

## Axis Camera Families for Autodesk® Revit®

Interactive 3D CAD security camera models

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## 1. Introduction

Axis Camera Families are interactive 3D CAD security camera models for use with Autodesk® Revit® for Building Information Modeling, BIM. With these parametric Revit families, you can place cameras in your building layouts, visualize camera coverage, and integrate surveillance system planning into your Revit projects.

### Important

All use of the Axis Camera Families' CAD Objects is subject to the conditions and the disclaimer included in Appendix B.

### Important

This guide assumes that you are familiar with Autodesk Revit. For help on using Revit, we refer to Revit documentation and trainings from Autodesk and other third parties.

## 2. Loading Axis Camera Families

There is, with some exceptions, one Revit family per Axis camera series. The family includes all camera models and mounting options for that series. Camera series that include both indoor and outdoor models are split into two separate families. See also appendix A for available camera models and corresponding Revit families.

Each camera family is available in a metric version and in a version using imperial units.

Axis Camera Families make use of type catalogs. This means that each family consists of a Revit RFA file and a corresponding type catalog TXT file. These files must be stored in the same folder when loading the family into a project. For convenience, the RFA and TXT files are bundled into a ZIP archive that needs to be extracted before loading the family.

### Important

Families that use type catalogs cannot be imported by dragging the RFA file into the project. Always use the **Load Family** function.

When loading one of the Revit families, the **Specify Types** dialog opens. In this you can select the camera models and mounting options that you wish to load into your project.

Once loaded, the Axis cameras are found under Security Devices in the project browser.



### 3. Using the camera families

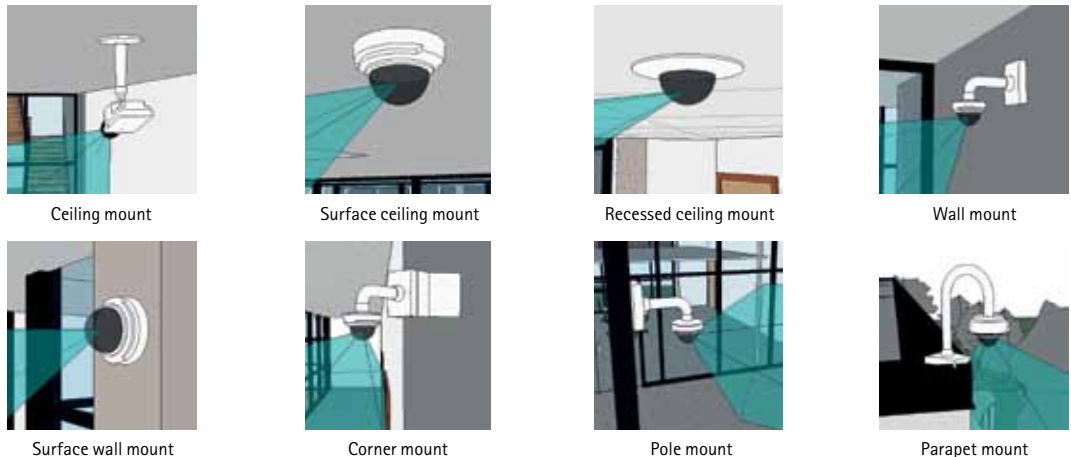
The key features of Axis' parametric camera families are:

- > Support for different mounting options
- > Interactive visualization of camera field of view in floor plans, sections and 3D views.
- > Detailed **AXIS Security Device Schedule** listing all cameras and mounting options
- > Product data for BIM

#### 3.1 Mounting options

Each camera family supports the mounting options supported by the camera out of the box, or using optional AXIS T91A-series accessories. The available mounting options depend on which versions were selected when loading the family.

Some mounting options using the indoor models from the P33-series are shown below:



Use the type selector in the Revit properties palette to switch between mounting options and camera models.

### 3.2 Instance Properties

Once a camera has been placed into a Revit project, the instance properties listed below are available. See also [Adjusting the field of view visualization](#) below.

