

Importing DXF

By:

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Modelling of building using DXF file

- Resources required: DXF file (floor plan) for a building
- Expected duration of tutorial: Half hour
- Outcome of tutorial: Creating model of a building with given DXF file

Step-1: Open the AutoCAD drawing of given building

- The drawing obtained from Architect usually contains lot of extra information, as shown in Illustration 2.1, that are not required in modelling with DB.

- Open the CAD file of building in AutoCAD.

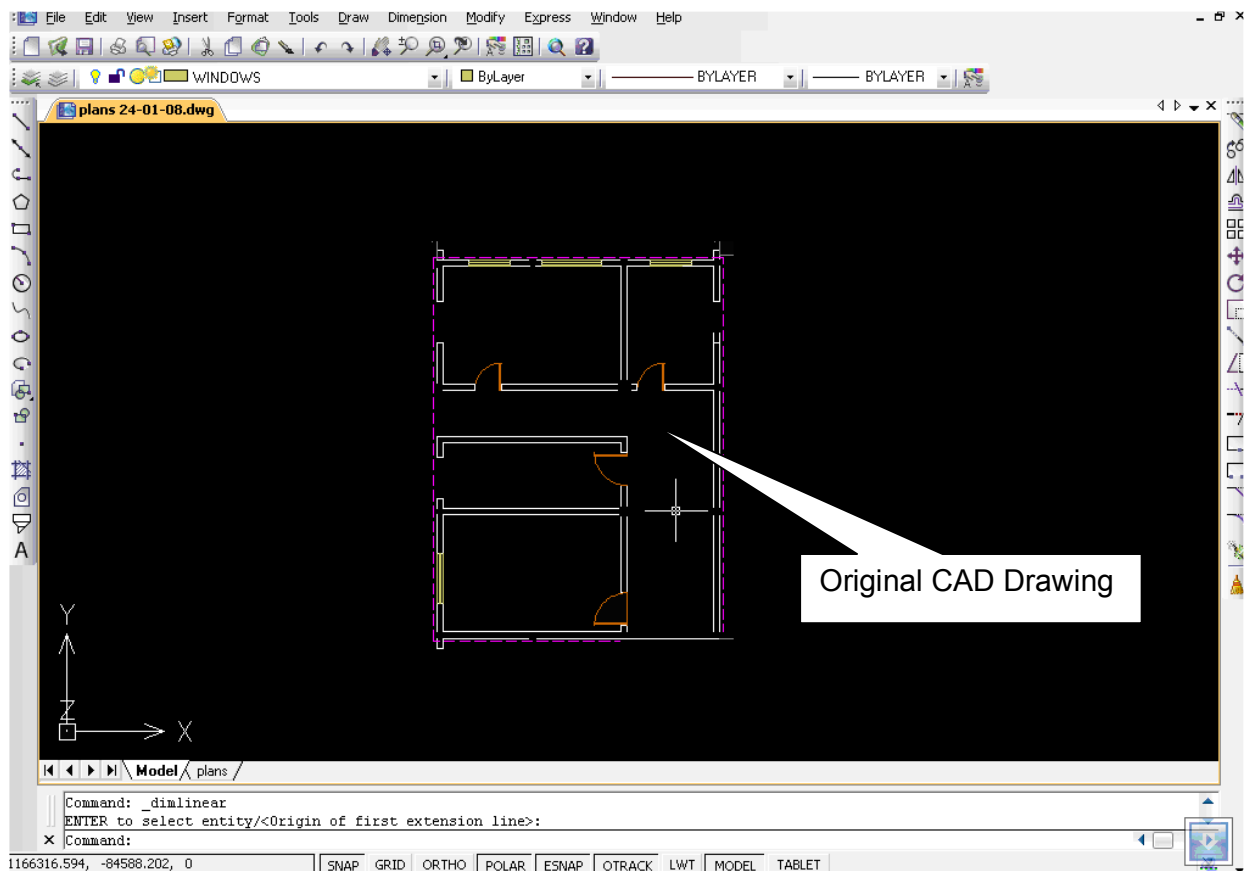


Illustration 2.1: Typical AutoCAD drawing

Step-2: Converting AutoCAD drawing in single line drawing

- Simplify the actual plan into a single line drawing of the building using AutoCAD
- In the AutoCAD menu, under 'Format' operations, a screen as shown in Illustration 2.2 would appear after selecting the first operation 'layers', Switch-off all the layers except those defining the building internal and external walls. Even switch-off the doors, steps etc. since the DXF file is only used for picking the reference points for creating building geometry.
- For switching-off any layer, click on the 'bulb' shown in front of name of any layer in Illustration 2.2.
- This operation is 'toggle' type, and a layer can be switched-on and switched-off by alternate clicks.
- In case some other details remain in the drawing, it is suggested to delete them manually.
- It maybe noted that this step of converting actual drawing into single line diagram is not absolutely necessary; however, it is highly recommended for avoiding mistakes and to simplify the modelling.

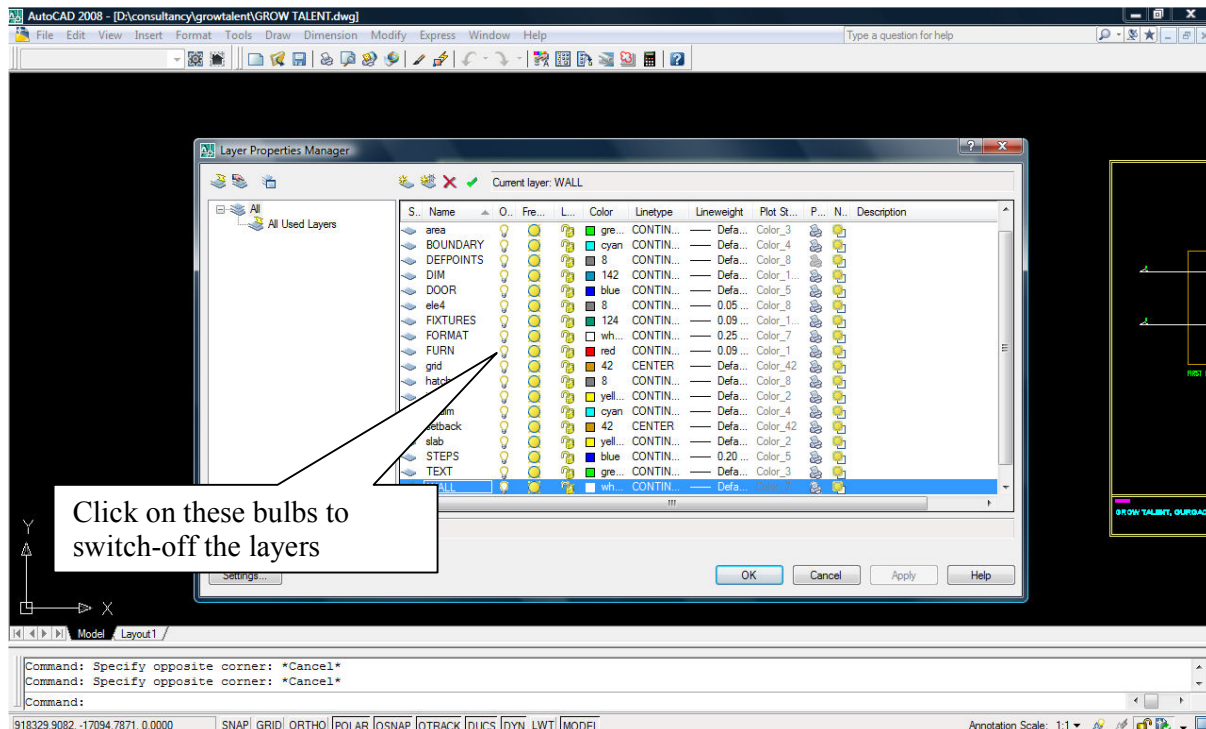


Illustration 2.2: Converting original drawing into single line diagram

- On conversion, finally the drawing looks like the one shown in Illustration 2.3.

