



## **CTC BIM Data Suite (Snapshot) Reporting Guide**

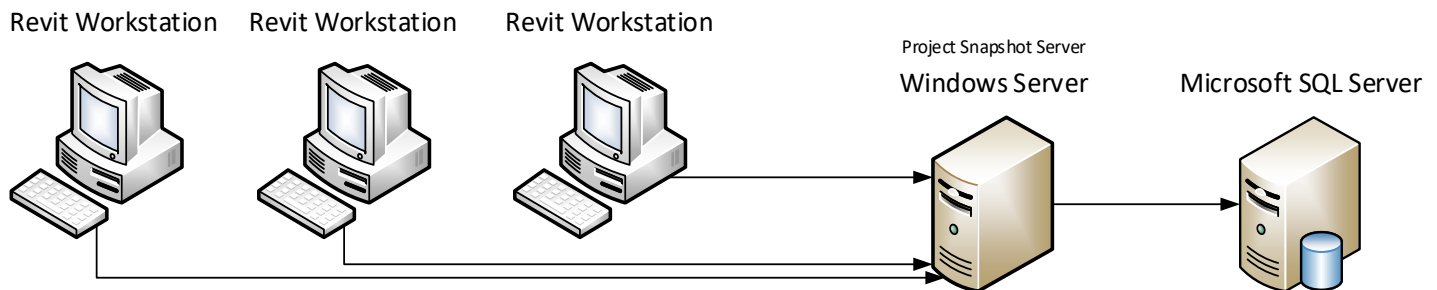
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## Snapshot Exporter Overview

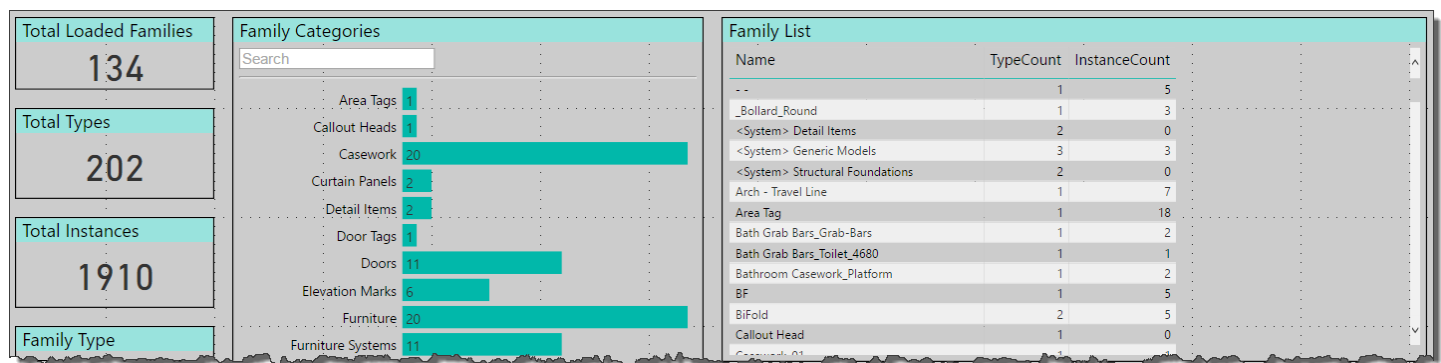
The Snapshot Exporter is a Revit Add-in that runs on demand or on a schedule from the CTC BIM Data Suite ribbon. Model data can be filtered, and ultimately stored in SQL, XML, JSON or CTC's Model Compare Format.

The data is written by the 'Data Suite' (Revit add-in) to memory. A conversion service then sends the data to the 'Snapshot Server' Windows service installed on a server. This service is responsible for writing the data to a Microsoft SQL Server database.

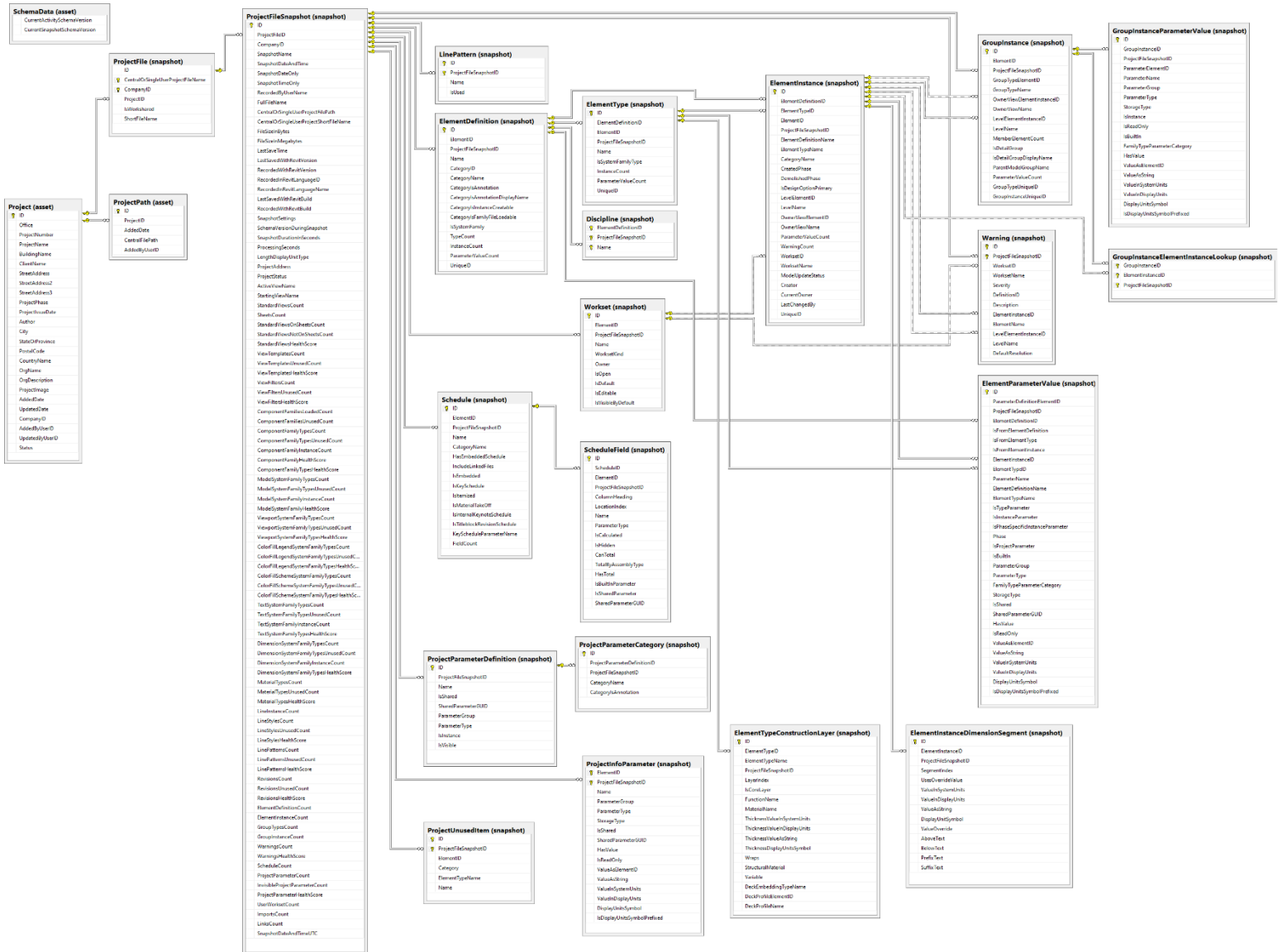


For more detailed information regarding the Snapshot process, Snapshot Server functionality and SQL Database structure, see the appropriate installation and user guides related to each tool.

By leveraging the data stored in SQL as a result of the snapshot process, the report chart below illustrates some of the visualization options available in tools such as Power BI or Tableau. Examples of the example reports provided by CTC can be found in [Appendix B – Report Tab Explanations](#).



The following image shows the portions of the structure of the data in the database which are related to project snapshots. Child tables are shown to the right of parent tables. Some of the tables shown in this structure are referenced elsewhere in this document.



