

## MEMO

**DATE:** March 2009



**FROM:** Stephen J. Kramer Architecture + Design, Inc.

**TO:** SJK Personnel

**RE:** Arris Seminar: From nothing to DD package at light speed.

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Procedures for developing a new project using ARRIS and Sketchup.

1. First get our there and start marketing so we have a new project.
2. Once you have one develop a preliminary project program. (See appendix A) Many times the client will have some or all of the pertinent information. If not spend time researching, asking questions and determine what the needs are for the building and the site. Get a CAD file or hard copy of the project site, preferably with trees, topography and any improvements, easements, flood plains and all other pertinent information from the client. If this is not available engage a civil engineer unless we are doing initial feasibility in which case a schematic site will be sufficient.
3. Start with our office template database call prelim.db This database is a 1/8" scale and has basic layers for both site and building layout. Save this database with a new name that is related to the project. Modify the title block by adding a typical sheet name & number, specific project name, address, city, state, zip code, project number, and your initials and save. Once you have done this import the site survey onto the layer called sprop for future use.
4. Now you are ready to start planning. Use the program developed above and start layout of a preliminary plan based on space requirements, adjacency, code, and all the other good things you learned in school and continue to learn on a daily basis. This can initially be done by bubble diagram, hand sketching or computer. Once you have an acceptable preliminary layout you will need to organize it on the computer for a preliminary presentation to the client. (Fig.1)
5. Then start to lay out the floor plan on the computer using lines only on the pwall layer. The key to this is to allow for wall thickness so first determine what wall thicknesses you will be using. Let's say in this case we have 6" exterior and plumbing walls and 4" for all other walls. That means that when we lay out a room with 2 - 4" walls we will add 4" to the final clear dimension that we want. If we have a 6" wall and a 4" wall we will add 5" to the final dimension. This is critical in hallways, small rooms and anywhere that we want to be accurate about room sizes. (Fig. 2)

6. Lay out all the walls this way. If you do have walls of different widths make each one a unique color. Add overall dimensions to the building and figure out approximate square footage. Be sure to be conservative and allow for exterior wall thickness, masonry etc. Then add room names and approximate room sizes. At this point we do not need to worry about showing windows, doors, cabinets, or fixtures although you may want to very basically indicated built ins and toilet room layout just to be sure you have the correct size rooms. Add a brick lug around the whole building again allowing for wall thickness. This will insure that on a tight site you will not come up short later on. Make the brick lug a different color from your walls. Be sure to use the appropriate layers for text, dimensions etc.
7. Now that you have a basic footprint you can start working on the basic site and parking layout. Use the survey that you imported or a schematic site plan. Lay out approaches, parking, drives etc. keeping in mind existing trees, easements, code requirements such as landscape buffers, minimum distance from property lines, traffic flow, solar orientation and other site considerations. Once you have the preliminary floor plan and site plan you are ready for the initial design presentation to the client. This can be done by emailing pdf files or at a preliminary planning meeting. Encourage the client to review the information sent keeping in mind that this is a first shot, and to get back in touch with questions, comments etc. that will allow us to fine tune the design. (Fig. 3)
8. Once you have feed back from the client you can make revisions to these initial plans as needed. When you get to the point where the client is happy with the preliminary plans it is time to take it to the next level. Go to the preliminary plan and make sure that the wall lines are broken at each intersection. Select the wall menu. Set up the walls you will be using specifying, wall thickness, height, justification, display etc. In the wall menu utilities under the tool box option select convert lines to walls. When it asks for walls of what color choose the color you have used for the wall you just set up. Then do this for any other wall types or thicknesses. This is why we want walls of different widths and the brick lug to be different colors. If you set everything up correctly you should now have a preliminary plan with correct wall thicknesses and heights. If not you may have to do some minor cleanup. (Fig. 4)
9. Now it is time to start adding windows, doors, basic cabinets and plumbing fixtures. You do not need to add dimensions, door & window marks until later. Once again, set up, layers and accuracy up front will save you time down the line. Be sure your window and door sizes are correct. (Fig. 5)
10. Now you can go to the wall menu and under the utility menu use the extrude wall option. This is pretty simple and creates a 3d version of the walls, windows and doors that can be used as the base for a sketchup massing model. You can look at the extrusion by selecting the view menu iso view option with solid selected under the open GL mode option. (Fig. 6)

