



Architectural Design - Unit 2 - Final Design

Unit Focus

The nature of this course will revolve around designing a house on a piece a property for a given client. This process will take place over two units in which they will focus on developing the proposal (Unit 1) and carrying out the proposal in creating the home design (Unit 2).

In Unit 2, students will be carrying the conceptual design of their client to fruition. Emphasis will be on learning how architectural software can assist in the design process by modeling, visualizing and analyzing building designs. The PBA will have the students creating the artifacts (working drawings, visual tours and presentation model) for the presentation to their client for final approval.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer	
Connecticut Goals and Standards Computer Aided Drafting and Design: 12 • Apply conventional Computer Aided Drafting and Design processes and procedures accurately, appropriately, and safely. (CADD. 02.01) • Describe physical objects as geometric entities.* (CADD.02.02) • Express a design of an object as a 3D model.*(A5) (CADD.02.07) • Evaluate the choice and placement of dimensions, notes and annotations to clearly communicate design intent.*(A7) (CADD.02.09) • Revise a design and update finished drawings appropriately.*(A8) (CADD.02.10) • Apply dimensioning to various objects and features. (CADD.03.04) • Demonstrate the methods of creating a title block. (CADD.03.08) • Understand the commands and concepts necessary for producing drawings through traditional or computer-aided means. (CADD. 05.01) • Differentiate the various techniques for viewing objects. (CADD.05.03) • Use the concepts of geometric construction in the development of design drawings. (CADD. 05.04) • Create and edit basic geometry.*(E23) (CADD. 05.10) • Generate a 2-D multi-view drawing.*(E27) (CADD.05.14) • Generate a pictorial drawing.*(E28) (CADD. 05.15)	<i>Students will be able to independently use their learning to...</i> T1 Explore and hone techniques, skills, methods, and processes to create and innovate T2 Develop a product/solution that adheres to key parameters (e.g., cost, timeline, restrictions, available resources and audience).	
	Meaning	
	Understanding(s)	Essential Question(s)
	<i>Students will understand that...</i> U1 An efficient floor plan design is important to make a building functional. U2 CAD software is used to develop visual representation of design ideas in 2D and 3D drawings.	<i>Students will keep considering...</i> Q1 What are important factors when planning a residential floor plan? Q2 What is the work triangle and why is it crucial in the design of a kitchen? Q3 How do you calculate stair layout for residential construction? Q4 How do you draw a residential floor plan using symbols, CAD and drawing techniques? Q5 How can design ideas be successfully communicated?
	Acquisition of Knowledge and Skill	
	Knowledge	Skill(s)
	<i>Students will know...</i> K1 A kitchen is split up into three stations called: Storage, Cooking and Cleanup.	<i>Students will be skilled at...</i> S1 Create a scale and dimensioned floor plan using a computer aided drafting software.

Stage 1: Desired Results - Key Understandings

- Create a 3-D model from a 2-D drawing.*(G35) (CADD.06.06)
- Interpret basic views and dimensions in a working drawing.*(D17) (CADD.09.01)
- Prepare and conduct effective portfolio oral presentation(s). (CADD.10.03)

Design and Development: 8

- Evaluate the effectiveness of a model and recommend necessary changes. (DD.02.12)

Madison Public Schools Profile of a Graduate

- Collective Intelligence: Working respectfully and responsibly with others, exchanging and evaluating ideas to achieve a common objective. (POG.3.1)
- Self-Awareness: Examining current performance critically to identify steps/ strategies to persist. (POG.4.1)

K2 The total distance of the "work triangle" cannot exceed 22'.

K3 Kitchen types: galley, U-shaped, Peninsula, L-shaped, Island, Corridor and One-Wall.

K4 Roof types: Gable, Hip, Gambrel, Mansard, Butterfly, Shed, Flat, Pleated, Winged Gable and Dutch Hip.

K5 A floor plan is a scaled diagram showing locations, sizes, materials and components contained within a given structure.

K6 A foundation is the lowest structural component of a building upon which all other members rest.

K7 Stairs are inclined hallways that provide access from area to another.

K8 When designing stairs, the three major factors to consider in determining the total length of the stairwell are: treads, risers and width.

K9 Roof Vocabulary: slope, pitch, span, ridge, rafter, valleys, flashing, underlayment.

K10 View orientations of a structure can be manipulated to better show the purpose and/or aesthetic values to a given client.

K11 The underlying purpose of Construction Documents is to document and convey design intent such that construction is in keeping with it.

S2 Create a kitchen that is efficient, has all of the stations and complies with the "work triangle" rule.

S3 Create and modify functional stairs using a computer aided drafting software.

S4 Create and modify roof types for any given structure using a computer aided drafting software.

S5 Calculate the total run of a staircase for a given space by manipulating variables such as height, tread width, riser height and overall height.