MSI Plugin for Autodesk Revit Configuration Guide

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Revision: 6

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Introduction

The Motorola Solutions Plugin for Autodesk Revit (version 2.1) allows users to import Avigilon and Pelco cameras into Revit projects. This adds extra functionality to Revit for security design.

This guide outlines the procedure for installing and configuring the Motorola Solutions Plugin for Autodesk Revit.

Requirements

Before installing the Plugin, ensure the following:

- Autodesk Revit is installed and configured on the same machine that you are installing the Revit plugin.

  Supported Versions of Autodesk Revit include 2019 through 2026.

- Internet is connected for browsing the Camera portfolios and importing the cameras into projects.

Additional system requirements for Autodesk Revit can be found on the Autodesk website.

Download the Installer

Downloading the Installer from the Avigilon website

1. To download the Revit installer from the Avigilon website, click here: avigilon.com/revit-plugin
2. On the Revit Plugin product page, scroll to the Download section at the bottom of the page.
3. Click **Asset Type**, and select **Software** from the drop-down menu.
4. You will see the link to download the installer and supporting documentation.

Downloading the Installer from the Pelco website

1. To download the Revit installer from the Pelco website, click here: pelco.com/revit-plugin
2. On the Revit Plugin product page, fill out the fields of the download form, and click **Submit**.
3. You will receive an email with a link to download the installer and supporting documentation.

Install the Revit Plugin

After downloading the installer, following these steps to begin the installation:

1. Close Autodesk Revit.
2. Click on the installer for Motorola Solutions Plugin for Autodesk Revit.
3. Follow the on-screen prompts until the installation is complete.
4. Launch Autodesk Revit.
5. For new installations, Revit will prompt you to allow the Plugin to be enabled.
6. You will receive a prompt to log into your Avigilon account, or to create an account.

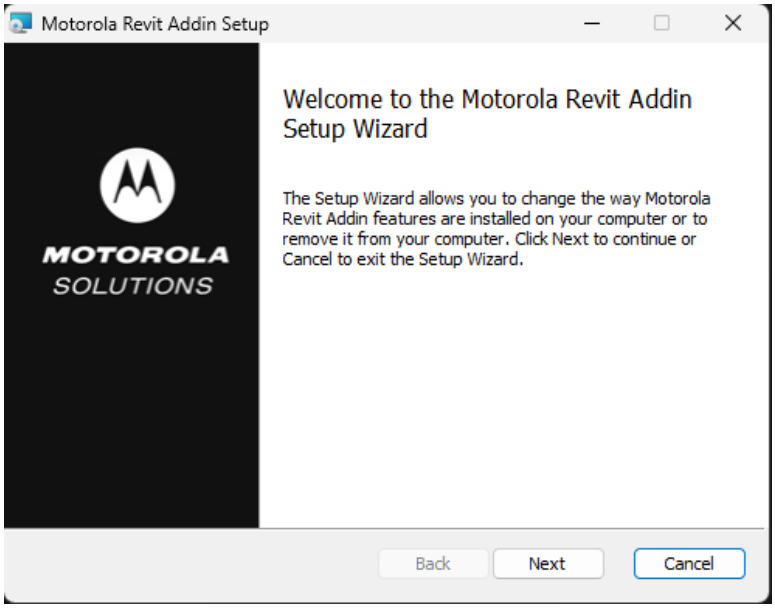


Figure 1: The Motorola Revit Addin Setup Wizard.

Launch the Revit Plugin

After you install the plugin, there will be a new Motorola tab on the top ribbon. Click on **Motorola** to see the plugin menu and icons.

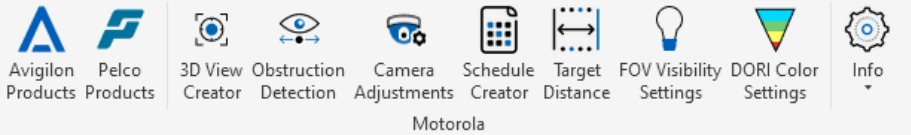


Figure 2: Plugin Ribbon Menu.

Features

Avigilon products

1. Click on the **Avigilon Products** icon to launch the product selector. The product selector shows the Avigilon camera lines, including both Unity and Alta camera lines.
2. Click on the appropriate category to narrow your search. Alternatively, click on **Security Cameras** to show all cameras.

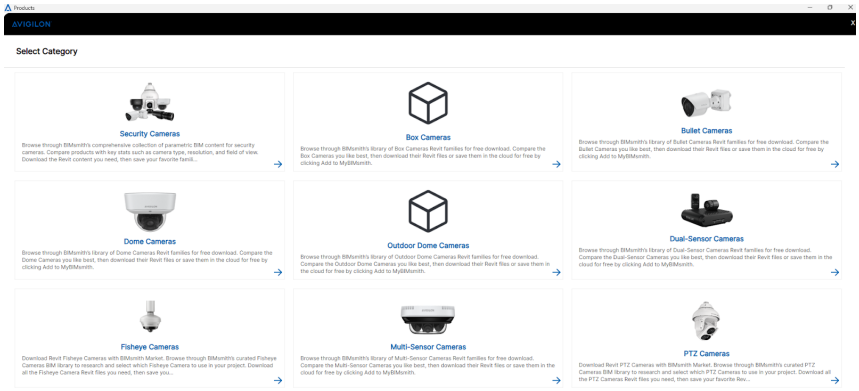


Figure 3: Avigilon Product Selector.

3. After selecting the appropriate category, use the filters on the left side of your screen to narrow your search.

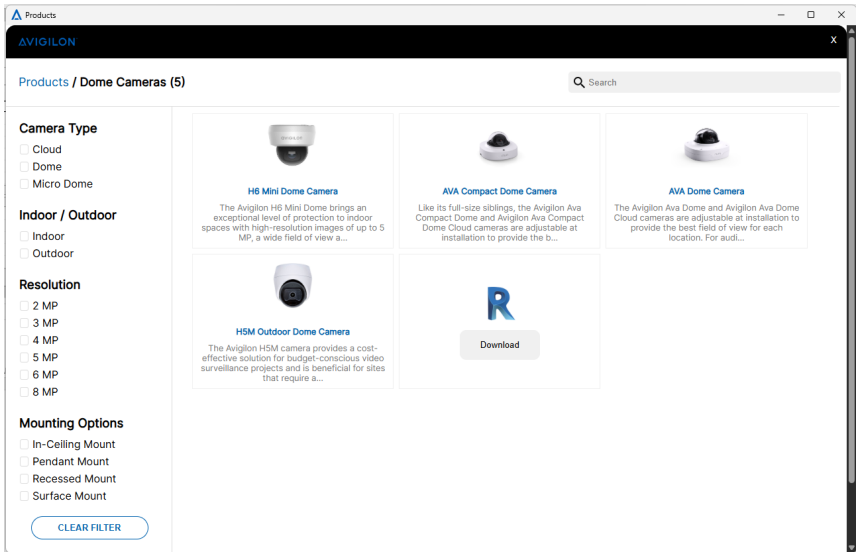


Figure 4: Avigilon Product Filters.