11. Now use the roof generator to create a basic roof plan. Select the roof generator menu, quick roof option. Set up the parameters for a basic hip roof and the roof generator will do the rest. Be sure to specify each parameter to match your building as closely as possible. Once again look at the basic model as noted above. If everything looks good you are ready to export to sketchup. Turn off all unnecessary layers. You should only have wlextrude and rf\_model along with any text or site layer that you may want to have in the sketchup file. (Fig. 7)
12. Go to the file menu and select the export option. Choose 3D to SKP. When the export to sketchup menu comes up be sure that the options to automatically heal faces and launch sketchup options are selected and hit OK. (Fig. 8)
13. As a final step you can export your site layer to dwg. This will allow you to import the site plan into sketchup and place your building on the site. (Fig. 9)
14. You should now have your original site plan with any modifications, a good DD plan with walls, windows, doors, cabinets, fixtures, room names and sizes as well as a pretty decent study model to use and show the client. This model is not very easily modified so if you want to really take it to a higher level you may need to start it from scratch.
15. Once you get a final approval on this DD package you are ready to move on to construction documents.

GOOD LUCK AND ENJOY!

STEVE

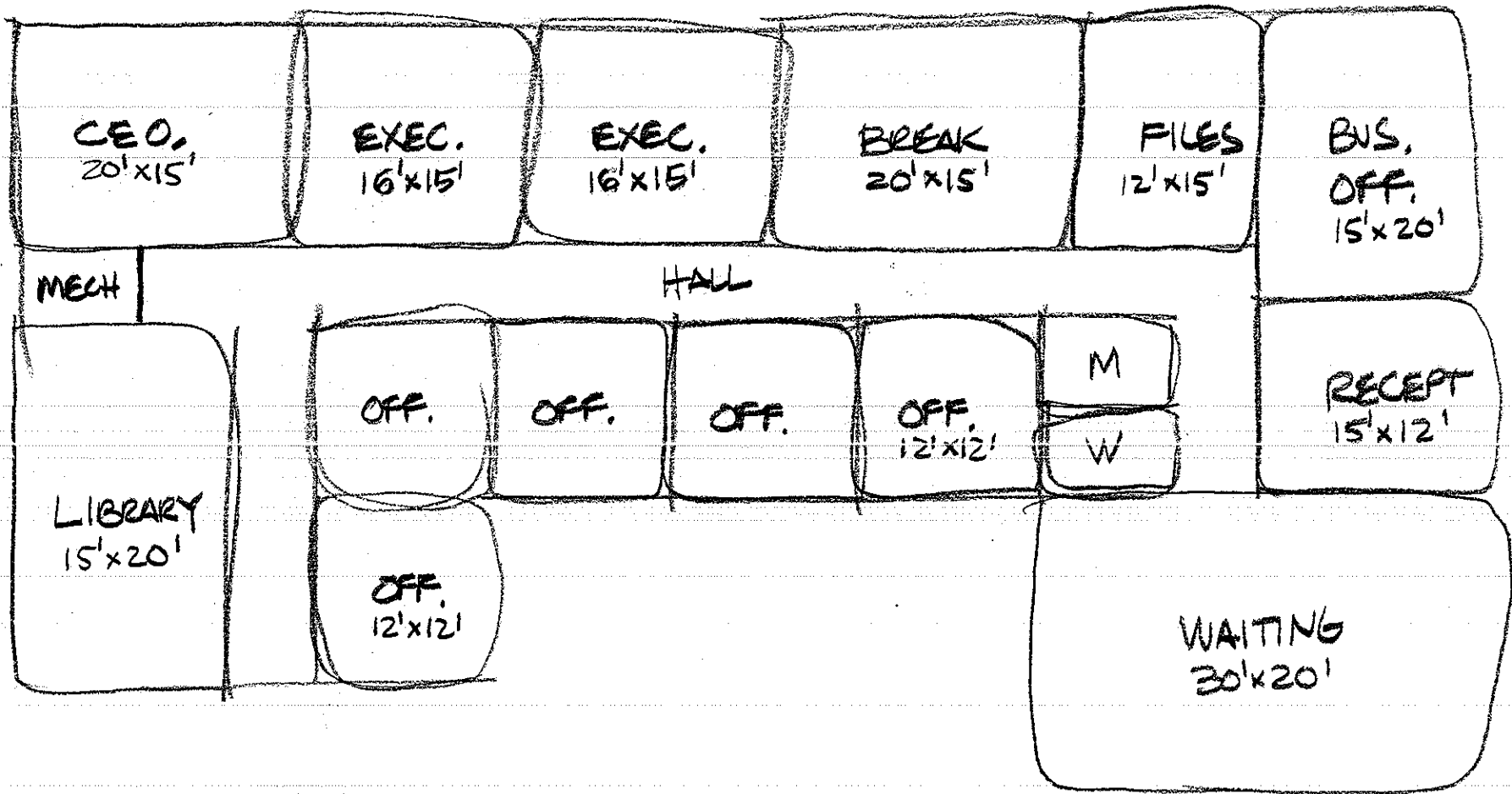
# Appendix A - Project program

4500 s.f. Office building design on 1 acre site  
Building to have 12' plate, hip roof at 6:12 pitch.  
Site to have drive access to both streets and 25 parking spaces

If possible allow for future building and parking to be developed on the site.

Interior to consist of the following spaces

Large waiting room 30' x 20'  
Reception office 15' x 12'  
Business office 15' x 20'  
Filing/Copy room 12' x 15'  
Break Room 20' x 15'  
CEO office 15' x 20'  
2 Executive offices at 15' x 16'  
5 private offices at 12' x 12'  
Conference room 20' x 15'  
Library/Education 20' x 15'  
Mechanical closet  
Men's and Women's RR



