

# FARO®



# FireZone

2D/3D Diagramming Software

Version 10  
March 2016

FARO® FireZone Version 10.6  
March 2016

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# Chapter 1: Introduction to the FireZone and the InsuranceZone

The FireZone™ and InsuranceZone® 2D/3D diagramming programs are identical in function and differ only with industry-specific catalogs and terminology. This user manual applies to both applications, and contains all general information and specific instruction to use FireZone and InsuranceZone.

## Additional Training and Support

CAD Zone offers additional training and video support on the company website; <http://www.cadzone.com>.

For immediate help, you may contact the CAD Zone support team:

Email support: [support@FARO.com](mailto:support@FARO.com)

Phone Support: **503-641-0334** (Monday-Friday, 7:30 a.m. - 5:00 p.m. PST)

FAX: **503-641-9077**

## Compatibility

All CAD Zone Diagram Programs can import drawings from most other CAD programs, including AutoCAD®, AutoSketch®, Generic CADD®, and previous versions of The FireZone and The InsuranceZone with no conversion.

Diagrams can be saved to .BMP, .WMF, and .JPEG formats for easy placement into text documents, or .PDF, .DXF, .DWG for portability.

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The InsuranceZone is a registered trademark of FARO Technologies.

AutoCAD® is a registered trademark of Autodesk, Inc.

Adobe® Acrobat® is a registered trademark of Adobe Systems, Inc.

## System Requirements

The following are the recommended hardware and software requirements for The FireZone or The InsuranceZone:

### Hardware

- 32-bit (x86) or 64-bit (x64) with a Pentium 4 or better central processor
- 4 GB of RAM or greater.
- 8 GB of free hard drive space
- Minimum screen resolution is 1024 x 768 pixels.

### Software

- Microsoft Windows 7 (64 bit only), 8 or 10.

### Graphics Card

- A CAD-compatible graphics card, such as a NVIDIAr Quadro 2000 or better, is recommended.

## Licensing CAD Zone Software

Each purchased copy of the software may only be installed on a single computer via an Access Key.

## Evaluation Mode

The program is initially installed in Evaluation Mode. The program can be opened 10 times with access to all program features. Once opened an 11th time, the program will not be able to save diagrams until the software is licensed. An Access Key is required to license the program.

***The Access Key is unique to each computer and is not included in your software package.***

## Determining the Computer ID

The Computer ID is required for each of the three methods for obtaining the key. Follow the steps below to determine the Computer ID.

1. Open the CAD Zone program.

2. Select the **Help** pull-down menu.
3. Select **License**.

**Result:** The Registration dialog box will then open with the Computer ID of the computer. This ID is required for each of the following methods of obtaining an Access Key.

### Licensing Software Via Email:

1. Open the program and to the Registration dialog box.
2. Click the **Get Access Key Via Email** button.
3. Enter customer information in the displayed form.
4. Click **Submit Email request for Access Key**.

**Result:** An Access Key will be emailed no later than the next business day.

5. Enter the Access Key into the Registration dialog box.

**Result:** The program is licensed for full, perpetual use.

### Licensing Software by Phone:

Phone registration is accepted Monday through Friday, 7:30 am to 5:00 pm Pacific Time.

1. Determine the Computer ID (see above.)
2. Call **The CAD Zone** support team at 800-641-9077 and provide the Computer ID.
3. The Access Key will be generated and read over the phone.
4. Enter the Access Key into the Registration dialog box.

**Result:** The program is licensed for full, perpetual use.

## Learning CAD Zone

The CAD Zone support team provides several options to learn the software functionality. Most required on-line access.

### The Drawing Center

The Drawing Center is displayed upon program startup, offering options to start a diagram, as well as commands for opening [www.cadzone.com](http://www.cadzone.com) to the training page. Training materials include tutorials for those new to **CAD Zone**, as well as tips and tricks for using the most complex features. The Drawing Center provides shortcuts to *How To* topics, tutorials, step-by-step movies, electronic help and helpful web links.

### Program Help

Program Help is accessed by clicking the **Help** drop-down menu and selecting **Help**. Online help opens in the default browser, displaying nested step-by-step feature instructions and instructional tutorials.

Help topics for command toolboxes can be accessed by clicking the question mark icon (?) located at the top-right of each toolbox.

### The Drawing Center Movies

The **Drawing Center** opens when CAD Zone is first opened, or from the **Drawing Center** command on the top menu.



The Drawing Center contains links to training videos. Click the movie camera icon on the bottom menu of the **Drawing Center** to open a menu of video titles on the training website.



The movies can also be accessed directly on the CAD Zone training section web site.

## CAD Zone Training Web Site

The CAD Zone's training web site contains tutorials, command reference manuals, training movies, and other User Documentation. To enter The CAD Zone's training web site <http://training.cadzone.com>.

## Free Technical Support

The CAD Zone offers free telephone and email technical support. Submit email questions to: [info@cadzone.com](mailto:info@cadzone.com).

Telephone support is available by calling: **503-641-0334**, weekdays from 7:30 a.m. - 4:30 p.m. Pacific Time.



## Chapter 2: Drawing Basics

### Vector Drawing Vs. Bitmap

The FireZone and InsuranceZone are vector-based drawing programs, meaning diagrams are constructed with “geometric primitives,” such as lines, circles, rectangles and arcs based in mathematical expressions. They are therefore extremely precise, and ideal for drawing floor plans and site plans. It also enables the import of drawings created in other computer-aided drafting programs, like Auto-CAD®.

### Draws at 1-to-1 Scale

CAD Zone takes the calculation out of drawing. In The FireZone everything is drawn to actual measurements taken in the field, or a 1-to-1 scale. A 200' x 150' building is entered with those dimensions, no figuring an inch = a foot.

Further, a drawn object's size never changes unless directed so by the user. Accuracy is always maintained. Zoom in on a drawing to make an object look larger changes the *display*, not the actual size of the objects.

### 2D vs. 3D Drawing and Viewing

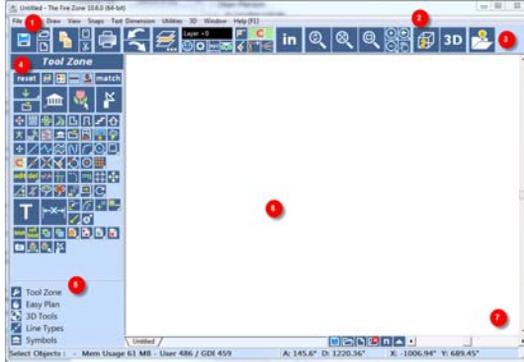
The FireZone and InsuranceZone can create 2D diagrams and complex 3D models of a scene. To create a 3D model of a scene, assign a height to building walls and other objects and an elevation (the distance above the ground plane). Click the 3D command and the program creates a 3D model.

The accuracy of a 3D model depends on the 2D diagram accuracy. The 2D diagram has to come first.

This manual introduces the tools to draw in 2D.

## The Program Screen

The program screen is composed of dedicated space for tools and commands. Being able to identify by name the element of the screen is vital to understanding CAD Zone. These elements are identified in the figure below.



**Tabs:** Click to open pull-down menus of related commands.

**Message Bar:** Tool tips display when a command is selected and prompts the user through the use of the selected tool.

**Speedbar:** Icons for commonly used commands.

**Left Tool Bar:** The top contains commands related to the named category (**Tool Zone** in this example), with sub-topics of commands for selection.

**Category List:** The bottom of the panel lists other categories that open new commands on the top.

**Drawing Window:** The diagram drawing area.

**Scrollbars:** Drag the horizontal markers to scroll side-to-side, and the vertical markers to scroll up or down. The mouse wheel zooms in and out.

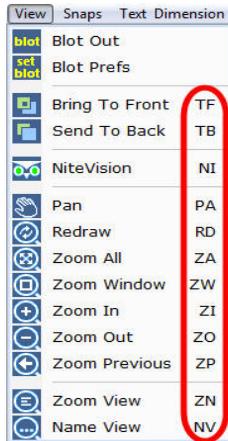
## Accessing Commands

There are three ways to select most commands in the program:

- Select from the Pull-down Menus.
- Click an icon on the Left Toolbox.
- Type in a two-letter shortcut on your keyboard. The two-letter shortcuts are listed in the electronic help, and they are shown on the pull-down menus, to the right of each command name. Using shortcuts can reduce drawing time.

## Sample Pull-Down Menu

Note the two-letter keyboard shorts on the right.



## Feature Step-Through

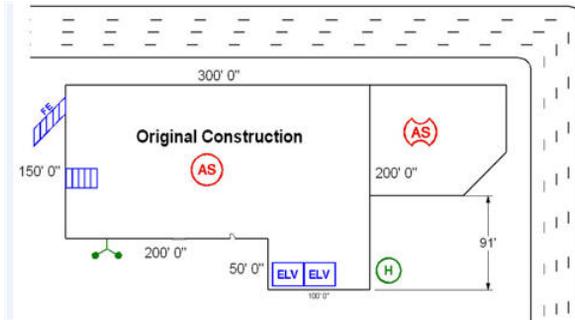
The following exercises walk the user through a common work-flow and presents the basic concepts needed to create drawings.

To best assimilate the instruction, perform the steps in the diagramming software as it is presented.

### Notes:

- Not all commands will be used in this step-through.
- Additional training is available on-line as described earlier in this manual.
- When directed to click or select, use the left mouse button; “press” refers to keyboard commands; use the right mouse button when directed.
- This step-through assumes the user has a two-button mouse; however with a three-button mouse, the center button is the equivalent of pressing **Enter**.

The graphic below shows the diagram this step-through will produce.



## Prior to Drawing

The following sub-topics will describe:

- Opening the diagramming software to a new diagram
- Navigating the Drawing Center
- Setting Units and Precision

## Opening the Software to a New Diagram

Installation places an icon on the computer desktop, and it is listed in the Windows Start menu.

1. Double-click the icon on the desktop.



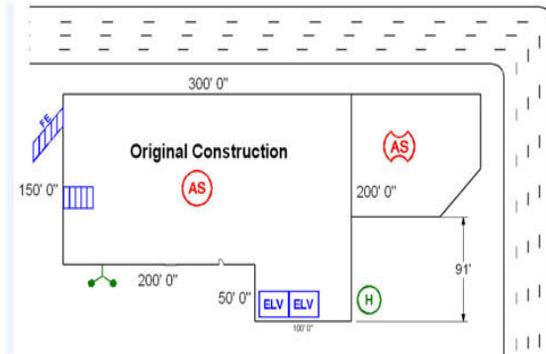
**Result:** The program opens to the **Drawing Center** dialog box.

2. Click the **X** to close the **Drawing Center**.

**Note:** See the graphic below for other **Drawing Center** options.

3. Click the **Save** icon.
4. Navigate to the desired folder and name it **Step Through**.
5. Click **Save**.

**Result:** The new file is renamed and auto-save is engaged, writing to a backup file ever five minutes. If the file is not named, the first auto-save will prompt the user to name the file.



## The Drawing Center

The graphic below describes the commands on the **Drawing Center**.



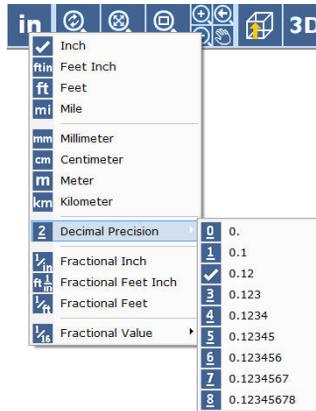
1. Messages for the user.
2. A list of recent files. Click a file to preview it.
3. Preview window that displays the file thumbnail.
4. Click **Open** to open the selected file.
5. Click to open a browser and navigate to a file not found in **History**.

6. Click to import files into the diagram.
7. Click to launch a point cloud.
8. Click to open a search window for .cdz files.
9. Click to open video tutorials in a web browser.
10. Click to open on-line documents.
11. Click to open helpful links.
12. Click to close the **Drawing Center**.

**Note:** Click the **Drawing Center** icon on the toolbar to reopen.

## Setting Units and Precision

The Unit command is located on the home toolbar beside the search commands. It changes to show the selected unit. In the drop-down menu, the selected unit is indicated by a check mark.



Follow the selections below for this walk-through.

- Click the **Unit** command and confirm **FT** (Feet) is selected.
- Click the **Unit** command again and click **Decimal Precision**.
- Select **0**, indicating only whole feet will be displayed.

## Drawing a Building

The following sub-topics will describe:

- Opening **Easy Builder**
- Using **Easy Builder**

## Opening Easy Builder

The **Easy Builder** is a wizard for rapidly creating buildings based on common shapes. Follow the steps below to open and use **Easy Builder**.

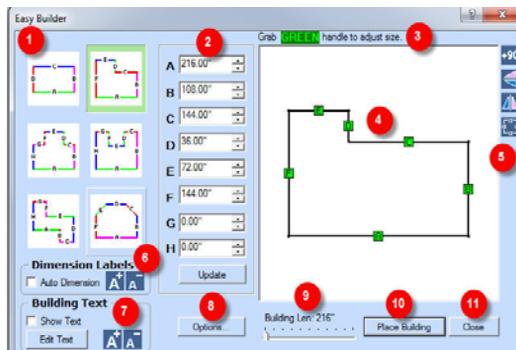
1. Click **Tool Zone** from the bottom of the **Left Toolbox**, if not already selected.
2. Click the **Easy Builder** command under **Easy Tools**.



**Result:** The **Easy Builder** wizard displays.

## Easy Builder

The graphic below describes the functions within **Easy Builder**.



1. Common selectable shapes.
2. Enter corresponding wall dimensions.
3. Tool tip messages.
4. Preview of the selected shape with dimensional changes.
5. Flip the image and show dimensions instead of letters.
6. Select to include the dimensions when placed in the diagram.

7. Click **Edit Text** to open a window and enter building-specific text, including building name, occupancy and more. Click **A+** and **A-** to change font size. Select **Show Text** to include the text when placed in the diagram.
8. Click **Options** to open a window and define **Incremental Steps**, building length, and include bold lines.
9. Slide the marker to establish the length of the building.
10. Click **Place** to apply the building to the diagram.
11. Click **Close** to exit **Easy Builder** without saving.