4. Hover your cursor over the camera to see a **Download** button.

Figure 5: Download button.

5. Click the **Download** button to import the camera family into Revit.

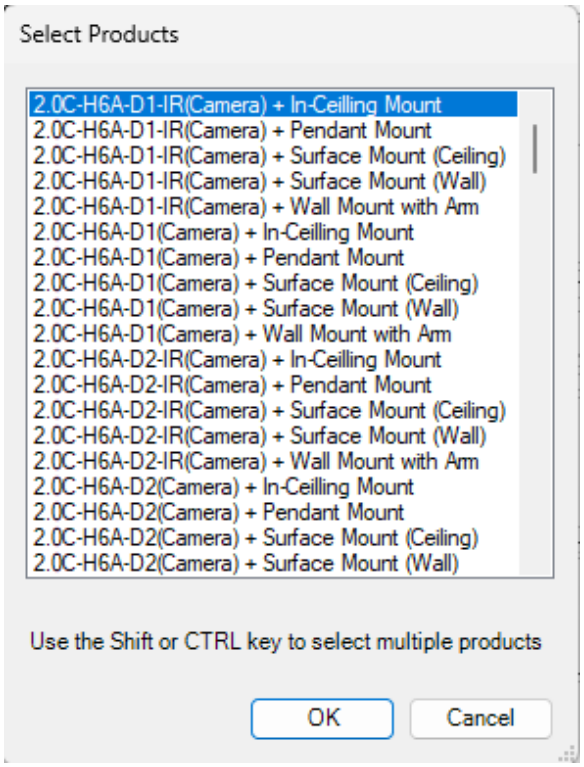


Figure 6: Select Products Screen.

6. After the camera data is downloaded, you will be prompted to highlight one or all of the specific models of that camera.
7. Click **OK**.
8. Place the camera, in the project browser under Security Devices.
9. Under Security Devices, you can view the various camera families in your project.

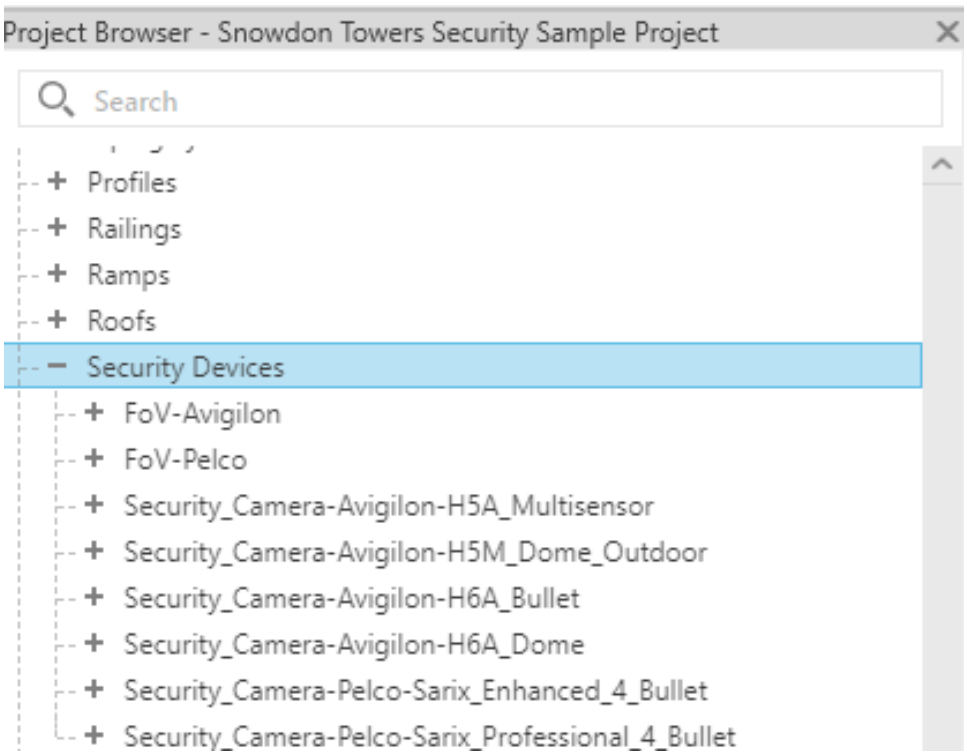


Figure 7: Camera listed in project browser.

Pelco Products

1. Click on the **Pelco Products** icon to launch the product selector. The product selector shows the Pelco camera lines.
2. Click on the appropriate category to narrow your search. Alternatively, click on **Security Cameras** to show all cameras.

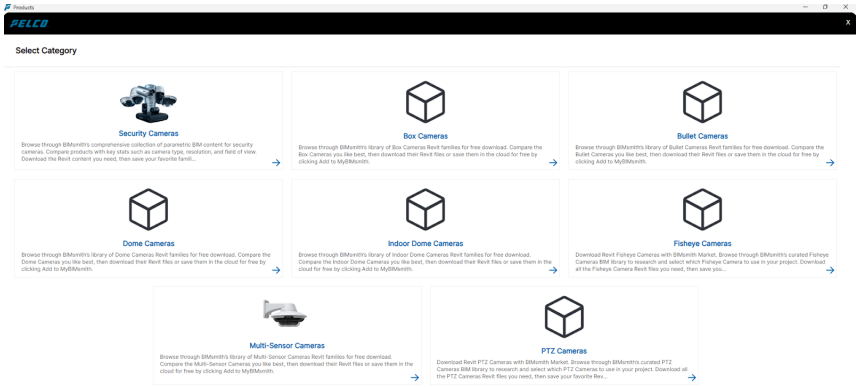


Figure 8: Pelco Product Selector.

