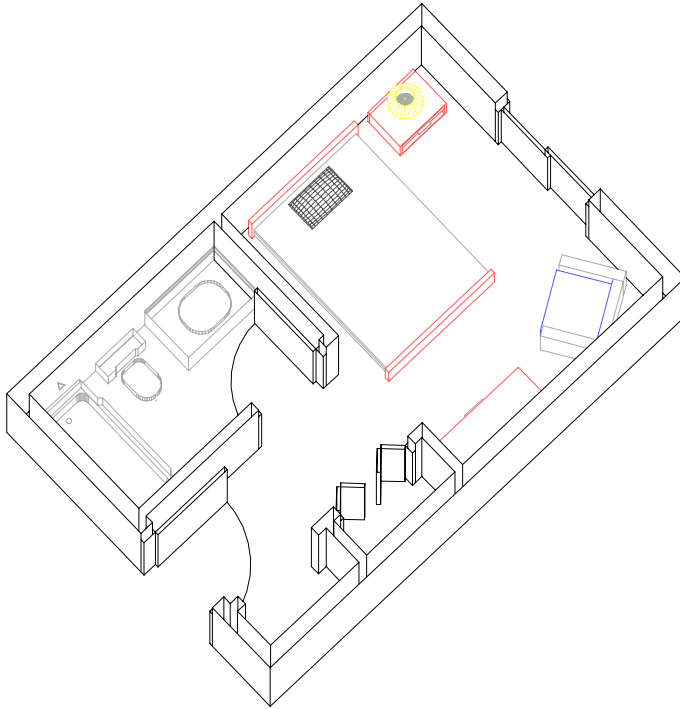

CHAPTER 6

Ferd's Motel Room, Phase 3



Project Goals

When you have completed this project, you will be able to:

1. Select different disk drive paths for templates.
2. Add symbols to a drawing using a fixed rotation angle.
3. Add symbols to a drawing using dynamic rotation.
4. Change the **Z-Base** (elevation) for positioning symbols.
5. Change the display scale.
6. Complete a pictorial drawing of a plan with hidden lines removed.

Prerequisite: Chapter 5

Introduction

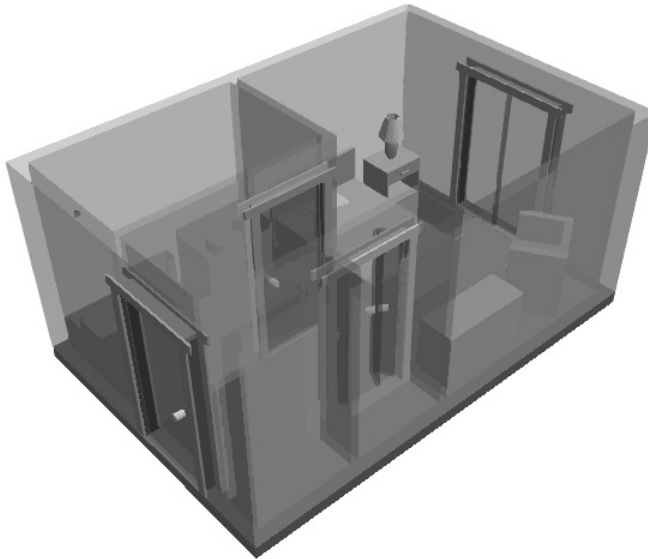
In Chapter 5 you completed the motel room walls and doors. In this project you will learn different ways to add symbols to drawings. In this case, the symbols will be different pieces of furniture.

1. __ Start **DataCAD** and **Open** the drawing file named **Motel1**.

Adding Furniture

The DataCAD software stores the symbol files in a subdirectory (which is sort of like storing papers in an envelope, which is in a folder, which is in a file cabinet, which also has other drawers and folders and envelopes and papers). To view and select symbols you use the **Symbol Browser**.

2. __ Hold down the **CTRL** key and press the **T** [or the **t**] key to enter the **Symbol Browser** menu.