## Using Easy Builder

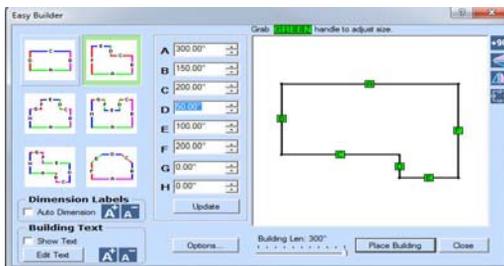
Follow the steps below to work through the **Easy Builder** wizard.

1. Select the top-right basic building shape (the shape of an L), as shown in the previous figure.
2. Enter the following values into the wall dimension fields.

Entry Field	Dimension
A	300"
B	150"
C	200"
D	50"
E	100"
F	200"
G	0
H	0

3. When dimension entry is complete, click the **Update** button to apply the new dimensions.
4. Click the **+90** icon twice to rotate the building 180°.

**Result:** The building is rotated in the preview window.



5. Click the **Auto Dimension** check box to display dimensions on the walls.
6. Click the **A+** button to increase the size of dimension text.
7. Click the **Place Building** button.

**Result:** **Easy Builder** closes and the building, including the dimensions, is placed in the diagram.

## Constructing an Addition onto the Building

Adding an addition to the building, in this case to the right of the drawn building, requires a set of features. The following sub-topics will describe:

- Zooming out the diagram
- Using Snap options
- Using Easy Lines

### Zoom Out

To construct an addition, the diagram must be zoomed out to make room for the new walls. The following methods zoom in and out the diagram view.

**Option 1:** Use the **Zoom** commands on the **Speedbar**.



1. **Redraw:** Click the command, then click-and-hold the mouse to drag an object to a new location on the diagram. Press **Esc** to exit zoom mode.
2. **Zoom All:** Click to enlarge the view of everything. Press **Esc** to exit zoom mode.
3. **Zoom Window:** Enlarges a selected area of the diagram. Click the command, click the left corner of the area to be zoomed, then the bottom right to enclose the area. Press **Esc** to exit zoom mode.
4. **+ (Plus):** Click to zoom in incrementally.
5. **<- (Arrow):** Click to return to the last zoomed view.
6. **- (Minus):** Click to zoom out incrementally.
7. **Pan:** Click the command, then click and hold in the workspace to drag the view. Press **Esc** to exit the zoom mode.

**Option 2:** Right-click on the drawing and select Zoom to reveal the same Zoom options as on the Speedbar.

**Option 3:** The mouse wheel also zooms in and out, and the scroll bars pan the image.

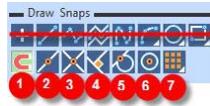
## Snap Options

Using a **Snap** option forces drawn lines to snap to the selected feature. The images below describe the Snap options.

**Speedbar Auto-Snap:** When **Auto-Snap** is on, drawn objects snap to the nearest endpoint or object. In the graphic below, **Auto-Snap** is on, as indicated by the green background of the magnet icon.



**Tool Zone Snaps:** Multiple snap options are available under the **Tool Zone > Draw Snaps** category. See the descriptions below.



1. **Auto-Snap:** Described above.
2. **Snap-to-Midpoint:** Objects snap to the midpoint of a line or object.
3. **Snap-to-Intersection:** Objects snap to the intersection of two lines or objects.
4. **Snap-Perpendicular:** Objects snap at a 90° angle to lines and objects.
5. **Snap-Tangent:** Objects snap at a tangent to lines and objects.
6. **Snap-to-Center:** Objects snap to the center of a selected object.
7. **Grid:** Click and select the spacing for a diagram grid

## Preparing the Drawing Area for the Addition

Using any zoom, pan or scroll option, prepare for the addition by positioning the building on the left side of the drawing area, with at least a third of the screen to the right of the building empty.

Turn on **Auto-Snap** from either the **Speedbar**, or **Tool Zone > Draw Snaps**. This connects the new walls to the building.

## Easy Lines

The **Easy Lines** feature is a special toolbox that makes it easy to draw lines at specific measurements. Accessed by clicking the **Easy Lines** command under **Tool Zone > EZ Tools**, the toolbox will display. The graphics below describe **Easy Lines**.

Easy Lines command on the **Tool Zone > EZ Tools** category.



## Easy Lines Toolbox

The graphic below describes the **Easy Lines Toolbox**.



1. **Start:** Click to begin the line, then select the start-point of the line to be drawn.
2. **Directional Arrows:** Click the arrow to set the angle of the line from the start-point.

3. **Angle field:** This auto-fills with the angle selected, or it can be entered manually.
4. **Distance:** Use the keypad or keyboard to enter the exact distance for the line.
5. **Keypad:** Use to enter values in the A and D field
6. **ft and in:** Select feet or inch unit for the line.
7. **C:** Clear all entries.
8. **R:** Repeat the last line.
9. **Undo:** Remove the a line or previous step with each click
10. **Markers:** Click to place temporary or permanent markers.
11. **Survey Mode:** Changes  $0^{\circ}$  to the North arrow.
12. **Mode commands:** Changes mode to normal, baseline or triangulation.
13. **Erase Marker:** Click to erase all temporary markers. Does not erase permanent markers.
14. **Back:** Click to close **Easy Lines** and return to **Tool Zone**.

## Constructing Walls

Follow the steps below to construct the addition with **Easy Lines**.

1. Click the **Easy Lines** command under **Tool Zone > EZ Tools**.
2. Click **Start** on the **Easy Lines** toolbox.
3. Click the upper-right corner of the building as the line start-point.
4. Click the right arrow to set the angle to  $0^{\circ}$ .
5. Click in the **D** field, then enter **135**.
6. Click the **Line** command to draw the line.  
**Note:** **Easy Lines** draws contiguous lines; each new line extends from the endpoint of the previous line.
7. Click the down arrow ( $270^{\circ}$ ), then enter **65** in the **D** field.
8. Click the **Line** command to draw the line.
9. Click the down-left arrow ( $225^{\circ}$ ), then enter **60** in the **D** field.
10. Click the **Line** command to draw the line.

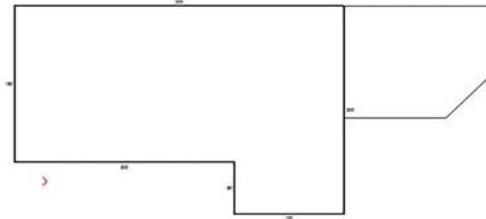
11. Click the left arrow ( $180^\circ$ ), then enter **93** in the **D** field.

**Note:** Foot units are assumed; no entry of the foot mark ('') is required. For inches, or feet and inches, include the feet and inch marks, or use a decimal point (5' 6'' or 5.5).

12. Click the **Line** command to draw the line.
13. Click **Back**.

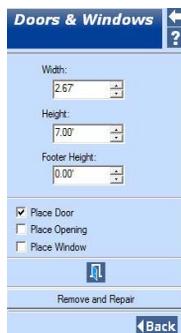
## The Drawing to This Point

Upon completing the above, the Step-Through drawing should look like this. Click **Save**.



## Placing Doors and Windows

Doors, windows and openings are placed using the **Door & Windows** toolbox. These objects can be placed at specific widths, heights and footer height (distance above the ground). The footer height is used when converting the 2D image into a 3D image.



**Note:** In this walk-through, doors will be placed optically, but for pinpoint accuracy, place markers at the exact door location and then snap the door symbols to the marker.

## Placing a Door

Follow the steps below to place a door on the lower 200' wall of the building.

1. Click the **Zoom Window** icon on the **Speedbar**.
2. In the drawing window, click slightly above the lower-left corner.
3. Move the mouse down and to the right, clicking just beyond and below the bottom 200' wall.

**Result:** A clear view of the wall displays.

4. Click the **Doors/Windows** icon from the **Tool Zone > EZ Tools** in the left toolbox.



5. Select the **Place Door** box.
6. Click in the **Width** field and enter a value of **3'0"**.
7. Click in the **Height** field and enter **7'0"**, if the default value isn't already entered.
8. Confirm the **Footer Height** is set to **0'0"**. This is the distance above the ground where the door is to be placed.
9. Click the **Place** button (the **Door** symbol at the bottom of the Toolbox).

**Result:** The prompt **Insert Door: Pick line** in the yellow message bar at the top of the screen.

10. Select the line to receive the door.
11. Click on the line to place the hinge of the door.

**Result:** A green ghost-image of a door appears, attached to the line.

12. Click above or below the line to place the swing of the door.

**Result:** The door symbol with an opening appears in the line. Later in this Walk-Through, the 3D version of the diagram will use the dimensions of the door specified.

**Note:** The door is in scale with the building and may appear small. In this case, a 3' door on a 300' wall is going to look tiny.



## The Symbol Manager

Symbols are pre-drawn in the **Symbol Manager** located on the left toolbox. The top of the **Symbol Manager** toolbox shows the current category. The figure below is the **Fire** group.



### Notes:

- Click the **More** button to see a list of other symbol groups, including Insurance, Investigation, NFPA 170, Alarms, Air Military, and more.
- Programs customized for individual companies may have different symbol categories and different symbols than those described here.

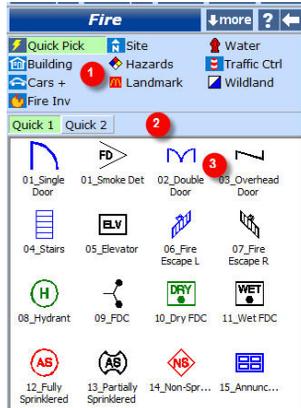
## Opening the Symbols Manager

Follow the steps below to first adjust the view of the diagram and then bring up the **Symbol Manager** toolbox.

1. Type **ZA**. This is a keyboard shortcut that performs a **Zoom All** to bring the entire diagram into view.
2. Click **Zoom Window** and enclose the left wall of the building for stairs symbol placement.
3. Click the **Symbols** button on the left toolbox to open the **Symbol Manager**.

## Symbols Manager Categories

The **Symbols Manager** is composed of categories broken into sub-categories, as shown in the graphic below.



1. **Categories:** Click to view the sub-categories and symbols.
2. **Sub-categories:** Click to view the sub-category symbols.
3. **Symbol commands:** Click to place a symbol.

## Placing Stairs Symbols

Follow the steps below to select and place stairs.

1. Select **Auto Snap** and **Zero-Degree Snap**.



2. Open the **Symbols Manager**.
3. Click the **Quick Pick** category.
4. Confirm the **Quick 1** tab is selected.
5. Click the **04\_Stairs** symbol to select it.
6. Move the cursor to the drawing area.

**Result:** A ghost image that represents the symbol is attached to the cross-hair mouse pointer.

7. Move the cross-hairs over the wall in the desired place for the symbol.
8. Click to snap directly to the wall and set the symbol's anchor point.

9. Move the mouse and notice the symbol box dynamically rotates about the anchor point, as shown in this figure.



10. Move the mouse pointer horizontally to the right to define the symbol's direction. Because **Zero-Degree Snap** is on, it will force perpendicularity.
11. Click to finish placing the symbol.

**Tip:** To undo the placement, press the **Esc** key on the keyboard. When a command is performed, the **Esc** key backs up one step.

## Placing other Symbols

All symbols are placed in the manner described above. Step through the procedure above and place the:

- **Partially Sprinklered** symbol in the addition...



- The **Fully Sprinklered** symbol in the main building...



- The **Hydrant** symbol outside where the addition and main building meet at the bottom...



- The **05\_Elevator** symbol at the lowest left point of the main building.



See the graphic at the beginning of this topic for exact location.

## Moving and Sizing Symbols

Symbols are pre-drawn to a certain size. Depending on the size of a building, some symbols may appear too small or too large. To change the size of a symbol or other object that is already placed, select it and drag the blue handles to the

new size. Alternatively, select multiple objects and re-size them at once by enclosing them in a **Selection Window**.

Follow the steps below to move and size symbols.

1. Click the symbol to select it.

**Result:** The selected object turns pink and blue selection handles surround it.

2. Hover the cursor on a selection handle, click-and-hold the mouse button, and drag the handle to a new size.
3. Move a symbol by clicking-and-holding the mouse button within the handles, and drag to a new position.
4. Click in any blank area of the drawing to de-select the symbol.

**Tip:** These methods of moving and re-sizing work on all objects in a diagram, not just symbols.

## Changing Symbol Size on Placement

Follow the steps below to change the size of a symbol when first placing it in the diagram.

1. Click the **Water** icon on the **Symbol Manager** to change the symbol category.
2. Click the **FDC** sub-category.
3. Select the **2-Way FDC** symbol from the symbol icons. Notice the options on the bottom of the preview window.



1. Flip symbol vertically.
  2. Flip symbol horizontally.
  3. Dynamically scale the symbol size.
  4. Change the color of the symbol
  5. Search for a symbol.
  6. Add symbol to Quick Pick.
  7. Close the Symbol Manager.
8. Click the **Dynamic Scale** icon to turn that option ON.

**Note:** It stays on until the icon is clicked again to turn it OFF.

9. Position the cross-hairs over the lower wall section and click to anchor the **2-Way FDC** symbol to the wall.
10. Without clicking, move the mouse up and down and notice the ghost image of the FDC symbol getting larger and smaller. The further from the anchor point, the larger the symbol.
11. Click to place it at the desired size.  
**Tip:** Be sure to use the Zoom commands frequently to adjust the view of the drawing for ease of drawing and editing.
12. Using the methods described above, place a **Fire Escape** symbol in the drawing, adjusting the size of the symbol as it is placed. Close the **Symbol Manager** when complete, and save the diagram.  
**Hint:** The Fire Escape is in the **Quick Pick > Quickly** category.

## Copying Symbols

The Step-Through diagram has two elevators. Rather than adding another symbol, copy the existing elevator by following the steps below, beginning with zooming to make it easier.

1. Use the Zoom Window command to zoom in on the lower-right area of the building.
2. Confirm **Auto Snaps** mode is turned ON.
3. Click the existing elevator symbol to select it.
4. Click the **Copy** icon on the Speedbar.
5. Click the **Paste** icon on the Speedbar.



1. Copy
2. Paste
3. Cut
4. Position the cross-hairs over the lower-right corner of the original elevator.
5. Click to attach the copy to the existing elevator symbol.
6. Click in the white space above the elevator to de-select the elevator symbol.

