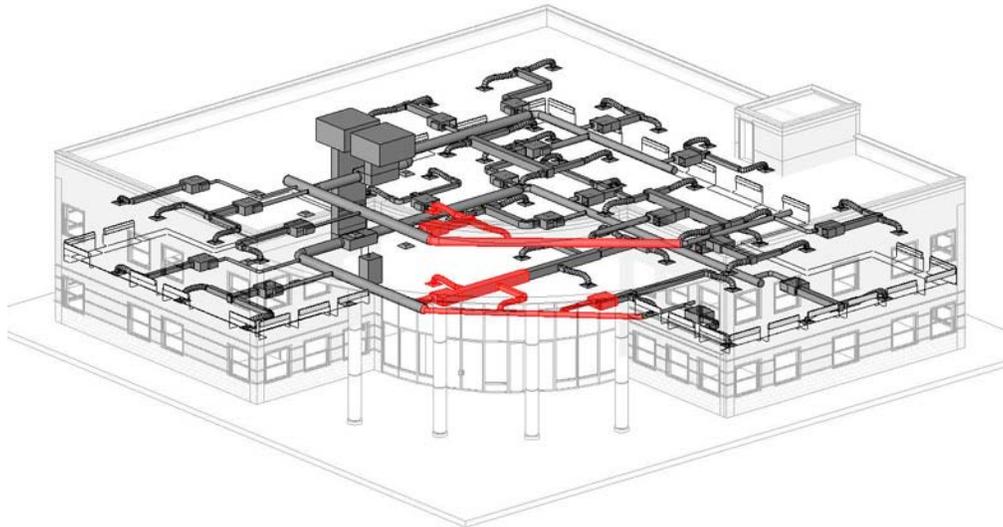


Using the COBie Add-in Demonstration Application for Autodesk Revit 2011



This document helps you get started using the Add-in application for COBie developed for use with Autodesk Revit 2011 software.

Autodesk's building information modeling (BIM) solutions help make facility lifecycle management practices easier, more efficient, and less costly. An Add-in application (small software program) has been developed using the Revit API software development toolkit, for use in Revit Architecture to accommodate project data management for the current COBie standard.

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1. Presenting the Revit COBie Add-in Demonstration Application

This add-in application is not a shrink-wrapped application to automate COBie production. (Construction Operations Building Information Exchange version 2, abbreviated COBie v2 or COBie2). It is a toolkit to assist project teams produce COBie deliverables in conjunction with their Revit model development. It does not provide automated data export/import from Revit to COBie spreadsheets, but does demonstrate and provide a functional means to accommodate COBie development and data transfer, albeit requiring some understanding of COBie on the part of the Revit project team.

The development of a data-rich model for eventual FM handover necessitates grounded discussions and planning amongst the project team. The realm of digital, non-graphic data development and delivery in the AEC process is new and developing, and will evolve and mature considerably in the next few years.

Projects utilizing COBie also must be aware that, although a Revit model can capture a broad range of data by employing customized object parameters, as included in this demonstration toolkit, much of this data is not known or available during the design process. The COBie framework can accept a wide range of data that is not practical or even possible to affiliate with Revit components in the early lifecycle of the model (e.g. the design phase).

A BIM execution plan for any project should detail the roles of the various team members in the process, including the owner, as well as outline the information that reasonably can be developed and accumulated for the project at hand. COBie is a general framework for data exchange or delivery. Each project must tailor its goals for the resources and requirements of the project, and for the continuing lifecycle needs and capabilities of the owner/operator.

All references to Revit herein are to the 2011 version of Revit Architecture, unless otherwise specified. All references to COBie are to version 2.

2. Overview of the Revit COBie Add-In Application

The Revit COBie Add-in application was not developed to be a fully automated data development and exchange application, but was designed to rely on base Revit functionality wherever possible. As a result, the export/import process between Revit and Excel is not automated.

The template is intended to jump-start Revit COBie project efforts, but is not intended to be an all-encompassing solution to COBie production. Knowledge and skill of both Revit and the COBie framework are required of the project team to ensure the best results for COBie data development.