Constraints	
FOV Tilt	Controls the camera tilt or, for dome cameras, the field of view
FOV Pan	Rotates the camera or, for dome cameras, the field of view
FOV Distance to object	Horizontal cut off distance for the field of view visualization
FOV Upper limit	The field of view visualization is cut off at this distance above the top of the camera
FOV Bottom limit	The field of view visualization is cut off at this distance below the camera insertion point
Offset	Offset from floor level
Graphics	
Target resolution units	Unit for FOV Target Resolution setting. Pixels per meter or foot.
FOV Target resolution	Resolution in pixels per meter or foot for resolution guide.
FOV Desired focal length	The focal length chosen for the camera
FOV Actual focal length	The focal length used – limited to the focal length range supported by the camera
Text	
Target area	Camera target area
Dimensions	
Pendant status message	For pendant mounts this message shows if the pendant length is within limits
Pendant length	For pendant mounts, the pendant length
Identity data	
Network port	Network Port Information
Comments	Comments
Visibility	
Show field of view	Turns the field of view visualization on or off



### 3.3 Adjusting the field of view visualization

Axis Camera Families feature adjustable field of view visualization. This makes it possible to get an overview of the camera coverage in floor plans, sections and 3D views.

#### Important

The field of view visualization is provided for guidance. Individual variations of the field of view could exist between cameras, e.g. due to back focus adjustment and lens distortion. Plan with margins.

#### 3.3.1 Tilt, Pan and Focal Length

The camera tilt and rotation are controlled by the **FOV Tilt** and **FOV Pan** properties. For dome cameras, only the field of view visualization is tilted and rotated. For other cameras the camera housing is also tilted and rotated.

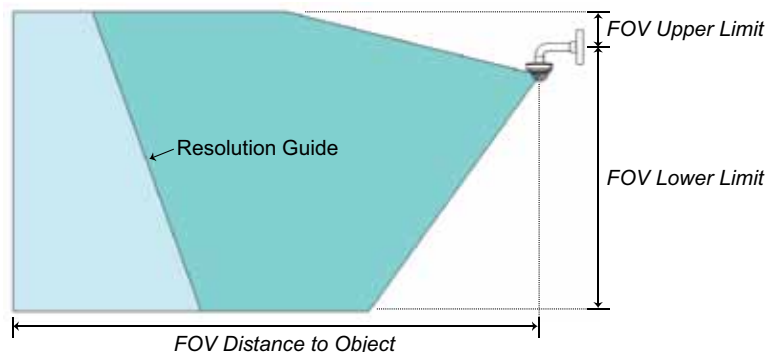
#### Important

The field of view visualization can be tilted or rotated outside the range supported by the camera or the environment where the camera is mounted. You must ensure that it is possible to achieve the desired tilt and rotation in your particular situation.

The focal length is adjusted using the **FOV Desired Focal Length** property. The field of view visualization is limited to the focal range supported by the camera. The actual focal range used is shown as **FOV Actual Focal Length**. If this value is not the same as the **FOV Desired Focal Length**, the selected focal length is outside the camera's range.

#### 3.3.2 Size and visibility of field of view visualization

The extent of the field of view visualization is controlled by the **FOV Distance to Object**, **FOV Upper Limit** and **FOV Bottom Limit** properties. The field of view visualization will extend horizontally from the camera to a distance set by **FOV Distance to Object**. The top of the field of view visualization will be cut off at a distance from the camera insertion point set by **FOV Upper Limit**, and the bottom will be cut off at the distance set by **FOV Bottom Limit**. To cut the field of view visualization at floor level, set **FOV Bottom Limit** to the same value as **Offset**.



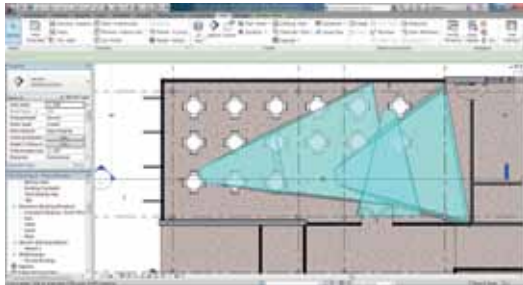
Use the **Show Field of View** checkbox to turn the field of view visualization on or off.