3. Select the symbol path **C:\DATACAD\Symbols\Bedroom\3D Beds** (see Figure 6-1).

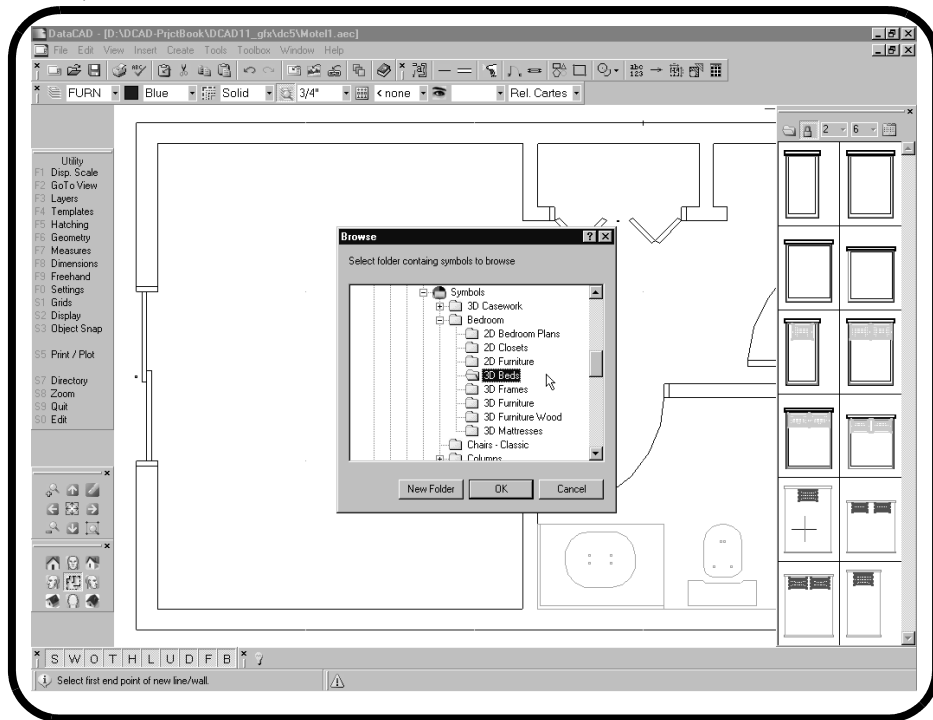


Figure 6-1, Setting the template path.

If everything has worked properly, the display should look similar to Figure 6-2. If you do not see the list of file names shown in the dialog box in Figure 6-1, ask your teacher for help.

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The **3D Beds** template is shown in Figure 6-2. Remember, you will want to create a special drawing layer for furniture. Be sure that layer is active before adding any furniture to the drawing. A bed will be added using the fixed rotation angle option.

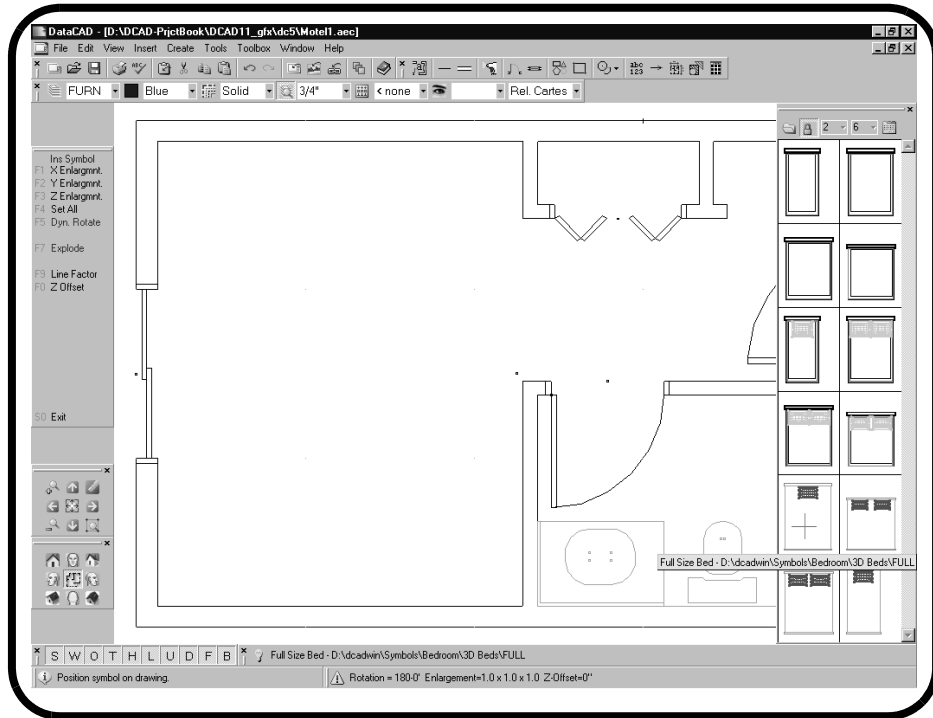


Figure 6-2, The BEDS symbols.

4. __ Press the **Tab** key until the **FURN** layer is active.
5. __ Select the **FULL** bed symbol by *clicking* on it with the *left* mouse button.
6. __ In the **Ins Symbol** menu that pops up on the left side of the screen, if the **Dyn. Rotate** option is NOT already selected, select it twice to enter the angle specification mode. If the **Dyn. Rotate** option IS already selected, select it once to enter the angle specification mode.
7. __ Enter a rotation angle of **180** degrees.