An Introduction to COBie

COBie (Construction Operations Building Information Exchange) is a framework for organizing data developed and accumulated during the course of a building project for delivery to facilities owners and operators involved in lifecycle management. COBie is evolving under the direction of the [Engineer Research and Development Center, U.S. Army, Corps of Engineers](#). The current version of COBie is v2 (also abbreviated COBie v2 or COBie2). All references to COBie in this document are to version 2. Similarly, references to Revit are to the 2011 version of Revit Architecture, unless otherwise specified.

Although COBie may eventually provide a structure for the seamless transfer of data from building information modeling applications (BIM) to facilities management data systems (IWMS, CAFM or CMMS systems), in today's practice, COBie relies on organizing data in a series of structured and related spreadsheets.

COBie information is compiled during different phases of a project by multiple participants - architects, engineers, constructors, specifiers, fabricators, and others.

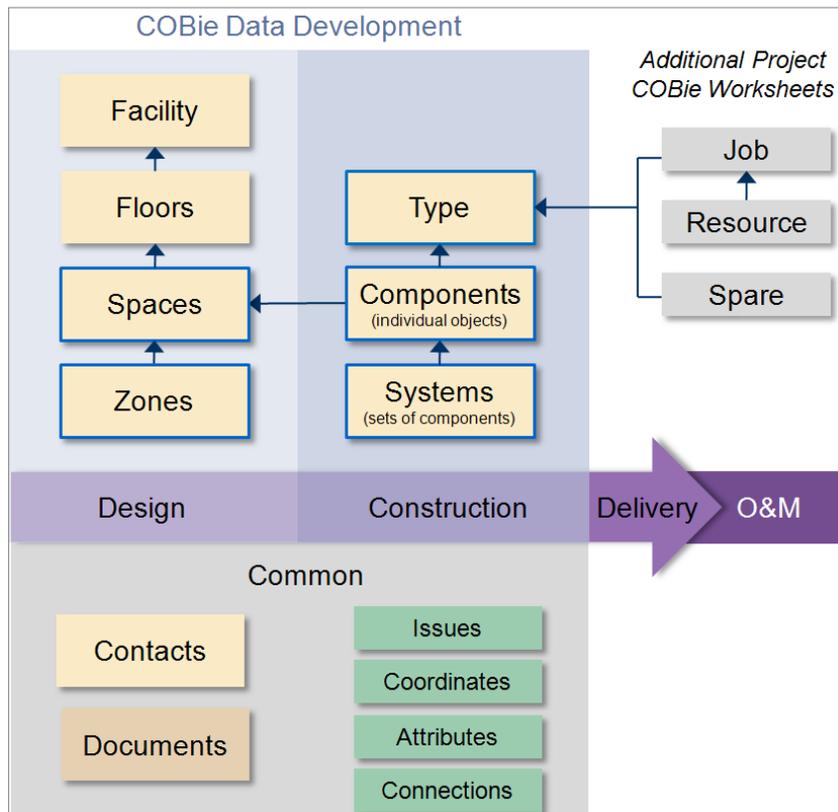


Figure 1: COBie organizational framework.

Only some of the data required in a typical COBie deliverable is, or can be, developed within Revit. Figure 1 illustrates the COBie spreadsheets. Those that will receive data exported from Revit are shown within the blue bordered boxes.

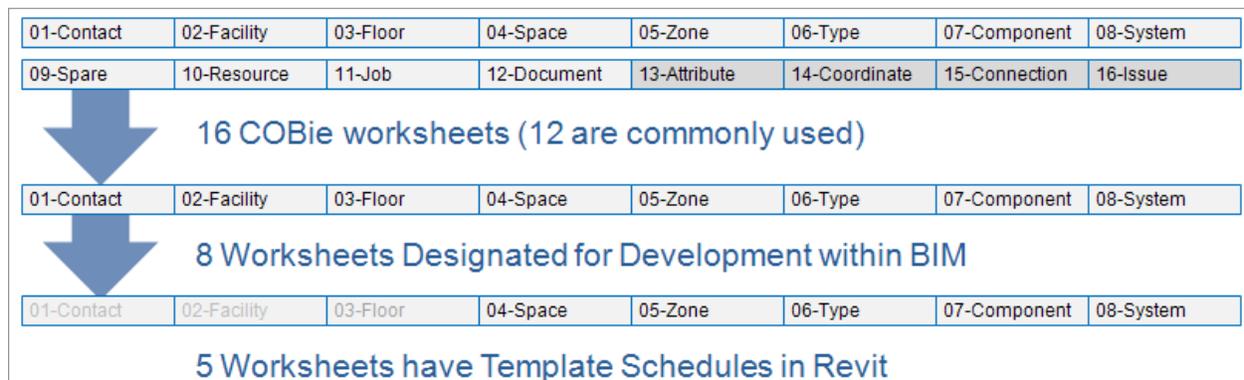


Figure 2: COBie spreadsheet - not all COBie data is, or can be, developed within the Revit model

For more background information on COBie, visit the Whole Building Design Guide website's section on COBie at: <http://www.wbdg.org/resources/cobie.php>.

