

Training**Quick Demo**

Demo some of the features focusing on the four basic concepts.

Program Screen

Describe the program screen. Show that the program features can be selected from the pull-down menus as well as the various icons.

Remember, all features can be selected from the pull-down menus but not all of can be selected from the icons

Make sure trainee knows about the completes manual, on-line help, and The Learning Center

Lesson One: Overview of The Diagram Program**Fundamentals and Concepts**

There are four basic concepts to completing any drawing in The Diagram Program.

- 1) Draw the building, road, or site
- 2) Place Symbols
- 3) Place Text and Dimensions
- 4) Add a Form, Save, and Print the drawing

The Program Screen

It is important to be familiar with all the parts of the program screen, including the Pull-Down menus, Speedbar, Left-hand Toolbox, scroll-bars, and Message bar.

The Express Menu System

The Diagram Program now offers you two menu settings to choose from; The Standard Menu and the Express Menu. The Standard Menu includes the full set of features and commands. This is the menu set that you are familiar with if you have used Version 4 or 5 of the Diagram Program. The Express menu system displays only the most commonly used features and commands. It is ideal for new users who want to learn the program quickly or for those who only create simple diagrams. To switch between menu systems, click the “Running Man” icon at the upper-right of the screen.

In the Express Menu setup most of the commands are removed from the speedbar and there is no right-hand toolbox. All of the features previously found on the right-hand toolbox can still be opened from the new express-mode left-hand toolbox. The pull-down menus, (located at the top of the program screen) contain the full set of program features and commands regardless of which menu system is selected.

Please Note!! All of the commands and features in the tutorial are performed using the Express Menu.

Pull-Down Menus

All of the program commands and special features can be executed from the Pull-down menus. Most of these commands and special features can also be selected from the speedbar and side toolboxes. Typing in their two-letter code on the keyboard can also perform most of the commonly used commands.

Left-Hand Toolbox

While all of the commands can be found on the Pull-Down menus, the left-hand toolbox offers a quicker way to select many of the most commonly used commands. The commands found on the toolbox are arranged in “Bins” (groups) of similar features such as Drawing/Editing etc. – just as the commands are arranged on the pull-down menus.

The left-hand toolbox also contains the Easy Lines, Easy Builder, Easy Intersection, Symbol Manager, Templates, Lines Types, Hatch and Forms features.

Speed Bar

The Speedbar, located just below the pull-down menus, provides a shortcut for the most powerful, commonly used commands. The speedbar commands can also be selected from the pull-down menus and the left toolbox, but the speedbar provides the fastest way of selecting them.

Message Bar

The Message Bar at the bottom of the screen was created for high visibility viewing of step-by-step instructions for the command that you are using.

Mouse Control

Single-Click – click your left-mouse button once quickly.

Double-Click – rapidly click the left-mouse button twice

Click-and-Hold – Click the left-mouse button once and hold it down while moving the mouse pointer.

It is important that you learn to Single Click, Double Click, and Click and Hold the mouse buttons. Later, when editing, you will also need to hold down the mouse button while you move the mouse, dragging the cursor to a new position. If you are new to Windows applications, learning to use a mouse properly may be the most difficult thing about using the Diagram Program. Be careful to click only once with the mouse for each endpoint when drawing lines, since any accidental mouse click will create an unwanted line segment. If you find that you are getting tiny, connected lines where you don't want them – you are clicking the mouse one too many times!

Right Mouse-Click Menus

A “task-aware environment” keeps track of what command you are performing and uses the right-mouse button to open “pop-up” smart menus allowing for on-the-fly editing and control.

Selecting Commands

The four methods

1. Pull Down menus
2. Left Toolbox
3. Speed Bar
4. Keyboard Shortcut – There are two-letter codes for every command in the program. A complete list can be found in the on-line help.

Auto Backup

If Auto Backup is checked on the settings menu, The Diagram Program will automatically save your drawing at the specified time interval. Only drawings that are named and have been changed will automatically be saved. If you have not yet assigned a name to the drawing, Auto Backup will perform a “Save As” and prompt you to enter a filename.

Training

Real World

Explain actual measurements and real world scale.

Easy Lines

Trainee draws outline of building.

Show trainee that lines that they drew were to actual size by doing a quick dimension.

Have them draw a outbuilding using the Direct/Distance method.

Have the trainee draw primitives (Circle, etc.)

Show the Esc. Key function to undo the last point placed when drawing lines or placing symbols.

Lesson Two – Drawing Lines and Other Basic Objects

You use lines, circles, arcs, boxes, curves, and so on to represent any objects in your drawing that cannot be drawn with symbols or special commands. Drawing lines is the most important lesson to learn. Even without symbols or text, you could still draw anything you needed to show with lines. For example, use lines to draw buildings, parking lots, and streets. Use curves for rivers and use boxes for outbuildings.

Drawing Lines

There are four basic methods of drawing lines:

1. Draw lines using the line commands on the Draw pull-down menu.
2. Draw lines using Easy Lines by entering exact angles and lengths of each line.
3. Direct Distance Drawing
4. Drawing with direct distance and the Ortho Mode command (the builders square icon) to draw lines exactly horizontal and vertical.

Drawing other Basic Entities

There are also commands on the Draw pull-down menu for drawing circles, arcs, boxes, and curves. You can use the Angle Draw buttons and the direct distance method of entering exact distances when you set points for these objects, just as you did when drawing lines.

Tips:

Drawing in “Real-World” scale – As there is an unlimited amount of drawing space on your computer screen, draw everything to its real world size. There is no need to draw anything at a particular scale. Scale only becomes an issue when printing, and then the program will automatically determine the best scale for your drawing.

