

BUILDING DESIGN

You are the ARCHITECT



YOUR ASSIGNMENT:

Create an original design for a large house for yourself that uses proper **SCALE, DETAIL, STRUCTURE**, and **CREATIVITY**, both inside and out.

Imagine you were actually giving these plans to a construction crew... what would you really want your house to look like and include?

GUIDELINES FOR THIS PROJECT:

- Minimum of 2000 square feet
- Minimum of 7 interior rooms, including at least:
 - 1 bedroom
 - 1 bathroom
 - 1 kitchen
- Must also include:
 - Hallways
 - Windows
 - Doors
 - Wall thickness and textures
 - NO FURNITURE/CARS/ETC. (makes file too large)
- Optional:
 - 2 floors (takes much more time)
 - Exterior items (trees, sidewalk, etc.)

Large Tool Set

Select (Spacebar)		Make Component
Paint Bucket (B)		Eraser (E)
Rectangle (R)		Line (L)
Circle (C)		Arc (A)
Polygon		Freehand
Move (M)		Push/Pull (P)
Rotate (Q)		Follow Me
Scale (S)		Offset (F)
Tape Measure (T)		Dimensions
Protractor		Text
Axes		3D Text
Orbit (O)		Pan (H)
Zoom (Z)		Zoom Window
Zoom Extents		Previous
Position Camera		Walk
Look Around		Section Plane
Solid Tools		
Outer Shell		Intersect (Pro)
Union (Pro)		Subtract (Pro)
Trim (Pro)		Split (Pro)

Dynamic Components

Sandbox (Terrain)

From Contours		Interact
From Scratch		Component Options
		Component Attributes
Smoove		
Stamp		
Drape		
Add Detail		
Flip Edge		

Google

Add Location...		
Toggle Terrain		
Add New Building...		
Photo Textures		
Preview Model in Google Earth		
Get Models...		
Share Model...		
Share Component...		

Standard Views

	Iso
	Top
	Front
	Left
	Right
	Back

To add other tools, right-click the toolbar (at the top of your document window) and choose "Customize Toolbar..."

Tool	Operation	Instructions
Arc (A)	Bulge	specify bulge amount by typing a number and Enter
	Radius	specify radius by typing a number, the R key, and Enter
	Segments	specify number of segments by typing a number, the S key, and Enter
Circle (C)	Shift	lock in current plane
	Radius	specify radius by typing a number and Enter
	Segments	specify number of segments by typing a number, the S key, and Enter
Eraser (E)	Option	soften/smooth (use on edges to make adjacent faces appear curved)
	Shift	hide
	Option+Shift	unsoften/unsmooth
Follow Me	Command	use face perimeter as extrusion path
	Better Way	first Select path, then choose the Follow Me tool, then click on the face to extrude
Line (L)	Shift	lock in current inference direction
	Arrows	up or down arrow to lock in blue direction; right to lock in red; left to lock in green
	Length	specify length by typing a number and Enter
Look Around	Eye Height	specify eye height by typing a number and Enter
Move (M)	Option	move a copy
	Shift	hold down to lock in current inference direction
	Command	auto-fold (allow move even if it means adding extra edges and faces)
	Arrows	up or down arrow to lock in blue direction; right to lock in red; left to lock in green
	Distance	specify move distance by typing a number and Enter
External Array	External Array	n copies in a row: move first copy, type a number, the X key, and Enter
	Internal Array	n copies in between: move first copy, type a number, the / key, and Enter
Offset (F)	Double-Click	apply last offset amount to this face
	Distance	specify an offset distance by typing a number and Enter
Orbit (O)	Option	hold down to disable "gravity-weighted" orbiting
	Shift	hold down to activate Pan tool
Paint Bucket (B)	Option	paint all matching adjacent faces
	Shift	paint all matching faces in the model
	Option+Shift	paint all matching faces on the same object
	Command	hold down to sample material
Push/Pull (P)	Option	push/pull a copy of the face (leaving the original face in place)
	Double-Click	apply last push/pull amount to this face
	Distance	specify a push/pull amount by typing a number and Enter
Rectangle (R)	Dimensions	specify dimensions by typing length, width and Enter ie. 20,40
Rotate (Q)	Option	rotate a copy
	Angle	specify an angle by typing a number and Enter
	Slope	specify an angle as a slope by typing a rise, a colon (:), a run, and Enter ie. 3:12
Scale (S)	Option	hold down to scale about center
	Shift	hold down to scale uniformly (don't distort)
	Amount	specify a scale factor by typing a number and Enter ie. 1.5 = 150%
Select (Spacebar)	Length	specify a scale length by typing a number, a unit type, and Enter ie. 10m
	Option	add to selection
	Shift	add/subtract from selection
Tape Measure (T)	Option+Shift	subtract from selection
	Option	create a new Guide
	Arrows	up or down arrow to lock in blue direction; right to lock in red; left to lock in green
	Resize	resize model: measure a distance, type intended size, and Enter
Zoom (Z)	Shift	hold down and click-drag mouse to change Field of View



Middle Button (Wheel)

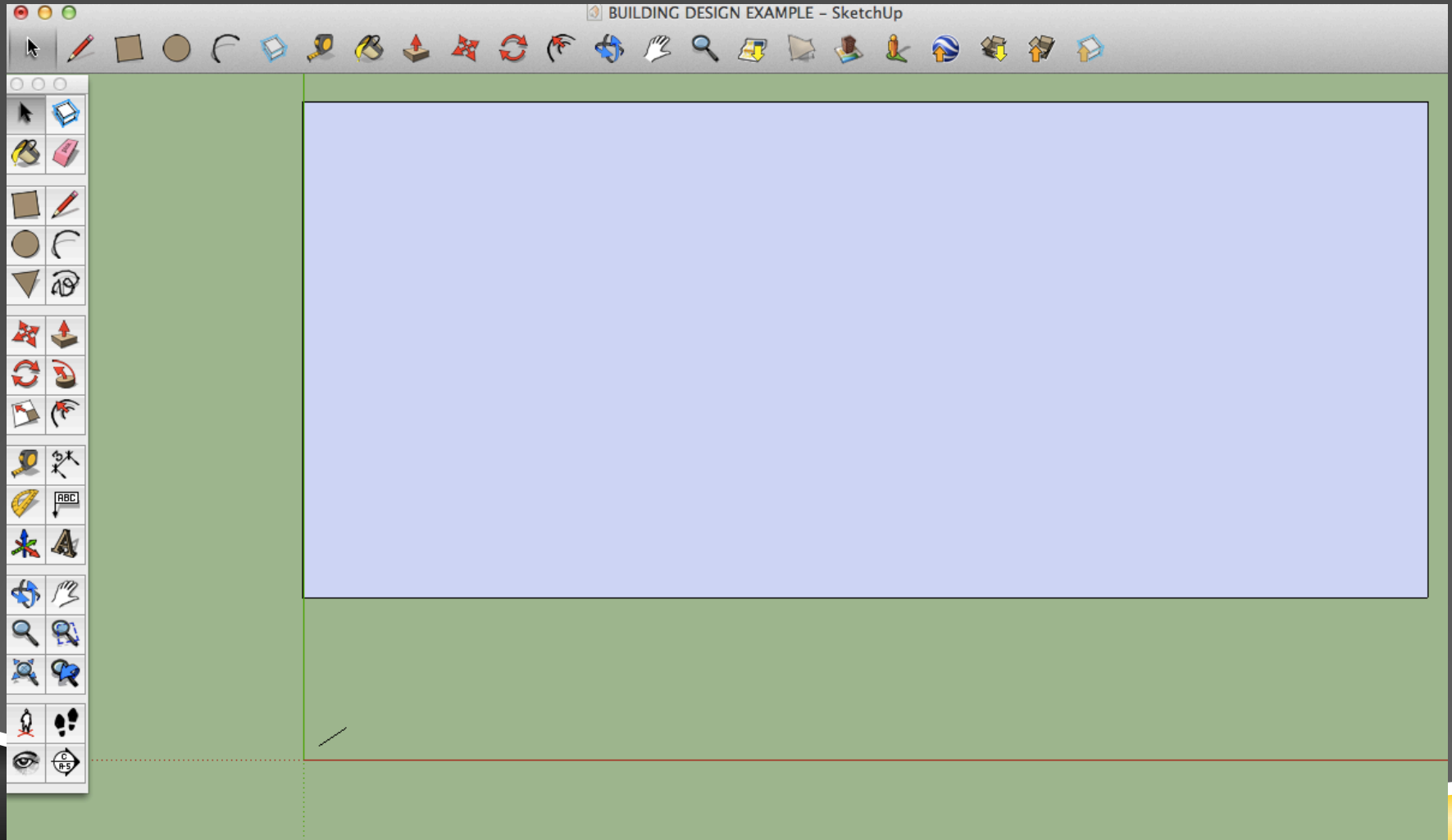
Scroll	Zoom
Click-Drag	Orbit
Shift+Click-Drag	Pan
Double-Click	re-center view

