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LODmanager User Guide

IKERD Consulting

1.1.0 – 12/7/18

CONTENTS

I. Introduction 2
II. Why Do I Need an LOD Plugin? 3
III. Getting Started 5
A. Create Parameters 5
B. Set LOD 5
C. LOD Filters 7
IV. Report Bugs and Suggestions 10

I. INTRODUCTION

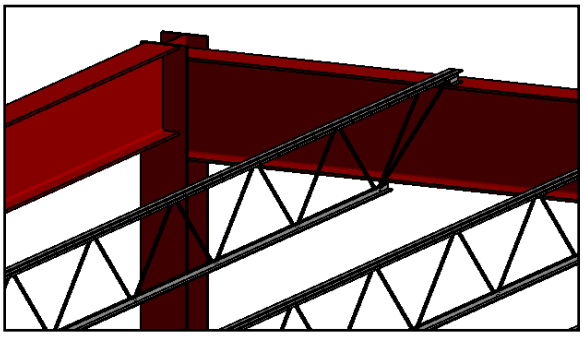
In this document, we outline the usage, key features, and intended workflow for the plugin. If you follow this guide closely you should be able to use the major features of the plugin without issue. Please report any issues you find to apps@ikerd.com so they can be fixed. A list of know issues can also be found at http://www.ikerd.com/lodmanager/known-issues.

II. WHY DO I NEED AN LOD PLUGIN?

Compared to paper drafting, BIM makes it quick and easy to represent every element of a building in detail. For instance, just a few clicks can add in detailed beam systems showing profile specifications, attachment points, and spacing in all relevant views.

However, the ease of modeling in such detail also opens the door to miscommunication when other parties on a project make assumptions about the accuracy and reliability of the model, which can lead to unnecessary rework and lost time.

Bar joists are a good example of this. As soon as a joist is placed in Revit, it appears in a specific location, has a specific length, and even displays detailed information such as its profile and webbing.



Typical Bar Joists in Revit

When another modeler, perhaps an MEP contractor, sees this bar joist, there is no indication in its appearance or associated data of whether the visible size, location, profile, etc. can be relied upon. The modeler might take the time to route piping around or even through the joist only to have to move it later when changes are made to the joist. Most deceptive of all is the webbing, which looks nice in the model but is very likely not representative of the webbing that will be manufactured.

This demonstrates a need throughout Revit (and other modeling software) for a clear, simple way to communicate which modeled details are locked-down and reliable and which are still in flux.

The BIMForum LOD Specification (http://bimforum.org/lod/) addresses this issue by defining a clear way to communicate the “Level of Development” of elements in a model.

In brief,

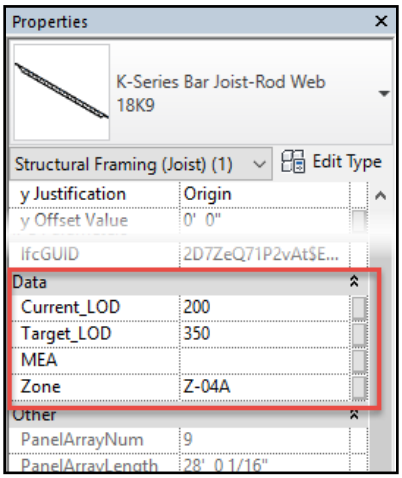
- LOD100 refers to symbolic representations of elements that communicate little more than their existence.
- LOD200 refers to approximate placeholders. Size, shape, quantity, etc. cannot be accurately measured from the modeled information.

- LOD300 refers to specific representations of elements, which can be referenced accurately for quantity, size, shape, location, and orientation information.
- LOD350 elements include all details necessary for coordination such as major supports and connection points.
- LOD400 elements contain sufficient detail and accuracy for fabrication purposes.

See the BIMForum's LOD Specification for more details (https://bimforum.org/lod/).

So, why is a Revit plugin needed? Currently, LOD information must be handled separately from the model. This data can be tabulated or simply communicated on a case-by-case basis.

The purpose of this plugin, therefore, is to **embed LOD information** directly into each modeled element. This makes the data quick and easy to access and maintain and leaves little room for ambiguity.



LOD Parameters in Revit

The bar joist element in the above image now makes it clear that it is currently only an approximate (LOD200) representation, which communicates that there will be bar joists at roughly that location, but the exact size, quantity, profile, etc. have yet to be decided.

In addition to adding these parameters, the plugin also features tools for quickly managing LOD values and visualizing them using color filters. Read the guide below to get started.