### 3.3.3 Resolution guide

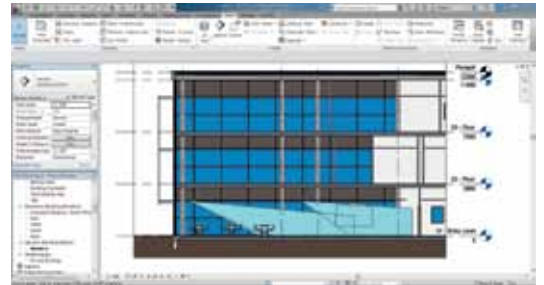
The field of view visualization provides a resolution guide. The resolution guide shows a line or plane through the field of view visualization at the distance from the camera where the resolution set by FOV Target Resolution, is met.

## 3.4 Views

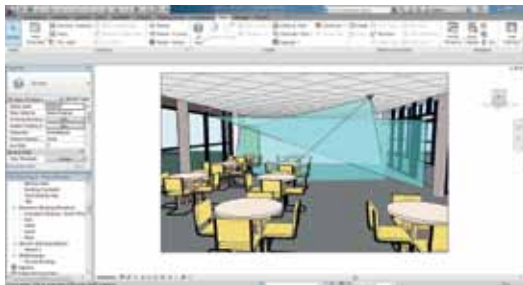
The cameras and the field of view visualization can be viewed in floor plans, sections and 3D views.



Floor plan



Section



3C view

### 3.4.1 Floor Plan Cut Plane

The floor plan view will show the part of the field of view visualization that is located below the level defined by the Cut Plane setting. This means that the floor plan view shows the area where an object at least as tall as the Cut Plane level will be fully or partially visible. To adjust the Cut Plane level:

- > Select the floor plan view
- > Open the **View Range** dialog by clicking the **Edit...** button for the **View Range** property below the **Extents** divider



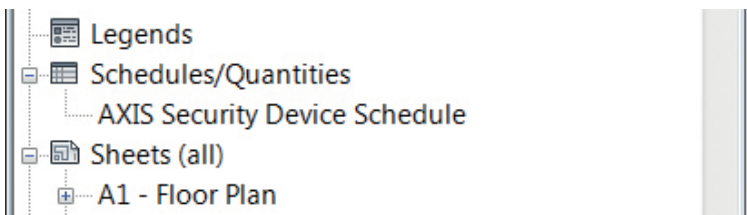
- > Enter the new cut plane offset value
- > Click **OK**

### 3.5 Axis Security Device Schedule

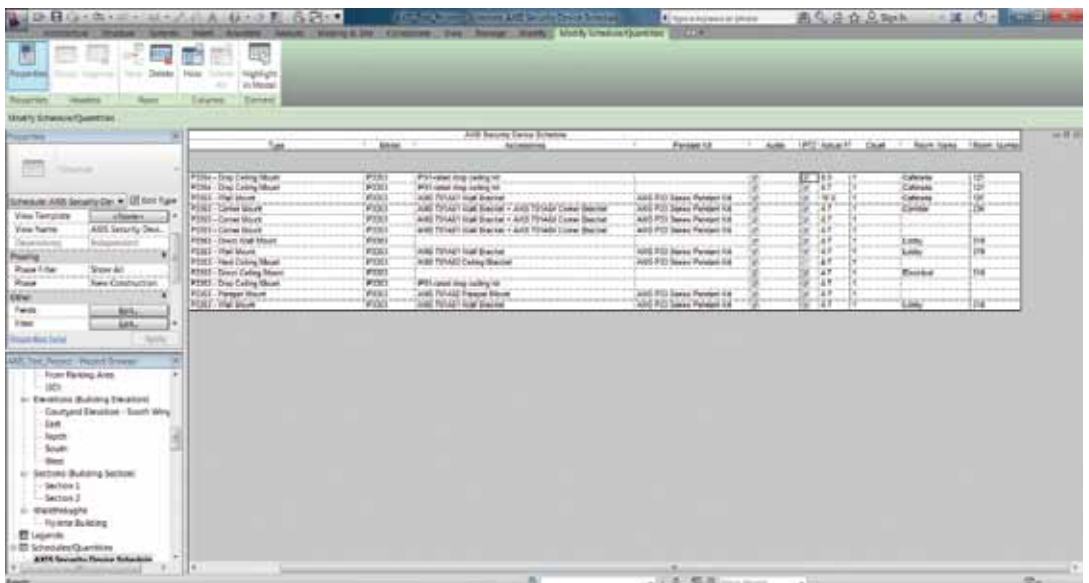
The Axis' Revit families include a number of useful schedulable properties, such as Axis model, mounting accessories, PoE class, etc.