## Data Collection Explained

Data is collected by the client “Project Snapshot Exporter” add-in application on demand, or via a scheduled task in the Revit editing session. Below a few tables will be discussed as they relate to the report outlined later in this document

### ProjectFileSnapshot Table

The ProjectFileSnapshot table contains approximately 90 fields providing an excellent overview of the captured data. In the example report, every piece of data is sourced from this table. Important project file information, and quantity summaries are stored here to allow you easy access to the health information about your project model(s)

### ElementDefinition Table

Most of the components in Revit that can be managed by a family/category have the high-level information stored here. This table allows access to families, views, links and many other aspects of the Revit project model. Ultimately, if it is not a Workset, Schedule, Group or Warning, it is likely that the top-level information is in this table.

This table is often the basis for many of the Detail tabs in the example report, often backed up by the Element Types and Element Parameter Values tables.

### ElementType Table

The ElementType table is dependent on the ElementDefinition table. If there is more detailed type information from one of the element definitions, it is likely that information will be found here. This table is often used in the example report to allow a deeper dive into the project data and provide quantities related to types and their dependent instances

### ElementInstance Table

The ElementInstance table is dependent on the ElementType table. When individual instances and their properties are desired, this is likely the table that will be used. This table is also referenced by the GroupInstance table to help understand which instances are contained in groups, and what their properties are.

### ElementParameterValue Table

This table stores the value of almost every parameter in the project. It is referenced and highly dependent on both the ElementType and ElementInstance tables. As almost every captured parameter value is stored here, it by far the largest table in the entire database. While the sample report rarely uses this table to display data, it is often used to filter results from the other tables.

To optimize the SQL server, and speed up your Power BI reporting, it is recommended that you carefully consider filtering out parameters that you are unlikely to need in your reports when taking the snapshot. Limiting what is captured will speed up data conversions, and speed up reporting refresh times. That said, if you do not capture something, you cannot report on it. Carefully consider what should be included and excluded in the snapshot data stored in SQL server.

### ProjectParameterDefinition Table

Project parameters are some of the few parameters that are not stored in the ElementParameterValue table. These may refer to elements, but they have special properties that require they be stored differently for easily accessibility. These are used on a single report in the sample database, and can often provide interesting insight into project health. Projects may often have project parameters defined that are invisible. It is difficult for users to access this information limiting its value. This table can help you discover this type of information in your project models.

### ProjectParameterCategory Table

The ProjectParameterCategory table is dependent on the ProjectParameterDefinition table. This table allows you to gain insight on how project parameters are used. This table is also highly used on the Project Parameters detailed report tab in the provided sample report.

### **ElementTypeConstructionLayer Table**

The ElementTypeConstructionLayer table is dependent on the ElementType table. This table contains the information about the “layers” defined in walls, ceilings, floors, roofs and pads. The table is structured the same as seen in Revit.

### **ElementInstanceDimensionSegment Table**

The ElementInstanceDimensionSegment table is dependent on the ElementInstance table. This table contains the information about dimension segments, most notably whether or not an override value is being displayed instead of the actual value of the dimension.

## Appendix A – Example Power BI File

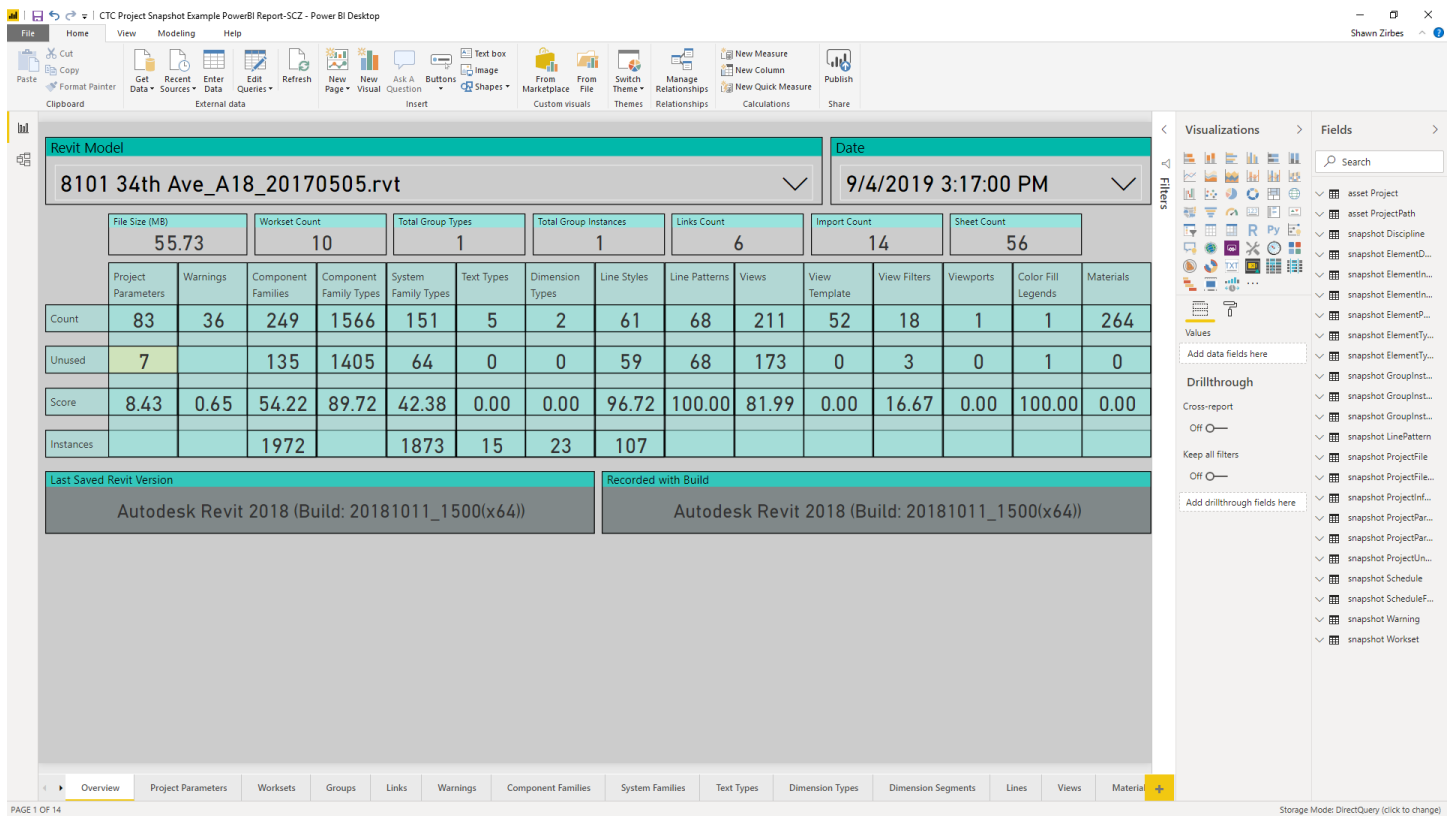
A sample Power BI file (*CTC Project Snapshot Example PowerBI Report.pbix*) is provided as a starting point for your data visualizations. The file can be found in folder:

C:\ProgramData\CTC\Project Snapshot Exporter

**IMPORTANT:** Also located in this folder is a file called *!Optimal Health Check Snapshot Filters.psf* which can be used when taking a snapshot (e.g. in the Project Snapshot Exporter add-in for Revit) to minimally gather all the data needed by the sample PowerBI file. This can GREATLY reduce the amount of time it takes to take a snapshot and get it into the database.

Initially the file only contains some sample data. To access your data a few configuration changes must be made. Once the configuration is complete, Power BI will pull data from a number of tables in the CTCBIMData database found on one of your SQL Server instances.

Before proceeding, confirm the exact SQL Server instance name with your database administrator.