Correcting mistakes – If you make a mistake when setting a point just press the ESC. Key. This cancels the last point that was set so you can reset that point again. This trick works for almost every command in the program – when you are drawing lines and other objects, placing symbols, placing text, and so on.

Entering Angles – When entering in exact angles and distances, you must have a good understanding of what the angles mean. An angle of 0 degrees is horizontal and to the right. An angle of 90 degrees is vertical and upward. An angle of 180 degrees is

horizontal and to the left. An angle of 270 degrees is vertical and downward. Angles always increase as you move in a counter-clockwise direction.

Training

Have Trainee draw a few lines on the screen and have them snap other objects to them using the various snap commands.

Demonstrate how symbols are placed in a diagram using the snapping methods.

Lesson Three – Snapping for Accuracy

Definition of the term “Snapping”

Snapping ensures accuracy when attaching the cursor to another point or object in the diagram (such as attaching a door to a wall, or wheel centers to markers.) For example, if you wish to draw a line so that it starts exactly on the endpoint of another line; select the line command; use the Snap to Endpoint command to set the first endpoint of the new line so it is attached exactly to the existing line.

The Snap Commands

1. **AutoSnaps** – With AutoSnaps turned on, a snap is performed if an object or point falls inside the target cursor. If there is nothing within the AutoSnaps cursor, the point is placed in the diagram without snapping.
2. **Snap Endpoint** – Used to attach to the endpoint of an existing object. An endpoint is usually the end of a line, or where two points meet such as the corner of a building.
3. **Snap Midpoint** – Used to attach the midpoint of a line, arc, or a side of a box.
4. **Snap Object** – used to attach to an existing line or object at whatever point is closest to the cursor, but not the endpoint. Like attaching a clothes hanger on a closet bar, it doesn't attach to the end of the bar, but rather anywhere in the middle of the two ends.

Note: *to perform any of the snap commands, you must first select the command that you are using (Line, Circle, etc.) and then the snap command second.*

For instance you would first select the Line Command, then select the Snap to Endpoint command. Next you would click the mouse cursor at the end of the line, to attach the cursor exactly to that point. Now you can start drawing from the exact endpoint of the line that you snapped to.

Tips and Tricks:

Whenever you work on a diagram, be sure to Save it to your hard drive periodically! Use the Save As command on the File pull-down menu the first time you save and assign the diagram a file name. After that you can simply click on the floppy disk icon to the left of the Speed bar each time you want to save the diagram.

Training

Real World

Demonstrate how view commands work. Explain that views change the perspective of the drawing only – not the actual size of the contents.

Have trainees practice using Zoom commands.

Lesson 4 – View Commands

There are several different View commands available in the View pull-down menu. These commands do not actually change the size of any objects in your diagram; they simply change how they are displayed on the screen.

For instance, while a zoom-lens on a camera may actually bring you physically closer to the object, only your visual perspective has become larger, the object in the lens has not changed size in the real world.

The most commonly used View commands are:

1. Zoom Window – Use your mouse to draw a window around the object you want to view. The objects that were surrounded by the window are expanded to fit the screen. The objects outside the windows are hidden from view.
2. Zoom All – Causes all of the objects in your diagram to be displayed on the screen.
3. Zoom In/Out – increases or decreases your screen view by half
4. Refresh – Cleans up the screen by clearing up any stray marks or reference lines that were left by editing or erasing.
5. Scroll Bars

Training

Have trainee add some symbols to the diagram. Demo the three different methods of placing a symbol.

- 1) Placed in “Free-space” not attached to another object.
- 2) Place a symbol attached to a wall at one point. (i.e. FDC)
- 3) Place a symbol that is attached to a wall using two points. (i.e. Door, window, etc)

Demo placing symbols with Snaps, Angle Draw commands, Dynamic symbol scale.

Lesson Five - Placing Symbols

Symbols are collections of objects that are grouped together, named, saved, and then placed and manipulated as a single object. You can insert them repeatedly in the same drawing, or save them on disk for use in future drawings. This saves you the time that would be necessary to draw the same objects over and over, and also provides some additional advantages. For example, each symbol is defined just once in the drawing definition, so that repeated placements of the same symbol have little impact on drawing file size. The same symbol can be inserted in different locations, and at different rotations and sizes. Symbols can consist of anything you want, such as a vehicle, a street sign, or even an entire intersection.

Preview what symbols are available to you and select symbols to place in your diagrams from the Symbol Manager. To place a symbol in your drawing simply select it from the appropriate folder in the Symbol Manager (by clicking on its name) and then place the symbol handles by clicking or snapping to specific points in your drawing. From Symbol Manager you can also select options that affect how the symbol is to be placed such as its color and whether it is mirrored on placement. You can also choose whether you want to dynamically size and rotate the symbol as it is placed, or place it at its default size and rotation.

Features of the Symbol Manager

Current Folder - Shows the currently selected folder. Any symbols shown in the list below are located under this folder. If a plus sign is displayed to the left of the folder name, double click on the folder to see the subfolders under it.

Symbol List - Shows all the symbols available in the selected folder. If this area is blank, you must select a folder or subfolder from the list above by clicking on it.

Mirror - Causes all symbols to be mirrored about either a vertical line or a horizontal line when they are placed.

Dynamic Scale - Press this button when you want to dynamically change the size (or scale) of symbols as you place them in the drawing.

Symbol Color - Click on this button to select a color to be applied to any symbol being placed.