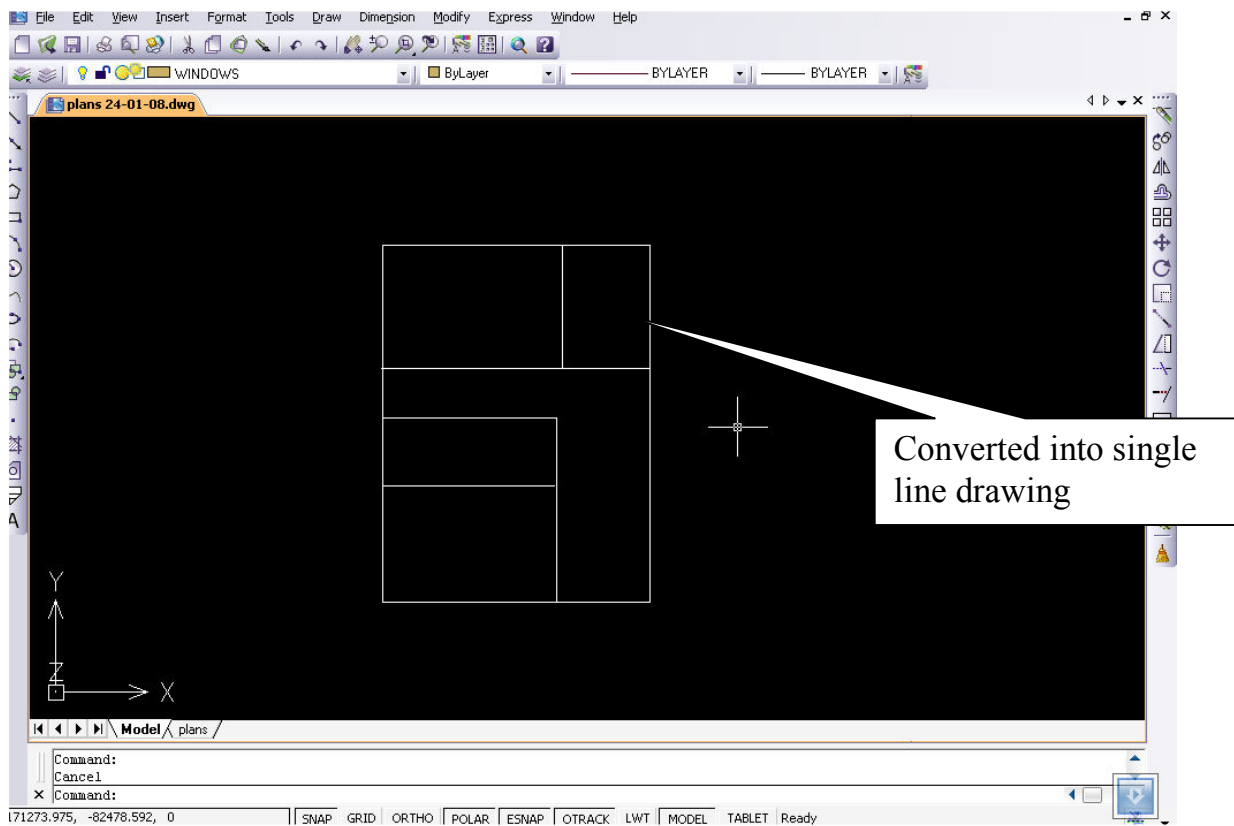


Illustration 2.3: Single line diagram

- Convert the .DWG file .DXF format by choosing 'save as' facility.
- The DB 2D files only with '.DXF' format.

Step-3: Opening single line DXF file in DB

- For using the above single line DXF file, open Design Builder and open a New Project.
- Specify the location.
- Instead of choosing to add new building as done in previous tutorial, select, 'Import 2-D Drawing File' in the info panel to the right as shown in Illustration 2.5.