III. GETTING STARTED

Each of the following commands is found on the LOD Parameter panel under the Add-Ins tab. The sections below describe how to use each of these.

A. Create Parameters

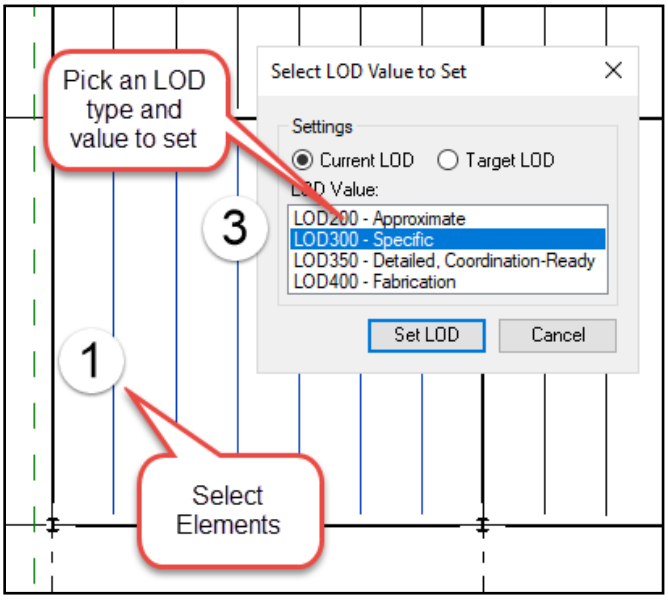
Run this command to activate the LOD plugin in the open Revit document. This adds the LOD-related parameters to the document. Note that every element is given a default Current LOD of 200 (elements are approximate placeholders). Background tasks also set the Current LOD of any newly-added element to 200.

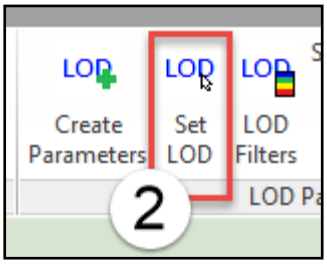
This command can only be run once per Revit document. Other plugin features will be disabled until this command is run. After this command runs, “Create Parameters” button will be disabled. The LOD parameters are added in as Shared Parameters and applied per-category, so any newly-inserted elements will already have the parameters.

The recommended workflow is that this command be run prior to the start of modeling. Nevertheless, the command can be used to successfully add parameters in some models which already contain modeled content. Visit the know issues page to learn more.

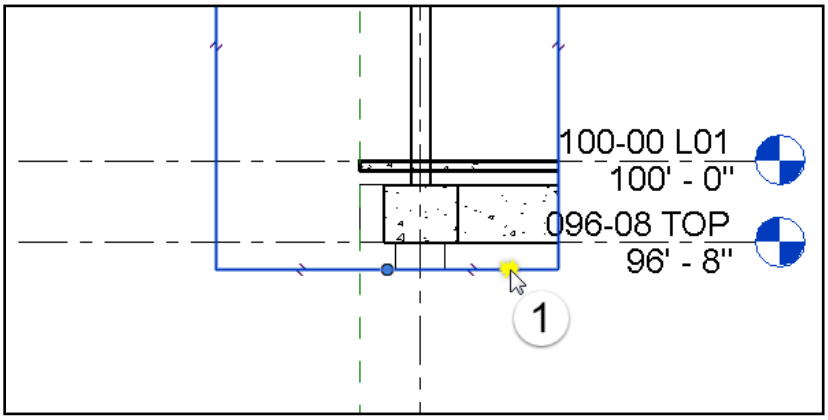
B. Set LOD

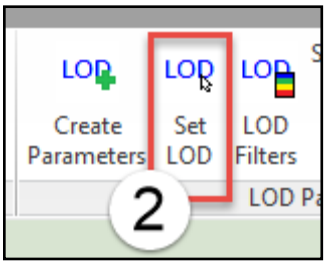
Select a group of elements and click “Set LOD” to set the Current or Target LOD value of everything selected.