PRELIM. LAYOUT





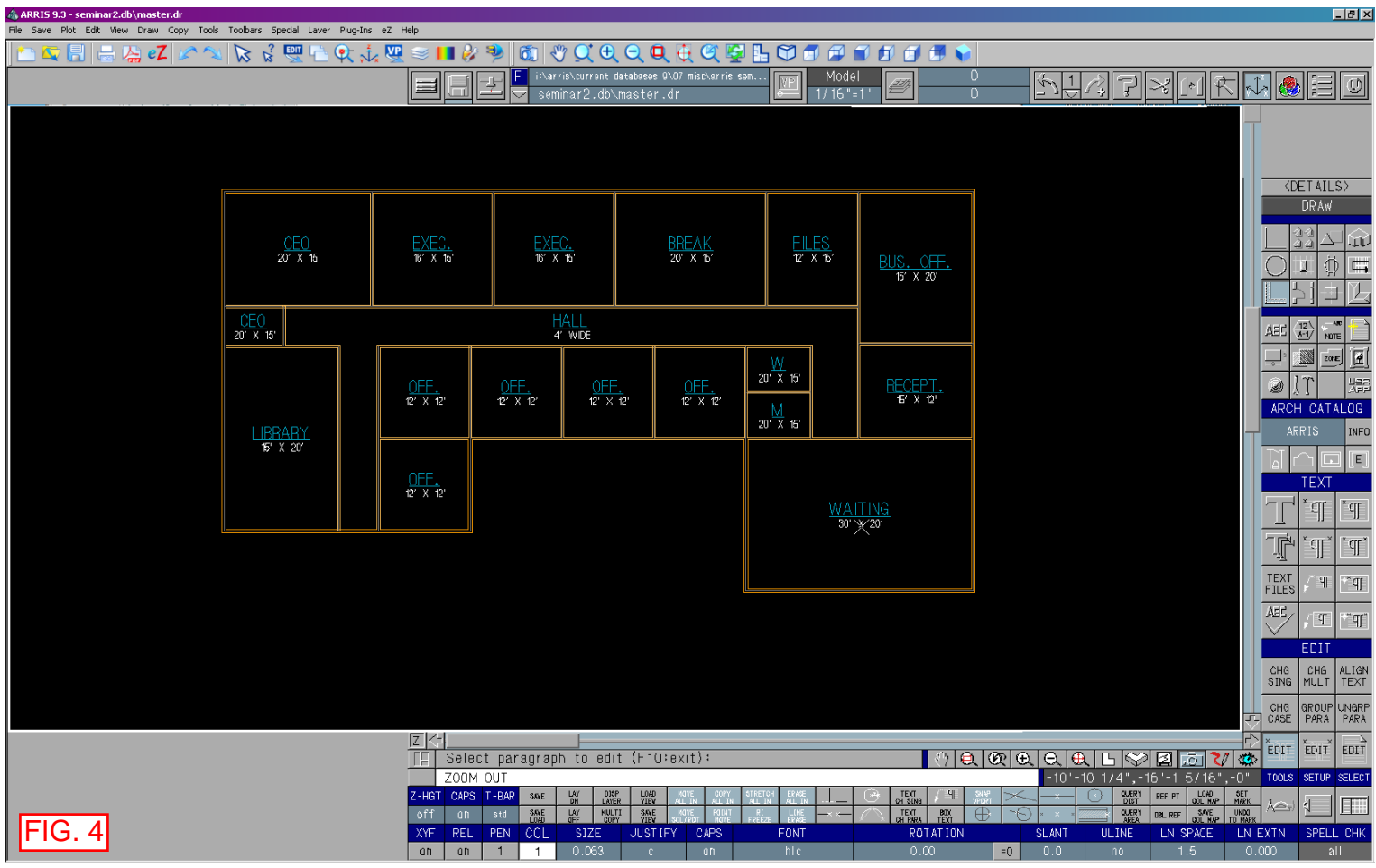
