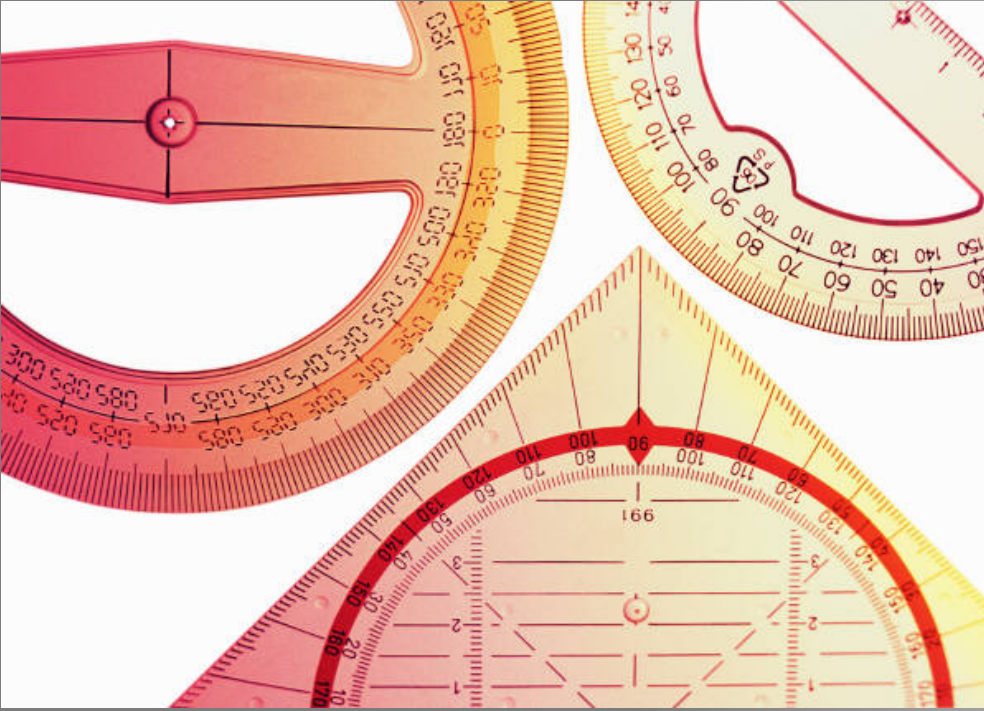# BOOKLET

1

Using Advanced CAD to Create 2D and 3D Objects in Chief Architect

Introduction

Knowing how to use all of the CAD tools that Chief Architect has to offer is important because you will need them to draft all of the detail drawings needed in a set of residental building plans. You were introduced to CAD in Chief Architect in the book, "Residential Design Using Chief Architect"© or in one of the Learning Chief Architect Step by Step books. I'm assuming that you are versed in the basic tools described in one of those books.

Detail drawings are needed because they show a relatively small part of a building that otherwise cannot be clearly seen in the overall plan and in the elevation drawings. In order to see every component clearly, the portion of the building that is detailed is drawn in a larger scale than those other views, which is the same as moving closer to the components. Many building departments require to know how certain different building components are joined and fastened together. You will need to show this by making detailed drawings.

Chief Architect has hundreds of detailed CAD drawings in its library, which you can use to save time. However, you will find that each building is different and even if you use one of Chief Architect's CAD drawings you will often need to make modifications to fit your situation.

There are going to be many different situations in your plan development where knowledge of Chief Architect's CAD tools and capabilites will speed up your work. The more proficient you are, the more efficient you will become. This section will help you in achieving this goal.

After reading and doing the exercises in this section you will be able to:
- Know and understand the basic edit types in Chief Architect.
- Set array copy intervals, angles and quantities.
- Array copies using the distributed objects tool.
- Use the align and distribute objects edit tools.
- Break polylines.
- Merge polylines that overlap.
- Subtract polylines that overlap.
- Use the line style editor to create new line styles.
- Transfer line styles and layer information between plans.
- Use the trim and extend commands.
- Draw Revision Clouds
- Nudge objects
- Use Chief Architect's new CAD block insertion point tool
- How to display text labels for CAD objects

CHAPTER 1
The Basic Edit Types
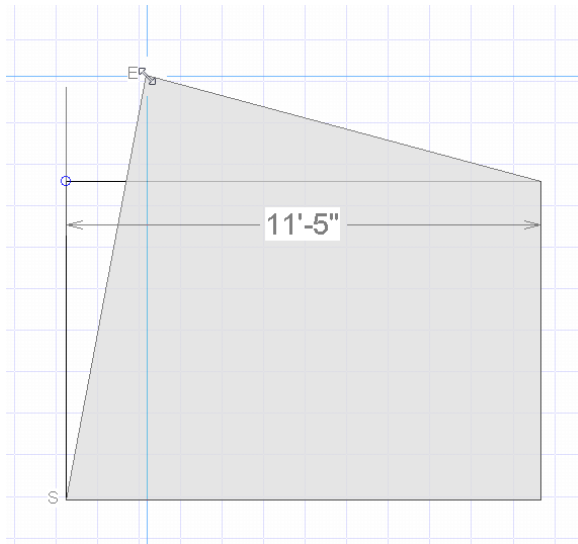
Step by Step Tutorial

The editing of objects in Chief Architect was significantly changed with the introduction of Chief Architect X1. Beginning with Chief Architect X1 the basic CAD editing types were simply named basic edit types. This is because they consistantly apply to Chief Architect's 3D architectural objects too. This chapter will review the basic edit types.
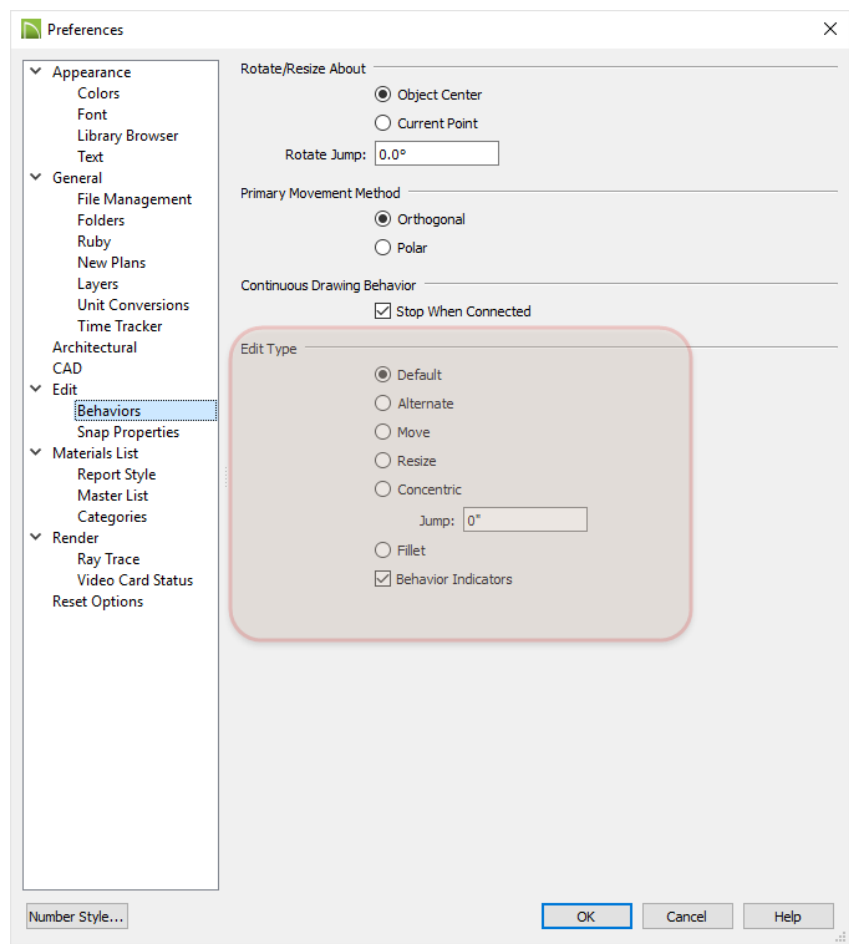
You can control how you reshape CAD objects as well as many other architectural objects by changing the edit type.

STEPS: Working with the Different Edit Types

1. If you have Chief Architect running select **File ► New Plan**. If the program is not running, then go ahead and start Chief Architect and select **New Plan** from the **Welcome to Chief Architect** splash screen. Make sure that **Edit Object Parts** tool is toggled off. In later versions of Chief Architect, this tool was replaced with the **Connect CAD Segments** tool. You want this tool to be toggled on (you should see it highlighted with a check).

2. Select the **Rectangular Polyline** tool and draw a rectangle. Select the rectangle. Click on one of the corner handles and note the behavior when you move the corner around. This is the default edit type of behavior. You can change the edit types in several ways, which will change the edit behavior.
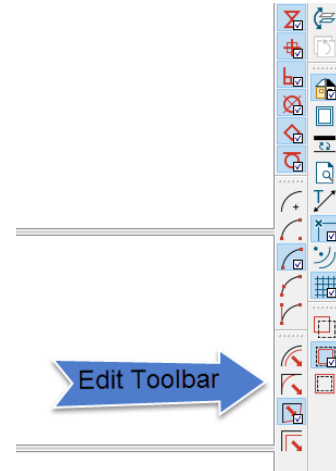
3. Display the **Preferences** dialog. In the **Edit** category, click on **Behaviors**.

4. Note that the edit type can be changed by the selection you make in the **Edit Type** section. You can also set the **Concentric Jump** increment in this section.
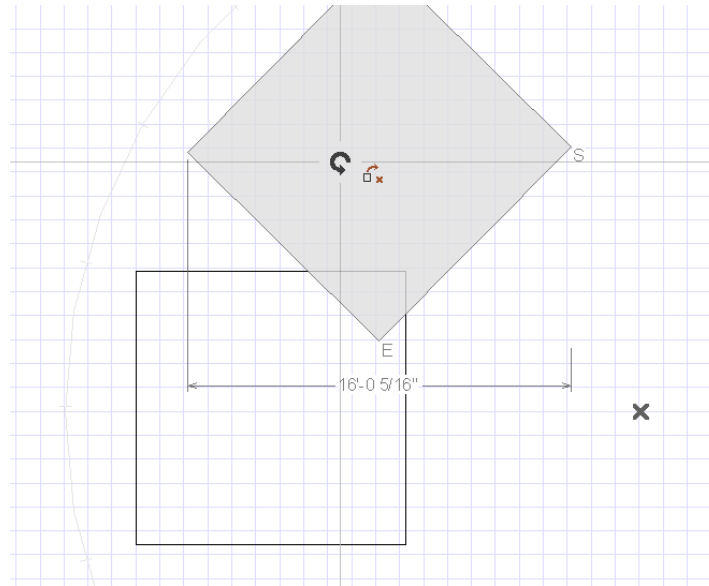5. Click **OK** to close the **Preferences** dialog.

Another way to change the edit type, and perhaps a more efficient way, is to customize your toolbars. Throughout this book, I will be using the Extended Tool Configuration. The Edit Modes toolbar is included in this configuration and displays on the right side of the drawing area.

6. Select **Tools ➤ Toolbars & Hotkeys ➤ Customize Toolbars**. The **Toolbar Customization** dialog displays. Go to the **Configurations** panel. From the **Active Configuration** menu, select **Extended Tool Configuration**. Click the **Switch To** button. Close the dialog. You are now in the **Extended Tool Configuration** setup. Note the **Edit Modes** toolbar.
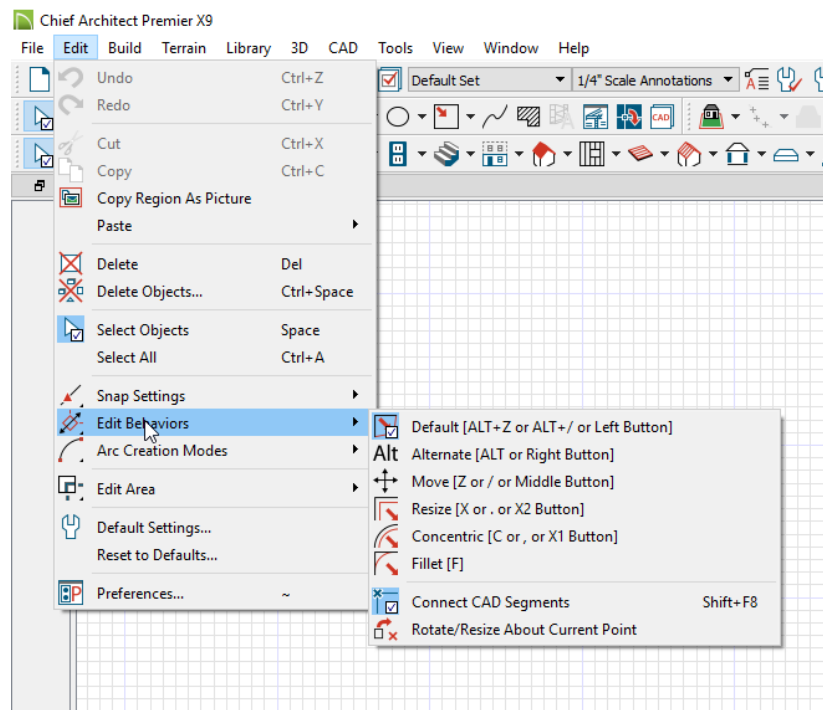
Edit Toolbar →

The ⬚ Rotate/Resize About Current Point is not included in the default Edit Modes toolbar. This is a very handy tool to have.

7. To add the ⬚ **Rotate/Resize About Current Point** to the **Edit Modes** toolbar, select **Tools ➤ Toolbars & Hotkeys ➤ Customize Toolbars**. The **Toolbar Customization** dialog displays. On the **Tools** panel make sure that **Plan** is highlighted in the **View Type** drop-down window. Click in the **Available Toolbar Buttons** menu window and press the letter **E**. Expand **Edit Behavior Tools**. Find the ⬚ **Rotate/Resize About Current Point** tool and drag it into the **Edit Modes** toolbar. Close the dialog.

8. Select the ⬚ **Rotate/Resize About Current Point** tool. Select the ✕ **Place Point** tool. Place a point to the right of the rectangle that you drew. Right-click to select the rectangle. Drag the rotate edit handle and notice what happens. The rectangle will rotate about the point you set. Chief Architect will use this point until you place or select another point.
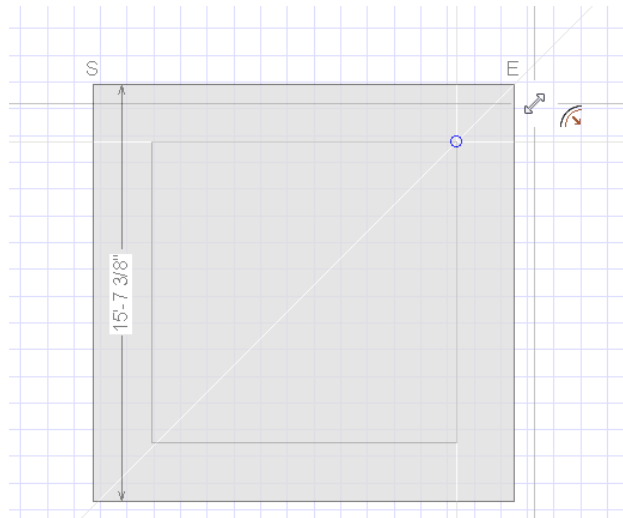
9. Click the ⬚ **Rotate/Resize About Current Point** button to toggle the tool off. Rotate the rectangle and note that it will now rotate about its center, which is the default behavior.

10. Another place to change the edit behavior type is by using the **Edit** menu. Select **Edit ▶ Edit Behaviors**.
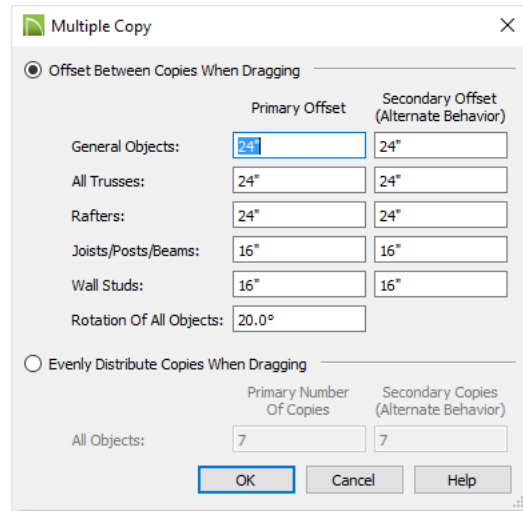

11. Note that a check mark is displayed within the **Default** edit behavior icon. This indicates that this is the current edit behavior.