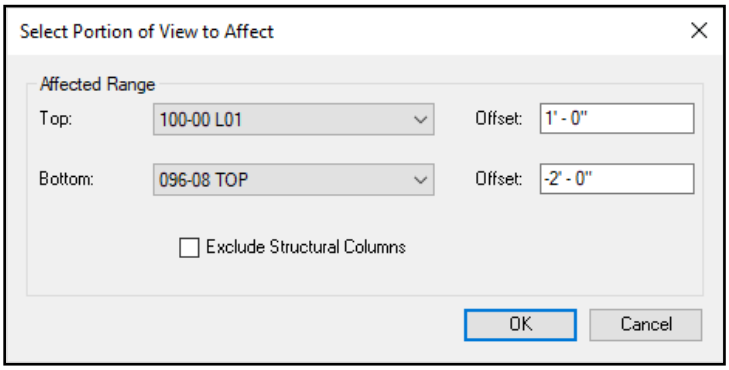


You can also use this command to set the LOD of all items in a view. To do so, (1) select the border of the view (on its own or within a sheet) and (2) run Set LOD.

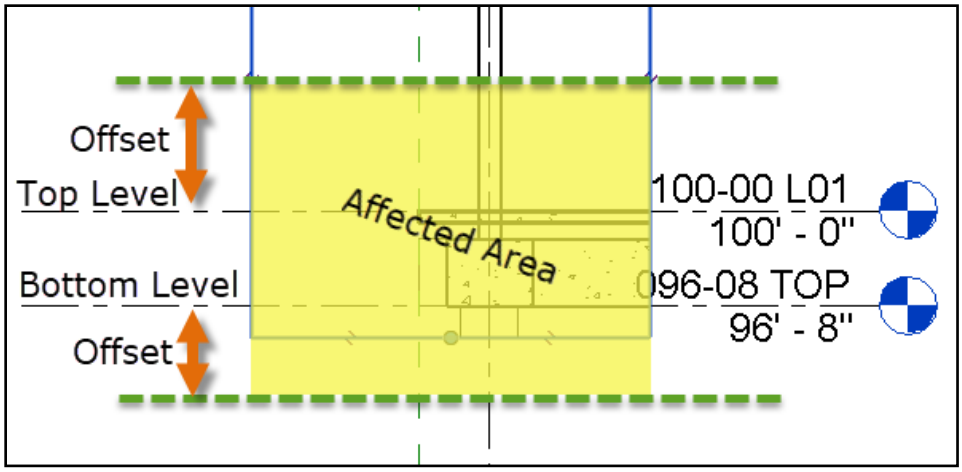




The following window will appear:



Choose top and bottom levels if you only want to set the LOD of items in one section of the view. Think of this like setting your View Range for a top-down view in Revit. You specify a cut plane offset a certain distance from each level, and everything visible in between those cut planes will be affected.



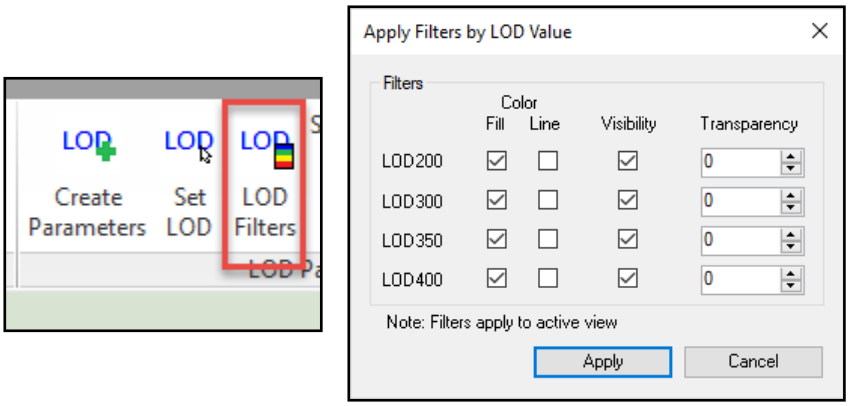
You can also set the “Exclude Structural Columns” option to avoid setting the LOD of columns in the view. This is useful because columns often span multiple levels, so you will likely wish to address them separately.

Click OK when finished. You can then choose the LOD type and value to set as before.

C. LOD Filters

To make it easy to visualize LOD values within the project, you can use the LOD Filters command to mark elements in various colors based on their Current LOD values.

Open the view you wish to color, and run the command by clicking “LOD Filters” under the Add-Ins tab. Filters will be applied to the active view only.

