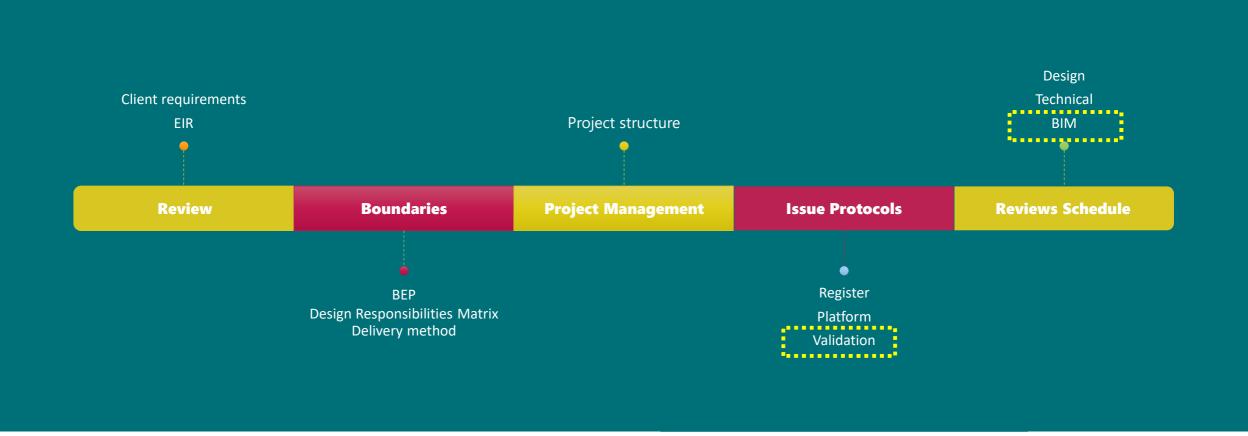
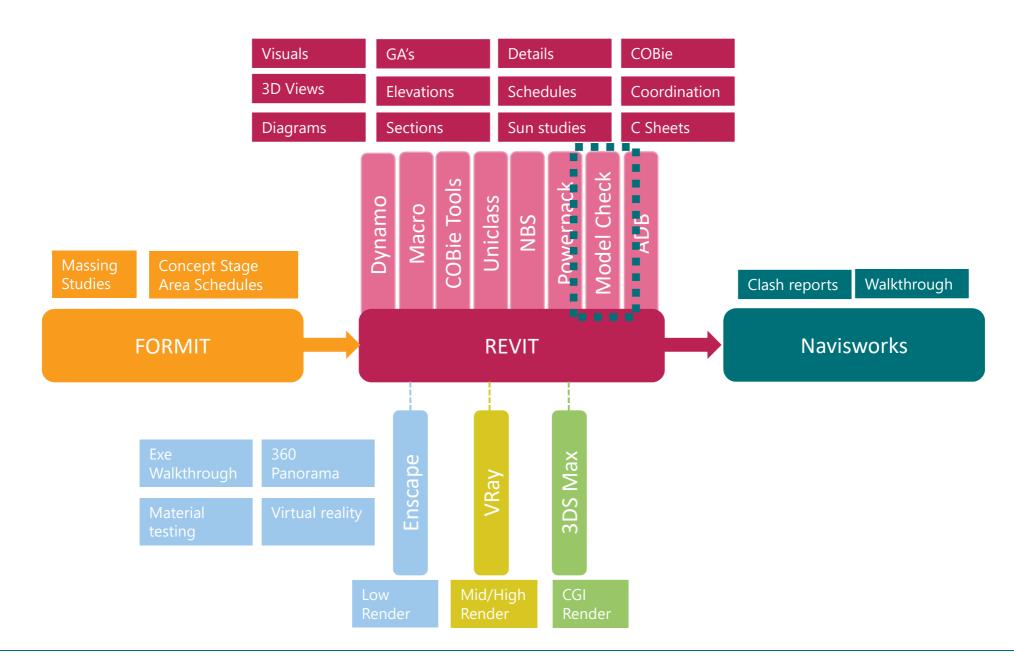
# REVIT MODEL CHECKER





## BS EN ISO 19650 CERTIFICATION

"Each task team shall undertake a quality assurance check of each information container, in accordance

with the project's information production methods and procedures, prior to undertaking a review of

the information within it (5.6.4).

In doing this, the task team shall check the information container in accordance with the project's

information standard.

Once the check is complete, the task team shall:

- a) if the check is successful:
- mark the information container as checked, and
- record the outcome of the check; or
- b) if the check is unsuccessful:
- reject the information container, and
- inform the **information author** of the outcome and corrective action required. "

In accordance with the project's information production methods and procedures, each task team shall undertake a review of the information within the information container prior to sharing within the project's common data environment.

In doing this, the task team shall consider:

- the lead appointed party's information requirements;
- the level of information need; and
- information needed for coordination by other task teams.

Once the review is complete, the task team shall:

- a) if the review is successful:
- assign the suitability for which the information contained within the information container can be used, and
- approve the information container for sharing;
- b) if the review is unsuccessful:
- record why the review was unsuccessful,
- record any amendments for the task team to complete, and
- reject the information container.

#### In order to achieve ISO 19650 certification:

- Have a record of regularly checking models
- The outcomes of the checks (HTML report)
- How we are using this information to make changes to our models



## VALIDATION PROCESS

### VALIDATION WORKFLOW

- Create a suitably dated folder within the Shared folder
- Standards & Good Practice checks carried out
- Revision added to splash sheet
- Ensure everyone working on project performs a "Save to Central" and "Relinquish All"
- Save a detached copy of the model into the previously created folder
- Remove any Revit/ CAD links, Images, Schedules, Views & Sheets (non required)
- Purge Model
- "Synchronise to Central" and close model

Keppie	CAD and BIM Systems	Ref.	
Kehhie	Revit Model Validation Checklist	KEP-XXX-XX-XX-A-9030-0007	4.0

The content included in this Checklist is based on PAS 1192-2:2013 Figure 16 – Architect's issue to SHARED, but has been augmented with additional guidance and clarification of the Validation sequence.

This checklist should be used in conjunction with the project BIM Execution Plan and the Keppie Design "Revit Standards and Procedures document".

Revit File Details				
Model Name	OR4100-1-IHG-EGE-MOD-3510004_Departments			
Date	07.06.2019			
Prepared By	so			
Approved By	1			
Validation Purpose	Work In Progress Issue			

Model Preparation provides a guide for preparing the model prior to validation. The list can also be referred to for continued model management.