12. Select the ![icon] **Concentric** edit behavior. Drag one of the corner edit handles of the rectangle. The rectangle will resize concentrically. Notice the ![icon] graphic displayed next to the cursor. This is a feature introduced in Chief Architect X3 and is meant to remind you that you are using a different edit behavior than the **Default** edit behavior.
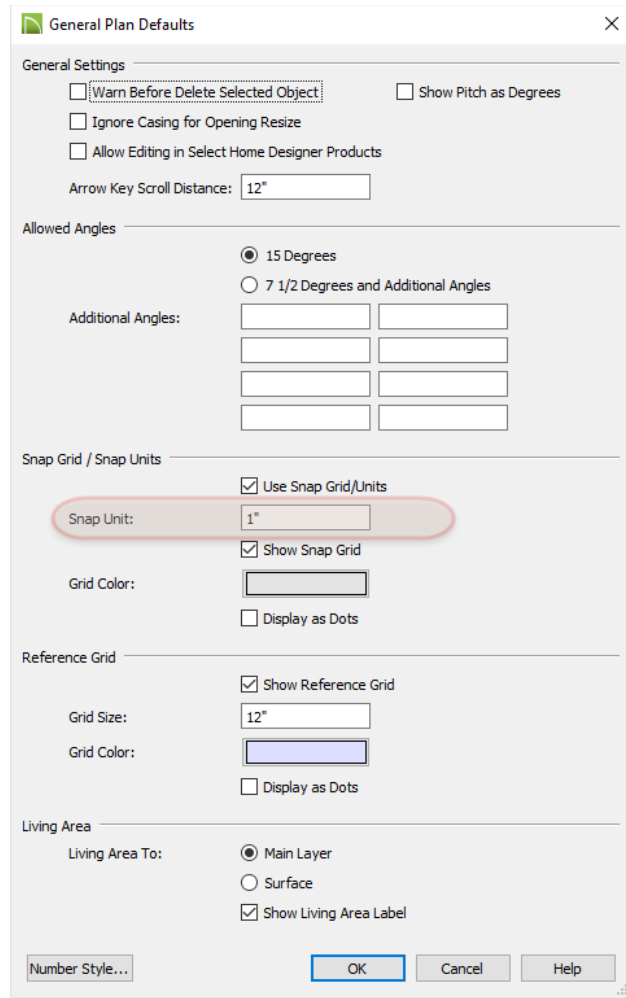

13. Go back to the **Edit** menu and select the ![icon] **Default** edit behavior. You may find it best to always remain in the **Default** edit behavior mode. It will, more than likely, be the edit behavior that you will use the most often. You can, instead, use keystrokes to temporarily change to a different edit behavior.

14. Select **Edit ▶ Edit Behaviors**. Note the keyboard shortcuts listed beside each edit behavior. For example, **C** is listed beside the **Concentric** edit behavior.

15. Select the rectangle. Press the C key and drag one of the corners. The rectangle resizes concentrically because by pressing the C key you have temporarily switched to the **Concentric** edit behavior mode. Once you release the C key you will be back to the **Default** edit behavior mode.

16. Double-click the ![icon] **Concentric** tool button on the **Edit Modes** toolbar. This is a fast way to display the **Edit Behaviors** panel of the **Preferences** dialog. Set the **Concentric Jump** to **12"**.

17. Click **OK** to close the **Preferences** dialog.

18. Select the rectangle. Drag a corner. The rectangle resizes in concentric jumps of 12".

19. Click the ![icon] **Copy/Paste** edit button. Drag a corner, slowly, and a concentric copy that is 12" from the original rectangle will generate in the direction that you dragged.

20. To make more than one copy, click the ![icon] **Copy/Paste** edit button, and then click the ![icon] **Sticky Mode** edit button that becomes available. Now you can make as many copies of the original rectangle as you want in this manner. All of the copies will be generated concentrically at precisely 12" from the previous copy. Try making at least three copies. Note that each time you make a copy, release the mouse button and then click and drag to make another copy.

21. You can also make concentrically multiple copies of a selected object. Press the space bar. Select the outermost rectangle. Click the ➡ **Multiple Copy** edit button. Click the ➡ **Multiple Copy Interval** tool button that becomes available. The **Multiple Copy** dialog displays.

22. For **General Objects** set the **Primary Offset** to **30"**.

23. Click **OK** to close the **Multiple Copy** dialog.

24. Drag the outer rectangle's edit handle. Concentric copies, 30" apart, are generated. The concentric jump of 12" that you set in the **Preferences** dialog is ignored in this case.

25. Display the **Preferences** dialog and set the concentric jump back to **0"**. When this is set to 0, then when you change the size of an object concentrically it is going to resize to increments that the grid is set at. Click **OK** to close the dialog.

26. Double-click the ▢ **Select Objects** button to display the **General Plan Defaults** dialog.

General Plan Defaults dialog box showing General Settings, Allowed Angles, Snap Grid / Snap Units, Reference Grid, and Living Area sections.

27. In the **Snap Grid/Snap Units** section, make sure that the **Snap Unit** is listed as **1"**.
28. Click **OK** to close the **General Plan Defaults** dialog.
29. Select the outermost rectangle. Drag one of the edit handles and drag. The rectangle resizes concentrically at 1" increments. You can see this much better if you zoom in close enough so that the snap grid displays.

It is good practice to leave the concentric jump set to 0", except when you need to do something else.

In regards to the Concentric edit behavior mode, when you drag an edge of an object (such as the rectangle), each edge of the object resizes to the same distance from where it was before.

If you use the Resize behavior mode, the proportional relationships between each edge of the object is maintained.

30. Select the outermost rectangle. You should still be in the **Concentric** behavior mode. Press the X key (the hot key for the **Resize** edit behavior) on your keyboard and drag a corner. Note that the proportional relationships between the edges are maintained as you drag. You can see this well if

your rectangle is not square. The distance each edge moves from its former position is not the same distance. The aspect ratio between the length and the width of the rectangle is maintained.
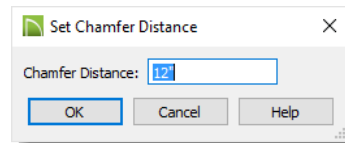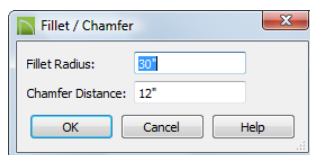
31. Switch to the **Default** edit behavior. This is the edit behavior you typically will want to be in.

32. Select **Edit ▶ Edit Behaviors**. Note the keyboard shortcuts for the **Alternate** edit behavior. One of these is the right mouse button.

33. Select the outermost rectangle. Press the right mouse button and drag a corner. The angle of the corner is maintained as you drag. Now press the left mouse button and drag a corner. The angle of the corner changes.

You can easily learn how to switch to the different edit behavior modes by selecting Edit ▶ Edit Behaviors and observing the keyboard shortcuts for the different edit behavior modes. Note that the keyboard shortcut for the Fillet edit behavior is the F key. To fillet a corner of the rectangle, press the F key before you click and drag the corner. If you want to make a very precise fillet you would use the Fillet Two Lines edit tool (Fillet Lines in newer versions of Chief Architect) or the Chamfer Two Lines edit tool (Chamfer Lines in newer versions of Chief Architect).

34. Select a rectangle by clicking on its bottom edge. Double-click the **Chamfer Two Lines** edit tool. The **Fillet/Chamfer** dialog displays. For newer versions of Chief Architect, click the **Chamfer Lines** edit tool and then click the **Set Chamfer Distance** edit tool. The **Set Chamfer Distance** dialog displays.

35. Set the **Chamfer Distance** to **24"**.
36. Click **OK** to close the **Fillet/Chamfer** dialog or the **Set Chamfer Distance** dialog. The setting will be maintained until you change it.
37. Click on the right edge of the rectangle to generate a 24" chamfer.
38. If you have a newer version of Chief Architect, try this to chamfer all corners at the same time. Click the **Chamfer Lines** edit tool and then click the **Chamfer All Corners** edit tool.

You will find that Chief Architect has several useful edit types. All of the edit types are collected in the Edit menu along with the display of their hot keys. You can select an edit behavior to make it permanent or you can use its hot key to temporarily use the edit behavior type. Generally, you will want to be in the Default edit behavior mode. You will also want to keep the concentric jump set to 0" unless you deliberately want to use something else. You can quickly access the setting for the concentric jump by double-clicking the Concentric tool button on the Edit Modes toolbar.

39. Before exiting the drawing, make sure the edit behavior type is the ⬈ **Default** edit behavior. You will not need to save the drawing.

CAN YOU DO IT?

<div style="background-color:green; color:white;">**PROBLEM ONE**</div>

Draw Fig. 1.1. Use the ╱▾ **Draw Line** tool to draw the lines. Use the chamfer tool to draw the chamfers. Use the fillet tool to fillet the two ends. Assume any dimensions not shown.
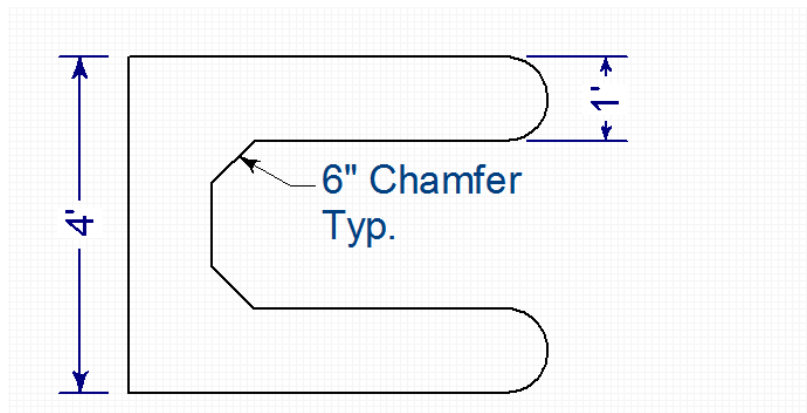

Fig. 1.1: Drawing for Problem 1

<div style="background-color:green; color:white;">**PROBLEM TWO**</div>

Draw Fig. 1.2. Use the ◯▾ **Circle** tool and the ⌒ **Concentric** edit behavior. Place the 6" dia. circles using the ⬚ **Rotate/Resize About Current Point** tool and the ▮▮▮ **Multiple Copy** edit tool.

45°

Dia. 6'

Dia. 4'

Dia. 6"

Fig. 1.2: Drawing for Problem 2

<div style="background-color:green;color:white;padding:4px;">**PROBLEM THREE**</div>

Draw Fig. 1.3. Use the **Rectangular Polyline** tool. Use the **Draw Arc** tool (use the **Center, Radius, End Arc** arc creation mode) to create the arc. Once you have one side of the window drawn, use the **Reflect About Object** edit tool to paste a copy to the other side. Some architectural illusionism is introduced. Do not show the dimensions in your drawing. Use the 1" grid to determine dimensions where there are none.
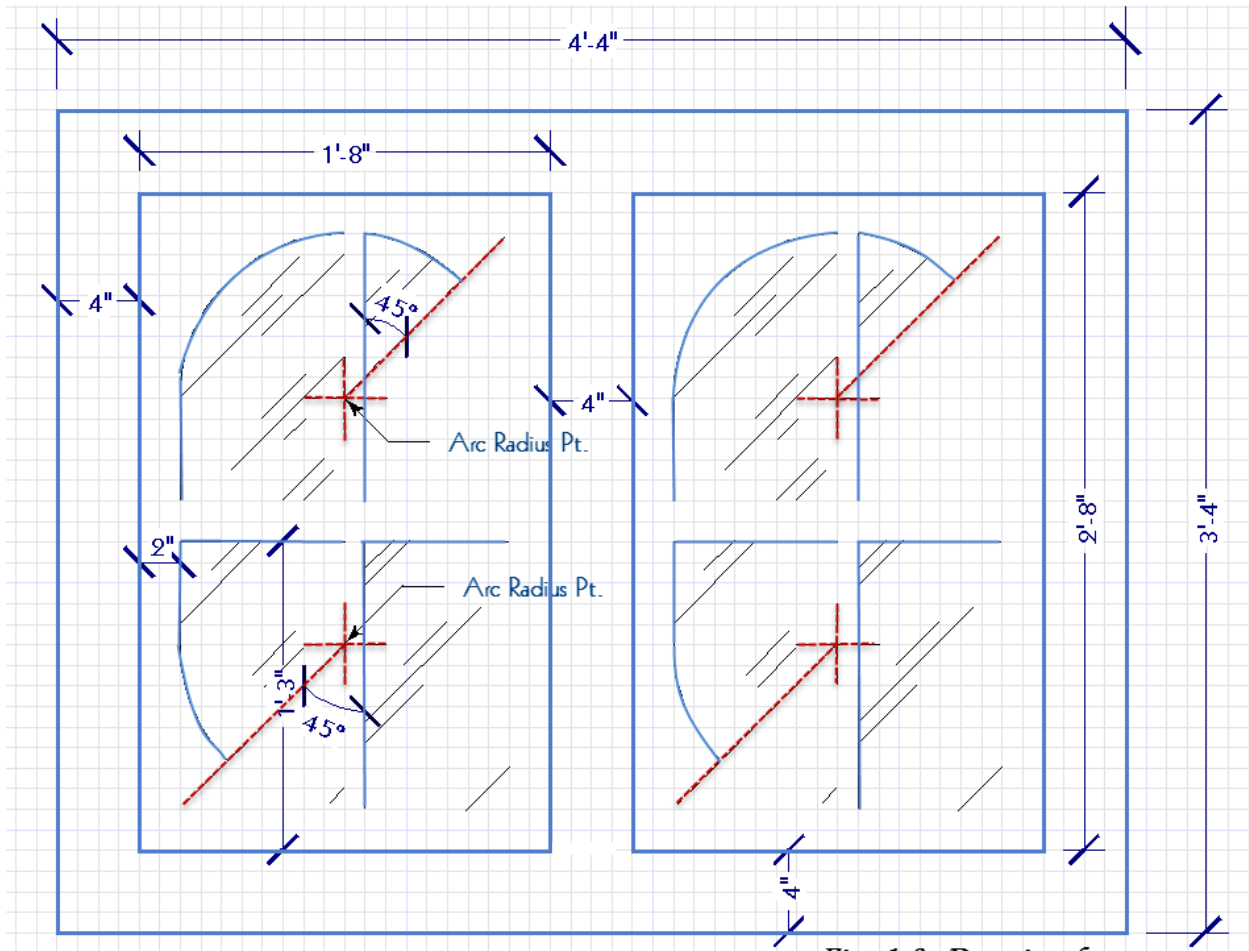
Fig. 1.3: Drawing for Problem 3

Labels visible in figure: 4'-4", 1'-8", 4", 4", 45°, Arc Radius Pt., 2", 1'-3", 45°, Arc Radius Pt., 2'-8", 3'-4", 4"

CHAPTER 2

Setting Array Copy Intervals, Angles, and Quantities

Step By Step Tutorial

When doing mulitiple array copies, beginning with Chief Architect X1, you can now set copy intervals for both directions. You can also specify copy angles and quantities. So we will look at some of these features in this chapter. In the chapter following this chapter, you will learn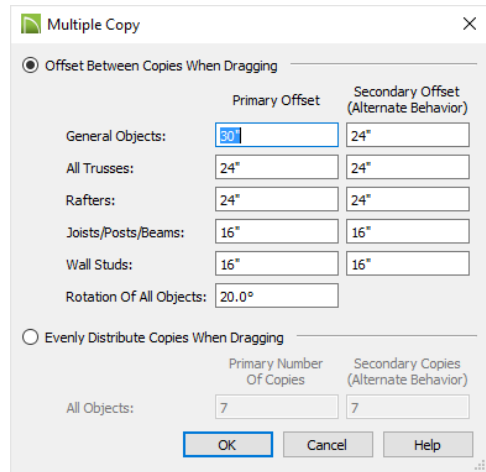 how to array objects using the distributed objects tools. This was a new feature introduced in Chief Architect X2. X3 introduced two tools that distribute and align a group of objects, which you will also learn about.

The drawing, D1.plan, is used in the following exercise on setting array copy intervals, angles, and quantities, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D1.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

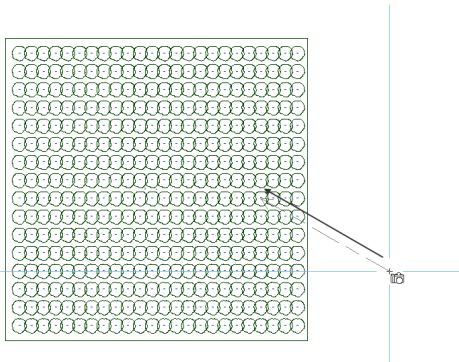### STEPS: Setting Array Copy Intervals, Angles, and Quantities

1. Open the **D1.plan**. The drawing contains a tree placed inside a rectangular perimeter that represents an orchard. A point marker has been placed in the center of the orchard. A terrain feature has been placed to the left of the point marker, which you will work with later in the exercise.