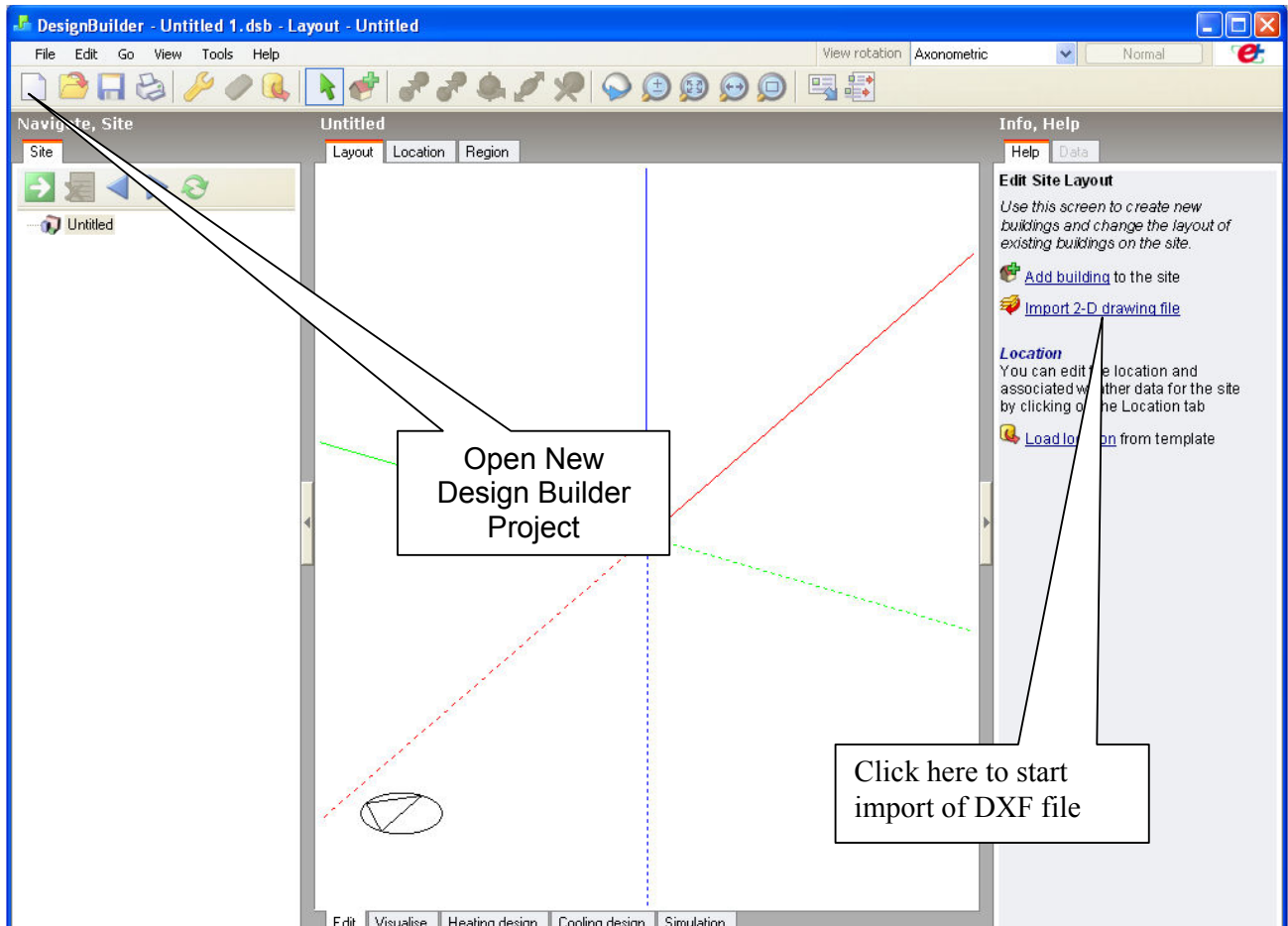


Illustration 2.5: Opening DXF file in DB

- In the “Import drawing file” screen, which pops up now, identify the location of the single line DXF file as shown in Illustration 2.6.
- After selecting the DXF file, the entry in front of ‘file name’ shows the path of the file as shown in Illustration 2.7.

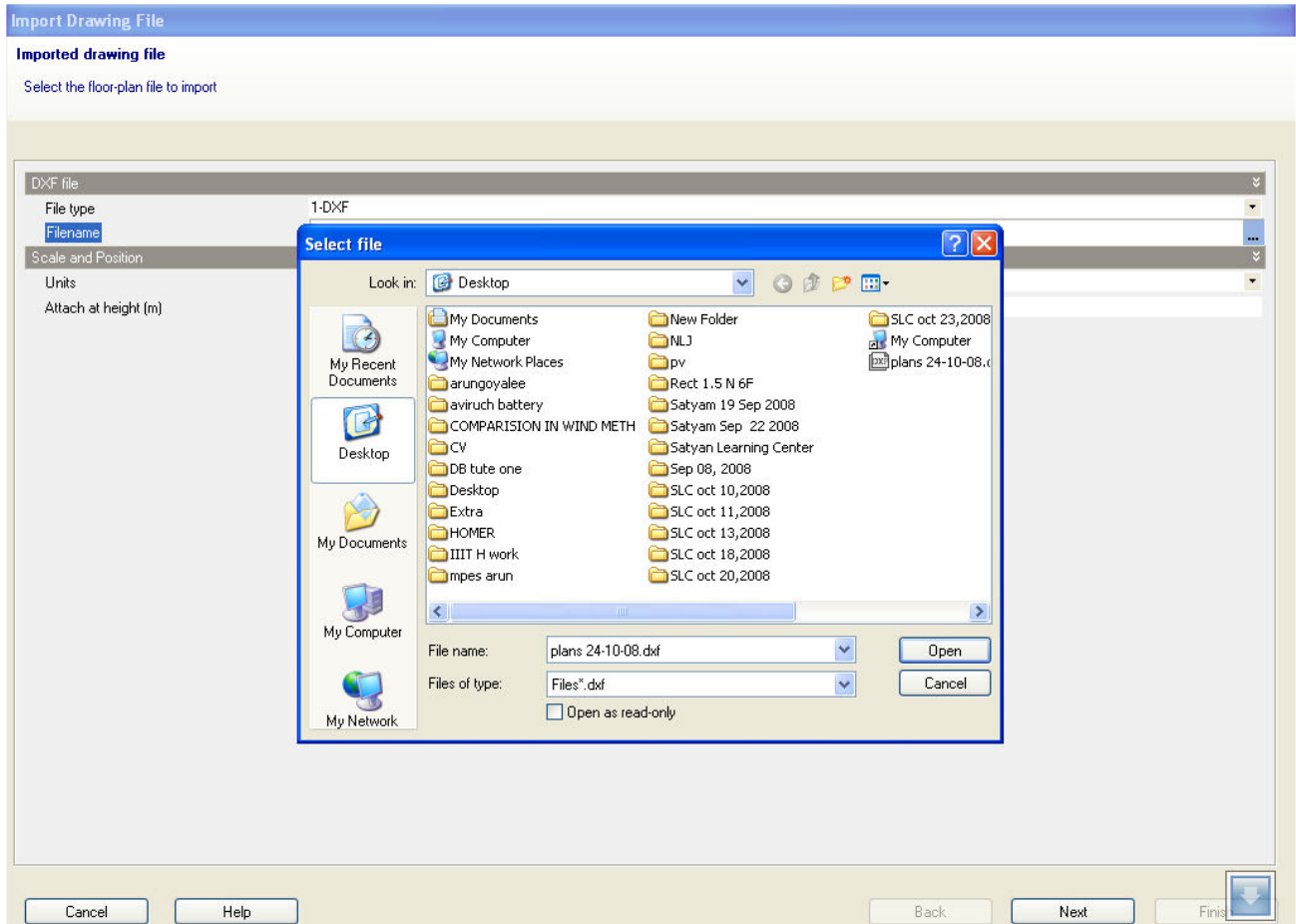


Illustration 2.6: Locating the DXF file

- Next important entry is ‘Units’ as shown in Illustration 2.7. Select the unit here which matches with the unit used in the DXF drawing.
- Please note that wrong selection of units would result into an error message.