3. After selecting the appropriate category, use the filters on the left side of your screen to narrow your search.

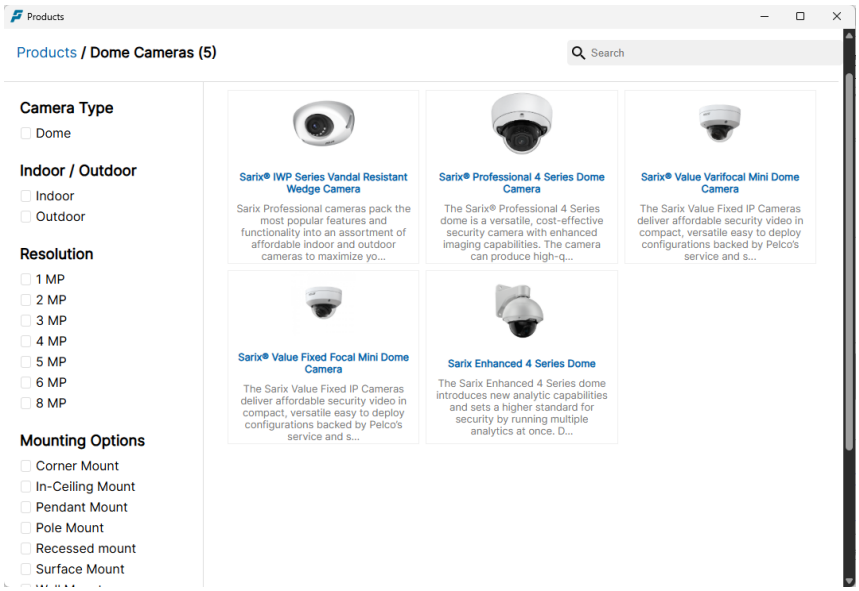


Figure 9: Pelco Product Filters.

4. Hover your cursor over the camera to see a **Download** button.

Figure 10: Download button.

5. Click the **Download** button to import the camera family into Revit.

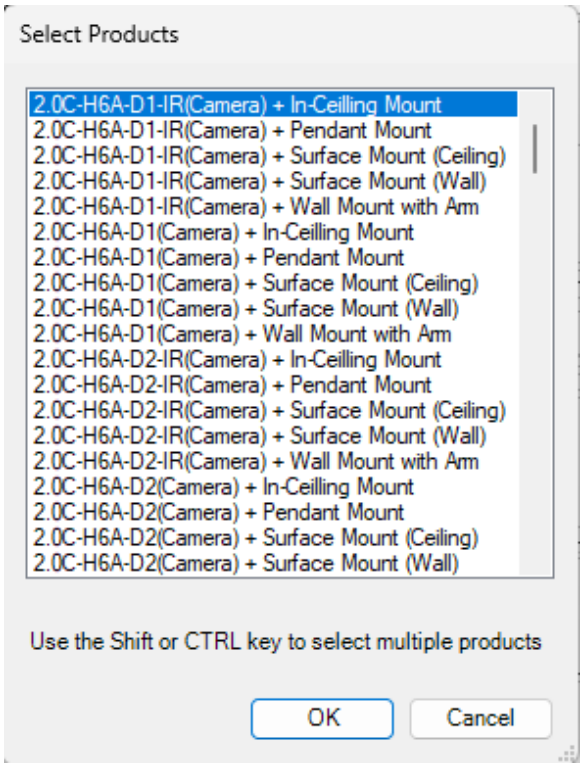


Figure 11: Select Products Screen.

6. After the camera data is downloaded, you will be prompted to highlight one or all of the specific models of that camera.
7. Click **OK**.
8. Move the camera to the correct place in your project and left click to place it.
9. You can find the imported cameras in your project browser under security devices.
10. Highlight and drag the camera family name onto your project and place it in the desired location.

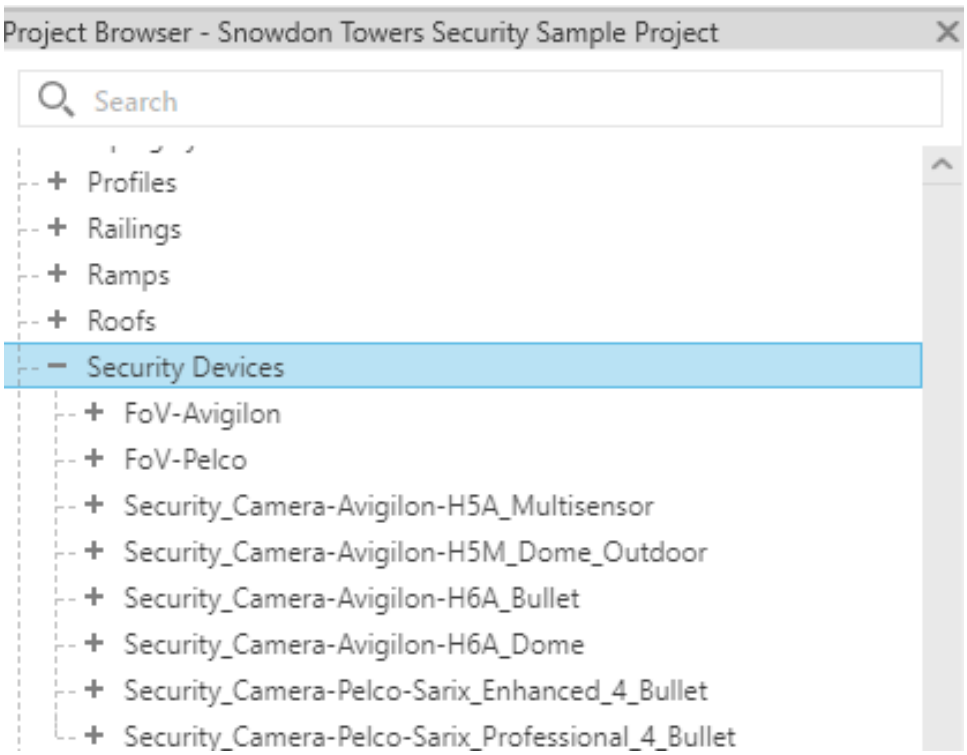


Figure 12: Cameras listed in project browser.

Camera View

Use Camera View to create a 3D simulation of the camera's Field of View (FoV).

1. Click on any Pelco or Avigilon camera in the project.
2. Click **Camera View**.

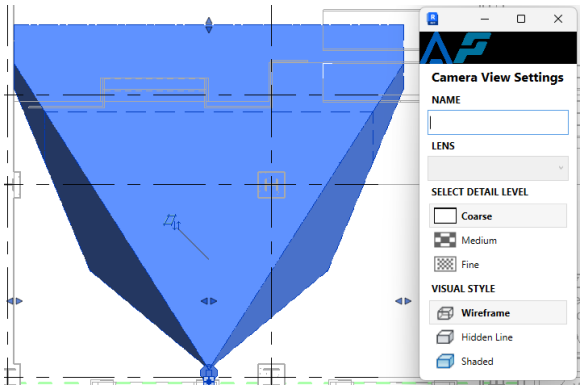


Figure 13: Camera View pop-up window.

3. When prompted, enter the Name of the FoV, and any additional details in the fields provided.
4. Click **OK** to save the FoV in the Project Browser.