#### Model Preparation

Create a suitably dated and titled destination folder in 02_Shared\BIM_Models.	$\boxtimes$
Check model file name conforms to Keppie Standards	$\boxtimes$
Review and fix all warning messages where possible	$\boxtimes$
Check that all families conform to Keppie naming conventions	$\boxtimes$
Check Line Styles and Patterns conform to Keppie naming conventions	$\boxtimes$
Check that all content is in the correct Workset and conforms to Keppie Standards	$\boxtimes$
Check model is correctly assembled through visual inspection for stage completeness	$\boxtimes$
Check model for dimensional accuracy	$\boxtimes$
<ul> <li>Check project base point matches coordinates on splash sheet</li> </ul>	
- Check model is sitting at correct rotation, position and height on site	
Check correct use of Phasing / Design Options if necessary	$\boxtimes$
Change model suitability to S1 (suitable for coordination)	$\boxtimes$
Check COBje data against stage completeness project BEP requirements	
Set revision on Model file & on Starting View, adding any guidance notes for recipients if necessary	$\boxtimes$
Print the Starting View as PDF and save a copy for project records and to accompany the issue	X

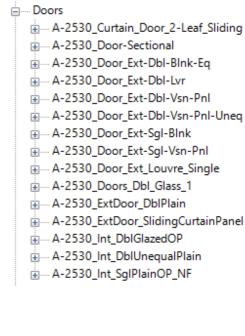
160 West Regent Street - Glasgow G2 4RL - Tel 0141 204 0066 - Fax 0141 226 4571 Registered in Scotland no 191423 www.keppiedesign.co.uk

## STANDARDS CHECKS

- ✓ Check model file name conforms to project standards
- ✓ Check that all families conform to project naming conventions
- ✓ Check Line Styles and Patterns conform to project naming conventions

Catanan	Line Weight	Lina Calar	Line Pattern	
Category	Projection	Line Color		
KEP_1_Black_DashDot-1.5	1	■ Black	KEP_DashDot_1.5	
KEP_1_Black_Solid	1	■ Black	Solid	
KEP_1_Blue_Solid	1	Blue	Solid	
KEP_1_Brown_G.DetailLi	1	RGB 130-086-068	Solid	
KEP_1_Cyan_Solid	1	Cyan	Solid	
KEP_1_Green_Solid	1	Green	Solid	
KEP_1_Grey(Dark)_Dash	1	RGB 128-128-128	Dash	
KEP_1_Grey(Dark)_Solid	1	RGB 128-128-128	Solid	
KEP_1_Grey(Light)_Solid	1	RGB 220-220-220	Solid	
KEP_1_Grey(Mid)_DashD	1	RGB 192-192-192	KEP_DashDot_1.5	
KEP_1_Grey(Mid)_Solid	1	RGB 150-150-150	Solid	
KEP_1_Grey_Dash-0.6	1	RGB 180-180-180	KEP_Dash_0.6	
KEP_1_Magenta_Solid	1	Magenta Magenta	Solid	
KEP_1_Purple_Solid	1	RGB 128-000-255	Solid	
KEP_1_Red_Solid	1	Red	Solid	
KEP_1_Solid_Black	1	■ Black	Solid	
KEP_1_Yellow_Solid	1	Yellow	Solid	
KEP_3_Black_Solid	3	■ Black	Solid	

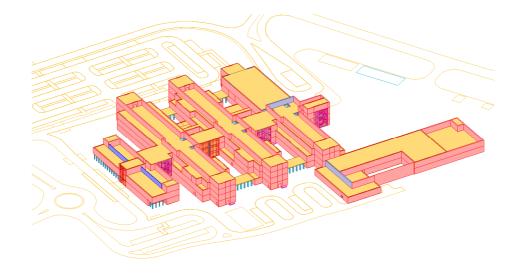


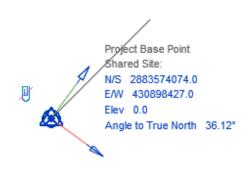


## GOOD PRACTICE CHECKS

- ✓ Reviewing warning count
- ✓ Check all content is on the correct workset
- ✓ Check model is correctly assembled through visual inspection for stage completeness
- ✓ Check model for dimensional accuracy

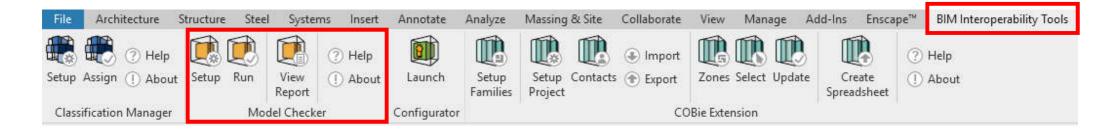


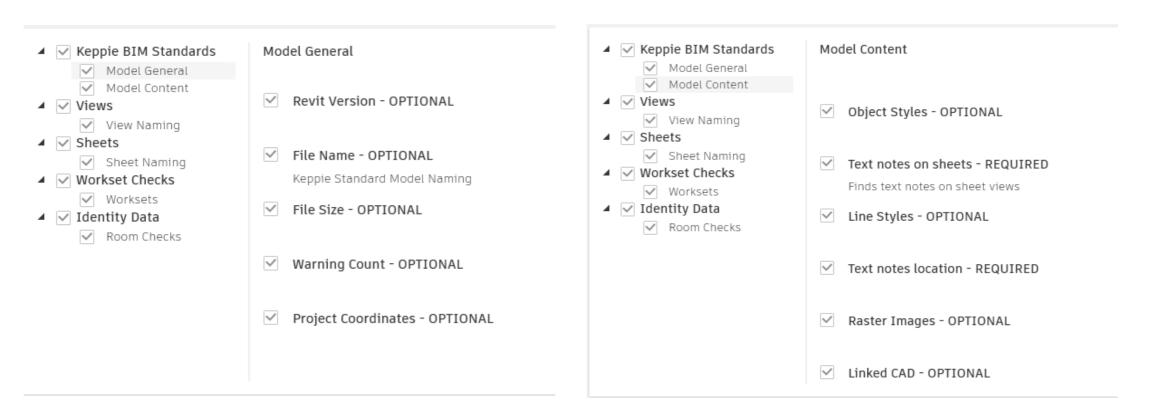




# MODEL CHECKER OUTPUT

## MODEL CHECKER





## GENERAL CHECKS

- Checks file name meets standards
- Reviews file size of model
- Reviewing warning count
- Lists project base point co-ordinates which can be checked against the splash sheet/ BEP

Keppie BIM Standards Model General 19 Checks, 1 (100%) Pass, 0 Fail, 18 Count/List

5 Checks, 1 (100%) Pass, 0 Fail, 4 Count/List



Revit Version - OPTIONAL

Result: Autodesk Revit 2019 20180927\_2315(x64)



File Name - OPTIONAL

Keppie Standard Model Naming



File Size - OPTIONAL Result: 16.25 MB



Warning Count - OPTIONAL

Count: 12

<del>riightighted tilles overtap. Lilles may not form closed toops.</del>

Highlighted lines overlap. Lines may not form closed loops.