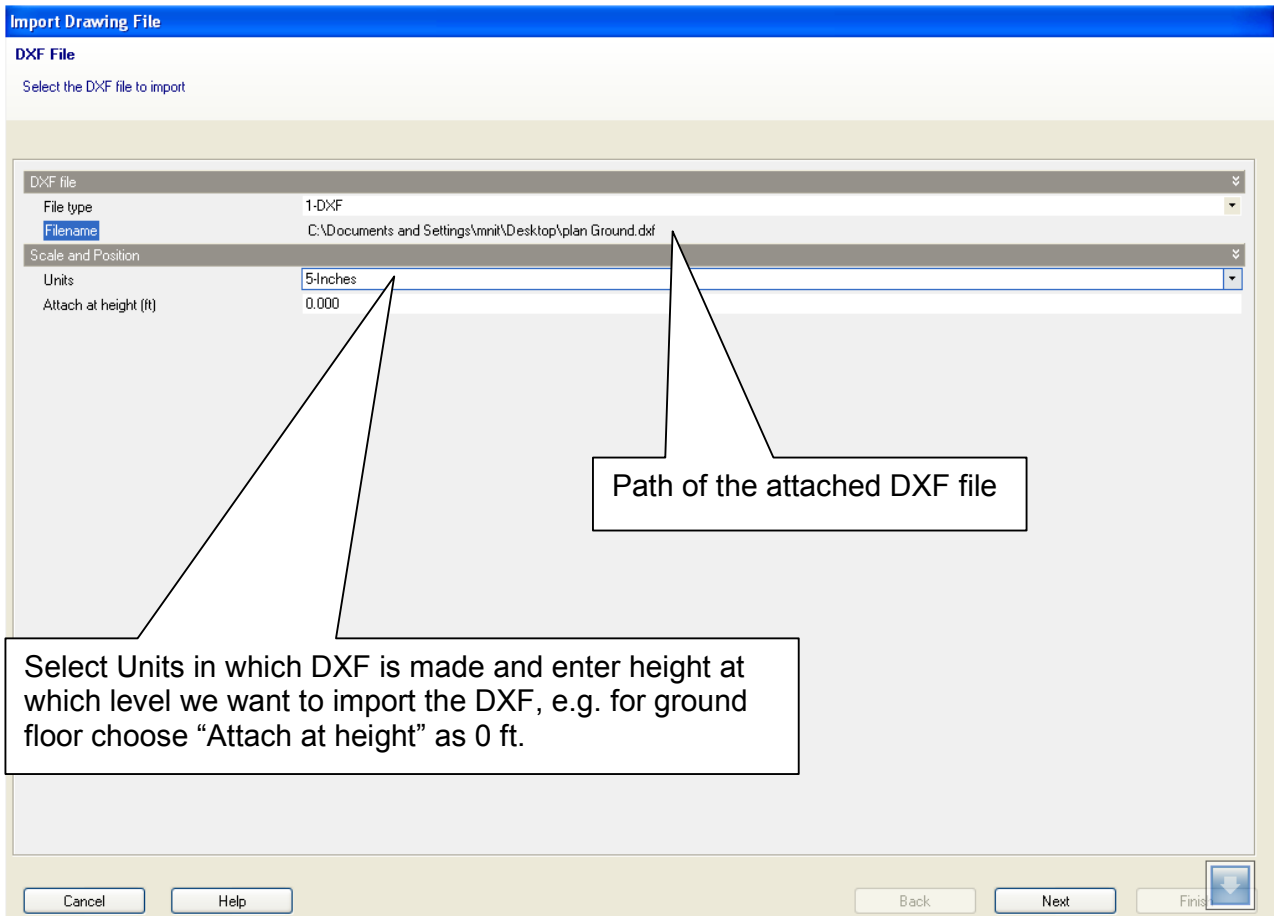


Illustration 2.7: Selecting DXF file and setting units

Moving to the next stage, layers of the drawing which are to be imported to DB are asked to be selected.

Alternatively, if the simplification of actual drawing into single line diagram has not been done, as explained in previous steps, layers can also be turned-off at this stage.

On proceeding further, DB shows the screen similar to one shown in Illustration 2.8, the line diagram of building (DXF) is now available as reference for defining shape and dimensions of the building.