Example dashboard

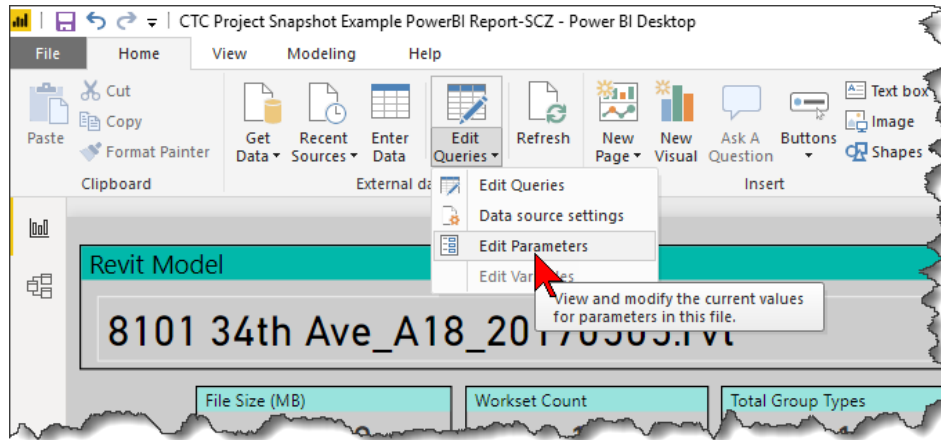
## Configure Power BI Files to Access Your Database

The following steps must be applied to the provided Power BI sample file.

### Edit Data Sources

The ServerName parameter (pServerName) must be an exact match to your SQL Server instance name.

1. Select the 'Home' ribbon panel, then 'Edit Queries → Edit Parameters':



2. Enter your SQL Server instance name and database name:

Enter Parameters ×

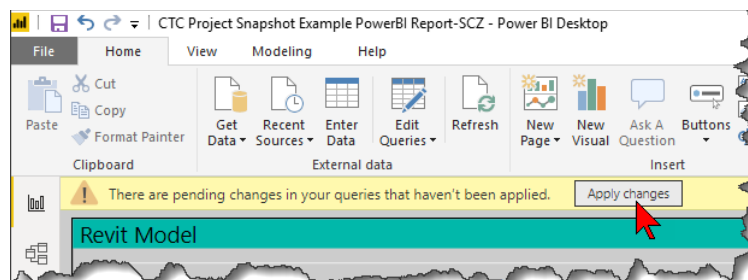
pDatabaseName ⓘ  
CTCBIMData

pServerName ⓘ  
CTCLTMNShawnZ3

pTimeZone ⓘ  
-6

OK Cancel

3. Select “Apply Changes” from the update notification to pull the latest data from your SQL server’s database:



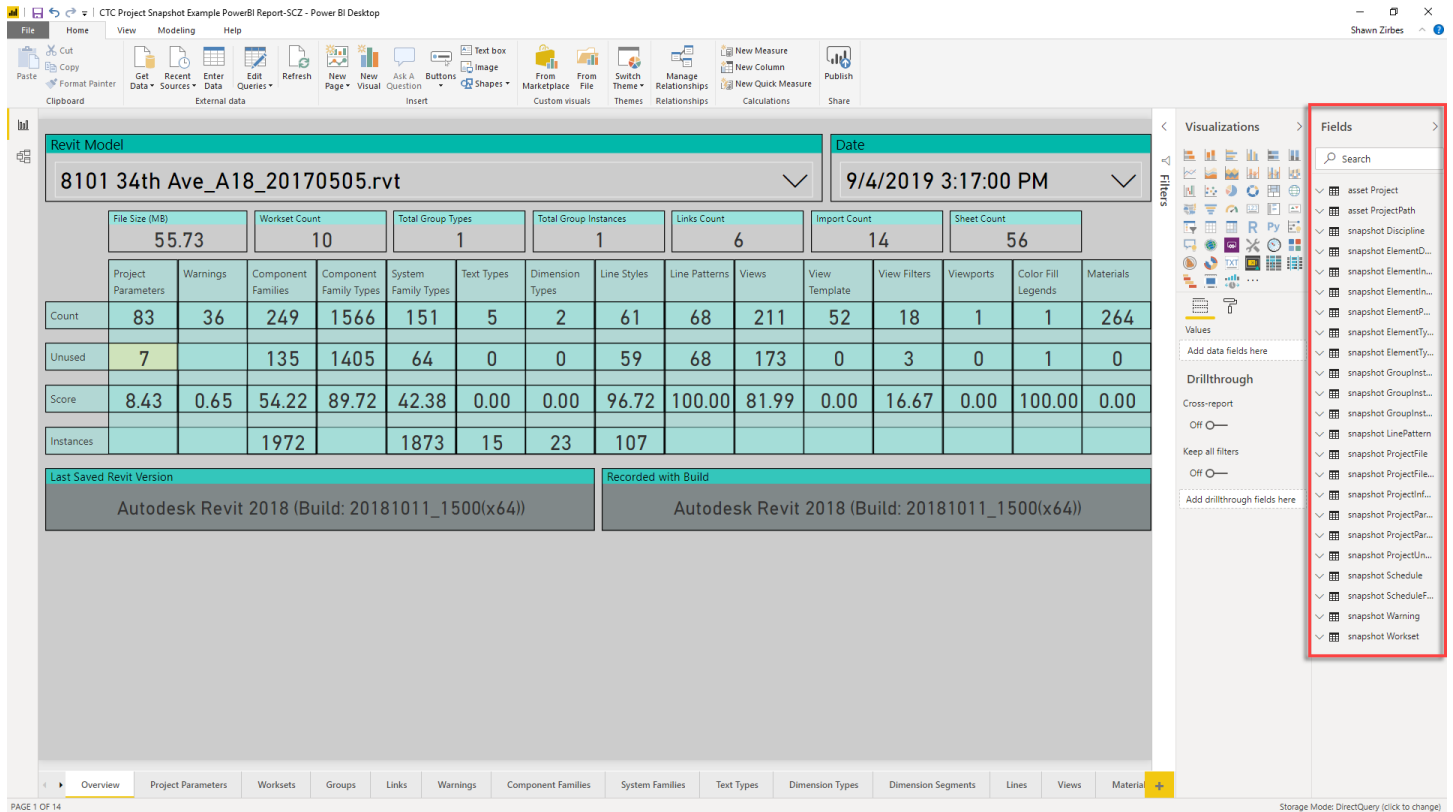
NOTE: Whenever updated data is required, the Refresh button should be pressed in Power BI to ensure latest data is available to the reporting interface.



## CTC Snapshot Power BI Reports - Reporting Tables

The reporting tables found in this file are populated directly from tables in the CTCBIMData database. Stored procedures or views (not included) can also be used because they provide the ability to provide database level filtering when retrieving records from your database, resulting in faster data retrieval. The CTC-provided example, using the Power BI tool, created visualizations directly using the tables rather than stored procedures or custom views.

To view the reporting tables in Power BI, expand the 'Fields' pane:



The screenshot shows the Power BI Desktop interface with the CTC Project Snapshot Example report. The 'Fields' pane on the right is expanded, showing a list of tables and columns. The main report area displays a table with various metrics for a Revit model.

Revit Model										Date											
8101 34th Ave_A18_20170505.rvt										9/4/2019 3:17:00 PM											
File Size (MB)	55.73	Worksheet Count	10	Total Group Types	1	Total Group Instances	1	Links Count	6	Import Count	14	Sheet Count	56								
Count	83	Warnings	36	Component Families	249	Component Family Types	1566	System Family Types	151	Text Types	5	Dimension Types	2	61	68	211	52	18	1	1	264
Unused	7			135	1405	64	0	59	68	173	0	3	0	1	0						
Score	8.43	0.65	54.22	89.72	42.38	0.00	0.00	96.72	100.00	81.99	0.00	16.67	0.00	100.00	0.00						
Instances				1972		1873	15	23	107												
Last Saved Revit Version										Recorded with Build											
Autodesk Revit 2018 (Build: 20181011_1500(x64))										Autodesk Revit 2018 (Build: 20181011_1500(x64))											

The 'Fields' pane on the right shows the following tables and columns:

- asset Project
- asset ProjectPath
- snapshot Discipline
- snapshot ElementD...
- snapshot ElementIn...
- snapshot ElementP...
- snapshot ElementTy...
- snapshot GroupInst...
- snapshot GroupInst...
- snapshot GroupInst...
- snapshot LinePattern
- snapshot ProjectFile
- snapshot ProjectFile...
- snapshot ProjectInf...
- snapshot ProjectPar...
- snapshot ProjectPar...
- snapshot ProjectUn...
- snapshot Schedule
- snapshot ScheduleF...
- snapshot Warning
- snapshot Workset

## Appendix B – Report Tab Explanations

Reporting or visualization requirements vary greatly by organization. Today's issue requiring analysis and/or presentation will quickly change. Flexible tools such as Power BI and Tableau allow you to quickly create reports and visualizations from many different viewpoints (e.g. by model, project, user, or workstation). CTC overview and detailed examples are documented below.