To locate the bed exactly 2 inches away from the outside wall and 1 foot from the bathroom wall, the coordinate 0,0 will be reset, and then coordinate entry mode will be used. Remember that the computer remembers the snap grid size separately for each drawing layer so snap will have to be set to 2 inches for the **FURN** layer. Also, the layer snap option must be **on** for the system to snap to an entity on the **PLAN** layer when the **FURN** layer is active.

8. __ Press the **s** key [*not* the S key] and set the snap size to 2 inches (**0.2**) for both **X** and **Y**.
9. __ Press the **X** [*not* the x] key and toggle **Layer Snap on** in the **Object Snap** menu.
10. __ Press the unshifted ~ key and then click with the *left* mouse button *once* in the lower right corner of the room shown in Figure 6-3.

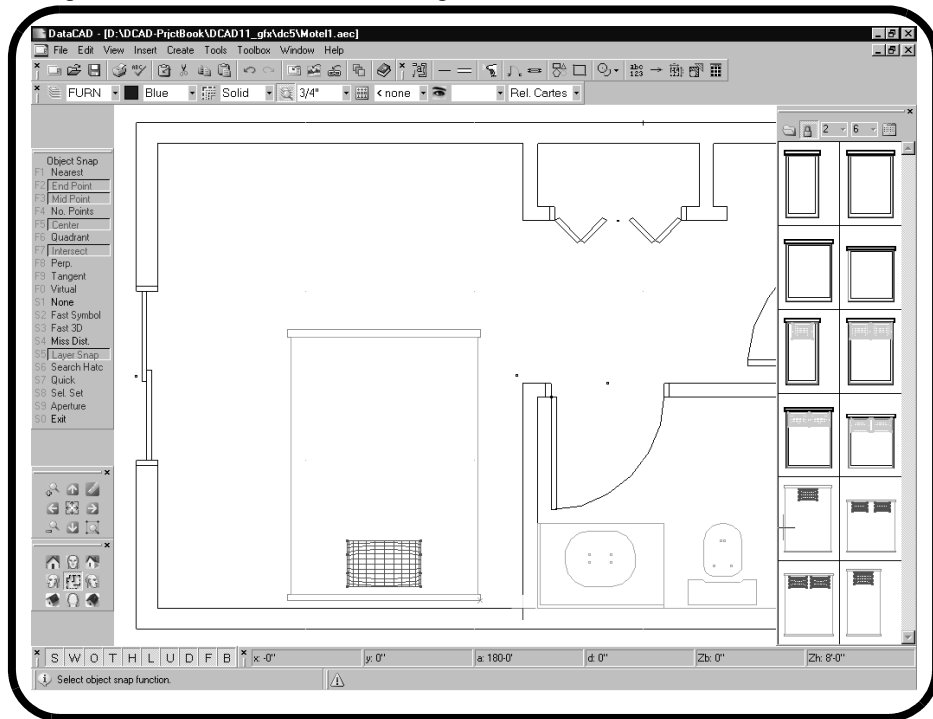


Figure 6-3, Placing a bed.

11. __ Press the **space bar** and enter values (watch the minus sign) of **-1.0** for **X** and **0.2** for **Y**.
12. __ Press the *right* mouse button *once* to drop the bed symbol.

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The display should now look similar to Figure 6-3. Next, a night table will be placed beside the bed. The night table symbol is found in the **Symbols\Bedroom\3D Furniture** directory.

13. Click with the *left* mouse button on the **NITETABL** symbol.
14. Place the night table between the bed and the outside wall as shown in Figure 6-4.

