

MIT OpenCourseWare
<http://ocw.mit.edu>

4.500 Introduction to Design Computing
Fall 2008

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.

Construction Modeling

October 28, 2008

Assignment #6

1 – VIRTUAL MODEL – is due on Stellar Tuesday November 4, 9:30 am.

2 - PHYSICAL MODEL - is due in lecture on Tuesday, November 17, 9:30 am on the shelf in Studio 7

Tutorial – YOU MUST HAVE ACCESS TO THE LASER CUTTER – YOU SHOULD HAVE DONE THE TUTORIAL BY NOW IF NOW CONTACT – TAL GOLDENBERG

Construction Modeling

This is the first of three parts leading up to a digitally fabricated model from a CAD file. Here you will build a construction model (Fig 1) from the CAD model built in assignment 5. The goal of a construction model is manufacturing where each piece represents a real member in the building. For this assignment you are modeling the structure only. There are two parts to this assignment, creating the construction model (this week), next laying out the parts in 2D for laser cutting. The material you will be using is 1/8" in thickness masonite that scale up to 3/4" plywood.



Fig. 1 Building detail with figure created in poser (figure not required for this assignment)

Follow these steps to prepare the model for both 3D printing and laser cutting

- a) Create a copy of your model and rename the copy to suite the purpose. For example your original model should be labeled: lsass_cottage_original.dwg
Your copy should be labeled: lsass_cottage_lasercut.dwg

You may want to go back and re-label .dwg files based on the purpose of file.

lsass_cottage_original.dwg

lsass_cottage_render.dwg

lsass_cottage_radiosity.dwg (this one contains the exploded geometry)

Etc.

- b) In real space make a box 8' x 8' x 8' box. Use the box to find an are to build, best to find complex unresolved areas (figure a)

- 1 Command: "Slice" – Select area – choose yz or zx to slice.
- 2 Create a boxed area around your model and erase all unused model material
- 3 Remove all un-necessary layers from your model. (figure b)

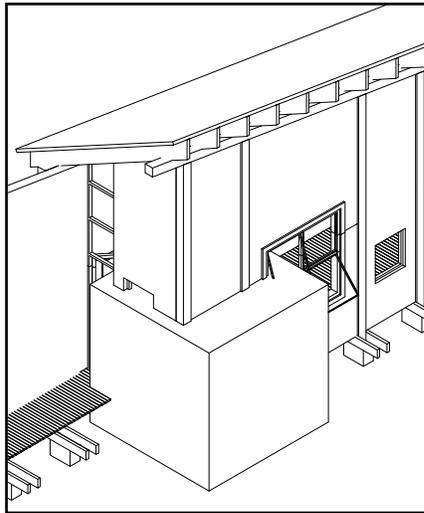


Fig. a) 14' boxed area

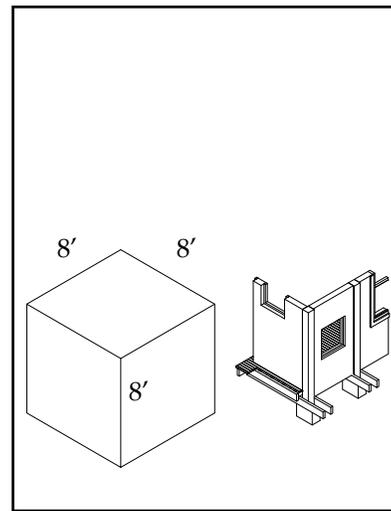


Fig. b) Model with geometry removed

- c) Scale the model so that each leg of the 8' box equals 4"
- d) Extend 4" square base in the negative direction ¼"

The model must contain the following:

- 1) Concrete foundation
- 2) Some space for a person
- 3) Base
- 4) Cut through a door or window

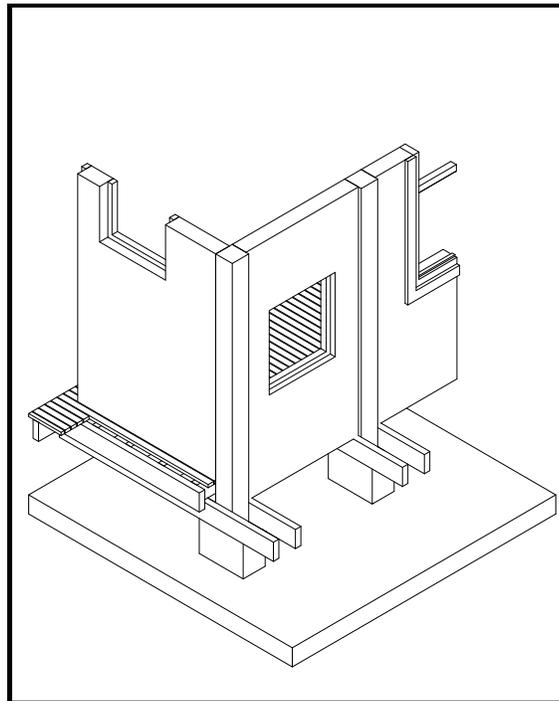


Fig. 2 Design model from assignment #5 (3D Print Model)

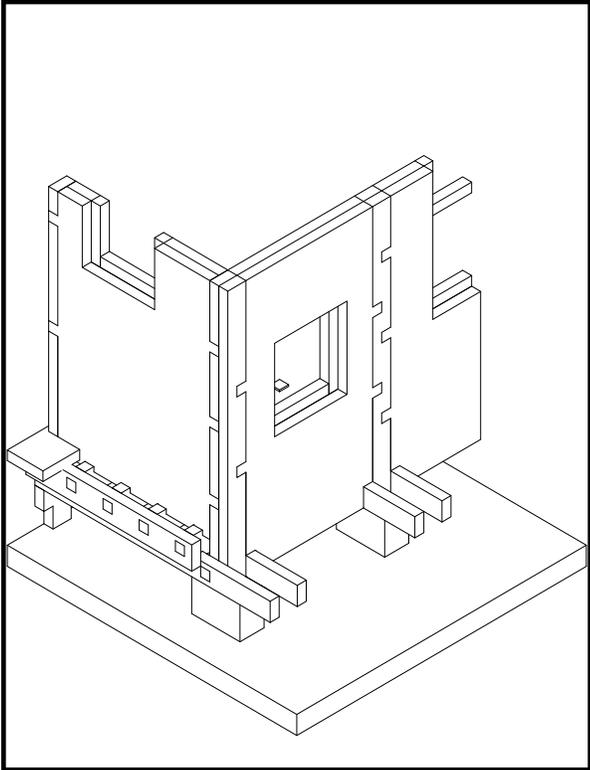


Fig. 3 Construction Model

PAPER TURNIN

Page 1: *One printout of the Design Model (name, and course information)*

Page 2 *One printout of the Construction Model*

ONLINE TURNIN

AutoCAD Construction Model

Isass_const_06.dwg