

# **SkillsUSA 2012 Contest Projects**

## **Architectural Drafting**

Click the “Print this Section” button above to automatically print the specifications for this contest. Make sure your printer is turned on before pressing the button.



CHAMPIONS AT WORK

A very dear friend of yours has asked you to help design a new, but modest, home for him. You have known your friend for quite some time, and you know he is not an ostentatious kind of person. He doesn't need a large home, and has found a floor plan that he likes and that will serve his interests well. He purchased an empty, small lot in a nice neighborhood with many trees and homes that were built in the 1950's. His hope is to have the new house fit into the neighborhood as if it could have been built at the same time as the other homes.

While he wants the house to fit into the character of the older neighborhood, he is very interested in building a home that is energy-efficient. All modern methods to reduce energy consumption shall be incorporated into the design.

In keeping with his character, your friend will spend money on quality finishes, but is not interested in building an expensive home. You will be drafting a few drawings in order to obtain a cost estimate. If the estimate comes back low, he may make some additions to the design. If the estimate is too high, he will certainly wish to make changes to the plan to reduce the costs of construction.

The house will have two levels - the first/ground floor and the second floor. You will draft each floor and two building elevations in addition to the drawings and information as noted in this document. All drawings are to be complete, including dimensions and all appropriate annotations. Make sure to read and follow all directions as contained in this document!

You have two deadlines today. The freehand drawing and lettering exercise are due at the first deadline which is at the lunch break.

The second deadline is 4:00 p.m. All remaining drawings and information are due at 4:00.

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Your task today is to provide the following documents:

- Freehand drawing of exterior wall section cut where indicated with the letter "Y" on the attached floor plan.
- Hand-lettering exercise of the included quote using your best hand lettering technique.
- Dimensioned First Floor Plan created from included sketch.
- Dimensioned Second Floor Plan created from included sketch.
- Building Section cut as indicated on the attached floor plan sketch with the letter "X".
- Two exterior elevations indicated on the floor plan sketch with the letters "A" and "B".
- Elevation of the Great Room wall as indicated on the floor plan sketch with the letter "C".
- Openings Schedule(s)

## **General Information**

- Use good CAD production techniques.
- You are allowed only one plotted sheet.
- Dimensioning, general text, and notes shall have a plotted height of 1/8".
- Other text (i.e. titles, room names) may be a height of your choice, but must be legible and appropriately sized using architectural conventions.
- Include a title and scale for each drawing on the sheet. Include a North arrow where appropriate.
- You will plot on a 24" x 36" sheet. Construct a border of a plotted size of 22" x 34". Place a 1" x 1" square (plotted size) in the bottom, right-hand corner of your sheet. Place your contestant number in this square.
- The scale of all required drawings will vary. Utilize wise sheet layout.
- Follow all written directions in this packet.

## **Construction Materials**

1. Exterior walls: 2 x 6 wood studs at 16" o.c. with batt insulation and treated sill plates with 1/2" x 10" anchor bolts at 48" o.c.
2. Exterior side of exterior walls to be sheathed with 1/2" plywood. Interior to be sheathed with 1/2" gypsum board.
3. Brick veneer exterior on all elevations.
4. Interior walls to be 2 x 4's at 16" o.c. with 1/2" gypsum board.
5. Roof to be 6:12 pitch, pre-engineered wood trusses at 24" o.c. with batt insulation in between. Sheath with 3/4" sheathing and standing seam metal finished roof. Bearing height is 20'-0" above first floor. Roof to be a gable roof.
6. First and Second floor joists to be 2 x 10's at 16" o.c. Floor to floor height to be 10'-0". Overhangs to be 24" deep with closed eaves with a continuous, vented soffit.

## **Foundation**

1. Foundation to be 12" cast-in-place concrete with 24" x 12" footing with (3) #4 rebar, continuous. Frost line is 36" below grade.

## **Drawing Requirements**

### **First Floor Plan**

1. Per attached sketch.
2. Plotted at a scale of 1/4" = 1'-0".
3. Show casework, appliances and plumbing fixtures. Do not show furniture.
4. Provide necessary interior and exterior dimensions for construction.