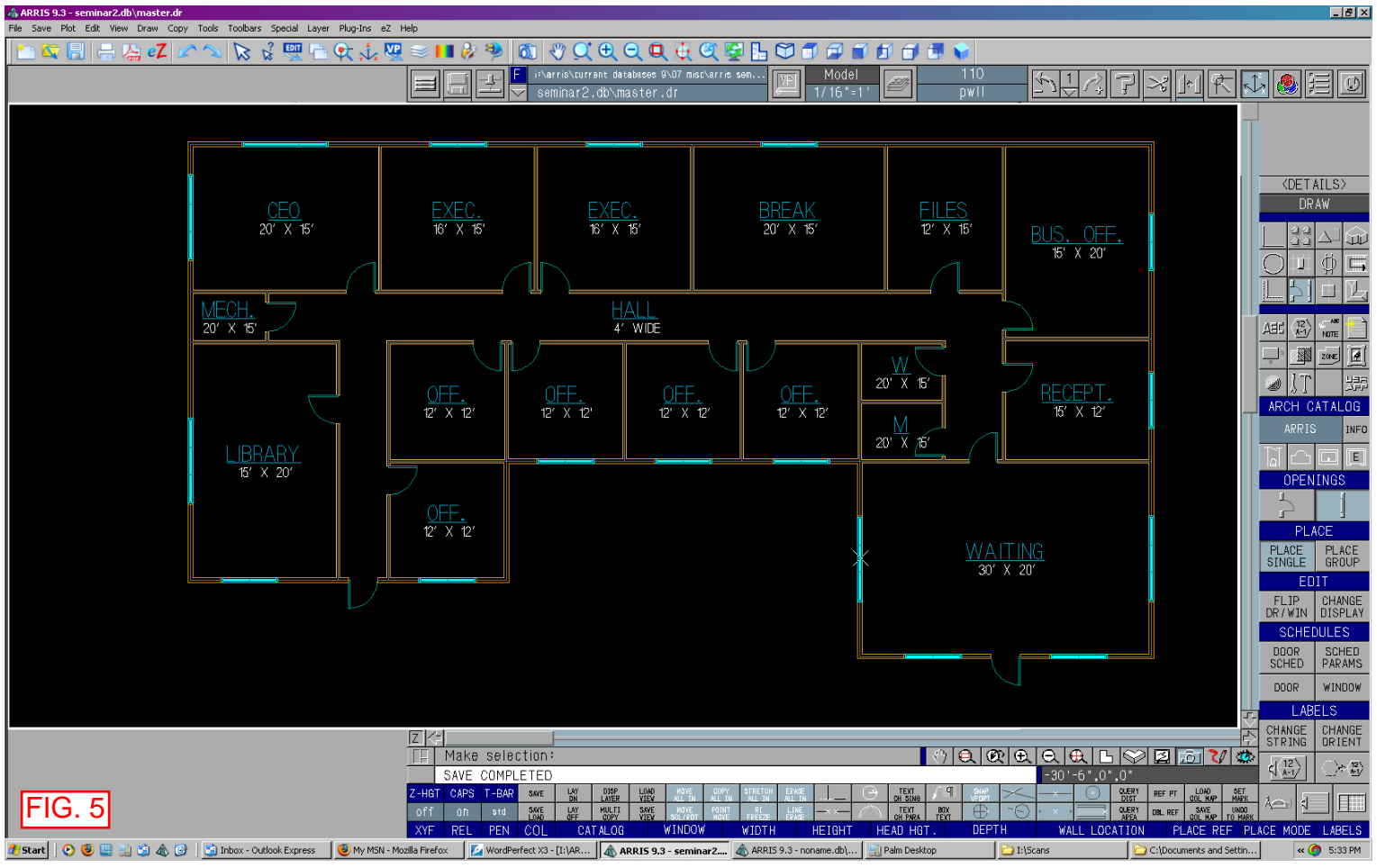