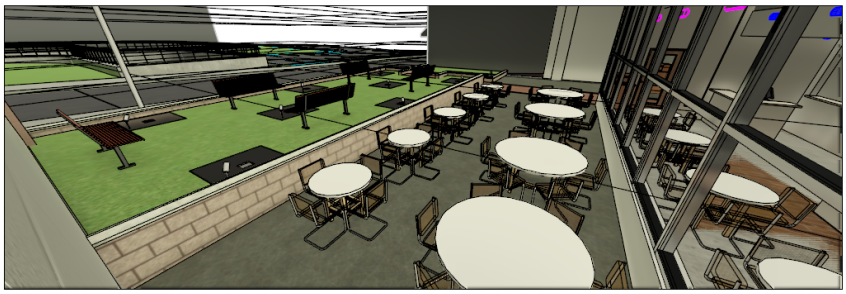


Figure 14: Sample 3D Camera View.

Obstruction Detection

Use Obstruction Detection to check for objects obstructing the camera's Field of View (FoV). The FoV cone shows blind spots and gaps in coverage. This includes walls, doors, lighting fixtures, pillars, etc.

Enabling Detection overrides the FoV cone.

1. Select **Obstruction Detection**.
2. Check the boxes for any **Structural Constraints** to include during **Obstruction Detection**.
3. Check the boxes for any additional **Model Categories** to include during **Obstruction Detection**.
4. Select whether to include floors and openings as part of the detection (**On** by default).
5. Select the starting height below the ceiling to use during **Obstruction Detection** from the **Cut From Ceiling Level** drop down menu.
6. Select **Advance Settings** to manually select elements to include or exclude during **Obstruction Detection**.

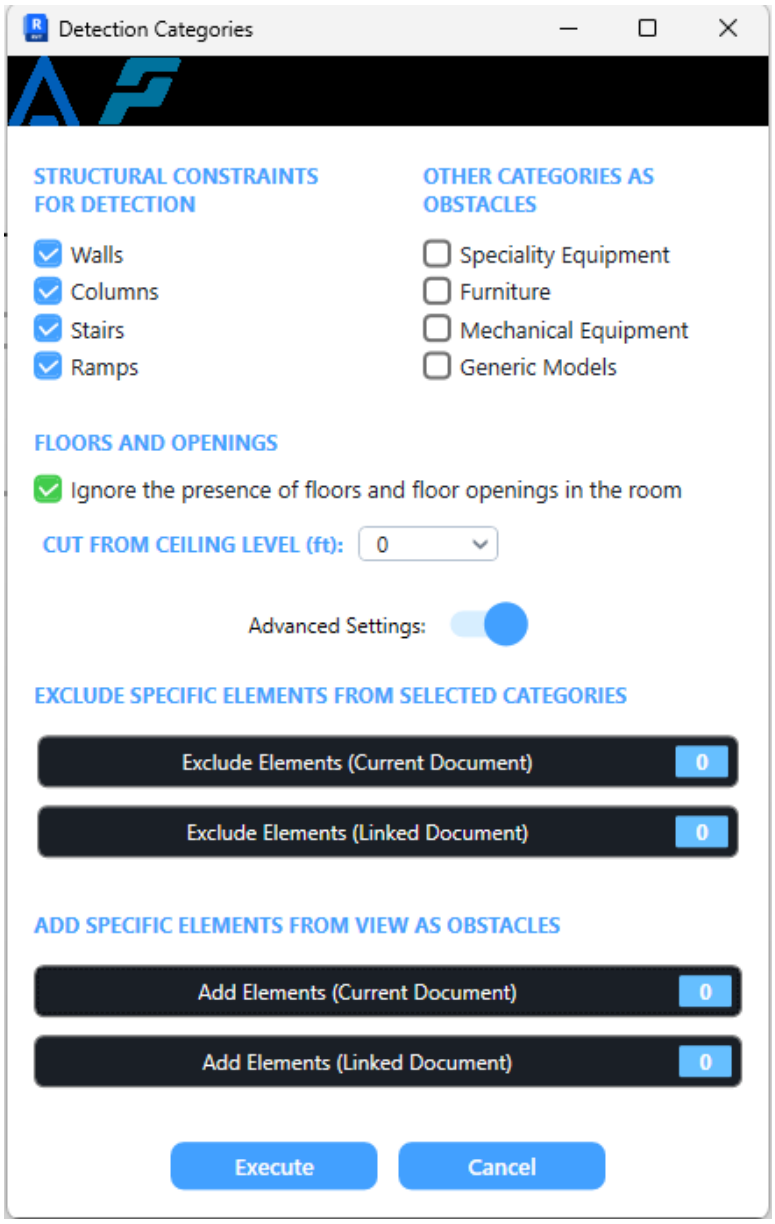


Figure 15: Obstruction Detection Categories menu.

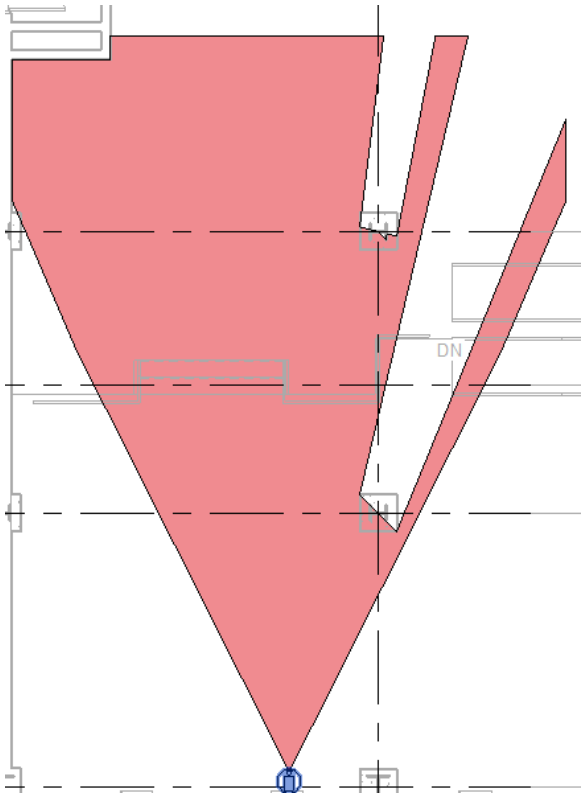


Figure 16: Example of detection View enabled for Camera.