## Alternative Methods of Copy/Paste

- Click the **Edit** tab and click **Copy**, **Paste** or **Cut**. Also under the **Edit** tab is **Copy Commands** with options to make multiple copies of an object, or in linear, radial or array patterns.
- Keyboard commands: **Copy: Ctrl+C**; **Paste: Ctrl+V**; **Cut: Ctrl+X**.

## Adding Text

Follow the steps below to add text to a diagram.

1. Select the **Text** command from the **Tool Zone > Text Dimension** bin of the left toolbox.

**Result:** The **Text/Labels** window displays.

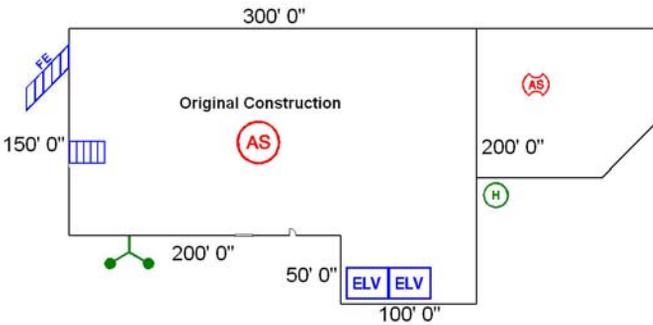


1. Cut/Copy/Paste/Show Paragraph Marks.
  2. Text Entry field.
  3. Text attributes; font size, color, style, formatting and show arrow.
  4. Pre-defined Labels
  5. Add Label to place
  6. Remove Label to delete.
  7. Apply changes.
8. Click in the **Enter Text** field of the dialog box and type: **Original Construction**.

9. Change the text height by clicking A+ or A- to make the text 10' tall. Alternatively, enter a value in the box for the text height.
10. Confirm **Show Arrow** is not selected.
11. Move the cursor onto the drawing screen. Notice a box attached to the cursor represents the text.
12. Position the text box above the **Automatic Sprinklered** symbol and click to anchor the lower-left corner of the text.
13. Move the cursor and notice the text rotates around the anchor point.
14. Move the mouse horizontally to the right and click again to finish placing the text.
15. Repeat steps 1-9 to place additional text in the diagram.
16. Click **Back** on the **Text** window to exit text mode.

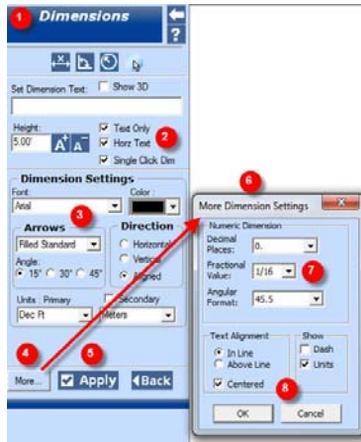
## The Step-Through Diagram

The diagram should now appear as below.



## The Dimension Toolbox

The image below describes the **Dimension Toolbox**.



1. **Linear, Angular, and Circular Dimension** commands.
2. Text attribute commands.
3. Dimension attribute commands.
4. Click **More** to open **More Dimension Settings**.
5. Click **Apply** to insert the dimension.
6. The **More Dimension Settings** window.
7. Numeric dimension settings.
8. Text alignment and display settings.

## Placing a Dimension

Follow the steps below to add dimensions with the **Dimension** command.

1. Confirm **Auto Snaps** is ON and all other snaps are OFF.
2. Click the **Dimension** command under **Tool Zone > Text Dimensions**.

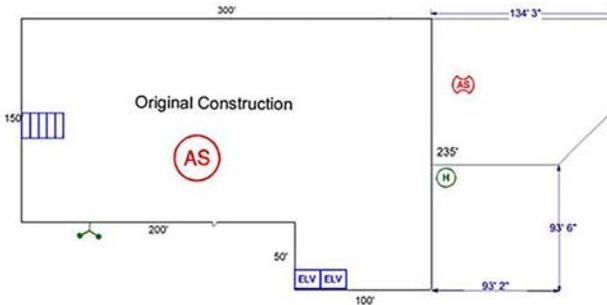


**Result:** The **Dimension Toolbox** opens.

3. Adjust the dimension text height by clicking **A+** or **A-** buttons on the **Dimension** toolbox. Set it to **12'**.

4. Select the following settings:
  1. **Text Only** option is NOT checked.
  2. **Horz Text** (horizontal text) IS checked.
  3. **Direction** is set to **Aligned**.
4. Click **Apply**.
5. On the **Dimension Toolbox**, click the **Vertical Direction** mode to load cross-hairs into the cursor.
6. Position the cross-hairs over the upper-right corner of the original building, and click to set the first point.
7. Move the mouse to the end of the addition and click again, setting the end-point.
8. Move the cursor to the left and notice a green dimension line with a box attached representing the dimension text.
9. Position the green box where the text is to be displayed and click to place the text.

**Result:** The dimension is placed, and the toolbox remains open to enable setting more dimensions until the **Back** button is clicked to close it.
10. Set additional dimension lines as shown below.

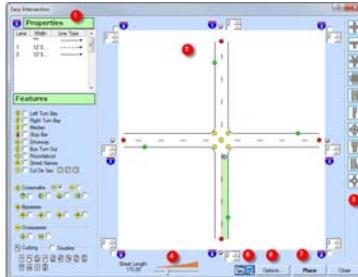


## Add a Section of Road

The **Easy Intersection** tool is used to add a street to the diagram, including multi-lane streets, highways, and intersections. It allows the user to set individual width of each lane, and select a center-line type using the **Properties** option.

## The Easy Intersection Tool

The graphic below describes the **Easy Intersection** tool.



1. **Properties and Features:** Lane modification controls.
2. **Preview Window:** Shows changes as they are made. Add lanes by selecting the interstate symbols.
3. **Intersection Templates:** Select a template most similar to the requirement.
4. **Street Length Slider:** Changes the length of the street.
5. **Open and Save:** Click to open an existing drawing; click to save the existing drawing for future use.
6. **Options:** Click to open a window set dimensions.
7. **Place:** Click to insert the street into the diagram.

## Placing an Intersection

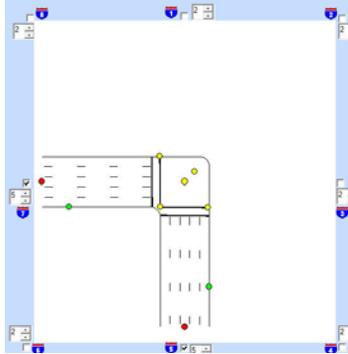
Follow the steps below to place a street in the diagram.

1. Click the **Easy Intersection** command under **Tool Zone > EZ Tools**.



**Result:** The **Easy Intersection** Toolbox opens.

- Each road section in the preview window has a numbered check-box to turn that section on or off. Deselect check-boxes 1 and 5 to turn off the road section, as shown in the figure below.



- Change the number of lanes to **4** by clicking the **Lane Number** arrow buttons next to each road segment.
- Change the width of a lane by selecting the **Lane Properties** section (upper-left of the **Easy Intersection Toolbox**) and typing **14'** for width value.
- Increase the length of the road segments by clicking the **Road Length Slider** and moving it to the right, as shown below.



- Click the **Place** command to insert the street into the diagram and close the **Easy Intersection Toolbox**.
- Move the cursor onto the drawing window and notice the ghost image of the intersection attached.
- Click the **Zoom Out** command on the Speedbar to increase the drawing space around the building.  
**Note:** This can be done in the middle of placing the intersection.
- Position the intersection to be above and to the right of the building and click to place it in the diagram.

## Chapter 3: Active 3D Viewer

Drawings begin in 2D, and with the **3D Builder** can be transitioned to 3D and viewed in the **3D Viewer**. Changes to the diagram are performed in the 2D view and are dynamically updated in 3D. Both views can be open at the same time.

### Using 3D Builder

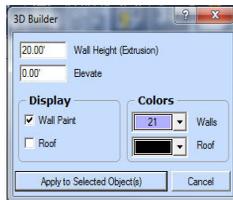
Follow the steps below to turn the Step-Through building into a 3D building.

1. Select all the walls of the building, but not doors or dimensions, by holding the **Ctrl** key down and clicking each wall.
2. Click the **3D Builder** command on the Speedbar.



**Result:** The **3D Builder** dialog box displays.

3. Enter **20'** in the **Wall Height (Extrusion)** field, and **0'** in the **Elevate** field. Select **Wall Paint** and choose a color.



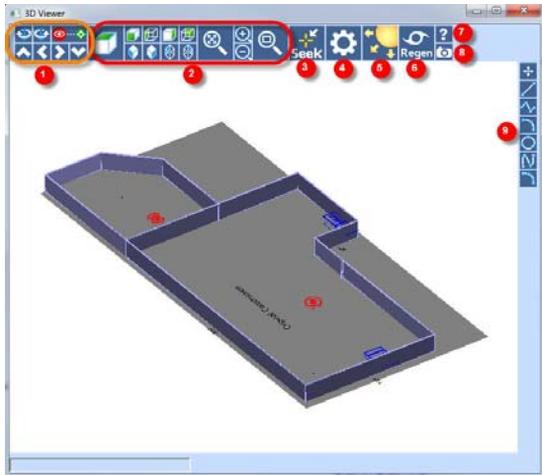
4. Click the **3D** command on the Speedbar.



**Result:** The 3D Viewer displays.

## The 3D Viewer

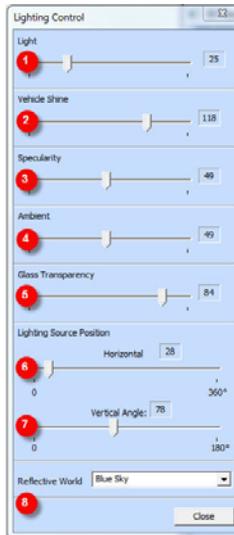
The graphic below describes the 3D Viewer.



1. **Navigation Tools:** Fine control of moving the drawing.
2. **Viewpoint/Zoom Tools:** Sweeping changes of perspective.
3. **Seek:** Turn on to rotate and tilt drawing.
4. **3D Settings:** Click to open a dialog box for changing units, display, colors, camera/target and resolution.
5. **Lighting Controls:** Click to open a dialog box of lighting tools. See the next sub-topic for more details.
6. **Regen:** Click to refresh the view if the drawing is not displayed properly.
7. **3D Help:** Click to open help files.
8. **Snapshot:** Click to take a .jpg of the view. Snapshots are numbered and saved in a **Snapshot** folder on the hard drive.
9. **Drawing Tools:** Draw in 3D by snapping to 3D points in the 3D Viewer.

## Lighting Controls Dialog Box

The graphic below describes the **Lighting Controls** dialog box.



1. **Light Intensity:** Changes brightness of the light source.
2. **Vehicle Shine:** Adjusts the size of the highlights on a shiny surface.
3. **Specularity:** The amount of light reflected in the bright highlights of a shiny surface. Use this to increase/decrease the brightness of shiny areas.
4. **Ambient:** The amount of base color. Low values are generally better and provide more definition to the surface. High values cause shading to be washed out by the base color.
5. **Glass Transparency:** The transparency of glass surfaces in the scene. Low values make the surface more opaque.
6. **Lighting Source Position Horizontal:** The position of the light source as determined by the horizontal. Moves the light around the scene.
7. **Vertical:** Moves the light in an arc across the sky above the scene.
8. **Reflective World:** Degree of environment that is reflected off shiny surfaces.

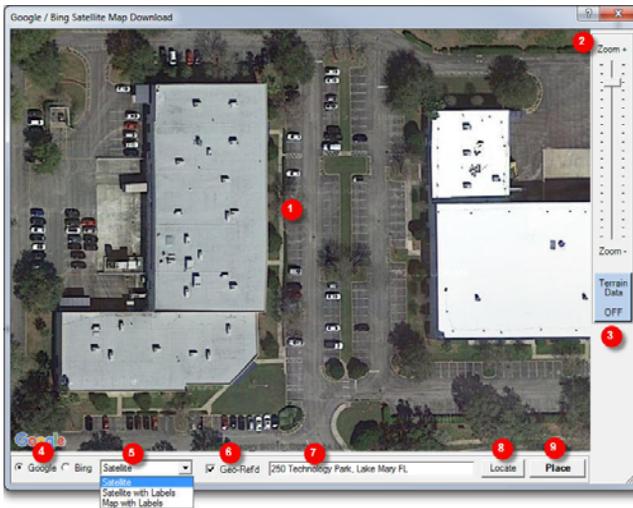


## Chapter 4: Google Maps and Bing Maps

Rather than starting with a blank scene, CAD Zone allows the user to open and insert Google Maps and Bing Maps as a powerful tool for drawing a detailed scene. Maps and other imported images can be edited with **Image Clean Out**, **Image Crop**, and **Image Drape**.

### The Google/Bing Satellite Map Download Window

The graphic below describes the Google/Bing Satellite Map Download window.



1. **Map Preview:** The satellite image.
2. **Zoom:** Use the slider to zoom in and out, or use the mouse wheel.
3. **Terrain Data:** ON imports terrain data, OFF does not.
4. **Google/Bing:** Select to view Google or Bing maps.
5. **Style Drop-Down:** Select **Satellite**, **Satellite with Labels**, or **Maps with Labels**.
6. **Geo-Ref'd:** Select to import geo-referencing data.
7. **Location Field:** Enter an address.
8. **Locate:** Click to start the location search.
9. **Place:** Click to download the image into the scene.

## Placing a Google or Bing Map

Follow the steps below to import a Google or Bing Map.

1. Click the **Import Satellite Photo** command on the **Tool Zone > Import Data** category.



**Result:** The **Google/Bing Satellite Map Download** dialog box opens.

2. Enter the desired address in the **Location** field and click **Locate**.
3. Zoom to the desired view, select the viewing options, including **Google** or **Bing** images, style of image, **Geo-Ref'd**, and **Terrain Data**.
4. Click **Place** to insert the image into the drawing.

**Result:** The image is inserted into the scene; the map on one layer, the Terrain Data or Geo-Referencing on another. If Terrain Data was selected, TD points will display over the image, and in the 3D Viewer, will show correct elevation.