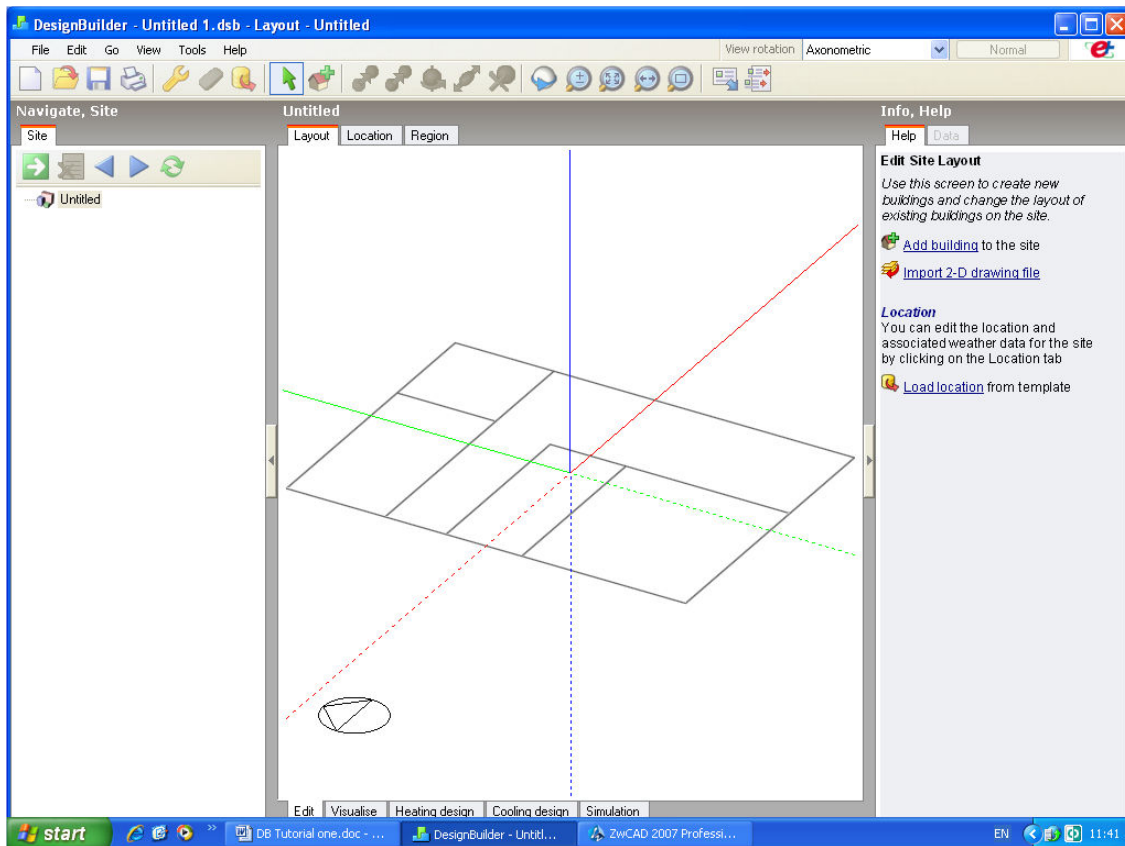


Illustration 2.8: Background image of building (DXF) for modeling

Step-4: Creating building outline

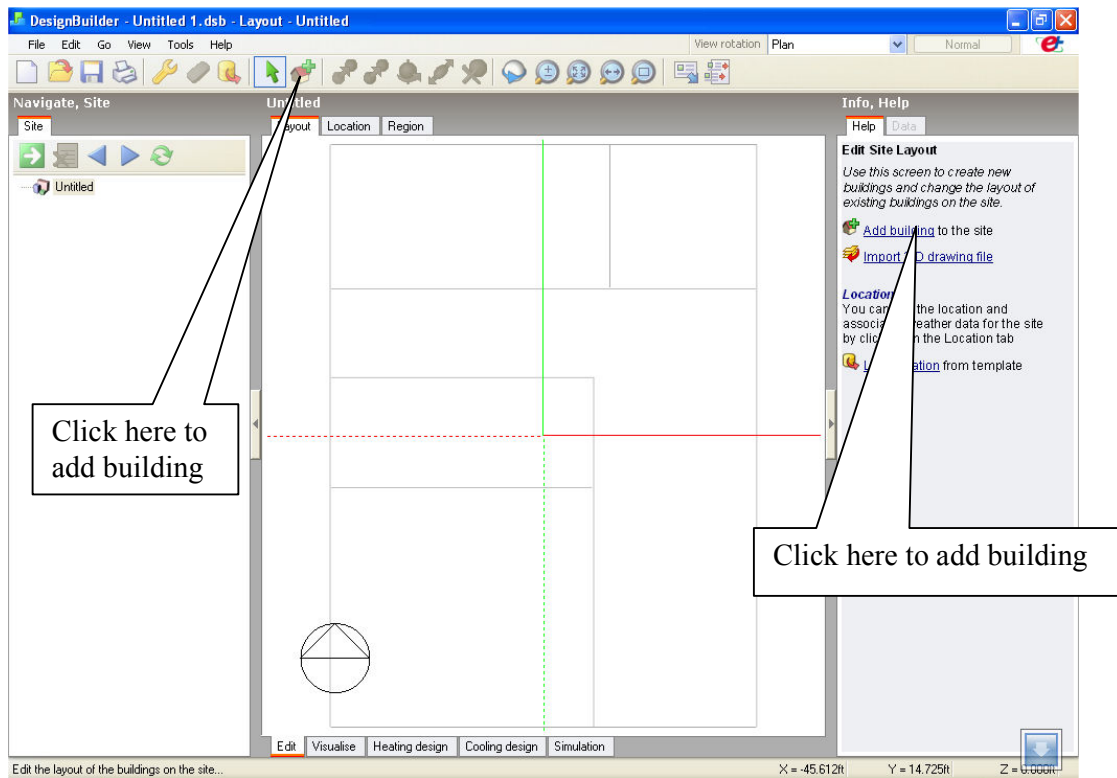


Illustration 2.9: Adding building over the drawing

- Select "Add building" from the info panel or from the top menu as shown in Illustration 2.9.
- After selecting to 'Add building' button, a drawing cursor appears, and building outline can be drawn by tracing the outer boundary of the DXF.
- Whenever the cursor is exactly on to any endpoint the cursor will snap to it and will change its color to pink, thereby helping in picking up correct coordinates of the building, as shown in Illustration 2.10.
- After tracing all the outer corners of the building, 3D model can be viewed by selecting the Axonometric view, as shown in Illustration 2.11

