
Based on this, I do not believe links should be placed on individual worksets and the disadvantages to workset-per-link greatly outweigh any advantages of using worksets to load links at startup.

Note worksets will retain their load/unloaded state GLOBALLY as long as it is unloaded for the model. Using UNLOAD and STC'ing the next reload will force and unload for other users.

“Unload for me.” Will retain workset load/unload states on save and reopen as well for the current user local copy only.

Base files for reference:

- A.rvt model130.8 MB
- E.rvt model193.1 MB
- FP.rvt 107.1 MB
- G.rvt model116.0 MB
- I.rvt 126.6 MB
- M.rvt 118.0 MB
- P.rvt 53.7 MB
- S.rvt 53.0 MB
- T.rvt 70.4 MB
- A_rv2.rvt 104.5 MB

Some interesting findings.

- Managing links through worksets in 2016 does manage used memory to an extent.
 - Slide 06-@0.4GB- open Revit
 - Slide 09-@1.0GB-Managed load of all but "linked" worksets took 13 seconds
 - Slide 12-@2.9GB-Subsequent open of "linked" worksets took 48 seconds
 - Unloads VIA worksets take about 1 second
 - Slide-18-@3.0GB-Re-loading worksets took about 47 seconds
- Manage links
 - Slide 22-@2.5GB-'Unload for me' links took about 1 second
 - Slide 26-@3.1GB-Manage links- reload took about 47 seconds
 - Slide 29/30-@2.8GB-Unload links in 1 second
 - Slide 33-@3.1GB-Clear my (Unload links for me) override took about 48 seconds

Pros:

- Load times and memory demands can be minimized on open using the linked worksets to contain the linked files

Indifference:

- Files have to be loaded at some point for printing and design (otherwise why link them at all?)

Cons:

- Complexity is increased
- Bound to have displaced objects on 'linked' worksets
 - Requires more back-checking,
 - Can lead to duplicate work, etc.

- visibility graphics more difficult to troubleshoot for links:
 - Is the link loaded?
 - Is the link visible?
 - Elements in the link visible (I.e. Mech components showing properly for Mech file)?
 - AND THEN ADD MORE TROUBLESHOOTING FOR WORKSET-LINKS
 - Is the workset loaded?
 - Is the linked workset visible?
 - Is the linked workset visible in view?
 - Is the linked file on the correct linked workset?

Unloading links has a similar effect on memory management- it just cannot be managed at startup unless the link is unloaded for all on save?

I believe all data, including pertinent linked data, should be loaded and accessible for working in the files, designing, printing and managing models.

To test the version on the left- I will need to create a system with the 'zoned' elements to see if that affects loading and unloading through same-named worksets in linked files (What Autodesk admittedly intended with worksets management from the beginning)

Proposed integration and management of Worksets using primary scheme at right below. Worksets named the same will load/unload when shared with the host file. This is how Autodesk intended Worksets to be used, all systems and components in one file broken out by areas on worksets; preventing the need for workarounds for systems to attach one linked file to another linked file systems.

WORKSETS PER REGION,

M/E/P SYSTEMS REMAIN UNBORKEN IN FILES, WORKSETS CONTROL LOAD

EACH COLOR IS A WORKSET

TEMPLATE SETTINGS ::