Deleting the Obstruction Detection View

1. Highlight the detection view.
2. Click **Delete**.

Re-Enabling the Default Field of View

1. Select the camera.
2. Check the box for **Field of View Visability**.

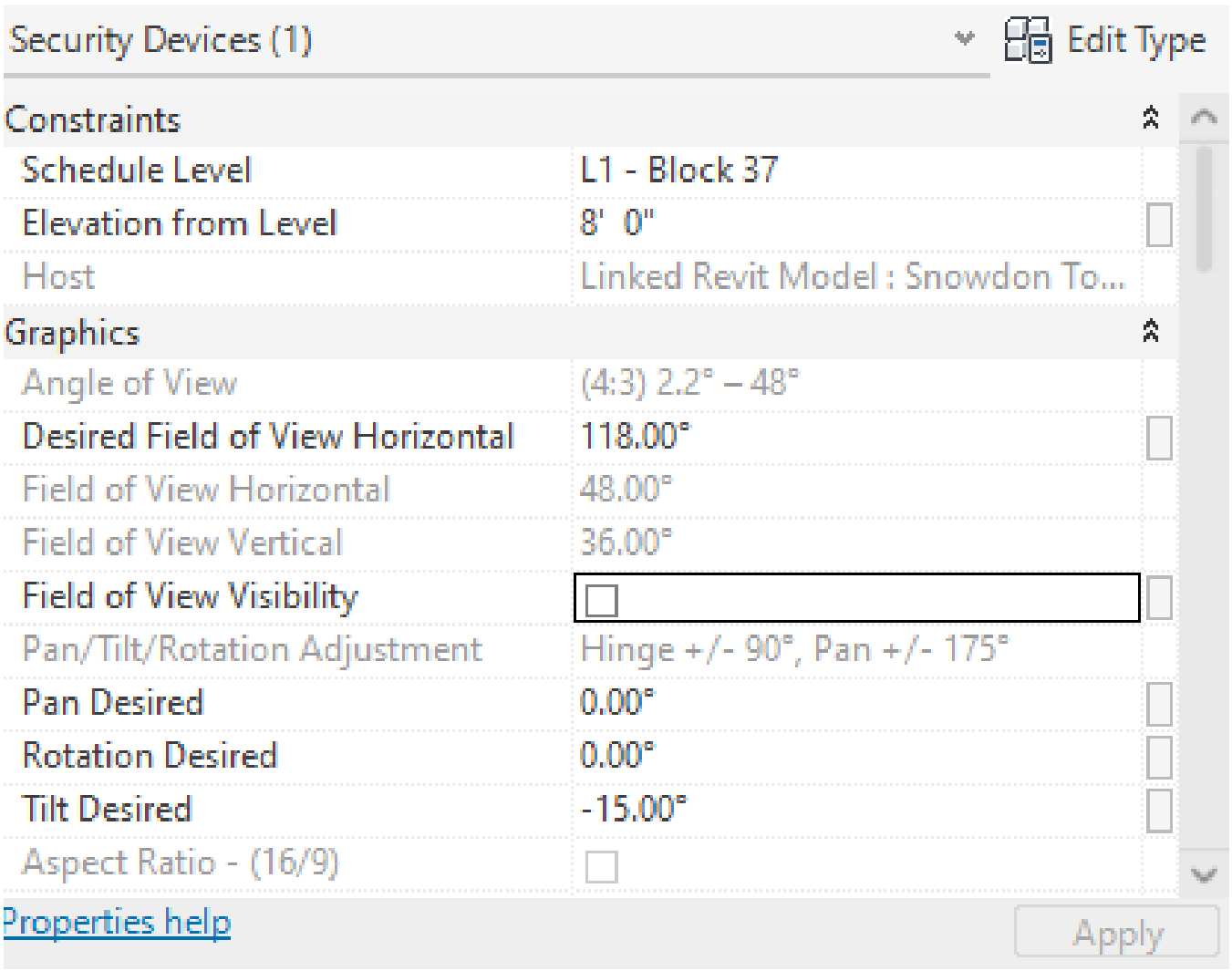


Figure 17: Deleting detection view and enabling default Field of View.

Camera Adjustments

Use Camera Adjustments to move and edit the camera while previewing the 3D view.

1. Highlight the camera and click **Camera Adjustments**.
2. Use the arrows to pan, rotate or tilt the camera.
3. Select from the available camera lens options and accessories.

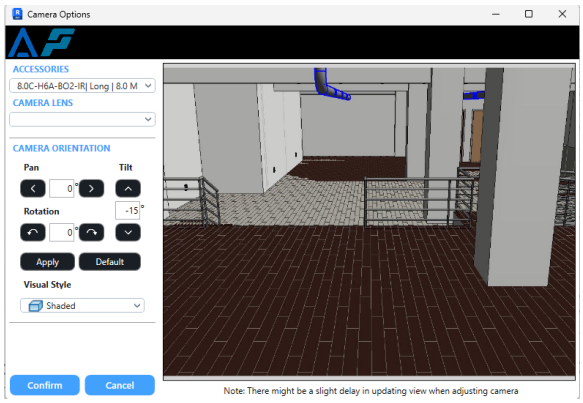


Figure 18: The Camera Options Selector screen.

Schedule Creator

Use Schedule Creator to create a security device schedule. There are two options, select from pre-made schedule templates or see a list of available fields for creating schedules.

1. Click on **Schedule Creator** and select either **Parameters** or **Predefined Schedules**.
2. Then click **confirm**.

Parameters

1. To use Select Parameters, highlight one or more of the available fields and hit **Add**. This moves the field to the right.
2. Use the **Up** or **Down** buttons to change the order of the fields.
3. Click **Confirm** to create the schedule.
4. The schedule will be listed in the project browser. This schedule will dynamically update as more cameras are added.

Predefined Schedules

1. To use Pre-defined Schedules, click **Confirm**.
2. Select a schedule type from the list:
    1. **Security Device 1** includes the following parameters: Count, Family, Type, Manufacturer, Description
    2. **Security Device 2** included the following parameters: Family, Type, Manufacturer, Comments
    3. **Security Device 3** included the following parameters: Camera ID, Friendly Name, Height, Pixels Per Foot, Product Name, Room: Name, Room: Area
3. Click **Confirm** to create the schedule.
4. The schedule will be listed in the project browser. This schedule will dynamically update as more cameras are added.

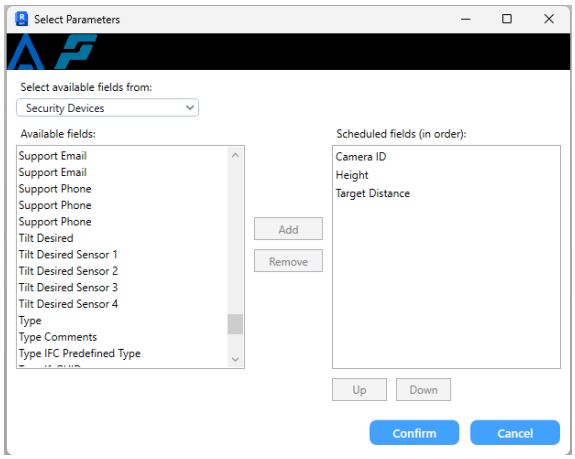


Figure 19: The Schedule Creator Field Selector pop-up window.