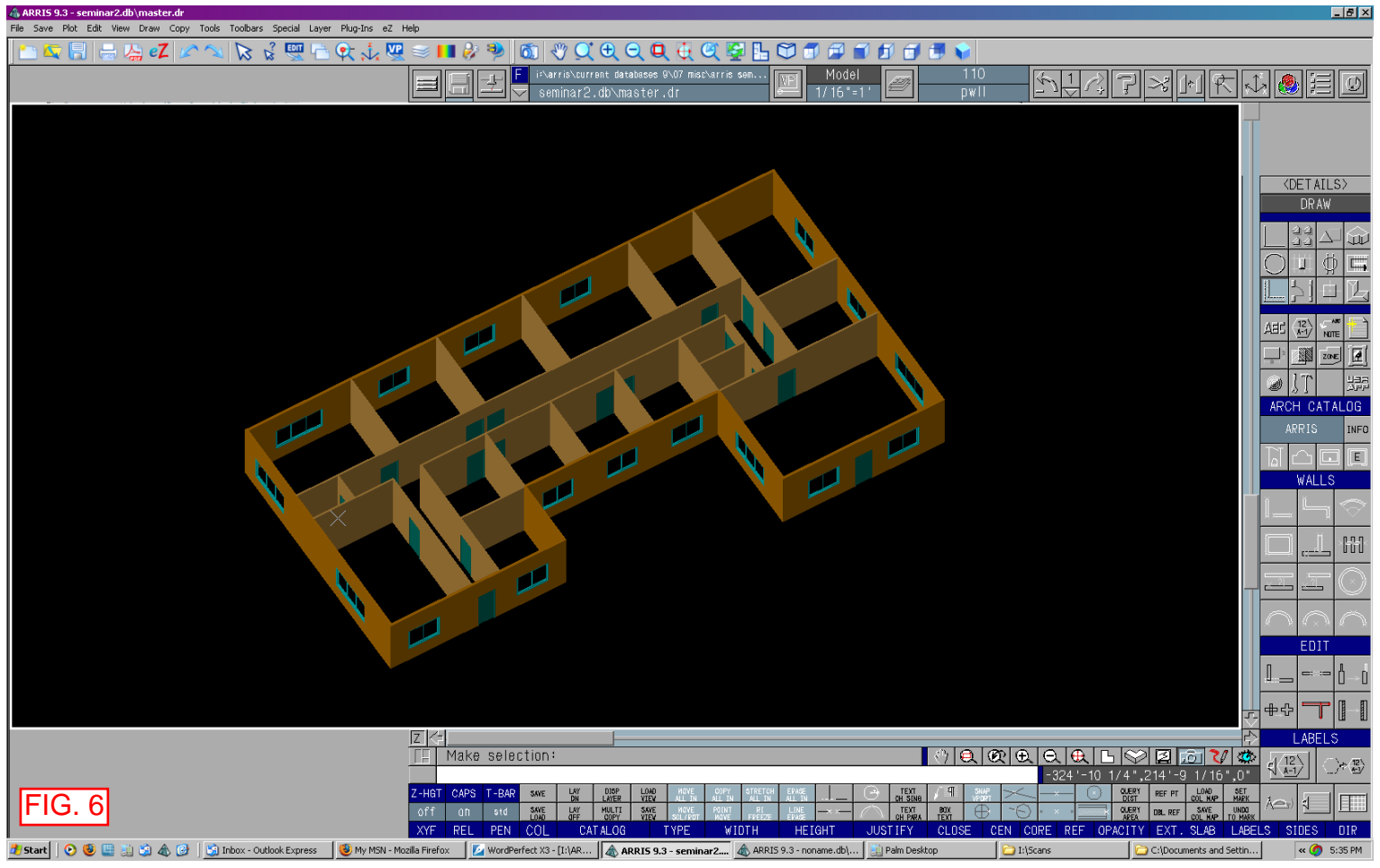


