, D4.4, D5.1,

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(35 Hours)	13. Discuss and demonstrate pouring of pads, using templates in setting anchorage, setting and aligning columns and dry-packing. 14. Calculate and estimate materials needed for concrete project. 15. Practice procedures to retrofit existing foundations for earthquake strengthening. a. Calculate anchorage and types of plates and bolts. b. Discuss mechanic bolting verses epoxy systems. c. Explain number and positions of hold-downs. d. Replace a brick or block foundation with a new concrete foundation. e. Demonstrate location and timing to underpin walls and foundation with concrete pads and columns. f. Explain to students various hardware and connections from foundations to walls. g. Review engineering designs, building department approval and acquiring permits. 16. Explain and review grade beams, movement frames, pads, templates and dry packing.	D5.2, D5.3, D5.4, D5.5, D5.6, D5.7, D5.8, D5.10, D6.1
F. MASONRY Understand, apply, and evaluate the techniques, tools, and materials required for masonry work. (15 Hours)	1. Identify the different types of trowels used in masonry work. 2. Describe and demonstrate the use, maintenance, and storage of the different types of masonry trowels. 3. Describe and demonstrate the different ways of mixing mortar. 4. Identify the different types of bricks according to: a. size b. composition c. application 5. Identify the different methods of bricklaying. 6. Describe and demonstrate the different methods of bricklaying. 7. Identify the different types of blocks according to: a. size b. composition c. application 8. Describe and demonstrate the techniques for repairing a brick wall. 9. Describe and demonstrate the techniques for laying different types of ceramic tiles used in apartment/home repair.	**Career Ready Practice:** 1, 5 **CTE Anchor:** Problem Solving and Critical Thinking: 5.1 Health and Safety: 6.1 Technical Knowledge and Skills: 10.5 **CTE Pathway:** D2.1, D4.1, D7.1, D7.6, D8.1
G. FLOOR AND WALL CONSTRUCTION Understand, apply, and evaluate 16-inch on Center Plate layout as it relates to wall construction.	1. Define the following: a. plates b. mudsill c. studs d. floor grinder e. floor joist f. ceiling joist	**Career Ready Practice:** 1, 2, 5, 7, 12 **CTE Anchor:** Communications: 2.1, 2.5

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(50 Hours)	g. sub-floor h. bracing 2. Describe and demonstrate the techniques for: a. laying out and marking of plates and treated mudsill b. regrouping plates and mudsill and nail studs in place c. combining rough door and window parts to form rough openings d. erecting framed walls on slab construction 3. Differentiate between slab and wood construction. 4. Describe and demonstrate the use of floor girders, floor joists, and sub-floors. 5. Compare plywood shear panel to diagonal bracing. a. Identify parts of shear wall (use of Simpson or equivalent "strong tie shear panels"). b. Discuss blocking of all unsupported edges. c. Explain opening details such as windows, doors, duct-work and the required corrections. 6. Explain Shear Wall Schedule pertaining to different values and locations. 7. Explain nailing schedule, anchor spacing and sizing, hold-down sizing based on different wall details and thickness of joint studs and blocking. 8. Compare different connections and applications from wall to footing (around windows and doors, to top plates and roofs). 9. Practice the procedures to retrofit and adding shear walls for earthquake upgrade. a. Review the weak floor below 1st floor and crawl space. b. Explain hold-downs and plywood diagram creating a short shear wall. c. Explain proximity to moisture from crawl space and concrete suspecting framing elements to dry rot and termite infestation. d. Demonstrate how to induce airflow to dry out from crawl space and concrete. e. Demonstrate use and placements of shear clips tying cripple shear wall to overlaying floor. f. Review floor diagrams, drag lines, infills, floor/wall ties and bracing. g. Explain earthquake stresses and reasons to resist horizontal forces. 10. Explain and review Simpson or equivalent "strong tie walls". 11. Describe and demonstrate plumbing and aligning of walls. 12. Describe and demonstrate the laying out and installation of a ceiling joist. 13. Describe the different types of insulation that conforms to LEED specifications. 14. Describe and demonstrate the installation of LEED-approved insulation materials.	Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.2, 10.5 **CTE Pathway:** D3.2, D5.7, D6.2, D6.3, D6.4, D6.5, D6.6, D6.7, D6.8, D9.1, D9.2, D9.4