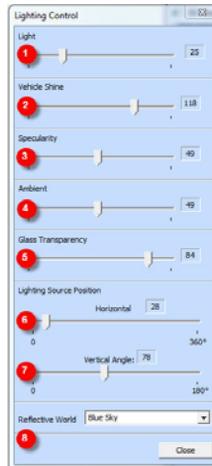
## Image Edit Tools

Imported images may need to be cropped, draped or edited to remove unwanted objects. The **Image Edit Tools Menu** provides several options. Click the **Image Edit** command to open the menu.



## Image Edit Tools Menu

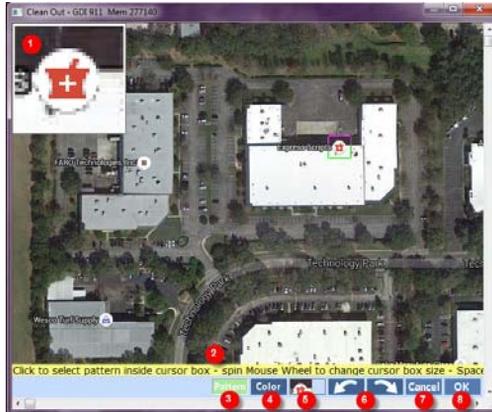
The graphic below describes the **Image Edit Tools Menu**.



1. **Image Fade:** Slide to darken or lighten the image.
2. **Mirror Image:** Click to mirror the image for images to view from below, such as a ceiling.
3. **To Back/To Front:** Click to reorder the image.
4. **Change Image Layer:** Click to name a mirror image, or click the drop-down arrow to drop the image into place on the list.
5. **Lock Layer:** Lock the layer to trace over it. See sub-topics below.
6. **Clean Out:** Click to open a window to remove unwanted objects on the image. See sub-topics below.
7. **Image Crop:** Click to open a window to crop the image. See sub-topics below.
8. **Drape:** Click to drape an image on 3D points. See sub-topics below.
9. **Show Terrain Data Points:** Select to bring in and display the layer of Terrain Data points.
10. **Show Behind other objects:** Select to send the layer backward.
11. **Apply:** Click to apply changes.

## Image Clean Out

To remove unwanted objects from an image, open the **Image Edit Tools Menu** and click the **Clean Out** command. The **Image Clean Out** window displays. Objects can be painted over with the background or a selected color.



1. **Magnification Window:** Shows a close-up of the cursor area.
2. **Messages:** Displays help prompts.
3. **Pattern:** Loads a selected background to use as paint.
4. **Color:** Loads color selected from the image as paint.
5. **Preview:** Shows the selected color or pattern.
6. **Undo/Redo:** Move back a process step or move forward.
7. **Cancel:** Closes without saving changes.
8. **OK:** Saves changes.

## Removing Unwanted Objects

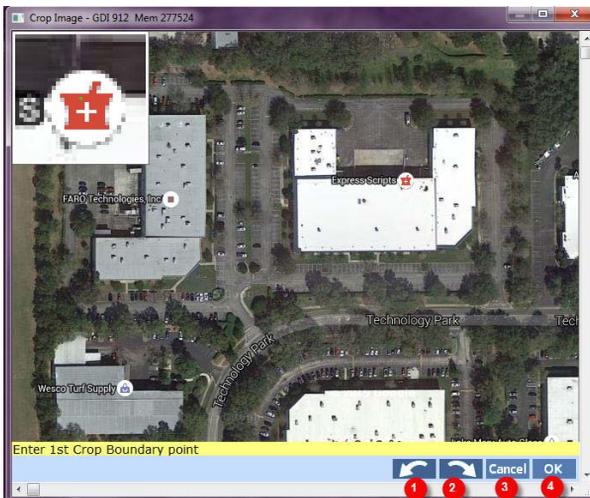
Follow the steps below to remove an object from the image.

1. To select a pattern, click **Pattern**.
2. Move the mouse over the scene and notice a pink boundary box and eye-dropper has replaced the cursor. Click in the center of the desired pattern. Roll the mouse wheel to resize the pink box to capture the pattern.
3. Double-click or press **Esc** to capture the pattern.

4. Click just outside the area to be painted over as the start point. Click a second time to establish the span. Continue to click to describe the area around which to remove.
5. Double-click to end the draw mode and notice the selected area is painted over the selected area. This method is ideal for repeating a parking lot pattern, for example.
6. To select a color, click **Color**.
7. Click a single point in the scene to load that color.
8. Repeat step 5 and 6.

## Image Crop

CAD Zone gives more cropping options than horizontal and vertical. The area to be retained can be traced to any shape. The graphic below shows the **Crop Image** window.



1. **Magnification Window:** Shows a close-up of the cursor area.
2. **Undo:** Deletes the last operation.
3. **Redo:** Reapplies the last undone step.
4. **Cancel:** Closes the window without saving.
5. **OK:** Saves changes and closes the window.

## Cropping an Image

Follow the steps below to crop an image.

1. Click the image to be cropped.
2. Click the **Image Edit Tools** command.
3. Click the **Image Crop** command on the **Image Edit Menu**.
4. In the **Crop Image** window, trace around the area to keep, clicking points along the path and fully enclosing the area.
5. Click **Undo** if the cropped area isn't correct.
6. Click **OK** to save changes and close the window.

## Draping an Image

Image draping is used to drape a satellite image over total station points or point cloud data. Follow the steps below to drape an image.

1. Place 3D points or 3D contour lines in the diagram from total station or point cloud data.
2. Place a Google or Bing Satellite image, or a photo into the drawing.
3. Align the 3D data over the satellite image using the **Align** tool, or by selecting and positioning the data and moving and rotating it until it's correctly oriented over the image.
4. Select the image and click the **Drape** command on the **Image Edit Tools Window**.

### Notes:

- The satellite image cannot be rotated when using the **Drape** command.
- The image must be rectangular.
- When extracting point and contour data from a point cloud, save the initial drawing that is aligned correctly to the point cloud data for reference.

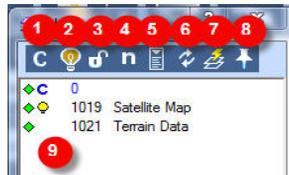
## Layers

Organizing drawing and controlling layer visibility is performed with the **Layers Toolbox**. Objects can be assigned to different layers, and layers can be modified in a number of ways. Access the **Layers Toolbox** by clicking the **Layers** command on the Speedbar.



## Layers Toolbox

The following graphic describes the **Layers Toolbox**.



1. **C**: Select a layer in the list and click **C** to make it the current layer. Current layer is always visible.
2. **Visibility**: Controls the visibility of a selected layer. A light-bulb displays in the list if it is set to visible.
3. **Lock**: Click to lock a selected layer. A locked layer cannot be selected or changed. A padlock icon appears in the list for locked layers.
4. **Name**: Click to rename the selected layer.
5. **Expand**: Expands nested layers, such as geo-reference points, in the list.
6. **Refresh**: Click to update the **Layers Toolbox**.
7. **Layer Clean Up**: Click to open the **Layer Clean Up** dialog box (see below).
8. **Pin**: Toggles the **Layers Toolbox** to free-floating or docked.
9. **Layers List**: Displays layers by name and in order. A green diamond indicates there are objects on the corresponding layer.

## Layer CleanUp Toolbox

When the **Layer CleanUp** command is clicked, the following dialog box opens.



1. **Delete:** Click to delete the selected layer.
2. **Name:** Click to rename a selected layer.
3. **All:** Click to make all layers visible.
4. **Move Layer:** Click to move the layer to a new location on the list. Layers are drawn in the same order as on the list. If the map is the top layer, for example, no other layers will be visible.
5. **Remove Layers:** Deletes all layers without objects.
6. **Back:** Click to return to the **Layers** toolbox.
7. **Pin:** Toggle the toolbox between free-floating and docked.

## Chapter 5: CZ Point Cloud

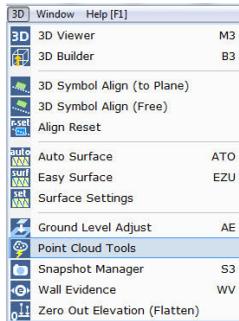
Point Cloud data, such as those created by FARO Focus<sup>3D</sup> Laser Scanners™, provide a wealth of highly-accurate data to create a detailed 3D scene. CAD Zone provides several tools for handling the millions of data-points in a point cloud.

### Opening The Point Cloud Manager

Importing a Point Cloud is initiated from the **Drawing Center, Tool Zone > EZ Tools**, or from the **3D** drop-down menu, **Point Cloud Tools**.



Or



Clicking either method opens the **Point Cloud Manager** and **Point Cloud Center**.

## The Point Cloud Manager and Point Cloud Center

The graphic below describes the **Point Cloud Manager** and the **Point Cloud Center**.



### Point Cloud Manager

1. **Point Cloud:** Opens the Point Cloud Center if it is not open already.
2. **Save:** Click to save the point cloud.
3. **Navigation Controls:** Click to move in the point cloud.
4. **Perspective Controls:** Click to change the viewpoint.
5. **Point Tools:** A menu of window, point, elevation, ground plane, alignment, and color options.
6. **Preferences:** A menu of unit, color and camera options.
7. **Trace 2D:** Turns on trace mode for inflicting damage.
8. **Lighting, Refresh, Snapshot and Help** commands.
9. **Drawing Tools.**
10. **High Definition View, Lighting and Refresh** commands.

### Point Cloud Center

11. **History Window:** Displays a list of previously opened point cloud files.

12. **Preview Window:** Displays a thumbnail of the file.
13. **Open File:** Opens a browser.
14. **Tutorial** and **Online Document** commands.
15. **Open:** Click to place the selected point cloud file.
16. **Message Bar:** Displays point and RAM impact data.
17. **Point Cloud Controls:** Sliders to adjust density display and point size.

## Opening a Point Cloud

Follow the steps below to open a point cloud.

1. Open the **Point Cloud Center** by either clicking the **Point Cloud** command on the **Drawing Center**, or selecting **Point Cloud Tools** from the **3D** menu.
2. Select from the history list or click the **Open Folder** command and browse to and select a point cloud file.

**Result:** Point cloud load speed is determined by the computer processing power. It may take several moments to open. If the “program not responding” prompt appears, ignore it.

**Note:** If the .pts file has not been loaded to CAD Zone before, the PTS File Options dialog box displays. See the next sub-topic **PTS File Options dialog box**.

3. Click **Ground Plane Align** on the **Point Cloud Tools** menu to correctly align loose, hand-scanned or out-of-level data to the ground plane. This is common for data collected with hand scanners or when a scan was taken out of level.
4. Click the **Ground Plane Flip** on the **Point Cloud Tools** menu tool to flip the Z values of the point cloud if the data is not oriented correctly.
5. Click the **Vertical Orientation** tool on the **Point Cloud Tools** menu to set the vertical angle of the drawing. Pick two points, bottom and top of the point cloud that will translate as the bottom and top of the drawing.
6. Click **Elevation Adjust** on the **Point Cloud Tools** menu to manually set the ground plane, if necessary.

## PTS File Options Dialog Box

The following graphic describes the **PTS Load Dialog Box**.



1. **File:** Location and name of the importing .pts file.
2. **Total Point Count:** Estimated size of the file.
3. **RAM:** Total system RAM.
4. **Set Maximum Display Points:** Click the drop-down to restrict the number of points in the cloud.

Internal Memory Consumed by Maximum Display setting	
Maximum Display Points	Approx. Memory Used
150 million	6 gigabytes
100 million	4 gigabytes
50 million	2 gigabytes
25 million	1 gigabytes
10 million	.4 gigabytes

5. **Cloud File Units:** This defaults to the units the scanner used when points were collected.
6. **Load the PTS File:** Click to begin the conversion to .czp, the CAD Zone Point Cloud file.

**Note:** If the file is not larger than the maximum point selection, all points can be displayed at once, offering two advantages:

- The conversion process from .pts to .czp is faster.
- Some tools, such as Night Vision, work faster.

## Point Cloud Loading Tips

If issues should arise when loading a .pts file with max points greater than 25M:

- Enable **Fast Drag** display under 3D/Cloud Preferences, so only 10% of the points are displayed when rotating or moving the point cloud.
- Reduce the visible point density. The **Density** slider is at the bottom of the **Point Cloud** dialog box.
- Reload the .pts file with a lower max display.
- Get more RAM (8G or greater)
- Update the video card to the recommended video card, NVIDIA 4G video memory with latest open GL, 4.0 or greater.
- Under the 3D Settings on the **NVIDIA Control Panel**.
  - Adjust image settings with preview:** Select **Use the advanced 3D image settings.**
  - Manage 3D Settings:** Under **Preferred graphics processor**, select **High performance NVIDIA.**



## Chapter 6: Fire Investigation Tools

FARO FireZone provides tools to create 2D and 3D diagrams specific to fire investigation, with data collected from hand measurements, a total station, or laser scanner.

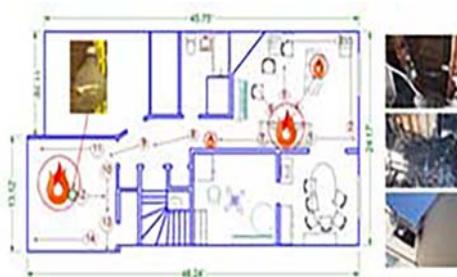
Mapping fire damage is a challenging job. Using a laser scanner can drastically reduce time on-scene, while collecting essential data needed for a thorough fire investigation, including data overlooked at the scene. Diagrams play a big role in fire investigation and the tools found in FARO FireZone makes that job faster and easier.

Diagram and analyze the scene with measured data to:

- Create 2D wall elevation views
- Show fire damage to furniture and other symbols
- Show char and smoke patterns
- Show char depth topography
- Show the spread of heat or flame
- Show the fire area and point of origin
- Insert photos
- Create site and floor plans
- Print to PDF

### Printing Example

The graphic below is a completed fire scene diagram.



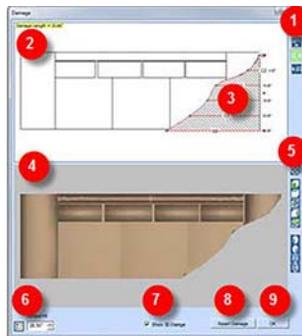
## Fire Investigation Toolset Overview

The following sub-topics will describe the fire investigation features of FARO FireZone.