2. Select the tree that is located just inside the upper left corner of the orchard. Delete it. Replace it with a plant image from your library by clicking the ⬛ **Plant Chooser** tool. The **Plant Chooser** dialog will display where you can select your preferred tree, or bush, or whatever.

3. Select the ⬛ **Multiple Copy** edit tool.

4. Select the ⬛ **Multiple Copy Interval** tool that becomes available to display the **Multiple Copy** dialog. Note that there are two options that you can choose from, the option **Offset Between Copies When Dragging** and the option **Evenly Distribute Copies When Dragging**. By default the radio button for **Offset Between Copies When Dragging** is selected and it will be the one described first. The available choices for this option are sorted by objects. The tree would fall under **General Objects**.

5. Set **16'** for the **Primary Offset** for **General Objects**. Set **24'** for the **Secondary Offset (Alternate Behavior)**. The **Primary Offset** is the copy interval for the first direction that you drag and the **Secondary Offset** is the copy interval for the second direction that you drag.

6. Click **OK** to close the **Multiple Copy** dialog.

7. Move the cursor to the selected tree and when you see the multiple copy graphic appear next to the cursor, alternate drag (click the right mouse button) and drag horizontally to the right for the first direction. Each copy of the tree is drawn 16' from the previous copy. When you reach the right end of the orchard, release the mouse button and drag downward. Each row is drawn 24' from the previous row. Click the left mouse button when you reach the end of the orchard.

8. Take a **Full Camera** perspective view of the orchard.

9. Close the 3D view.

10. Click the ⤺ **Undo** tool button until only the original tree remains.

11. Select the tree.

12. Select the 🢂🯰🯰🯰 **Multiple Copy** edit tool.

13. Select the 🢂🯰🯰🯰 **Multiple Copy Interval** tool that becomes available to display the **Multiple Copy** dialog. This time select the radio button for the 2nd option, **Evenly Distribute Copies When Dragging**.

14. Type **16** in the **Primary Number Of Copies All Objects** edit box. Type **8** in the **Secondary Copies (Alternate Behavior)** edit box.
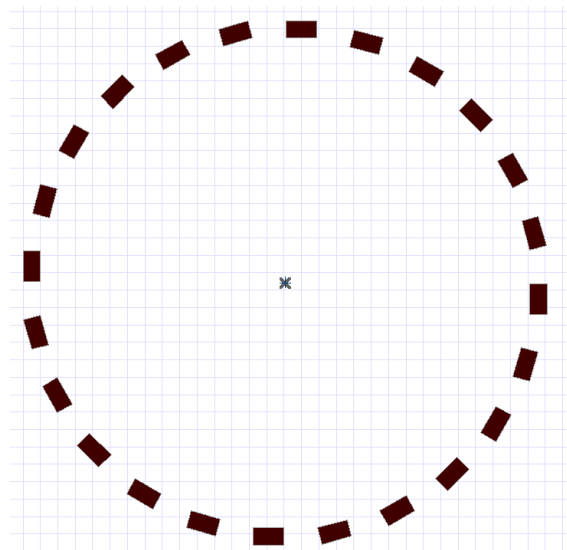
15. Click **OK** to close the **Multiple Copy** dialog.

16. Move the cursor to the tree until the multiple graphic appears and then alternate drag horizontally to the right. No matter how far you drag you will get 17 copies (not counting the original tree), equally spaced. Release the mouse button near the right side of the orchard and drag downward. Again no matter how far you drag you will get 8 rows (not counting the original row) of apple trees, evenly spaced. Click the left mouse button near the end of the orchard. Using this method you can easily lay out the orchard more evenly.

17. Take a 📷 **Full Camera** perspective view of the orchard.

18. Close the 3D view.

19. Click the ⤺ **Undo** tool button until only the original apple tree remains.

20. Let's try a different object type. Select the ▱ ▾ **Joist** tool.

21. Drag to draw a joist within the upper left quarter section of the orchard. Click **Yes** when asked if you would like to create a general framing member instead.

22. Select the framing member. Click the 🢂🯰🯰🯰 **Multiple Copy** edit tool.

23. Select the 🢂🯰🯰🯰 **Multiple Copy Interval** tool that becomes available to display the **Multiple Copy** dialog.

24. Select the radio button for **Offset Between Copies When Dragging**. Notice that the value for the **Primary Offset** for **Joists** (**Joists/Posts/Beams** for new versions of Chief Architect) is highlighted. Chief Architect recognized the object type and has made the **Primary Offset** value for **Joists** (**Joists/Posts/Beams** for new versions of Chief Architect) ready to change if you wish. Notice the value that is listed for **Rotation Of All Objects**. If necessary, change this value to **15⁰**.

25. Click **OK** to close the **Multiple Copy** dialog.

26. Move the cursor to the rotation drag handle for the joist and when you see the graphic appear click and drag to make multiple copies of the joist. The angle of 15⁰ between each of the joists is the value that was set and will remain at this value until you change it. Make a complete circle of the joists.

27. Click the ↰ **Undo** tool button.

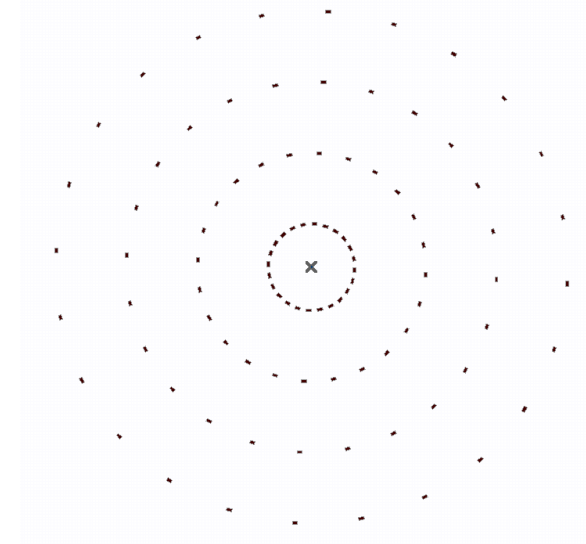**28.** Select the framing member and delete it.

You rotated the framing member about its center. Now let's rotate an object about a current point.

29. Select the ✕▾ **Place Point** tool. Move the cursor to the point marker in the center of the orchard (zoom in as necessary) and snap a temporary point to it. Press the space bar.

30. Select the terrain feature near the middle of the orchard just to the left of the point marker.

31. Click the ⬚ **Rotate/Resize About Current Point** edit behavior tool button.

32. Click the ➡ **Multiple Copy** edit tool. Move the cursor to the rotation drag handle of the selected terrain feature and drag. This time multiple copies are distributed at 15° intervals around the current temporary point. You can also use this feature to create various objects.

33. Take a 📷 **Full Camera** perspective view.

34. Close the 3D view.

35. Click the ↰ **Undo** tool button twice.

36. This time let's take advantage of the array copy tool. Make sure that the ⬚ **Rotate/Resize About Current Point** edit behavior tool button is still selected. Select the terrain feature.

37. Click the ▶️📦 **Multiple Copy** edit tool.

38. Move the cursor to the rotation edit handle and alternate drag the terrain feature around the temporary point to generate multiple copies at 15° intervals. When you have made a complete circle release the mouse button and drag outwards away from the temporary point. Additional rows of the terrain feature are created at the secondary interval that is set for general objects.

As you can see, Chief Architect provides easy to use tools that allow you to make multiple copies and array copies of objects.

39. Close the drawing without saving.

Can You Do It?

PROBLEM FOUR

Draw Fig. 1.4. Use the ◯▾ **Circle** tool and the ◜▾ **Draw Arc** tool to begin the drawing (refer to drawing on left in Fig. 1O). Then use the ▢✗ **Rotate/Resize About Current Point** tool and the ▶️📦 **Multiple Copy** edit tool to draw the figure on the right. Assume the dimensions of the drawing.

Fig. 1.4: Drawing for Problem 4

PROBLEM FIVE

Draw Fig. 1.5, which is a drawing of a reflected ceiling plan with light fixtures. Use the **Rectangular Polyline** tool and the **Multiple Copy** edit tool to draw the figure.

Fig. 1.5: Drawing for Problem 5

PROBLEM SIX

Draw Fig. 1.6. Draw the dining table with chairs shown in Fig. 1.6. Assume any missing dimensions.

All Fillets = 0.5"

Dia. 84"

Dia. 80"

Dia. 8"

Dia. 16"

2.00"

1'

120°

Dia. 24"

Dia. 20"

Fig. 1.6:
Drawing for
Problem 6

CHAPTER 3

Arraying Objects with Distributed Objects Tools

Step by Step Tutorial

The Distributed Objects tools allow you to lay out an array of objects within a region or along a path. You could call it a fast fill tool.

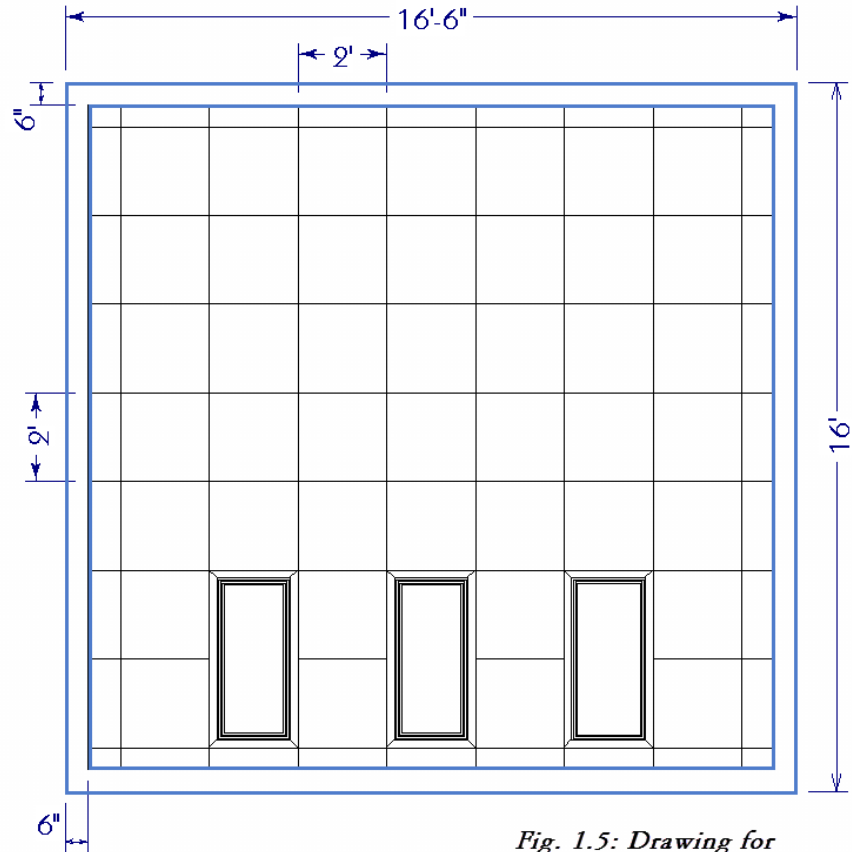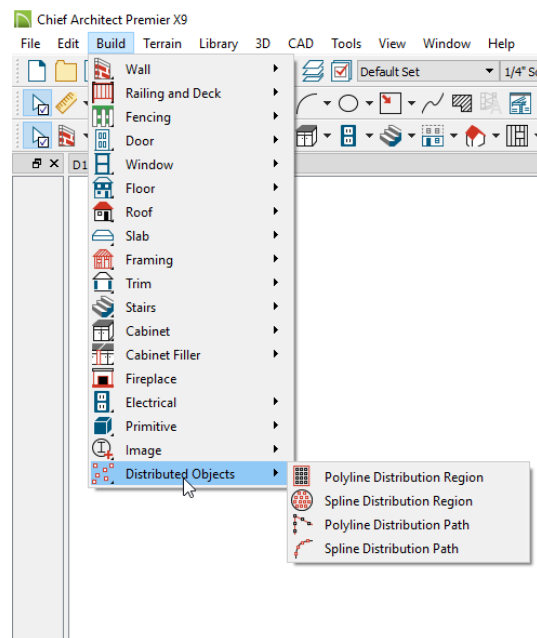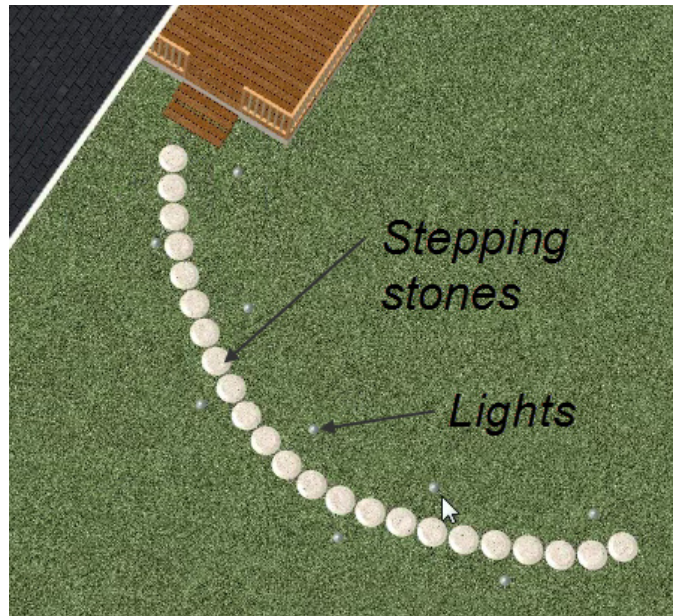The distributed object tools allow you to place an object from the library into an area defined by a polyline or spline filling the area in a synmetrical pattern. An object cannot be selected from within the distribution region but you can select the entire distribution region. The region can then be reshaped. Reshaping the region redistributes the objects within it. You can use the ⤙ Break Line tool to give the region a different shape. Again the region will redistribute the objects

You cannot assign a group of objects within a distribution region to the library. You can select a distributed region and explode it. When you do this you can then select the individual objects and then assign them to the library. The explode operation is not reversible.

Objects can also be distributed along a path defined by a polyline or a spline. For example, you can lay out a path of stepping stones, defining the spacing between the stones using the distributed objects path tools. You can then select the path, adjust it, and the stepping stones will be redistributed. In the following illustration,the lights are part of another distributed spline that follows the same path as the stepping stones and distributes the lights in a staggered pattern along either side of the path.

The distributed paths and regions can only use objects taken from the library. Of course, this includes any objects that you create and place in the library.

In this section you will learn how to use Chief Architect's distribution tools. We will develop the terrain features you see in the following illustration.

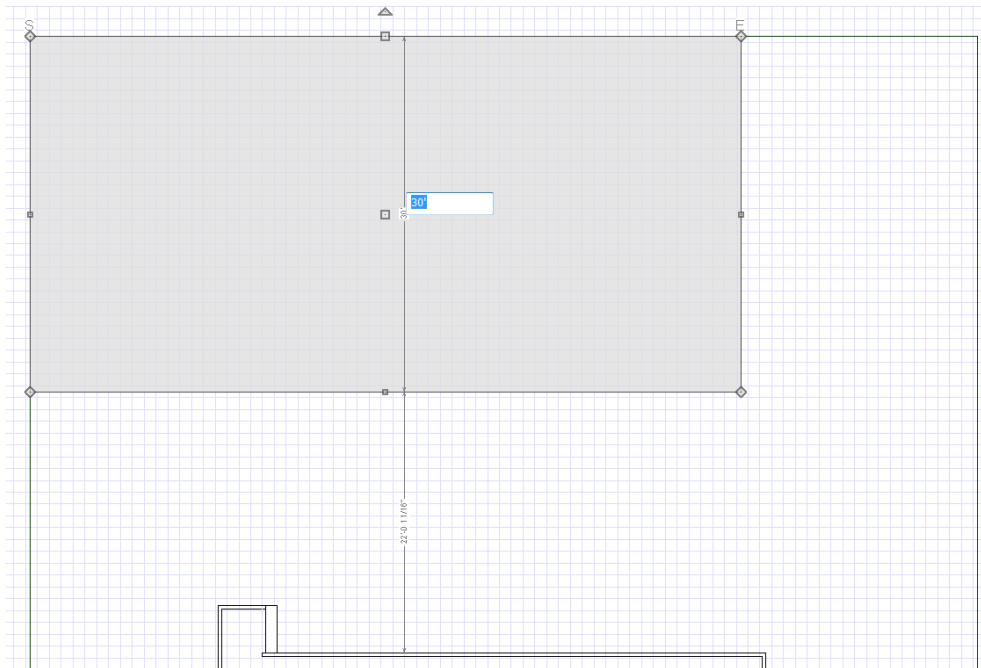   The drawing, D2.plan, is used in the following exercise on arraying objects with distributed objects tools, and can be found in the **X9 Expert Drawings Before** folder. If you have an

older version of Chief Architect (X3 or newer) use the D2.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

1. Open the **D2.plan**. The drawing shows a one story house with a crawl space foundation. A deck is attached to the rear of the house.
2. Select **Build ▶ Distributed Objects**. There are two regional tools, the **Polyline Distribution Region** and the **Spline Distribution Region**. There are two path tools, the **Polyline Distribution Path** and the **Spline Distribution Path**.
3. Select the ▦ **Polyline Distribution Region** tool. Draw the polyline region by first snapping to the upper left corner of the property. Drag to draw the polyline region so that it is about ¾ of the way across the property and about halfway to the house. Adjust it so that it is 60' long by 30' deep.