The Revit COBie add-in provides Revit schedule views that echo COBie spreadsheets. Inserting these schedules into a project model will apply special parameters to Revit objects that will store COBie data.

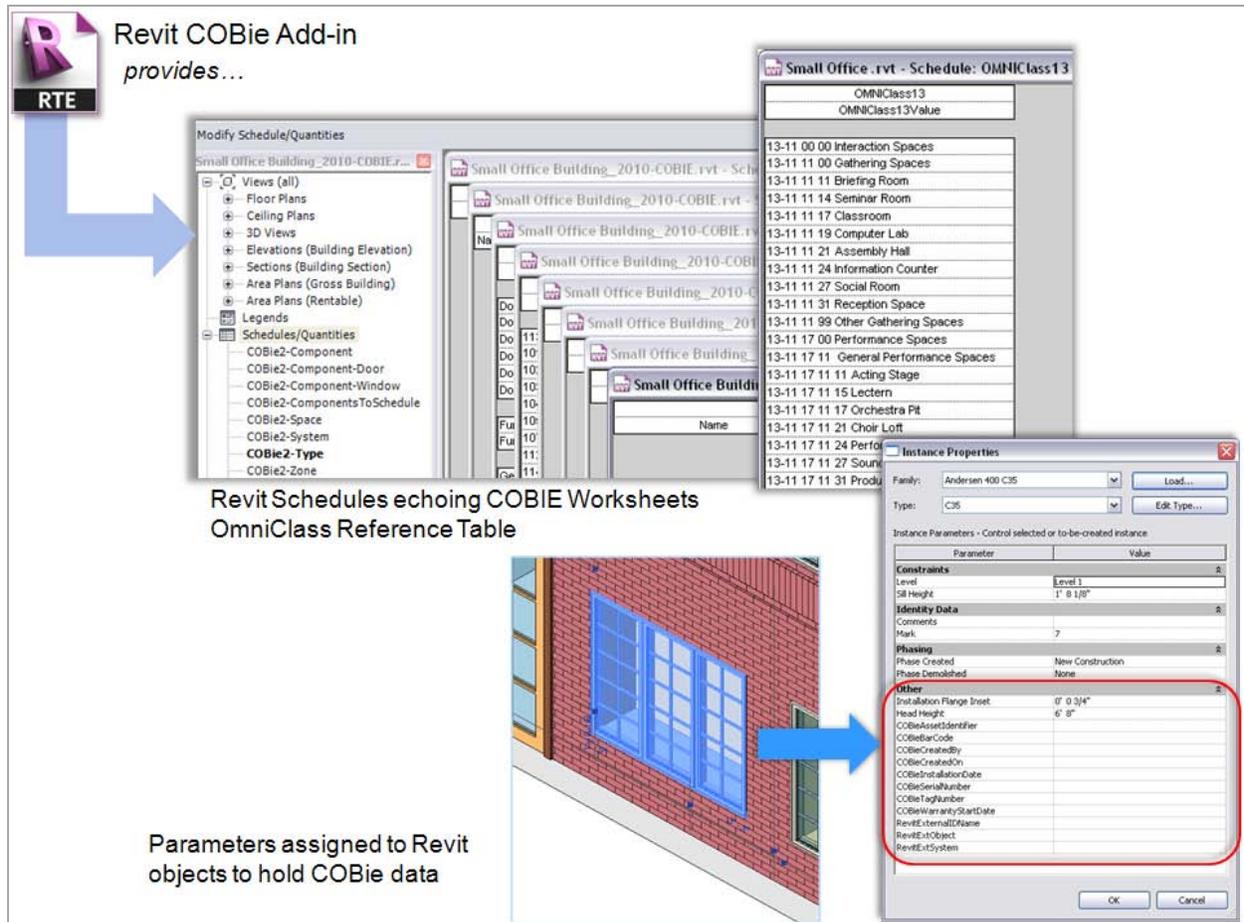


Figure 3: Revit COBie add-in creates schedule views echoing COBie worksheets, an OmniClass reference table, and assigns parameters for Revit objects to hold COBie specific data

As a project model is developed and components are added, users can enter COBie data in either the COBie schedule views, or on an object's Revit Properties palette.

