Connecticut CTE

Building Construction (Grades 9-12)

A Building Construction BC

1. Identify and appraise the impacts construction has on their future aspirations; both career based and/or as an educated consumer. BC.01
   - a Develop career goals and objectives as part of a plan for future career direction. BC.01.01
   - b Develop strategies to reach career objectives. BC.01.02
   - c Compare the advantages and disadvantages of different types of home purchases, additions, renovations and repairs. BC.01.03
2. Describe and demonstrate the procedures related to workplace and job-site safety including personal protective equipment, machine safety, and material handling practices. BC.02
   - a Demonstrate safe material handling practices. BC.02.01
   - b Demonstrate and explain knowledge of workplace safety procedures.* (A2) BC.02.02
   - c Demonstrate and explain knowledge of personal safety practices pertaining to eye wear, footwear, clothing, and personal protective equipment (PPE) used in wood technology.*(A3) BC.02.03
   - d Describe safety practices for the following machines: table saw, drill press, stationary sander, router table, and miter saw.*(A4) BC.02.04
   - e Demonstrate and explain knowledge of proper use and storage of basic hand tools.*(A5) BC.02.05
   - f Demonstrate and explain knowledge of proper use and storage of portable power tools.*(A6) BC.02.06
   - g Evaluate workplace/jobsite activities for compliance with governmental and other applicable safety regulations such as EPA and OSHA. BC.02.07
   - h Read and discuss information on OSHA, EPA and other safety regulations. BC.02.08
   - i Obtain, understand and follow MSDS (Material Safety Data Sheets) information. BC.02.09
   - j Follow safe practices relating to environmental hazards. BC.02.10
   - k Explain safe usage and storage of chemicals. BC.02.11
3. Identify and describe the safe and appropriate use of various types of layout, hand and power tools and machinery used for building construction.BC.03 BC.03
   - a Identify, use, and maintain the following measuring, layout, and marking tools steel rule, tape measure, combination square, sliding “T” bevel, and compass.* (B8) BC.03.01
   - b Identify proper use and function of the following portable power tools: circular saw, drill, jig/saber saw, finishing sanders, and routers.*(B9) BC.03.02
   - c Identify proper use and function of the following fastening tools: hammer, Phillip head screw driver, and slotted/flat head screw driver.*(B10) BC.03.03

d Identify proper use and function of portable power tools. BC.03.04

e Identify proper use and function of the following hand tools: cross cut saw, rip saw, level, coping saw, nail set, hand plane, chisel, and file.*(B11) BC.03.05

f Identify proper use and function of the table and miter saws.*(B12) BC.03.06

g Identify the proper use and function specialty machinery (e.g., drill presses, jointers, surface planers, table saws, power miter saws, band saws, scroll saws, and stationary sanders. BC.03.07

h Explain correct use of planers. BC.03.08

i Explain use of molders. BC.03.09

j Identify functions and demonstrate us of wood lathes. BC.03.10

k Identify and demonstrate use and function of sanders. BC.03.11

4 Understand and be able to demonstrate the methods involved in turning materials into useable structures and products. BC.04

a Describe and identify fractional measurements from a basic plan and assembly drawings.*(C13) BC.04.01

b Describe and prepare rough drawings and sketches.*(C14) BC.04.02

c Explain and prepare a cut list or bill of material from a basic plan and assembly drawing.*(C15) BC.04.03

d Interpret a design to facilitate replication BC.04.04

e Measure accurately to a sixteenth of an inch.*(C16) BC.04.05

f Identify the difference between both nominal and actual dimensions.*(C17) BC.04.06

g Explain and use fractional dimensions. BC.04.07

h Extrapolate information from a set of plans. BC.04.08

i Consider the natural characteristics of grain, knots, and checks when laying out a board.*(C19) BC.04.09

j Estimate materials quantities in both board feet and linear feet.*(C18) BC.04.10

k Identify various types of joints. BC.04.11

l Prepare stock for use.*(G28) BC.04.12

m Identify and assemble the following types of joints: butt, miter, dado, rabbet, and lap.*(G27) BC.04.13

n Identify and describe the purpose and use of the following woodworking fasteners: common nails, round head screws, flat head screws, and oval head screws. BC.04.14

o Identify, describe purpose of and use woodworking adhesives. BC.04.15

p Identify and describe the purpose of the following clamping devices: bar clamp, c clamp, parallel/hand screw clamp, and spring clamps.*(H30) BC.04.16

q Identify and apply various wood finishes for interior and exterior, with brush or wipe on, for the following: paint, stain, and clear coat.*(I31) BC.04.17

r Describe the abrasive grit numbering grading system.*(F26) BC.04.18

s Differentiate among various abrasive materials. BC.04.19

t Identify and select the proper cutting process based on grain direction.*(E23) BC.04.20

u Identify how grain direction affects a material's strength.*(E24) BC.04.21

v Understanding kerf and its application to cutting and layout operations.*(E25) BC.04.22

5 Describe characteristics and determine appropriate applications for various building material selections. BC.05

a Identify characteristics and applications of the following coniferous softwoods: pine, cedar, and fir.*(D20) BC.05.01

b Identify characteristics and applications of the following deciduous hardwoods: oak, maple, and poplar.*(D21) BC.05.02

c Identify characteristics and applications of the following engineered lumber: plywood and medium density fiberboard.*(D22) BC.05.03

d Identify building systems needed to complete a construction project. BC.05.04

e List all building systems involved in a project. BC.05.05

f Identify and describe the function of the components of building systems needed to complete a construction project. BC.05.06

g Incorporate appropriate building systems into a construction project. BC.05.07

h Develop building plans and schedules by using processes common to residential and commercial construction. BC.05.08

i Explain the sub-systems, (e.g., structural, electrical, mechanical, finish, foundations) appropriate to the architectural design and residential construction. BC.05.09

j Explain and demonstrate site layout procedures. BC.05.10

k Describe the phases of residential and commercial construction. BC.05.11

6 Develop an understanding of local, state and global building and construction issues using critical and creative thinking skills; logical reasoning; analytical thinking and problem solving techniques. BC.06

a Describe the economic implications of using problem-solving and critical thinking skills to improve a situation or process. BC.06.01

b Create ideas, proposals, and solutions to building construction problems. BC.06.02

c Evaluate ideas, proposals, and solutions to building construction problems. BC.06.03

d Generate new and creative building construction ideas to solve problems using a structured problem solving method. BC.06.04

e Critically analyze environmental implications in building construction materials and processes. BC.06.05