Right Mouse Button

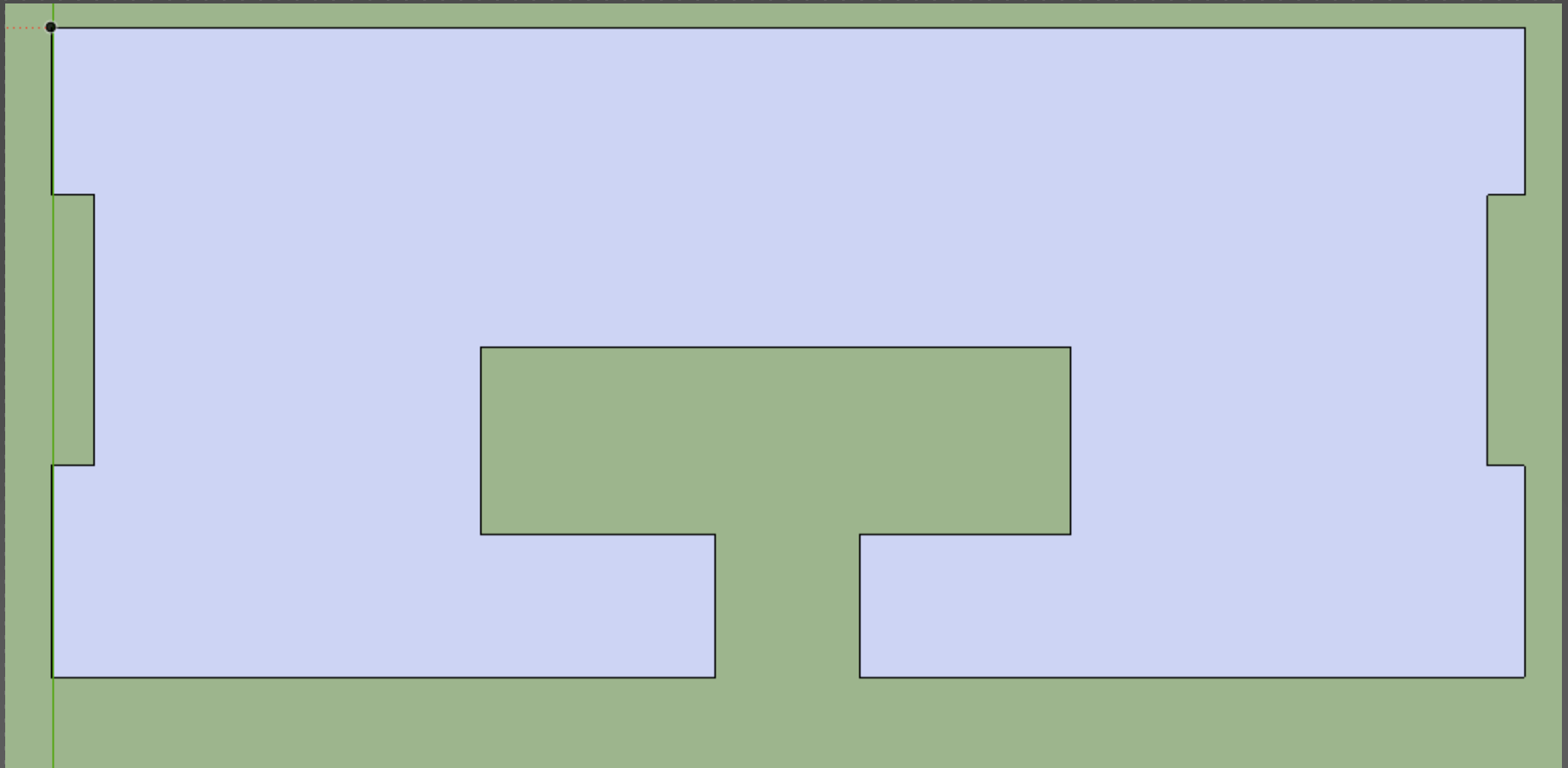
Click show context menu

STEP I- CREATE FLAT FLOOR PLAN

- Select CAMERA → STANDARD VIEWS → TOP to view from above

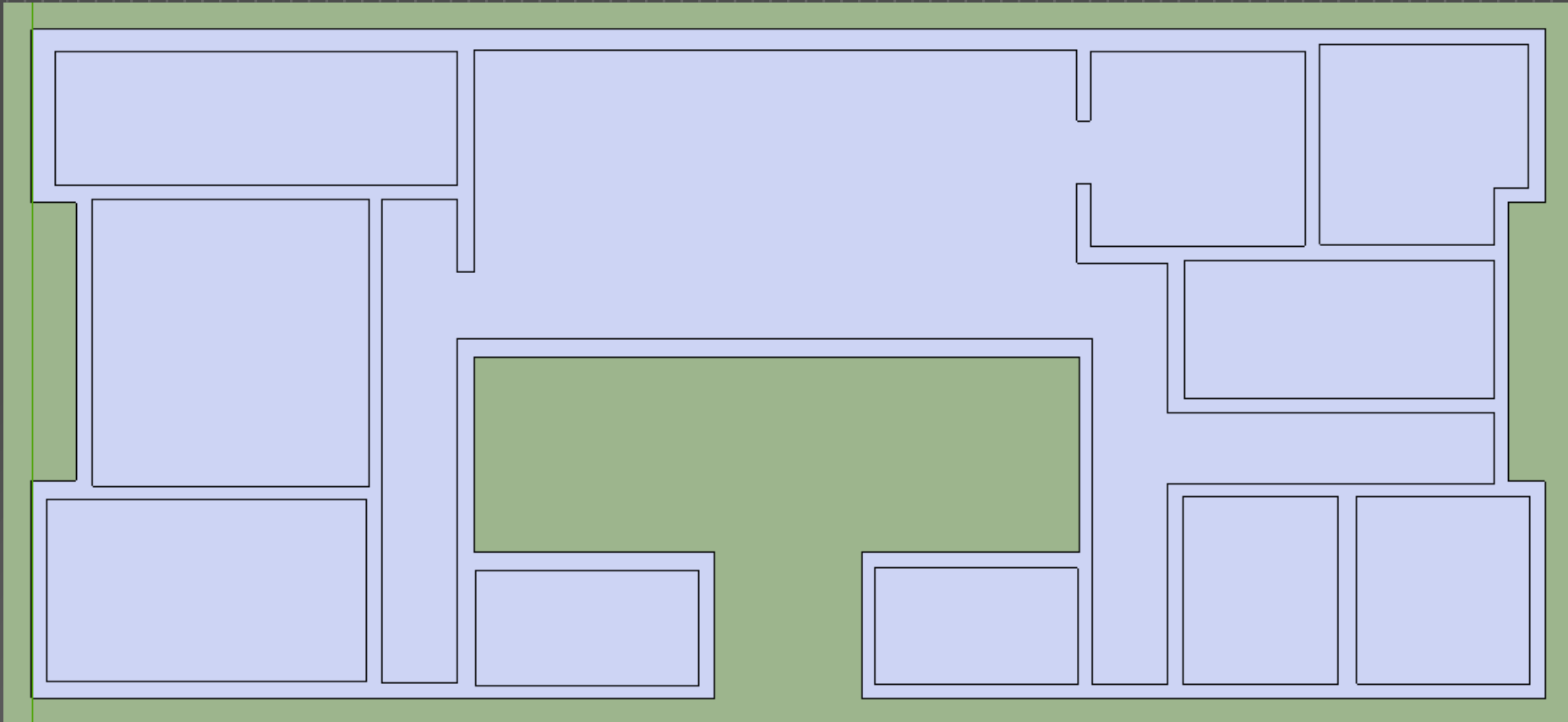


- Plan the OUTLINE (outer wall) of your house.
- Try to start with an INTERESTING shape