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
H. ROOF CONSTRUCTION Understand, apply, and evaluate the techniques for erecting roof frames. (30 Hours)	1. Define the following: a. roof b. roof pitch c. sheathing materials d. rafter tail e. facial board 2. Describe the features and functions of various roof pitches. 3. Describe the features and functions of common sheathing materials. 4. Compare the differences between plywood and waferboard. 5. Describe the various types of rafter tail designs. 6. Describe facial board and overhang finishing. 7. Describe and demonstrate the laying out, cutting, and erecting of: a. common rafters b. hip and valley rafters c. jock rafters 8. Describe and demonstrate the installation of LEED- approved roof sheathing on a roof mock-up.	**Career Ready Practice:** 2 **CTE Anchor:** Communications: 2.1, 2.5 Technical Knowledge and Skills: 10.2 **CTE Pathway:** D3.2, D6.10, D6.13, D6.14, D6.15, D9.1, D9.2, D9.4
I. EMPLOYABILITY SKILLS Understand, apply, and evaluate the employability skills required in construction. (4 Hours)	1. Summarize employer requirements for the following: a. punctuality b. attendance c. attitude toward work d. quality of work teamwork e. responsibility f. timeliness g. communication skills 2. Identify potential employers through traditional and internet sources. 3. Describe the role of social media in job search. 4. Design sample résumés and cover letters. 5. Explain the importance of filling out a job application legibly, with accurate and complete information. 6. Describe the common mistakes that are made on job applications. 7. Complete sample job application forms correctly. 8. State the importance of enthusiasm in the interview and on a job. 9. State the importance of appropriate appearance in the interview and on a job. 10. State the importance of the continuous upgrading of job skills. 11. Describe customer service as a method of building permanent relationships between the organization and the customer. 12. Describe and demonstrate appropriate interviewing techniques. 13. Identify the informational materials and resources needed to be successful in an interview. 14. Design sample follow-up letters. 15. Describe and demonstrate appropriate follow-up procedures.	**Career Ready Practice:** 2, 3 **CTE Anchor:** Communications: 2.2, 2.4 Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.8, 3.9 Responsibility and Flexibility: 7.2, 7.7 **CTE Pathway:** D1.1

SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES

TEXTS AND SUPPLEMENTAL BOOKS

Allen, Edward and Joseph Iano. Fundamentals of Building Construction: Materials and Methods, 5th Edition. Wiley, 2008.

Beall, Christine. Masonry and Concrete. The McGraw-Hill Companies, 2000.

Kicklighter, Clois E. Modern Masonry, 7th Edition. Goodheart-Willcox Publishing, 2009.

Kubba, Sam. Blueprint Reading: Construction Drawings for the Building Trades. The McGraw-Hill Companies, 2008.

Peters, Rick. Framing Basics. Main Street Press, 2003.

Thallon, Rob. Graphic Guide to Frame Construction. Taunton Press, Inc., 2009.

RESOURCES

Employer Advisory Board members

CTE Model Curriculum Standards
http://www.cde.ca.gov/ci/ct/sf/documents/buildingconstruct.pdf

California Building Standards Commission
www.bsc.ca.gov/default.htm

Green Building Advisor.com
greenbuildingadvisor.com

The Daily Green
thedailygreen.com

COMPETENCY CHECKLIST

TEACHING STRATEGIES and EVALUATION

METHODS AND PROCEDURES

A. Lecture and discussion

B. Multimedia presentations

C. Visual aids

D. Shop demonstrations

E. Projects

F. Individualized instruction

EVALUATION

SECTION A – Orientation and Safety – Pass the safety test with 100% accuracy.

SECTION B – Resource Management – Pass all assignments and exams on resource management with a minimum score of 80% or higher.

SECTION C – Trade Mathematics – Pass all assignments and exams on trade mathematics with a minimum score of 80% or higher.

SECTION D – Concrete – Pass all assignments and exams on concrete with a minimum score of 80% or higher.

SECTION E – Masonry – Pass all assignments and exams on masonry with a minimum score of 80% or higher.

SECTION F – Floor and Wall Construction – Pass all assignments and exams on floor and wall construction with a minimum score of 80% or higher.

SECTION G – Roof Construction – Pass all assignments and exams on roof construction with a minimum score of 80% or higher.

SECTION H – Employability Skills – Pass all assignments and exams on employability skills with a minimum score of 80% or higher.

Statement for Civil Rights

All educational and vocational opportunities are offered without regard to race, color, national origin, gender, or physical disability.