Target Distance

Use Target Distance to calculate distance in pixels per foot (PPF) or pixels per meter (PPM). This enables you to determine the furthest distance for a given PPF or PPM requirement.

1. Place and configure the camera's field of view (FoV).
2. Highlight the camera.
3. Click **Target Distance**, found on the plugin ribbon on the top menu.
4. A window will pop-up that displays the PPF/PPM value for the target distance.
5. To calculate the target distance at a specific PPF or PPM value, change the PPF/PPM value and click **Confirm**.
6. To calculate the PPF/PPM for an exact distance, change the specific distance in feet or meters and click **Confirm**

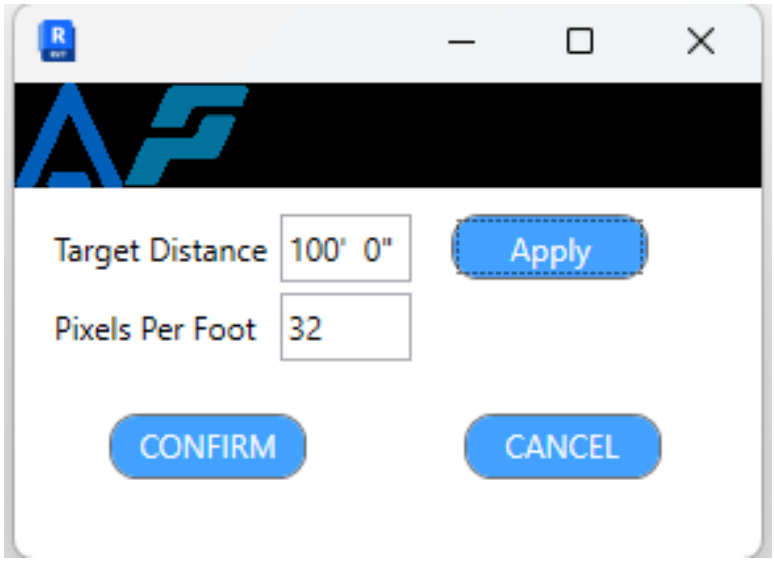


Figure 20: Example of Target Distance pop-up window.

Info

The Info tab provides information on the software version.

Figure 21: The Info tab drop-down menu.

1. Select **Version** from the drop-down menu to view the software version number.

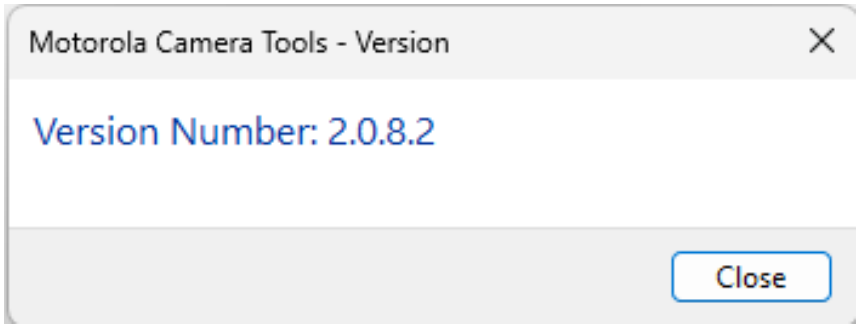


Figure 22: Shows the current software version.

2. Select **Update** to update the software to the latest version.
3. Default browser will download an installation file.
4. Refer to *Download the Installer* for installation instructions.

Motorola Solutions Camera Families

The MSI Revit Plugin imports camera families from Avigilon and Pelco cameras. You can view camera information in the project browser under security devices.

After importing and placing the cameras into the model, you can adjust the parameters and use various plugin features.

Here is a list of some of the available parameters:

- Schedule Level
- Elevation from Level
- Angle of View
- FOV H
- FOV V
- Pan/Tilt/Rotation
- Camera ID
- Form Factor
- Friendly Name
- Notes
- Comments
- DORI Ranges (Detection, Observation, Recognition, Identification)
- Pixels per foot/meter
- Target Distance

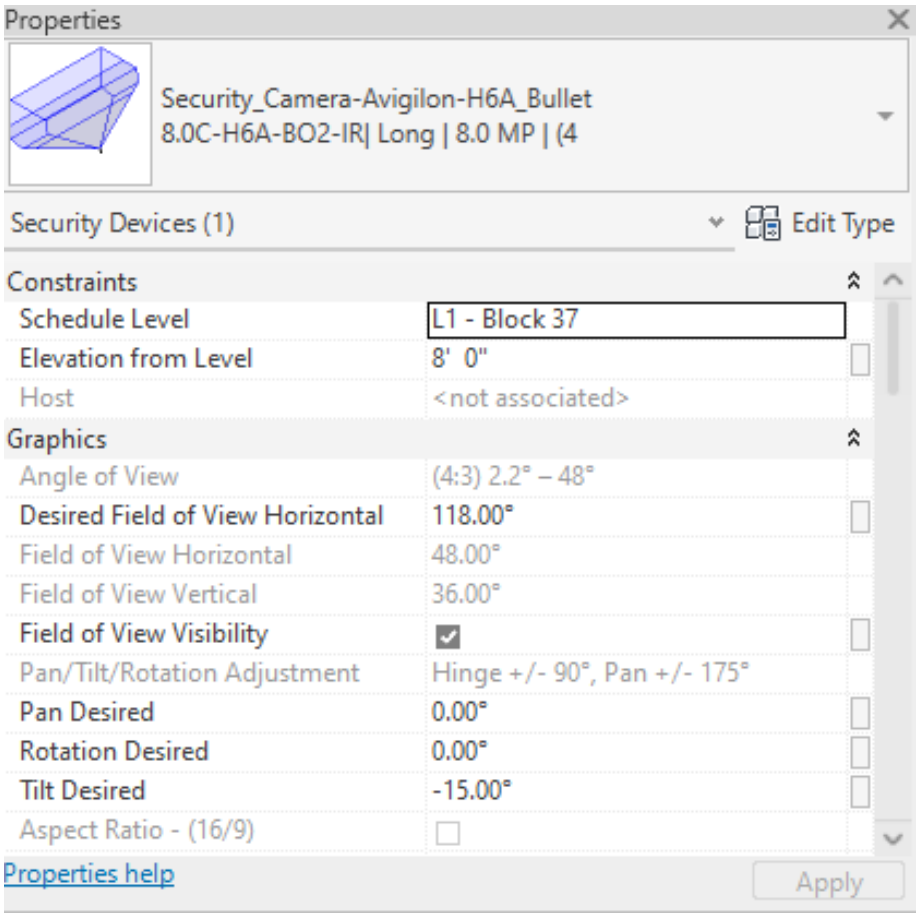


Figure 23: Example of a camera family properties window.