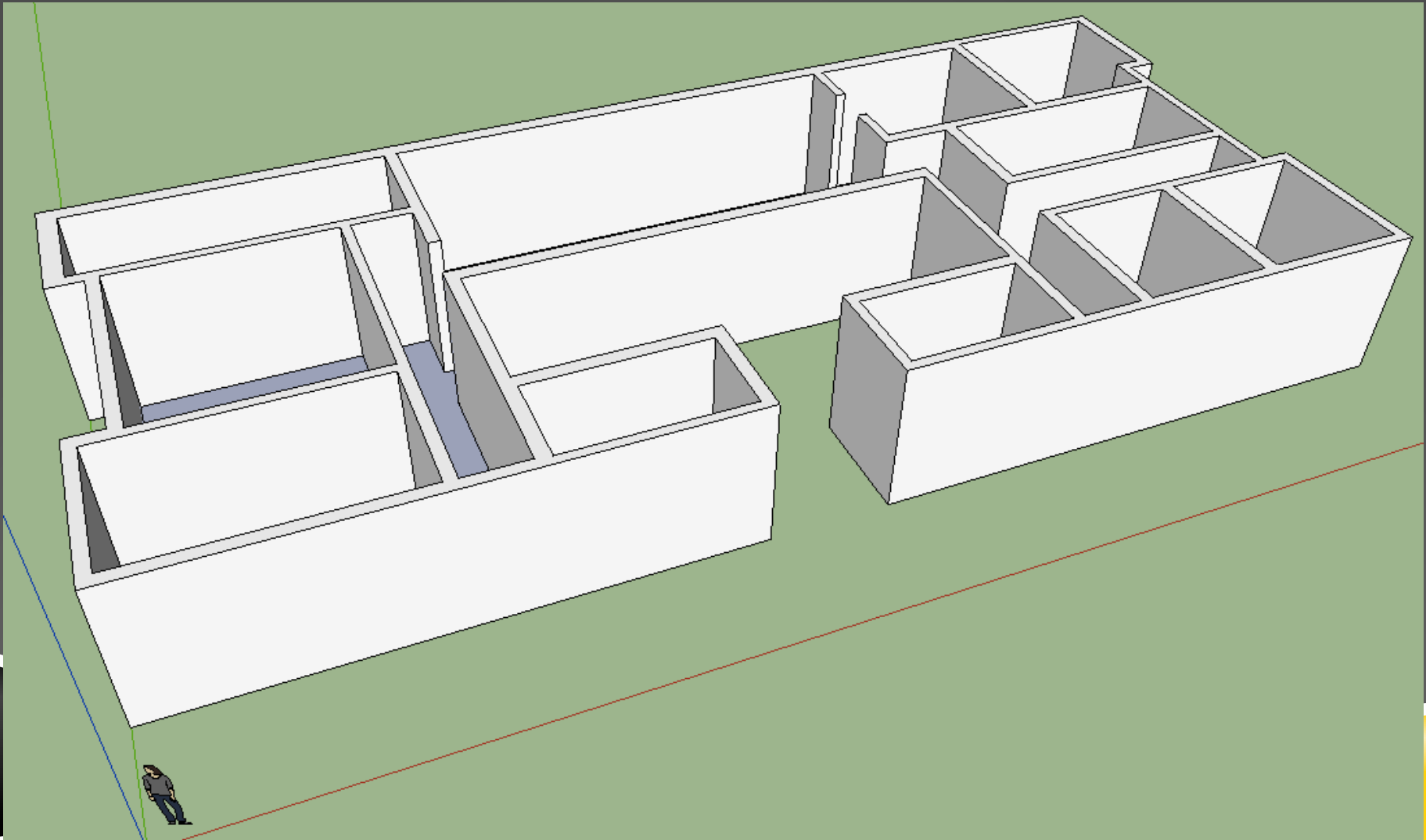
STEP 2- Define the WALLS of all of your ROOMS & HALLWAYS

- All walls **MUST** have some **THICKNESS** (1 ft. is recommended)



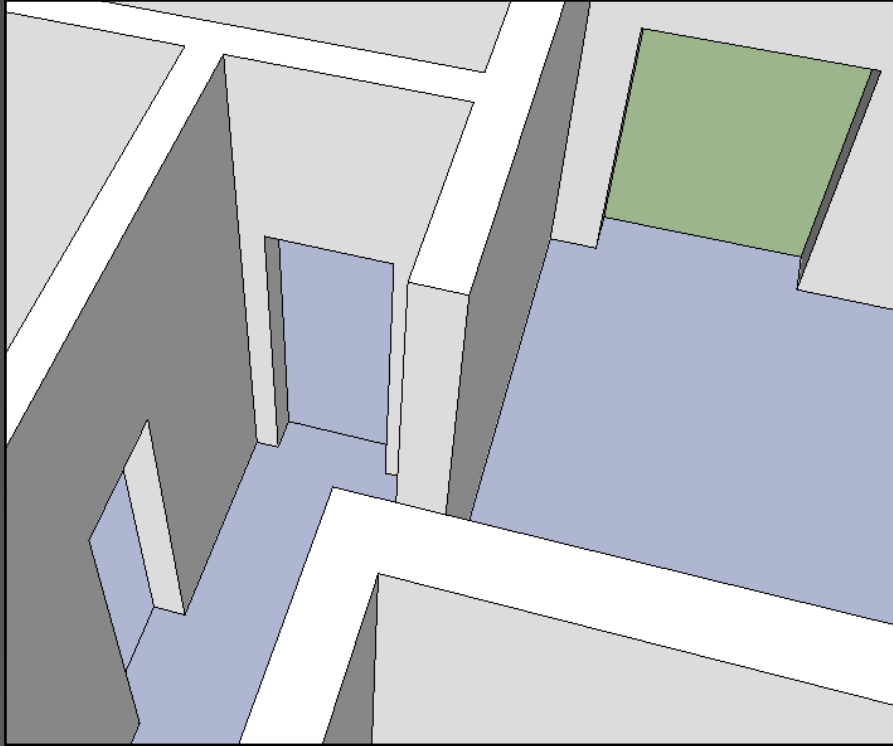
STEP 3- Use the PUSH/PULL tool to pull all the WALLS up together at once

- This sets the height of this floor of your building
(at least 10 ft. is recommended)