4. Select the polyline region.
5. Click the ⬚ **Open Objects** edit button to display the **Distribution Region Specification** dialog. It opens to the **Distributed Object** panel. In the **Current Object** section, **No Object Selected** is displayed.

6. Click the **Select** button. The **Select Library Object** dialog displays. Expand **Chief Architect Core Catalogs**. Expand **Plants**, expand **Trees**, expand **Deciduous**, expand **Prunus**. Click on **Prunus domestica**. Select **Prunus domestica (medium) 1** (you will need to expand the dialog to see the full names).
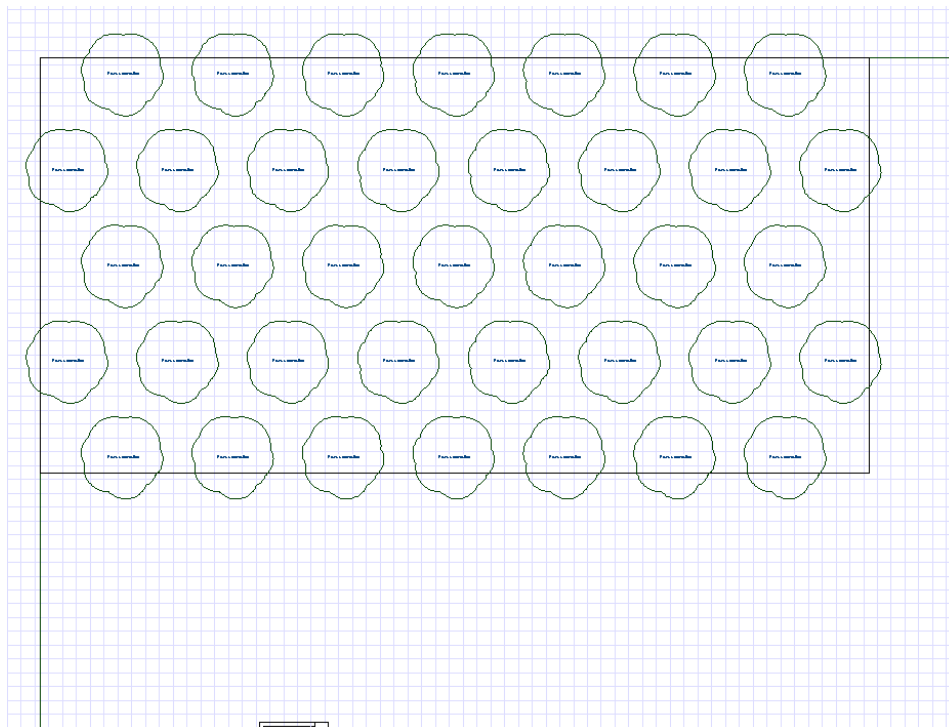7. Click **OK** to close the **Select Library Object** dialog.
8. Click the **Edit** button. The **Plant Image Specification** dialog displays. You should be on the **Image** panel. Note that there are a lot of things that you can change about this plum tree using this dialog. Let's just change the height. Change the height to **7'**.
9. Click **OK** to close the **Plan Image Specification** dialog.
10. Change the **Object Spacing Distance** to **8'**. This will give you a little room between the branches. The **Standard Grid** is selected. We will leave it at that. Chief Architect X8 users can see what this looks like in the graphic window on the right side of the dialog. In the **Object Orientation** section, **Angle** does not really apply in this case. As you can see, however, you do have the ability to adjust the rotation of objects within the grid. You can also do some offsetting in relation to the grid by entering offset values in the **Object Positioning** section. These are easy to experiment with and you will see how this works later in the exercise.
11. Click **OK** to close the **Distribution Region Specification** dialog.
12. You see the distributed plum trees. Note how the trees align up with each other.

13. Select the distribution region again and open its specification dialog.

14. In the **Object Spacing** section select the radio button for **Alternate Grid**.

15. Click **OK** to close the dialog.

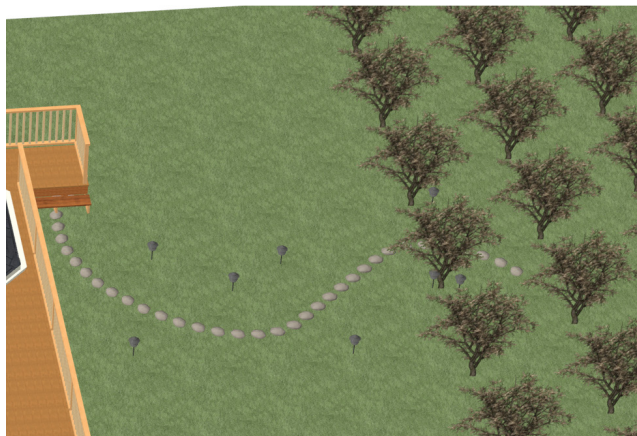**16.** Select the distribution region and open its specification dialog. In the **Display Options** section, uncheck the checkbox for **Show Region**. Click **OK** to close the dialog. This is a handy option to use if

you do not want to explode the region and just want to see the trees. This way you retain the ability to reshape the region.

17. Select **Build ►Distributed Objects ► Spline Distribution Path**. Start at the deck step and draw a spline to the trees. You can adjust the shape and direction of the spline before or after you add the distributed objects.

18. Select the spline and open its specification dialog. You should be on the **Distributed Object** panel.

19. Click the **Select** button to display the **Select Library Object** dialog. **Select Exteriors ► Landscaping► Rocks & Stones ►Rock 1**.

20. Click **OK** to close the **Select Library Object** dialog.

21. Click the **Edit** button to display the **Fixture Specification** dialog. Change the **Height** to **2"**. Change the **Width** and **Depth** to **10"**.

22. Click **OK** to close the **Fixture Specification** dialog.

23. Change the **Distance Between Object Centers** to **14"**. Note that you could also select the option, **Number of Evenly Distributed Objects**. You can then specify how many objects there should be.

24. Click **OK** to close the dialog.

25. With the distribution path still selected, click the 🔁 **Copy and Paste in Place** edit button. This will place a copy right on top of the original distribution path.

26. Click the 🚪 **Open Objects** edit button to display the **Distribution Path Specification** dialog.

27. Click the **Select** button to display the **Select Library Objects** dialog.

28. Select **Architectural ► Lighting ► Outdoor Lighting ► Path Lights ►Path Light (wide brim)**.

29. Click **OK** to close the **Select Library Objects** dialog.

30. Set the **Distance Between Object Centers** to **48"**. In the **Object Positioning** section, check the checkbox for **Alternate Sides**. This will stagger the lights every 48" to either side of the path. Change the value for the **Side Offset** to **48"**. To avoid putting a light to close to the deck, change the value for the **Start Offset** to **8'**.

31. Click **OK** to close the **Distribution Path Specification** dialog.

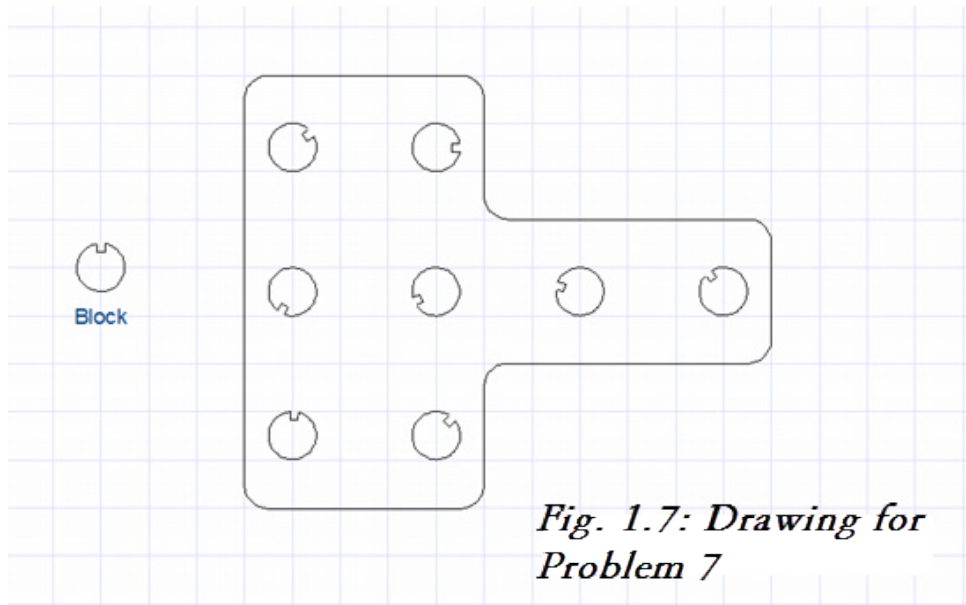**32.** Take a 📦 **Perspective Full Overview** to view your work in 3D perspective.

33. Close the drawing without saving.

PROBLEM SEVEN

Draw Fig. 1.7. Draw the object (Block) shown, then make it a block and add it to the **User Catalog** of your library. Then use the [⊞] **Polyline Distribution Region** tool. Grid squares are 1 foot.

Fig. 1.7: Drawing for
Problem 7

CHAPTER 4

Aligning and Distributing a Group of Objects
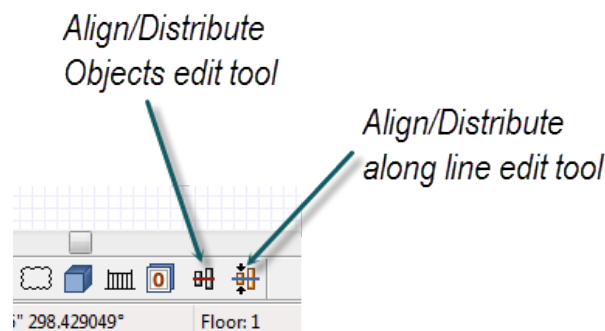
Step By Step Tutorial

This chapter will pressent the edit tools for aligning and distributing objects that were introduced with Chief Architect X3.

The drawing, D3.plan, is used in the following exercise on aligning and distributing a group of objects, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D3.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.
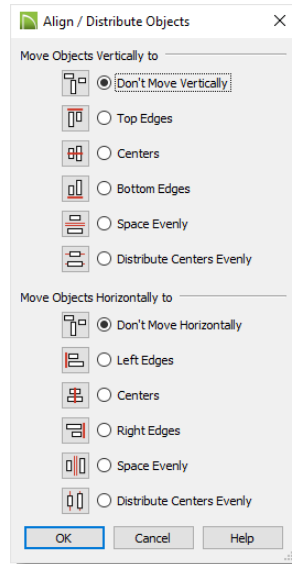
STEPS: Aligning and Distributing a Group of Objects

1. Open the **D3.plan**. The drawing shows a one story house with a basement foundation and an attached garage. A deck is attached to the rear of the house. Off to the right of the deck four slabs in various sizes have been drawn.

2. Using the select objects mode, drag to select all four of the slabs. Note the two edit tools that are available on the right end of the **Edit** toolbar. They are the ⊞ **Align/Distribute Objects** edit tool and the ⊞ **Align/Distribute Along Line** edit tool.

Align/Distribute Objects edit tool
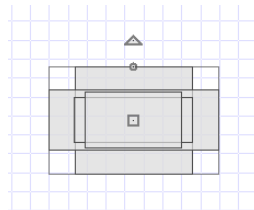
Align/Distribute along line edit tool

3. Click the ⊞ **Align/Distribute Objects** edit tool button. The **Align/Distribute Objects** dialog displays. There are two basic options presented by this dialog. You can decide how you want the
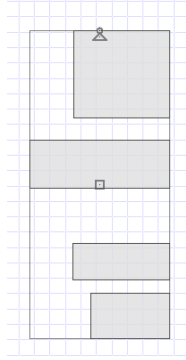
selected objects to change vertically and how you want them to change horizontally. By default, **Don't Move Vertically** and **Don't Move Horizontally** are selected.
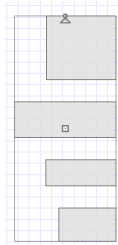

4. In both the **Move Objects Vertically to** section and the **Move Objects Horizontally to** section, select **Centers**.
5. Click **OK** to close the **Align/Distribute Objects** dialog. You will see the selected slabs move to a center position. Their centers are aligned with each other.
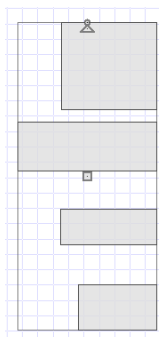

6. Click the ⟲ **Undo** tool button.

7. Select the four slabs again and click the ⊞ **Align/Distribute Objects** edit tool button to display the **Align/Distribute Objects** dialog. Note that Chief Architect remembers the previous setting. If you do not want to, for example, make a vertical change you will have to select **Don't Move Vertically**.
8. In the **Move Objects Vertically to** section, select **Don't Move Vertically**. In the **Move Objects Horizontally to** section, select **Right Edges**. Choosing this option will move all of the slabs so that their right edges will align with each other. If you had chosen **Left Edges**, then all of the slabs will move so that their left edges align.
9. Click **OK** to close the **Align/Distribute Objects** dialog. You will see the slabs move so that their right edges are aligned with each other. Notice that they are not evenly distributed.

10. With the four slabs still selected, click the ⊞ **Align/Distribute Objects** edit tool button to display the **Align/Distribute Objects** dialog. This time in the **Move Objects Vertically to** section, select **Space Evenly**. This will make the space between each of the slabs the same.

11. Click **OK** to close the **Align/Distribute Objects** dialog. Now the spacing between each of the slabs is equal.

12. With the four slabs still selected, click the ⊞ **Align/Distribute Objects** edit tool button to display the **Align/Distribute Objects** dialog. In the **Move Objects Vertically to** section, select **Distribute Centers Evenly**.

13. Click **OK** to close the **Align/Distribute Objects** dialog. Now the distances between the centers of the slabs are equal.

These alignment and distribution tools work for most of the Chief Architect objects. They also work for objects that are dissimilar.

14. Place a base cabinet below the 4 slabs. Select the base cabinet and the 4 slabs.
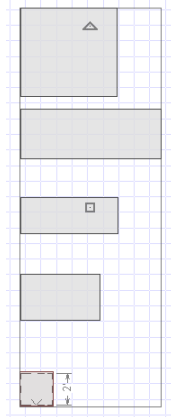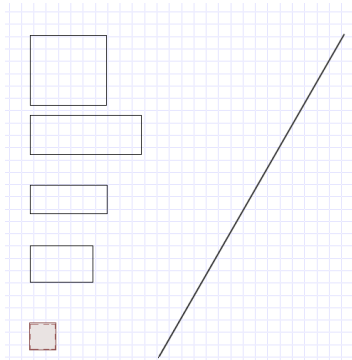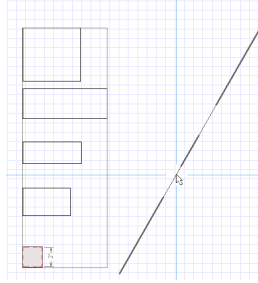
15. Click the ⊞ **Align/Distribute Objects** edit tool button to display the **Align/Distribute Objects** dialog. In the **Move Objects Vertically to** section, select **Don't Move Vertically**. In the **Move Objects Horizontally to** section, select **Left Edges**.

16. Click **OK** to close the **Align/Distribute Objects** dialog. You will see the slabs and the cabinet move so that their left edges are aligned with each other.