Highlighted lines overlap. Lines may not form closed loops.

Highlighted lines overlap. Lines may not form closed loops.

Highlighted walls are attached to, but miss, the highlighted targets

Highlighted walls are attached to, but miss, the highlighted targets

Highlighted walls are attached to, but miss, the highlighted targets.

Line in Sketch is slightly off axis and may cause inaccuracies.

Ref Plane is slightly off axis and may cause inaccuracies.

Ref Plane is slightly off axis and may cause inaccuracies.

The rail is not continuous. Breaks in the rail usually occur at sharply-angled transitions. To fix the problem, try: - Changing the transition style in the rail type properties, or - Modifying the railing path at the transition.

The rail is not continuous. Breaks in the rail usually occur at sharply-angled transitions. To fix the problem, try: - Changing the transition style in the rail type properties, or - Modifying the railing path at the transition.



Project Coordinates - OPTIONAL

Count: 5

Name	Value
Project Base Point Coordinate	255650000 E/W   664550000 N/S
Project Base Point Elevation	0
Project Base Point Rotation	18.52°
Survey Point Coordinate	255650000 E/W   664550000 N/S
Survey Point Elevation	0

## MODEL CHECKS

- Number of unused elements within model
- Lists names of object styles imported from CAD etc, & need deleted
- Number of text notes in model
- Lists names of line styles to check they meet naming standards



## MODEL CHECKS

- Number of images within the model which may need to be removed
- Linked CAD files which will may need to be deleted before issue
- Imported CAD files which may need to be deleted
- Largest families within the model which may need reviewed to bring down file size



Raster Images - OPTIONAL

Count: 2

Nam

Raster Images : 214016 - Detailing Precedent MASTER - DO NOT DELETE.jpg

Raster Images : A-7000\_StatusRevisionTable.JPG



Linked CAD - OPTIONAL

Count: 1

Name

P19-013\_OSMap.DWG : Type : P19-013\_OSMap.DWG



Pinned Links - OPTIONAL

Count: 0



Shared Parameters File - OPTIONAL

Count: 0



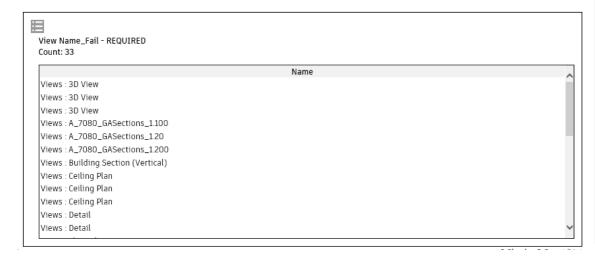
Largest Families - OPTIONAL

Result: 17,960 KB

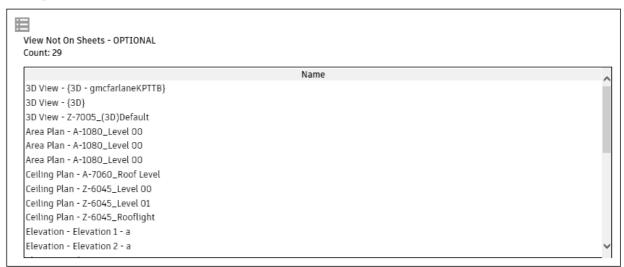
Name	Value	,
A-2530_IntDoor_DblPlain	720 KB	
A-2530_IntDoor_DblUnequalPlain	696 KB	
A-2530_IntDoor_SglPlain	696 KB	
A-2530_Door_Curtain_Panels-360-Door	592 KB	
Doors_ExtDbl_Flush_Fire_Escape	484 KB	
Doors_ExtSgl_Flush_Fire_Escape	480 KB	
Sgl Plain	412 KB	
Z-1000_ITitlesheet_A0A1A2	320 KB	
A-3036_DoorHandle	320 KB	
Z-6050_Elevation_MarkSmall	316 KB	
Z-1000_ATitlesheet_A0A1A2	316 KB	
Z-1000_ITitlesheet_A3	312 KB	~

## VIEW CHECKS

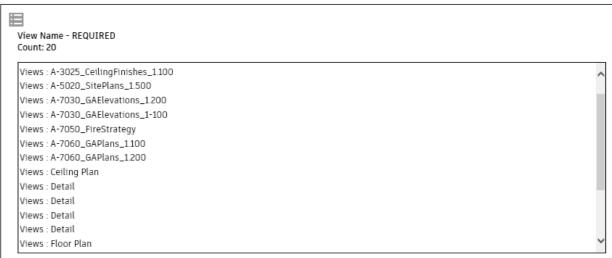
- List views which are not on sheets are they needed? WIP or Working views
- Checks the view names conform to Keppie standards
- Highlights which views are named incorrectly



View Naming 4 Checks, 4 Count/List







## SHEET CHECKS

- Checks that sheets exist within with model
- Checks sheet number conforms to naming conventions
- Lists any sheets that don't match naming conventions

Sheet Naming 3 Checks, 3 Count/List



Sheets Exist - REQUIRED

Count: 8



Sheet Number match - REQUIRED

Sheet Number matches naming conventions

Count: 7

Coding /	
	Name
Sheets : Sheet	



Sheet Number doesn't match - REQUIRED

Sheet Number doesn't matches naming conventions

Count: 1

Name Sheets : Sheet

## WORKSET CHECKS

- Lists the worksets that exist within the model to check they are named correctly
- Individual checks of elements on wrong worksets
- Windows on wrong workset, walls on wrong workset etc.