- Symbol Damage Tool
- Wall Elevation Builder Tool
- Show Char Depth
- Fire Investigation Symbols
- Bubble Labels (Photos, Heat Vectors, Samples)
- Texture Maps: Burn, Char, and Smoke

## Symbol Damage Dialog Box

The graphic below describes the **Symbol Damage Dialog Box**.



1. Select the side of the symbol to damage.
2. Informational display of the overall length of the display.
3. Handles for inflicting damage. Purple end-handles stretch the damage; purple middle-handles move the damage; green handles inflict depth of damage.
4. 2D and 3D preview windows.
5. Perspective and point-of-view commands.
6. Color and height commands.
7. Select to show damage in the 3D preview window.
8. Reset Damage pattern to no damage.
9. OK to inflict the damage and close the window.

## Using the Symbol Damage Tool

Follow the steps below to apply burn damage to a symbol, which will appear in 2D and 3D viewers.

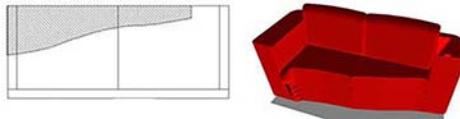
1. Select a symbol to damage.
2. Click the **Symbol Damage** command on the **Tool Zone > EZ Tools** menu.



**Result:** The **Symbol Damage Tool** window opens.

3. Click the side of the symbol to damage from the top-right menu.
4. Drag the handles to define the damage.
5. Change the color and height of the symbol, if desired, with the commands in the lower-left menu.
6. Click **OK** to inflict the damage on the scene.

**Result:** Damage displays as hatching on the 2D diagram and fully rendered in the 3D Viewer.



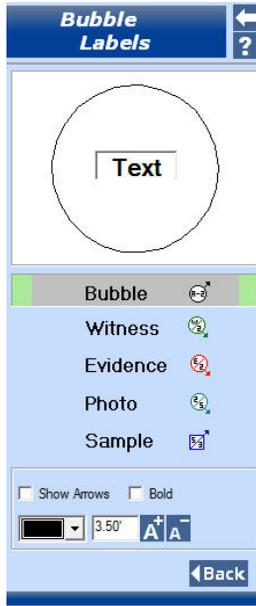
## Fire Investigation Symbols

There are thousands of symbols to choose from in the Fire, Insurance, Crime, and Crash Zone programs. Everything from vehicles, furniture, fixtures, and evidence placard symbols can be found in the **Symbol Manager**. A special group of fire investigation symbols can be found in the **Fire Inv** folder in the **Fire and Investigation** symbol groups. Additional symbols can be found in the **Crime/Crash Zone** under the **Crime** symbols group. The primary symbol group displays upon opening the **Symbol Manager**; all other installed symbols can be found by clicking **More**, as shown on the graphic below.



## Bubble Labels

Bubble labels are a collection of diagram labels that include Bubble, Witness, Evidence, Photo, and Sample labels.



## Placing a Bubble Label

Follow the steps below to place a Bubble Label.

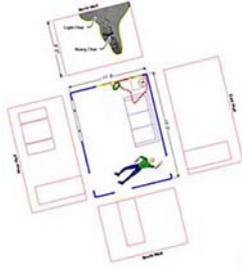
1. Click the **Bubble Label** icon under **Tool Zone > Text Dimension**.



2. Select the style of label.
3. Enter the values for the label.
4. Determine color, text style, and whether to include an arrow.
5. Place the label:
  - Without an arrow, click on the diagram to place.
  - With an arrow, click where the arrow head is to be placed, then click again to place the label.

## Wall Elevation Builder

Use the **Wall Elevation Builder** to transfer a 3D point cloud building into a 2D diagram. Additionally, use the point cloud drawing tools to define areas of damage or interest. The graphic below displays the finished diagram that will be built in this topic.



## Preparing the 2D Building from Point Cloud

Follow the steps below to create a 2D building from the point cloud building.

1. Open a point cloud of a building in the **Point Cloud** window.
2. Navigate to a top-down view of the building.
3. Click **Trace 2D**.



4. Click the **Continuous Line** command on the right menu.
5. Outline the building by clicking each directional change point of the walls (four points for rectangles and squares).

**Note:** The drawing will be duplicated in the 2D view.

6. In the 2D view, select the wall line.
7. Click the **3D Builder** command.
8. Set a wall height.



**Result:** The walls are prepared to draw damage on them.

## Adding Texture/Damage on Walls

Follow the steps below to add damage, such as charred areas, or texture, such as a brick chimneys, on a 3D wall.

1. In the **Point Cloud** windows, navigate to the wall showing damage or texture.
2. Click **Trace 2D**.
3. Using the **Point Cloud** tools, trace the wall damage. In the graphic below, notice that different levels of damage are outlined separately.



**Result:** The damage can now be applied to the 2D wall.

4. Click the **Wall Elevation Builder** tool under the **Tool Zone > EZ Tools**.



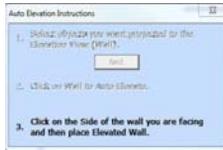
5. Follow the prompts and select the 2D data to project to the wall, by clicking the data or dragging a window around the data. To add to the selection, hold the **Shift** key and click more points.



6. Click **Next**.
7. Click the 2D wall to elevate.



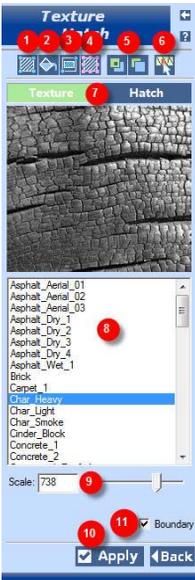
8. Click the side of the wall the damage is on.



9. Click in the diagram to place the elevation view outline.
10. Click the **Texture** command on the **Tool Zone > EZ Tools** menu.



11. Select options from the **Texture/Hatch** dialog box.



### Application Commands

- 1.**Boundary Hatch**: Click to trace a boundary
- 2.**Fill**: Click to fill a closed object.
- 3.**Window Hatch**: Place a selection window in the drawing to fall any closed objects in the window.
- 4.**Hatch Selected**: Comply fills a closed object.

### Other Commands

- 5.**Bring Forward/Send Backward**.
- 6.**Select similar surfaces**.
- 7.**Texture and Hatch selector**.
- 8.**Texture styles**.
- 9.**Scale slider** to size the texture.
- 10.**Apply** the texture.
- 11.**Boundary**: Add a boundary to the selection.

12. Select the Scale.
13. Click one of the Application Commands.
14. Click the object in the scene as the Application Command requires.
15. Repeat as necessary for the other walls.

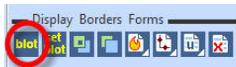
## Char Depth

Follow the steps below to label different char depth damage on a diagram with drawn char patterns.

1. Click the **Text** command on the **Tool Zone > Text Dimension** menu.



2. Enter the char depth into the **Enter Text** field and set the text parameters as desired.
3. Click **Apply**.
4. Position the mouse's green frame on the diagram over the char line and click to place.
5. Click the **Blot** command on the **Tool Zone > Display/Borders** menu.



6. Click the text.  
**Result:** The line behind the text is removed.



# Technical Support

FARO Technologies, Inc. is committed to providing the best technical support to our customers. Our Service Policy is in *Appendix C: FARO Products Service Policy* of this manual. If you have any problem using one of our products, please follow these steps before contacting our Technical Support Team:

- Be sure to read the relevant sections of the documentation to find the help you need.
- Visit the FARO Customer Care area on the Web at [www.faro.com](http://www.faro.com) to search our technical support database. This is available 24 hours a day 7 days a week.
- Document the problem you are experiencing. Be as specific as you can. The more information you have, the easier the problem will be to solve.
- If you still cannot resolve your problem, have your device's Serial Number available *before calling*.

## **Support Hours** (Monday through Friday)

North America:

8:00 a.m. to 7:00 p.m. Eastern Standard Time (EST).

Europe:

8:00 a.m. to 5:00 p.m. Central European Standard Time (CET).

Asia:

8:30 a.m. to 5:30 p.m. Singapore Standard Time (SST).

Japan:

9:00 a.m. to 5:00 p.m. Japan Standard Time (JST).

China:

8:30 a.m. to 5:30 p.m. China Standard Time (CST).

India:

9:30 a.m. to 5:30 p.m. India Standard Time (IST).

You can also e-mail or fax any problems or questions 24 hours a day.

## **Phone**

North America:

800 736 2771, +1 407 333 3182 (Worldwide)

Mexico:

001-866-874-1154

Europe:

+800 3276 7378, +49 7150 9797-400 (Worldwide)

Asia:

1800 511 1360, +65 6511 1350 (Worldwide)

Japan:

0120.922.927, +81 561 63 1411 (Worldwide)

China:

400.677.6826, +86 21 6191 7600 (Worldwide)

India:

1800.1028456, +91-1146465656 (Worldwide)

Thailand:

+662.7441273-6 (Worldwide)

Korea:

+82.51.662.3413 (Worldwide)

## **Fax**

North America:

+1 407 562 5294

Europe:

+800 3276 1737, +49 7150 9797-9400 (Worldwide)

Asia:

65 65430111

Japan:

+81 561 63 1412

China:

+86 021 61917600

India:

+91-11-46465660

Thailand:

+662.7443178

Korea:

+82.51.941.8170

## **E-Mail**

North America:

support@faro.com

Europe:

support@faroEurope.com

Asia:

supportap@faro.com

Japan:

supportjapan@faro.com

China:

supportchina@faro.com

India:

supportindia@faro.com

Thailand:

supportthailand@faro.com

Korea:

supportkorea@faro.com

E-Mails or Faxes sent outside regular working hours usually are answered before 12:00 p.m. the next working day. Should our staff be on other calls, please leave a voice mail message; calls are always returned within 4 hours. Please remember to leave a description of your question and your device's Serial Number. Do not forget to include your name, fax number, telephone number and extension so we can reach you promptly.

# Appendix C: FARO Products Service Policy

A one-year maintenance/warranty comes with the purchase of new FARO-manufactured hardware products. Supplemental Service Plans are also available at additional cost. See *Appendix D: FARO Service Policy* for further details.

## **FARO Hardware under Maintenance/Warranty**

The following is a summary of what services can be obtained under the original warranty or Supplemental Service Plan.

1. Factory repairs on FARO-manufactured hardware products at any FARO Service Center.
2. Factory repairs are targeted for completion within 7 (FaroArms and Laser Line Probe), 14 (Laser Trackers and Laser Scanners), or 10 (3D Imagers) working days of FARO's receipt of the defective item. The customer is responsible for returning the hardware to a FARO Service Center in the original packing container or custom case.
3. FARO will return the hardware via 2-day service within the continental United States. Outside the continental United States, FARO will return the hardware to the customs broker via 2-day service. Expedited service can be arranged at the customer's expense.
4. Upon expiration of the original warranty, a Supplemental Service Plan may be purchased and renewed on an annual basis for any FARO-manufactured hardware products, as long as material and resources are available.
5. All Supplemental Service Plans will be due for renewal one year and one day from the day the FARO-manufactured hardware is shipped from FARO.
6. Please contact FARO Customer Service to transfer the warranty. The original warranty and Supplemental Service Plans are transferable to subsequent owners under the following conditions:

- The Hardware Device is currently under the original warranty and Supplemental Service Plan.
- The new owner is, or becomes, a certified user.
- FARO Customer Service is informed of and approves the transfer.

Upon approval by FARO Customer Service, the new owner will receive a FARO Transfer of Original Warranty or Service Plan agreement form executed by FARO.

7. Replacement parts used for repair may be new, refurbished, or contain refurbished materials.

## **FARO Hardware NOT under Maintenance/Warranty**

Factory assessments and repairs on FARO-manufactured products will follow the following procedure:

1. The customer obtains a service number from FARO's Customer Service Department.
2. The customer ships the product to a FARO Service Center with the service number on the label along with payment or a corporate purchase order for system testing and evaluation, which includes compensation and calibration.
3. The payment will be applied toward the total service cost beyond the initial payment. The estimated repair cost will be given to the customer prior to the repair. The total cost must be paid prior to beginning the service.
4. The customer is responsible for all shipping charges to and from FARO, including import and export fees for international customers.
5. FARO will continue to repair FARO-manufactured hardware products as long as material and resources are available.
6. Replacement parts used for repair may be new, refurbished, or contain refurbished materials.

## **FARO Software**

FARO's warranty may differ depending on the Software you are utilizing. Please consult your software warranty or contact FARO

customer service to determine the warranty conditions for your particular software.

## Hardware & Software Training

FARO's training program is designed to instruct trainees in the operation of FARO's hardware and software, which the customer has purchased. The training classes are set up for each trainee to obtain valuable hands on application exposure. This will help the trainees in their everyday use of the hardware and software. FARO also feels that once the trainee completes the training, finding solutions to problems or applying applications will be simpler. Details are as follows:

1. The training class will prepare attendees to successfully attain an operator's certification (see *Certification Requirements* section below for more details).
2. The fee schedules for advanced additional training courses can be obtained from Customer Service, or the Sales department.

## Certification Requirements

An operator's inherent ability to understand 3D concepts may be in their background training. However, the precision with which the operator performs 3D measurements with the Hardware Device is critical in establishing the accuracy and repeatability of the results of subsequent measurements.

In order to establish the proficiency of operators, FARO has instituted an Operator Certification program, wherein each operator's knowledge and understanding of the Hardware Device is evaluated. The successful operator is awarded a certificate which identifies him/her as an accredited operator of the product. The requirements are as follows:

1. Attend a FARO-conducted basic training course, either at a FARO Facility or on site at your facility.
2. Certification will be awarded once the class has been completed, and then the certified user will be registered for hardware and software support.

To certify an operator, please contact your local FARO office.

## Repair Fee Schedule

**(Out of Warranty/Maintenance Owners Only!)**

**System Testing and Evaluation Fee** - Contact your local FARO Service Center for pricing.

A fee is charged for any system testing and evaluation. This includes system diagnosis, compensation and calibration, and applies to all FARO-manufactured hardware. However, this fee does not include disassembly/repair costs if required. An estimated cost for disassembly/repair will be given to the customer prior to the repair. The disassembly/repair charges must be paid in full prior to the actual disassembly/repair. However, if no repairs are needed the fee will be applied to the cost of system testing and evaluation. All evaluations contain a calibration. Recertification will be performed on an “as needed” basis.

