

SkillsUSA 2014 Contest Projects

Architectural Drafting

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Architectural Drafting

June 26, 2014



Today you will be drafting a set of plans for a friend who bought a vacant lot in an urban neighborhood west of downtown. You promised him you would review some drawings with him this evening. He has given you his ideas of what he has in mind, but is allowing you some leeway as the designer.

The lot is on Madison Street and is ^{50'}~~55'~~-0" wide. It is ^{115'}~~150'~~-0" deep and slopes from Madison down to the rear property line. The change in elevation from the street to the rear property line is a difference of 6 feet. This is an urban neighborhood and vehicle access to the lot is from an alley along the back of the property.

Your friend is interested in a home with three floors. The lowest floor will have a garage and a suite for your friend's mother who lives with him. Due to the slope of the lot, part of this level will be subgrade and there will be a need for retaining walls. The second floor is where the living room, kitchen and dining room are located. The master suite and a guest bedroom are on the third floor.

Further details of the design are contained within the instructions that follow. The drawings you need to complete today for your friend's review tonight are listed in this packet. Read and follow all instructions carefully. Do not include drawings on your final plot that are not required.

You have two deadlines today. The first deadline is at the lunch break or as soon as you finish the task. The second deadline is at 4:00 p.m.

Your task today is to provide the following documents:

- Plot Plan (Site Plan) per the directions below.*
- Dimensioned Floor Plans based upon the criteria contained in this packet.
- Two exterior elevations.
- Building Section cut as indicated on the attached floor plan sketch with the letter "X" including the interior elevation of appropriate items visible in the section-cut view.
- Openings Schedule(s)

*The Plot Plan is due as soon as you finish, but no later than the lunch break. The Plot Plan is to be drafted by hand on the sheet of paper provided to you. Put your contestant number in a 1" square box in the bottom right hand corner of the sheet of paper. This shall be the only identifying factor on any of your sheets.

All drawings are to be complete, including dimensions and all appropriate annotations.

General Information

- Use the 11" x 17" paper provided for your hand-drafted assignment.
- Use your best lettering as the lettering on your hand-drafted drawing will be judged.
- Use good CAD production techniques for the computer-generated drawings.
- You are allowed only one plotted sheet to be turned in at the end of the day.
- 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 all sheets. Include a North arrow where appropriate.
- You will plot your computer-generated drawing 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 verbal directions given and all written directions in this packet.

Construction Materials and Notes

- The house will have a flat roof with a parapet.
- The distance from each floor to the one above, and from the third floor to the roof, is 10'-0".
- The top of the parapet is 48" above the top of roof joist.
- The site slopes from the street to the alley. Access to the garage is from the alley. Note the grade on your elevations appropriately.
- Madison runs north and south, as does the alley at the rear of the lot. Your friend's lot is on the west side of Madison.
- There is no basement. The first floor is concrete slab-on-grade. The foundation walls are to be 8" thick, cast-in-place concrete with a 24" x 12" concrete tee footing. Assume the frost line is 36" below grade.
- The first floor shall be a 4" thick, reinforced, concrete floor slab on 4" of crushed rock.
- The floor joists and roof joists are 2 x 12's at 12" o.c.
- Exterior walls are a combination of 8" thick cast-in-place concrete and wood studs. The exterior face of the concrete walls will remain exposed concrete. The interior of the concrete walls will be furred with 2x4's at 24" o.c. with batt insulation. The 2 x 4's will be sheathed with 1/2" gypsum board. The portions of the exterior walls that are framed will be 2 x 6 studs at 16" o.c. The exterior face of the studs will be sheathed with 1/2" plywood and cedar shingles. The interior face of the studs will be sheathed with 1/2" gypsum board.
- Interior walls will be 2 x 4's at 16" o.c. with 1/2" gypsum board each side.

Drawing Requirements

Plot Plan (Site Plan) – Hand Drafted

This drawing is to be drafted by hand using the paper provided. The drawing is to be drawn to a scale of $1/8" = 1'-0"$. You may use any tools you have to complete the drawing by hand. You may not use your computer in any way to draw the plan. Put your contestant number in a 1" square box in the bottom right hand corner of your sheet. Do not draw a border on the sheet.

1. Legal Description: Starting at the Southeast corner of the lot, at Point A, the property line bears S 90 degrees W for 115'-0" to point B. From Point B the property line bears N 2 degrees W for 50'-0" to Point C. From Point C the property line bears N 89 degrees E for 116'-9" to Point D. From Point D the property line bears south for 52'-0" to Point A. Note the property line dimensions as appropriate for a plot plan.
2. There is a 20'-0" setback at the front of the property. The side lot setbacks are 5'-0". There is no rear setback from the alley.
3. There is a 5'-0" wide grass strip from the curb along Madison to a 5'-0" wide concrete sidewalk that runs the full width of the property from north to south.
4. There is one large and one smaller tree at the southwest corner of the property. There are two "medium" sized trees along the north property line, near the front of the property. The Owner wishes to maintain these trees. The Owner wishes to add several other landscaping items to the lot. Indicate these on your plan.
5. The new driveway will be paved with pervious concrete. The driveway should be at least long enough for one car to fully park on it without sticking out into the alley.
6. Your friend's mother likes to grow tomatoes and flowers. Leave adequate space for a garden in the backyard.
7. Show all site features that are appropriate to include on a plot plan.
8. Include dimensions to locate the house on the site.