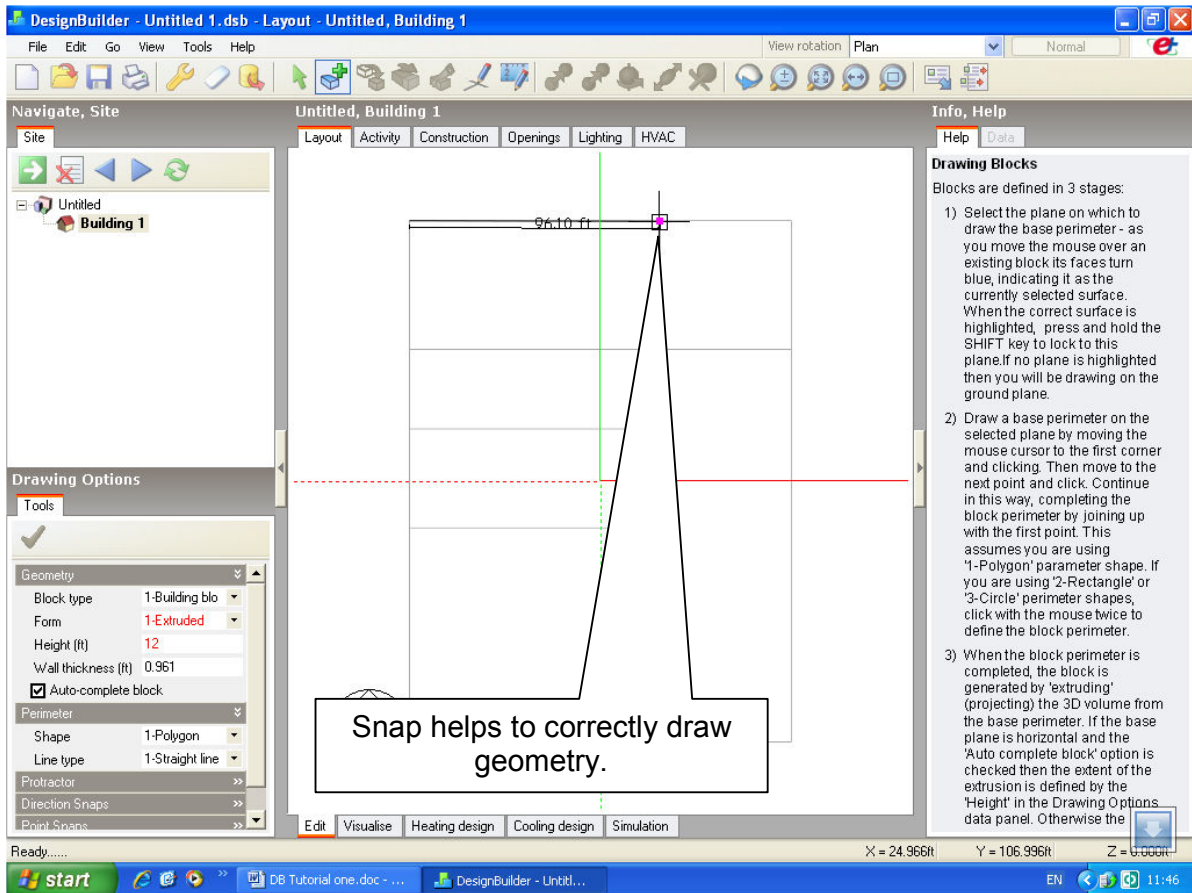


Illustration 2.10: Use of snap facility

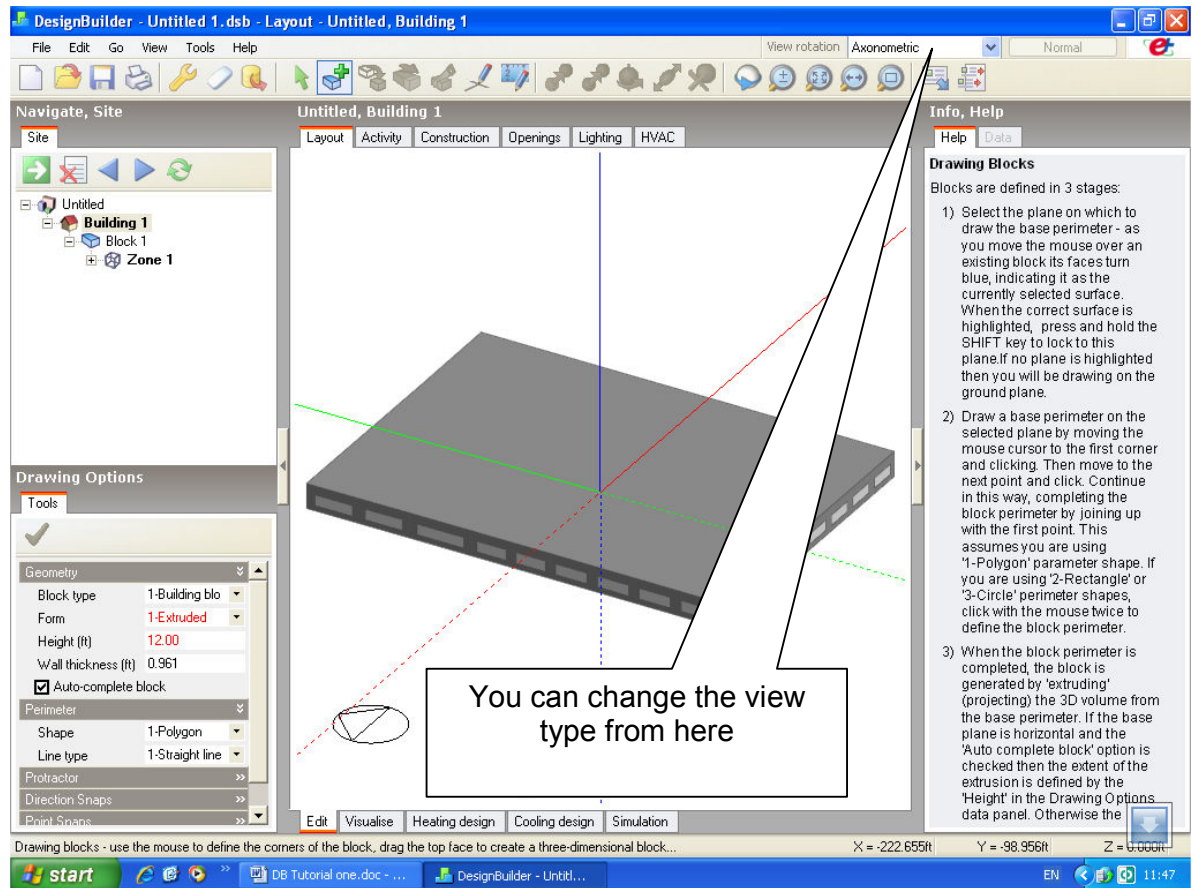


Illustration 2.11: Building created by tracing outline of DXF image

Step-5: Creating internal partitions

- Make sure you are on the Block level in the navigation panel, as shown in Illustration 2.12.
- For drawing internal partition walls, select 'Draw partition' from the right info panel or from the toolbar, as shown in Illustration 2.12.
- After selecting "Draw partition", a cursor appears and partition walls can be drawn by tracing the desired internal partitions.

