

# Architectural Design Problem and Project Requirements

## 1. Project Description

Brave Construction Company has approached you, as a Professional Design Specialist, to assist them with a new project they are launching. They are developing a small community and you will be designing a model home. The community is intended for extended-families – meaning children, parents, and grandparents all living together. Since the grandparents will undoubtedly encounter physical limitations as they age, the owners of Brave Construction Company want you to incorporate the concept of **Universal Design** into the design of their new homes.

Universal Design is an approach to the design of products and environments to be as usable as possible by as many people as possible regardless of age, ability or situation. Homes that have universal design features look like other homes, but they are much easier to use, even for people with limited mobility. As a design professional, you will need to get educated on the features of this unique design process before you begin your drawings. (See the reference books in class and the links on line.)

The design of the home will need to incorporate the following features:

- A) Include as many Universal Design features as possible (especially on the ground floor); incorporate any original ideas that fit the Universal Design criteria.
- B) The square footage must be a minimum of 1,700 sq. ft. and the footprint can not exceed the 30% allowable lot coverage dictated by the local codes in your area.
- C) The typical homeowner of your design will want all their main living areas on the ground level with features to include, but are not limited to:
  - grandparent's suite
  - master bedroom for parents
  - living or great room
  - kitchen – may or may not include a separate breakfast eating area
  - dining area
  - guest bathroom – half bath
  - laundry room
- D) The builders of this development would like this to be a friendly place to live, and have requested that a front porch be included in the design so neighbors can visit with each other as they walk around the loop.
- E) There must be a two-car garage, either attached or unattached (in either case, the footprint must be included when computing the overall lot coverage).
- F) There must be access from to the grandparent's suite both from the outside and from the house.

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## 2. Site Description

- A) The site plan with existing conditions is included in your instructions. It is up to you to decide how they would like to place the structure on the site. However, all setbacks and other restrictions shown on the site must be adhered to.
- B) The NORTH arrow should appear on the site plan.
- C) Building setbacks are 10'-0" from the front property line, 12'-0" from the rear property line, and 7'-0" from the side property lines.

## 3. Drawing and Submittal Requirements

- A) A. A minimum of five (5) drawing sheets.
- B) B. Each drawing sheet should contain:
  - 1" x 6" Title Block placed in the lower right-hand corner of each sheet and shall include project title, date, scale, drawing sheet number, your name, and other information you determine to be necessary.
  - Appropriate labeling for all objects and materials.
  - Required scale for each drawing on the sheet.
  - Accurate and readable dimensions.
  - North arrow where appropriate.
- C) C. All pages must be formatted and printed. Computer files alone are not adequate.

## 4. Design Narrative

- A) The Design Narrative is a statement on what you feel are the positive and appropriate elements in your design and how the design meets the project description.
- B) Be creative. This is your "first impression" with the clients.
- C) Narrative will be 400 to 500 words and must be typed.
- D) Place your name in the upper right-hand corner of the narrative.
- E) The narrative must be started before you start your drawing and updated/revised throughout the design process.
- F) Spelling and grammar will be considered. Do not rely on your computer's spellchecker!

## 5. Required Drawings

### A. DRAWING SHEET A-1: Site Plan with Roof Plan

Scale: 1" = 10'-0"

- (1) You must use the site plan provided, but you must draw it yourself.
- (2) Show the building location on the site plan with the roof plan superimposed on the building.

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- (3) Show driveways, sidewalks, curbs, building setbacks, property lines, etc.
- (4) Show the location of the building with dimensions of the building to the property lines. Setback requirements are listed in the site description.

## B. DRAWING SHEET A-2: Floor Plan

Scale:  $\frac{1}{4}$ " = 1'-0"

- (1) Indicate total square footage on the drawing.
- (2) Show walls, windows, doors and door swings, and openings along with appropriate dimensions for each. Show door and window sizes on the plan or provide a door/window schedule.
- (3) Show closets, cabinets, plumbing fixtures, and appliances.
- (4) Show all changes in floor elevations, stairs, and stair landings.
- (5) Label each room or area and indicate floor finishes for each room (wood, vinyl, tile, carpet, etc.)
- (6) Show section cut marks to correspond with Drawing Sheet A-4.
- (7) Optional items (encouraged, but not required) include:
  - furniture placement
  - shading of walls with accepted symbols to indicate wall construction materials

## C. DRAWING SHEET A-3: Exterior Elevations

Scale:  $\frac{1}{4}$ " = 1'-0"

- (1) Show two (2) exterior elevations; one must depict the front elevation and the other must depict the right or left side.
- (2) Label the elevations as "Front", "Left Side", or "Right Side."
- (3) Show walls, windows, doors, roof; indicate roof slopes.
- (4) Label all exterior finish materials (shingles, brick, stucco, siding, etc.)
- (5) Show finish grade lines on each elevation.