17. Start the ╱ **Draw Line** tool (the hot key for drawing lines is the W key) and drag to draw an angled line to the right of the slabs and the cabinet. We are going to use this line as a reference line to demonstrate the ⊞ **Align/Distribute Along Line** edit tool.

18. Select the four slabs and the cabinet and click the ⊞ **Align/Distribute Along Line** edit tool button. Move the cursor to the line. Note that you will get the bold feedback axis line that shows the line you are choosing to align the objects with. So if you have a bunch of lines in the area it is easy to use the feedback axis to pick the line you want. This feedback axis was introduced in Chief Architect X3.

19. Click on the line once you see the feedback axis appear. The **Align to Line** dialog displays.

20. In the **Alignment** section, leave **None** selected (it is selected by default). In the **Distribution** section, select **Space Evenly**. This will make the distances between the object edges in relation to the line consistent. Leave **Distribute To Endpoints** selected.
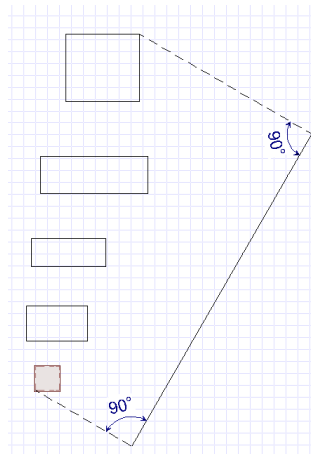
21. Click **OK** to close the **Align to Line** dialog. Note that the objects did not align onto the line but that they did align in relation to the line. They all moved so that their edges in relation to the line are consistent. Let's look at another example.

22. With the four slabs and the cabinet still selected, click the ⟰ **Align/Distribute Along Line** edit tool. Select the line to display the **Align to Line** dialog.

23. Select **Distribute Centers Evenly** and **Distribute Between Endpoints**. Again leave **None** selected in the **Alignment** section so that there is no alignment to the line itself.

24. Click **OK** to close the **Align to Line** dialog. Now the objects have distributed between the end points of the line so that the centers of the objects perpendicularly intersect the line evenly (see the following illustration).

25. With the four slabs and cabinet selected, click the ⟰ **Align/Distribute Along Line** edit tool. Select the line to display the **Align to Line** dialog.

26. In the **Alignment** section, select **Centers**. This will align the centers onto the line. Leave **Distributed Centers Evenly** and **Distributed Between Endpoints** selected.

27. Click **OK** to close the **Align to Line** dialog. You will see the exact same distribution only this time the centers of the objects are aligned on the line.
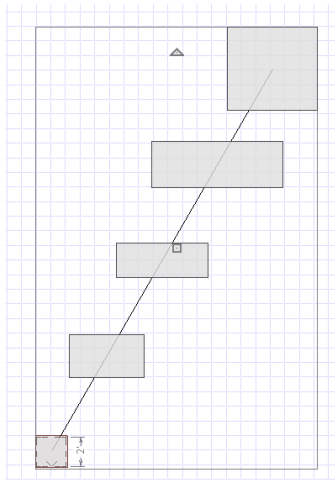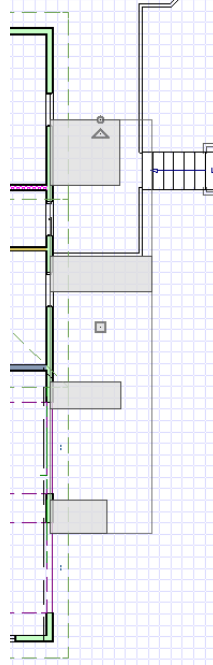
28. With the four slabs and cabinet selected, click the **Align/Distribute Along Line** edit tool. Select the line to display the **Align to Line** dialog. This time select the **Distribute To Endpoints** option. Leave the options **Centers** and **Distribute Centers Evenly** selected. So now the objects will align their centers onto the line and the centers will be distributed evenly apart and the centers will be distributed from the endpoints of the line.

29. Click **OK** to close the **Align to Line** dialog and you see the result.

30. Delete the line.

31. Select the four slabs and the cabinet.

32. Click the **Align/Distribute Along Line** edit tool. Move the cursor to the right exterior wall of the residence. When the feedback axis line appears along the wall, click the mouse button. The **Align to Line** dialog displays.

33. In the **Alignment** section, select **Closest Edges**. Leave **Distribute Centers Evenly** selected and select **Distribute Between Endpoints**.

34. Click **OK** to close the **Align to Line** dialog. The objects move so that their left edges are aligned to the wall and their centers are spaced evenly apart, including the distances from the end of the wall to the center of the nearest object. All of these distances are the same.

You can apply these new align and distribute tools to other objects, such as windows and doors.

35. Select the two windows to the right of the front left corner of the house. Also select the front entry door. Select the [icon] **Align/Distribute Along Line** edit tool. Move the cursor to the front exterior wall and when the feedback axis line appears along the wall, click the mouse button to display the **Align to Line** dialog.

36. Select **Centers** and leave the **Distribute Centers Evenly** and **Distribute Between Endpoints** options selected.

37. Click **OK** to close the **Align to Line** dialog. The windows and the door are now distributed along the wall evenly.

You will find that the alignment and distribution tools provide feedback as to where they are going to align and will work with most Chief Architect objects. They will also allow you to align and distribute dissimilar objects.

CAN YOU DO IT?

PROBLEM EIGHT

Use the D3.plan drawing from the DVD. If you are using an older version of Chief Architect, and are using the D3.plan file from the Older CA Drawings Before folder, you will need to randomly place 8 utility

shelfs in the garage (from the Chief Architect Core Catalogs select **Interiors ⇒ Furniture ⇒ Storage Furniture ⇒ Shelving ⇒ Utility Racks ⇒ Utility Shelf tall**). (See the following illustration).

Arrange the storage components in the garage so that they are evenly distributed on the west and north walls of the garage. Your drawing should look familiar to Fig. 1.8.

Fig. 1.8: Drawing for Problem 8

CHAPTER 5
Polylines-Breaking Polylines

Step By Step Tutorial

This chapter will review the basic ways to break polylines.

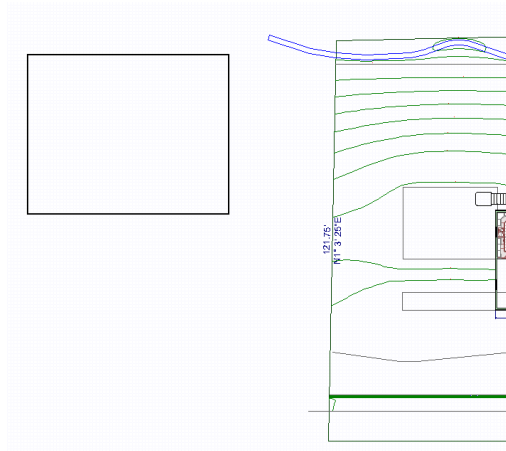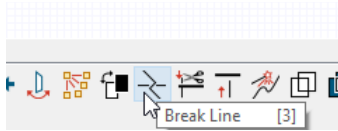The drawing, D4.plan, is used in the following exercise on breaking polylines, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D4.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Breaking Polylines

1. Open the **D4.plan**. The drawing shows a two story house with a basement foundation. A deck is attached to the rear of the house. The terrain features should be turned on.

2. Select the [ ] **Rectangular Polyline** tool (the hot key is Shift + P) and draw a 2-dimensional polyline to the left side of the model.

3. Select the polyline. Move the cursor over the [ ] **Break Line** edit button. Notice the pop-up tip that appears. The number 3 in the parentheses tells you that the 3 key on your keyboard is the keyboard shortcut for the Break Line command.

4. Press 3 on your keyboard. Click on the front edge of the polyline near the front right corner. You will get a new corner diamond shaped edit handle. You also get a new edge square shaped edit handle.

A new corner handle is produced using the Break Line command

5. Move the edge edit handle that is to the right of the new corner edit handle downward. A 90 degree corner is formed and two new edges are created.

6. Drag the edit handle back and snap it back in place using the On Object snap so that it is aligned with the original front edge.

Use the On Object snap to align the two edges

7. Drag the new corner edit handle downward. You see the kind of effect you get.

8. Click the **Undo** tool button.
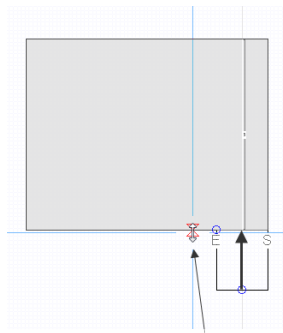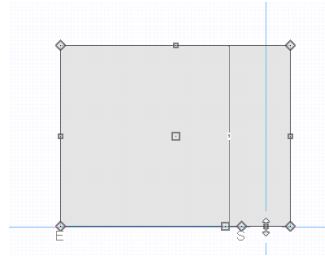**9.** Select the front edge and notice that the new corner edit handle is still in place.
10. Drag the new corner to the left and release it when the Midpoint (if you don't see a Midpoint snap, turn off the Intersections snap by pressing the 0 key)snap displays.
11. Drag the edge edit handle that is to the right of the new corner edit handle downward again.

Once you have created a break you have the editing ability that you have just seen.

12. Align up the two front edges as you did earlier.
13. Move the new corner edit handle and snap it to the front left corner of the polyline. The new corner is removed and you see only one edge edit handle on the front edge of the polyline. This is an easy way to remove a corner edit handle.

14. Click the [icon] **Break Line** edit button and then click the [icon] **Complete Break** edit tool (if you are using an older version of Chief Architect, double click the [icon] **Break Line** edit button or press the 3 key in rapid succession). Click on the front edge of the polyline. This time a square edge edit handle is created where you clicked. Drag the edge edit handle that is to the right of where you clicked downward. Notice what happens. The polyline is now severed. If you are using an older version of CA you will see something similar to the following illustration on the left. Newer versions of CA will see something similar to the illustration on the right (the diamond shaped edit handles that were formed by the break are same line type edit handles).

15. Move the severed front edge back up and snap it back where it was using the On Object snap. The polyline becomes whole again. You will know this by the solid gray fill. You have repaired the severed break.

The Complete Break command will not work for many of the special CAD polylines in Chief Architect that are meant to be closed. These special polylines include slabs, countertops, terrain perimeters, etc.

16. Select the terrain perimeter. Click the ⟨icon⟩ **Break Line** edit buttons The ⟨icon⟩ **Complete Break** edit tool is not made available as this special CAD polyline cannot be broken. If you are using an older version of Chief Architect, double click the ⟨icon⟩ **Break Line** edit button or press the 3 key in rapid succession. Click on the left perimeter edge. Notice that instead of a square edge edit handle being created as before, a diamond corner edit handle is created. You also have the square edge edit handles on each side of it. Drag one of the square edge edit handles to the left to see what happens. The terrain perimeter cannot be severed. A roof plane cannot be severed either, as shown next.

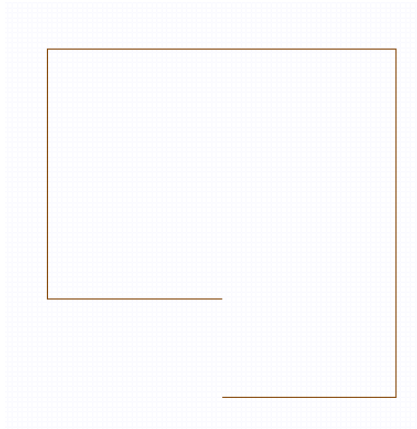17. Select the front roof plane for the model. Click the ⟨icon⟩ **Break Line** edit buttons The ⟨icon⟩ **Complete Break** edit tool is not made available as this special CAD polyline cannot be broken. If you are using an older version of Chief Architect, double click the ⟨icon⟩ **Break Line** edit button or press the 3 key in rapid succession. Click on the left edge of the roof plane. The same thing happens to the roof plane that happened to the terrain perimeter. Again, you cannot sever this kind of polyline.

There are some special polylines in Chief Architect that can be severed.

18. Draw another polyline below the first one that you drew. This polyline, as you have seen, can be severed.

19. Select the polyline and click the ⟨icon⟩ **Convert Polyline** edit button. You will get the **Convert Polyline** dialog. Select **Molding Polyline**. This is a special case example of a special polyline that can be severed using the Complete Break command.

20. Click **OK** to close the **Convert Polyline** dialog. The **Molding Polyline Specification** dialog displays. Click **OK** to close it.

21. Click the ⟨icon⟩ **Break Line** edit button and then click the ⟨icon⟩ **Complete Break** edit tool (if you are using an older version of Chief Architect, double click the ⟨icon⟩ **Break Line** edit button or press the 3 key in rapid succession). Click on the bottom edge of the molding polyline. A square edge edit handle is created where you clicked. This tells you that this is a break. Notice also that the molding polyline is no longer shaded. Drag the edge edit handle that is to the right of the break point downward to see the break more clearly. In regards to molding polylines, you may want to do this to remove molding from a certain area. The next step gives you a better idea of how this can work.

22. Select the molding polyline. Click the ⟨icon⟩ **Break Line** edit button and then click the ⟨icon⟩ **Complete Break** edit tool (if you are using an older version of Chief Architect, double click the ⟨icon⟩ **Break Line** edit button or press the 3 key in rapid succession). Click on the front edge a distance to the right of the front left corner of the polyline. Drag the edge edit handle to the left of this new break down and align it with the other front edge you created. Notice what remains. You can remove this piece of the molding. So you can remove molding from certain areas quite handily by using this tool.

Another special polyline that the Complete Break command will sever is an elevation line or an elevation region.

23. Zoom into the area to the left of the deck where you see a rectangular shaped polyline. Double-click this polyline. You should get the **Elevation Region Specification** dialog. If so, you have selected the correct polyline. Close the dialog.

Elevation Region

24. Click the ✕ **Break Line** edit button and then click the ✕^C **Complete Break** edit tool (if you are using an older version of Chief Architect, double click the ✕ **Break Line** edit button or press the 3 key in rapid succession). Click on the front edge of the elevation region to create a break. Drag one of the edge edit handles to either side of the break to see clearly that the region has been severed.

The nice thing about the ✕ **Break Line** edit tool is that it has many functions and it works differently with different types of polylines depending on whether they can be broken or not. You can always just try it to find out.

CAN YOU DO IT?

PROBLEM NINE

Draw Fig. 1.9 using only the ✕ **Break Line** edit tool. Begin by using the ⬛ **Rectangular Polyline** tool to make a square 2' x 2'.

Fig. 1.9: Drawing for Problem 9

Draw Fig. 1.10 Begin by using the ⬜ **Rectangular Polyline** tool to make a 17" x 11" polyline.

Fig. 1.10: Drawing
for Problem 10

CHAPTER 6

Polylines-Merging Polylines that Overlap

Step By Step Tutorial

This chapter will discuss how polylines can be merged together to form a resultant polyline based on the union or intersection of two or more polylines.

The illustration shows plain polylines. You will learn that they can be merged. You can also merge other polylines as long as they are the same type. They don't necessarily have to have the same thickness. For example, you can merge slabs, polyline solids, countertops, lot perimeters, etc. There is also the situation where one of the polylines to be merged could be a special type, like for instance, a countertop and the other polyline could be a plain polyline. The resultant would take on the characteristics of the special polyline.

The drawing, D5.plan, is used in the following exercise on merging polylines, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D5.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Merging Polylines

1. Open the **D5.plan**. The top half of the drawing shows two identical groups of plain polylines that are overlapping each other. Let's first work with the group on the left. Like the group on the right, it has three polylines that overlap. If we form a union, the resultant polyline will have the shape of the combined polylines, as you will see.
2. Select all three of the polylines in the group on the left.
3. Click the ⬜ **Polyline Union** edit tool button. A dialog will display, asking if you want to delete the original polylines. Click the **Delete Original** button. Press the Esc key to see the result.

If we form an intersection the resultant polyline will take the shape of the area overlapped by all of the polylines combined.

4. Select all three of the polylines in the group on the right.

5. Click the **Polyline Intersection** edit tool button. In the dialog that displays, click the **Delete Original** button again. You see the result of the intersection.

You can merge polylines to form a resultant polyline that will either be the result of a union or an intersection.

CAN YOU DO IT?

PROBLEM TEN

Using the solid models in the lower half of the D5.plan from the DVD, create the solids shown in Fig. 1.11., using the **Polyline Union** edit tool and the **Polyline Intersection** edit tool. If you are using the older D5.plan, you will need to create the solid models by combining a 3D box with a 3D cylinder from the **Primitive** tools drop-down menu.

Try solving this problem by working in 3D space (click the [icon] **Perspective Overview** button, for example). Once in 3D space, use the [icon] **Glass House** rendering technique to get a better picture of what is happening.

