
Project 2.3.1 Affordable Housing Design

Introduction

Across America several organizations and communities provide programs that design and build affordable homes so that people can realize the dream of owning their own homes. Creating this opportunity often involves logistically ensuring that the financial burden on the homeowner is reasonable. An important element of making the home affordable involves designing and building the home in a cost-effective manner. Affordable homes should also be affordable to maintain and to support. The designer or architect must determine that balance when designing layout, functions, and material choices. The designer should also strive to create a product with universal design so that any occupant can utilize the home without adaptation in the present or future. In this project you will design and create documentation for the design of an Affordable Home in Noblesville, IN.

Equipment

- Engineering notebook
- 3D architectural software

Procedure

The remainder of the Residential Design Lesson will focus on completing your design of an affordable residential structure. The activities will guide you as you create your design. A key component to a successful design is documentation. Be sure to produce and organize your documentation as you create your design.

Constraints

- The design should follow Habitat for Humanity guidelines and adhere to residential design codes.
- Universal design features must be incorporated into the design.
- Green and sustainable features must be incorporated into the design.

Deliverables

- Title Page and Table of Contents
 - Include a rendering of your project.
 - All of your documentation should look professional and be well organized. The title page and table of contents are an important part of professional documentation.

- Project Description
 - Prepare a general overview of the project describing the site and the proposed project.
 - List the project criteria and constraints to the design. Incorporate the Habitat for Humanity requirements and the information that you gathered from the client.
 - Discuss the Universal Design features that you included in the design.
 - Discuss the green and sustainable features that you included in the design.
- Construction Drawings
 - Site Plan
 - Rendering
 - Floor Plan (fully dimensioned)
 - 4 Elevations
 - Interior Elevations of bathroom and kitchen (Optional)
 - Typical Wall Section including foundation(with labeled components)
 - Window Schedule
 - Door Schedule
 - Room Schedule
 - Electrical Plan (Optional)
 - Plumbing Plan (Optional)
- Support Documents
 - 2 Alternate Floor Plan Bubble diagrams
 - These sketches should be created during the client consultation.
 - 2 Floor Plan Rough Sketches
 - These sketches should be created during the client consultation to reflect both alternate floor plans.
 - Final Floor Plan Sketch
 - This sketch is a scaled drawing of the option selected. The sketch should be reviewed after feedback has been incorporated, approved and signed by the client.
 - Electrical Plan sketch
 - Plumbing Plan sketch
 - Site Opportunities Map
 - The Site Opportunities Map should indicate site orientation features, existing site elements, and features important to the client. This map should be approved and signed by the client.
- Calculations
 - Water Supply Calculations (checked by peer)
 - Storm Water Runoff calculations (checked by peer)
 - Wastewater Calculations (checked by peer)
- Appendices

- Include documents or research that is relevant to the client, instructor, or project that does not fit under another major heading or might disrupt the flow of the documentation. This should include at least the following:
 - Client survey
 - Client meeting notes
 - Images of proposed features

Conclusion

1. What new career or careers did you discover? Would you be interested in a career related to residential design and construction?

2. A roof framing system and an HVAC (heating, ventilation, and air conditioning) system are two sub-system needed in the construction of a modern residential building. Create a list comprehensive list of subsystems that combine to form a modern residential building.

3. Describe a characteristic of one geographic location different from your residential design location and describe an example of how it would affect the design and construction process.