Contact your local FARO Service Center for the current system testing and evaluation fee pricing.



# Transfer of Original Warranty or Service Plan Agreement

\_\_\_\_\_  
(SELLER'S CORPORATE, BUSINESS UNIT, OR INDIVIDUAL NAME AS APPLICABLE),  
hereby waives all rights under the warranty service policy for:

Hardware Device Serial Number \_\_\_\_\_

Additional Hardware Device Serial Number \_\_\_\_\_

Computer Service Tag Number \_\_\_\_\_

purchased originally on \_\_\_\_\_ (DATE).

\_\_\_\_\_  
(BUYER'S CORPORATE, BUSINESS UNIT, OR INDIVIDUAL NAME AS APPLICABLE),  
hereby assumes all rights and obligations of the Hardware Warranty/Maintenance from  
\_\_\_\_\_ (DATE OF TRANSFER).

This transfer is only valid under the following conditions:

1. The Hardware Device is currently under warranty/maintenance.
2. New owner is, or becomes, a certified user.
3. This maintenance/warranty transfer form is completed and submitted to FARO Customer Service.

AGREED

\_\_\_\_\_  
(PRINT SELLER'S CORPORATE, BUSINESS  
UNIT, OR INDIVIDUAL NAME AS  
APPLICABLE)

\_\_\_\_\_  
(PRINT BUYER'S CORPORATE, BUSINESS  
UNIT, OR INDIVIDUAL NAME AS  
APPLICABLE)

X \_\_\_\_\_

X \_\_\_\_\_

\_\_\_\_\_  
(PRINT NAME OF SIGNATORY)

\_\_\_\_\_  
(PRINT NAME OF SIGNATORY)

### FARO Technologies, Inc.

Approved by X \_\_\_\_\_

\_\_\_\_\_  
(PRINT NAME OF SIGNATORY)

### Buyer's Contact Information:

Company \_\_\_\_\_

Address \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone Number \_\_\_\_\_ E-mail \_\_\_\_\_

# Appendix B: Purchase Conditions

All Purchase Orders (hereafter, the “Order”) for FARO-provided products and services (hereafter, the “Product”) are subject to the following terms and conditions, which are agreed to by the Purchaser. All capitalized terms are defined in Section 8.00 Definitions hereafter.

## **1.00 Payment of Purchase Price**

1.01 Purchaser hereby promises to pay to the order of FARO all deferred portions of the Purchase Price, together with interest on late purchase price payments payable at 1.5% per month (18% per annum).

1.02 The Purchaser grants to FARO a security interest in the products sold pursuant to the Order, which may be perfected by UCC-1 Financing Statements to be recorded in the applicable County of the Purchaser’s business location and filed with the Secretary of State’s Office, which security interest will remain in effect until payment in full of the purchase price together with interest on late purchase price payments payable thereon had been received by FARO.

1.03 If the Purchaser fails to make full payment of the purchase price within the period set out in the Order, FARO shall at its option have the following remedies, which shall be cumulative and not alternative:

- a) the right to cancel the Order and enter the Purchaser’s premises to re-take possession of the Product, in which event the Purchaser agrees that any down-payment or deposit shall be forfeited to FARO, as liquidated damages and not as a penalty, and all costs incurred by FARO in connection with the removal and subsequent transportation of the Product shall be payable by the Purchaser upon written demand;
- b) the right to enter the Purchaser’s premises and remove any Software, components of the Product or other items necessary in order to render the Product inoperative;
- c) the right to withhold all services which would otherwise be required to be provided by FARO pursuant to the Warranties set out in Section 4.00 Warranties and Limitation of Liability hereof;
- d) terminate any existing software license agreement and
- e) pursue any other available remedy, including suing to collect any remaining balance of the purchase price (i.e., accelerate the

payment of the purchase price causing the entire balance to immediately become due and payable in full).

f) Customer will be charged a 20% restocking fee for refusal to accept equipment as delivered. Equipment must be returned unopened within 10 business days of receipt at customer facility.

1.04 If Purchaser fails to make payment(s) in accordance with the terms of this Order, the Purchaser's Products may be rendered inoperable until such payment terms are met.

No waiver by FARO of its rights under these conditions shall be deemed to constitute a waiver of subsequent breaches or defaults by the Purchaser. In the event more than one Product is being purchased pursuant to the Order, unless otherwise set forth herein, each payment received by FARO from Purchaser shall be applied pro rata against the cost of each product rather than being applied to the purchase price of any product.

## **2.00 Delivery and Transportation**

2.01 Delivery dates are estimates and not guarantees, and are based upon conditions at the time such estimate is given.

2.02 FARO shall not be liable for any loss or damage, whether direct, indirect or consequential, resulting from late delivery of the Product. The Purchaser's sole remedy, if the Product is not delivered within 90 days of the estimated delivery date, shall be to cancel the Order and to recover from FARO without interest or penalty, the amount of the down-payment or deposit and any other part of the purchase price which has been paid by the Purchaser. Notwithstanding the foregoing, such right of cancellation shall not extend to situations where late delivery is occasioned by causes beyond FARO's control, including, without limitation, compliance with any rules, regulations, orders or instructions of any federal, state, county, municipal or other government or any department or agency thereof, force majeure, acts or omissions of the Purchaser, acts of civil or military authorities, embargoes, war or insurrection, labor interruption through strike or walkout, transportation delays and other inability resulting from causes beyond FARO's control to obtain necessary labor, manufacturing facilities or materials from its usual sources. Any delays resulting from such causes shall extend estimated delivery dates by the length of such delay.

2.03 Responsibility for all costs and risks in any way connected with the storage, transportation and installation of the Product shall be

borne entirely by the Purchaser. If any disagreement arises as to whether or not damage to the Product was in fact caused in storage, transit or on installation, the opinion of FARO's technical advisors, acting reasonably, shall be conclusive.

### **3.00 Installation and Operator Training**

3.01 The Purchaser shall be responsible for installation of the Product, including, without limitation, the preparation of its premises, the uncrating of the Product and setting up of the Product for operation. Purchaser may elect to order contract services from FARO to perform this service should they elect to do so.

### **4.00 Warranties and Limitation of Liability**

4.01 FARO warrants that (subject to Section 4.06), the Product shall be free from defects in workmanship or material affecting the fitness of the Product for its usual purpose under normal conditions of use, service and maintenance. A complete statement of FARO's maintenance/warranty service is set forth in *Appendix C: FARO Products Service Policy*.

4.02 FARO warrants that the Software shall operate according to specifications and the System shall operate and perform in the manner contemplated in connection with the usual purpose for which it is designed.

4.03 The maintenance/warranty set out in paragraphs 4.01 shall expire at the end of the twelve (12) month period commencing on the date of shipment from the FARO factory (the "Maintenance/Warranty Period").

4.04 Subject to the limitations contained in Section 4.06, the Warranties shall apply to any defects found by the Purchaser in the operation of the Hardware Device and reported to FARO within the Maintenance/Warranty Period. If the Hardware Device or the Software is found by FARO, acting reasonably, to be defective, and if the defect is acknowledged by FARO to be the result of FARO's faulty material or workmanship, the Hardware Device will be repaired or adjusted to the extent found by FARO to be necessary or at the option of FARO, replaced with a new Hardware Device or parts thereof at no cost to the Purchaser.

4.05 Claims under the Warranties shall be made by delivering written notice to FARO of the defect in the System, the Hardware Device. Within a reasonable time of receipt of such notice, FARO shall

have the System and Hardware Device diagnosed by its service personnel, and maintenance/warranty service will be provided at no cost to the Purchaser if the System and Hardware Device is found by FARO to be defective within the meaning of this Section.

(If, in the reasonable opinion of FARO after diagnosis of the system and the Hardware Device are not defective, the Purchaser shall pay the cost of service, which shall be the amount that FARO would otherwise charge for an evaluation under a non-warranty service evaluation.

4.06 The Warranties do not apply to:

- a) Any defects in any component of a System where, if in the reasonable opinion of FARO, the Hardware Device, Software or System has been improperly stored, installed, operated, or maintained, or if Purchaser has permitted unauthorized modifications, additions, adjustments and/or repair to any hard drive structure or content, or any other part of the System, or which might affect the System, or defects caused or repairs required as a result of causes external to FARO workmanship or the materials used by FARO. As used herein, "unauthorized" means that which has not been approved and permitted by FARO.
- b) The Warranties shall not cover replacement of expendable items, including, but not limited to, fuses, diskettes, printer paper, printer ink, printing heads, disk cleaning materials, or similar items.
- c) The Warranties shall not cover minor preventive and corrective maintenance, including, but not limited to, replacement of fuses, disk drive head cleaning, fan filter cleaning and system clock battery replacement.
- d) Any equipment or its components which was sold or transferred to any party other than the original Purchaser without the expressed written consent of FARO.

4.07 Factory Repairs

- a) IF SYSTEM IS UNDER MAINTANENCE/WARRANTY:  
The Purchaser agrees to ship the Product to FARO in the original packing containers. FARO will return the repaired or replacement Product. FARO will incur the expense of the needed part and all return shipping charges to the Purchaser. FARO may authorize the manufacturer of a component of the Product to perform the service.

b) IF SYSTEM IS UNDER PREMIUM SERVICE PLAN: When practical and subject to availability, FARO will make available to the Purchaser substitute component parts or Hardware Device's ("Temporary Replacements") while corresponding parts of the Purchaser's system or Hardware Device are undergoing repair at FARO's factory. Shipping charges for these "Temporary Replacement" parts or Hardware Device's will be the responsibility of FARO.

c) IF SYSTEM IS NOT UNDER MAINTANENCE/WARRANTY: The Purchaser is responsible for the cost of the replacement part or software, and all shipping charges. All charges shall be estimated and prepaid prior to commencement of repairs.

d) Replacement parts used for repair may be new, refurbished, or contain refurbished materials.

4.08 Nothing herein contained shall be construed as obligating FARO to make service, parts, or repairs for any product available after the expiration of the Maintenance/Warranty Period.

#### 4.09 Limitation of Liability

FARO shall not be responsible under any circumstances for special, incidental or consequential damages, including, but not limited to, injury to or death of any operator or other person, damage or loss resulting from inability to use the System, increased operating costs, loss of production, loss of anticipated profits, damage to property, or other special, incidental or consequential damages of any nature arising from any cause whatsoever whether based in contract, tort (including negligence), or any other theory of law. FARO's only liability hereunder, arising from any cause whatsoever, whether based in contract, tort (including negligence) or any other theory of law, consists of the obligation to repair or replace defective components in the System or Hardware Device subject to the limitations set out above in this section.

This disclaimer of liability for consequential damage extends to any such special, incidental or consequential damages which may be suffered by third parties, either caused directly or indirectly resulting from test results or data produced by the system or any component thereof and the Purchaser agrees to indemnify and save FARO harmless from any such claims made by third parties.

4.10 The foregoing shall be FARO's sole and exclusive liability and the Purchaser's sole and exclusive remedy with respect to the system.

THE SOLE RESPONSIBILITY OF FARO UNDER THE WARRANTIES IS STATED HEREIN AND FARO SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES, WHETHER THE CLAIM IS FOR BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE.

OTHER THAN THE EXPRESS WARRANTIES HEREIN STATED, FARO DISCLAIMS ALL WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

4.11 FARO does not authorize any person (whether natural or corporate) to assume for FARO any liability in connection with or with respect to the Products. No agent or employee of FARO has any authority to make any representation or promise on behalf of FARO, except as expressly set forth herein, or to modify the terms or limitations of the Warranties. Verbal statements are not binding upon FARO.

4.12 The Maintenance/Warranties extend only to the Purchaser and are transferable, only under the following conditions:

- The Hardware Device is currently under maintenance/warranty.
- New owner is, or becomes, a certified user.
- A FARO maintenance/warranty transfer form is completed, and submitted to Customer Service.

All claims under the Warranties must originate with the Purchaser, or any subsequent owner, and the Purchaser will indemnify and save FARO harmless from any claims for breach of warranty asserted against FARO by any third party.

4.13 Oral representations of FARO or its sales representatives, officers, employees or agents cannot be relied upon as correctly stating the representations of FARO in connection with the system. Refer to this purchase order, any exhibits hereto and any written materials supplied by FARO for correct representations.

4.14 PURCHASER ACKNOWLEDGES THAT IT HAS PURCHASED THE SYSTEM BASED UPON ITS OWN KNOWLEDGE OF THE USES TO WHICH THE SYSTEM WILL BE PUT. FARO SPECIFICALLY DISCLAIMS ANY WARRANTY OR LIABILITY RELATED TO THE FITNESS OF THE SYSTEM FOR

ANY PARTICULAR PURPOSE OR ARISING FROM THE INABILITY OF THE PURCHASER TO USE THE SYSTEM FOR ANY PARTICULAR PURPOSE.

**5.00 Design Changes**

5.01 The Hardware Device, the Software and the System are subject to changes in design, manufacture and programming between the date of order and the actual delivery date. FARO reserves the right to implement such changes without the Purchaser's consent, however, nothing contained herein shall be construed as obligating FARO to include such changes in the Hardware Device, Software or System provided to the Purchaser.

**6.00 Non-Disclosure**

6.01 All Software including, without limitation, the Operating System Program and any FARO special user programs, provided to the Purchaser as part of the system, either at the time of or subsequent to the delivery of the Hardware Device, is the intellectual property of FARO. The Purchaser shall not reproduce or duplicate, disassemble, decompile, reverse engineer, sell, transfer or assign, in any manner the Software or permit access to or use thereof by any third party. The Purchaser shall forthwith execute any further assurances in the form of non-disclosure or licensing agreements which may reasonably be required by FARO in connection with the software.

**7.00 Entire Agreement / Governing Law / Miscellaneous / Guarantee**

7.01 These Purchase conditions constitute the entire agreement between FARO and the Purchaser in respect to the Product. There are no representations or warranties by FARO, express or implied, except for those herein contained and these conditions supersede and replace any prior agreements between FARO and the Purchaser.