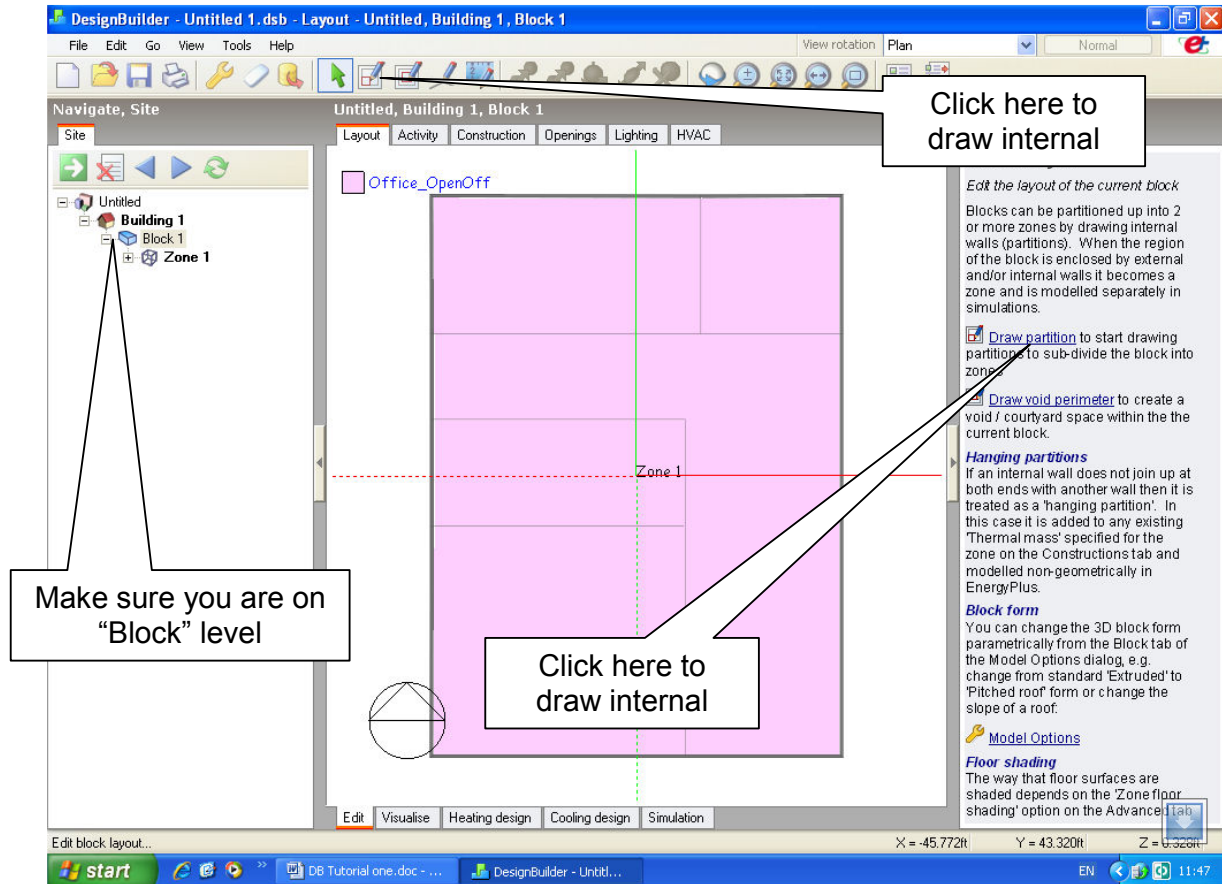


Illustration 2.12: Draw internal partition

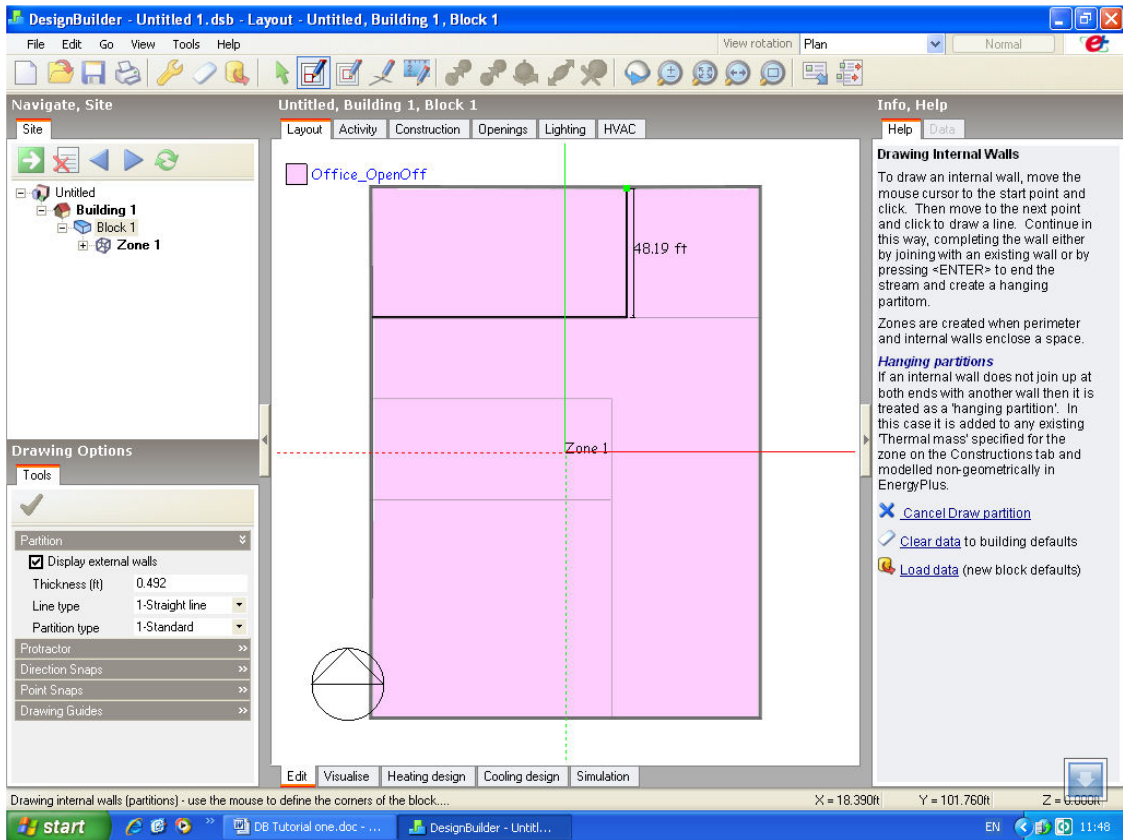


Illustration 2.13: Drawing internal partitions

- By repeating previous steps, you can create several partition walls as per the building plan.
- If all the partition walls are created, the view would look something like Illustration 2.14.
- You would notice that as soon as one closed space is defined by partition, one additional zone automatically gets created in the left navigation panel. It is due to the fact that, for DB each enclosed space is a separate zone.
- It is not necessary to draw each and every room, rather a thermal model can be simplified by combining the areas with similar activity, set points, direction etc. into one single zone.

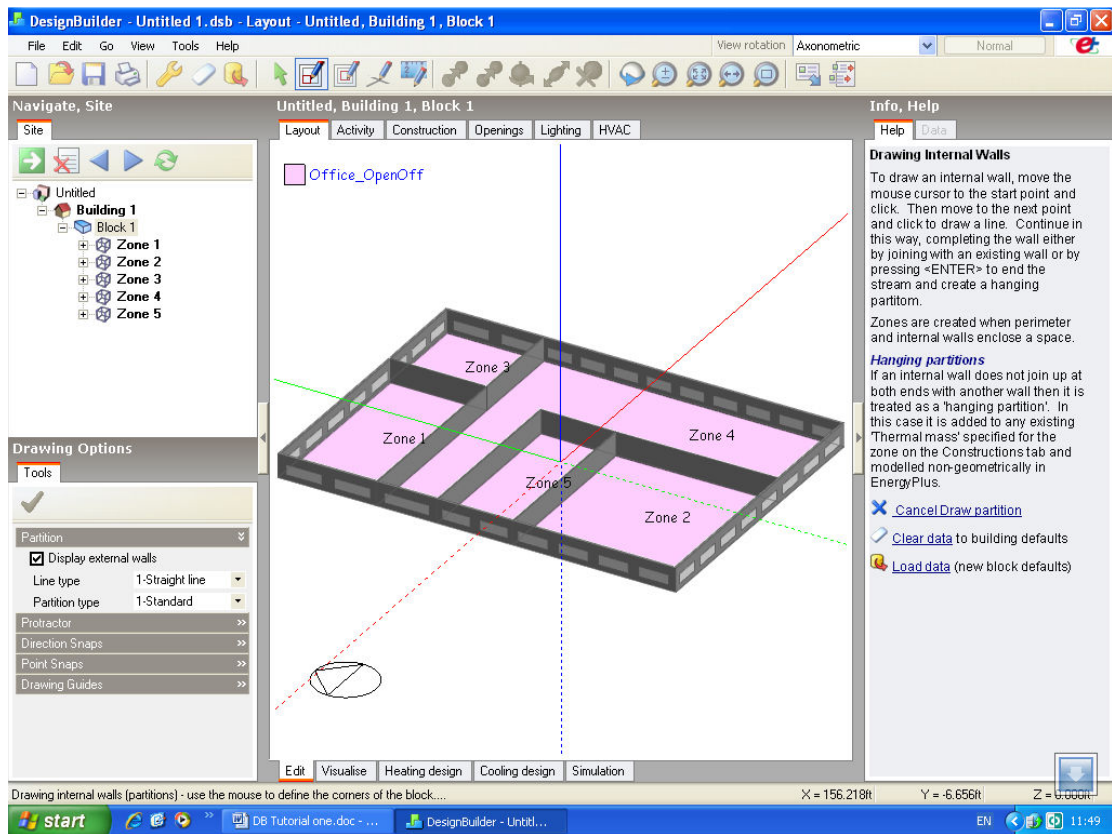


Illustration 2.14: Several partition walls representing different zones

- You can go the level of any zone by selecting zone name from the left navigation panel, as shown in Illustration 2.15. Changes made will be particular for that specific zone,
- If you make some change while selecting the block level in the navigation panel, that change is applied to all zones of this block.
- If you double click any zone, it will show elements that make this zone, as shown in Illustration 2.16.