The example report authored by CTC is designed to represent a single model at a single point in time. The report can be used to understand the general health of a model in an isolated environment. CTC hopes this report will inspire you to develop additional reports as your database begins to be populated to compare a single model to itself over time, and to similar models from other projects.

### Report Settings (Primary)

This Power BI Report utilizes linked slicer filters to isolate an individual project at a specific date and time.

Specifying an explicit short file name in the 'Revit Model' slicer will automatically filter the date/time section to valid options for that file stored in the database. Further filtering the 'Date' slicer will provide the metrics for a single model at single point in time

When your report is properly connected to your SQL server, and your server has model information stored from at least one snapshot, the information presented will be relevant to your data. When more than one snapshot is in the database, you must use the slicer filters to retrieve valid information on any of the tabs. This report-level filtering does affect the entirety of the report, filtering every tab automatically to these selections.

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

All

☐ 8/8/2019 2:32:03 PM

☐ 9/4/2019 11:34:59 AM

☐ 9/4/2019 2:01:56 PM

☐ 9/4/2019 2:28:57 PM

☐ 9/4/2019 3:17:00 PM

File Size (MB)	613.18		Workset Count	100		Total Group Types	11		Total Group Instances	11		Links Count	60	
Project Parameters	Warnings	Component Families	Component Family Types	System Family Types	Text Types	Dimension Types	Line Styles	Line Patterns	Views	View Templates	Count	Unused	Score	
819	266	2385	14K	1512	44	19	601	680	2117	51	819	70	85.48	
1249	13K	640	0	0	584	680	1746	0.00	0.00	971.88	1.00K	824.73	0.00	
176.69	0.00	1.00K	0.00											

### Report Settings (Secondary)

In order to refine some of the results, there is a report-level filter to eliminate the model's association to Assembly Code and Keynote Settings. This is, of course optional, so if your reports needed to represent that information, the report wide filter could be removed.

## Report Tabs

Each tab in this report is designed to serve a specific purpose. The overview tab shows general information, while the remaining tabs provide detailed data about select sections on the overview tab.

### Overview Tab

Revit Model											Date				
8101 34th Ave_A18_20170505.rvt											All				
File Size (MB)		Workset Count		Total Group Types		Total Group Instances		Links Count		Import Count		Sheet Count			
613.18		100		11		11		60		140		555			
Count	Project Parameters	Warnings	Component Families	Component Family Types	System Family Types	Text Types	Dimension Types	Line Styles	Line Patterns	Views	View Template	View Filters	Viewports	Color Fill Legends	Materials
Count	819	266	2385	14K	1512	44	19	601	680	2117	511	171	10	10	2630
Unused	70		1249	13K	640	0	0	584	680	1746	0	30	0	10	0
Score	85.48	4.76	512....	838.01	423.26	0.00	0.00	971.88	1.00K	824.73	0.00	176.69	0.00	1.00K	0.00
Instances			20K		19K	117	220	752							
Last Saved Revit Version											Recorded with Build				
Autodesk Revit 2018 (Build: 20170927_1515(x64))											Autodesk Revit 2018 (Build: 20170927_1515(x64))				

This tab reports exclusively from the ProjectFileSnapshot table in the database. The intent here is to represent the overall quantities from the captured Revit model. The values displayed here are captured, calculated and stored at the time the snapshot is written to SQL. As such, these values are not used on any other tabs in the example Power BI report as they are not dynamically read from the individual tables in the database.

**On this tab, the desire is always to have the score for any scored section be as close to 0 as possible.** Zeros in a specific category indicates that the model is healthy and free of unnecessary bulk in that segment.

Most categories are based on a percentage 0-100%. Warnings are the single variation where it compares the ratio of warning count to file size in MB. The ideal target range is two or less, where lower numbers are always better.

This tab uses no custom filtering, other than the report-level filtering defined earlier.

## Project Parameters

Revit Model  
8101 34th Ave\_A18\_20170505.rvt

Date  
9/4/2019 2:28:57 PM

Project Parameters  
83

Shared  
False True

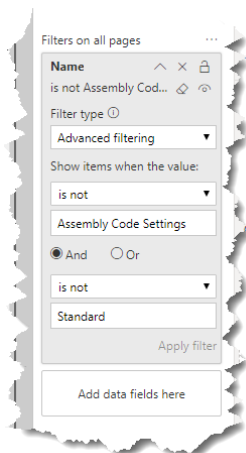
IsVisible  
☐ False  
☐ True

Category List  
Search  
Air Terminals  
Analytical Links  
Areas  
Assemblies  
Cable Tray Fittings  
Cable Tray Runs  
Cable Trays  
Casework  
Ceilings  
Columns  
Communication Dev...

Parameter List  
Search  
Area Per Person  
Area Per Person (CTC)  
Building Entrance  
Casework (Manual)  
Category  
Ceiling Height  
Ceiling Height Calculated  
Ceiling Height Varies  
Color/Finish  
Combined Name\_Number  
CreatedByCTCFabSheets  
Expected Life Span  
Finishes (Manual)  
Fire Compartment  
Fire Exit  
Fire Rating  
Floor Material  
FS\_BarrierType  
FS\_Diameter  
FS\_ElementType  
FS\_FireRating  
FS\_Height

Name	IsShared	IsInstance	IsVisible	CategoryName
Area Per Person	True	True	True	Rooms
Area Per Person (CTC)	False	True	True	Rooms
Building Entrance	True	True	True	Doors
Casework (Manual)	False	True	True	Rooms
Category	True	False	True	Casework
Category	True	False	True	Ceilings
Category	True	False	True	Doors
Category	True	False	True	Floors
Category	True	False	True	Furniture
Category	True	False	True	Specialty Equipment
Category	True	False	True	Walls
Ceiling Height	False	True	True	Rooms
Ceiling Height Calculated	False	True	True	Rooms
Ceiling Height Varies	False	True	True	Rooms
Color/Finish	True	True	True	Materials
Combined Name_Number	False	True	True	Rooms
CreatedByCTCFabSheets	True	True	False	Sheets
CreatedByCTCFabSheets	True	True	False	Views
Expected Life Span	True	False	True	Casework
Expected Life Span	True	False	True	Ceilings
Expected Life Span	True	False	True	Doors
Expected Life Span	True	False	True	Floors
Expected Life Span	True	False	True	Furniture
Expected Life Span	True	False	True	Specialty Equipment
Expected Life Span	True	False	True	Walls
Expected Life Span	True	False	True	Windows
Finishes (Manual)	False	True	True	Rooms
Fire Compartment	False	True	True	Rooms

The Project Parameters tab required the addition of a page level filter, but since many other tabs would benefit from the same filter, it was generated as a report-level filter.



The above filter allows the project parameters and links tabs to exclude the Assembly Code and Keynote settings from the entire report as they aren't factored in the project health check, and their inclusion in certain areas may be misleading.

In typical Power BI fashion, each of the visualizations are dynamic. Selecting on any of the list, chicklet or checkbox options will filter the list across other visualizations on this tab to represent related information.

While they can add value, often invisible parameters can oddly affect the project. As such, it is recommended to minimize their use in project parameters.