5. Dimension all exterior windows and doors to their centers.
  - a. Windows to be double-hung.
  - b. Sills of all bedroom windows shall be a maximum of 40 inches above the finished floor.
  - c. Front door to be a 36 inch wide door. All other doors to be 30 inches wide.
6. Indicate door and window sizes for each door and window in an opening schedule(s). Make sure each door and window is scheduled with a unique door number and window letter.
  - a. Include the openings schedule on the same drawing sheet as the floor plan.
7. Do not include electrical information.

### **Second Floor Plan**

1. Per attached sketch.
2. Plotted at a scale of  $1/8" = 1'-0"$ .

### **Building Section**

1. Cut building section where indicated on the attached sketch with the letter "X".
2. Plotted at a scale of  $1/4" = 1'-0"$ .
3. Provide all appropriate dimensions and notes as required for a building section.
4. Indicate any doors, windows, or construction that may be visible beyond the cutting plane.

### **Exterior Elevations**

1. Per attached sketch.
2. Elevation "A" to be  $1/4" = 1'-0"$ .
3. Elevation "B" to be  $1/8" = 1'-0"$ .
4. The elevations must be plotted on the same sheet as the other required CAD (or manually drafted) elements.
5. Provide proper annotation and dimensioning for exterior elevations.

### **Interior Elevation**

1. Draw an interior elevation where indicated on the attached sketch with the letter "C".
2. Plotted at a scale of  $1/2" = 1'-0"$ .
3. Provide all appropriate dimensions and notes for an interior elevation.
4. Elevation to include the Great Room and the Kitchen.

### **Freehand Drawing – Wall Section**

1. Cut wall section where indicated on attached sketch with the letter “Y”.
2. Wall section to include information from the footing up to, and including, the roof. Use break lines if necessary to make the drawing fit onto the provided paper.
3. Provide all necessary components, as well as notes, dimensions, and material designations on your sketch. Fireplace to be brick.
4. Draw section at  $1/2" = 1'-0"$  on the provided paper.
5. Put your contestant number in a 1" x 1" square at the bottom right corner of the sheet.

### **Hand Work – Lettering Exercise**

Copy the following quote onto the provided graph paper using your very best hand lettering technique. Put your contestant number in a 1" x 1" square at the bottom right corner of the hand sketch sheet.

*“The creative vitality of architecture lay with those who embrace the new technology and celebrate it”*

*~Frank Lloyd Wright, 1901.*

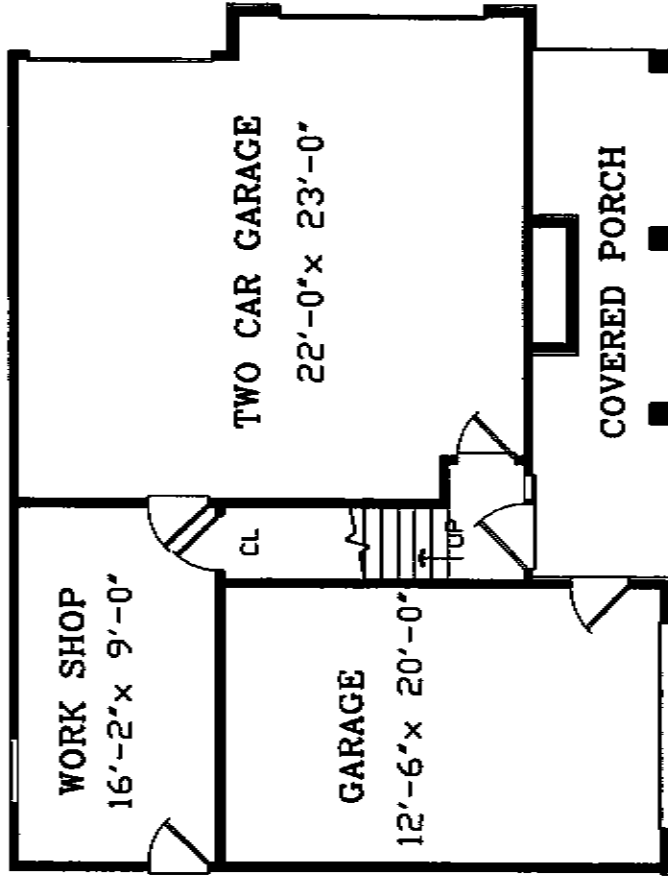
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Reminder:

The freehand drawing and lettering exercise are due at the lunch break.