Placing Symbols

To place a symbol in a diagram:

1. Select the Symbols button from the left-hand toolbox to bring up the Symbol Manager.
2. Select the folder where the desired symbol files are located by double-clicking on the folder name in the upper portion of the Symbol Manager.
3. Click on any symbol name and move the mouse pointer back into the drawing window.
4. You will see a ghost image of the symbol attached to the mouse pointer.
5. Click or snap to an existing point to place the first handle of the symbol.
6. Move the mouse pointer and notice that you can rotate the symbol as you move the mouse.
7. Move the mouse until the symbol has the desired rotation angle and click the left-mouse button to finish placing the symbol.
8. Select and place additional symbols, or click the close button to exit the Symbol Manager

To place a symbol at any size

Scale a symbol upon placement by clicking on the Dynamic symbol scale button on the symbol manager toolbox. Then click once to place the first reference point of the symbol, move the cursor and notice you can make the symbol larger or smaller. You can also place two markers to create a distance between the symbols reference points before you place the symbol. Snap the symbols reference points to the markers to achieve an exact distance.

Exploding and Modifying Symbols

To stretch, break, trim or extend any part of a symbol, you must first explode it using the Explode feature. You can select Symbol Explode from the Edit/Modify pull-down menu or by clicking on the Dynamite icon on the symbol manager. This explodes the symbol into all of the lines, arcs, and circles that make it up so you can modify it.

Training

Demo Select and de-select procedures.

Click on entity.

Drag left-to-right Window select.

Drag right-to-left crossing select.

Multiple Select using the Shift key.

Lesson Six – Selecting and Editing Objects

Before you modify the drawing by moving, Copying, or erasing objects, you must first select the objects to modify. When objects are selected they change their color and are enclosed in eight control points or handles that show you what exactly has been selected.

The Main Selection Methods

Mouse Methods

1. Click on an object to select it.
2. Click, hold and drag your mouse left-to-right to create a selection window around an object to select it.
3. Click, hold, and drag your mouse right-to-left to create a crossing window through a object to select them.
4. Hold down the Shift key as you click on additional objects to add them to your selection.

Selection Toolbar – when you chose an edit command with no objects pre-selected, a toolbar containing the various selection commands appears automatically at the top of the screen in place of the Speed Bar. Use the selection commands to select the desired objects in the drawing, and then click the OK button at the right-end of the toolbar.

Editing Features

The Main Editing features

1. Copy Commands
2. Move
3. Break
4. Rotate
5. Undo/Redo

Most of the editing commands are “right-mouse” menu sensitive. While performing one of the editing commands, right-click to open the “pop-up” menu that contains shortcuts, snap commands and settings that speed up the edit that you are performing.

Tips:

Edits with Snapping – many times you will want to move or copy an object so it is attached exactly to another object. Use your snaps commands to ensure accuracy in doing this.

Editing Symbols – You must first explode symbol (the Dynamite icon) to modify the individual parts that make the symbol up.

Training

Show the elements of the Text toolbox.

Single line text

Paragraph Text

Placing Text at an angle

Right mouse click to edit text.

Add a label

Repeat option

Text w/arrow option

Dimensions

Show the elements of the toolbox.

Vertical, horizontal, angled dimensions.

Edit a dimension.

Lesson Seven - Text and Dimensions

Use the Quick Label commands to place notes and labels in your diagrams. The Quick Dimension command is used to dimension lengths of line and other objects.

Placing Text

To place text in the diagram:

1. Choose the Quick Label command from the Quick menu on the left-hand toolbox.
2. Click in the Enter Text field in the upper-left corner of the text toolbox.
3. Type in the text or choose one of the pre-defined labels by clicking on the desired label from the list.
4. If necessary, adjust the size of the text by clicking on the “larger” or “smaller” text buttons.

Move the mouse pointer into the drawing window and notice a bounding box appears which expands as you change the text in the text box. This box shows the currently selected size and rotation for the text. You can change the text properties at any time before you place the final point and the bounding box is updated to reflect the changes. Any settings you choose will apply to the whole line of text.

5. Click or snap a point to anchor the lower-left corner of the text.
6. Move the mouse pointer and notice that you can rotate the text around the anchor point.
7. When the text has the desired rotation angle, click or snap to finish placing it. To place the text horizontally you can simply press the Enter key for the final point.
8. Place additional text or click the Close button to exit the Quick Label Toolbox.

To edit text once it is placed in the drawing simply select the desired text by clicking on it and re-select the Text button from the left-hand toolbox or click the Edit Button on the left-hand toolbox. The text toolbox appears with the selected text in the Text field. Make any changes to the text and click the OK button to complete the changes.

The Text toolbox contains some predefined text labels and you can also add and remove your own labels.

To add a Quick Label to the list:

1. Type the desired label in the Enter Text field.
2. Click the Add Label button.
3. When prompted to add the label, click the Yes button.
4. The label now appears in the predefined list.

To remove a predefined label:

1. Select the label to be removed from the label list.
 2. Click the Remove Label button.
 3. When prompted to remove the label, click the Yes button.
- The label is now removed from the label list.

You may also place a Leader using the Quick Label feature by checkmarking the “Show Arrow” option. Leaders (or “call-outs”) are notes that identify or call attention to objects or areas in the drawing. An arrowhead-tipped line connects the object to a block of text.

To place a leader, or a Text Label with an Arrow:

1. Select the Quick Label icon.
2. Checkmark the Show Arrow option on the Templates toolbox.
3. Type the leader text in the Enter Text field.
4. Change the Text height, if desired.
5. Move the mouse pointer and notice a ghost image of the leader attached to the mouse pointer.
6. Click or snap to set the tip of the arrowhead.
7. Click to set the second endpoint of the leader. The leader text will appear next to the leader shoulder. As you move the mouse pointer to the left or right, the leader text will “flip” to the opposite side of the shoulder. Remember that the final segment or “shoulder” will be drawn automatically to connect the leader lines to the text block.
8. When the text is placed where desired, click to place the leader text.