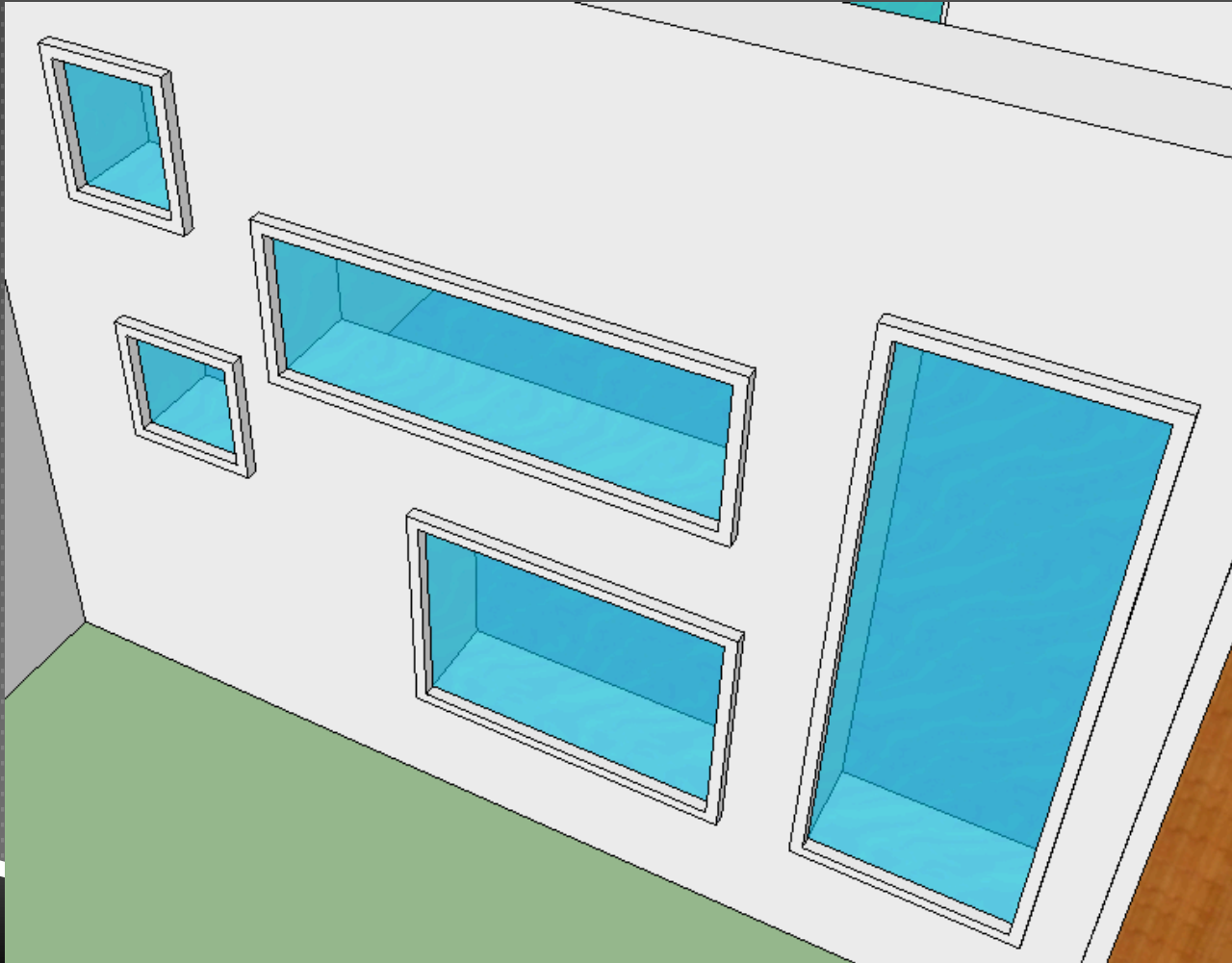
STEP 4- Create all of the DOORS for your house

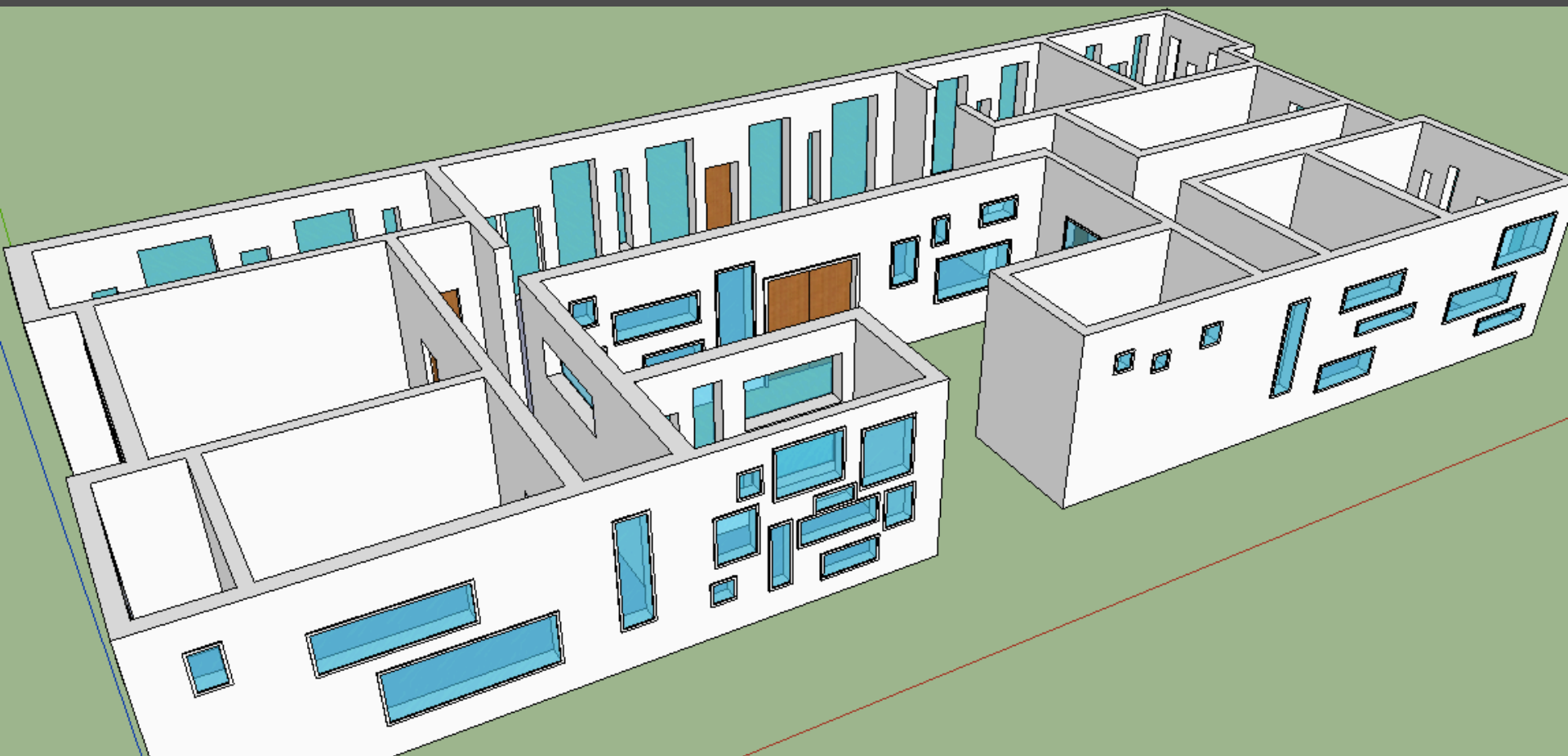
- Since your walls have thickness, you will first have to cut out an opening
- Then redraw the door within that opening (door does not need thickness)
- Door handles and small details are NOT required



