

Connecticut CTE

# **Building Construction (Grades 9-12)**

## Building Construction

### 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 use 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](#)