7.02 No representative of FARO has any authority to modify, alter, delete or add to any of the terms or conditions hereof. Any such modifications shall be absolutely void unless made by instrument in writing properly executed by an actual authorized employee or agent of FARO.

7.03 The terms and conditions hereof shall be binding upon FARO and the Purchaser, and shall be construed in accordance with the laws of the State of Florida, United States of America.

7.04 FARO shall be entitled to recover all of its reasonable fees and costs including, but not limited to, its reasonable attorney's fees incurred by FARO in connection with any dispute or litigation arising thereunder or in connection herewith, including appeals and bankruptcy or creditor reorganization proceeds.

7.05 These conditions shall not be construed more strictly against one party than another as a result of one party having drafted said instrument.

## **8.00 Definitions**

8.01 "FARO" means FARO Technologies, Inc.

8.02 "Purchaser" means the party buying the Product and who is legally obligated hereunder.

8.03 "Software" means all computer programs, disk drive directory organization and content, including the computer media containing such computer programs and disk drive directory organization and content, sold pursuant to the Order.

8.04 "Product" means the Hardware Device, the Software, operating manuals and any other product or merchandise sold pursuant to the Order. If the Purchaser is buying only a Hardware Device, or the Software, Product will mean the product being purchased by the Purchaser pursuant to the Order.

8.05 "System" means a combination of the Hardware Device, the Software, the Computer, and optional parts and accessories associated with the Hardware Device.

8.06 "Certified user" means any person who has completed and passed the written exam issued by FARO. The exam is available upon request.

8.07 "Purchase Order" means the original document issued from the Purchaser to FARO, listing all parts and/or services to be purchased and the agreed purchase price.

8.08 "Maintenance/Warranty Transfer Form" means a document to be completed for the transfer of the FARO Maintenance/Warranty. This document is available from FARO upon request.

## Appendix D: FARO Service Policy

This Service Plan (hereinafter, the “Plan”) is part of the Operating Manual for the FARO manufactured product purchased from FARO TECHNOLOGIES, INC. (hereafter, “FARO”). The Plan and all of the optional additions, are subject to the conditions in Appendices A, B, & C, and are subject to change at any time. This appendix refers to FARO’s service plans as written in the sales advertising literature, and is meant to provide additional details that the literature does not provide.

1.00 The purchase of the Plan shall occur with the purchase of the FARO products.

1.01 The Plan shall apply to systems exclusively created or authored by FARO.

1.02 The Plan shall include FARO product hardware only, and cannot be extended or transferred through the sale of any part of the system to a third party unless the entire system has been sold or transferred.

1.03 The Plan shall not cover Hardware or Software which has been subjected to misuse or intentional damage. FARO reserves the right to determine the condition of all returned Hardware and/or Software.

1.04 FARO shall determine the service method and contractor to service/repair all hardware which is not directly manufactured by FARO. All outside contractor terms and conditions are available from FARO and are incorporated herein by reference.

1.05 FARO shall not be responsible for any non-FARO authored software which inhibits the operation of the system. Furthermore the Plan will not cover the re-installation of any software.

1.06 The Hardware and Software are subject to changes in design, manufacture, and programming. All updates are as follows:

- a) Hardware - The Hardware Device and all of the associated optional parts, including the Computer, are not subject to updates.
- b) Software - All computer programs, authored by FARO, which are used in conjunction with the FARO provided Hardware, will be updated in accordance with a particular update plan specific to the software.

c) 3rd Party software - All computer programs not authored by FARO will not be updated under the Plan. The purchaser is responsible for the acquisition of all 3rd party software updates and warranty service or claims.

1.07 In the event that FARO replaces any product or replacement product, FARO retains all right, title, and interest in and to all products or portions of products that were replaced by FARO.

## **2.00 Definitions**

2.01 “FARO” means FARO Technologies, Inc.

2.02 “Purchaser” means the party buying the Product and who is legally obligated hereunder.

2.03 "Product" means the FARO-manufactured Hardware Device, the Software, operating manuals and any other product or merchandise sold pursuant to the Order. If the Purchaser is buying only the FARO-manufactured Hardware Device, or the Software, Product will mean the product being purchased by the Purchaser pursuant to the Order.

2.04 “System” means a combination of the FARO-manufactured Hardware Device, optional parts associated therewith, the Software, and the Computer.

2.05 “Hardware” means the FARO-manufactured product and all associated optional parts, and the Computer if provided by FARO.

2.06 “Software” means all computer programs, authored by FARO, which are used in conjunction with the FARO provided Hardware.

The following is a layman’s definition of the coverage.

## **Standard Service Plans**

All shipping times below are to destinations within the continental United States. Outside the continental U.S., FARO will ship equipment directly to the customs broker.

- Standard Service Plans are contracted at time of purchase or at any time while a unit is covered by a FARO hardware service plan (as described in more detail later).
- The Standard Service Plan covers the Product.
- Shipping costs, including insurance from the Purchaser to FARO are the responsibility of the Purchaser. FARO will be responsible for all return shipping costs including insurance.

- FARO will return the hardware via 2 day service within the continental United States.
- Outside the continental United States, FARO will return the hardware to the customs broker via 2 day service.
- Expedited service can be arranged at the customer's expense.
- All reasonable efforts will be made to keep the service repair time within 7 (FaroArm), or 14 (Laser Tracker and Laser Scanner) working days. The equipment will be returned via 2-Day service; therefore, total service repair time will vary due to return shipping location.
- As the Product may be used with software packages not authored by FARO, this service plan is limited to covering only FARO produced or authored products. For items not produced or authored by FARO, the customer is responsible for securing their own separate warranty or service plan coverage.

## Hardware Coverage

### Product minus Computer

#### Covered

- All parts and labor for the Product falling under normal use as described in Appendix B.
- Annual compensation and calibration of the Product as necessary.

#### Not Covered

- Misuse
- Intentional Damage
- Wear and tear of probes, SMRs, target tooling and adaptors, ball bars, auxiliary hardware products such as cables, wrenches, hex keys, screwdrivers, etc.

### Computer

#### Covered

- FARO contracts with 3rd party service providers for this service for up to 3 years. The terms and conditions of FARO's contract with the provider apply herein and are incorporated herein by reference.
- Typically, these services include repair of the computer, memory cards, and video monitors.

### Not Covered

- All exclusions contained in the 3rd party service provider's policy which is incorporated herein by reference.
- Software operating system installation.
- User intentional or unintentional removal of key software property or files.

## Software Coverage

### Covered

- FARO's warranty may differ depending on the Software you are utilizing. Please consult your software warranty or contact FARO customer service to determine the warranty conditions for your particular software.

### Not Covered

- End users are responsible for the procurement and installation of 3rd party authored or software updates as required to use with FARO authored software products, unless FARO resold these packages to the end user as an authorized reseller. Examples of 3rd party authored software are: DOS, Windows, AutoCAD, AutoSurf, SurfCAM and others.

## Extended Warranty with Loaner

The Extended Warranty with Loaner Plans additionally provide loaner equipment when service (and in some cases calibration) is required. All equipment shipping costs are paid for by FARO (both ways)<sup>1</sup>. FARO will make its best efforts to ship all loaner equipment within 24 hours of the receipt of the purchaser's request. Once the need for a service has been verified by FARO, FARO will make its best effort to ship all loaner computers within 72 hours of the receipt of the purchaser's request.

# Appendix A: Software License Agreement

**BEFORE INSTALLING, COPYING, DOWNLOADING, ACCESSING, OR OTHERWISE USING THE SOFTWARE, YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS. INSTALLING, COPYING, DOWNLOADING, ACCESSING, OR OTHERWISE USING THE SOFTWARE INDICATE THAT YOU HAVE READ AND UNDERSTAND THIS SOFTWARE LICENSE AGREEMENT, AND THAT YOU AGREE TO BE BOUND BY ALL THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE WITH THEM, DO NOT INSTALL, COPY, DOWNLOAD, ACCESS, OR OTHERWISE USE THE SOFTWARE.**

**FARO Technologies, Inc.**

## **SOFTWARE LICENSE AGREEMENT**

This Software License Agreement is a legal agreement between You (defined below) and FARO Technologies, Inc. (“FARO”). If You do not agree with these terms: (a) do not install, copy, download, access, or otherwise use the Software (defined below); and (b) return the complete, unused Software and all accompanying items (including written materials) and packaging, within thirty (30) days after purchase, for a full refund of any amounts paid for the returned Software. By installing, copying, downloading, accessing, or otherwise using the Software you represent that you are acting on behalf of your employer (such employer being hereinafter referred to as “You,” “you” or the “Licensee”), and are authorized to, and do, accept these terms and conditions on its behalf.

### **1. Definitions**

1.1 Agreement. “Agreement” shall mean this Software License Agreement.

1.2 Licensed Software. “Licensed Software” shall mean the computer software, in machine-readable, object code form only, owned and distributed by FARO via CD ROM, the Internet, or other distribution mechanism, including any Upgrades to such Licensed Software that may be provided by FARO pursuant to this

Agreement. Licensed Software does not include third party software even if it is included in products supplied by FARO.

1.3 Licensed Software Materials. “Licensed Software Materials” shall mean any materials related to the Licensed Software and provided by FARO hereunder for use in connection with the Licensed Software.

1.4 Software. “Software” shall mean the Licensed Software and Licensed Software Materials.

## **2. License Grant**

2.1 License. Subject to compliance with the terms of this Agreement, FARO grants, and You accept, a non-exclusive, non-transferable, limited license to use the Software for internal business purposes only on a single computer by one user at a time.

2.2 Reservation of Rights. FARO shall retain all right, title, copyright, trade secrets, patents and other proprietary rights in and to the Software, and all modifications, enhancements and any derivative works thereof, regardless of origin. You do not acquire any rights, express or implied, in the Software or derivative works thereof, other than those specified in this Agreement, and all rights in and to the Software that are not expressly granted herein are reserved to FARO.

2.3 Copies. You may make one (1) copy of the Licensed Software, provided that such copy is used exclusively by You and solely for archival purposes. Except as set forth in this Section II (License Grant) You shall not use, print, copy, translate, or display the Software, in whole or in part. You shall not copy the Licensed Software Materials without FARO's prior written consent. You shall include, and shall under no circumstances remove, FARO's and its licensor's (if any) copyright, trademark, service mark and other proprietary notices on any complete or partial copies of the Software in the same form and location as the notice appears in the original.

2.4 Modifications. You shall not, and will not permit others to, modify, adapt, translate code, reverse engineer, decompile, disassemble or otherwise attempt to create derivative works from

the Licensed Software, otherwise alter the Licensed Software, or discover its source code.

**2.5 Compliance with Applicable Laws.** You shall at all times comply with all foreign, federal, state and local laws, whether in the form of statutes, regulations, rules, standards, directives, guidelines, judicial or administrative decisions, or any other federal, state or local action having the effect of law.

**2.6 Audit Right.** FARO shall have the right, upon reasonable notice during business hours, to audit your use of the Software for purposes of evaluating your compliance with this Agreement.

**2.7 Metering Devices.** The Licensed Software may contain technology-based metering devices and passive restraints to regulate usage. For example, the Licensed Software may contain a license file limiting use to the licensed number of concurrent users or named users or may temporarily restrict usage until license and other fees have been paid in full. You acknowledge that such passive restraints and metering devices are a reasonable method to ensure compliance with the license and have been factored into the license and other fees and the Agreement as a whole. You agree that you will not circumvent, override, or otherwise bypass such metering devices and passive restraints that regulate the use of the Licensed Software.

**2.8 Maintenance Package.** A separate maintenance package for the Licensed Software is available for purchase from FARO at a standard list price (the “Maintenance Package”). If you have selected and have paid for the Maintenance Package, then the Limited Warranty under Section 3.1 shall be extended for an extended warranty period (the “Extended Warranty Period”) which shall expire upon the expiration of the term of the Maintenance Package or at any time that You fail to pay any amount due in respect of the Maintenance Package. In addition, if You have a current Maintenance Package in good standing at the time of release of any enhancement, upgrade or modification of the Software (including any new version of the Licensed Software) (each an “Upgrade”), You shall be entitled to any such Upgrade without additional charge. If You do not have a current Maintenance Package in good standing at the time of the release of

an Upgrade, then you acknowledge that you are not entitled to any such Upgrade.

### **3. Limited Warranty**

3.1 Licensed Software Performance. FARO warrants that, for a period of thirty (30) days following the delivery of the Licensed Software to you (the “Standard Warranty Period”), the Licensed Software, as delivered, will substantially conform to the Licensed Software Materials provided by FARO to you, when properly used in the operating environment specified by FARO (the “Limited Warranty”).

3.2 Exclusive Remedy. If, during the Warranty Period (or Extended Warranty Period if You have a Maintenance Package as set forth in Section 2.8), you notify FARO of any non-compliance with the Limited Warranty occurring during such period, FARO will, in its sole option and discretion: (a) use commercially reasonable efforts to provide the programming services necessary to correct any verifiable non-compliance in the License Software; or (b) replace any non-conforming Licensed Software; or (c) terminate this Agreement in whole or in part, and refund to you the amounts paid for the non-conforming Licensed Software (provided that during the Extended Warranty Period the maximum amount subject to refund shall be the amount paid for the Maintenance Package). FARO does not guarantee results or represent or warrant that all errors or defects will be corrected. THE FOREGOING STATES YOUR SOLE AND EXCLUSIVE REMEDY WITH RESPECT TO NON-COMPLIANCE WITH THE LIMITED WARRANTY IN THIS SECTION III (LIMITED WARRANTY).

3.3 Warranty Disclaimer: EXCEPT FOR THE LIMITED WARRANTY CONTAINED IN SECTION 3.1 (AS EXTENDED IN TIME FOR PURCHASERS OF A MAINTENANCE PACKAGE), FARO DISCLAIMS ANY AND ALL WARRANTIES RELATED TO THE SOFTWARE WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, INTEROPERABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, QUIET ENJOYMENT, OR THOSE ARISING FROM TRADE USAGE

OR COURSE OF DEALING. FARO DOES NOT WARRANT THAT THE SOFTWARE WILL BE FREE FROM DEFECTS OR THAT USE OF THE LICENSED SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE. WITHOUT LIMITING THE FOREGOING, FARO DOES NOT WARRANT THE CORRECTNESS OF TEXT DISPLAYED BY THE SOFTWARE IN LANGUAGES OTHER THAN ENGLISH. IT IS YOUR RESPONSIBILITY TO CONFORM TO FARO'S STATED HARDWARE AND OPERATING SYSTEM REQUIREMENTS.