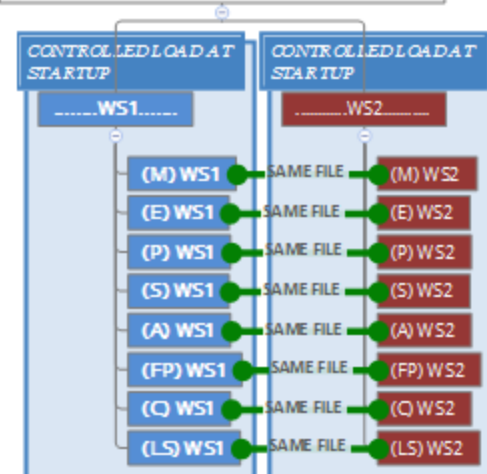
NUMBER OF DISCIPLINES

(2 ZONES BUT IN ONE FILE PER DISCIPLINE) X1

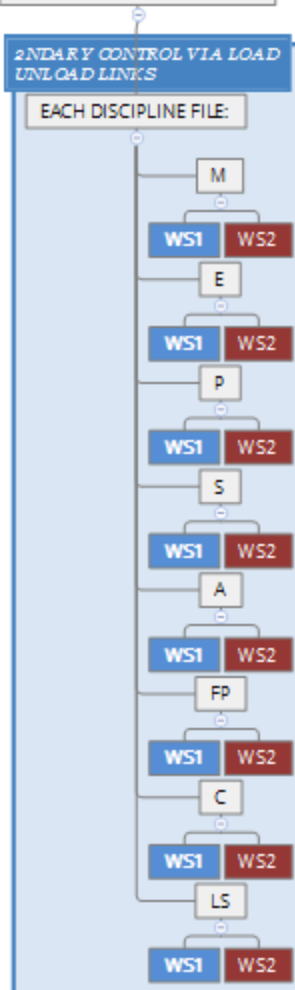
FOR LINKED VIEWS X1

AND LINK SETTINGS IN EACH LINK X1

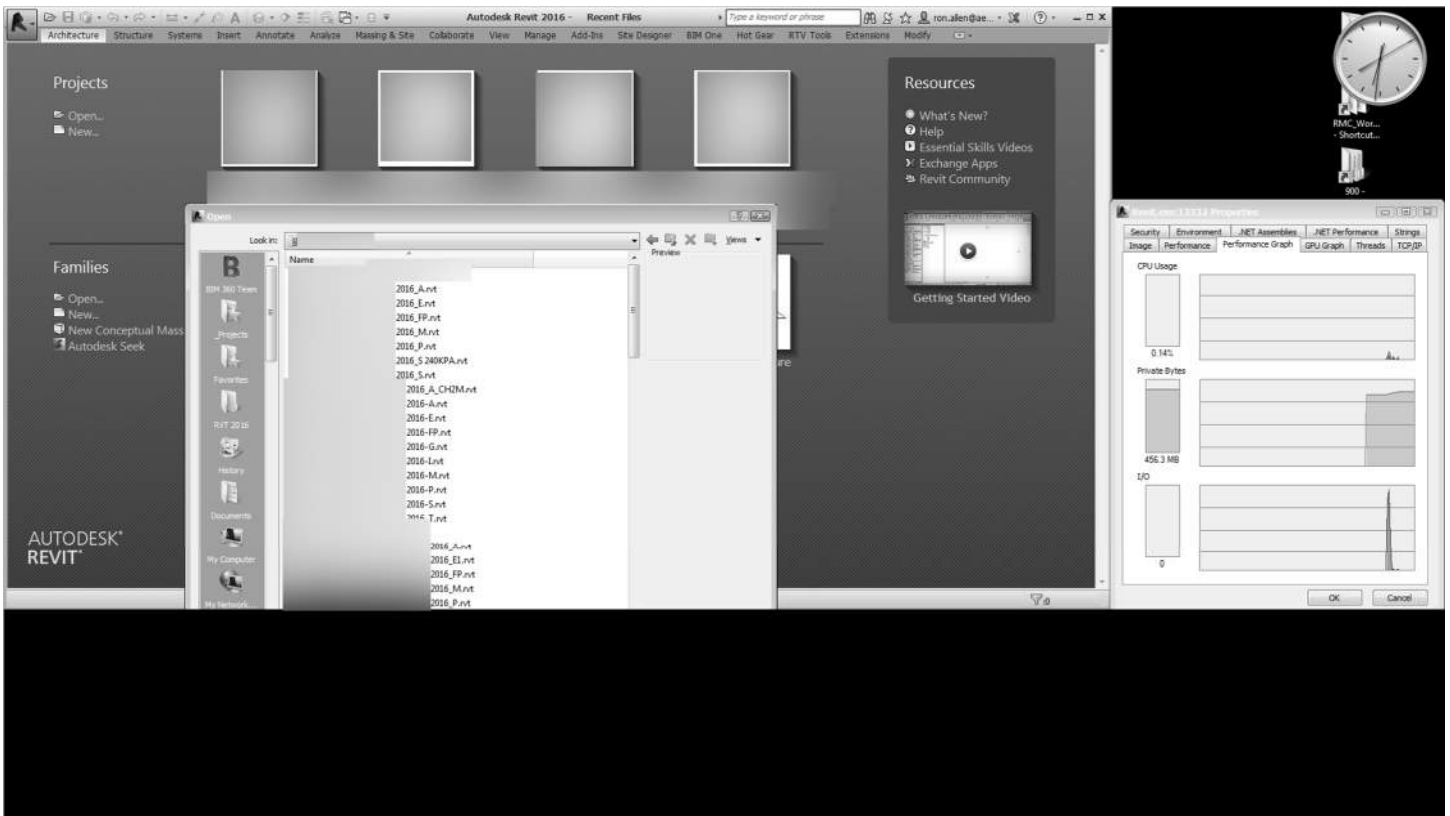
EXAMPLE OF ORGANIZATION BY WORKSET SORT,