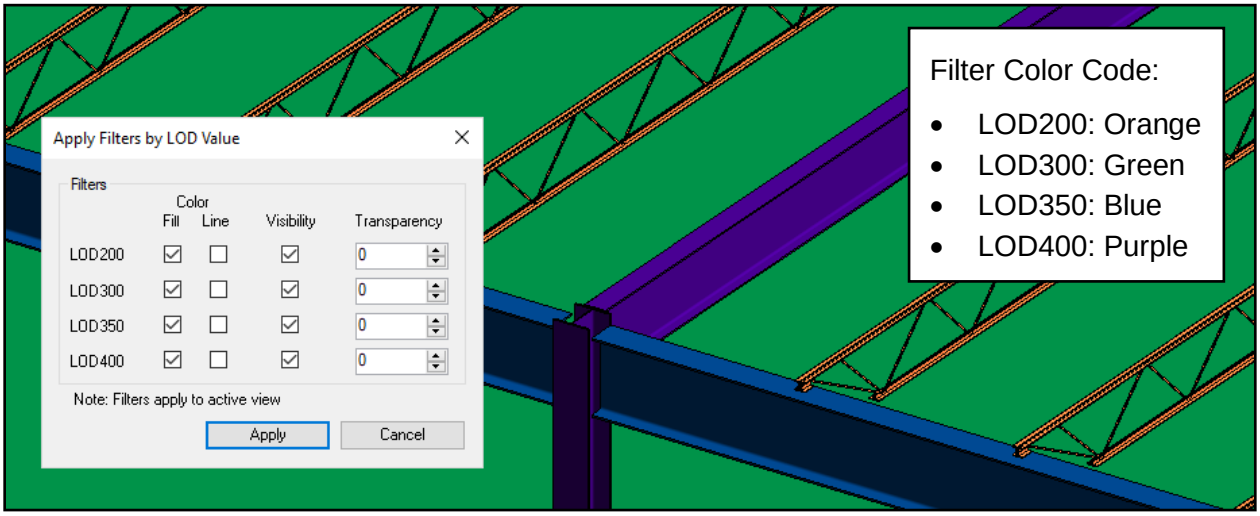


Choose the filters you wish to apply.

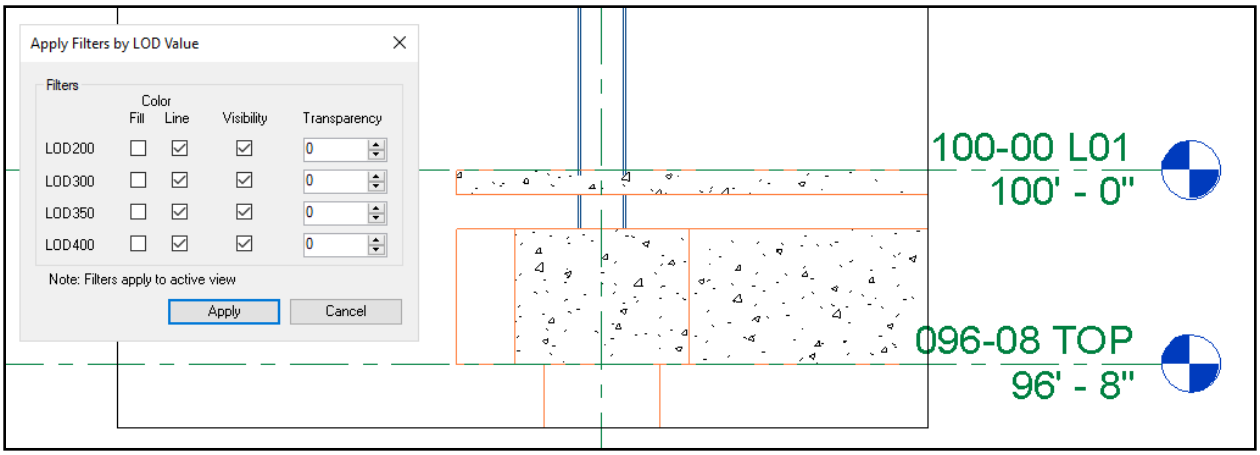
- Fill color filters color the surfaces of all elements of the corresponding LOD. This is often useful in 3D views.
- Line color filters color the lines of all elements of the corresponding LOD. This is often useful in 2D plan views.
- Disabling Visibility for a certain LOD value hides all elements of that LOD.
- Changing a Transparency value makes all elements of the corresponding LOD partially transparent.

To change or disable the filters, simply hit undo, or run the command again with different filters (or none) applied. This will overwrite any existing LOD filters.