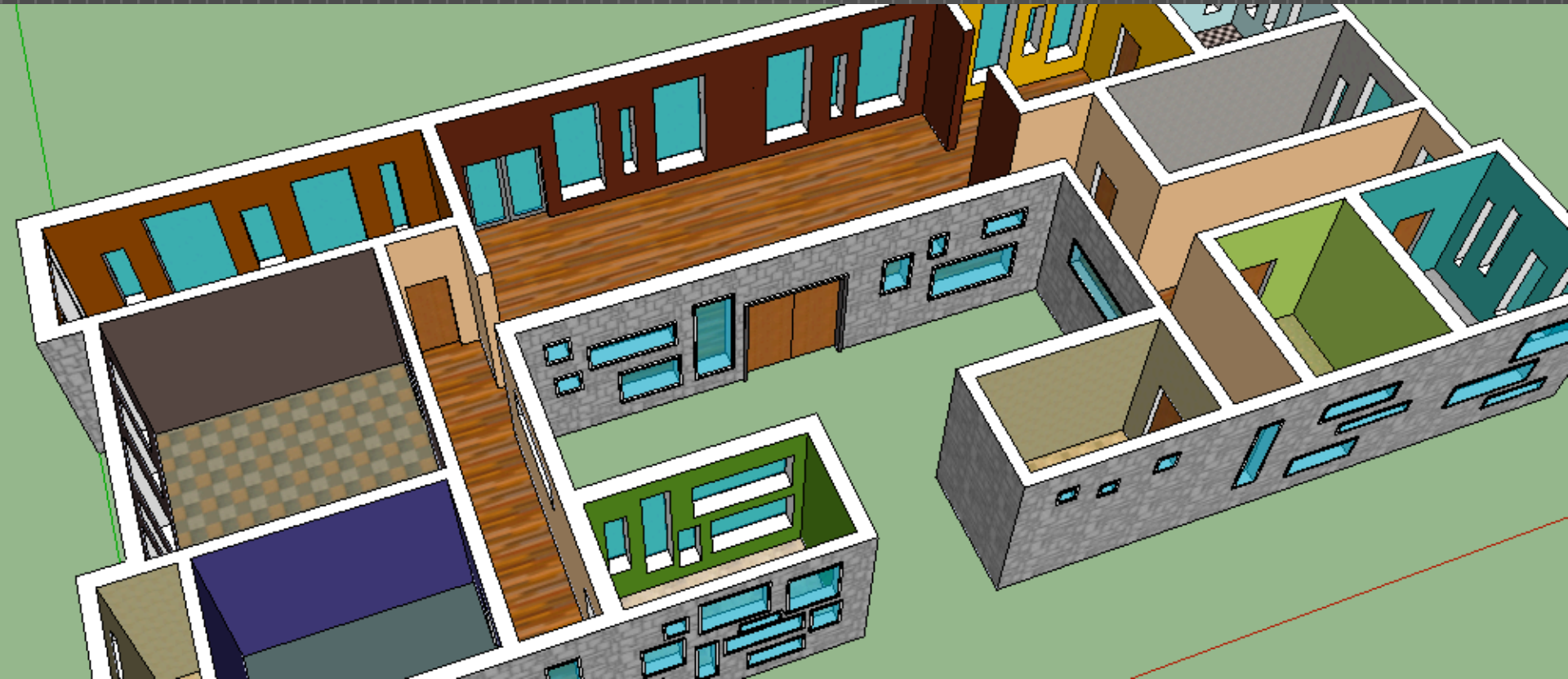
STEP 5- Create all the WINDOWS for your house

- They can be any size or shape, but you should have several of them
- They must be TRANSLUCENT and have a FRAME





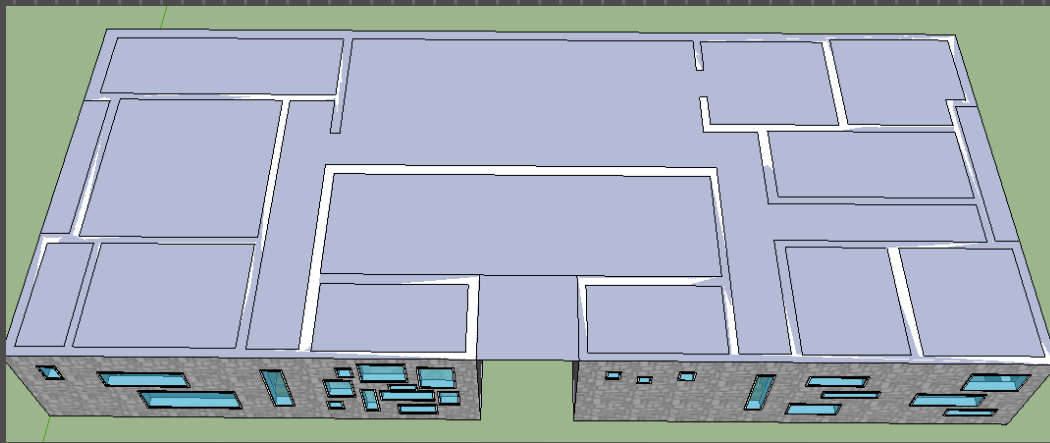
STEP 6- Add TEXTURE or COLOR to all of your WALLS & FLOORS
- Only the inside of doorways and windows can be left blank



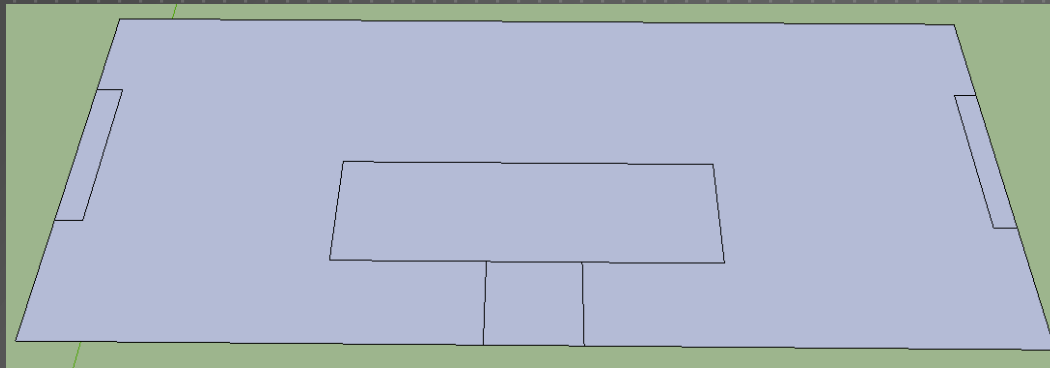
STEP 7- Create the BASE for your ROOF

- Select your entire house and go to EDIT → MAKE GROUP
- This will isolate the rest of your house from the roof you will make



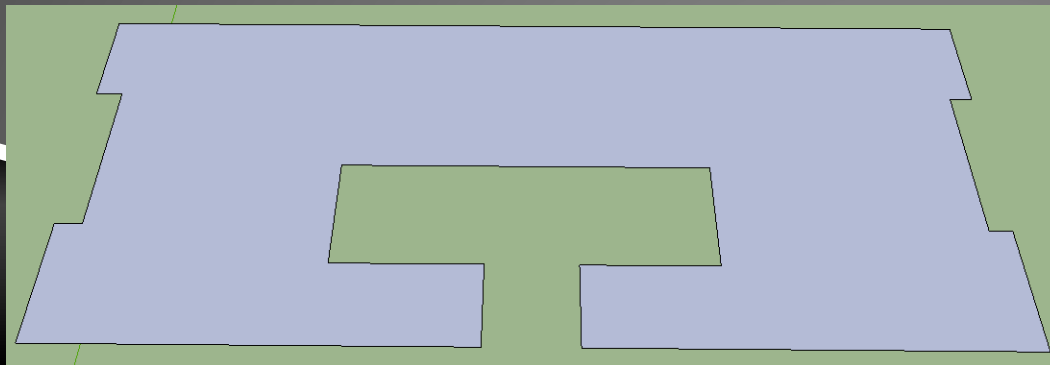


- Use the rectangle tool to cover the entire top of your house from corner to corner