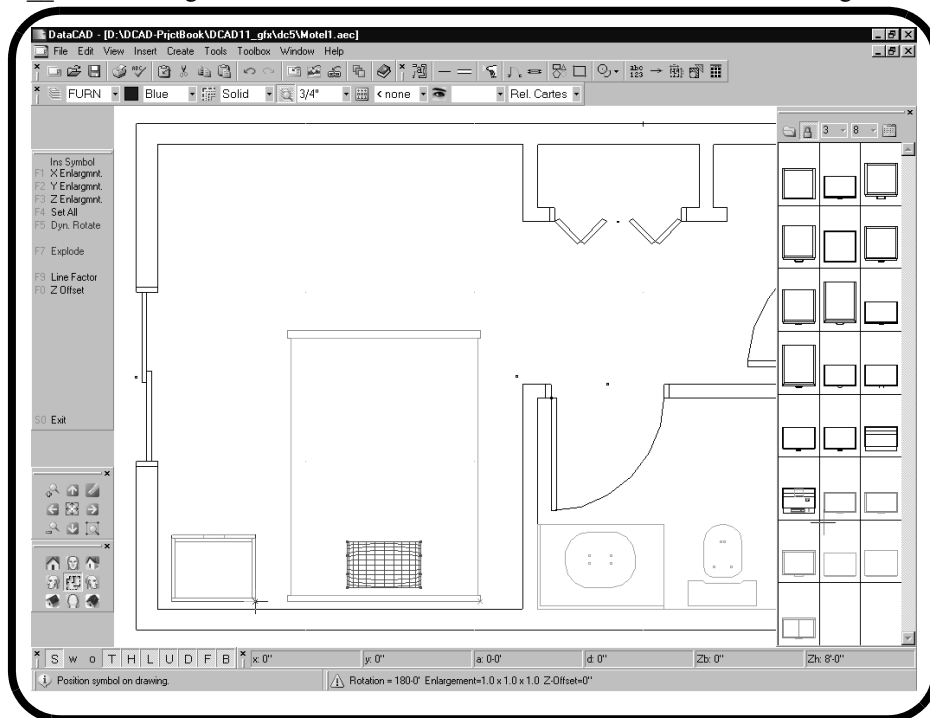


Figure 6-4, Adding a night table.



If you put a symbol in the wrong spot, you can erase it with a quick dual key press. Hold down the **CTRL** key and press the **Z** key (the standard Windows undo command). You can also use the **Edit, Undo/Redo** function from the **MENU BAR**.

Changing the Symbol Scale

Next a *low dresser* will be added to the room. This will fit in the room the same way it was created, so the rotation angle must be changed back to 0 degrees. Adding the dresser gives you the chance to see another feature of the software. You can change the size of any symbol in either the X, Y, or Z direction before it is placed on the drawing. The dresser will be made a little longer in the X direction than the original.

15. Select the **LOWDRESR** symbol by *clicking* on it with the *left* mouse button.
16. In the **Ins Symbol** menu that pops up on the left side of the screen, if the **Dyn.** **Rotate** option is NOT already selected, select it twice to enter the angle specification mode. If the **Dyn. Rotate** option IS already selected, select it once to enter the angle specification mode.
17. Enter a rotation angle of **0** degrees.
18. Select **X Enlargmnt** and enter a value of **1.5**.
19. Place the **LOWDRESR** symbol next to the closet as shown in Figure 6-5.

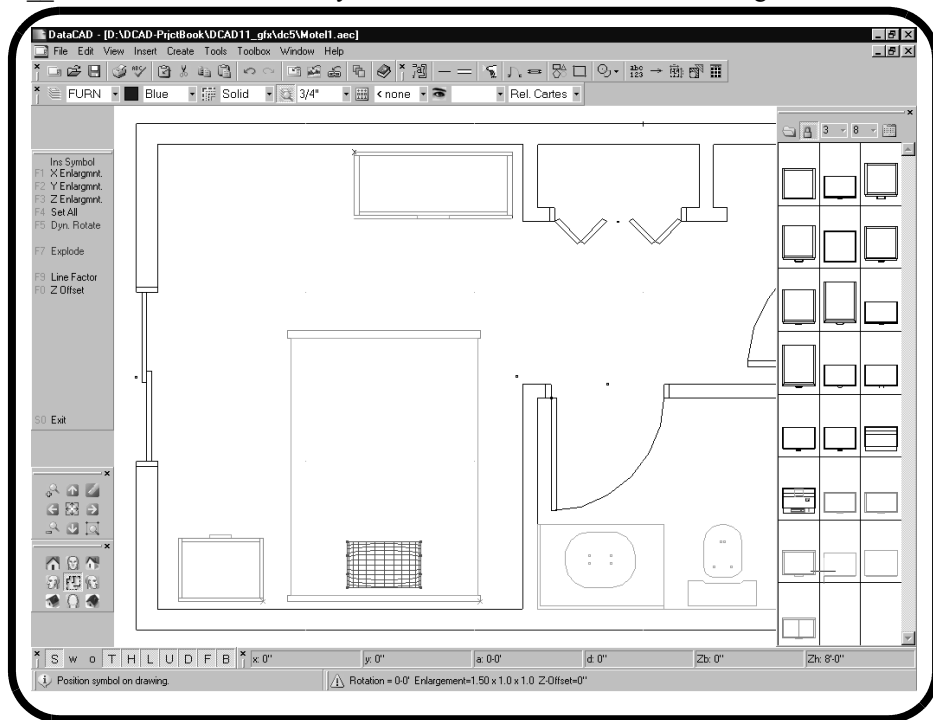


Figure 6-5, Adding a dresser and chair.


Using Dynamic Rotation

Next a chair will be placed in the corner of the room. To get the chair to be at an angle, the dynamic rotation option will be used. When dynamic rotation is used, the first click of the mouse anchors the "handle" of the symbol. Moving the mouse then causes the symbol to rotate around the anchor point. The second click of the mouse places the symbol on the drawing.