Worksets

21 Checks, 2 (100%) Pass, O Fail, 19 Count/List



Worksets - OPTIONAL

Count: 40

A-2050\_ArchitectsElectrical

A-2050\_ArchitectsMechanical

A-2050 ArchitectsStructure

A-2050\_Drainage

A-2050\_M&Eengineer

A-2050\_StructuralEngineer

A-2510\_ExternalWalls

A-2510\_InternalWalls

A-2513\_BlockworkWalls

A-2515\_BalustradesHandrails

A-2530\_ExternalDoors

A-2530 ExternalWindow

A-2530\_InternalDoors



Workset Placement - OPTIONAL

Count: 0



Windows on wrong workset - REQUIRED

Count: 0



Walls on wrong workset - REQUIRED

Count: 4

Nam

Walls : A\_2510\_EW\_2\_520\_Generic

Walls : A\_2510\_EW\_2\_520\_Generic

Walls : A\_2510\_EW\_2\_520\_Generic

Walls : A\_2510\_EW\_2\_520\_Generic



Topo on wrong workset - REQUIRED

Count: 0

## ROOM CHECKS

- Checks that rooms exist within the model
- Checks that rooms are on the correct workset (A-2040\_AreasRooms)
- Checks that room numbers have been placed
- Highlights how many unenclosed or not placed rooms are in the model and may need deleted

#### Room Checks

4 Checks, 1 (100%) Pass, 0 Fail, 3 Count/List

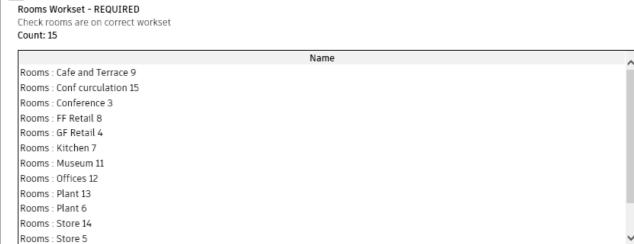


Rooms - REQUIRED

Check whether there are rooms in the model

Count: 15







Room numbers - REQUIRED

Check whether rooms have been placed in the model



Rooms Not Placed or Unenclosed - REQUIRED

Count: 15

# HOW TO PREPARE

### KNOW THE STANDARDS

## File naming



## Using the correct container names



Examples:

Worksets A-2510\_ExternalWalls Symbols A-2280\_NorthPoint

View names A-8050\_1-500\_FireStrategy\_Level 00

Families A-2530\_ExternalDoor\_Type1

Sketches A-8520\_20171212\_Room02Option1

## Line, text & dimension naming

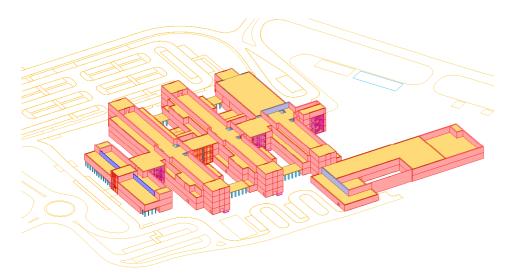
- KEP\_Black\_T\_Segoe\_13

  KEP\_Red\_O\_Segoe\_13
- KEP\_Black\_T\_Segoe\_1.5
- ★ KEP\_Black\_T\_Segoe\_1.
- KEP\_Black\_T\_Segoe\_2.0
- KEP\_Black\_T\_Segoe\_2.5
- KEP\_Red\_O\_Segoe\_2.5
  ★ KEP\_Black\_T\_Segoe\_3.5
- → KEP\_Black\_T\_Segoe\_5.0
- KEP\_Black\_T\_Segoe\_7.0

KEP_1_Black_Solid	1	Black	Solid
KEP_1_Blue_Solid	1	Blue	Solid
KEP_1_Cyan_Solid	1	Cyan	Solid
KEP_1_Green_Solid	1	Green	Solid
KEP_1_Grey(Dark)_Solid	1	RGB 128-128-128	Solid
KEP_1_Grey(Light)_Solid	1	RGB 220-220-220	Solid
KEP_1_Magenta_Solid	1	Magenta	Solid
KEP_1_Red_Solid	1	Red	Solid
KEP_1_Yellow_Solid	1	Yellow	Solid
KEP_3_Red_Dash	3	Red	KEP_Dash_3.0
KEP_5_Black_Solid	5	Black	Solid
KEP_10_Black_Solid	10	Black	Solid



## WORKSETS



- Quick way to over view worksets
- Within bottom ribbon while in a 3D view
- Worksharing > Worksets



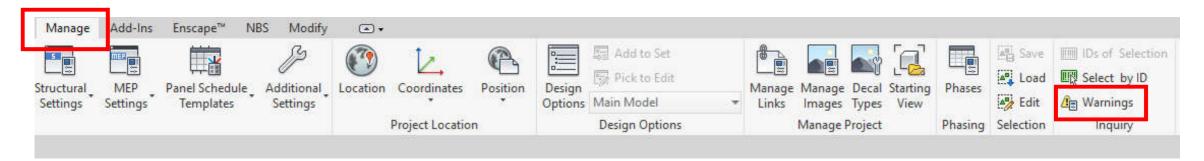
## FILE SIZE

lame	Date modified	Туре	Size
CAD_Imports	26/11/2018 10:34	File folder	
Image_Imports	15/06/2015 10:24	File folder	
P18097-KEP-XX-XX-M3-A-2015-0001_2017_Main_backup	05/07/2019 10:19	File folder	
P18097-KEP-XX-XX-M3-A-5020-0001_2017_Container_backup	13/03/2019 08:16	File folder	
Revit_temp	05/07/2019 10:59	File folder	
debug.log	05/11/2018 08:18	Text Document	1 KE
P18097-KEP-XX-XX-M3-A-2015-0001_2017_Main.rvt	16/04/2019 11:39	Autodesk Revit Pr	105,276 KE
P18097-KEP-XX-XX-M3-A-5020-0001_2017_Container.rvt	13/03/2019 08:16	Autodesk Revit Pr	5,896 KE

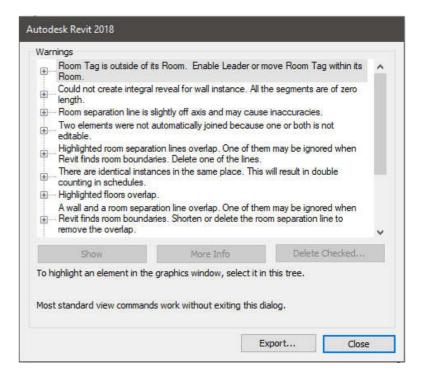
- File size limit is 200KB
- If a model is getting close to 200KB, speak to someone about splitting the model