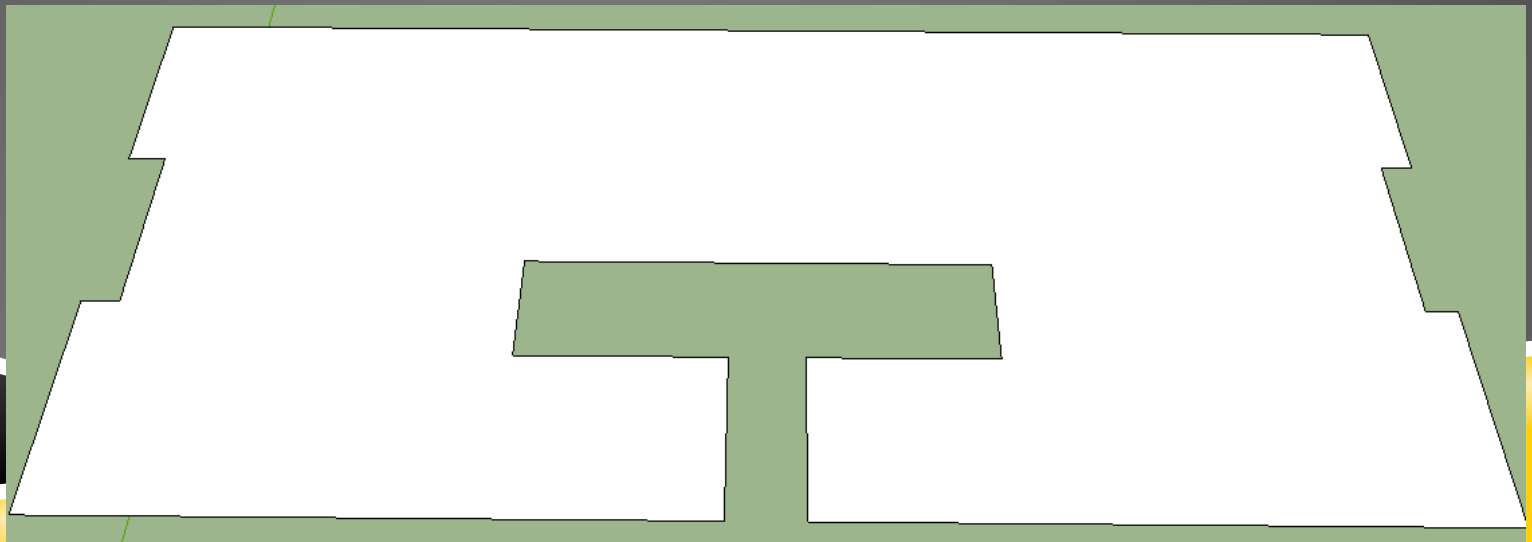
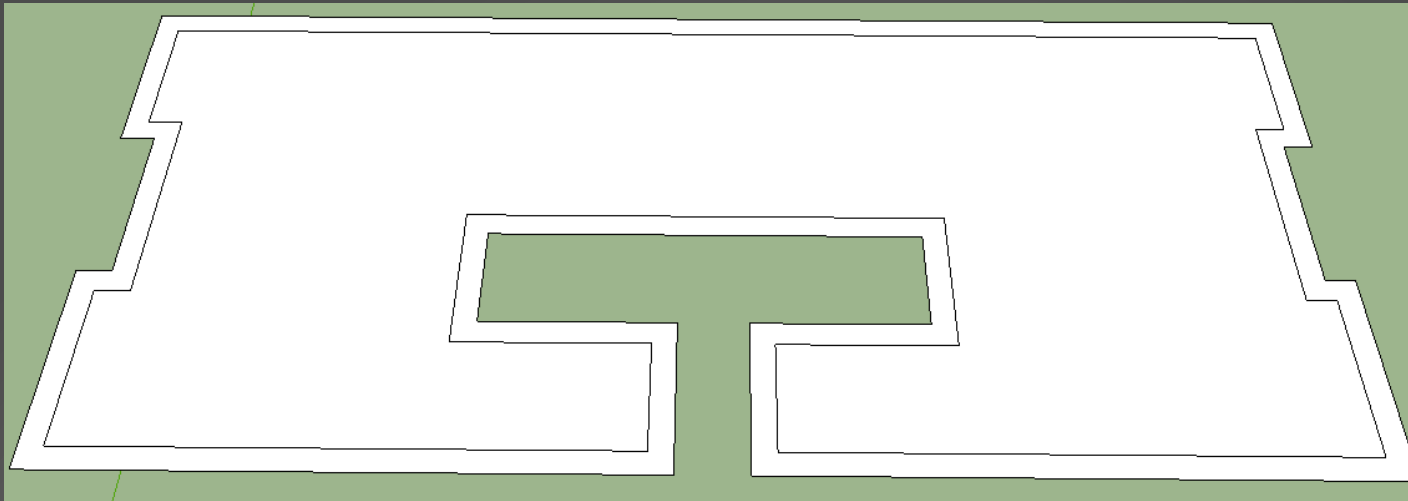
- Use the rectangle tool to **OUTLINE** the areas that need to be cut out from that initial area

- Select the Group you made for the rest of the house and go to **EDIT** → **HIDE**

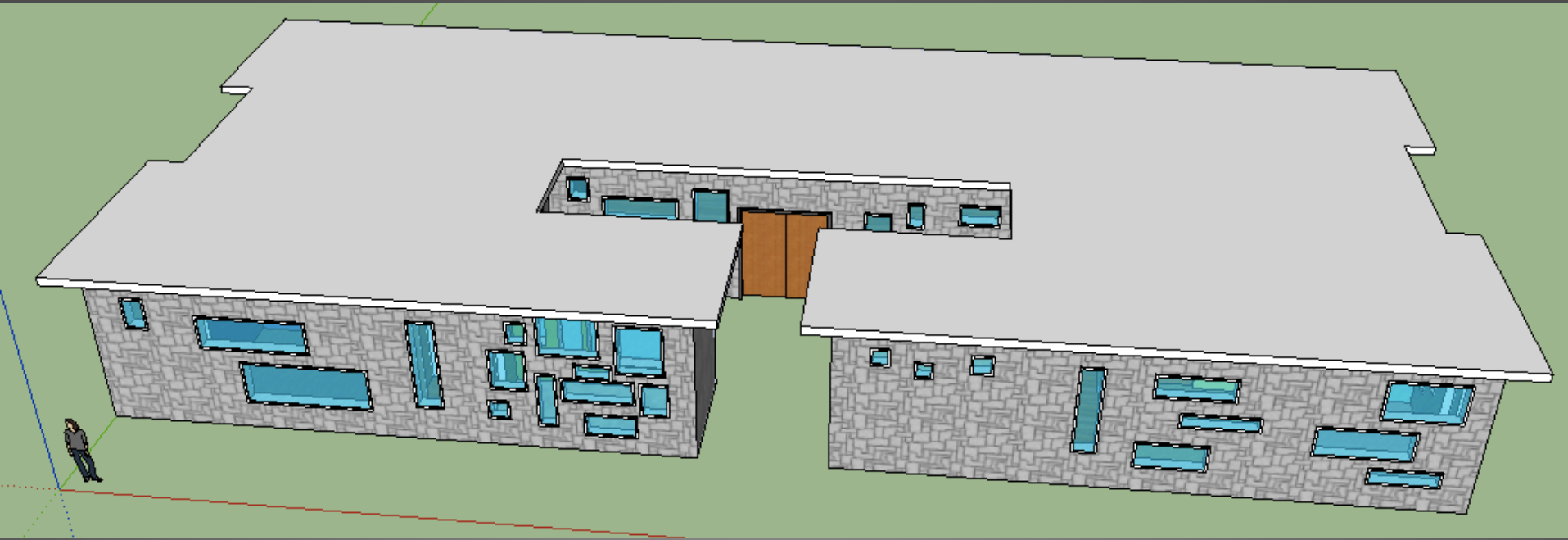


- Select and **DELETE** the areas that needed to be cut out from the initial area

- To create EAVES for your roof, use the OFFSET tool to draw another line a few feet out from the edge of the roof
- After it is drawn, erase the original line for the roof edge