20. __ In the **Symbols\Chairs - Classic** folder select the **COMFY** chair symbol by *clicking* on it with the *left* mouse button.
21. __ Select **X Enlargmnt** and enter a value of **1.0**.
22. __ In the **Ins Symbol** menu that pops up on the left side of the screen, if the **Dyn. Rotate** option is NOT already selected, select it. If the **Dyn. Rotate** option IS already selected, leave it as it is.



If you pick a symbol with the *left* mouse button, the anchor point will be at the insertion point of the symbol (as selected by the author of that symbol). If you pick a symbol with the *object snap button*, the anchor point will be at the object snap point. In the next step, it may be easier to control placement by setting the anchor point at the upper left corner of the chair. If the **Ortho** mode is toggled **on**, you will be locked into 45 and 90 degree rotation positions.

23. __ If it is not already **off**, press the  **O** key to toggle **Ortho** mode **off**.
24. __ Click the *object snap button* on the *upper left* corner of the **Comfy** chair symbol.

25. __ Locate the corner of the **Comfy** chair as shown in Figure 6-6 and click the *left* mouse button *once*.

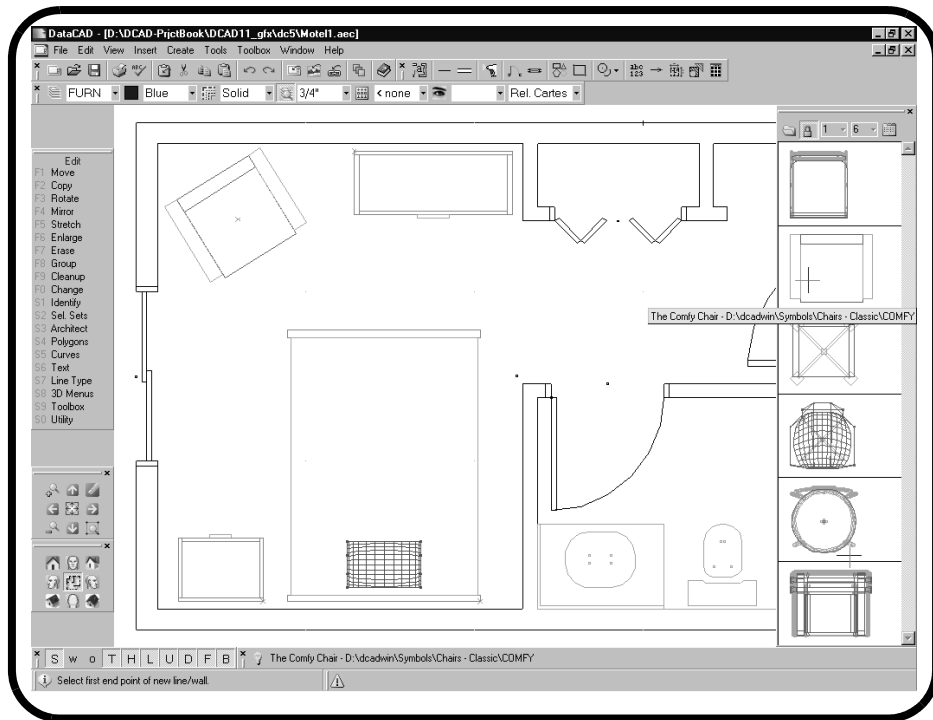


Figure 6-6, Adding a chair.

26. __ Move the mouse around until the outline of the **Comfy** chair is where you want it. Then click the *left* mouse button *once*.

•• **NOTE:** Remember, you can always do a quick **undo** and place the symbol again if you don't like where it is after the first try.

Changing the Z-Offset

The last piece of furniture to be added is a table lamp. All of the symbols used have been created in 3D. (Remember the 3D views of the chairs in Ferd's Playhouse?) Everything added to the room so far has been placed on the floor, so there was no worry about the third dimension. The table lamp, however, will have to be placed on the top of the table, not on the floor.

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DataCAD uses the **Z-Offset** to control the elevation of symbols. The problem is that you don't know how high the top of the table is. There is a function you can use to find elevation information. The **Identify** function provides information about entities.

27. Select the **Identify** button on the **Navigation Pad** (the one that looks like a pointing finger). Then *click* on the top of the night table.



The selected night table is shown with dashed lines, and the **Identify** menu is displayed (see Figure 6-7). Note that the information line shows that **Z-Max** for the night table is 2'1". This means that if you want to place an object on top of the night table, the **Z-Offset** must first be set to 2'1".

