CNST A180: BUILDING CONSTRUCTION 1

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	095200 - Construction Crafts Technology
Units	5 Total Units
Hours	162 Total Hours (Lecture Hours 54; Lab Hours 108)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Technical and practical experience to complete floor and wall framing of a building including wall layout, wall construction, ceiling joists and an introduction to roof framing. Estimating of materials and basic building layout are also covered. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Practice the operation of a surveyor's transit, chain, and related equipment.
2. Employ the surveyor's transit and equipment in preparation for foundation forming.
3. Prepare and assemble the framing components for the floors, walls and ridge beam of a Hodge Podge Lodge house.
4. Plumb and line walls for straightness and the later application of wall finishes.

Course Objectives

- 1. Practice the operation of a surveyors transit in calculating differential elevations with the Philadelphia surveying rod and Lenker surveying rod.
- 2. Demonstrate proficiency in the operation of a surveyors transit in determining angles with a calculator and surveyors chain
- 3. Demonstrate the ability to stake-out the footprint of a house on a vacant lot from the building plans for the OCC Hodge Podge Lodge house with the surveyors transit, chain, and other equipment.
- 4. Recognize the different types of house foundations and the consequences of the selection of a foundation type on the forming and framing of a home.
- 5. Employ the surveyors transit and equipment to locate the hub stakes and batter boards in preparation for foundation forming.
- 6. Construct the underpinning of a house; including installation of mudsills, placement of girder beams, framing of floor joists with necessary blocking and sub-floor placement.
- 7. Layout, figure and cut the framing components for the flat top walls of the OCC Hodge Podge Lodge house.
- 8. Apply the math necessary to calculate, layout and cut the framing components for the high volume flat top walls and ridge beam location for the OCC Hodge Podge Lodge house.
- 9. Apply the math necessary to calculate, layout and cut the framing components for the rake walls for the OCC Hodge Podge Lodge house.
- 10. Employ industry methods in the construction of the wall framing for the 756 sq. ft. Hodge Podge Lodge, accurately placing headers for doors, windows and effective wall bracing.
- 11. Plumb and line walls for straightness and the later application of wall finishes
- 12. Practice the safe installation of the ridge beam in the OCC Hodge Podge Lodge house.
- 13. Apply the regulations of the Building Codes in the construction of OCC Hodge Podge Lodge.
- 14. Demonstrate many of the efficient framing practices of the southern California home building industry.

Lecture Content

INTRODUCTION Building trades Job safety Construction tools Reading blueprints FOUNDATIONS Types Materials Surveying Site preparation Foundation forming Estimating Building codes FRAMING Types Post and beam Balloon framing Platform framing Modular Underpinning Sills Girder beams, Piers, Pads and Posts Floor joists Blocking/bridging Sub-floor Ventilation Estimating Building codes Stick Framed Wall Components Plates Studs Cripples studs Trimmers or Jack studs Headers or Lintels Window or Rough sill Blocking (fire or draft stop) Building codes Layout out of wall plates Floor plan blueprint reading Tools Squaring the building Snapping chalk lines Plating Stud layout on plates. Laying out openings Detailing information for framers. Nailing wall frame together Cut the Framer=s plate and install. Splice/breaks Nailing Trimmers Wall bracing Let-in brace Metal braces Cut-in braces Panel bracing Temp braces Blocks Raising walls Order of raising. Alignment and nailing Estimating Plumb and line walls Use of level Plumb corners Align walls Stud straightening and pick-up

Lab Content

Framing Types Post and beam Balloon framing Platform framing ModularUnderpinning Sills Girder beams, Piers, Pads, and Posts Floor joists Blocking/bridging Sub-floor Ventilation Estimating Building CodesStick Framed Wall Components Plates Studs Cripples studs Trimmers or Jack Studs Headers or Lintels Window or rough sill Blocking (fire or draft stop) Building CodesLayout of wall plates Floorplan blueprint reading Tools Squaring the building Snapping chalk lilnes Plating Stude layout on plates Laying out openings Detailing informtion for framersNailing wall frame together Cut the Framers plate and install Splice/breaks NailingTrimmersWall bracing Let-in brace Metal braces Cut-in braces Panel bracing Temp bracesBlocksRaising walls Order of raising Alignment and nailingEstimatingPlumb and line walls Use of level Plumb corners Align wallsStud straightening and pick-up

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Instruction methodologies will include, but not necessarily be restricted to, the following: 1. Detailed multimedia/lectures of each topic covered 2. Student feedback during each lecture 3. Detailed illustrative discussion of lecture handout and textbook information 4. Building plan reading 5. Full scale/size laboratory construction projects pertaining to subjects discussed during which students work individually and in small groups

Reading Assignments

Textbooks, blueprints, building plans

Writing Assignments

Projects, quizzes and tests

Out-of-class Assignments

Out of class work for this course include readings assignments from the textbook and from the reference materials posted at the class Blackboard website. Additional homework assignments include “shop drawings” to be rendered, material quantity estimates and math solutions needed for the construction of residential structures. Extra credit is given for the research and presentation of modern building materials, new construction tools, industry related software and their use.

Demonstration of Critical Thinking

Tests and quizzes; lab construction projects; estimating assignments; sketches of house framing components.

Required Writing, Problem Solving, Skills Demonstration

Student must show math proficiency in board footage calculation, material estimating and triangle solutions for framing component placements. Student must show proficiency in building plan reading, identification of residential construction components and understanding of the Uniform Building Code.

Eligible Disciplines

Construction technology: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Koel, Leonard. Carpentry, 6th edition ed. Los Angeles: American Technical Publishers, 2013 Rationale: - 2. Required Stevens, J.P. . Hodge Podge Lodge Blueprints/Building Plans, latest ed. Atlanta: Mouse Graphics Blueprint Services, 1960 Rationale: -