Fig. 1.11: Drawing for Problem 11

CHAPTER 7
Polylines-Subtracting Polylines that Overlap

Step By Step Tutorial

This chapter will review how to subtract one overlapping polyline from another to create a resultant polyline with a new shape.

The drawing, D6.plan, is used in the following exercise on subtracting polylines, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D6.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Subtracting Polylines

1. Open the **D6.plan**. The drawing shows a model that is partially enclosed by invisible walls.

2. Select the ⬜ **Rectangular Polyline** tool and draw a rectangular polyline in an open area inside the model. Make it about 6' x 4' in size. Draw another one that overlaps the lower right corner of the first one. Press the space bar.

3. Select the first polyline.

4. Click the ⬚ **Polyline Subtraction** edit tool button. Select the second polyline, which is the one we want to subtract from the first polyline. This will remove from the first polyline the area where the two polylines overlap. You will be given two options. You can either retain the original polylines or delete them. Click the **Retain** button.

5. Select the first polyline and drag it away to the left. You can see how it has become a new polyline with a new shape based on the subtraction.

6. Select all three polylines and delete them.

7. Take a camera **Perspective Floor Overview**. You can also subtract special polylines from each other as you will see next.

8. Select the **Slab** tool (other special polylines could be used as well, such as polyline solids). Drag to draw a slab in an open area inside the model. Then drag to draw a second slab that overlaps the front right corner of the first slab.

9. Select the first slab.

10. Click the **Polyline Subtraction** edit tool button. Select the second slab. This time, click the **Delete Original** button in the dialog that displays. Only the resultant polyline remains.

You can also subtract primitive solids from each other.

11. Select the 🛢 **Cylinder** tool. In an open area inside the model, drag to draw the base of the cylinder, then release the mouse button and drag up to extrude the cylinder. Click to finish drawing the cylinder.

12. Click on the top of the cylinder to select it.

13. Click the ▯➡▯ **Copy/Paste** edit button. Drag the original to make a drag copy. Move the copy so that if overlaps the original.

14. Select the copy, drag the top edit handle down and the bottom edit handle up to reshape the cylinder to resemble the following illustration.

15. Press the Esc key.

Now we will do some subtraction.

16. We want to subtract from the first cylinder that you drew, so select it.

17. Click the [icon] **Polyline Subtraction** edit tool button. Select the second cylinder. You see the result.

As you have learned, you can subtract similar polylines from each other, and you can also subtract primitive solids from each other. Let's look at another example, by working with the cabinets in the model.

18. Close the 3D view.
19. Zoom in closer to the cabinets.

20. From the [icon] ▾ **Cabinet Tools**, select the [icon] **Custom Countertop** tool button.
21. Move the cursor to the rear left corner of the corner cabinet. Click and drag the countertop so that it includes all of the cabinets, using the extension snaps. Release the mouse button when finished. The custom countertop will assume the material of the countertops of the cabinets below it and it will also assume the proper elevation. To see this take a [icon] **Perspective Floor Overview**.

Use extension snaps to draw the countertop

22. Close the 3D view.

23. Select the **Rectangular Polyline** tool and draw a rectangular polyline so that it resembles the following illustration.

You are going to be able to use the plain polyline to alter the shape of the custom countertop polyline, by using the **Polyline Subtraction** tool.

24. Reshape the plain polyline to resemble the following illustration, by dragging its upper left corner down to the lower left corner.

25. Select the diagonal edge.

26. Click the **Change Line/Arc** edit button. Adjust the curvature by dragging the small triangular edit button towards the cabinets.

27. Move the plain polyline so that there is a somewhat equal distance between the curvature and each end of the cabinets.

28. Press the Esc key.

29. Select the custom countertop, which is what we want to subtract from. Click the 🔲 **Polyline Subtraction** edit tool button. Select the plain polyline. Click the **Delete Original** button in the dialog that displays.

30. Take a 📦 **Perspective Floor Overview**, to see what you have been able to do.

A plain polyline can be subtracted from another to create a resultant polyline, whose shape is based on the subtraction. You can also subtract special polylines from each other, as well as primitive solids from each other. And, as just shown, you can subtract a plain polyline from a special polyline to create a new special polyline with a new shape.

CAN YOU DO IT?

PROBLEM TWELVE

Use the Box tool and the **Polyline Subtraction** edit tool to create the object shown in Fig. 1.12A and Fig. 1.12B.

Subtract smaller solid boxes from a large rectangular solid box to create the hatched part of the

Fig. 1.12A: Drawing for Problem 12

Fig. 1.12B: Drawing for Problem 12

PROBLEM THIRTEEN

Create the solid model shown in Fig. 1.13.

Fig. 1.13: Drawing for Problem 13

Create the solid model with the beveled edge shown in Fig. 1.14. Use the [cylinder icon] **Cylinder** tool to draw a

cylinder. Overlay it with a cone using the [cone icon] **Cone** tool. You want the cone to have the same diameter as the cylinder. Varying the height of the cone determines the steepness of the beveled edge. Subtract the cone from the cylinder (you may need to lower the cone so that it is 1/16th inch lower than the cylinder so that it can be easily selected for subtraction). Create another cylinder with the same

diameter as the first cylinder. Overlay it on the cylinder/cone object. Use the [transform icon] **Transform/Replicate Object** edit tool button to move the original cylinder/cone so that it intersects the top of the new cylinder. In the illustration the overlap of the two objects is 2". Subtract the original cylinder/cone from the new cylinder to create the beveled edge.

Fig. 1.14: Drawing for Problem 14

CHAPTER 8

Using the Line Style Editor

Step By Step Tutorial

This chapter will show you how to use the Chief Architect's line style editing tool to design your own line styles. This tool was first introduced in Chief Architect X2.

Download The drawing, D7.plan, is used in the following exercise on using the line style editor, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D7.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Using the Line Style Editor

1. Open the **D7.plan**.
2. Draw a horizontal line about 40' long in an open area to the rear of the model.
3. Double-click the line to display its specification dialog. Go to the **Line Style** panel. In the **Line Options** section click on the **Style** drop-down arrow to see the list of line styles. You can choose, quickly, from a number of line styles here.

4. In the **Line Options** section, click the **Library** button. The **Select Library Object** dialog displays. From **Chief Architect Core Catalogs**, expand **Line Styles**. You will see that you have a number of categories of line styles to choose from.

5. Select **Plumbing Line Styles ► Cold Water Supply (medium)**.
6. Click **OK** to close the **Select Library Object** dialog.
7. Click **OK** to close the **Line Specification** dialog. You see the line style that was chosen from the library.

You can also go directly to the library and choose the line style that you are going to draw with.

8. Go to the Library. From **Chief Architect Core Catalogs**, select **Line Styles ► Plumbing Line Styles ► Waste Water (large)**.
9. Drag to draw a horizontal line in an open area in front of the model. The line will be of the line style that you chose from the library (if you restart the Line command you will get a normal solid line).

You can further modify any of the lines you have drawn by using Chief Architect's line style editor, as well as create new line styles.

10. In the Library, from **Chief Architect Core Catalogs**, select **Line Styles ► Plumbing Line Styles ► Cold Water Supply (medium)**. Right-click and select copy (note that there is no **Open** selection available to edit this locked library item). Paste the copy in the **User Catalog** (right-click on **User Catalog** and click **Paste**). Right-click on this now unlocked library item and click **Open Object** for editing. The **Line Style Specification** dialog displays.

11. In the **Line Style Name** edit box, change the name to **City Water Supply** (just as an example).
12. Notice the box that is highlighted in red in the graphic display window. Notice that in the components selection window **Dash** is highlighted. Click on **Text** to highlight it. The red highlighted box jumps to the first text entry. Click on **Dash** and the box jumps to the next dash entry. The vertical dashed line indicates the end of the pattern, which will now be repeated.

You can insert new components by clicking on a component button. The components are Dash, Dot, or Text. You can adjust the position of the components using the up or down arrow buttons to the right of the component window. You can insert a new component before or after the one that is selected by choosing between the **Insert Before** or **Insert After** options.

13. Select the **Insert After** radio button if it is not already selected.
14. Click the **Text** button. You see the word **TEXT** highlighted by the red square.

15. Find the **Text** edit box on the right side of the dialog. This is where you can change the name of the text that you want to insert. Change the name to **City**.
16. You want your new text to be the same height as the other text in the line. To see what that height is just click on the **C/W** text. The height will be listed in the **Text Height** scrollable edit box. $^3/_{32}$" should be listed. Click on your text and change its height to $^3/_{32}$".
17. Notice that with your text selected that the value listed in the **Spacing** scrollable edit box is $^1/_8$". Click the down arrow to decrease this value. Click the up arrow to increase the value. As you do this you can see in the graphic window the changes. It is the space to the right of the text that is adjusting. Change the value to $^1/_{16}$".

We want this same value in the spacing before the text as well.

18. Select the dash that is before the **City** text by either selecting **Dash** in the components selection window or by clicking on the dash that is before the text in the large graphic window.
19. Change the value in the **Spacing** scrollable edit box to $^1/_{16}$". You can inspect the result in the large graphic window and make changes as appropriate until you feel that you have it right.

In the same manner that you added the text you can add a dot or a dash. By working with the different parameters that are available you can get things to look like you want them.

20. Click **OK** to close the dialog and to save your changes. You have now modified the library object that you put in your **User Catalog**. Select it and drag a horizontal line in an open area below where you drew the last line.

In addition to editing the line styles that are found in your library to create new ones, you can also import line styles from other locations. It will then be added your User Catalog in the Library.

21. Select **File ▶ Import ▶ Import Line Style Definitions**. The **Import Line Styles** dialog displays. From here you can browse to where line styles are kept, such as the line styles found in a previous version of Chief Architect, for example, Chief Architect X2. Chief Architect X3 uses the extension .lin for lines styles. To find the line styles in previous versions, change **Files of type** to **All Files**. Go to the appropriate Chief Architect folder and select it. Look for the file **legacyLineStyles.dat**. Select it and click **Open**. A dialog will display telling you that the line styles have been successfully added to your **User Catalog** in your library. Click **OK**. You will see a new folder called **legacyLineStyles** added to your **My Library** folder. You can change the name and place it somewhere else in your library if you wish. You can now choose any of these line styles and draw lines in your plan.

The ability to edit and import line styles gives you a great deal of flexibility.

CAN YOU DO IT?

PROBLEM FIFTEEN

Using the D7.plan, draw the utility layout as shown in Fig. 1.15.

Fig. 1.15: Drawing for Problem 15

CHAPTER 9

Transferring Line Style and Layer Information between Plans

Step By Step Tutorial

Beginning with Chief Architect X3, line style and layer information about Chief Architect objects now transfers with those objects from one X3 plan to another in ways that are both intuitive and easy to understand. Let's first look at how layers transfer.

STEPS: Transferring Layer Information and Line Style Attributes

1. If you have Chief Architect running select **File ► New Plan**. If the program is not running, then go ahead and start Chief Architect and select **New Plan** from the **Welcome to Chief Architect** splash screen. Zoom into the drawing close enough to see the snap grid.

2. Draw a simple horizontal CAD line and open its specification dialog.

3. Go to the **Line Style** panel. By default, **CAD, Default**, should be listed for the **Layer** in the **Line Options** section. We will create a new layer.

4. Click the **Define** button. The **Layer Display Options** dialog displays.

5. Click the **New** button. The **New Layer Name** dialog displays.

6. Label the new layer, "**A**" (without the quotes). Put a space in front of the letter. Click **OK**. Placing a space in front sorts the new layer to the top of the list.

7. Click **OK** to close the **Layer Display Options** dialog. "**A**" is now the new layer for the line. Click **OK** to close the **Line Specification** dialog.

8. Label the line "**A**" by clicking the ▼ **Text Tools** button, and then clicking to the left of the line. Type "**A**" when the **Rich Text Specification** dialog (you may get the **Text Specification** dialog if you have not checked **Create Rich Text** in the **Leader Lines** section of the **Text** subcategory of the **Appearance** category of the **Preferences** dialog) displays. Click **OK**.

A ————————————

9. Draw a second line below the first line. Following the same procedure for line A, put this line on a new layer "**B**" and label the line "**B**". Be sure to place a space before the layer name.

A ————————————

B ————————————

You created layer A before you created layer B. In older versions of Chief Architect, this layer creation order affected object layer assignments when objects were transferred between plans. Sometimes you would find objects on a layer that you did not expect to. Beginning with Chief Architect X3 this is no longer the case. Chief Architect now transfers objects between plans based solely on the name of the layer. This makes transferring layers much easier to follow. Let's look at an example of this.

10. Open a new plan (do not close the plan you now have open).

11. Click the ☑ **Display Options** tool button to display the **Layer Display Options** dialog (for those with a newer version of Chief Architect you can use the **Active Layer Display Options** palette). Note that you do not see the new layers, **A** or **B** listed.

12. Click the **New** button and type **B** (place a space in front) in the **New Layer Name** dialog. Click **OK**. Click the **New** button again and type **A** (place a space in front). Click **OK**. You have reversed the order in this plan and the layer **B** was created before the layer **A**. For users of older versions of CA, click **OK** to close the **Layer Display Options** dialog.

13. Tile the two windows vertically. Make the plan that has the lines the active window (by clicking on its title bar or clicking in the drawing area) and select both of the lines, including the text.

14. Click the ▯➡▯ **Copy/Paste** edit button. Transfer the two lines into the new plan by first making the new plan the active plan and then selecting **Edit ► Paste ► Paste**. Click in the plan's drawing area to transfer a copy of the two lines. Press **Esc**.

15. Select the top line and open its specification dialog. Go to the **Line Style** panel. Note that the layer listed in the **Line Options** section is layer **A**.

16. Check to see which layer the lower line is on. It should be on layer **B**. Close the dialog.

Chief Architect transferred the layer information for the lines based solely on the layer name. In the exercise you have been doing, it looked in the new plan for a layer named A. Upon finding the layer it placed the object (the line) on that layer. If it did not find a layer named A, it would have created a layer with the layer name A, or whatever the name of the source layer was.

This preservation and transfer of layer information also holds true when objects are grouped into CAD blocks.

17. Close the new plan without saving.

18. Open a new plan. Move it into place beside the original plan that you drew the lines in.

19. To form a CAD block, group select the two lines in the original plan (be sure to press the Esc key first or you will copy the two lines again), and then click the ▢ **Make CAD Block** edit button.
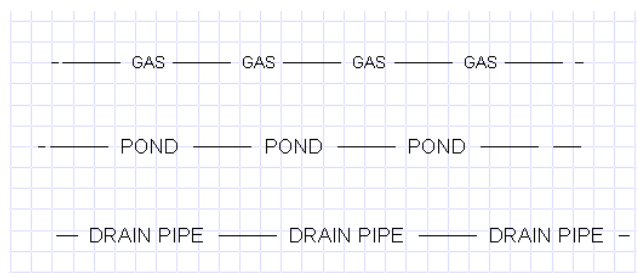
20. Add the block you just made to the library by clicking the ▮⁺ **Add to Library** edit button. The layer information is preserved and transferred by name whether you add it to the Library and store it there for a while and then move it to another plan, or whether you copy it directly to another plan (by simply pasting it in the other plan).

21. Make the new plan the active plan. Select the new block from the Library and click in the new plan to paste the block. Press **Esc**.

22. Explode the block in the new plan by clicking the ▢ **Explode CAD Block** edit button. You will find that this new plan now has the layers **A** and **B** and that the lines have the layers that they were originally assigned to.

Line style properties are also transferred in this straight forward manner. It is the line attributes that are matched.

If you open a plan that has line styles that are not listed in Chief Architect's library of line styles, then Chief Architect will bring those line styles in as they exist. But if you bring in a plan that has a line style whose attributes matches those of a line style within Chief Architect's library of line styles, then Chief Architect will simply use the attributes of the line style it has already. So for example, let's see what will happen if you open a plan that was created in a previous version of Chief Architect that has line styles that do not currently exist in the current version of Chief Architect.

23. Close the new plan without saving.

24. Open the **X2 Line Styles.plan** from the DVD in the **X6 Expert Drawings Before** folder (or if you are using an older version of CA, select the file from the **Older CA Drawings Before** folder). You will see three different line styles displayed.

The first one, the line indicating a gas line, does exist in the Chief Architect's **Line Style** library, so the program will use the one it already has. The next two line styles do not have a match in the Chief Architect library. Since they did not exist, Chief Architect simply brought them in. They are not added to the library but they will save with this plan.