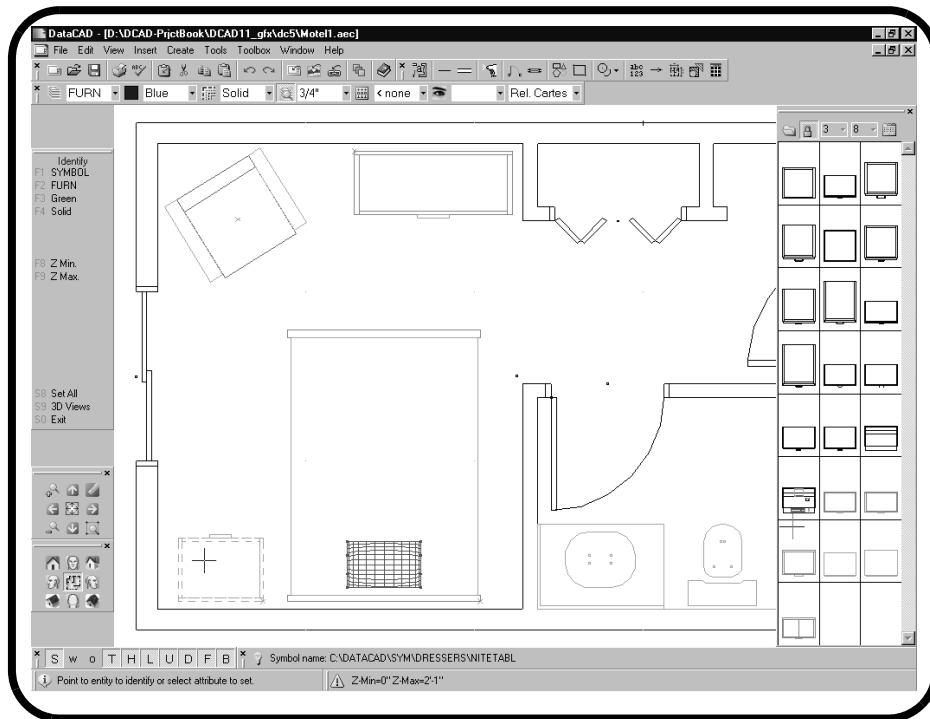


Figure 6-7, Identifying night table symbol height.

28. In the **Symbols\Lights\3D Lighting Fixtures** folder select the **TABLE** lamp symbol by *clicking* on it with the *left* mouse button.

After the lamp symbol is selected, the proper elevation (known as the **Z-Offset**) must be set. There are several options for setting this option, but we'll focus on the one called **Z-User 1** (one of two available user-defined z-heights). Also, the table lamp symbol is a little too big for the table so the enlargement factor will be changed before it is placed in the room.

29. __ Select the **Z Offset** option from the **Ins. Symbol** menu. Then select the **Set Z User 1** option.
30. __ Enter a value of **2.1**.
31. __ At the top of the **Ins. Symbol** menu select the **Z-User 1** option.



The **Set Z User 1** option that you first selected will remain at the selected value of 2.1, in the current drawing only, unless you change it. The **Z-User 1** option is one of four options available for where to locate the symbol in the z-direction. Selecting it will cause the symbol to be placed at the value set by **Set Z User 1**. **Z-Base** will put a symbol at the current drawing Z-base elevation, while the **Z-Height** option will put a symbol at the current drawing Z-height elevation. The fourth option, **Z-User 2**, allows you to select a second z-offset height, without having to change the Z-User 1 value.

32. __ **Right-click** or select **Exit** to back out of the **Ins. Symbol** menu.
33. __ Select the **Set All** option from the **Ins. Symbol** menu (this will set all the X, Y and Z enlargement values at once).
34. __ Enter a value of **0.65**.
35. __ Turn the **Dyn. Rotate** option **off**.

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36. Click the *left* mouse button to place the lamp symbol as shown in Figure 6-8.