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

9/4/2019 2:28:57 PM

User Worksets

10

Category List

<Area Boundary>

<Room Separation>

Area Tags

Areas

Cameras

Casework

Ceilings

Curtain Panels

Curtain Wall Grids

Curtain Wall Mullions

Dimensions

Door Tags

Doors

Elevations

Floors

Furniture

Furniture Systems

Generic Annotations

Generic Models

Grids

HVAC Zones

Import or Link

Element Count	WorksetName	CategoryName	CurrentOwner
1	Elevation "Elevation 4"	Elevations	
1	Exterior	Ceilings	
351	Exterior	Curtain Panels	
263	Exterior	Curtain Wall Grids	
1062	Exterior	Curtain Wall Mullions	
10	Exterior	Doors	
1	Exterior	Floors	
2	Exterior	Generic Models	
1	Exterior	HVAC Zones	
1	Exterior	IOS Model Groups	
27	Exterior	Reference Planes	
5	Exterior	Roofs	
3	Exterior	Specialty Equipment	
13	Exterior	Wall Sweeps	
206	Exterior	Walls	
3	Exterior	Windows	
56	FFE	Casework	
212	FFE	Furniture	
113	FFE	Furniture Systems	
11	FFE	Generic Models	
20	FFE	Specialty Equipment	
120	Interior	<Area Boundary>	
34	Interior	<Room Separation>	
6	Interior	Areas	
11	Interior	Casework	
131	Interior	Ceilings	
57	Interior	Curtain Panels	
<b>6263</b>			

The worksets tab is designed to represent user created worksets exclusively. Since the Revit API provides access to worksets in a somewhat odd manner, this tab has a series of tab-level filters to remove some of the rogue worksets that are not easily filtered out in a different way.

Filters

Filters on this page

WorksetKind

is User Workset

Filter type

Basic filtering

☒ Select all
 

☐ (Blank)
 

☐ Family Workset 3818
 

☐ Standard Workset 2416
 

☒ User Workset 151
 

☐ View Workset 10641

☐ Require single selection

Add data fields here

The filters on this tab can be utilized to validate some of the categories that have been placed on user created worksets.

## Groups

Revit Model  
MEP18\_MEPP Starter Project.rvt

Date  
3/13/2019 2:05:07 PM

Total Group Types  
100

Total Group Instances  
100

Group Type  
Model

Group Types  
Search

P\_Chase Assembly - L... 1  
P\_Chase Assembly - L... 1  
P\_Chase Assembly - L... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Chase Assembly - ... 1  
P\_Drain Assembly - H... 1  
P\_Drain Assembly - H... 1  
P\_Drain Assembly - H... 1  
P\_Drain Assembly - H... 1  
P\_Drain Assembly - V... 1  
P\_Drain Assembly - V... 1  
P\_Drain Assembly - V... 1  
P\_Drain Assembly - V... 1  
P\_Drain Assembly - V... 1  
P\_Drain Assembly - V... 1  
P\_Fixture Assembly - ... 1  
P\_Fixture Assembly - ... 1  
P\_Fixture Assembly - ... 1

LevelName	GroupType	Count	MemberElementCount
Dynamic Legend & Groups	Model	100	4141
Total		100	4141

OwnerViewName	Count	ParentModelGroupName
	100	
Total	100	

Groups in Revit can both be a great benefit and a source of pain. This tab is designed to represent both model and details groups, the worksets/views they are placed on, how many instances of the groups exist, and how many elements are contained in each group.

This information can be used to run a preliminary check to see if groups may be adversely affecting the project performance.

## Links

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

All

Total Links/Imports

10

Total Instances

120

Load Type

Import Symbol

Linked Revit Model

Raster image

Definitions

Search

Import Symbol 4 60

Linked Revit Model 4 40

Raster image 2 20

Instances

Definition	File Type	File Name	WorksetName
Linked File	Linked Revit Model	8101 34th Ave_A18_20170505.rvt	Interior
Linked File	Linked Revit Model	8101 34th Ave_E18_20170505.rvt	Revit Link_Elec
Linked File	Linked Revit Model	8101 34th Ave_M18_20170505.rvt	Revit Link_Mech
Linked File	Linked Revit Model	8101 34th Ave_S18_20170505.rvt	Revit Link_Stru
Imported File	Raster image	IMAGE-12_3D ISO SW - Level 2_1	View "Drafting View: IMAGE-12_3D ISO SW - Level 2_1"
Imported File	Raster image	IMAGE-Compare View_Page 2_1	View "Drafting View: IMAGE-Compare View_Page 2_1"
Imported File	Import Symbol	X-06.02728.00-B-02.dwg	Interior
Linked File	Import Symbol	X-06.02728.00-B-03.dwg	Interior
Linked File	Import Symbol	X-06.02728.00-B-04.dwg	Interior
Imported File	Import Symbol	X-06.02728.00-B-LL.dwg	View "Floor Plan: 00 - Floor Plan - EXST"
Imported File	Import Symbol	X-06.02728.00-B-LL.dwg	View "Floor Plan: BASEMENT LEVEL - Existing - Floor Pla
Imported File	Import Symbol	X-06.02728.00-B-LL.dwg	View "Floor Plan: BASEMENT LEVEL - Existing - Floor Pla

Links and imports can be used to advance the performance of a model, or by leveraging too many imports; significantly degrade model performance. This tab is designed to provide insight into the links and imports that exist.

Ultimately, few to no imports of CAD files and images should exist in any model. Instead, links are preferred to maximize model performance. Understanding what imports exist, and where they are in the model, can lead to an action plan for model repair.

## Warnings

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

9/4/2019 3:17:00 PM

Total Warnings

30

File Size

55.73

Warning Descriptions

Search

A wall and a room separatio...

18

36

Highlighted walls overlap. O...

6

12

Two elements were not aut...

2

4

Elements have duplicate "N...

3

Highlighted floors overlap.

2

Insert conflicts with joined ...

2

Room is not in a properly e...

1

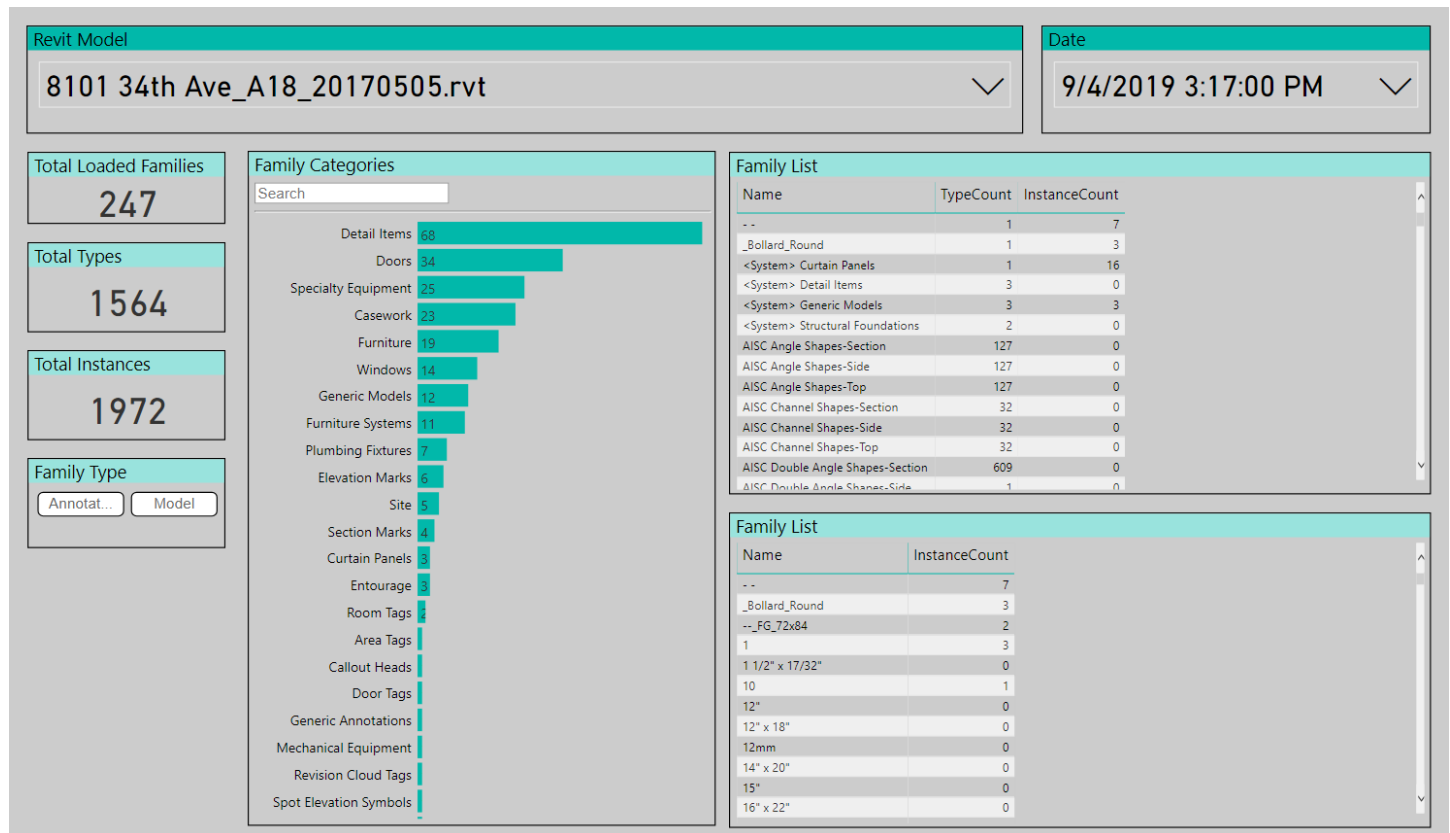
ElementID	LevelName	WorksetName	ElementName	Description
223268	LEVEL 1	Exterior	WL_Ext_Conc_12"	Two elements were not automatically joined bec
863078	LEVEL 1	Exterior	WL_Ext_Conc_12"	Two elements were not automatically joined bec
596935	LEVEL 1	Interior	IGD OFFICE 125	Elements have duplicate "Number" values.
724119	LEVEL 1	Interior	MECH.CHILLER 50.4	Room is not in a properly enclosed region
620060	LEVEL 1	Interior	MENS 125	Elements have duplicate "Number" values.
620054	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
620063	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044566	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044569	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044572	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044575	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044581	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044584	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044587	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044590	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044593	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1044596	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1134622	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
1135013	LEVEL 1	Interior	Model Lines	A wall and a room separation line overlap. One c
620046	LEVEL 1	Interior	PLOT ROOM 125	Elements have duplicate "Number" values.
196215	LEVEL 1	Interior	WL_Int_Type A_4"	A wall and a room separation line overlap. One c
196217	LEVEL 1	Interior	WL_Int_Type A_4"	A wall and a room separation line overlap. One c
196097	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
696173	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134453	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134504	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134539	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134756	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134826	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134846	LEVEL 1	Interior	WL_Int_Type A_5"	A wall and a room separation line overlap. One c
1134453	LEVEL 1	Interior	WL_Int_Type A_5"	Highlighted walls overlap. One of them may be i