This Revit COBie Add-in accommodates five COBie spreadsheets, as shown in Figure 4 below. Two COBie spreadsheets - System and Zone are not readily comparable to components typically modeled in Revit, thus are handled by the Revit COBie Add-in application in a special way (see Section 6).

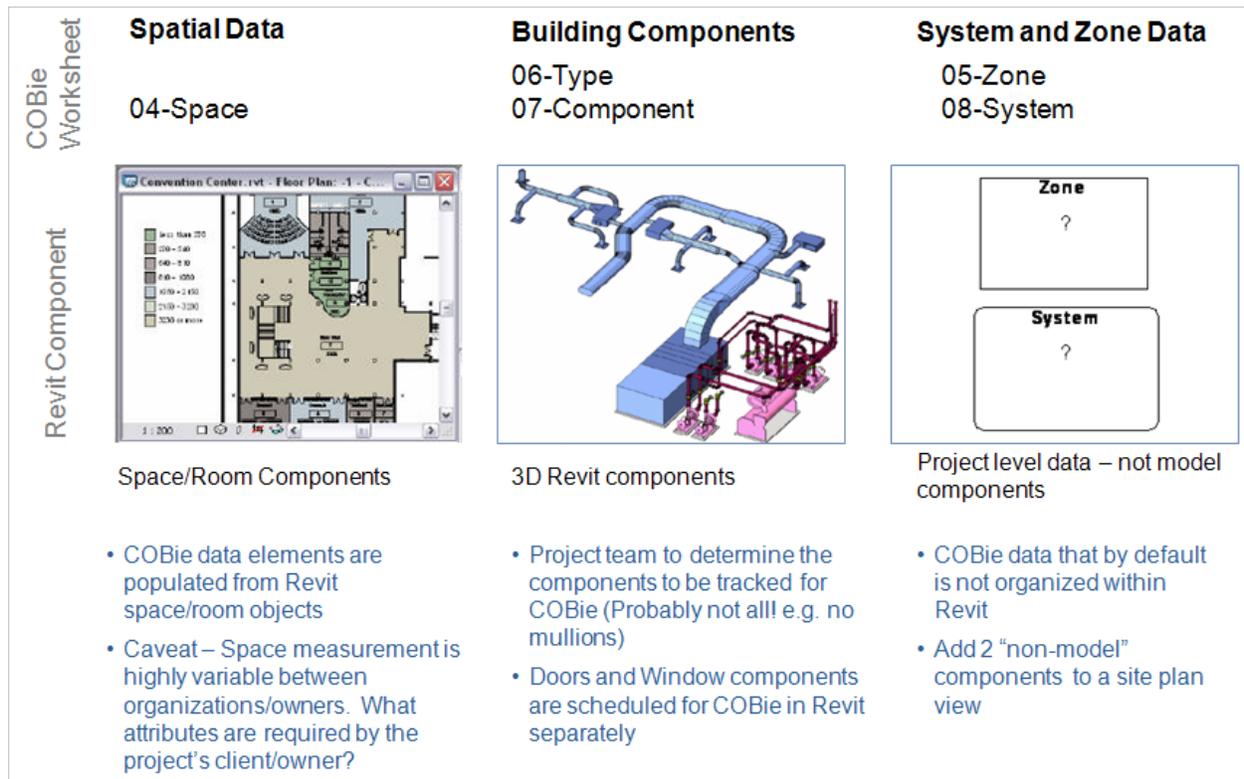


Figure 4: Revit components and the COBie worksheets.

Again it is important to note that data requirements will likely be different in each COBie project since owner/operators typically have diverse requirements for building lifecycle management. Hence the importance of having a COBie data development plan before initiating a project with COBie requirements.

