



# Model Design and Building Merit Badge

## Day Three Homework:

### Hey Wait, That's MY House !!

### Instructions

1028

1029

Here is the official text of Requirement 4a, which is my suggestion for this requirement. If you want to build a different type of model, please see the next page for the other permitted options:

4a. Make an architectural model. Build a model of a house to a scale of  $1/4" = 1'0"$  (1:50 scale). After completing the model, present it to your counselor for approval. Review with your counselor the materials you used and the details of your model.

#### Instructions:

- My suggestion is 4a - make a model of your own house, either the whole house, just one floor, or even just your own room
- Pick a material you are comfy working with, making sure you have the right tools you will need
  - Cardboard is the easiest / cheapest option – use old boxes
  - Foamboard is very nice indeed and great to work with, but more \$\$
  - LEGOs would even work if you have enough (but perhaps hard to get wall thickness and other features correct to scale)
  - I would not recommend wood unless you are an epic woodworker
- Put some effort into the model, make it look awesome !
  - Add interior / exterior details, add props, maybe paint it, bling it up!
- Start with a floor plan, take measurements of the overall house or room (or estimate it), then pick a good scale for your model
  - The MB wants you to use  $1/4$  inch = 1 foot, but I say you are welcome to make your model bigger as long as you are scale-consistent throughout
- Remember the five steps we reviewed today
  - Construct the base of the house, include space for yard/decks/etc.
  - Measure and cut out the exterior walls
  - Apply glue to the edges and assemble the walls
  - Make a peaked roof by scoring and folding a piece of cardboard
  - Bling it up with details !!
- Email me a picture of your model (CC a parent) to show our class
  - You DON'T have to finish it all by tomorrow (but must eventually) !!!

**To get credit for this requirement, you must email Mr. Eric your project pictures and fill out the workbook as described above.**



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### Alternative Projects for Requirement 4

1028

1029

My suggestion for this requirement is 4a on the previous page. If you want to build a different type of model, this sheet gives the permitted options.

#### Instructions:

- If you would rather do something else for Requirement 4, you can pick from 4b – 4e, here are those options again:
  - b. Build a structural model. Construct a model showing corner construction of a wood-frame building to a scale of  $1 \frac{1}{2}'' = 1'0''$  (1:8 scale). All structures shown must be to scale. Cardboard or flat sheet wood stock may be used for sheeting or flooring on the model. Review with your counselor the problems you encountered in gathering the materials and supporting the structure. Be able to name the parts of the floor and wall frames, such as intermediate girder, joist, bridging, subfloor, sill, sole plate, stud, and rafter.
  - c. Make a process model. Build a model showing the plumbing system in your house. Show hot and cold water supply, all waste returns, and venting to a scale of  $\frac{3}{4}'' = 1'0''$  (1:15 scale). After completion, present the model to your counselor. Discuss the scale, the materials used, and any problems you encountered in building the model.
  - d. Complete a mechanical model. Build a model of a mechanical device that uses at least two of the six simple machines. After completing the model, present it to your counselor. Be prepared to discuss materials used, the machine's function, and any particular difficulty you might have encountered.
  - e. Make an industrial model. Build a model of an actual passenger-carrying vehicle to a scale of  $1'' = 1'0''$  or  $\frac{1}{2}'' = 1'0''$  (1:10 or 1:25 scale). Take the dimensions of the vehicle and record the important dimensions. Draw the top, front, rear, and sides of the vehicle to scale. From your plans, build a model of the vehicle. Discuss with your counselor the most difficult part of completing the model.

**To get credit for this requirement, you must email Mr. Eric your project pictures and fill out the workbook as described above.**