Placing Dimensions

Use the Quick Dimension command to measure a distance and display it in the drawing. Normally, dimensions are used to show the length of an object, like a building, or to show the distance between objects.

To place a Quick Dimension:

1. Choose the Quick Dimension command from the Quick menu on the left-hand toolbox. (You can drag the Dimension Dialog box around the screen if it gets in the way.)

The first point should be placed precisely using the AutoSnaps command, since it will be the basis for the measurement.

2. Click the AutoSnaps icon from the Speedbar to turn it on.
3. Snap to select the first point the dimension. Snap again to the second point
4. As you move the mouse pointer, a dynamic preview of the dimension now appears, constrained to move perpendicular to the dimension direction. You can place the dimension on either side of the line you are measuring.
5. If needed, you can dynamically change the size of the text by clicking the “Larger” and “Smaller” text buttons on the Quick Dimension dialog box.
6. You can overwrite the text of the dimension by clicking in the dimension text field and entering a new value. This text will be placed in the dimension instead of the actual measurement between the two points.
7. Drag the dimension line to the desired location away from the dimensioned object, and click to place a point to complete the dimension.

Note: The Quick Dimension dialog box remains open until you close it.

**Training
Real World**

Show elements of toolbox

Have trainees create simple outline of building.

Create interior walls using markers

Create an outbuilding using markers and lines

Place a symbol between two points using markers, and snaps.

Lesson 8 – Using Easy Lines

There are several ways to draw lines in The Crime Zone, but the Easy Lines command, available on the Right-Hand Toolbox, provides one of the easiest ways to draw a building or anything with lines to exact measurements. This is the best way to draw lines when you want to ensure their complete accuracy, as opposed to using the standard Line command.

As soon as the Easy Lines command is selected, a special toolbox is displayed that you use to easily select the angle and length of each line segment you wish to draw. You can continue drawing as many connected line segments, as you need.

For example, to draw a building with the Easy Lines command:

1. Click on the Easy Lines button on the Right-Hand Toolbox.

The Easy Lines Toolbox is then displayed which consists of a ‘compass’ of arrows pointing in different directions and a numeric keypad.

2. Click on the bulls-eye button in the center of the compass.
3. Click in the diagram to place the first corner of the building.

This sets the first endpoint of the line at the upper-left corner of the building. Click on one of the arrow keys to select that angle as the direction you wish to move away from the Start Point for the line segment. Next, click on the desired value on the Toolbox’s numeric keypad for the length of the line segment. For example, to enter the direction and length of the first line segment for the left-vertical wall of the building:

4. Click on the downward arrow on the Easy Lines Toolbox to signify drawing downward from the Start Point. An angle of 270 degrees is displayed in the Angle box towards the bottom of the Toolbox.
5. Using the numeric keypad on the Toolbox click on a length of 150 (for the Metric version, enter a distance in m). This distance is displayed in the Distance box near the bottom of the Toolbox.
6. To finish the first line segment, click on the Line icon in the lower left corner of the Toolbox:

The line segment is then drawn on the screen, between the initial Start Point you selected and a new endpoint 150' away, at an angle of 270

degrees. Next, continue drawing the remaining line segments of the building, in consecutive order.

7. Click on the right arrow to select a drawing angle to the right.
8. Select 75 for the distance from the numeric keypad.
9. Click on the Line icon to draw the second line segment.
10. Continue to enter the direction and distance for each side of the building.

You can execute any of the View commands while you are drawing lines so you can zoom in and out on the area of the diagram where you are working, as needed.

If you wish to "pick up the pencil" and start drawing lines from a new starting pointing, click on the Bull's Eye icon in the middle of the angle arrows. This allows you to select a new Start Point for the next line segment.

If the angle of a line you wish to draw is not represented by one of the arrow keys, simply click once inside the Angle box on the toolbox and then select the desired angle from the numeric keypad (or the regular keyboard). Similarly, to edit an angle or a distance value, click inside the text display box and use the keyboard to edit the value normally. Once you click inside the Angle or Distance box, select the C button on the toolbox to clear, or erase, the value that is currently displayed in that box.

Tip:

Each line segment drawn with the Easy Lines command is a separate Single Line object. You can select them and edit them individually, unlike line segments drawn with the Continuous Line command.

The Marker command also causes the Easy Lines Toolbox to be displayed on the screen. Markers are placed with exactly the same method as Lines, except you complete the entry of each angle and distance by selecting the Marker icon from the bottom of the toolbox instead of the Line icon.

Other features available on the Easy Lines Toolbox:

Survey Mode - This button will change the angle values of the Easy Line angle arrows to be compatible with how Surveyors traditionally measure angles. It changes the top arrow from 90° to North or 0°. The angles then increase positively clockwise. What was 0° becomes 90° and so on. When you're in survey mode you will notice that the bulls-

eye is changed to a compass. Click on the Survey mode button again to return to normal Easy Line angles.

Measurement Modes - The bottom three buttons will let you switch quickly between the different Easy Line measurement modes - Normal Easy Lines, EZ Baseline, and EZ Triangulation.

EZ Baseline - Baseline Easy Lines is used to set points (markers) based on baseline measuring procedures. When you switch to EZ Baseline the arrows change to the color green so you know you are in Baseline mode. The angle field changes from A: to D1: (for distance 1) and the next field is D2: Also notice that the Line button (next to Marker) is missing. The arrow buttons are actually inactive. You have no need to enter an angle when doing baseline point entry.

To place points using the Baseline Easy Lines Method:

1. Click on the bulls-eye to set the Base Point.

Click anywhere on the screen to set your base point. The base point will be shown as a green circle with cross hairs inside it. Like a permanent marker, you will have to erase it manually if you want to remove the base point.