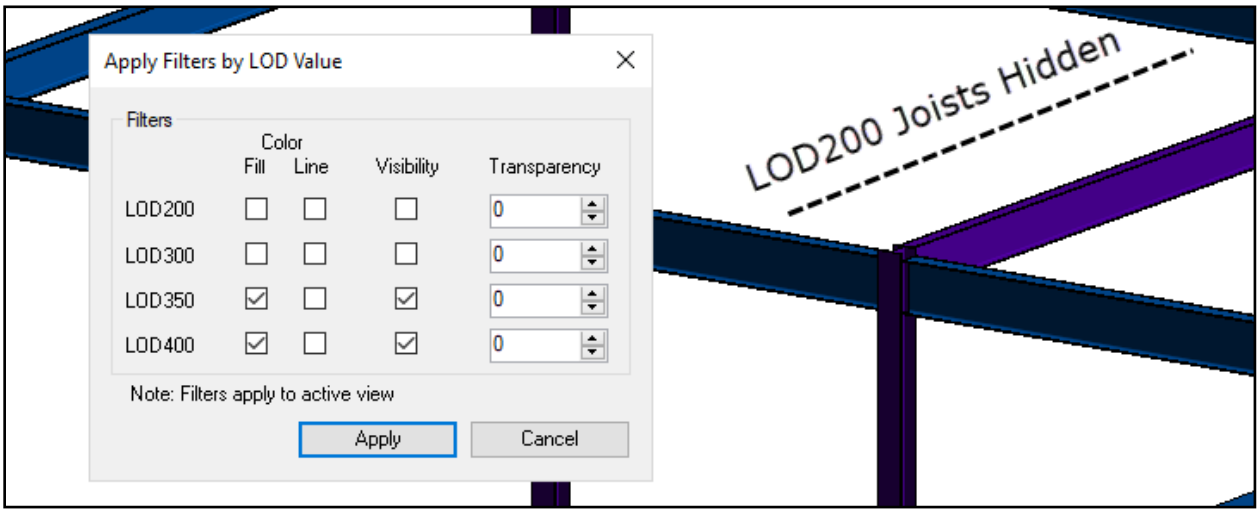
Fill Color Filters:



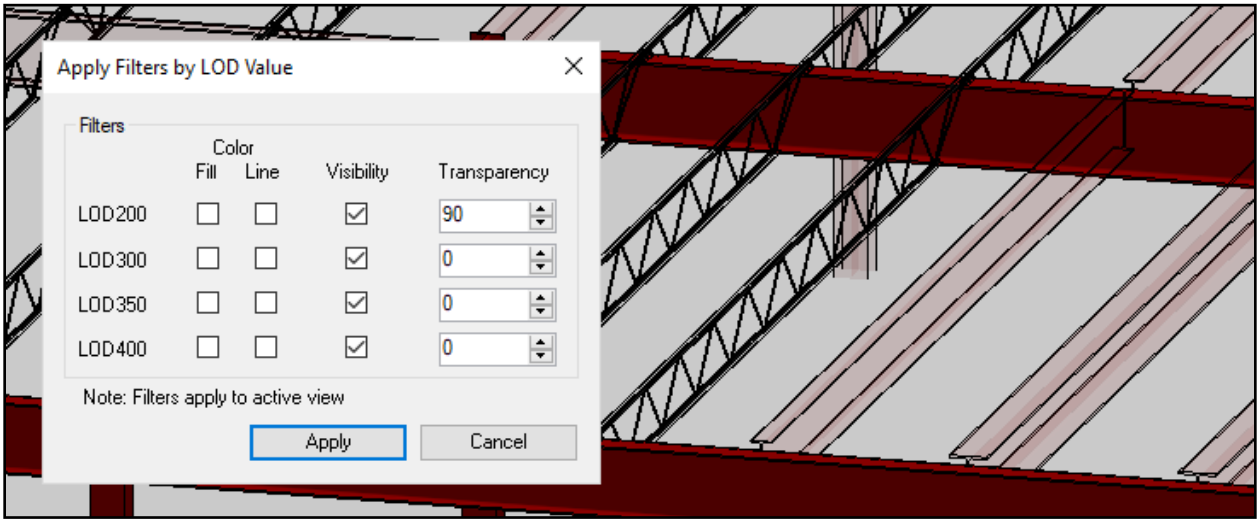
Line Color Filters:



Visibility Filters:



Transparency Filters:



IV. REPORT BUGS AND SUGGESTIONS

A list of know issues can also be found at http://lod.ikerd.com/lodmanager/known-issues. If you encounter an issue that has not already been reported on the known issues page, please report the issue to apps@ikerd.com. Please include as many of the following items as possible in your e-mail:

- Screenshots of the error or issue
- A description of the error or issue
- A summary of how the error or issue can be reproduced
- A summary of your current computer configuration
- Any relevant error messages from Revit

Requests for additional features and any other general suggestions for LODmanager are welcome and can be sent to apps@ikerd.com.