#### **4. Fees and Payment**

4.1 Fees, Invoicing and Payment. You shall pay the fees and charges for the Software and Maintenance Package if selected within thirty (30) days after the date of FARO's invoice. All fees and other charges paid hereunder are non-refundable. All past due amounts shall bear interest at the lesser of (a) one and one-half percent (1.5%) per month, or (b) the maximum rate allowed by law.

4.2 Taxes. The fees, charges or expenses under this Agreement do not include sales, use, property, excise, value-added, service or other taxes, or any penalties or interest related to such taxes, now or hereafter levied by any federal, state, local or other taxing authority relating to (a) any services rendered by FARO, (b) the Software or their use; (c) the license granted hereunder; or (d) this Agreement (collectively, "Taxes"). In addition to the payments otherwise due under this Agreement, you shall pay all Taxes. If FARO is required to pay Taxes (except Taxes based on FARO's income), FARO shall invoice You for such Taxes, and you shall pay such invoice in accordance with Section 4.1 (Fees, Invoicing and Payment). You agree to indemnify FARO for and hold it harmless against any out of pocket costs, interest and penalties imposed upon or incurred by FARO by reason of your failure to perform your obligations under this Agreement.

#### **5. Term and Termination.**

##### **5.1 Termination.**

5.1.1 By FARO. FARO may terminate this Agreement immediately upon written notice if You fail to comply with any of the terms and conditions of this Agreement or failing to pay any fees or other charges when due. Termination of this

Agreement by FARO shall, among other things, constitute termination of all licenses granted hereunder.

5.1.2 By You. You may terminate this Agreement by prior written notice to FARO, if FARO fails to perform any material term or condition of this Agreement, and does not cure such failure within forty-five (45) days after FARO's receipt of written notice from You particularly stating the default and your intention to terminate.

5.1.3 Effect of Termination. Within fifteen (15) days after any termination of this Agreement, You will furnish to FARO a written certification that through your best efforts and to the best of your knowledge, the original and all copies of the Software received from FARO or made in connection with such license have been returned to FARO or destroyed. Termination of this Agreement shall not limit either party from pursuing any other remedies available to it, nor shall termination relieve your obligation to pay all fees that have accrued or are otherwise owed by You hereunder.

## **6. Limitation Of Remedies And Liability**

6.1 Selection and Use of Software. You accept sole responsibility for 1) the selection of the Software to achieve your intended results; 2) the installation of the Software (unless installed by FARO); 3) the use of the Software; 4) the results obtained from Software and the use of those results; and 5) lost or damaged data and the adoption of procedures and safeguards (e.g., regular data backups) to prevent such loss or damage. You also accept sole responsibility for the selection and use of, and results obtained from, any other programs, programming, equipment or services used with the Software. You accept sole responsibility for all loss, claim, liability, or damage, and related costs and expenses arising directly or indirectly out of or in any way related to your own fault or negligence.

6.2 CONSEQUENTIAL DAMAGE WAIVER. IN NO EVENT SHALL FARO BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES (INCLUDING, WITHOUT LIMITATION, ANY DAMAGES ASSOCIATED WITH LOSS OF USE,

INTERRUPTION OF BUSINESS, LOSS OF DATA OR LOSS OF PROFITS).

6.3 LIMITATION ON DAMAGES. IN NO EVENT SHALL FARO BE LIABLE FOR ANY AMOUNT IN EXCESS OF THE AMOUNTS PAID TO FARO BY YOU IN RESPECT OF THE SOFTWARE ITEM TO WHICH THE DEFAULT RELATES.

6.4 BASIS OF THE AGREEMENT. THE ABOVE LIMITATIONS SHALL APPLY TO ANY CLAIMS OR DAMAGES ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT OR OTHERWISE, EVEN IF FARO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. You acknowledge that FARO has set its prices and entered into this Agreement in reliance upon the limitations of damages, waiver of consequential damages and disclaimers of warranties and damages set forth in this Agreement, and that the same form an essential basis of the bargain between you and FARO. You agree that the limitations, exclusions or disclaimers in this Agreement will survive and apply even if the exclusive remedies in Sections 3.2 (Exclusive Remedy) and 7.1 (Infringement Claims) are found to have failed of their essential purpose.

## **7. Intellectual Property Infringement**

7.1 Infringement Claims. FARO agrees to defend you in a lawsuit or other judicial action, and pay the amount of any adverse final judgment (or settlement to which FARO consents) from such lawsuit or judicial action, asserted by any third party against you that the Software infringe any U.S. patent, copyright or trademark issued as of the date FARO provided you with the Software (each, a "Claim"); provided, that you (a) promptly notify FARO in writing of the Claim; (b) give FARO sole control over the defense and settlement, if any, of the Claim; (c) provide FARO with full cooperation and assistance in the defense of the Claim; and (d) fully comply with FARO's direction to cease any use of the potentially infringing Software. In addition to the obligations set forth above, if FARO receives information concerning a Claim, FARO may, at its expense, but without obligation to do so, undertake further actions

such as: (a) procuring for you such patent, copyright or trademark right(s) or license(s) as may be necessary to address the Claim; or (b) replace or modify the Software to make it non-infringing. In the event FARO is, in FARO's sole discretion, unable to procure the right to continued use of the allegedly infringing Software or replace or modify the Software to make it non-infringing as set forth above, FARO may terminate this Agreement in whole or in part, and the allegedly infringing Software shall be promptly returned to FARO. In such event, FARO's sole and maximum liability for such infringement shall be to refund to you the amount paid to FARO for such infringing item, less depreciation as calculated on a five-year straight-line basis commencing with the Effective Date.

7.2 Limitations. The obligations set forth in this Section VII (Intellectual Property Infringement) shall not apply, and FARO shall have no obligations with respect to, any Claim or infringement arising out of: (a) the use of the Software other than in strict accordance with this Agreement and any applicable documentation or instructions supplied by FARO; (b) any alteration, modification or revision of the Software not performed by FARO; (c) your failure to use or implement Updates made available without charge by FARO; (d) your distribution, marketing or use of the Software for the benefit of third parties; (e) the combination of the Software with materials not supplied by FARO; or (f) information, materials or specifications provided by or on behalf of yourself. In the event that FARO is required to defend a lawsuit or other judicial action pursuant to Section 7.1 (Infringement Claims) above and such lawsuit or other judicial action includes allegations with respect to non-FARO products (including without limitation, third party materials), then you shall retain, at your sole expense, separate counsel to defend against such allegations, and agree to reimburse FARO for any and all attorney's fees and costs incurred by FARO with respect to defending against such allegations. Moreover, FARO and its suppliers shall have no liability for any intellectual property infringement claim (including, without limitation, any Claim) based on your manufacture, use, sale, offer for sale, information or other disposition or promotion of the Software after it has received FARO's notice that you should cease use of such

Software due to such claim. You shall indemnify and defend FARO from and against all damages, costs and expenses, including reasonable attorneys' fees incurred due to your continued use of the allegedly infringing Software after FARO provides such notice. THE PROVISIONS OF THIS SECTION VII (INTELLECTUAL PROPERTY INFRINGEMENT) STATE FARO'S ENTIRE LIABILITY AND YOUR SOLE AND EXCLUSIVE REMEDIES WITH RESPECT TO ANY CLAIM OR OTHER ALLEGATION INVOLVING INFRINGEMENT OR MISAPPROPRIATION OF INTELLECTUAL PROPERTY RIGHTS.

## 8. **Protection And Security of Software**

8.1 Confidentiality. You acknowledge that the ideas, methods, techniques and expressions thereof contained in the Software or disclosed or delivered through the provision of services hereunder (collectively, "FARO Confidential Information") constitute confidential and proprietary information belonging to FARO, the unauthorized use or disclosure of which would be damaging to FARO. You agree to hold the Software and FARO Confidential Information in strictest confidence, disclosing same only to your employees (excluding independent contractors) with a need to know and to use such information only for the purposes authorized by this Agreement. You are responsible for and agree to take all reasonable precautions, by instruction, agreement or otherwise, to ensure that your employees who are required to have access to such information in order to perform under this Agreement, are informed that the Software and FARO Confidential Information are confidential proprietary information belonging to FARO and to ensure that they make no unauthorized use or disclosure of such information. You may disclose said materials if you are required to do so pursuant to a governmental agency or court of law so long as you provide FARO with written notice of such request prior to such disclosure and cooperates with FARO to obtain a protective order.

8.2 Disposal. Prior to disposing of any media reflecting or on which is stored or placed any Software, you shall ensure that such Software thereon or therein have been erased or otherwise destroyed.

8.3 Equitable Relief. You recognize that no remedy at law for damages is adequate to fully compensate FARO for the breach of the covenants in this Section VIII. Therefore, FARO shall be entitled to temporary injunctive relief against you without the necessity of proving actual damages. Such injunctive relief shall in no way limit any other remedies FARO may have as a result of breach by you of the covenants contained herein.

## 9. **Miscellaneous**

9.1 Notices. Any notices required or permitted to be given hereunder by either party to the other shall be given in writing: (1) by personal delivery; (2) by electronic facsimile with confirmation sent by United States first class registered or certified mail, postage prepaid, return receipt requested; (3) by bonded courier or by a nationally recognized overnight delivery company; or (4) by United States first class registered or certified mail, postage prepaid, return receipt requested. In the case of notice sent to FARO, all such notices shall be sent to the attention of Customer Service at FARO. Notices shall be deemed received on the earliest of personal delivery, upon delivery by electronic facsimile with confirmation from the transmitting machine that the transmission was completed, one business day following deposit with a bonded courier or overnight delivery company, or three business days following deposit in the U.S. Mail as required herein.

9.2 Entire Agreement/Interpretation. This Agreement together with the Quotation to which this Agreement is attached and any applicable provision in any other appendix to such Quotation constitutes the complete and exclusive statement of the agreement between FARO and You with respect to the subject matter hereof, and all previous representations, discussions, and writings are superseded by this Agreement. With respect to matters relative to Software, this Agreement shall prevail over any conflicting or inconsistent terms and conditions which may appear in any other Appendix to the Quotation. No alteration, amendment, or modification of the terms of this Agreement shall be valid or effective unless in writing and signed by You and FARO. If any provision of this Agreement is found to be invalid or unenforceable by any court, such provision shall be ineffective only to the extent of such invalidity or unenforceability without invalidating the

remaining provisions hereof. You acknowledge and agree that you desire to execute and accept this Agreement electronically in substitution for conventional paper-based documents. You agree that this Agreement shall be admissible as between the parties to the same extent and under the same conditions as other business records originated and maintained in documentary form.

9.3 Force Majeure. Any delays in, or failure to perform, any provision of this Agreement (other than for the payment of amounts due hereunder) caused by acts, omissions, events, causes or conditions beyond the parties' reasonable control (including, without limitation, acts of God, third-party nonperformance, failure of or defects and errors in third party software or hardware, acts of governmental entities, civil disobedience or insurrection, lock-outs, freight embargoes, acts of civil or military authorities, terrorists, fires, floods, wars, or riots) shall not constitute a breach of this Agreement and shall not give rise to any claim for damages, and the time for performance of such provision, if any, shall be deemed to be extended for a reasonable period of time at least equal to the duration of the conditions preventing performance.

9.4 Waiver. All waivers under this Agreement shall be in writing and be identified in such writing as a waiver to this Agreement in order to be effective. No failure or delay by a party to exercise any right it may have by reason of the default of the other party shall operate as a waiver of default or modification of this Agreement or shall prevent the exercise of any right of the non-defaulting party under this Agreement.

9.5 Survival. The expiration or termination of this Agreement for any reason will not release either party from any liabilities or obligations set forth herein which (a) the parties have expressly stated will survive such expiration or termination, (b) remain to be performed, or (c) by their nature would be intended to be applicable following such expiration or termination.

9.6 Governing Law and Venue. This Agreement shall be construed in accordance with the laws of the State of Florida. The parties agree that all actions or proceedings arising in connection with this Agreement shall be tried and litigated exclusively in the state or federal (if permitted by law and a party elects to file an action in

federal court) courts located in \_\_\_\_\_. Any action of any kind brought by you and arising out of or in any way connected with this Agreement must be commenced within one (1) year of the date upon which the cause of action accrued.

**9.7 Assignment.** You may not sublicense, assign or transfer this Agreement or the Software without prior written consent of FARO. Any attempt to sublicense, assign or transfer any of the rights, duties or obligations hereunder without prior written consent of FARO is null and void.

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**FARO Technologies, Inc.**

250 Technology Park  
Lake Mary, FL 32746  
800-736-2771 U.S. / +1 407-333-3182 Worldwide  
FAX: +1 407 562 5294  
E-Mail: support@faro.com

**FARO Europe GmbH & Co. KG**

Lingwiesenstrasse 11/2  
D-70825 Korntal-Münchingen, Germany  
FREECALL +800 3276 7378 / +49 7150/9797-400  
FREEFAX +800 3276 1737 / +49 7150/9797-9400  
E-Mail: support@faroEurope.com

**FARO Singapore Pte. Ltd.**

3 Changi South Street 2  
#01-01 Xilin Districentre Building B  
SINGAPORE 486548  
TEL: 1800 511 1360, +65.6511.1360  
FAX: +65 65430111  
E-Mail: supportap@faro.com

**FARO Japan Inc.**

716 Kumada, Nagakute-shi,  
Aichi 480-1144, Japan  
TEL: 0120.922.927, +81 561 63 1411  
FAX: +81.561.63.1412  
E-Mail: supportjapan@faro.com

**FARO (Shanghai) Co., Ltd.**

1/F, Building No.2  
Juxin Information Technology Park  
188 Pingfu Road, Xuhui District  
Shanghai 200231 CHINA  
TEL: +800 6511 1360, +86 021 61917600  
FAX: +86 21 64948670  
E-Mail: supportchina@faro.com

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