R17116-KEP-BA-XX-M3-A-2050-0003_2019_BlockA.rvt	24/07/2019 12:30	Autodesk Revit Pr	131,940 KB
P17116-KEP-BB-XX-M3-A-2050-0004_2019_BlockB.rvt	24/07/2019 12:32	Autodesk Revit Pr	42,300 KB
P17116-KEP-BC-XX-M3-A-2050-0005_2019_BlockC.rvt	24/07/2019 12:34	Autodesk Revit Pr	94,416 KB
P17116-KEP-BD-XX-M3-A-2050-0006_2019_BlockD.rvt	24/07/2019 13:49	Autodesk Revit Pr	42,432 KB
P17116-KEP-XX-XX-M3-A-2050-0001_2019_Main&Site.rvt	24/07/2019 12:34	Autodesk Revit Pr	85,208 KB

## WARNINGS



- Regularly check warning count within models
- Within manage tab > Inquiry > Warnings
- Keeping warning count low speeds up the validation process & keeps the model accurate/ clean



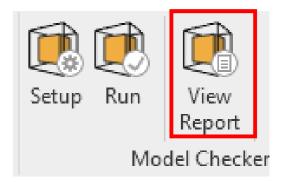
**Setup an Audit Process** 

## **Example**

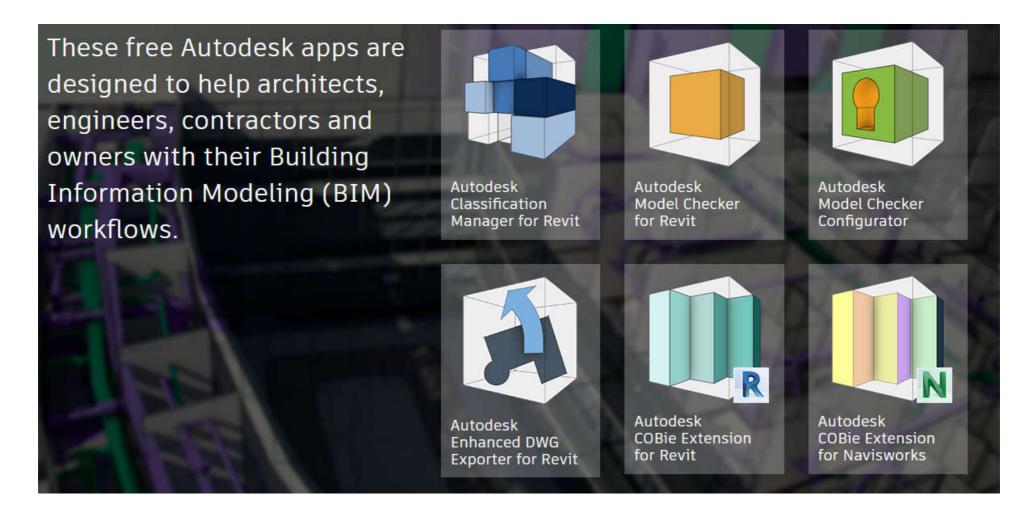
Models being checked every 2 weeks

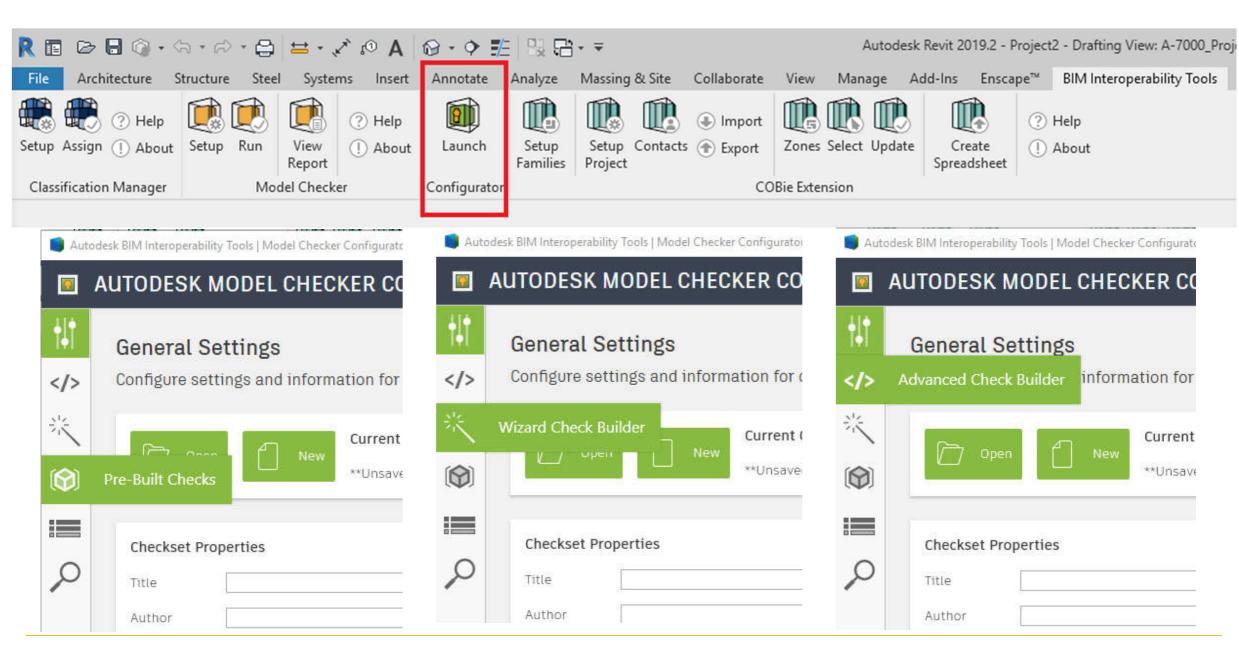
Results being saved within the project folders