3. Contents and Functionality of the Revit COBie Add-In Application Distribution File

All of the files needed for the Revit COBie Add-in installation and setup are contained in the downloadable distribution file: **COBie2_2011.zip**. The two files included in the zipped distribution file are:

- **setup.exe** *Microsoft Windows executable file*
The user will run this executable file to start the installation process for the Revit COBie add-in application. This file can also be run to repair or remove the COBie add-in application.
- **COBieV2_30forRevit2011Setup.msi** *Microsoft Windows installation file*
Running the **setup.exe** file will execute this.msi file which installs the Revit COBie Add-in application file, as well as copying support files onto the user's hard drive.

The setup program creates a new directory folder: **Autodesk Revit 2011 COBie V2_30 Add-In**, on the user's hard drive under **C:\Program Files**, and copies a number of COBie Add-in associated files to sub-directories in that folder, as noted below.

File Folders/Directories Created for COBie:

[COBie Files Installed:](#)

 Program Files	
 Autodesk Revit 2011 COBie V2_30 Add-In	
 Blank Project	COBie2_30BlankProject.rvt
 COBie Spreadsheet	COBie2_30_Candidate1_Template.xls
 Family	COBie2_30System.rfa, COBie2_30Zone.rfa
 Shared Parameters	COBie2SharedParams.txt
 Template	COBie2_30.rte

Description of the Revit COBie Add-in files installed or placed on the user's computer:

- **COBie2_30BlankProject.rvt** *Revit file*
This is a blank Revit project file that contains customized schedule views and parameters for COBie. Users will employ this file (source) when "COBie-enabling" an existing (target) Revit model. (The user will copy and paste the schedules from this file into the existing Revit project model).
- **COBie2_30.rte** *Revit template file*
Users can employ this Revit template when starting a **new** COBie-enabled project. The file is pre-configured with COBie parameters that will be assigned to objects in the model. These parameters correspond to non-graphic data fields required by the COBie framework. This template also contains specially-formatted Revit schedule views that correspond to those in the COBie worksheets.
- **COBie2_30System.rfa, COBie2_30Zone.rfa** *Revit family file*
Revit family file containing objects to anchor data for the COBie Systems and COBie Zone worksheets. Use only in those projects requiring systems or zone COBie deliverables.
- **COBie2_30_Candidate1_Template.xls** *Microsoft Excel file*
An Excel spreadsheet file that has been configured according to the current COBie specification. Users will create their project's COBie spreadsheet from this template file, and populate it from text (data) files that have been exported from Revit schedules.
- **COBieDoorWindowReformatterPopulated.xls** *Microsoft Excel File*
An Excel spreadsheet file that is used to take door and window components schedules exported from Revit and reformat them for copying into the appropriate COBie Excel spreadsheet. (Additional explanation later, in Section 15 of this document).
- **COBie2SharedParams** *Text file*
A text file listing shared Revit parameters employed by the COBie Add-in application.
- **UpdateRevitExternalIDName2011.dll** *Microsoft Windows shared library file*
Windows library file for executing the Revit macros employed by the COBie Add-in application. Installed in the **C:\Program Files\Autodesk\Revit Architecture 2011\Program** folder.

4. Setting Up the Revit COBie Add-in Application

Unzip the two files in **COBie2_2011.zip** into a directory of your choice. Double click, or run, the **setup.exe** file. The setup program will install the COBie Add-in into Revit Architecture, and place the COBie support files described above on your computer.

5. Special Note: Setting Up the Revit COBie Add-in Application on a 64-bit PC

On a 64-bit computer, the installer will place the COBie Add-in files in the directory:

C:\Program files (x86)\Autodesk Revit 2011 COBie V2_30 Add-in

Copy (or move) the entire **Autodesk Revit 2011 COBie V2_30 Add-in** directory to **C:\Program files**.

6. Deploying the COBie Add-in in a Revit Worksession

You should now be ready start developing COBie data within your model in a Revit worksession.