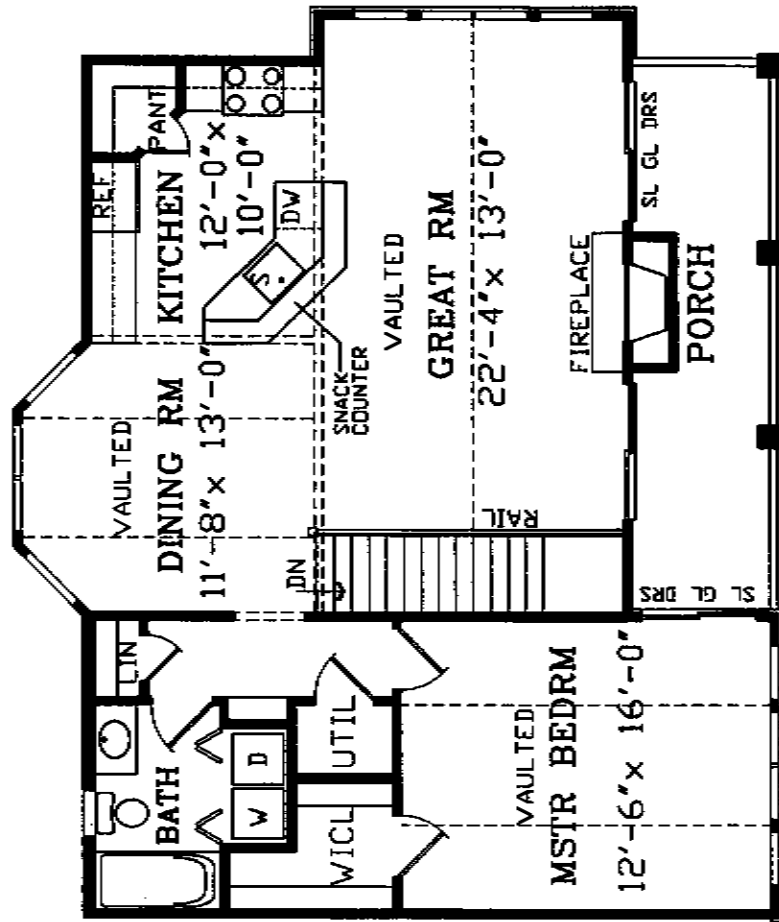
Put your contestant number in a 1" square box on your freehand drawing and your lettering exercise sheets. This shall be the only identifying factor on any of your sheets.

Please name all of your electronic files with your contestant number, i.e. 123.pdf



FIRST FLOOR PLAN

N.T.S.



# SECOND FLOOR PLAN



N.T.S.



CHAMPIONS AT WORK

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#### **ADDENDUM**

You showed the floor plan sketches to your cost estimator, and she indicates that the original design for your friend's home will be under his construction budget. Your friend, therefore, wishes to make some changes to the plan. Your friend is a music teacher, and he would like to use the lower level of the house to teach music lessons. Because the preliminary budget was low, he would like to finish out some of the lower level to use for the lessons.

He wishes to finish-out the space that is designated to be the two-car garage. He would like to add a full bath, a reception area and two rooms to use for practicing and lessons. It would be ideal to be able to use the practice/lesson rooms as guest rooms if the need arises. Therefore, the two practice/lesson rooms should be large enough to function as bedrooms when needed. You are to design the revisions based upon this information, but have the freedom to fit the required rooms within the larger space and lay it out as you feel is appropriate.

The entry to the home shall remain where it is. This will also be the entry the students will use when coming for their lessons.

These changes will need to be reflected on your final plot which will be judged based upon this new information.

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#### **Reminder:**

Please name all of your electronic files with your contestant number, i.e. 123.pdf