## D. DRAWING SHEET A-4: Building Section and Wall Section

Building Section - Scale:  $\frac{1}{4}$ " = 1'-0"

- (1) Show footings and foundation walls, exterior and interior walls, floors, windows, ceilings, and roof line.
- (2) Label rooms where the section is cut through.
- (3) Label different construction materials.
- (4) Dimension room heights and roof overhangs.
- (5) Optional items (encouraged but not required) include:

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- interior wall elevations
- section cut through a stairway (if applicable)

Wall Section - Scale:  $\frac{1}{2}'' = 1'-0''$

- (1) Show and label footing, foundation wall, slab, typical exterior wall, eave, roof structure, and roofing materials.
- (2) Use break lines to shorten the wall section (if needed to fit the drawing on the 24"x36" drawing sheet).
- (3) Show and label wall thickness, different construction materials (concrete, wood, insulation, sheathing, finishes, etc.).

## E. DRAWING SHEET A-5: Electrical Plan

Scale:  $\frac{1}{4}'' = 1'-0''$

- (1) Show light switch locations, electrical outlets, TV and computer outlets, lighting fixtures, ceiling fans, etc.
- (2) Show electrical wiring for switch/fixture or outlet connections.
- (3) Show any lighting on the exterior of the building.
- (4) Show an electrical symbol legend on the drawing.

## F. DRAWINGS: Optional Drawings

Scale:  $\frac{1}{4}'' = 1'-0''$

Choose from the list below:

- (1) Additional two (2) elevations not drawn on Sheet A-3. Follow instructions for Sheet A-3.
- (2) Alternate Front and Side Elevations significantly different from the ones that were drawn on Sheet A-3 to allow for the structure to be rebuilt on another lot within the development, showing a variation in its appearance.
- (3) Landscape Plan; this is a separate drawing from the Site Plan on Sheet A-1 showing trees, shrubs, and other plantings. Label the plantings or provide a landscape schedule.

## What is Universal Design?

Universal Design is an approach to the design of all products and environments to be as usable as possible by as many people as possible regardless of age, ability or situation.

Other terms for Universal Design used around the world include Design For All, Inclusive Design, and Barrier-Free Design. Terminology and meanings differ from one country to another and often reflect each nation's societal values. Significant cultural differences between countries have influenced how the movement has been adopted and evolved in each location but the common goal of social inclusion transcends national laws, policies, and practices.

Universal design is not a fad or a trend but an enduring design approach that originates from the belief that the broad range of human ability is ordinary, not special. Universal design accommodates people

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with disabilities, older people, children, and others who are non-average in a way that is not stigmatizing and benefits all users. After all, stereo equipment labels that can be read by someone with low vision are easier for everyone to read; public telephones in noisy locations that have volume controls are easier for everyone to hear; and building entrances without stairs assist equally someone who moves furniture, pushes a baby stroller, or uses a wheelchair. Designing for a broad range of users from the beginning of the process can increase usability of an environment or product without significantly increasing its cost. It results in easier use for everyone and it reduces the need for design modifications later when abilities or circumstances change.

Universal design is assuming growing importance as a new paradigm that represents a holistic and integrated approach to design ranging in scale, for example, from product design to architecture and urban design, and from simple systems such as those that control the ambient environment to complex information technologies. Worldwide, a confluence of factors is driving the demand for more universally usable products, environments, and services. These factors include the competitive and global nature of modern business, the flourishing communications technology industry, the international disability movement, and the rapidly growing aging and disabled populations all over the world.

Universal design is not a synonym or a euphemism for accessibility standards. Universal design can be distinguished from meeting accessibility standards in the way that the accessible features have been integrated into the overall design. This integration is important because it results in better design and avoids the stigmatizing quality of accessible features that have been added on late in the design process or after it is complete, as a modification.

Universal design also differs from accessibility requirements in that accessibility requirements are usually prescriptive whereas universal design is performance based. Universal design does not have standards or requirements but addresses usability issues. The Principles of Universal Design, published by the Center for Universal Design in 1997, articulate the breadth of the concept and provide guidelines for designers.

## The Principles of Universal Design

The Principles of Universal Design and their guidelines were developed by a working group of architects, product designers, engineers, and environmental design researchers as part of a project coordinated by the Center for Universal Design at North Carolina State University.

## Additional Resources

### 1. Research

Students are encouraged to do further research on the concepts of Universal Design. There are a variety of printed reference materials available in the classroom and media center. Links to online resources are on the class website. Earn points by finding and recommending additional links