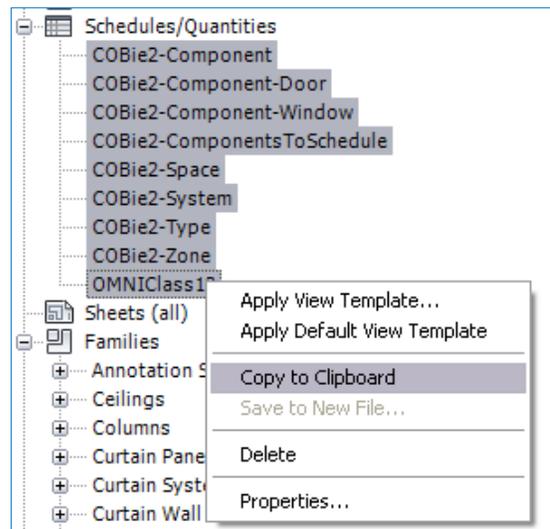
If you are beginning a **new** project, and not already using a specific template:

- Load the COBie template provided with the distribution: **COBie2_30.rte** and proceed to create your project model, saving it to a name aligned with project requirements.

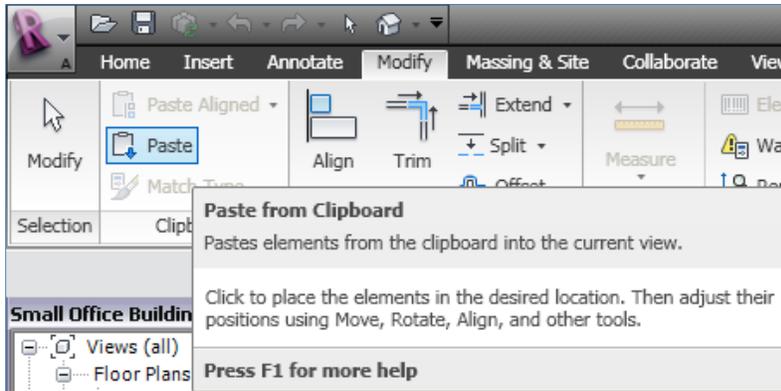
If you are adding COBie to an **existing** project model, in Revit:

- Open the **COBie2_30BlankProject.rvt** Revit file provided with the COBie download, along with the existing model file.
- Set the COBie blank project model (source) as the active workspace. Highlight the COBie schedules in the Revit Project browser, right click the mouse and select **Copy to Clipboard** (Figure 5):
- Set your existing Revit model (target) to be the active workspace, and on the Revit **Modify** tab, select **Paste** > **Paste from Clipboard** (Figure 6).

Figure 5 (right): Copy schedules to clipboard in Revit



You may get a “Duplicate Types” message alerting you to the fact that certain data is being duplicated when copying in the template data. Take note of the renaming that Revit has executed, and click **OK** to proceed.



The special cases involving COBie Systems and Zones schedules is addressed separately in Section 6.

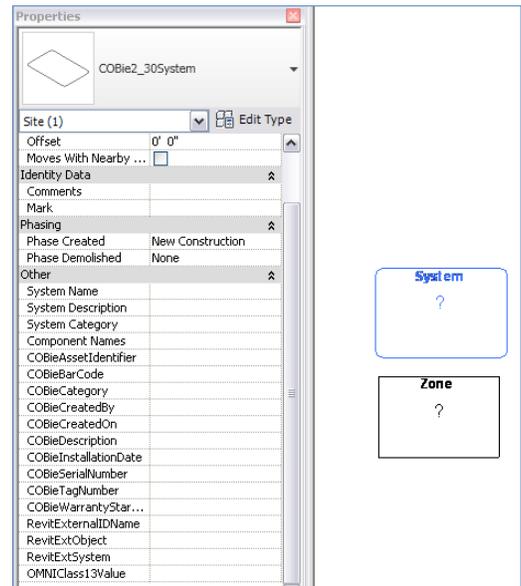
Figure 6 (left): Revit **Paste from Clipboard** command

7. Systems and Zones Schedules

Whereas the COBie worksheets for component, space, and type, easily correlate to Revit entities (objects, space/room objects, and family types), systems and zones do not have specific Revit definitions. The project team will need to define the scope of information to be defined and included in these schedule views if they are to be included in the COBie deliverable.

Figure 7 (right): System and Zone objects that have been added to a project's **Site Plan** view, and **Properties** dialog displaying parameters for a **System** object instance.

COBie Parameters are grouped under **Other** in the Revit Properties dialog



- If COBie Systems and Zones schedules are to be included in the project:
 - Using Revit **Load Family** command (on the **Insert** tab), load the **COBie2_30System.rfa** and **COBie2_30Zone.rfa** family objects into the project. (These are installed, as noted above, during the COBie setup process into the folder: **C:\Program Files\Autodesk Revit 2011 COBie V2_30 Add-In\Family**).