2. After setting the base point you will be prompted to show the direction of the baseline. Move in the desired direction - (left, right, up, or down,) and click to accept the direction.

Note: If you want to set the angle of your baseline to anything other than 0° , 90° , 180° , or 270° then move up to the speedbar and click on the Angle Draw "Off" button. The default mode is to set the baseline angle with the Angle Draw features, but you can actually use any angle.

3. Click the number pad and enter the first distance (D1:). This is the distance along the baseline from the base point.

Tip:

If you enter a negative number for D1: the distance will be along the baseline in the opposite direction.

4. Click in the second field (D2:), or press the Tab key. The distance you enter here is the distance perpendicular to the baseline.

5. Click on one of the marker buttons, either the temporary (blue) marker or the permanent (red) marker.
6. Repeat steps 3 through 5 to place as many markers as you need.

Once the markers are placed in the drawing you can snap lines or vehicles to them so they are placed exactly at the desired location.

Tip:

If the marker is placed on the wrong side of the baseline then click on the "Flip" button and pick the marker again. It will place the marker on the opposite side of the baseline. Once you select the Flip feature it will stay selected until you click on it again.

Tip:

The Flip feature does not change the direction of the baseline, only the side of the baseline where the point is positioned. Only the D2: distance is affected by Flip. To change the direction of the D1 distance and move along the baseline but in the opposite direction, enter the D1: distance as negative

EZ Triangulation - With triangulation measurements, two reference points are set which become the center points of the triangulation circles. Other points are located as being at the intersection of the two circles based on radius measurements. For example, a point may be located so it is at the intersection of a 50' radius circle centered on the first reference point and a 125' radius circle centered on the second point.

When you switch to EZ Triangulation you'll notice the color of the arrows changes to red so you always know which mode you are using. The arrow buttons are inactive since you have no need to enter an angle when doing triangulation point entry. The angle field changes from A: to D1: and the next field is D2: The Line button (next to Marker) is missing, as Triangulation Easy Lines is used just to set markers based on triangulation measurements.

To enter points using the Triangulation Easy Lines Method:

1. Click on the bulls-eye to set the reference points.

Note: Unlike in previous versions, no message will pop up that prompts you to pick a start point. All messages are displayed in the dialog box at the bottom of the screen.

2. Click or snap anywhere on the screen to set your first reference point. Click anywhere on the screen to set your second base point.

Be sure to use Direction-Distance entry or snaps to locate these reference points exactly.

The base points will be shown as magenta colored triangles with cross hairs inside them. Just like a permanent marker, you will have to erase these points manually if you want to remove them from the drawing.

3. Click on the number pad to enter the first distance (D1:). This is the length of the radius from the first reference point to the marker.
4. Click in, or tab to the second field (D2:). This is the length of the radius from the second reference point to the marker.
5. Now pick a marker, either a temporary (blue) marker or a permanent (red) marker. Where the two radii intersect (entered above) is where your marker will be placed. If the marker is on the wrong side of the baseline then click on the "Flip" button and select the marker again. This will place the marker on the opposite side of the reference points. Once you select the Flip feature it will stay selected until you click on it again.
6. Repeat steps 3 through 5 to place the remaining points.

Training

Show features of Easy Streets toolbox.

Have Trainee create simple and complex road sections.

Cover Multi-lane intersection clean and Fillet commands to complete intersections.

Lesson Nine – Using Easy Streets

The Easy Street toolbox allows you to convert a selected line, arc, curve, or circle into a roadway. You select options on the toolbox to define the number of lanes, individual lane widths, and centerline types.

To draw a street or road using Easy Streets:

1. Draw a single line, arc, or curve that will be the guide, or reference object, for the street.
2. Click on the reference object to select it.

You may draw multiple objects attached together to define the street, for example by attaching an arc or curve to a line. Once the lanes are defined with the Easy Streets toolbox, you can quickly apply them to each part of the street.

3. Select the Easy Streets command from the right-hand Toolbox.
4. Click in the box to "turn on" each lane. A lane that is turned on is marked with an X. You can define a road of up to ten (10) lanes.
5. Enter a width for each individual lane.
6. Click in the Line Type column for each lane to bring up a pull down list of centerline types. Select a centerline type for each lane.

The number of lanes and centerline types is displayed in a preview window at the top of the Easy Street toolbox.

7. If you have not already selected the reference line in the diagram, you can do so now.

Three buttons at the bottom of the toolbox allow you to change how the lanes are applied to the reference line, whether the reference line is at the top, center, or bottom of the lanes.

8. Click on the "OK - Apply" button.

The lanes you've defined will appear on the screen referenced off the guideline you selected. You can still toggle between the different reference line buttons at the bottom of the toolbox and see the effect in the drawing. You can also change the line type and lane settings on-the-fly and see the changes reflected in the diagram.

9. When you're satisfied with the street click on the "FINISH" button. Note: The "Apply Road" button changes to "FINISH" once the lanes have been applied.

From this point you can select the next line, arc, or curve and then click the Apply button to apply the same lanes to another section of the street. Alternatively, or you can build a completely new model.

Other features available on the Easy Streets Toolbox:

Erase Guideline - The "Erase Guidelines" button is located next to the "Apply Road" button. This button is a toggle that is ON when depressed. If it is ON then the selected guideline will be erased when you click on "FINISH."

Reset - The first time you click the "Reset" button all of the lanes will reset themselves to 12 ft wide. Then second time you click "Reset" the lanes will reset back to two lanes with a dashed centerline. Note, if you have more than two lanes but they're all set to 12 ft, then the first time you click on "Reset" the values will go back to two lanes with a dashed centerline.