Remediation steps noted and followed up

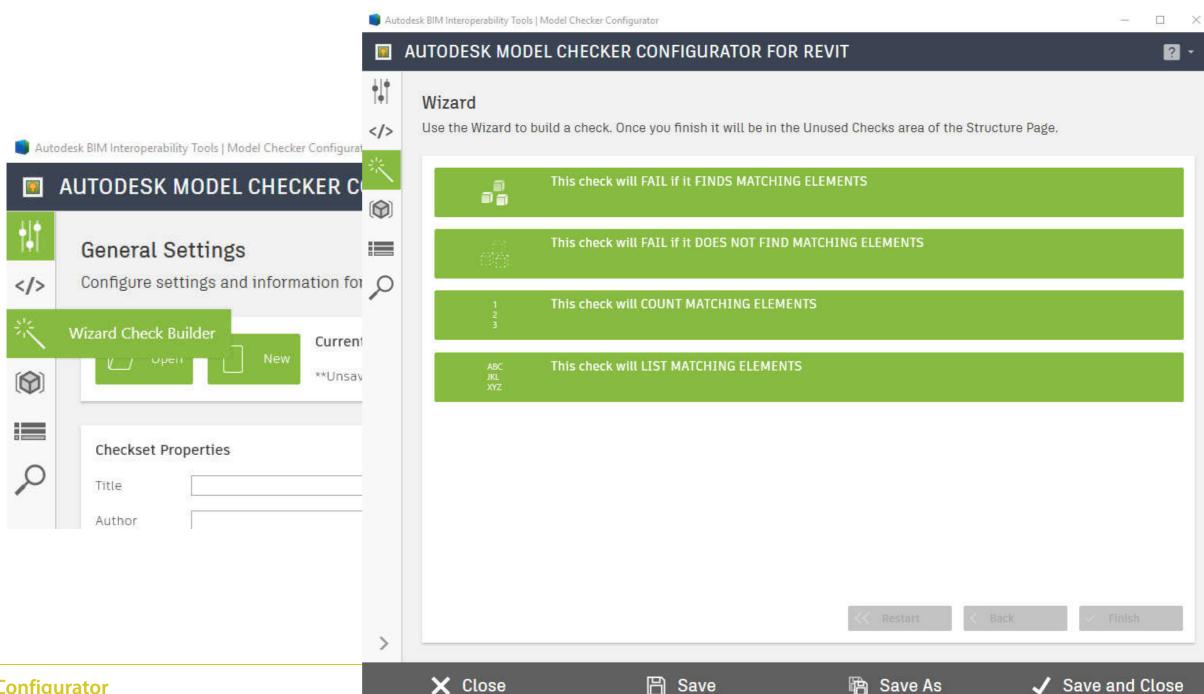


## https://www.biminteroperabilitytools.com/





# XXX-KEP-XX-XX-M3-A-XXXXXX\_Description



**Configurator** 

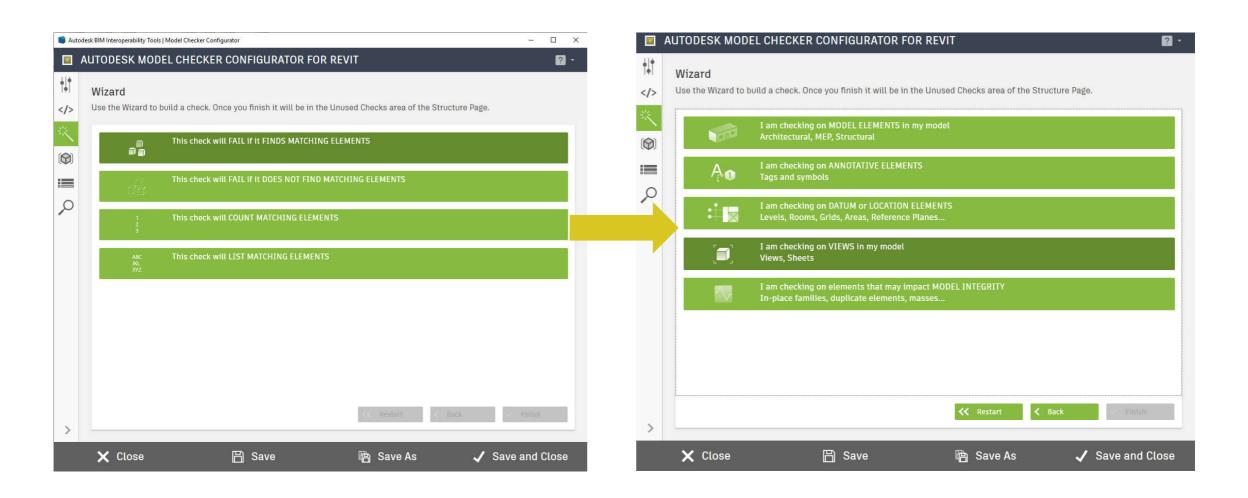