Field of View Cones

Each camera has an available field of view cone that is enabled by default.

Disabling the Field of View Cone (Individual Camera)

1. To disable the field of view cone, click on the camera.
2. Uncheck the box for **Field of View Visibility** in the properties window.

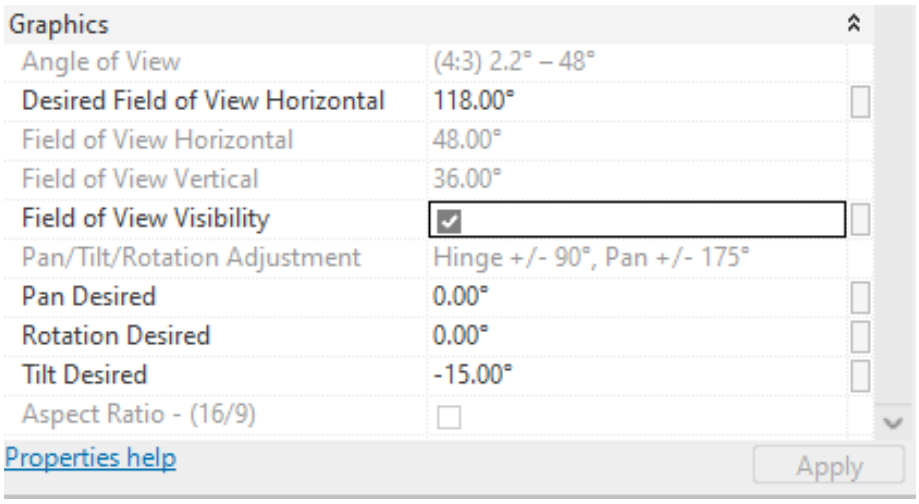


Figure 24: Example of Property for enable/disable field of view cones.

Disabling the Field of View Cone (Mulitple Cameras)

1. To disable the field of view cone across multiple levels or globally through out the project
2. Click on FOV Visibility Settings.
3. Click on the toggle switches to enable/disable the visibility settings of the FOV Cone and Detection Regions across individual levels or globally across the project.

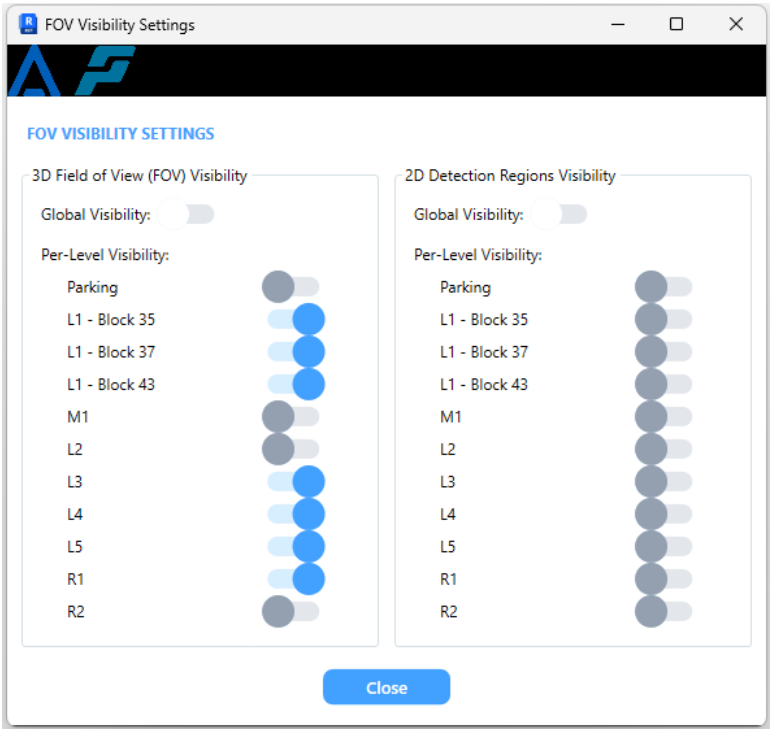


Figure 25: Example of the Field of View Visibility Settings menu.

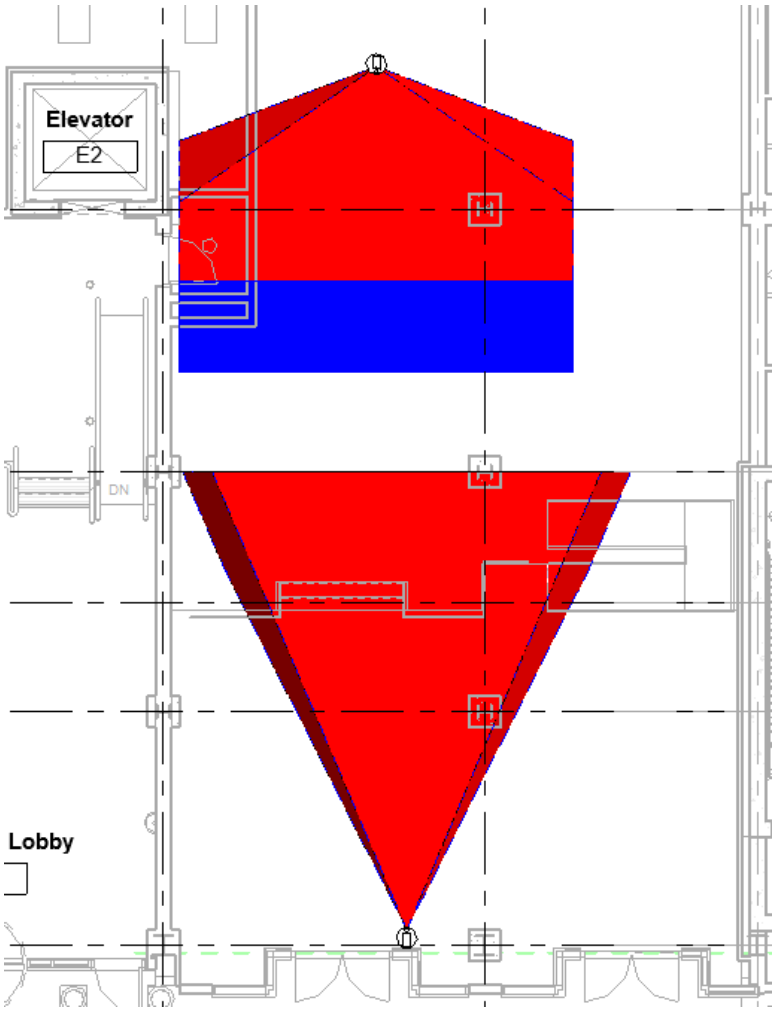


Figure 26: Example of Field of View Cones enabled in 2D View.