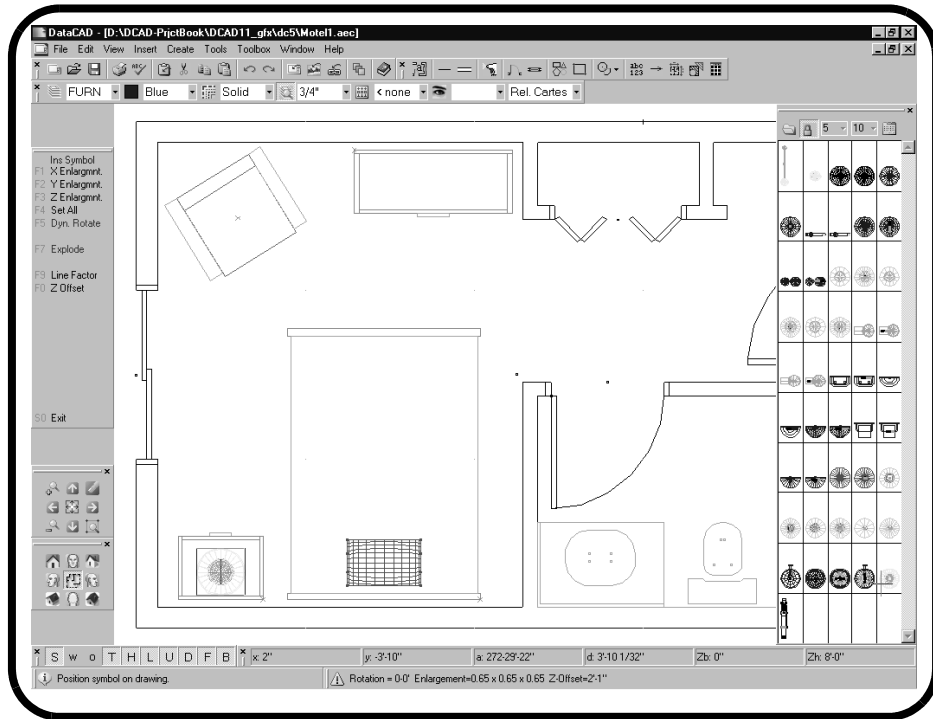


Figure 6-8, Adding a table lamp.

The last thing to do in this project is to create a pictorial view of part of the motel room.

37. Turn **off** the **Symbol Browser** menu by *clicking* on the **X** in the upper right corner of the **Symbol Browser**, or by pressing **CTRL + T**.

38. Create a pictorial view that you like (perhaps similar to Figure 6-9).

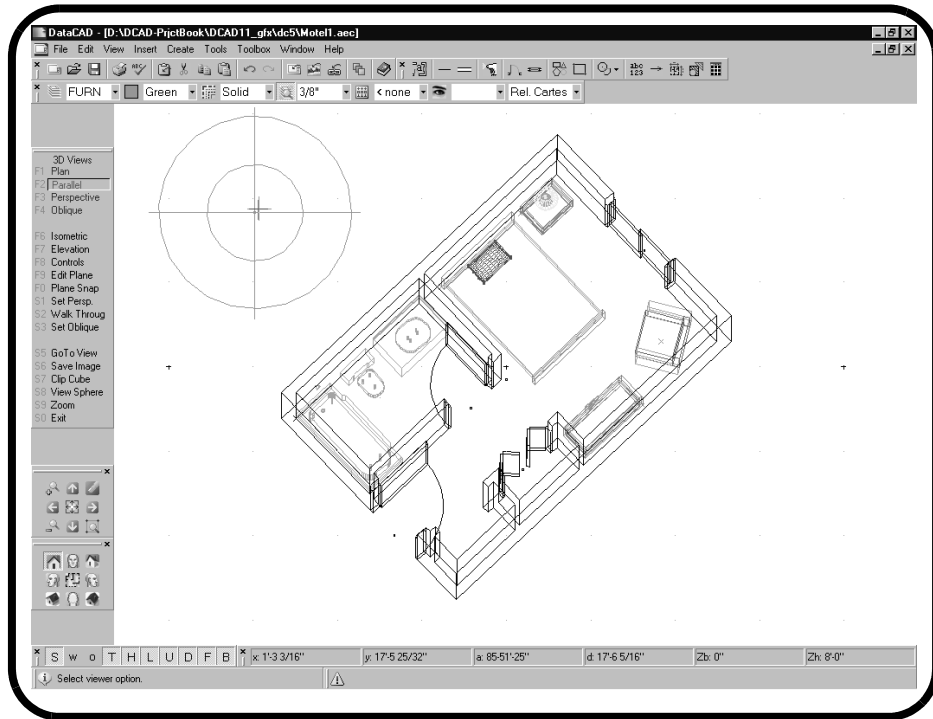


Figure 6-9, The furnished motel room.



If you have the time, you might want to create a new drawing layer that contains a view with the hidden lines removed. (Review the steps in Chapter 3 that explain how to do this.) One caution before you do any hidden line removal: adding the furniture added a lot of lines to the drawing. The length of time the computer takes to remove hidden lines depends on how fast the computer processor chip is and how many lines it has to deal with. If you are using an older PC, removing the hidden lines might take too long for a normal class period. Check with your instructor before you try to do hidden line removal on the furnished motel room.