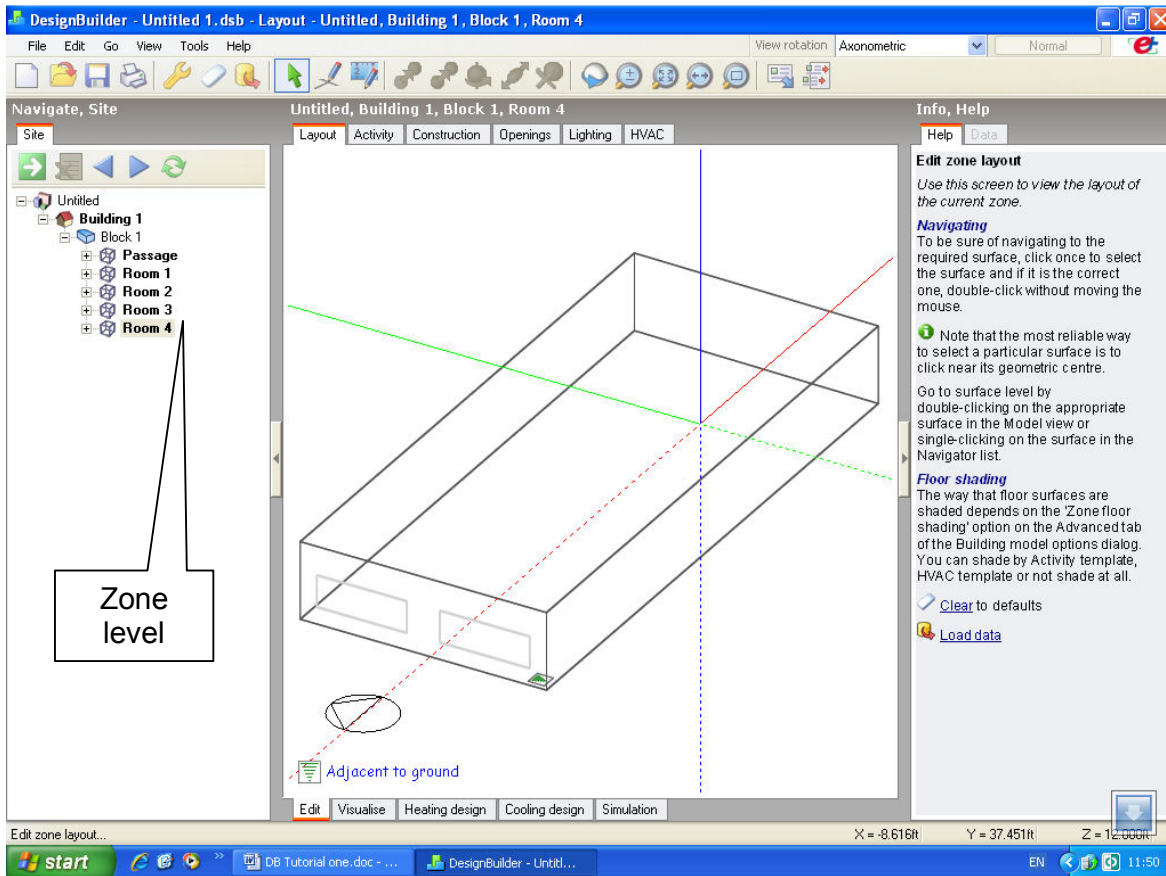


Illustration 2.15: Display of single zone of block

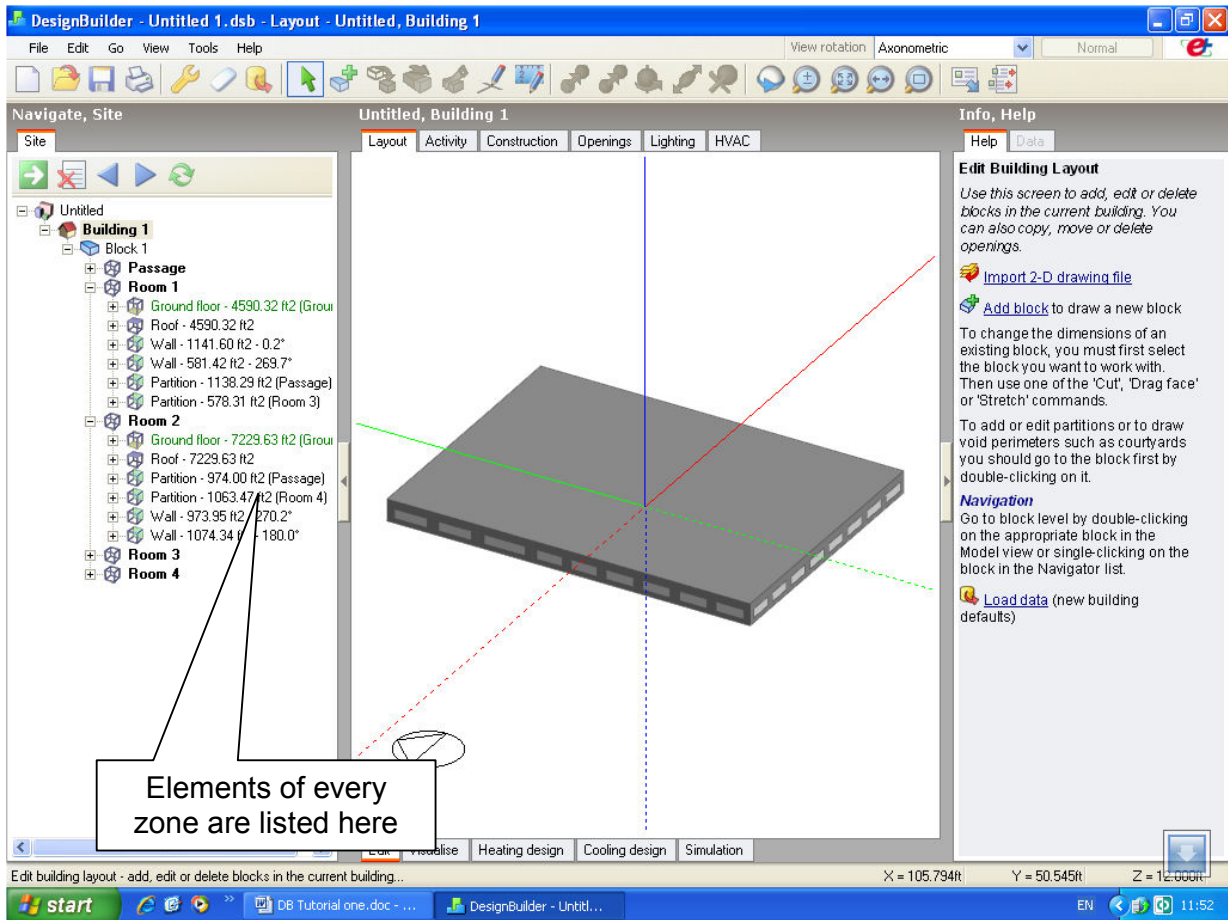


Illustration 2.16: Elements of a zone

You have learnt to create a building using the DXF file!

Simulations can be run by clicking the 'Simulation' key as done in previous tutorial.