

FORM & SPACE

The designs created in the Shape Generation and Hierarchy projects exist in a flat two-dimensional world. The challenge of the Form & Space project is to imagine the three-dimensional implications and possibilities of the two-dimensional designs. Seeing three-dimensional form in two-dimensional shapes is an important skill for designers. Design requires that we constantly translate between the two- and three-dimensions. The goal of this project is to discover and visualize three-dimensional form arising from a familiar two-dimensional design.

Instructional Objectives

- To be able to generate a solution and develop it through a series of iterations.
- To be able to develop design solutions that follows a set of design constraints.
- To be able to define spaces that range from explicit to implied.
- To be able to create views that range from open to closed.
- To be able to define architectonic form and space using some combination of lineal, planar and volumetric elements.
- To be able to create a space for socialization.

Project Statement

You are to design a three-dimensional structure based on your final designs from the Hierarchy project. The following defines the rules for constructing three-dimensional elements from the two-dimensional design.

Note: Circles will make this problem more technically difficult. Consider this in relationship to your current skills and understanding when choosing a design.

The chosen design will be redrawn at 16cm square. The scale of the 16cm design will be 1 = 50.

Lines may be added to the chosen design to support the development of your walls and spaces. Added lines must follow the Shape Generation rules and may use the midpoint of an existing segment (a line between two intersections) to create a new line.

All elements must be extruded vertically from existing points, lines and combinations of lines in the chosen design.

Any combination of existing and new lines may be used—you may use as many or as few of the lines as you desire.

Lineal elements (columns) are extruded from a point/intersection and must be either a 30cm diameter cylinder or a 30 square centimeter prism centered on the point/intersection or a shape defined by the intersection of two or more expanded lines.

Planar elements (walls) are extruded from a single line and must be 20cm wide and centered over its defining line. Its length is established by extending 10cm past its end points. Ends may be round, square or a shape defined by the intersection of two or more expanded lines.

Volumetric elements are defined by some combination of lines (straight and curved) that enclose an area.

The maximum height of any positive element is 700cm above grade.

All vertical dimensions must be in 20cm increments.

The composition must contain a minimum of six positive elements including at least one column, one wall and one positive volume.

There are no roofs.

Design Constraints

The site is flat and all pedestrian areas must be on grade—the design may not include stairs or ramps.

The structure occupies an 8 square meter area.

The design must create one major space that occupies at least 25% of the structure.

Design Goals

The entry should provide a transitional experience between the world and the major space that involves both time and space.

The major space should be partially or completely hidden from view as you approach and enter the structure. Your understanding of the major space should grow over time.

The visual experience of being in the major space should range from more enclosed to more open depending on the direction you look. The views should range from more explicit/closed (e.g., solid walls) to more implicit/open (e.g., columns).

The major space should have an easily identifiable figure/shape (e.g., rectangle, circle, triangle, etc.) that is clearly delineated by its defining elements.

Process

Use the design from the hierarchy project.

Place a design (16cm square) at a 60°/30° orientation. Put the 60° angle on the left and the 30° angle on the right.

Overlay the designs and sketch alternative ideas as plan oblique drawings until you have arrived at an alternative you wish to develop. It is important that you generate a rich set of alternatives.

Construct each element's footprint. Work out all end conditions and intersections before you extrude an element vertically.

Extrude the footprints vertically. Enter their vertical dimensions and construct their faces.

Presentation Elements

The final presentation will include the original design, plan oblique drawing and a shaded copy of the plan oblique drawing

Example