FIG. 4

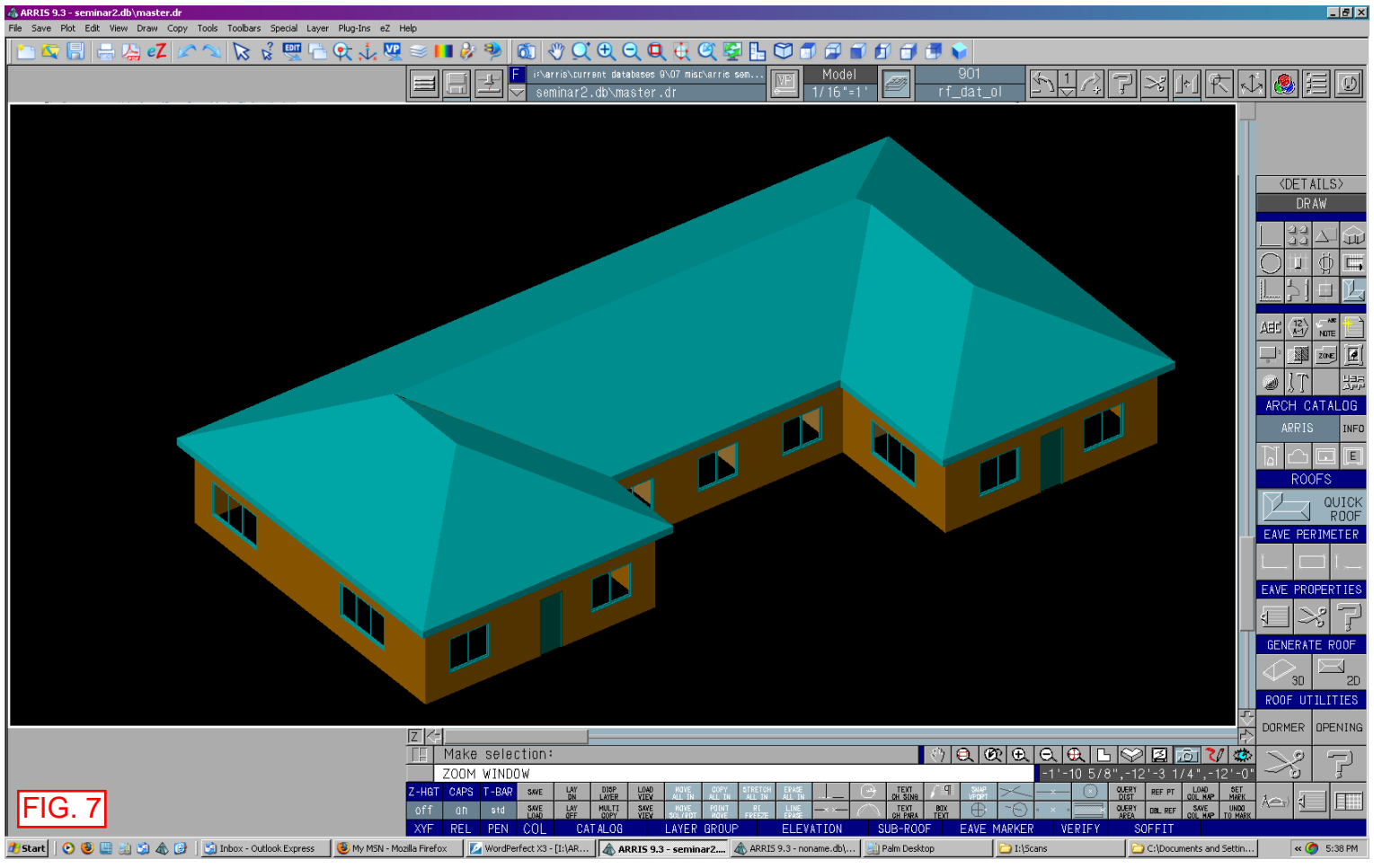


**FIG. 5**

Z-HGT															CAPS															T-BAR															SAVE															LAY ON															DISP LAYER															LOAD VIEW															MOVE ALL IN															COPY ALL IN															STRETCH ALL IN															EXTRUDE ALL IN															LINE EXTRUDE															TEXT OR POINT															TEXT OR POLY															SHAPE OR POLY															REF PT															LOAD OR UNLOAD															SET MARK														
off															on															#1d															SAVE OFF															LAY OFF															MULTI COPY															SAVE VIEW															MOVE (SELECT)															POINT MOVE															PL HATCHES															LINE EXTRUDE															TEXT OR POINT															TEXT OR POLY															BOX TEXT															QUERY SELECT															REF PT															LOAD OR UNLOAD															SET MARK														
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**FIG. 6**