Intersection Clean - This feature is the same as the Multi-Lane Intersection Clean command on the Modify menu. Use it to erase the unwanted lines that run through the center of the intersection. Refer to the help on that topic for more information.

Flip - Click on "Flip" to mirror the values and lane line types you've set for your road. This gives you more flexibility to ensure that your road comes out as expected.

Tip

Try making guidelines using a continuous (poly) line, arc, curve, square, circle, ellipse, and polygon. They all work!

You can use lane widths and line types to simulate sidewalks, medians, roadsides, and so on. You can use the special line types for guardrails, walls, dividers, shrubs, cones, barrels, railroad tracks, fences, skid marks, and so on.

Warning

If you click to turn off a lane that is between other lanes, you won't see a centerline displayed for that lane, but any width value other than 0 will still affect the overall width of the street.

Training

Show features of Bodies toolbox.

Have Trainee create and place body.

Take trainee through the process of posing bodies using Selection and Rotate commands.

Lesson 10 – Placing Bodies

Use this toolbox to place a body in a drawing by selecting a gender, height, build type, and view.

To place a body:

1. Choose the Utilities menu, then choose the Bodies command or select Bodies from the right-hand toolbox.
2. Make the desired selections from the toolbox, then click the Place Body button.
3. Click in the drawing to place the feet of the body. You should see a ghost image of the body attached to the mouse pointer at the feet (assuming you are zoomed in enough).
4. Move the mouse pointer slowly and notice the body rotate about the anchor point (the feet).
5. When the body has the desired rotation, click the mouse again.

Once placed in a drawing you can select any of the body parts and rotate them to show exactly how the body was found.

Features on the Body Toolbox

Flip button - use this button to create a mirror image of the body when using a side view, walking, or sitting body.

Preview window - this window shows a preview of the body according to the current selected options.

Gender - Click on a button to select a male or female body.

Length - Enter the height of the body in feet and inches or the metric equivalent.

Build - Choose from one of the four available body builds; slight, medium, heavy or skeleton.

View - Choose from one of the four available body views: front, side, walking, or sitting.

Place Body button - Click this button when you have set all the options and are ready to place the body in the diagram.

Training

Show features of Easy Intersection toolbox.

Have Trainee create intersections.

Demonstrate how to create complex road sections using Easy Intersection along with Easy Streets and other tools.

Lesson 11: Using Easy Intersection.

The Easy Intersection wizard allows you to create an intersection by simply clicking and selecting from the various options. (You may also display the Easy Intersection Toolbox at any time by clicking on the button labeled Easy Intersection on the left-hand toolbox.)

Features on the Easy Intersection toolbox:

Display Window - This is where you view the intersection model as it is being built.

Road Segment boxes - Check mark the road segment boxes to add a road segment to the intersection.

Lane Number Option - Click the arrows to increase or decrease the number of lanes in each road segment.

Road Length Bar - Move the slider arrow to increase or decrease the overall road length.

Place Intersection Button - Click this button to place the completed intersection in your drawing.

Rotation Handles - Drag this square to rotate the road segment to a new angle.

Options button - brings up the following dialog box with the following options:

Lane width - Sets the overall width for the lanes of the road segments.

Road Length - Sets the maximum length of an individual road segment. This number determines how big you can make the intersection when using the Road Length slider. (Ex. By setting the maximum length to 1000 feet, the two road segments opposite of each other would create an overall intersection length of 2000 feet.)

Fillet Radius - Used to round the corners of the intersection. Un-check the box next to Fillet Radius if you want square corners (90 degrees).

Center Lane Type - Use this option to choose either dashed or solid center-lines. If you want some other line type (such as a double solid center line) you must place the intersection first, then select the line to be changed and choose one of the line types from the Properties menu on the left-hand toolbox.

To draw an intersection using the Easy Intersection toolbox:

1. Select Easy Intersection from the Left-hand Toolbox.
2. Build the intersection you want to place in the diagram by check marking the road segment boxes.
3. Click the arrows to increase or decrease the number of lanes in each road segment.
4. Move the Road Length slider to the left or right to increase or decrease the length of the road segments.
5. Drag the red rotate handle to adjust the angle of a section, if needed.
6. Click on the Place Intersection button to place the intersection in the diagram.

Training

Show features of Templates toolbox.

Demo creating and adding a template to toolbox.

Lesson 12: Using a Pre-Drawn Template

The “Load a Template” toolbox allows you to preview and select pre-drawn templates roads and intersections. The pre-drawn templates that are included with the Diagram Program are all stored in sub-folders under the main Templates folder. You may also display the Templates Toolbox at any time by clicking on the button labeled Templates on the left-hand toolbox.

To place a template in your drawing;

Simply select it from the appropriate folder in the templates toolbox (by clicking on its name) and clicking Open Template. Then place the template in the diagram by clicking or snapping to a specific point in your drawing.

1. Select the Template button from the right hand toolbox to open the “Load a Template” toolbox.
2. Select the desired Template folder from the Template toolbox clicking on the folder name in the upper portion of the templates toolbox.
3. Click on any template name and notice a preview of the symbol appears in the upper-right of the toolbox.
4. Click the Open Template button and move the cursor back into the drawing window. Notice an outline of the template attached to the cursor.
5. Click the left-mouse button (or snap to an existing point) to place the template in the drawing window.

To create a new folder in the Templates directory:

1. Click the Create Folder button on the Template toolbox.
2. A “Create Folder” Dialog box will appear prompting you to enter a name for the folder.
3. Click in the blank field, type the desired name of the folder, and click the OK button.
4. The new folder is saved under the Templates directory.