X Close



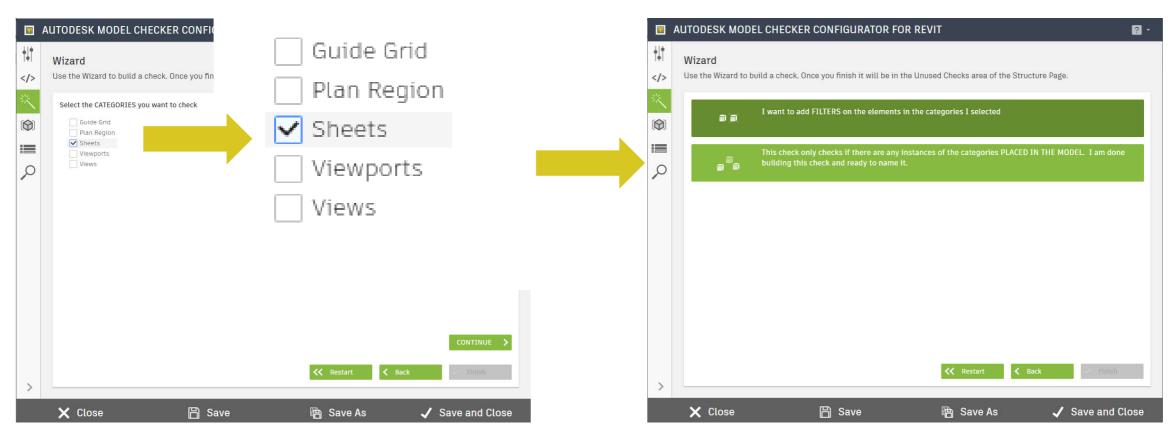


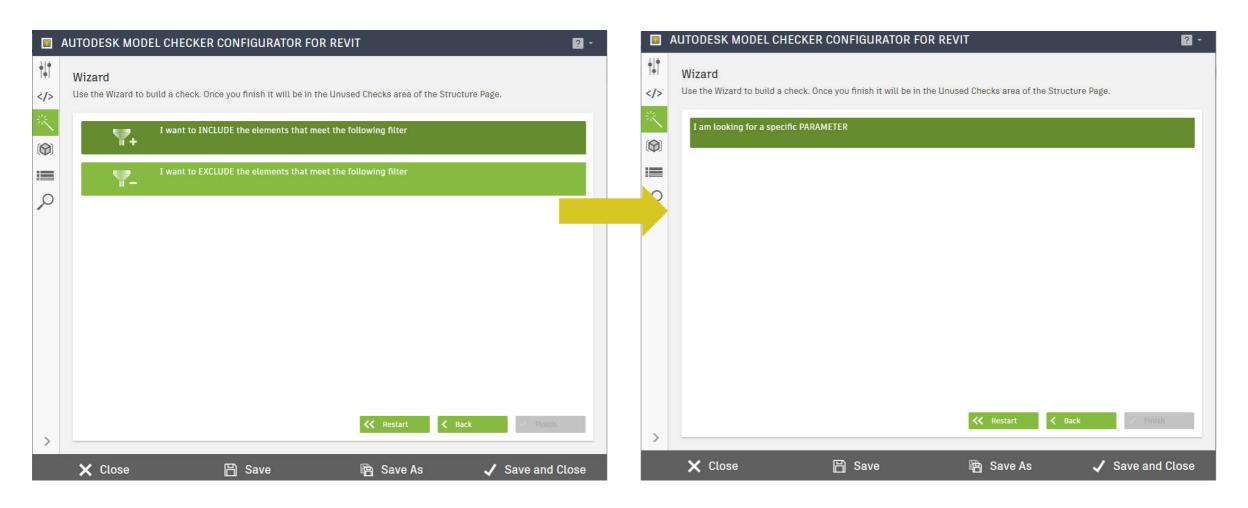




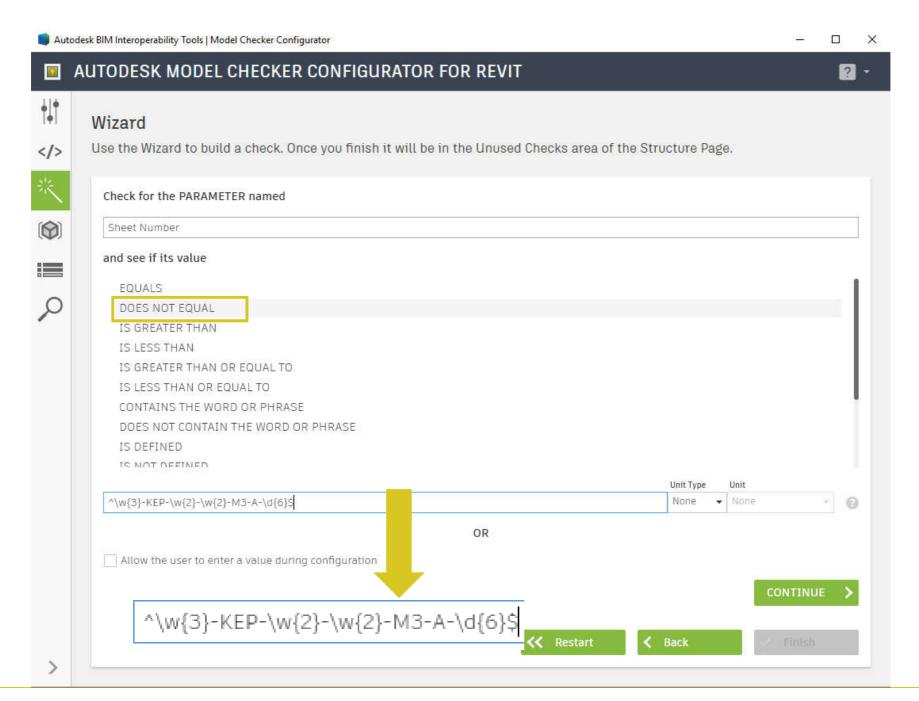


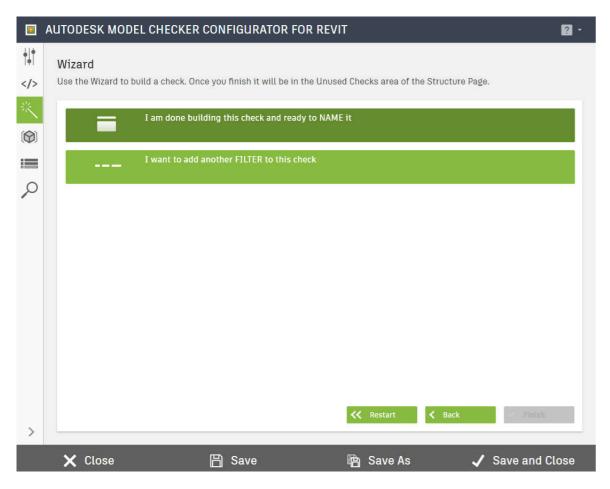
## Select the CATEGORIES you want to check