In Chief Architect, layer and line style information assigned to objects transfers to other plans. Layers match by name and line styles match by attributes. This is true when you copy objects individually, or

group them into CAD blocks, and copy them directly between plans, or first place them in the library for storage and then move them to another plan.

25. Close the drawings without saving.

CHAPTER 10
Using the Trim and Extend Commands

Step By Step Tutorial

Chief Architect's trim and extend edit tools are very powerful and they have broad application. Let's look at some examples. You can easily cut and fill large arrays of joists, rafters, and CAD lines and other objects quite quickly with these two tools.

The drawing, D8.plan, is used in the following exercise on using the trim and extend commands, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D8.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Using the Trim and Extend Commands

1. Open the **D8.plan**. This drawing shows floor joists on a foundation plan.
2. Looking at the following illustration draw a polyline (a series of lines) across the foundation.

Draw a polyline

3. Select the polyline. We will make this the trim boundary. Click the ![icon] **Trim Object(s)** edit tool button. It now becomes the trim boundary.
4. Move the cursor to the first joist to the right of the left foundation wall. Since we want to trim that part of the joist that is above the polyline, click on the joist above the polyline. The joist is trimmed to the polyline. The polyline is still selected as the trim line. Click the ![icon] **Trim Object(s)** edit tool button once again. This time click on the joist adjacent and to the right of the first joist you trimmed but click below the polyline. Note that whatever side of the cutting line you click on deletes that part of the object.
5. Click the ![icon] **Undo** button to restore the last joist you trimmed.
6. Select the polyline again and click the ![icon] **Trim Object(s)** edit tool button. Click the ![icon] **Sticky Mode** edit button. Now you can trim more objects without having to click the ![icon] **Trim Object(s)** edit tool button again.
7. Clicking above the polyline, trim back the next three joists adjacent to the joist that you had already trimmed.
8. Click the ![icon] **Select Fence** edit button. Now you can select several objects at once to trim. The line that you drag will trim back all of the objects that it touches.
9. Drag a line through the next 7 joists above the polyline. Release the mouse button and the joists are all trimmed back to the polyline.
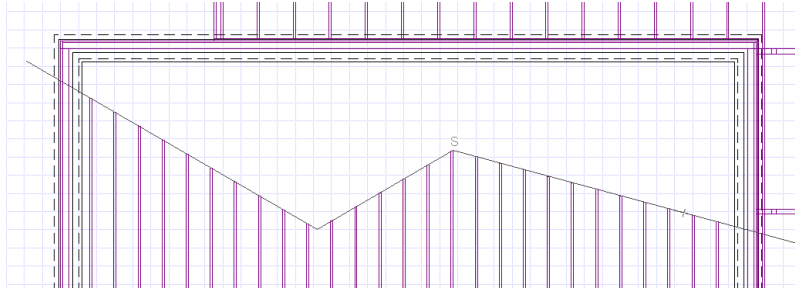

10. Since you are still in sticky mode you can continue to trim back objects. Trim the remaining joists by dragging a fence line through the joists above the polyline. All of the joists should now be trimmed back to the boundary line (the polyline). If there are any joists that did not trim back, click on them to trim them down to the polyline. As long as you remain in the sticky mode you can continue to trim.

11. Press the Esc key to exit the trim command. Press the Esc key again to deselect the polyline.
12. Select the polyline and delete it.
13. We want to extend the joists back to the rim joist on the rear foundation wall. Zoom into this area and select the rim joist. Make sure that the rim joist is selected (you should see **Floor joist** displayed in the Status bar).
14. Click the ⌐ **Extend Object(s)** edit button. As with the trim command you can use the sticky mode to continue to extend objects. In this case, we will only need to extend once, so just click the ▦ **Select Fence** edit button. Drag a line through all of the joists. Release the mouse button. All of the joists should extend to the rim joist.

15. Press F6 to fill the window.
16. Look at the following illustration and draw a rectangular polyline. The left side of the rectangular polyline should cross the joist as shown. Make the rectangle approximately 2' x 4'.

Draw a rectangular polyline

17. Select the rectangular polyline. Click the ✂ **Trim Object(s)** edit tool button. Click the 📌 **Sticky Mode** edit button.

18. Move the cursor inside the rectangular polyline and click on the joist that crosses through near the middle of the polyline. Click on the joist on the left side of the polyline (click on the part that is inside the polyline). Click on any other joist that runs through the polyline. Press Esc. Notice that all of the joists have been trimmed back to the boundary. Delete the polyline.

19. Click the 🔲 ▼ **Floor/Ceiling Framing Tools** button to put yourself in the joist mode. Draw a joist as shown in the following illustration.

Draw a joist

20. Extend the joist you just drew to the joist on the right.

21. Select the new joist and drag it up until it bumps against the cut joists.

22. With the new joist still selected, click the ⬛➡⬛ **Copy/Paste** edit button. Click the 📌 **Sticky Mode** edit button.

23. Drag a copy of the joist down until it bumps against the cut joists.

24. Now drag a copy up to bump against the upper horizontal joist you had placed. Drag another copy down to the lower horizontal joist you placed. Press Esc twice. Your drawing should now look similar to the following illustration.

You have just incorporated the trim and extend tools into the editing of the floor framing. You will find that you will be able to use the trim and extend tools on many objects in a variety of ways.

PROBLEM SIXTEEN

Draw the top illustration in Fig. 1.16 and then use the ⌐† **Fillet Two Lines**, and the ✂ **Trim Object(s)** edit tools to obtain the following figure. (Assume the missing dimensions.)

Fig. 1.16: Drawing for Problem 16

Draw the illustration in Fig. 1.17. You will find plenty of opportunities to practice using the ✂ **Trim**

Objects edit tool, the ⬚→⬚ **Transform/Replicate** edit tool, and the ➡ **Multiple Copy** edit tool. Use only the 2-dimensional CAD tools to complete this drawing.

Fig. 1.17: Drawing for Problem 17

CHAPTER 11

Drawing Revision Clouds

Step By Step Tutorial

Revision clouds are polylines that are drawn using sequential arcs. They are usually used to call attention to parts of a drawing during the review stage.

If you review or redline drawings, you can increase your productivity by using Chief Architect's Revision Cloud feature to highlight your markups. The Revision Cloud tool creates a polyline of sequential arcs to form a cloud-shaped object.

In the following exercise you will learn how to add revision clouds to a drawing.

Download   The drawing, D9.plan, is used in the following exercise on drawing revision clouds, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D9.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Drawing Revision Clouds

1. Open the **D9.plan**.

2. Click the   **Default Settings** tool button to display the **Default Settings** dialog.

3. Expand the **CAD** category.

4. Double-click **Revision Cloud**. The **Revision Cloud Defaults** dialog displays. In the **Arc Length and Number** section (on the **Cloud** panel) the radio button for **Automatic Arc Lengths** is checked by default.

Selecting the radio button for Average Arc Length will allow you to adjust the length of the arcs that make up the revision cloud. Or you could select the radio button for Number of Arcs.

You can set the Length Diversity, the Minimum Bulge, and the Maximum Bulge in the Size Variation section.

The value for the Length Diversity is the maximum amount that a given arc's length can deviate from the Average Arc Length (which you can set).

The Minimum Bulge value is the smallest amount that a given arc can extend out from its center. For example, 0% allows arcs with a radius of 0, or essentially a flat line; 50% allows 180° arcs, or half circles; 100% only allows arcs of about 300°.

The Maximum Bulge value is the largest amount that a given arc can extend out from its center. For example, 100% allows arcs of about 300°; 50% allows 180° arcs; 0% only allows arcs with a radius of 0.

5. Leave the radio button for **Automatic Arc Lengths** selected and go to the **Line Style** panel. We want to set up a different layer than the **Default CAD Layer**.
6. Click the **Define** button. The **Layer Display Options** dialog displays.
7. Click the **New** button and in the **New Layer Name** dialog, name the new layer, **RC Mar05** (for Revision Cloud and today's date). Click **OK**.
8. Click **OK** to close the **Layer Display Options** dialog.

You could use a different revision cloud layer with different display properties for future revisions. In this way you could easily determine when revisions took place.

9. Click **OK** to close the **Revision Cloud Defaults** dialog, and click **Done** to close the **Default Settings** dialog.
10. In the kitchen area, select the three cabinets that comprise the peninsula.

11. Click the ▭ **Revision Cloud(s) Around Objects** edit button. Note that the cabinets are still selected and that a revision cloud encloses them. Press the Esc key.

12. Select the revision cloud. You will see that you have a complex polyline. You can use the edit handles to adjust the shape of the polyline. The diamond edit handles represent the corners of the polyline and the square edit handles represent the edges. The entire cloud can be moved as well.

13. Press Esc. Press F6 to fill the screen. Let's say that we need another revision cloud for the rear right corner of the building where the exterior wall is angled.
14. Select **CAD ▶ Revision Cloud**.
15. Drag a revision cloud so that it encloses the corner (notice the graphic of a revision cloud following the cursor).

16. Select the revision cloud. Like the first revision cloud you can edit its shape. Any of the revision cloud polylines can be converted back to a plain polyline.

17. Click the **Convert to Plain Polyline** edit button. Notice that you will get an entirely new set of edit handles that are related to the individual arcs that comprise the revision cloud. You can now adjust the curvature of each arc. Let's place a call out for the revision cloud.

18. From the ⬚ **Leader Line** drop-down menu, click the © **Callout** button. Click near the right side of the revision cloud. The **Callout Specification** dialog displays. You should be on the **Callout** panel. Type the necessary information for the **Callout Label**. For this exercise, type **16**. Type **A6** in the **Text Below Line** text box. Select the radio button for **Circle**.
19. Go to the **Line Style** panel and note the layer name for the callout. **Text, Callouts**, should be listed. This may be okay in some cases. But if you were planning on doing a lot of revision clouds you may want the callout to be on the same layer as the revision cloud. So you may want to change the layer to the layer you created earlier in the exercise for the revision cloud.
20. Go to the **Attributes** panel and in the **Cross Section Line** section, check the checkbox for **Display Cross Section Line**.
21. Go to the **Text Style** panel. This is where you can change the text font and properties. Click **OK**.
22. Select the callout. Adjust the position of the cross section line so that it points to the revision cloud.

There is a third way to create a revision cloud.

23. From the ⬚ **Circle** drop-down menu, select ⊕ **Circle About Center**. Click on the center for the exterior man door going into the garage and then drag to draw a circle around the door opening.

24. Select the circle and click the ✐ **Convert Polyline** edit button. The **Convert Polyline** dialog displays.

25. Select the radio button for **Revision Cloud**. Click **OK**. The circle is converted to a revision cloud and you will see the **Revision Cloud Specification** dialog displayed. You can set revision cloud properties that are different than the default values if you wish

26. Click **OK** to close the **Revision Cloud Specification** dialog. Press Esc. There is another way to get a revision cloud around a door.

27. Select the main front entry door.

28. Click the ⬚ **Revision Cloud(s) Around Object** edit button. This method is usually preferred over the one just shown because it is quicker and easier.

29. Close the drawing without saving.

You can quickly create a set of revision clouds with appropriate callouts and all on their own layer.

Download The drawing, D10.plan, is used in the following exercise on using the nudge tool, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D10.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Using the Nudge Tool

1.   Open the **D10.plan**. This drawing shows a floor plan where a sofa has been placed in the living area. It needs to be positioned in the corner.

2.   Select the sofa.

3.   Use the **Pt to Pt Move** edit tool to snap the outside corner of the sofa to the inside left front corner of the room. We don't really want the sofa snug against the wall, so we need to nudge it over.

4. Double-click the ⬚ **Select Object** tool. The **General Plan Defaults** dialog displays. In the **Snap Grid/Snap Units** section, set the **Snap Unit** to **1"**. Click **OK**.

5. Select the sofa. Press the right arrow key on your keyboard. This will nudge the sofa to the right one inch.
6. Press the up arrow key. This will nudge the sofa up one inch.

The Chief Architect nudge tool allows you to do the operation that you just completed. This tool was introduced in Chief Architect X2. The nudge distance is controlled by your snap setting distance.

Note *Your snap setting distance may be set to something different than one inch, in which case, the sofa would have moved to whatever the snap distance you had set.*

7. Change the snap unit to **10**”. Click **OK**.
8. Select the sofa. Use the right arrow key to nudge the sofa over. Now you are moving the sofa in increments of 10”. Use the other arrow keys to move the sofa around.
9. Close the drawing without saving.

CHAPTER 13

Placing Insertion Points in CAD Blocks

Step By Step Tutorial

When you create a CAD block in Chief Architect, an insertion point is automatically placed at its center. The insertion point can be precisely placed by snapping it into position. You could use the ⊹ Pt to Pt Move edit tool to snap to the insertion point and then snap it to some other object. A block can only have one insertion point and you can place that point wherever you wish. Since Chief Architect X3 you have the Select Insertion Point edit tool.

The drawing, D11.plan, is used in the following exercise on placing insertion points in CAD blocks, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X4 or newer) use the D11.plan from the **Older CA Drawings Before** folder. Both folders are in the **Advanced CAD** folder.

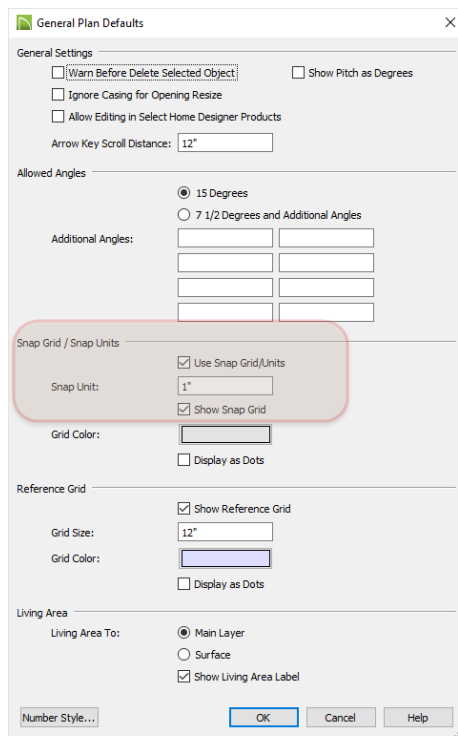### STEPS: Placing Insertion Points in CAD Blocks

1. Open the **D11.plan**. If you have an older version of Chief Architect (X3 or newer), start a new plan. Select **File ⇒ Import ⇒ Import Drawing (DWG, DXF)**. The **Import Drawing Assistant** displays. Click **Next** and click the **Browse** button. Find the **D11.dwg** file in the **Older CA Drawings Before** folder. Go through the **Import Drawing Assistance**. Make no changes. Click **Finish**.

2. Select the lower left drawing showing a typical crawl space foundation. This is a CAD block that was taken from the Chief Architect library. Note the square edit handle in the center of the CAD block. When you place the cursor over this edit handle the cursor turns into a four -way arrow. This edit handle is the insertion point.

CAD block
insertion point

3. Click the ⊞ **Select Insertion Point** edit tool. Click somewhere in the block. The insertion point is moved to where you clicked. You probably noticed that you could not snap the insertion point to another point in the block. Since this is the case it would be more precise to take another approach.

Note *The insertion point will not snap to another point in the block.*

4. With the block still selected, click the ⬛ **Explode CAD Block** edit button.

Now all the block components are separate and you have snapping positions. We can place a temporary point where we want the snap to occur and where we want the insertion point to be. We are going to join the one block to the another block in the drawing. Anticipating where we want the blocks to join will determine where we want the insertion point to be. We want it to occur on the top outside corner of the sill plate.

Insertion point to be placed here

TERMITE FLASHING (optional)

TREATED SILL PLATE
SILL SEALER
CAST-IN-PLACE ANCHOI

5. Select the ✕ **Place Point** tool.
6. Snap a point to the top outside corner of the sill plate.

The temporary points do not get included when you make a block, so they remain snappable.

7. Reblock the block that you exploded by using a selection window and the ⬚ **Make CAD Block** edit tool.

8. Click the ⬚ **Select Insertion Point** edit tool. Snap to the temporary point you placed.

You can snap to this point because it is not a part of the CAD block. You can now precisely place the insertion point. Notice that when you move the cursor over the insertion point it becomes a 4-way arrow. You can now precisely place the two blocks together.

9. Select the block above the block you just worked with and note where its insertion point is. It will be in the center where they are intially created. Explode this block. Press Esc.
10. Place a temporary point at the lower left corner of the 2 x rim joist. Reform the block.

SHEATHING/SIDING
2x RIM JOIST
2x FLOOR JOISTS

11. Snap the insertion point to the temporary point that you just placed.

12. Delete the temporary points by clicking the ⊠ **Delete Temporary Points** tool button.

13. Click the ⊹ **Pt to Pt Move** edit button. With the block still selected pick up its insertion point and snap it to the insertion point in the other block. Press the Esc key. The two blocks should now be joined precisely.