For convenience, we have created an **Axis Security Device Schedule**, which delivers a comprehensive list of all Axis cameras included in a project, as well as all mounting accessories needed. To make use of this schedule in a project, the schedule must first be copied from the **Axis Revit Families Example Project**.

- > Open the **Axis Camera Families Example Project-Metric.rvt** or **Axis Camera Families Example Project-Imperial.rvt** project file
- > Locate the **AXIS Security Device Schedule** in the project browser



- > Select the **AXIS Security Device Schedule** and copy it by pressing **CTRL-C** or right-click and select **Copy**
- > Open the project where you would like to use the schedule
- > Go to the **Modify** tab and select **Paste**. Note that pressing **CTRL-V** will not work.



The screenshot shows the Revit Schedule/Quantity tool with the 'AXIS Security Device Schedule' table. The table has columns for 'Type', 'Status', 'Accessories', 'Project ID', 'Axis', 'IP', 'Mount', 'View Name', 'Room Name', and 'Room Number'. The table contains 14 rows of data for various camera models and their accessories.

Type	Status	Accessories	Project ID	Axis	IP	Mount	View Name	Room Name
PT201 - Drop Ceiling Mount	PT201	PT201-001 Drop Ceiling Mt	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Drop Ceiling Mount	PT201	PT201-002 Drop Ceiling Mt	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Corner Mount	PT201	4445 PT201T Wall Bracket * 4 Axis Tri-Color Camera Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Corner Mount	PT201	4445 PT201T Wall Bracket * 4 Axis Tri-Color Camera Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Corner Mount	PT201	4445 PT201T Wall Bracket * 4 Axis Tri-Color Camera Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Cathroom	121
PT201 - Street Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Street Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Street Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Street Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Street Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016
PT201 - Wall Mount	PT201	4445 PT201T Wall Bracket	4445 P201 Series Protocol 04	PT	8.0	1	Library	016

Axis Security Device Schedule



## 4. Axis Camera View Add-In for Autodesk® Revit®

Axis Camera View Add-In for Autodesk® Revit® provides a quick way to generate a 3D view from the perspective of any Axis Camera Families camera model.

### 4.1 Installing the Axis Camera View Add-In

Before installing any versions of the Axis Camera View Add-In, make sure you have uninstalled earlier versions of the add-in. If the add-in is installed, you will find an uninstaller in the **Start** menu, under **Axis Camera View for Revit 2013** or **Axis Camera View for Revit 2014**.

There are separate installers supporting Autodesk Revit 2013 and Autodesk Revit 2014. To install the add-in, first close Autodesk Revit and then run the appropriate installer for your version of Revit.

### 4.2 Using the Axis Camera View Add-In

To use the Axis Camera View add-in, select an Axis camera. Go to the **AXIS** tab and click the **Camera 3D View** button. A new 3D view is created in the project and the view opens. The view is named after the camera model and the **Target Area** parameter. If the **Target Area** parameter is blank, the view will instead be named after the camera model and the Revit object ID.