**FIG. 7**

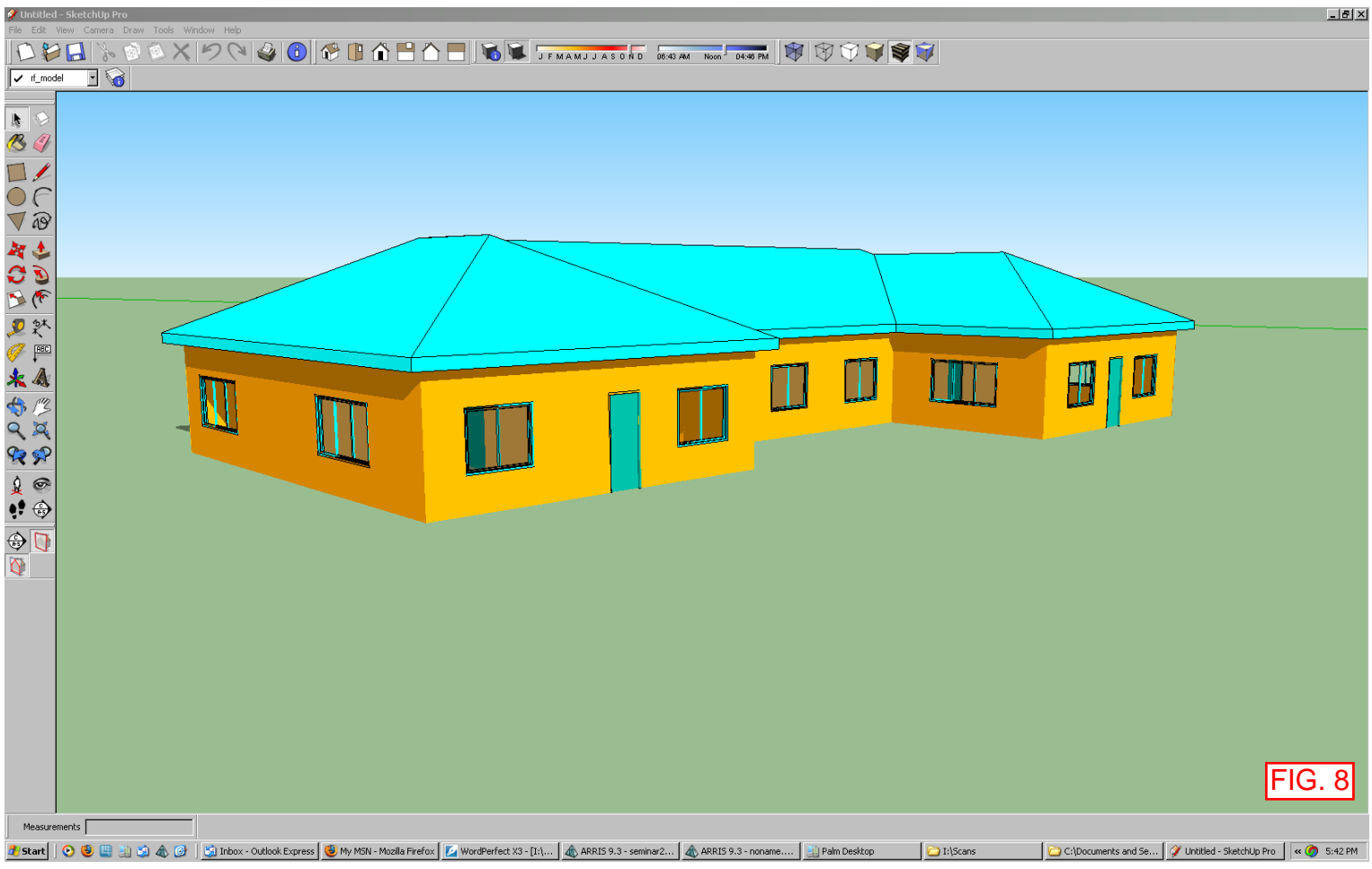