While warnings do not add to the model file size, they do adversely affect the model performance in different ways. This tab is designed to provide a rapid summary of all model warnings, and indicate the elements affected by the warnings.

Having this understanding can make it easy to generate a repair plan for the project team.

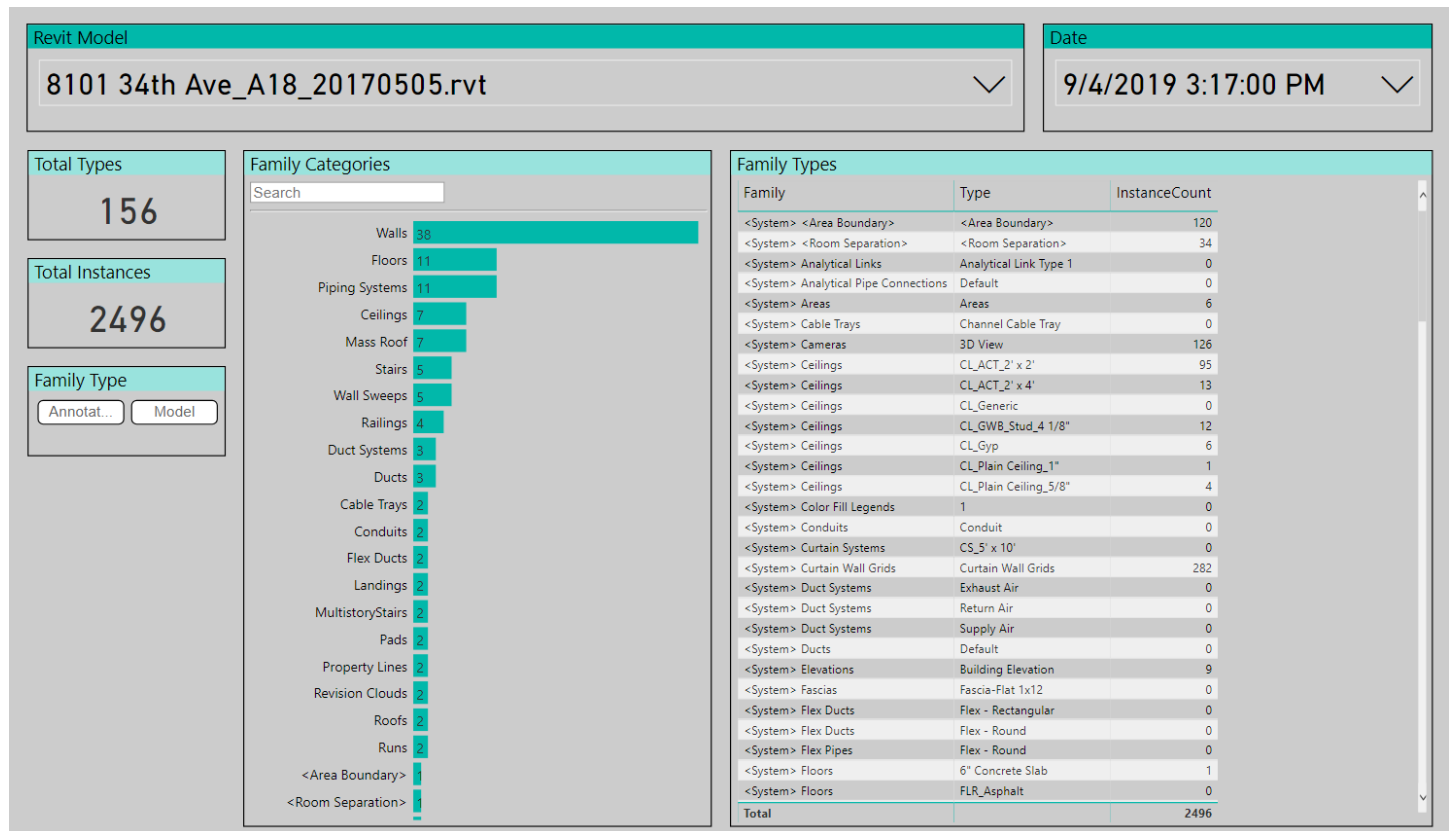


## Component Families



Component families are often ignored and left in the model when they are not needed. This tab will help reviewers understand loaded families and types that are unused, facilitating planning for model maintenance.

## System Families



Like component families, system families can flood models. Often, they are imported using Revit's 'Transfer Project Standards,' bringing entire categories of system families into a model when only a single type is needed. Understanding the impact of this can aid in the maintenance of a model.

This tab is designed around major system families and allows filtering to better understand use and standards compliance.

## Text Types

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

9/4/2019 3:17:00 PM

Total Types

5

Total Instances

15

Family Types

Family	Type	InstanceCount
<System> Text Notes	(Default Project Text) 3/32" Arial Narrow	6
<System> Text Notes	1/2" Arial	1
<System> Text Notes	1/4" Arial	2
<System> Text Notes	1/8" Arial	1
<System> Text Notes	3/32" Arial	5
Total		15

Family Definitions

OwnerViewName	ElementTypeName	Count of ID
01 - Floor Plan	3/32" Arial	4
E_Automobile Heater Pole Detail	(Default Project Text) 3/32" Arial Narrow	6
E_Automobile Heater Pole Detail	3/32" Arial	1
EXIT VIEW	1/2" Arial	1
EXIT VIEW	1/4" Arial	2
EXIT VIEW	1/8" Arial	1
Total		15

Text Types are technically a system family, but these types have been isolated to help understand the impact of possible CAD import explosions and general standards compliance.