To create and save a new Template:

1. In the Template toolbox navigate to the desired folder where you want the custom template to be saved.
2. Click the Save Template button on the Template toolbox.
3. A “Save Template” dialog box will appear prompting you to save the new template in the currently selected folder. If this folder is not correct, click the Cancel button and repeat Step One.

4. Click in the “Enter Template Name” field and type the desire name of the custom template.
5. Click the OK button to save the new template in the selected template folder.

Training

Show features of Easy Builder toolbox.

Have Trainee create simple and complex room sections.

Lesson 13 - Using Easy Builder

The Easy Builder toolbox provides an easy method to create basic building shapes in your diagrams. It allows you to create a building outline by simply clicking and selecting from the various options. You may display the Easy Builder Toolbox at any time by clicking its button on the side toolbox.

Features on the Easy Builder toolbox

Basic Shape Icons – Click these icons to select a basic shape and load it into the Model Window. Choose a shape that most resembles the building you are going to be drawing. In most cases the basic shape will not be an exact model of your building, but you may quickly edit the shape using the Wall Length Fields and Control Handles.

Wall Length Fields – Use these fields to dynamically change the lengths of the wall for the labeled section. The lettered fields correspond directly to the same-labeled wall section displayed on the Basic Shape Icon and in the Preview Window.

For example, the basic building model shown above has eight sides labeled “A” through “H.” Clicking the wall length arrow for the line section labeled “A” will dynamically increase or decrease the length of line “A.” The program will automatically adjust the opposing line to match the length of the line segment you just edited.

As you increase the length of side A, the model will eventually fill up the preview window. If you continue to increase the length of side A, the other sides in the model will actually appear to get smaller. This is because the preview window is showing the relative size of all the sides of the building – since side A is shown as large as it can be, the other sides appear to be reduced. This is more obvious if you click the Show Dimension icon so the lengths of each side are shown on the model preview.

You may also click inside any of the Wall Length fields and manually enter a dimension. This is useful if you already have the dimensions of the building recorded and you want to draw the model of the building without using the Wall Length Arrows. When manually entering dimensions the changes are made in the Preview Window as soon as you click a different field or press Enter.

Model Preview Window – This window displays a preview of the shape that you are building. It allows you to see the building model and manually edit wall lengths by clicking and dragging on them. Also included within the Preview Window are icons used to adjust the building model before placing it in the diagram.

90° Icon – Clicking this icon rotates the building 90° in a clockwise manner.

Mirror X and Mirror Y Icons – Clicking either of these icons “flips” the building model across the horizontal or vertical axis, depending on which mirror icon is chosen.

Show Dimension Icon – Clicking this icon toggles the preview window between showing a labeled dimension, or a green “control handle.” When in “dimension mode” the letter label and the length of the line are displayed. These labels correspond with the labels in the Wall Length Field.

When in “Control Handle” mode, green control handles are displayed on each wall section. Click and hold one of these handles to manually reposition the selected wall section. As you are dragging the wall section, all the dimensions are displayed so you can visually determine the length of the wall section as you move it. Note that the Wall Length Fields also dynamically update to reflect the new length of the wall sections. When the wall section is at the desired position, release the mouse button and the green handles are displayed again.

Options - The Options Toolbox allows you to customize the Easy Builder settings in the following manner:

Incremental Step – Adjusts the increment (in feet) used to drag a line with the Control Handle method.

Building Length Fields – Allows you to set the minimum, maximum, and default building lengths for the basic model shapes.

Place Bolded Lines – Checkmark this option to have the building drawn in a bold linetype when it is placed in the diagram.

Building Length Slider Bar – Dynamically changes the overall size of the building as you move the slider bar. The maximum and minimum sizes that can be adjusted with the Slider Bar are set in the Options Toolbox. Drag the slider bar left or right to resize the building.

Place Building – Use this button to place the finished building model in the diagram. When clicked, the Easy Builder toolbox is closed and you see an outline of the building attached to the mouse pointer. Just click or snap to place the building in the diagram.

To draw a building using the Easy Builder toolbox:

1. Select Easy Builder from the Left-hand Toolbox.
2. Build the basic building shape by clicking one of the Building Shape Icons.
3. Change the wall lengths of your building model by adjusting the length of each wall section or click on the “control handles” in the preview window and drag them to a new position.
4. Click on the Place button to place the building model in the diagram.
5. Click or snap to position the building in the diagram.

Training

Show features of Bubble text toolbox.

Have Trainee create and place bubble text.

Lesson 14 - Using Bubble Text

The Diagram Program allows you to place Bubble Text “markers” to draw attention to witness, sample, photo, evidence, and other items located in your diagram

The Bubble Text command is found on the left-hand menu of the Text & Dimension pull-down menu. You can choose Witness, Evidence, Photo, Sample, or a generic Bubble marker to place in your diagram.

Clicking a marker icon causes it to be displayed in the preview window, whereupon the bubble text can be edited. The Witness, Evidence, Photo, and Sample labels are edited by clicking the “Up and Down” scroll arrows to change the label numbers. The all-purpose bubble text is changed using the standard Windows method of editing text; just click inside the text field, and re-type over the existing text.

Clicking on the “Larger and Smaller” text icons changes the text height if desired. The color of the bubble may be changed using the Color Palette button. You are also given the option to bold the text and to “Show Arrows” attached to the Bubble Text (to point at a specific object or point in the diagram.)

To place Bubble Text

1. Select the Bubble Text command from the left-hand toolbox.
2. When the Bubble Text toolbox appears, select the desired bubble type, such as the Photo Location marker.
3. Click on the arrow buttons to enter the number 12 for the photograph number and 1 for the roll number (or click in the text field and type in the numbers.)
4. Move your mouse pointer into the Drawing Screen and click the left-mouse button once to place the tip of the arrow of the bubble label.
5. Move your mouse pointer to position the bubble text to the desired location in the diagram and click the left-mouse button to finish placing the text bubble.