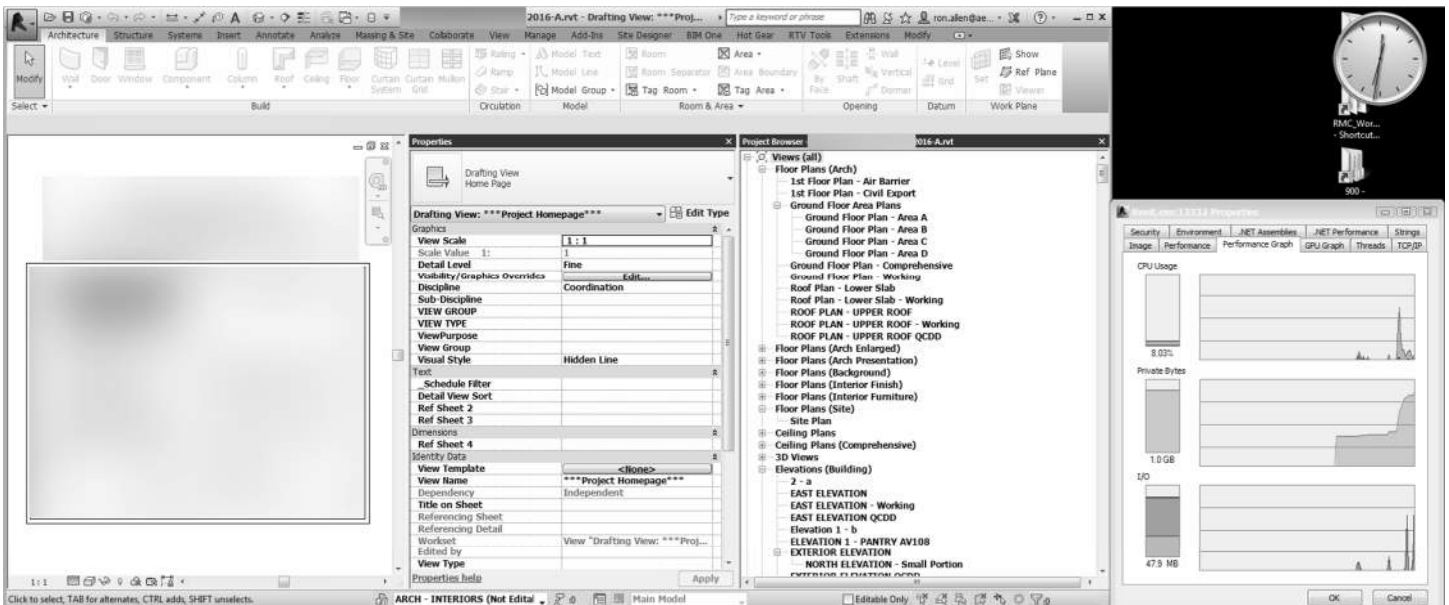
EXAMPLE ORGANIZATION IN EACH DISCIPLINE FILE



Slide 6:

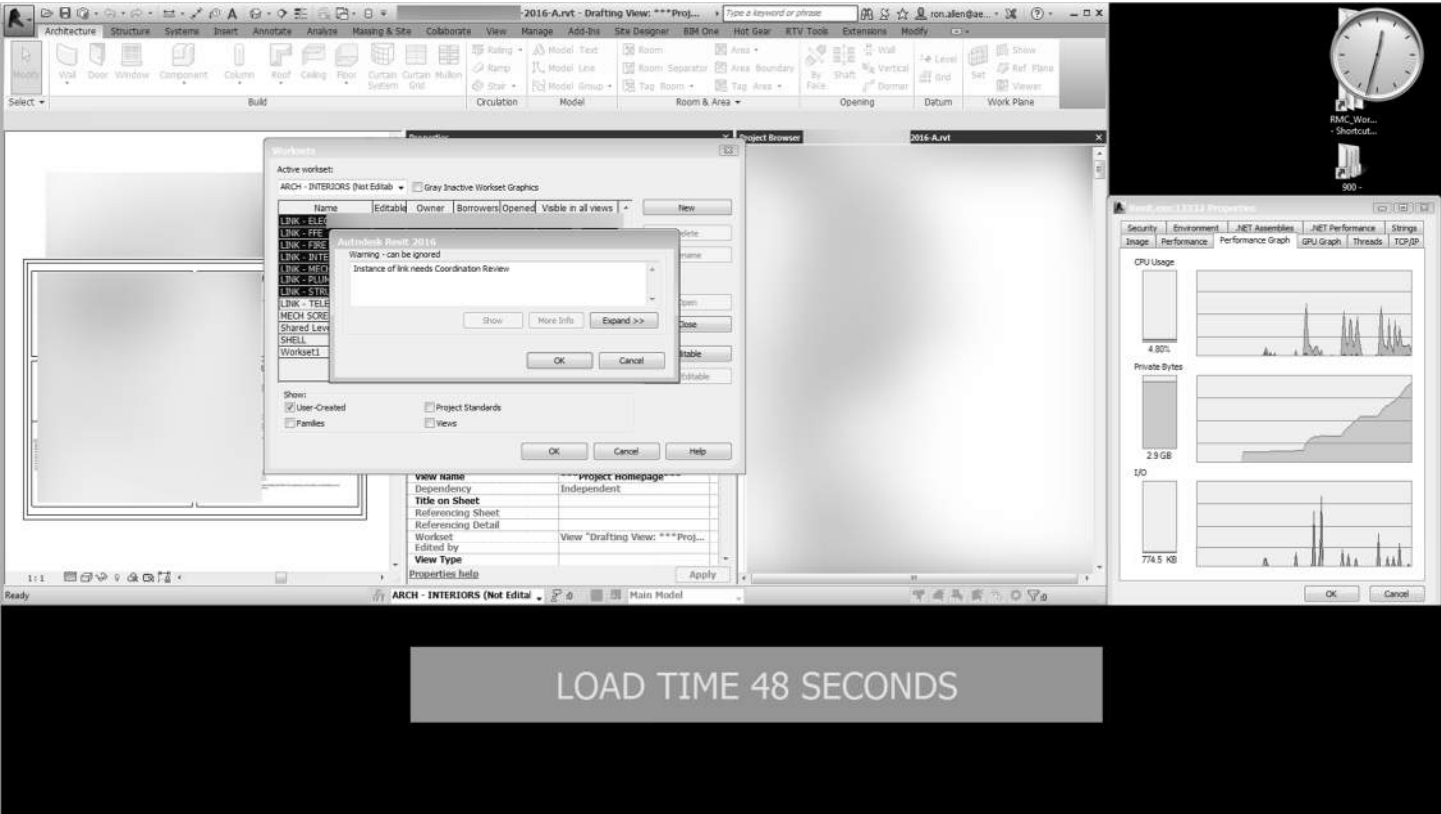


Slide9:



LOAD TIME 13 SECONDS

Slide 12:



Slide 18:

The screenshot displays the Autodesk Revit 2016 software interface. The main window shows a 3D model of a building interior. A 'Project Browser' is visible on the right, listing various project elements. A 'Warning' dialog box is open in the center, displaying a warning message: 'Warning - can be ignored. Instance of link needs Coordination Review'. The dialog box has 'Show', 'More Info', 'Expand >>', 'OK', and 'Cancel' buttons. A 'Performance Monitor' window is open on the far right, showing various system metrics including CPU Usage (3.19%), Private Bytes (3.0 GB), and I/O (770.1 KB). The status bar at the bottom indicates 'ARCH - INTERIORS (Not Edited)' and 'Main Model'.

view name	***project homepage***
Dependency	Independent
Title on Sheet	
Referencing Sheet	
Referencing Detail	
Worksheet	View "Drafting View: ***Proj..."
Edited by	
View Type	

LOAD TIME 47 SECONDS

Slide 22:

2016-A.rvt - Drafting View: ***Proj...
Type a keyword or phrase
Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Site Designer BIM One Hot Gear RTV Tools Extensions Modify
Modify Materials Snaps Project Parameters Transfer Project Standards Structural Settings MEP Settings Additional Settings Design Options
Select Project Information Global Parameters Project Units Panel Schedule Templates Design Options Project Location Manage Project Phasing Selection Inquiry Macros

Manage Links
Revit JFC CAD Formats DWG Markups Point Clouds

Link Name	Status	Reference Type	Positions Not Saved	Saved Path	Path Type	Local Alias
2016-E.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-F2.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-I.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-M.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-P.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-S.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-T.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	

Save Positions Reloading... Reload Unload Add... Remove
Manage Worksets Unload for me Clear my override
*This link is unloaded for the current user only.
OK Cancel Apply Help

1:1
Ready
ARCH - INTERIORS (Not Edited) Main Model

10:10
RMC_Wor...
Shortcut...
500

2016-A.rvt Properties
Security Environment .NET Assemblies .NET Performance Strings
Image Performance Performance Graph GPU Graph Threads TCP/IP
CPU Usage
0.15%
Private Bytes
25 GB
I/O
0
OK Cancel

UNLOAD TIME 1 SECOND

Slide 26:

2016-A.rvt - Drafting View: ***Proj...
Type a keyword or phrase
ron.jalen@ae...
Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Site Designer BIM One Hot Gear RTV Tools Extensions Modify
Modify Materials Snaps Project Parameters Transfer Project Standards Structural Settings MEP Settings Panel Schedule Templates Additional Settings Design Options
Select - Settings
Manage Links
Revit JFC CAD Formats DWG Markups Point Clouds

Link Name	Status	Reference Type	Positions Not Saved	Saved Path	Path Type	Local Alias
2016-E.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-F2.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-I.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-M.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-P.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-S.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	
2016-T.rvt	Loaded	Overlay	<input type="checkbox"/>	BIM 360://	Cloud	

Warning - can be ignored
Instance of link needs Coordination Review
1 of 2
OK Cancel

Save Positions Reload From... Reload Unload Add... Remove
Manage Worksets Unload for me Clear my override
*This link is unloaded for the current user only.
OK Cancel Apply Help

Security Environment .NET Assemblies .NET Performance Strings
Image Performance Performance Graph GPU Graph Threads TCP/IP
CPU Usage
3.83%
Private Bytes
3.1 GB
I/O
6.5 KB
OK Cancel

RELOAD TIME 47 SECONDS

Slide 29:

2016-A.rvt - Drafting View: ***Proj...
Type a keyword or phrase
Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Site Designer BIM One Hot Gear RTV Tools Extensions Modify
Modify Materials Snaps Project Parameters Transfer Project Standards Structural Settings MEP Settings Panel Schedule Templates Additional Settings Design Options
Select
Manage Links
Revit JFC CAD Formats DWG Markups Point Clouds
Link Name Status Reference Type Positions Not Saved Saved Path Path Type Local Alias
2016-E.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-F2.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-I.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-M.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-P.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-S.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
2016-T.rvt *Not Loaded Overlay 0 BIM 360:// Cloud
Warning - can be ignored 0 Errors, 2 Warnings
Multiple Rooms are in the same enclosed region. The correct area and perimeter will be assigned to one Room and the others will display "Redundant Room." You should separate the regions, delete the extra Rooms, or move them into different regions.
1 of 2 Show More Info Expand >>
Delete Room(s) OK Cancel
Save Positions Reload From... Reload Unload Add... Remove
Manage Worksets Unload for me Clear my overrides
OK Cancel Apply Help

