Interior Architecture Ohio University College of Fine Arts School of Art + Design

ART 3620, Interior Architecture Studio IV
Professional Design Development Studio
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Tuesday & Thursday: 1:30 - 4:20

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Explore Materials

What are materials that *can* be used to build a wall, a ceiling, a floor, a reception desk, a desk, a light fixture, a chair, a display panel, or a shelf system? Nearly ANY materials that exist!

What materials exist? You have to be curious and inquisitive. 'Google' 'architectural materials', 'materials for interior architecture', 'materials for walls', et cetera. Be curious, explore.

To make a framework or grid: such as a wall or a whole building:

Wood: long thin pieces; 1x1, 1x4, 2x4, 2x6, 4x4, 6x6, 8x8, etc. Wood can be cut into long thin 'stick' pieces used to made a grid, a framework.

Hardwoods: oak, cherry, walnut, birch, ash, hickory, maple
Softwoods: evergreens; pine, fir, hemlock, cedar, redwood, spruce

Metals: steel, iron, aluminum, copper, tin, bronze: these are manufactured in all sorts of shapes: round, square, triangular, hexagonal tubes, 'L' shape pieces, 'U' shape pieces, et cetera.

To make panels: panels usually fit into, or onto, a framework/grid:

Glass: sheets
Frosted glass
Obscure glass
Acid etched glass

Colored glass
Cut glass (the edges are beveled)
Laminated glass (for safety)
Tempered glass (for safety)

Metals: very thin pieces of metal are called *foil or leaf*; thick metals (over 1/4" thick) are called *plate*. Steel, aluminum, copper, tin.
Perforated metals
Bent metals
Metal skins with cores of dense foam, or wood, or other... (Alucobond)
Foam panesl: thick or thin molded foam
Gypsum board (comes in a variety of thickness, from 3/16" to 1 1/2")
Plastic honey comb panels (air space inside is a good thermal insulator)
Plastic/Resin sheets: 3 Form, Plexi-glas, fiber glass, acryllics,

Wood: either thin boards (1x 4, 1x6, 1x8, 1x10) or manufactured wood panel products such as plywood, medium density fiberboard (mdf) particle board, masonite, etc.

<u>To make a 'stacked' wall:</u>

Bricks
Blocks: concrete (cmu) terra cotta, wood
Field stone
Glass blocks (hollow)
Glass bricks (solid)
Logs: cut with square edges or used round
Thin slabs of stone (1" - 3") laid to create a horizontal layering
Large pebbles in a wire mesh 'cage'
Straw bales
Tires filled with sand

<u>Surfacing materials: must be attached/adhered to a substrate of some sort</u>

Ceramic tiles ('tile' is a small, thin piece of material: Google 'tile' and look at the amazing array of images that comes up)
Glass tiles
Metal tiles
Wood tiles

Leather tiles
Fabric tiles
Stone tiles
Vinyl tiles
Wall covering sheets (fabric, vinyl, paper)
Wood veneer (thin 'sliced' sheets of wood)
Paint
Plaster (traditional plaster is a 3 coat system attached to a wood or wire 'lath' which is attached to wood or metal studs)

<u>Molded/Cast materials:</u> some are easier than others to make: metals require intense heat to melt into a mold-able liquid.

Plaster
Glass
Concrete
Plastics
Fiber glass
Clay
Metals: bronze, brass, aluminum, iron, tin, copper

Dimensioning Irregular or Odd Shaped Elements

by Brian Wait, Architect with Atelier Jean Nouvel, Paris, France

Question: In the realm of contemporary architecture and interior design, which is often formed of irregular, unusual, atypical, or otherwise 'non traditional' shaped components, how is dimensioning, of a floor plan, for example, figured out?

Your question can be interpreted in several ways. The one that might give the most satisfying answer is : if I draw something funky how does the contractor build it?

Dimensions need to be meaningful. There is no sense dimensioning the distance between two skewed lines in space, but it does make sense to indicate the point at which they cross a rectangular reference grid. So one way to dimension wacky stuff is to overlay onto a two or three dimensional reference grid, which in turn will allow the contractor to lay it out. If the contractor is more sophisticated he will know how to exploit the 3D model, either by translating into a fabrication model and turning his machines loose on it or by feeding it into a “total station”, a surveying instrument that can actually work in reverse: it “projects” the 3d model out into space and tells you when you are holding your receptor at a point that corresponds to a point on the model. In cases like these we would not bother providing dimensioned drawings; we would just give the 3D model to the contractor. In the Qatar museum we did a combination. Traditional dimensioning was used for vertical elements like elevator and stair cores and to tie key points of the wacko geometry to the grid to give the contractor a point of departure. Spheroid disk dimensions were provided in the form of a table giving the disk number the xyz coordinates for the center of the sphere, its radius of curvature , inclination, segment diameter, etc. In short, a parametric recipe for the sphere. The contractor took it from there. Many dimensions were not provided at all: it was up to the contractor to make it look like the model.

If your design is truly parametric then the software will give all the information for each member in the form of metadata that you can extract as an Excel table or a dimensioned part drawing. If it is not truly parametric then you have to interrogate each piece in the model and then build your own dimension table. The huge problem with doing this sort of thing non-parametrically is the joints. Figuring out the lengths of the neutral fiber is easy, but a 2x2 is a 3-dimensional object that has to marry others in strange ways. That’s why we use parametric programs such as Grasshopper; they do the work for us.