## Dimension Types

Revit Model

8101 34th Ave\_A18\_20170505.rvt

Date

9/4/2019 3:17:00 PM

Total Types

2

Total Instances

23

Family Types

Family	Type	InstanceCount
<System> Dimensions	Linear - 3/32" Arial	17
<System> Dimensions	Linear - 3/32" Arial Arrow	6
Total		23

Family Definitions

OwnerViewName	ElementTypeName	Count of ID
01 - Code Plan	Linear - 3/32" Arial	5
01 - Floor Plan	Linear - 3/32" Arial	5
01 - Presentation Plan	Linear - 3/32" Arial	3
02 - Floor Plan	Linear - 3/32" Arial	2
02 - Presentation Plan	Linear - 3/32" Arial	1
E_Automobile Heater Pole Detail	Linear - 3/32" Arial Arrow	6
Section 2	Linear - 3/32" Arial	1
Total		23

Like Text types, Dimension Types often manifest in projects, and non-standard types are often used. This tab makes it easy to report on the dimension types available, and their frequency of use in the model.

## Dimension Segments

Revit Model  
8101 34th Ave\_A18\_20170505.rvt

Date  
9/4/2019 3:17:00 PM

Segment Count  
19

Overridden Segments  
19

Overridden  
False True

Family Types

Element ID	WorksetName	Actual Value	Override	Text Above	Text Below	Text Left	Text Right
863237	View "Floor Plan: 01 - Floor Plan"	15' - 10 3/8"	16' - 0"				
1106545	View "Floor Plan: 01 - Floor Plan"	4' - 11 1/4"	.				
1106565	View "Floor Plan: 01 - Floor Plan"	8' - 11 1/8"	9' - 0"				
1106565	View "Floor Plan: 01 - Floor Plan"	8' - 2"	8' - 0"				
1106565	View "Floor Plan: 01 - Floor Plan"	9' - 3 1/2"	8' - 0"				
1106565	View "Floor Plan: 01 - Floor Plan"	9' - 3 7/8"	9' - 0"				
1106838	View "Floor Plan: 01 - Floor Plan"	11' - 4 3/8"	.				
1107026	View "Floor Plan: 01 - Floor Plan"	10' - 6 5/8"	.				
1107026	View "Floor Plan: 01 - Floor Plan"	14' - 10 1/8"	.				
1107026	View "Floor Plan: 01 - Floor Plan"	28' - 4 3/8"	28' - 6"				
1107345	View "Floor Plan: 02 - Floor Plan"	10' - 6 1/8"	10' - 6"				
1107345	View "Floor Plan: 02 - Floor Plan"	10' - 7 3/8"	10' - 6"				
1107345	View "Floor Plan: 02 - Floor Plan"	10' - 7 7/8"	10' - 6"				
1107345	View "Floor Plan: 02 - Floor Plan"	6' - 0 1/8"	6' - 0"				
1107345	View "Floor Plan: 02 - Floor Plan"	9' - 10 3/4"	10' - 0"				
1107345	View "Floor Plan: 02 - Floor Plan"	9' - 3 1/4"	10' - 0"				
1107345	View "Floor Plan: 02 - Floor Plan"	9' - 4 5/8"	10' - 0"				
1108331	View "Drafting View: E_Automobile Heater Pole Detail"	1/2"	.				

Often in models dimension values are overridden. Repairing improperly overridden dimensions certainly is a great task, but first these issues must be identified. This tab allows isolation of dimensions where value overrides exist, and a report of added text, above/below/left/right can also be achieved here.

Revit Model  
MEP18\_MEPP Starter Project.rvt

Date  
3/13/2019 2:05:07 PM

Total Line Styles  
30

Total Instances  
201.30K

Line Style Definitions

Search

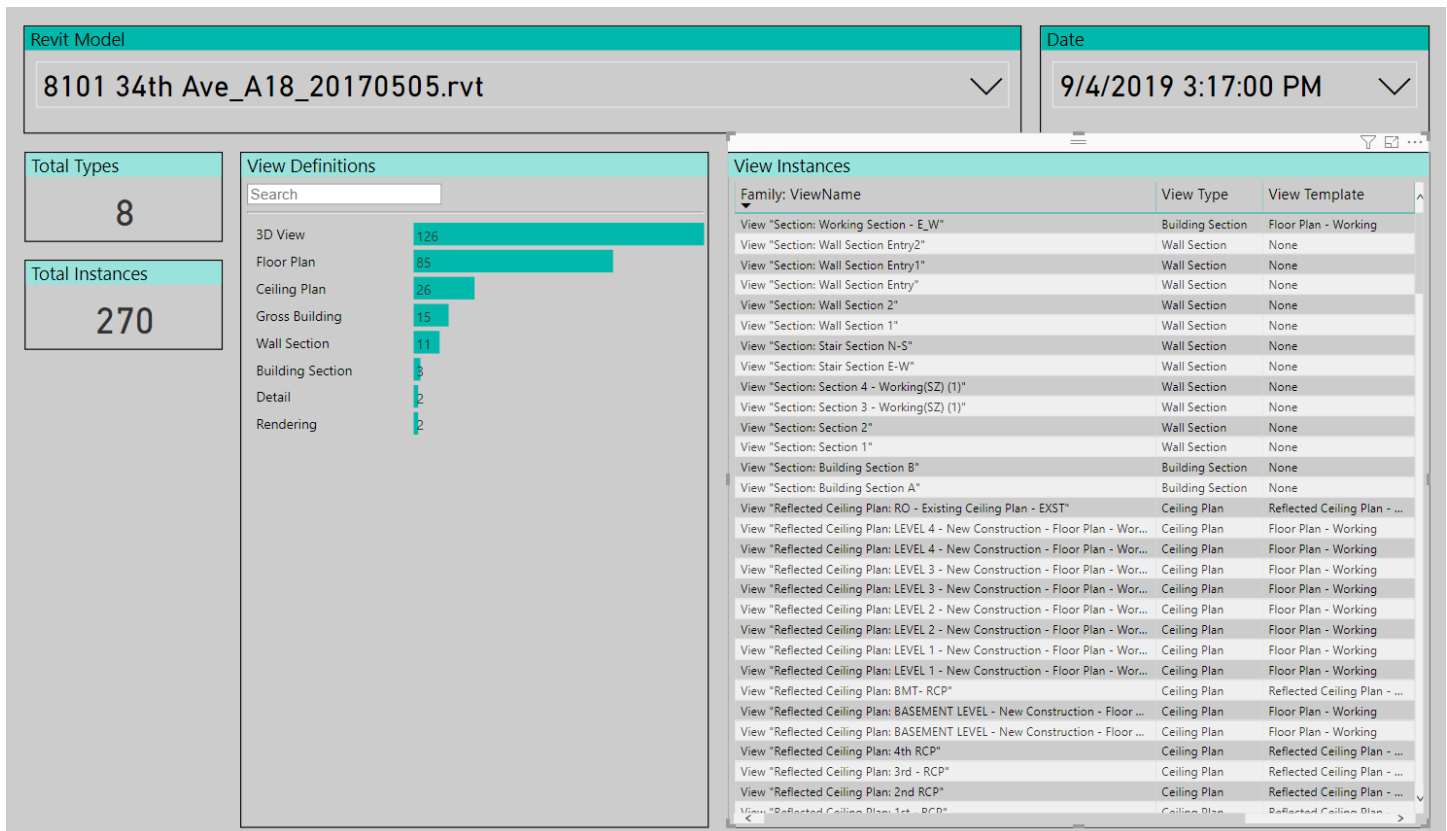
Line Weight 01	105203
Line Weight 03	71665
Line Weight 04	8899
Thin Lines	579
Wide Lines	3003
A-DETL	1688
Solid_04	1570
Solid_03	524
<Hidden>	306
Guide Lines (legend)	256
Solid_05	200
Line Weight 02 (Hidden 3/64")	190
Hidden_01	177
A-DETL-THIN	168
Schedule Tick Marks	146
Line Weight 01 (Hidden)	140
Line Weight 01 (Dashed 1/16")	131
Line Weight 03 (Dashed 1/16")	78
Line Weight 01 (Hidden 1/16")	77
Line Weight 02	74
Line Weight 05	62
03_Medm	48