FIG. 8

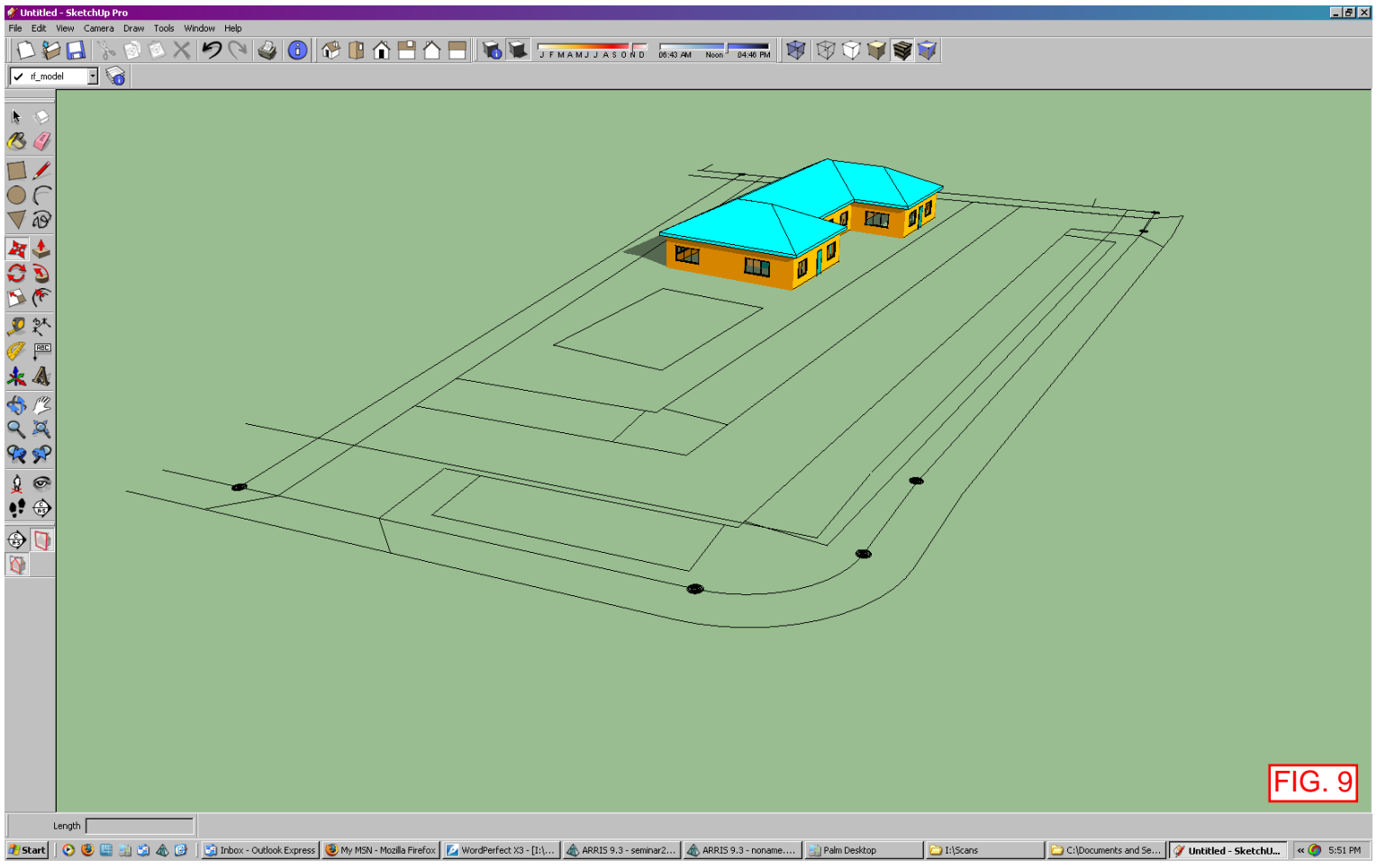


FIG. 9