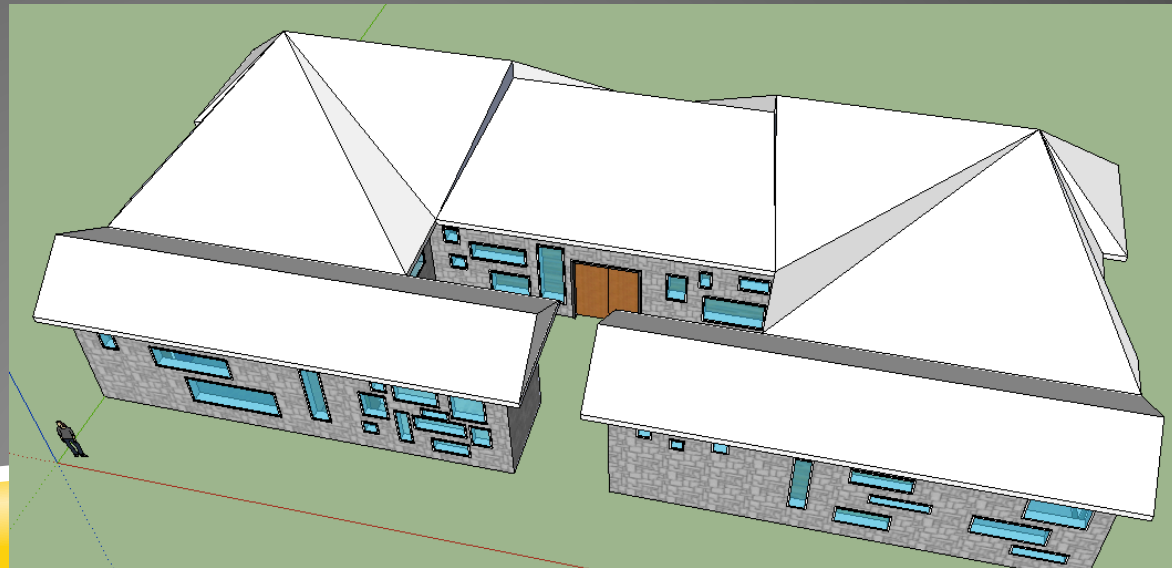
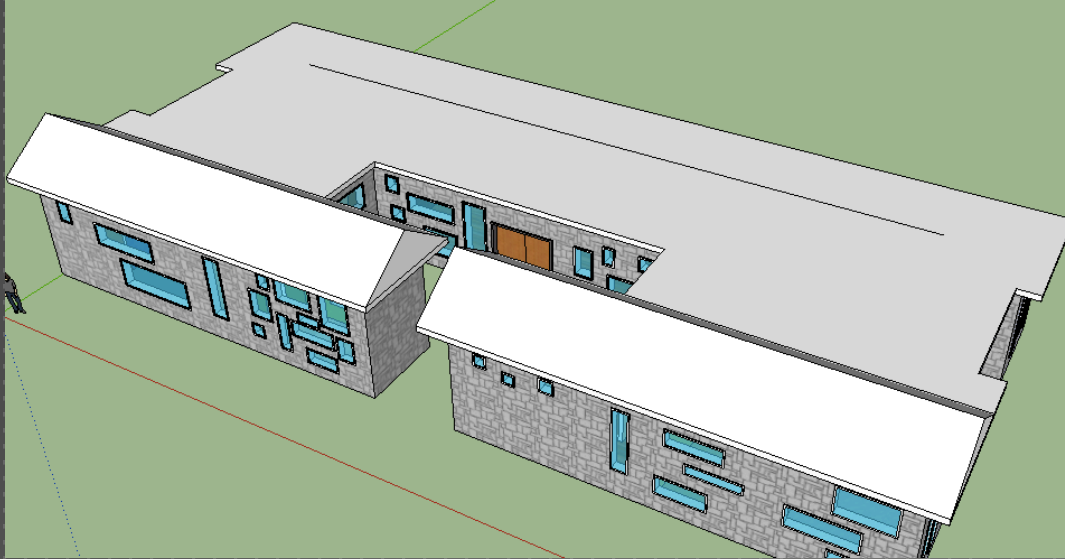


- Use the Push/Pull tool to give your roof some THICKNESS
- Turn the visibility of the rest of the house on by going to EDIT→UNHIDE→ALL