1:1
Ready
ARCH - INTERIORS (Not Editable) Main Model

ron.jalen@ae...
RMC_Wor...
Shortcut...
500
A...rvt...1.0.0.0 Properties
Security Environment .NET Assemblies .NET Performance Strings
Image Performance Performance Graph GPU Graph Threads TCP/IP
CPU Usage
5.47%
Private Bytes
3.1 GB
I/O
2.7 KB
OK Cancel

UNLOAD TIME 1 SECOND

Slide 30:

1016-A.rvt - Drafting View: ***Proj...
Type a keyword or phrase
ron.jalen@ae...
Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Site Designer BIM One Hot Gear RTV Tools Extensions Modify
Modify Materials Snaps Project Parameters Transfer Project Standards Structural Settings MEP Settings Additional Settings Design Options
Select Project Information Global Parameters Project Units Panel Schedule Templates Design Options Project Location Manage Project Phasing Selection Inquiry Macros

Manage Links
Revit JFC CAD Formats DWG Markups Point Clouds

Link Name	Status	Reference Type	Positions Not Saved	Saved Path	Path Type	Local Alias
2016-E.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-F2.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-I.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-M.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-P.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-S.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	
2016-T.rvt	*Not Loaded	Overlay	<input checked="" type="checkbox"/>	BIM 360://	Cloud	

Save Positions Reload From... Reload Unload Add... Remove
Manage Worksets Unload for me Clear my overrides
OK Cancel Apply Help

1:1
Ready
ARCH - INTERIORS (Not Editable) Main Model

Properties help
Apply
EXTERNAL DYNAMICS APPS

10:10
RMC_Wor...
Shortcut...
500

1016-A.rvt Properties
Security Environment .NET Assemblies .NET Performance Strings
Image Performance Performance Graph GPU Graph Threads TCP/IP
CPU Usage
4.31%
Private Bytes
2.8 GB
I/O
7.3 KB
OK Cancel

Slide 33:

2016-A.rvt - Drafting View: ***Proj...
Type a keyword or phrase
ron.jalen@ae...
Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Site Designer BIM One Hot Gear RTV Tools Extensions Modify
Modify Materials Snaps Project Parameters Transfer Project Standards Structural Settings MEP Settings Panel Schedule Templates Additional Settings Design Options
Select
Manage Links
Revit JFC CAD Formats DWG Markups Point Clouds
Link Name Status Reference Type Positions Not Saved Saved Path Path Type Local Alias
2016-E.rvt Loaded Overlay BIM 360:// Cloud
2016-F2.rvt Loaded Overlay BIM 360:// Cloud
2016-I.rvt Loaded Overlay BIM 360:// Cloud
2016-M.rvt Loaded Overlay BIM 360:// Cloud
2016-P.rvt Loaded Overlay BIM 360:// Cloud
2016-S.rvt Loaded Overlay BIM 360:// Cloud
2016-T.rvt Loaded Overlay BIM 360:// Cloud
Warning - can be ignored 0 Errors, 2 Warnings
Instance of link needs Coordination Review
1 of 2 Show More Info Expand >>
OK Cancel
Save Positions Reload From... Reload Unload Add... Remove
Manage Worksets Unload for me Clear my override
OK Cancel Apply Help
Properties Help Apply
ARCH - INTERIORS (Not Edited) Main Model

1:1
Ready

10:10
RMC_Wor...
Shortcut...
500

Load time: 1.8333 Properties
Security Environment .NET Assemblies .NET Performance Strings
Image Performance Performance Graph GPU Graph Threads TCP/IP
CPU Usage
8.95%
Private Bytes
3.1 GB
I/O
2.3 KB
OK Cancel

LOAD TIME 48 SECONDS