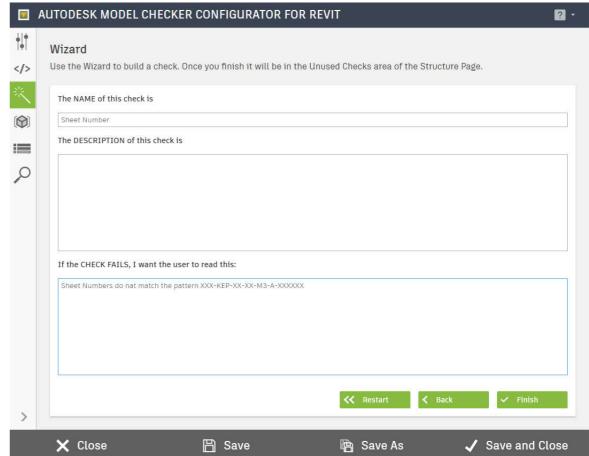


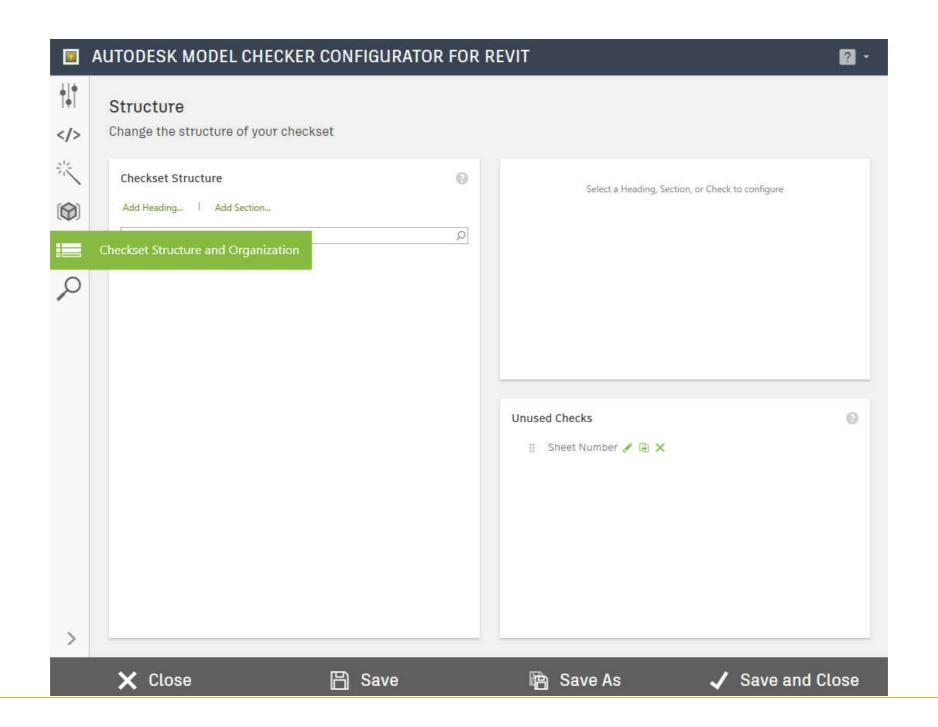


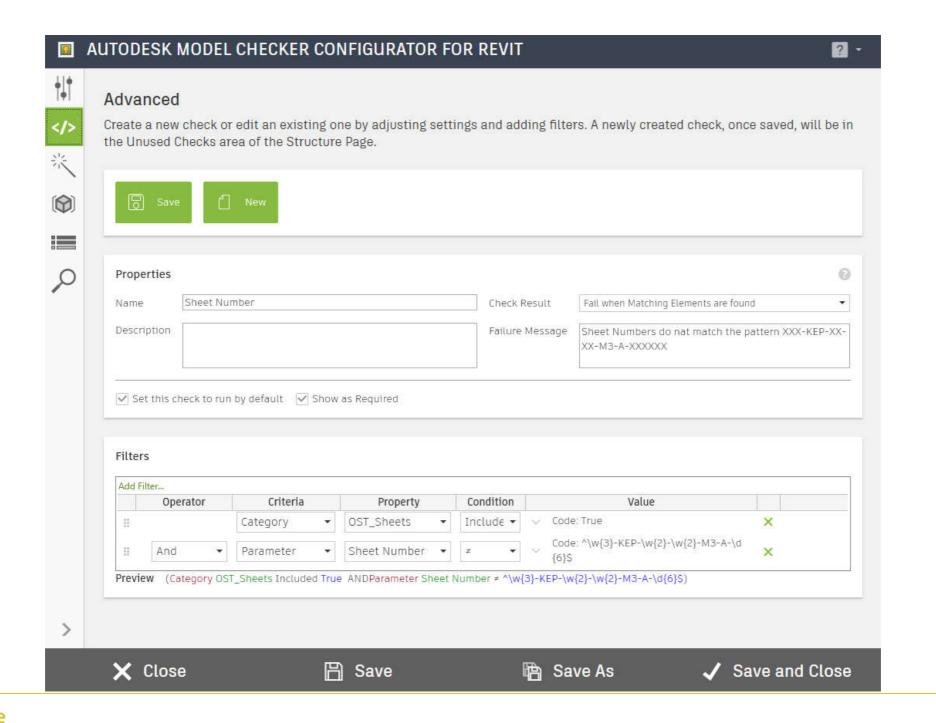
https://regex101.com/

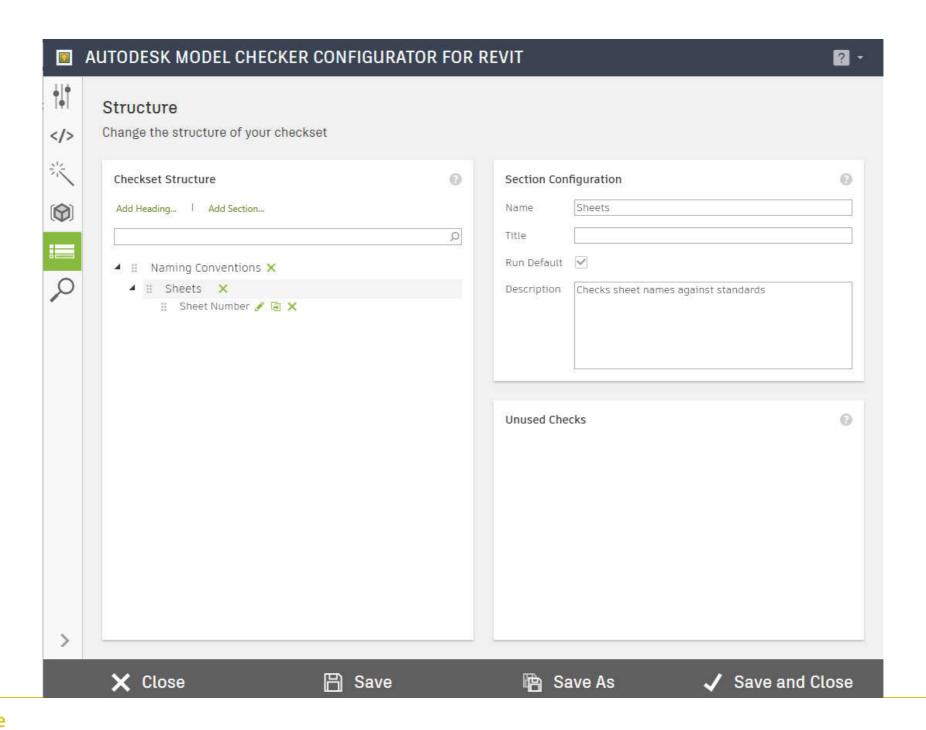












# THANKYOU