Each of the two blocks have their own insertion points. If the two blocks are joined together to make a larger block, the new larger block will get its insertion point in its center.

14. Group-select the two blocks using a selection window, and make one block using the ▱ **Make CAD Block** edit tool. Notice that the insertion point is at the center of the new block. It will now be the only insertion point available.

If the block is exploded, the insertion points that were inserted in the nested blocks will become available once the nested blocks are no longer nested in the larger block. The insertion points will still be where you had last placed them.

You have seen how each CAD block in Chief Architect has its own insertion point. You can precisely locate those insertion points using the method you just worked with.

PROBLEM EIGHTEEN

Using the blocks for the monolithic slab foundation on the right side of the D11.plan from the DVD, combine them to create the illustration shown in Fig. 1.18.

Fig. 1.18: Drawing for Problem 18

CHAPTER 14
Displaying Text Labels for CAD Objects

Step By Step Tutorial

Chief Architect X4 introduced a new feature called Text Styles. Among its many other uses, this feature gives you more freedom in labeling CAD objects.

Download The drawing, D12.plan, is used in the following exercise on displaying text labels for CAD objects, and can be found in the **X9 Expert Drawings Before** folder. If you have an older version of Chief Architect (X3 or newer) use the D11a.plan from the **Older CA Drawings Before** folder. Both of these folders are in the **Advanced CAD** folder.

STEPS: Displaying Text Labels for CAD Objects

1. Open the **D12.plan** (**D11a.plan** for older versions).

2. Click the **Default Setting** tool button to display the **Default Settings** dialog.
3. Expand the **CAD** category. Double-click **General CAD** to display the **CAD Defaults** dialog. Note that for newer versions of Chief Architect there is no line label height setting. That is because the line label height setting for CAD lines displaying their labels is part of the text style feature. Click **Cancel** to close the dialog.
4. Click **Done** to close the **Default Settings** dialog.
5. In the drawing, in front of the model, there is a CAD polyline displaying its length and angle labels. Zoom in a little to the polyline. Double-click the polyline to open its specification dialog (**Polyline Specification** dialog). Go to the **Line Style** panel. Here you see that the **DEFAULT CAD LAYER** is displayed as being the layer for this polyline. Click the **Define** button. Note that the layer (in this case the **DEFAULT CAD LAYER** layer) determines the text style properties. In the **Text Style** column for this layer you see **Default Text Style** listed. This is the assigned text style for this layer. Each layer has its own text style. You can assign any layer a different text style if you choose. In the **Properties for** section, the text style can be selected from the **Test Style** drop-down list.

6. Click the **Define** button just to the right of the drop-down list for **Text Style** in the **Properties for** section of the dialog. The **Saved Text Style Defaults** dialog displays. Using this dialog you can edit, rename, and copy the selected text style. Click **Cancel** to close this dialog.

7. In the **Layer Display Options** dialog find the layer, **C-Anno-Site**. Note that it has a different text style, the **CAD Text Style**, assigned to it. Select this layer to assign the layer and its assigned text style to the polyline. Click **OK**.
8. Click **OK** to close the **Polyline Specification** dialog. Several things have changed. Double-click the polyline again to open its specification dialog. On the **Line Style** panel, click the **Define** button in the **Line Options** section. The **Layer Display Options** dialog displays. Click the **Define** button in the **Properties for Selected Layer "C-Anno-Site"** section. The **Saved Text Styles** dialog displays. Click the

Edit button to display the **Text Style Defaults-CAD Text Style** dialog. The text style is using a different **Font**. **Italic** is checked but you could use a different font style if you wanted by checking the appropriate check boxes. A larger **Character Height** of **10"** is assigned. Note that you have **Legacy Compatible Size** and **Transparent** options. You can allow the **Text Color** to be chosen by the text style, which it is in this case, or you can check **By Layer**. The displayed color was chosen, which will display whenever the **CAD Text Style** is used. Click **OK** to close this dialog.

You can now control the text style of CAD objects set to display length or angle or any text or number character. See Chapter 11 of the book *Residential Design Using Chief Architect X8* for a detailed description of the new text style feature.

Line styles are somewhat unique in that you cannot control all of the text style attributes with a text style. For example, you cannot use text styles to control the size and color of the P/L line style displayed to the right of the model in the drawing. You can, however, control the font of the text included in line styles as well as the transparency of the text.

9. Close the open dialogs.
10. Double-click the P/L line displayed to the right of the model to display its specification dialog (**Polyline Specification** dialog). On the **Line Style** panel, note that the layer this line is on is the **DEFAULT CAD LAYER**. Its assigned text style is the **Default Text Style**. Select **C-Anno-Site** from the **Layer** drop-down list. As you know, the **CAD Text Style** is assigned to this layer. Click **OK** to close the dialog. Note that the text updated to the different font. It would also assume transparency. The font color (brown for **CAD Text Style**), however, did not update.

You can change the color for the entire line style from the specification dialog for the line style.

11. Open the specification dialog for the P/L line. On the **Line Style** panel, the checkbox for **By Layer** is checked for **Color** in the **Line Options** section. This means that the line color is determined by

whatever layer the line is assigned with. Uncheck the checkbox. Click on the color bar to display the **Select Color** dialog. Select a different color. Click **OK** to close the dialog.

12. Click **OK** to close the **Polyline Specification** dialog. As you can see, the entire line style (both the text and the line components) has changed to the color you picked.

North pointers are also somewhat unique. They will take their layer text style, both font and color.

13. The arrow on the left was made with the **North Pointer** tool. Zoom in closer to the north arrows and double click the one on the left to open its specification dialog (**Line Specification** dialog). Go to the **Line Style** panel. You see that it has the **DEFAULT CAD LAYER** assigned to it. Change the layer to the **C-Anno-Site** layer. Click **OK**. The **N** label takes on the font and color of the layer's text style. The arrow itself took on the layer's assigned color.

14. Click and drag the bottom edit handle to increase or decrease the size of the north arrow. Note that both the arrow and the text increase or decrease in size. So in this way the north arrow is unique.

15. Select the arrow on the right, which is actually a CAD block brought in from the Library. Note that the symbol and the text are blocked together. Open the specification dialog (**CAD Block Specification** dialog) for the symbol. Go to the **Line Style** panel. The **DEFAULT CAD LAYER** is the assigned layer. Change the layer to the **C-Anno-Site** layer. Click **OK**. Nothing has changed. Chief Architect X4 – X8 will not let you change any of the attributes, including the font of the text nested in this particular CAD bock. To see how to change the text attributes, continue the exercise.

16. Select the symbol and click the **Explode CAD Block** edit tool button. Select the text, **N**, and click the **Object Layer Properties** edit button. The **Object Layer Properties** dialog displays. Note that the text is on the **A-Anno-Note Layer**, which is using the **Default Text Style**. Click the **Define** button in the **Properties for Selected Layer "A-Anno-Note"** section. The **Saved Text Style Defaults** dialog displays. Click the **Edit** button to display the **Text Style Defaults-Default Text Style** dialog. If necessary, uncheck **By Layer** in the **Text Color** section. Click on the color bar to display the **Select Color** dialog. Select a color and click **OK**.

17. Click **OK** to close the **Text Style Defaults-Default Text Style** dialog.

18. Click **OK** to close the **Saved Text Styles** dialog.

19. Click **OK** to close the **Object Layer Properties** dialog. Again, no change.

20. Select the text, **N**. Click the **Convert To Rich Text** edit button.

21. Click the **Open Object** edit button to display the **Rich Text Specification** dialog. Highlight the text. Click the **Color** button and from the **Select Color** dialog select a color. Click **OK**.

22. Click **OK** to close the **Rich Text Specification** dialog. You see the result. In this case the block had to be exploded first, and then the text converted into rich text in order to control the attributes of the text.

Note *Because of its ability to use multiple attributes in the same object, Rich Text does not use Text Styles.*

23. Zoom in to the sun angle CAD object to the rear of the model. Note that this CAD object for the sun angle and the CAD object for the joist direction in the corner rear bedroom have the same text font and coloring as the text for the polyline we worked with earlier. That is because the layers that they are assigned to are all using the **CAD Text Style** that was also assigned to the layer we put the polyline on.

Tip *When working with text styles you need to be aware of all of the objects that might be affected if you change any of the properties for that text style.*

24. Click the **Text Style Defaults** tool button or display the **Default Settings** dialog. Expand **Text, Callouts, and Markers**, and then double-click **Test Styles**. The **Saved Text Styles** dialog displays. **CAD Text Style** should be highlighted. Click the **Edit** button to display the **Text Style Defaults-CAD Text Style** dialog. In the **Text Color** section, check **By Layer**. Click **OK**.

25. Click **OK** to close the **Saved Text Styles** dialog. You see how the sun angle and floor joist CAD objects have updated. Also note that the polyline text also updated to the new default as well as the **"N"** in the north arrow on the left.

Let's look at the control you now have over arrow styles.

The joist direction and the sun angle arrows both take their arrow styles from the default arrow style found in the **Default Settings** dialog.

26. Display the **Default Settings** dialog, expand **Text, Callouts, and Markers**, and then double-click **Arrow**. The **Saved Arrow Defaults** dialog displays. The current default is **Default**. Click the **Edit** button to display the **Arrow Defaults-Default** dialog. From the **Style** drop-down list, select a different style of arrow. Change the color. When you are finished click the **OK** button for the **Arrow Defaults-Default** dialog to close it.

27. Click **OK** to close the **Saved Arrow Defaults** dialog.

28. Click **Done** to close the **Default Settings** dialog. You see that the arrows do not update. The arrow defaults are static so that the ones already in the plan are not going to dynamically update.

29. Select the sun angle arrow object and open its specification dialog (**Sun Angle Specification** dialog). Go to the **Arrow** panel and check the **Default** check boxes. Click **OK**. The arrow will now update to the default values.

30. Click the [icon] **Joist Direction** tool button and draw a joist direction line above the existing one in the bedroom. Note that it takes on the default values.
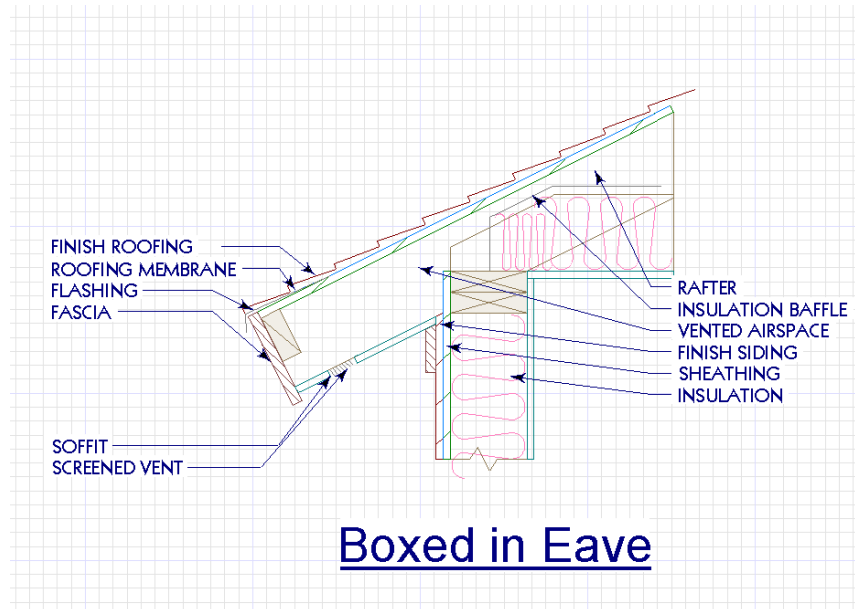
Stairs and ramps have their own default settings.

31. Display the **Default Settings** dialog; expand **Stairs and Ramps**, and then double-click **Interior Stairs**. The **Interior Stairs Default** dialog displays. Go to the **Arrow** panel. Select a different arrow type. Select a different color. When you are finished click the **OK** button.

32. Click **Done** to close the **Default Settings** dialog.

33. Go down to the foundation level, and select the stairs. Open their specification dialog (**Staircase Specification** dialog). Go to the **Arrow** panel and check the **Default** check boxes. Click **OK**. The arrow will now update to the default values. If you were to draw new stairs they would display with the default arrow settings that you just made.

CAN YOU DO IT?

<div style="background-color:green; color:white; padding:8px; display:inline-block;">**PROBLEM NINETEEN**</div>

There are several ways that you can add detailed drawings to your construction plans using Chief Architect.

➢ You can quickly add elements like basic concrete, wall insulation and siding patterns to a cross section view using the [icon] **Auto Detail** tool.

➢ You can obtain blocked detail drawings and components from the **CAD Blocks** section of your **Chief Architect Core Catalogs** or from the **CAD Block and Details** section of the **Chief Architect Bonus Catalogs**. You can use these details just as they are, or you can unblock them and edit them to get what you need.

➢ Applying what you have learned in this section, and in the *"Residential Design Using Chief Architect"* books, you can use Chief Architect's CAD drawing tools and create your own detailed drawings.
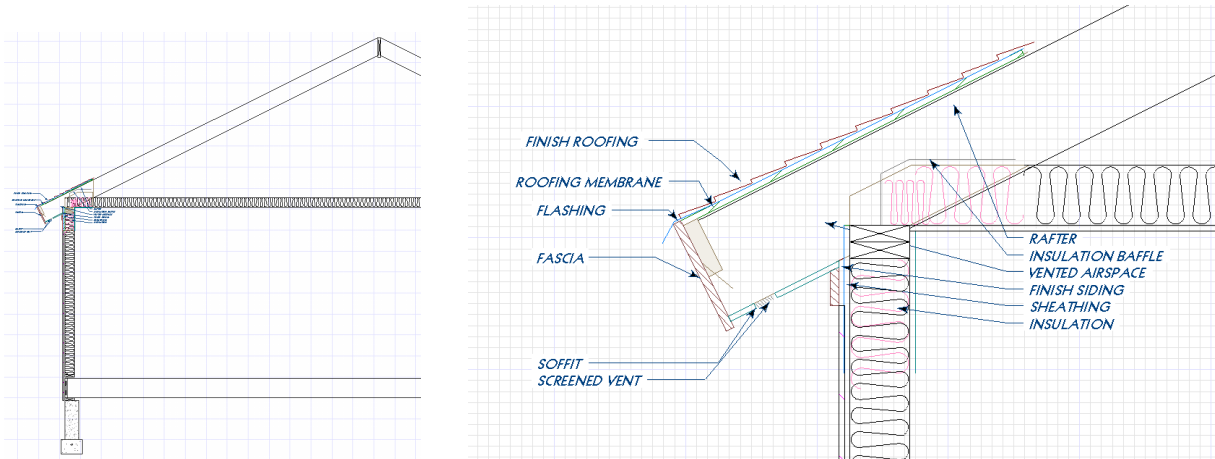
Boxed in Eave

You can use any combination of the above resources. For example, you could generate a cross section view and begin detailing it using the [icon] **Auto Detail** tool. You could then send the cross section view to a CAD detail view (using the [icon] **CAD Detail From View** tool) that you could add a pre-made detail drawing to using the library, where, if necessary, you could unblock the detail, and edit as necessary. You could add even more detail using Chief Architect's CAD drawing tools.

This project exercise will test your knowledge on using Chief Architect's CAD tools to create a new roof detail drawing. Your skills will also prove useful when you need to edit existing drawings. The skills you will need to apply in this project include:

- ➢ Placing and editing components from the library
- ➢ Drawing details manually
- ➢ Positioning details accurately
- ➢ Placing details in a cross section view
- ➢ Adding your drawings to the library so that you can use them in other plans

Develop the detailed roof drawing as shown in the following illustration.

1. Take a cross section view through your building after framing the floor, ceiling, roof, and walls.
2. With the cross section view active, select a framing set.
3. Detail the cross section view using the **Auto Detail** tool.
4. Change the cross section view to a CAD detail view using the **CAD Detail From View** tool.
5. Find the CAD detail block you want to use in the Library (in the example used here, the **Boxed In Eave** detail was taken from the CAD Blocks section of the Chief Architect Core Catalogs). Select the detail block, move the cursor to your detail drawing and click to place.
6. Unblock the CAD detail and edit as necessary. Edit the cross section view as necessary.
7. Accurately place the CAD detail onto the cross section view using the **Point to Point Move** edit tool and the **Select Insertion Point** edit tool.
8. When finished drawing your detailed drawing add it to the library so that you can use it in other plans.