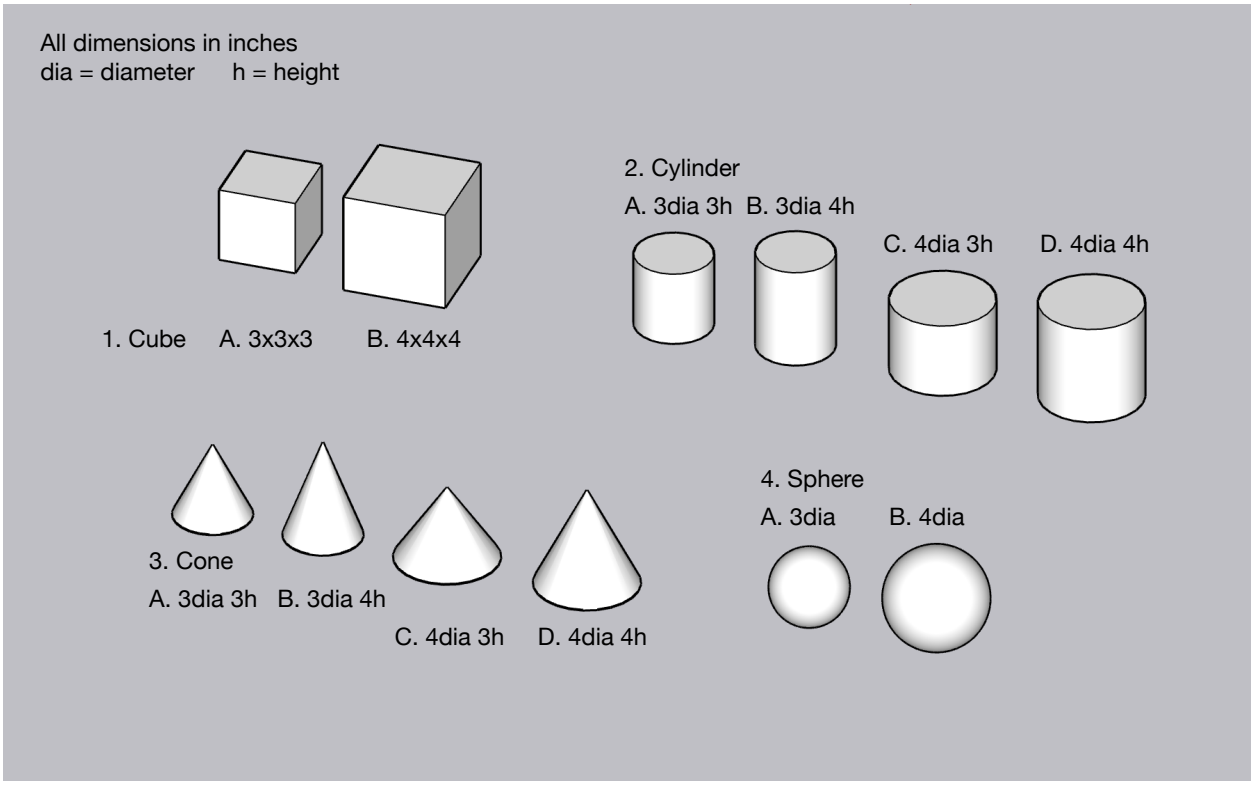
SFSU - DES 360 Model Development Lab — Prof. Pino Trogu

DES 360 Project 1 - Cube Cylinder Cone Sphere

This first project is a introduction to using XPS foam to construct four basic solids in various degrees of finish toward four finished, painted solids. The solids are the cube, the cylinder, the cone, and the sphere. This project restrict you to working with the rectilinear volume of the cube and the more complex volumes of cylinder, cone, and sphere, to practice working with hand tools and improve your craftsmanship.

The illustration below lists the possible sizes of the four solids. It's your choice what size to pick for each shape, but at least one dimension in at least one shape must be four inches. We will start the project with everyone practicing with a 3x3x3 cube, which can be made by cutting and glueing three layers of squares 3x3x1 or by combining one layer of 3x3x2 and one of a 3x3x1 square.



First solid: Cube

1. Cut the needed 3x3 layers out of XPS foam using the hotwire.
2. Glue the layers together to form the basic 3x3x3 cube (wood glue or construction adhesive specifically formulated for XPS can be used.
3. For this first solid there will be XPS available in the shop but you need to purchase your own for the other solids and for further use during the semester.
4. Make an accurate, finely finished model of the cube with no surface flaws. Joinery of the layers should not be visible once the refined cube is primed and painted. Angles sharp and at 90 degrees. Use gigs templates, and square as needed to check the accuracy of the cube.
5. Apply Drydex and sand. Other types of spackling compunds will be tested if needed.
6. Finish in a solid color (white OR gray) using water based primer and acrylic paint.

7. Create one hand drawn technical drawing of a still-life composition of the four solids using three orthographic views and one isometric or perspective view. Detailed instructions for this board will be provided later.
8. Display all your models in the composition for your final presentation.

Reading: Chapters 1, 2, and 12 in Prototyping and Modelmaking for Product Design. This book can be found in the library as an e-book or downloadable as a PDF. See library link in the syllabus.

Design goals and process

- Show high quality production modeling and finishing of XPS
- Determine best construction process and sequence
- Construct gigs and templates as needed to check dimensions of models
- Orthographic and axonometri/perspective drawing utilizing handmade techniques
- Exploration of basic shapes in different proportions
- Hand technical drawing and presentation of work

Materials and techniques

- XPS foam, various glues, Drydex spackle, water based white primer
- Testing of other spackles and primer/paints as needed
- Hand carving, cutting, sanding and assembly using hand tools, including hotwire
- Hand-drawn technical drawings

Deliverables

- Four finished solids, primed and painted.
- Your final solids should be finely finished with smooth surfaces and 3 coats of primer.
- 18 X 24 hand made technical drawing of your final composition.
- Canvas submission (upload photo of composition and scan/photo of board)

Grading

The rubric below is adapted from the rubric listed in the syllabus, which will apply more closely to projects 2 and 3. For this project more weight is given to effort and participation (15% each), with the Concept and Research category removed, and the craftsmanship category rewarded to match project 1.

There will be one mid-point grade of 10 points, graded on general completion.
The final board will also be worth 10 points (more details will be given later).
Final presentation for Project 1 is 100 pts, graded according to the rubric below.

Effort, including progress outside of class time: 15%
Iteration & experimentation: 20%
Class participation: 15%
Craftsmanship and attention to detail in the major component of the final presentation: the four finished solids: cube, cylinder, cone, and sphere. Effort will be taken into consideration again to determine a fair and appropriate grade, in the context of how each individual student's skill level progressed throughout the semester: 50%.