As long as the bubble label dialog box is displayed you can continue to place additional bubbles. Click “close” to finish placing bubbles. Like all “floating toolboxes” you can drag the bubble label toolbox out of the way if you need to.

Training

Demo Special Text command.

Have Trainee create and place special text in diagram.

Lesson 15 - Using Special Text

Use the Special Text command to place textual information for an exposure, insured area, gravity tank, or stack.

For example, use the Exposure text to place information on an exposure in your diagram. When you select this command you are prompted to enter four pieces of information:

The Occupancy Name or description of the exposure.

The year the exposure was built.

The type of construction used for the exposure.

The overall dimensions of the exposure.

The sprinkler system present - fully sprinklered, partially sprinklered, or no sprinklers.

To create an exposure, follow these steps:

1. Draw a box or use lines to draw the outline of the exposure.
2. Select Special Text from the Text/Dimension pull-down menu or select it from the left-side toolbox.
3. Select the Exposure Text command.
4. Type in the name of the occupancy for the exposure.
5. Type in the year the exposure was built.
6. Type in the type of construction used for the exposure.
7. Select the type of sprinkler system in the exposure by clicking the appropriate radio button:

Fully Sprinklered

Partially Sprinklered

Non-Sprinklered

8. Click the OK button to close the Exposure Text dialog box.
9. Move the mouse pointer to position the text inside the exposure and click to place it.

The Insured, Gravity Tank, and Stack Text are all placed using the same method. Only the information you enter is different for each type of text.

Insured Text

Use the Insured's Text command to place textual information in a building, such as that commonly used for insurance purposes. When you select this command you are prompted to enter four pieces of information:

The building name.

The description of the building occupancy.

The year the building was built.

The type of construction used for the building.
The dimensions of the building.
The sprinkler system present - fully sprinklered, partially
sprinklered, or no sprinklers.

Gravity Tank Text

Use the Gravity Tank Text command to place textual information related to a gravity tank. When you select this command you are prompted to enter three pieces of information:

The capacity of the tank.
The height of the bottom of the tank.
The distance that the tank is above the top line of the sprinkler
in the building.

Stack Text

Use the Stack Text command to place textual information related to a stack. When you select this command you are prompted to enter three pieces of information:

The height of the stack.
The stack construction.
The type of stack.

Training

Demo line types menu.

Have Trainee draw and change line types.

Lesson 16 – Drawing using Line Types

The Line Types menu is used to set the line color, line type, and the line thickness for new objects that you draw or for selected objects that you want to change. Once a line type is selected, any new entity drawn will be drawn with that line type until another Line Type is selected. For instance, if you want to draw a dashed line in a thick red style you select that line type in this toolbox, and then select the Line command.

There are line types that are simple patterns such as dashes and dots, or more complex line types like railroad tracks, fences, footprints, guard rails, and so on. These line types work with any of the Draw commands such as Continuous Line, Arc, Curve, Circle, Rectangle, and Polygons. Even though some of the Line Types are complex, they can be broken, moved, and modified just like any other single object drawn in the program.

To draw a line using different line types:

1. Select Line Types from the left-hand toolbox.
2. Select the desired Line Type from the Line Type toolbox.
3. Select one of the draw commands from the left-hand toolbox.
4. Draw any object on the screen, such as a line or arc.
5. The object will be drawn with the selected Line Type.

To change the Line Type of an existing object:

1. Click to select the object whose line type you want to change.
2. Select Line Types from the left-hand toolbox.
3. Select the desired Line Type from the properties menu.
4. The selected objects are changed to have the selected Line Type.

Training

Demo borders and title block menu.

Have Trainee add/edit a border and a Title Block to a drawing.

Lesson 12 – Form, Auto Scale and Printing

The Forms feature is used to automatically place a rectangular border around your diagram. This makes it easier for you to print the diagram at a specific scale. These borders “preset” many of the options for you that would normally have to be done when you print the diagram.

To place a form around your finished diagram;

1. Select the Forms feature from the right-hand toolbox.
2. Use the various buttons displayed on the toolbox to adjust the paper size, orientation, and scale at which you wish to print the final diagram.
3. Choose the paper size from the toolbox
4. Choose the paper orientation (Portrait, Landscape, or Best Fit) from the toolbox.
5. Enter a Drawing Scale
6. Select the Place Border button to place the border.

Based on the selected paper size and orientation, the print border is placed around the diagram and the print scale is automatically calculated. The scale value that is calculated (such as 1” = 25”) refers to the scale that diagram will have when it is printed.

Place a Title Block

The last (optional) step is to place a Title Box within the Print Border so that you can add important textual information about the diagram to the form.

1. Select the desired options for the Title Block from the toolbox:
 - Show Box** – Check mark this box if you wish to display the Title Bloc within your drawing border.
 - Cols** (columns) – Use the Columns box to split your Title Block into several columns, allowing you to display the information in a more compact manner.
 - Corner Icons** – You may change the position of the title block on the border by clicking on any of the “Corner Icon” buttons at the bottom of the Forms toolbox.
2. Click the Title Block setup icon to open up the Title Block text entry dialog box. Use this box to enter the actual text information you want to appear in your title block.
3. Checkmark the first square in the Window to activate the field.
4. Click in the Label field and type in the desired information. (ex. Address)

5. Click in the String field and type in the desired information.
(12314 Maple)
6. Use the same procedure to enter in additional information on consecutive lines of the Title Block.
7. Click OK to display the title block in the diagram.

Tip:

Make changes or update your Title Block at any time by clicking the Title Block Setup icon. The setup dialog box will appear with the current title blocks information displayed.