

# Architectural Design 2

## COURSE OUTLINE

Textbook: Architectural Design and Drafting Fourth Edition, by Jefferis & Madsen

Sections: 8-13

Supplemental textbooks – Architecture/Design, Engineering, Drawing; Architecture – residential drawing and design by Kicklighter; Architectural Styles by Wallach

### General Course Objectives

- ✓ Students will gain an understanding of framing methods and plans, foundation plans, and wall sections and details.
- ✓ Students will be able to complete hand drawn architectural renderings.
- ✓ Students will gain knowledge of general construction specifications regarding commercial structures.
- ✓ Students will gain an understanding of commercial drafting.
- ✓ Students will use a variety of advanced architectural CADD and Civil Engineering software to complete upper-level architectural drawings and plans.

### Course Outline

#### A. Framing Methods & Plans

##### 1. Framing Methods

- a. Balloon Framing
- b. Platform Framing
- c. Post-and-Beam Framing
- d. Timber Construction
- e. Steel Framing
- f. Concrete Masonry Construction
- g. Solid Masonry Construction
- h. Masonry Veneer
- i. Insulated Concrete Form Construction
- j. Modular Framing Methods

##### 2. Structural Components

- a. Floor Construction
- b. Framed Wall Construction
- c. Roof Construction
- d. Metal Hangers
- e. Environmentally Friendly Design and Construction

##### 3. Design Criteria for Structural Loading

- a. Types of Loads
- b. Load Design
- c. Load Distribution

4. Sizing Joists and Rafters Using Span Tables
  - a. Determining Wood Characteristics
  - b. Determining Size and Span
  - c. Working with Engineered Lumber
5. Determining Simple Beams
  - a. Loading and Support Patterns of Beams
  - b. Structural Lumber
  - c. Loading Reactions of Wood Members
  - d. Methods of Beam Design
  - e. Notations for Formulas
  - g. Sizing Wood Beams
  - h. Review
  - i. Wood Adjustment Factors
  - j. Span Tables
  - k. Simple Beam with a Load Concentrated at the Center
  - l. Simple Beam with a Load Concentrated at Any Point
  - m. Cantilevered Beam with a Uniform Load
  - n. Cantilever Beam with a Point Load at the Free End
6. Drawing Framing Plans
  - a. Framing Plans
  - b. Roof Framing Plans
  - c. Floor Framing Plans

## B. Foundation Plans

1. Foundation Systems
  - a. Soil Considerations
  - b. Types of Foundations
  - c. Dimensioning Foundation Components
2. Floor Systems and Foundation Support
  - a. On- Grade Foundations
  - b. Crawl Space Floor Systems
3. Foundation Plan Layout
  - a. Concrete Slab Foundation Layout
  - b. Foundation Plan with Joist Construction
  - c. Standard Foundation with Post-and-Beam Floor System
  - d. Combination Slab and Crawl Space Plans for a Partial Basement
  - e. Full Basement

## C. Wall Sections & Details

1. Sectioning Basics
  - a. Types of Sections
  - b. Scale
  - c. Section Alignment
2. Stages of Section Layout

3. Alternative Layout Techniques
  - a. Floor Joist/Foundation
  - b. Post-and-Beam Foundations
  - c. Basement with Concrete Slab
  - d. Conventional (Stick) Roof Framing
  - e. Garage/Residence Section
4. Stair Construction & Layout
  - a. Stair Terminology
  - b. Determining Rise & Run
  - c. Straight Stair Layout
  - d. Open Stairway Layout
  - e. U-Shaped Stairs
  - f. Exterior Stairs
5. Fireplace Construction & Layout
  - a. Fireplace Terms
  - b. Goals of Energy-Efficient Fireplaces
  - c. Chimney Reinforcements
  - d. Drawing the Fireplace Section
  - e. Fireplace Elevations

#### D. Architectural Rendering

1. Presentation Drawings
  - a. Types of Presentation Drawings
  - b. Methods of Presentation
  - c. Rendering Procedure for Drawing
2. Perspective Drawing Techniques
  - a. Types of Perspective Drawings
  - b. Perspective Terms
  - c. Two-Point Perspective
  - d. One-Point Perspective
3. Rendering Methods for Perspective Drawings
  - a. Presenting Depth
  - b. Shadows
  - c. Reflections
  - d. Texture
  - e. Entourage
  - f. Planning the Drawing
  - g. Two-Point Perspective Rendering
  - h. One-Point Perspective Rendering

#### E. General Construction Specifications

1. Construction Specifications
  - a. Specifications for Commercial Construction
  - b. Construction Documents

2. Construction Supervision Procedures
  - a. Loan Applications
  - b. Individual Appraisal Requirements
  - c. Master Appraisal Requirements
  - d. Change Orders
  - e. Building Permits
  - f. Contracts
  - g. Completion Notice
  - h. Bids
  - i. Construction Inspection

#### F. Commercial Drafting

1. Building Codes & Commercial Design
  - a. Exploring Building Codes
  - b. Determining Design Categories
  - c. Using the Codes
2. Common Commercial Construction Materials
  - a. Wood
  - b. Concrete Block
  - c. Poured Concrete
  - d. Steel Construction
  - e. Common Connection Methods
3. Commercial Construction Project Drawings
  - a. Office Practice
  - b. Types of Drawings
4. Structural Drafting
  - a. Plan the Drawing
  - b. Procedure
  - c. Detail Coordination
  - d. Lettering
  - e. Order of Precedence
  - f. Occupancy

### Grading Policy

Students will be graded in the areas listed below, based on a standard points system.

Class work – Each assignment will be given an individual point value. Students will be made aware of that value when assignments are handed out.

Quizzes – 25 pts

Participation/Use of Class Time – 25pts/Week

Projects – 50 Points

Final Project – 200 Points

Final Presentation – 100 Points