Floor plan view with Axis camera selected



Corresponding 3D view






### Important

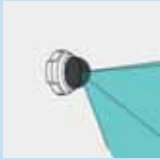




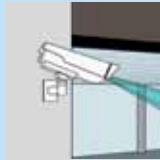
The view will not automatically update if the camera is moved, or settings changed. To update the view, select the camera in the floor plan and click the **Camera 3D View** button.

### Important

The Axis Camera View add-in does not take lens distortion into account when producing the 3D view. This means that the 3D view will be different from the actual camera view. This difference is often more pronounced at shorter focal lengths.

## Appendix A: Available Axis Revit Families

Series	Axis Revit family	Mounting options
AXIS M10-series		
	Surveillance-Camera-AXIS-M10	Wall mount, Ceiling Mount
AXIS M11-series		
	Surveillance-Camera-AXIS-M11-Indoor	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-M11-L Wall	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-M11-Outdoor	Wall Mount
AXIS P13-series		
	Surveillance-Camera-AXIS-P13-Indoor	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-P13-Outdoor	Wall Mount
AXIS Q16-series		
	Surveillance-Camera-AXIS-Q16-Indoor	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-Q16-Outdoor	Wall Mount
AXIS Q17-series		
	Surveillance-Camera-AXIS-Q17-Indoor	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-Q17-Outdoor	Wall Mount
AXIS M31-series		
	Surveillance-Camera-AXIS-M31-Indoor	Surface Wall Mount, Surface Ceiling Mount
	Surveillance-Camera-AXIS-M31-Outdoor	Surface Wall Mount, Surface Ceiling Mount

AXIS M32-series		
	Surveillance-Camera-AXIS-M32	Wall Mount, Surface Wall Mount, Corner Mount, Ceiling Mount, Surface Ceiling Mount, Parapet Mount, Pole Mount
AXIS P33-series		
	Surveillance-Camera-AXIS-P33-Indoor	Wall Mount, Surface Wall Mount, Corner Mount, Ceiling Mount, Surface Ceiling Mount, Recessed Ceiling Mount, Parapet Mount, Pole Mount
	Surveillance-Camera-AXIS-P33-Outdoor	Wall Mount, Surface Wall Mount, Corner Mount, Ceiling Mount, Surface Ceiling Mount, Parapet Mount, Pole Mount
AXIS M50-series		
	Surveillance-Camera-AXIS-M50	Wall Mount, Surface Ceiling Mount
AXIS P55-series		
	Surveillance-Camera-AXIS-P55-Indoor	Wall Mount, Corner Mount, Ceiling Mount, Surface Ceiling Mount, Recessed Ceiling Mount, Parapet Mount, Pole Mount
	Surveillance-Camera-AXIS-P55-Outdoor	Wall Mount, Corner Mount, Ceiling Mount, Parapet Mount, Pole Mount
AXIS Q60-series		
	Surveillance-Camera-AXIS-Q60-Indoor	Wall Mount, Corner Mount, Ceiling Mount, Surface Ceiling Mount, Recessed Ceiling Mount, Parapet Mount, Pole Mount
	Surveillance-Camera-AXIS-Q60-Outdoor	Wall Mount, Corner Mount, Ceiling Mount, Parapet Mount, Pole Mount
AXIS Q19-series		
	Surveillance-Camera-AXIS-Q19-Indoor	Wall Mount, Ceiling Mount
	Surveillance-Camera-AXIS-Q19-Outdoor	Wall Mount

## Appendix B: Instruction and Disclaimer

### INSTRUCTION

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## About Axis Communications

As the market leader in network video, Axis is leading the way to a smarter, safer, more secure world — driving the shift from analog to digital video surveillance. Offering network video solutions for professional installations, Axis' products and solutions are based on an innovative, open technology platform.

Axis has more than 1,400 dedicated employees in 40 locations around the world and cooperates with partners covering 179 countries. Founded in 1984, Axis is a Sweden-based IT company listed on NASDAQ OMX Stockholm under the ticker AXIS. For more information about Axis, please visit our website [www.axis.com](http://www.axis.com).