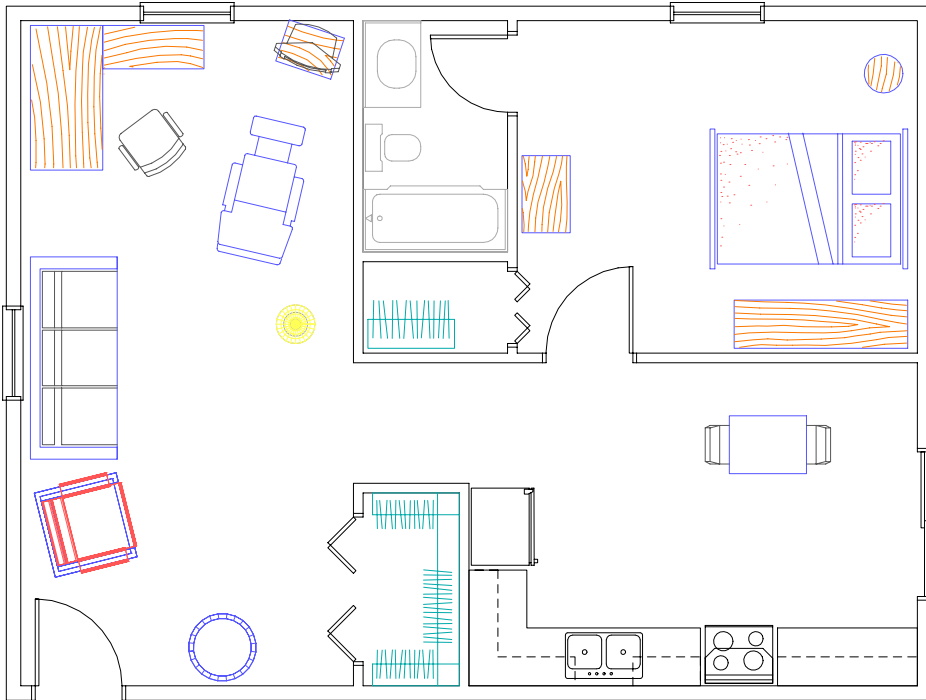
In the next project you will create Ferd's Motel 8 from the motel room.

••• **WARNING**••• Don't forget to select **File, Exit** before you end the session. If you turn off the computer without doing a proper **Exit**, you will lose most of the changes you made to the drawing this session.

Review and Important Points

- Use coordinate entry mode to place a symbol at a precise location.
- If you want to erase the last symbol placed, hold down the **CTRL** key and press the **Z** key (the standard Windows undo command).
- Use the four **Enlargmnt** options on the **Ins. Symbol** menu to change the X, Y, or Z (or all 3 with **Set All**) size of a symbol.
- To select the default anchor point on a symbol, select it by clicking the *left* mouse button.
- To change the anchor point for a symbol, click on the symbol in the **Symbol Browser** with the *object snap button* near the end of the entity where you want the anchor point.
- To rotate a symbol around its anchor point, toggle **Dyn. Rotate** on.
- To determine the maximum **Z-height** of a symbol, select the **Identify** button on the **Navigation Pad** and then *click* on the symbol. Read the **Z-Max** value on the information line.
- To change the height where the base of a symbol will be placed, use the **Z Offset** option in the **Ins. Symbol** menu.
- Remember that it is possible to add a large number of lines to a drawing very quickly by placing symbols. A large number of symbols on a drawing can slow display refresh time and create large drawing files, though it shouldn't make much of a difference unless you have an old, slow computer.

Practice Drawings

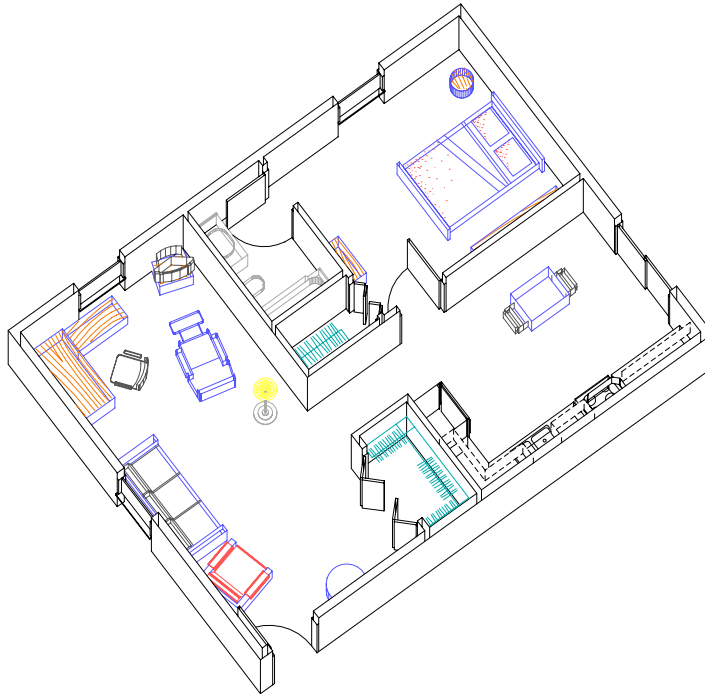


Project Hints

Assignment 6-A, Apartment furnishings

- Furnish the apartment created in Assignments 4-A and 5-A.
- Not all of the symbol files supplied with DataCAD are in 3D.
- Switch to the Isometric view after placing each symbol to see how it looks.

Practice Drawings



Project Hints

Assignment 6-B, Pictorial rendering

- Create a hidden line pictorial rendering of your apartment layout.