Lines By View/Workset

OwnerViewName	WorksetName	LineStyle	Count of ID
M_Ductwork_Gooseneck - Intake or Exhaust II	View "Drafting Vi...	<Demolished>	1
C_Air Conditioning Unit Control Diagram	View "Drafting Vi...	<Hidden>	15
C_Boiler For In-Floor Heat In Wash Bay And Snow/Ice Melt...	View "Drafting Vi...	<Hidden>	48
C_Electric Heater Control Diagram	View "Drafting Vi...	<Hidden>	9
C_Gas Fired Unit Heater Control Diagram	View "Drafting Vi...	<Hidden>	3
C_Heat Recovery Ventilator Control Diagram	View "Drafting Vi...	<Hidden>	29
C_Infrared Heater Control Diagram	View "Drafting Vi...	<Hidden>	8
C_Mechanical & Electrical Room Ventilation Control Diagram	View "Drafting Vi...	<Hidden>	19
C_RTU w/Gas Fired Heat Integral Condensing Unit Control ...	View "Drafting Vi...	<Hidden>	51
C_Single Zone Cv Fancoil With Heat Recovery Ventilator C...	View "Drafting Vi...	<Hidden>	40
C_Wash-Bay, Mining, Construction Shop Make-Up Air Unit...	View "Drafting Vi...	<Hidden>	76
C_Welding Filtration System Control	View "Drafting Vi...	<Hidden>	1
MP_Equipment_In-Floor Heat_Interior Wall	View "Drafting Vi...	<Hidden>	7
E_Electrical Symbols List	View "Floor Plan: ...	03_Medm	24
E_Electrical Symbols List - NEW	View "Floor Plan: ...	03_Medm	24
E_Electrical Symbol Legend	View "Drafting Vi...	A-DETL	1688
E_Electrical Symbol Legend	View "Drafting Vi...	A-DETL-THIN	168
E_Electrical Symbol Legend	View "Drafting Vi...	Guide Lines (legend)	256
E_Disposer Installation Detail	View "Drafting Vi...	Hidden_01	49
E_Elevator Recall Wiring Diagram	View "Drafting Vi...	Hidden_01	2
E_Elevator Shaft Vent Control Diagram	View "Drafting Vi...	Hidden_01	8
E_Exterior Lighting Control Diagram (4)	View "Drafting Vi...	Hidden_01	4
E_Light Pole and Base Detail	View "Drafting Vi...	Hidden_01	20
E_Light Pole and Base Detail (1)	View "Drafting Vi...	Hidden_01	4
E_Light Pole Base Detail	View "Drafting Vi...	Hidden_01	13
E_Wiring for Typical 208v Heat Mat Installation	View "Drafting Vi...	Hidden_01	34
E_Wiring for Typical 240v Heat Mat Installation	View "Drafting Vi...	Hidden_01	31
E_Wiring for Typical 240v Heat Mat Installation (1)	View "Drafting Vi...	Hidden_01	12
E_Air Terminal Installation Detail	View "Drafting Vi...	Line Weight 01	29
Total			201298

We cannot all be aware of every drafted line in our models... or can we. This tab all uses of drawn lines, identifying line styles used and potential exploded CAD files apparent. It is always best to pair this with one of CTC's other tools, like BIM Manager Suite's *Type Swapper*, to help in repairing a model when issues are discovered. This tab can provide insight prior to needing to access the original model manually.

## Views



Unused views in a project can become a major issue. This tab is designed to help the reviewer understand the breakdown of views and their potential usage in the project.

## Materials

Revit Model  
8101 34th Ave\_A18\_20170505.rvt

Date  
9/4/2019 3:17:00 PM

Total Materials  
264

Material Definitions

Family	Name
<System> Materials	
<System> Materials	--
<System> Materials	a_flag5 blue
<System> Materials	a_flag5 red
<System> Materials	a_flag5 white
<System> Materials	Acoustic Ceiling Tile 24" x 24"
<System> Materials	Acoustic Ceiling Tile 24" x 48"
<System> Materials	Air Barrier - Air Infiltration Barrier
<System> Materials	AL
<System> Materials	Aluminium (1)
<System> Materials	Aluminum
<System> Materials	Analytical Floor Surface
<System> Materials	Analytical Slab Surface
<System> Materials	Analytical Wall Surface
<System> Materials	Antimicrobial Coating
<System> Materials	Approved
<System> Materials	Asphalt
<System> Materials	Birch
<System> Materials	BMCD2AR3\Bitmap Textures\Fabric\FABR105
<System> Materials	BMCD2AR3\Bitmap Textures\Fabric\FABR114
<System> Materials	BMCD2AR3\Bitmap Textures\Metal\METAL26
<System> Materials	BMCD2AR3\Bitmap Textures\Wood\WOOD_51\Normal
<System> Materials	BMCD2AR3\Solid Materials\Flat Colors\Smooth\White
<System> Materials	BMCD2AR3\Solid Materials\Glass\Clear
<System> Materials	BMCD2AR3\Solid Materials\Matte\Normal\Black
<System> Materials	BMCD2AR3\Solid Materials\Matte\Normal\Gray, light
<System> Materials	BMCD2AR3\Solid Materials\Matte\Normal\White
<System> Materials	BMCD2AR3\Solid Materials\Matte\Textured\Black
<System> Materials	BMCD2AR3\Solid Materials\Matte\Textured\Brown, dark
<System> Materials	BMCD2AR3\Solid Materials\Matte\Textured\Cross-hatched

Estimated Material Instances

ElementTypeName	Count of ID	ParameterName	ValueAsString
Brace Walls 1	8	Structural Material	
Brace Walls 9	3	Structural Material	
Ext_Curtain Wall	4	Structural Material	
Ext_Storefront	84	Structural Material	
Int_Curtain Wall	8	Structural Material	
Pipe Segments	11	Material	
Walls 1	1	Structural Material	
--	7	Threshold Material	<By Category>
3/4" Nosing	1	Riser Material	<By Category>
3/4" Nosing	1	Tread Material	<By Category>
BFa	5	Finish	<By Category>
BFa	5	Panel Material	<By Category>
CP_Louvers_Curtain wall	2	Mullion Material	<By Category>
CSWK_1' 8" x 1' 8" x 0' 1 1/2"	1	Counter Top Material	<By Category>
CSWK_1' 0" x 2' 0" x 2 8 1/12"	1	Cabinet Material	<By Category>
CSWK_1' 0" x 2' 0" x 2 8 1/12"	1	Drawer Material	<By Category>
CSWK_1' 0" x 2' 6" x 1' 0"	1	Cabinet Material	<By Category>
CSWK_1' 0" x 2' 6" x 1' 0"	1	Door/Drawer Material	<By Category>
CSWK_1' 7" x 3' 0" x 2' 10 1/2"	3	Cabinet Material	<By Category>
CSWK_1' 7" x 3' 0" x 2' 10 1/2"	3	Door/Drawer Material	<By Category>
CSWK_2' 0" x 1' 0" x 2' 6"	1	Cabinet Material	<By Category>
CSWK_2' 0" x 1' 0" x 2' 6"	1	Door/Drawer Material	<By Category>
CSWK_2' 0" x 1' 8" x 0' 1 1/2"	9	Counter Top Material	<By Category>
CSWK_2' 0" x 1' 9 1/4" x 2' 8"	1	Cabinet	<By Category>
CSWK_2' 0" x 1' 9 1/4" x 2' 8"	1	Handle	<By Category>
CSWK_2' 0" x 2' 6" x 2' 10 1/2"	2	Cabinet Material	<By Category>
CSWK_2' 0" x 2' 6" x 2' 10 1/2"	2	Door/Drawer Material	<By Category>
CSWK_2' 6 1/2" x 1' 0" x 1' 0"	1	Cabinet Material	<By Category>
CSWK_2' 6 1/2" x 1' 0" x 1' 0"	1	Door/Drawer Material	<By Category>
Total	6548		

Materials in a project aren't always very easy to understand. This tab is designed to provide the information that is available from Revit in order to understand the usage of materials in a project. This can also lead into project model maintenance processes in order to improve overall model performance.