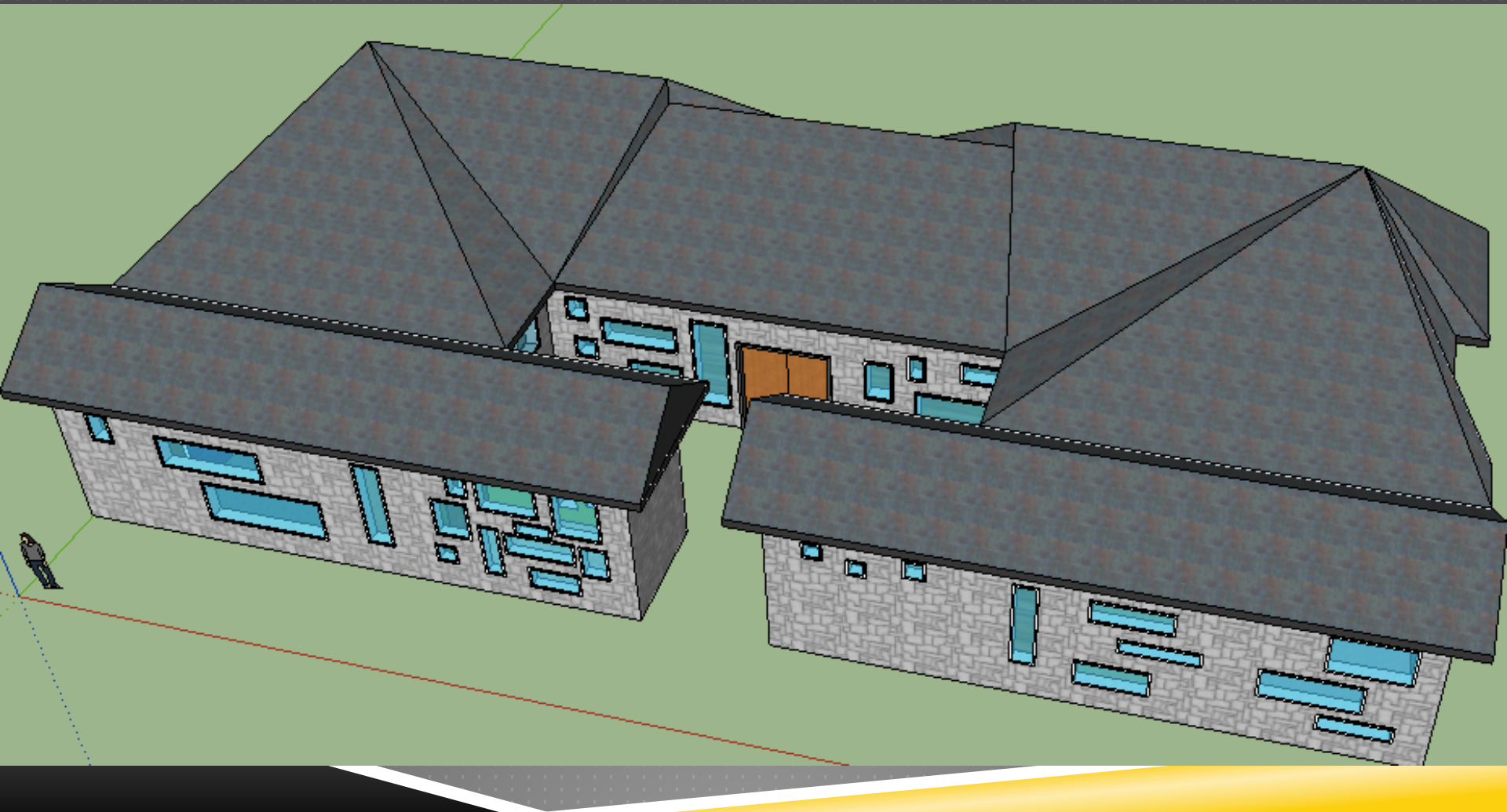


STEP 8- Finalize the form of your ROOF

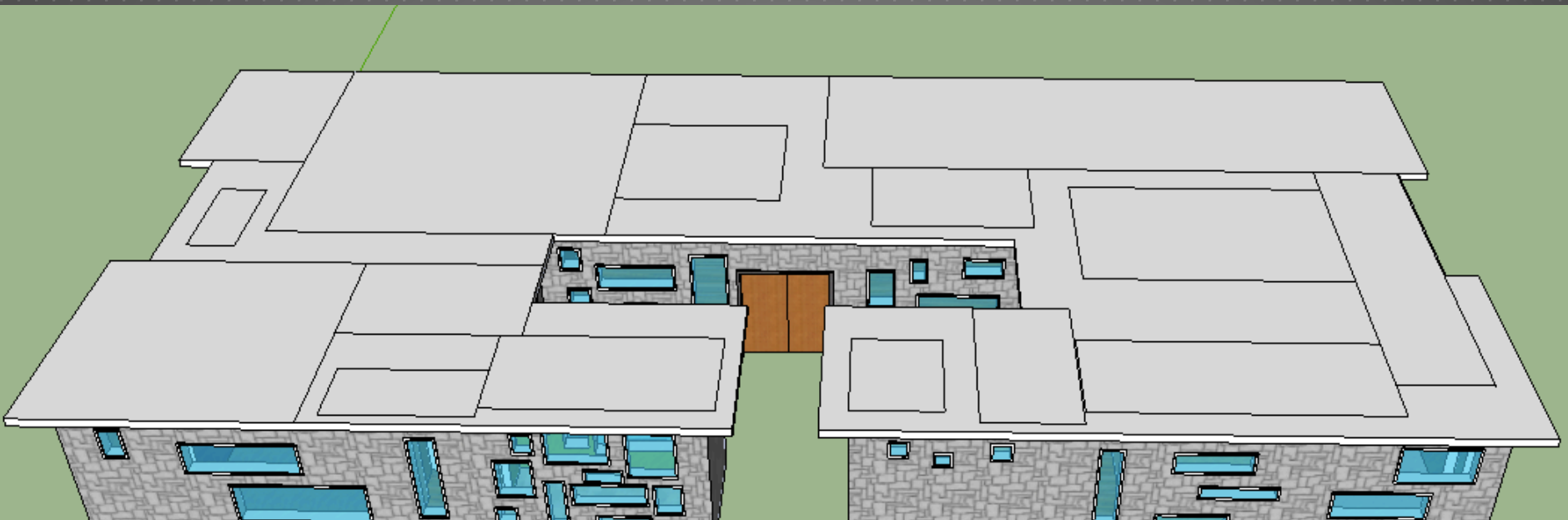
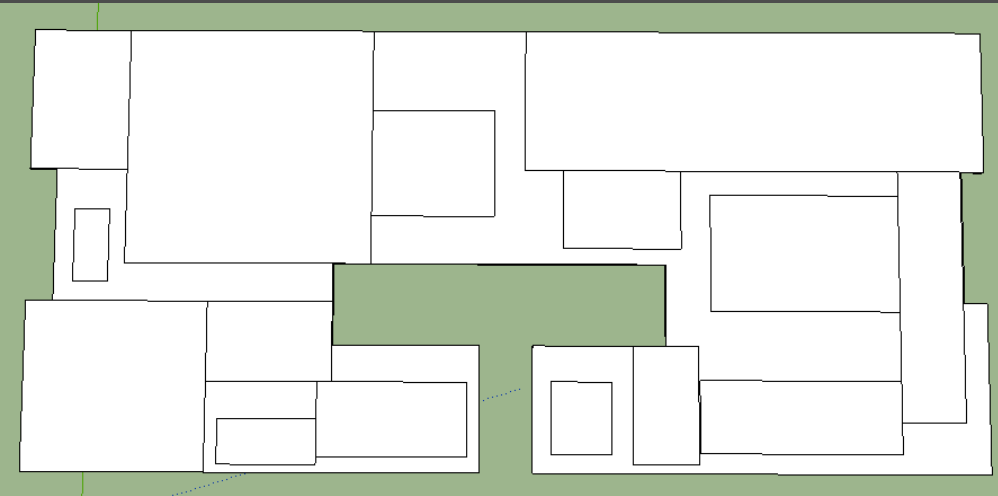
- You have a lot of OPTIONS on this
- Your roof should demonstrate good CREATIVITY and STRUCTURE

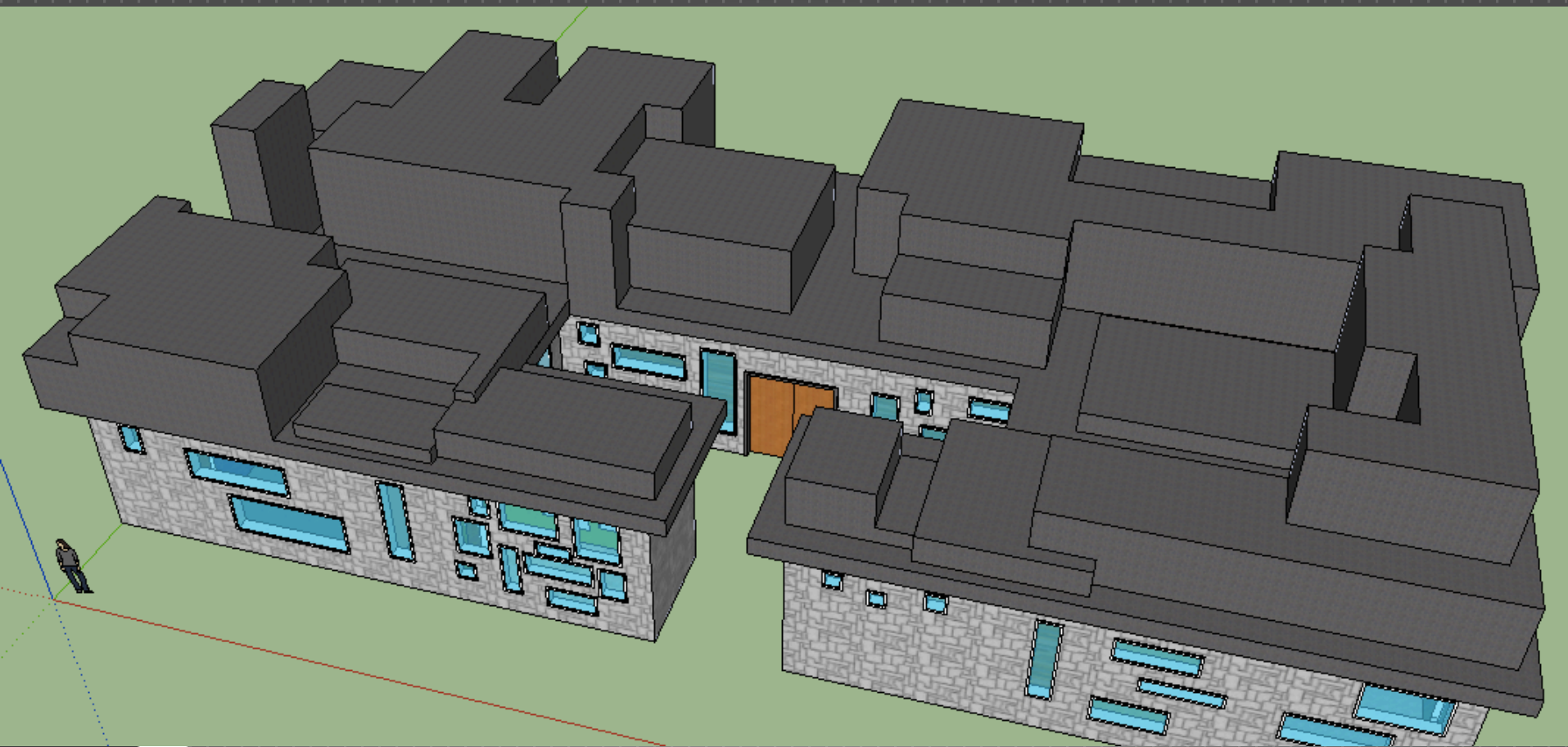


- Don't forget that all sections of the roof should be covered with COLOR or TEXTURE



- To show you another approach,
here is another roof created for
the same house.





STEP 9- Turning in your project:

- Make sure to rename your file in the following format:
[CLASS HOUR]_BuildingDesign_[LAST NAME, FIRST INITIAL].skp
(For example: 2_BuildingDesign_Smith.skp)
- Make sure your file is less than 25 MB in size
 - If it is too big, remove furniture or other components
- EMAIL the file to your TEACHER
 - The subject of your email should be “Building Design”