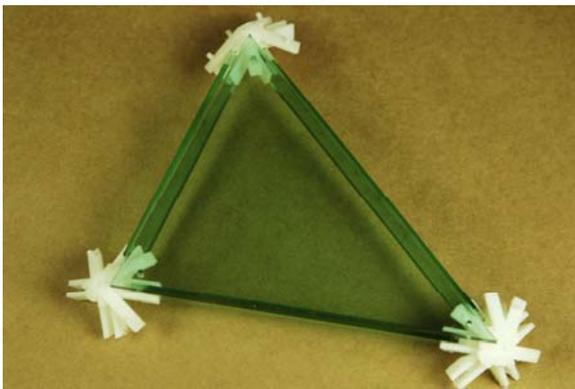


4.511  
*Massachusetts Institute of Technology*

February 22, 2004

This assignment will be presented in class on Wednesday February 23 @2PM

**Engineering Assemblies**



A major factor in design and ultimate construction is component constructability. As we know buildings are an engineered composition of components and assembly, design failure is based on the architect's ability to produce both with great efficiency in material and labor. Your work this week will be to design an assembly as an individual unit. In model form build one unit at a scale of  $\frac{1}{2}'' = 1'-0''$ , representing the surface as a Soft Façade considering the scaling of the material and performance.

## Materials

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

Material: Cardboard or Acrylic

Assembly: No external fasteners incorporate assembly within each part

## Model

Model Structure: Build a model of one unit include assembly to the adjacent unit as well as the collection of components.



Modeling - Flexibility: In the modeling not in construction, manufacturing presents a frozen image from a flexible parametric modeling. Use CATIA modeling to solve issues in flexibility

Machine Precision: Machine precision should allow interlocking components

## **Fabricate**

Using laser cutting and or 3D printing (in small areas) build a 10" square section (Mockup) of the building at a scale of  $\frac{1}{2}" = 1'-0"$ . The mockup must include the following:

- Two floors plates
- Scaled Figures in positions appropriate for an office space (poser figure sitting at a computer or in a meeting)
- Curtain wall
- Based and Structure

Fabricate the mockup of CARDBOARD if possible, it is best not to use expensive materials this model is a rough sketch. If possible include structure and detailing on flooring or wall systems carefully describe the architect's design and construction intent through the model.

## **Evaluate**

- Performance:
- 1) Cladding and assembly for speed and quality
  - 2) Repeatability: Can more than one variation be manufactured from the initial file
  - 3) Assemblies: Are they integrated into the manufacture of the component
  - 4) Scaling: does the model material reflect full scale ETFE

## **Present: Power-point Slides**

Power point in class and Post power point on the MIT Server