Floor Plans

1. Per attached sketches.
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 are casement windows. A few windows are shown on the attached floor plans. You may add windows where you believe they are needed. All windows shall be included in the window schedule.
 - b. Sills of all bedroom windows shall be a maximum of 40 inches above the finished floor.
 - c. The entry door, the kitchen balcony door, and the master suite balcony door are to be 36 inch wide doors. All other doors to be 30 inches wide, including the living room balcony doors which are a pair of 30" wide doors.

- ### Building Section

- ## Exterior Elevations

- Reminder:**

The 1" square box with your contestant number inside is to be the only identifying factor on any of your sheets.

[illegible]



ADDENDUM

Your friend just called. He still wishes to meet this evening, but he is concerned after spending the morning at the doctor's office with his mother. She is in good health, but is not moving around as well as she used to. Your friend would like to make sure that her bedroom and bathroom are accessible per the 2010 Department of Justice ADA Standards. Rearrange the layout in her bedroom space as required to accommodate this change.

Clearances from the centerline of the toilet to the tub and to the sink are to be per the sketches below. The tub shall have grab bars as indicated on the sketch below.

All doors and openings into and within the mother's room shall be 36" wide minimum. The pair of doors in the mother's bedroom shall be a pair of 36" wide doors.

There shall be no steps to get into the mother's room.

Additionally, your friend decided his friends can sleep on the couch and wants to have a deck on the third level rather than a guest bedroom. Alter the third floor so that the roof is only over the master suite. The door that leads to the guest bedroom on the plan will be the door that leads to the deck. The deck will not be under a roof but will have a pergola for shade. There will be a 48" high parapet around the deck.

These alterations are to be captured on your final plot.



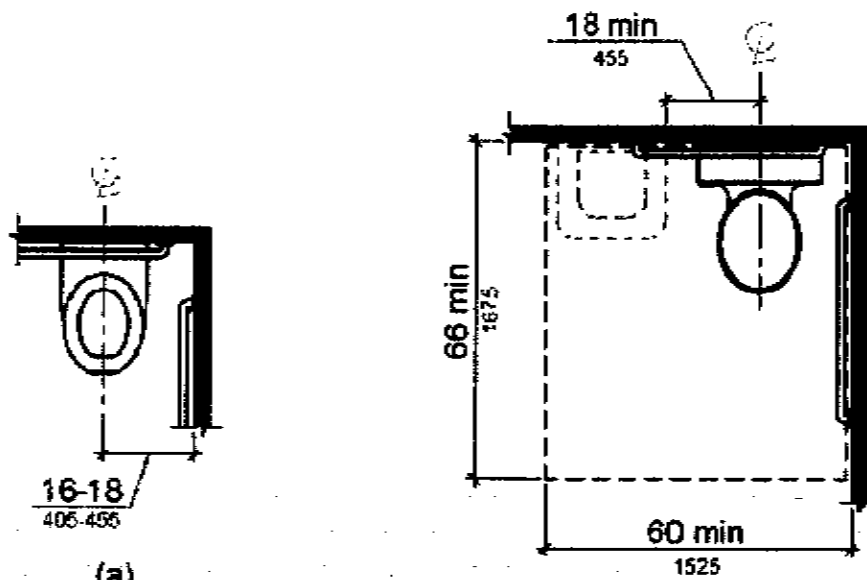


Figure 604.3.2 (Exception) Overlap of Water Closet Clearance in Residential Dwelling Units

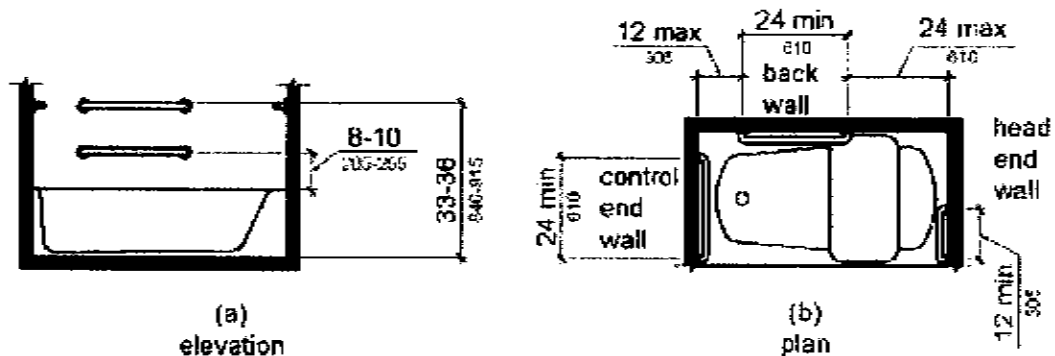


Figure 607.4.2 Grab Bars for Bathtubs with Removable In-Tub Seats