DORI

DORI stands for Detection, Observation, Recognition, and Identification. Each camera's Field of View (FoV) cone comes equipped with DORI data in the properties window.

There are breaks in the cone to show each DORI zone. Each zone represents a range of pixels per foot or pixels per meter that correspond to image quality. The Motorola Solutions implementation is based on IEC EN-62676-4 standards.

The following image is an example of DORI values, found in the Properties Window.

Model Properties	
Detection View Range (8PPF)	404' 3 7/16"
Observation View Range (19PPF)	170' 2 91/128"
Recognition View Range (38PPF)	85' 1 91/256"
Identification View Range (76PPF)	42' 6 87/128"
Pixel Per Foot	11
Target Distance	300' 0"
Desired Scene Width	267' 1 83/128"

Figure 27: Example of DORI values in the Properties Window.

- D (Detection) - 8 PPF / 25 PPM
- O (Observation) - 19 PPF / 62 PPM
- R (Recognition) - 38 PPF / 125 PPM
- I (Identification) - 76 PPF / 250 PPM

Viewing DORI Field of Views (FoV)

1. For each camera, highlight the camera to view the properties window.
2. Scroll down to the Model properties section to see the Detection View Range, Observational View Range, Recognition View Range, and Identification View Range.

   Each value will be in either Imperial or Metric units depending on the unit settings of the project.

3. Ensure that both the Horizontal FoV and the Target Distance are set correctly.
4. Click **Enable** to view the DORI FoVs.

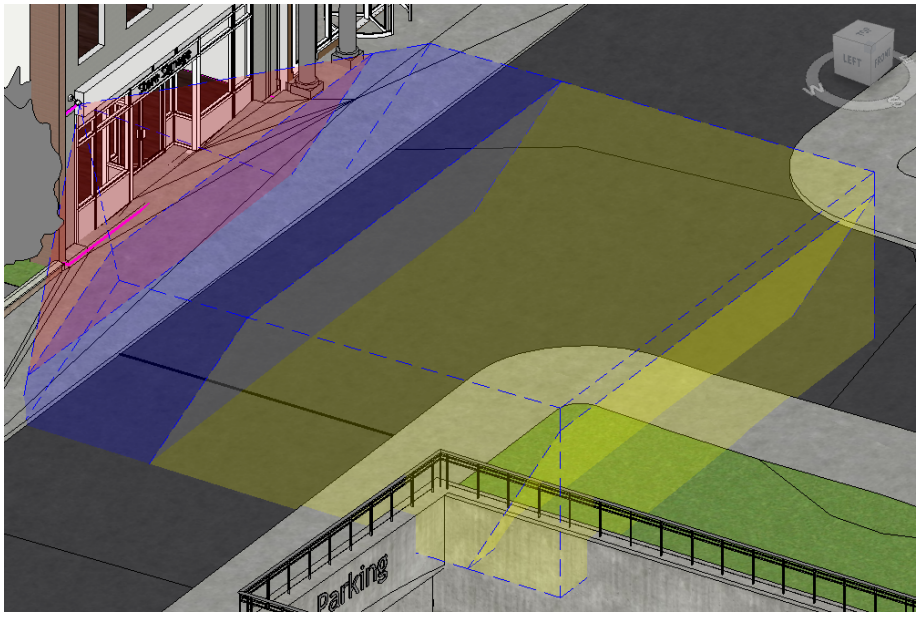
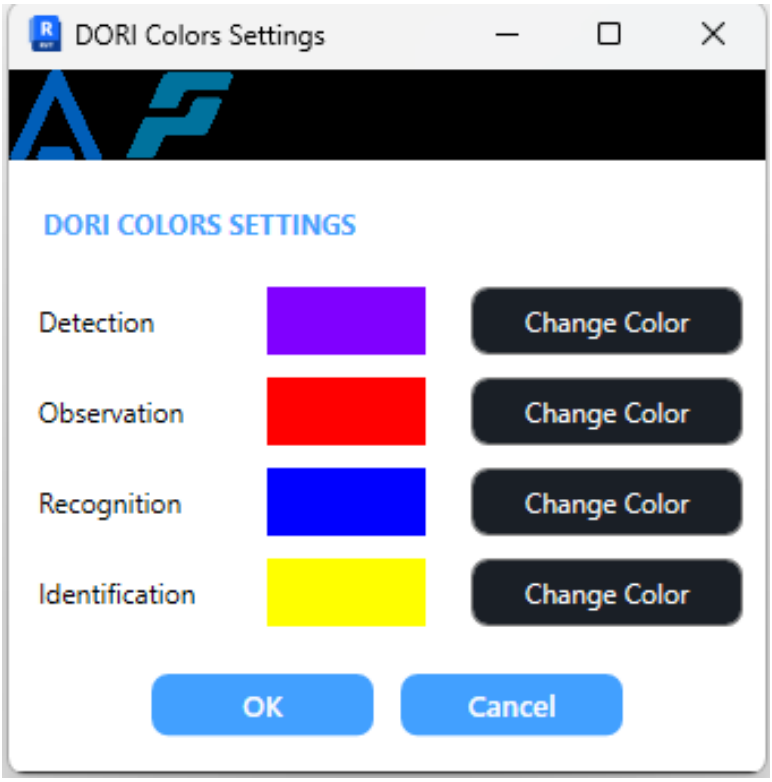


Figure 28: DORI field of views.

Customizing DORI Color Settings

1. Select **DORI Color Settings**.
2. Select the colors you want to see displayed in the Field of View Cone for each of the five DORI color sections.



Changing Camera Family Annotations

Use the Family Editor to change the default Pelco and Avigilon icons.

1. Highlight the camera.
2. Click **Edit Family**. The camera family will open in a new window.
3. Click **2D views**.
4. Either edit the icon using lines or import your own icon.
5. Click **Load to Project**. This updates the new icon for the camera family.

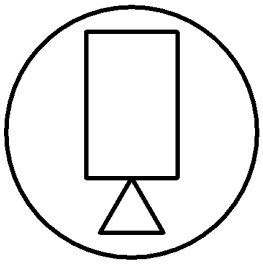


Figure 29: Example of an icon in 2D view.