Figure 8 (above): Revit Load Family command (on the Revit ribbon's **Insert** tab)

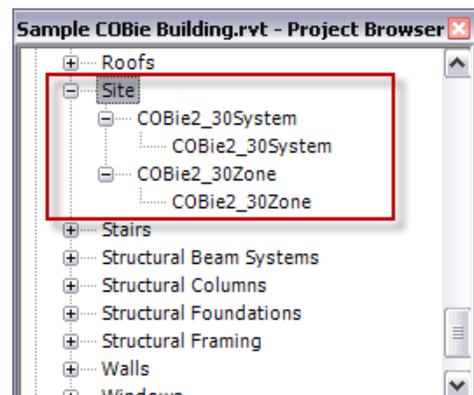


Figure 9 (right): The objects are added as Site Families

- If your project doesn't have a site plan view, create one. (In brief, to do so: duplicate the first or ground floor plan and rename it "Site". Open the Site view, adjust the view range, and adjust visibility settings).
 - On the site plan view, add the **COBie2-System** and **COBie2-Zone** objects in an out-of-the-way place. These objects are a means to provide data fields for those two COBie worksheets. By default, Revit does not organize model data that directly correlates to these two categories. Placing these site objects is a workaround to accumulate system and zone data in the Revit model.
- Run the **Update COBIE Parameters** external tool from the Revit **Add-Ins** menu to set up your COBie project defaults (see Section 6 below).

8. Deploy All or Part of COBie

Project teams may want to utilize the COBie framework in its entirety, or deploy only certain components of it. The template have been set up so that project teams can assign, track and export data from whatever objects are required for a particular COBie project delivery.

9. Using the Revit Schedule View - *ComponentsToSchedule*

This schedule view is included in the Revit COBie template to provide users with a means to select the components to include in COBie schedule views. The 3rd column in the schedule (Figure 10) contains a check box. Clicking the check box **ON** will specify component types to include in COBie-Type schedules. By default, the box will appear grayed out (and checked), and the component will not be included in the Type schedule. Run this macro as new objects are added to the model that need to be included in the COBie components schedule.

COBie2-ComponentsToSchedule		
Category	Family and Type	COBieTypeSchedule
Air Terminals	Exhaust Air Grill: 24 x 24 Face 12 x 12 Connection	<input checked="" type="checkbox"/>
Air Terminals	Rectangular Diffuser - Round Connection: 24x24 - 8 Neck	<input checked="" type="checkbox"/>
Air Terminals	Return Air Diffuser: 24 x 24 Face 12 x 12 Connection	<input checked="" type="checkbox"/>
Casework	Restroom Cabinet 1: Restroom Cabinet 1	<input type="checkbox"/>
Casework	Restroom Cabinet 2: Restroom Cabinet 2	<input type="checkbox"/>
Casework	Restroom Cabinet 3: Restroom Cabinet 3	<input type="checkbox"/>
Casework	Restroom Cabinet 4: Restroom Cabinet 4	<input type="checkbox"/>
Doors	DbI-Glass 1: 72" x 84"	<input checked="" type="checkbox"/>

Figure 10: Portion of a Revit **COBie2-ComponentsToSchedule** schedule view. User has selected to schedule Air Terminals in this example

10. Populating COBie Data in a Revit Model

Data from the objects toggled on in the **COBie2-ComponentsToSchedule** schedule view, will automatically display in the **COBie2-Component** schedule.

COBie2-Component								
Name	Level	CreatedBy	CreatedOn	TypeName	Space	Description	ExtSystem	
1	Level 1	marysmyth@xyzarc	12/20/2010 11:58:58	Rectangular Diffuser - Round Connection: 24x24 - 8 Ne	3	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.D
3	Level 1	marysmyth@xyzarc	12/20/2010 11:58:58	Rectangular Diffuser - Round Connection: 24x24 - 8 Ne	4	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.D
4	Level 1	marysmyth@xyzarc	12/20/2010 11:58:58	Rectangular Diffuser - Round Connection: 24x24 - 8 Ne	5	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.D

Figure 11: Left portion of a Revit **COBie2-Components** schedule view, displaying the Air Terminals selected in the COBie2-ComponentsToSchedule schedule view (Figure 10).

COBie2-Component										
Space	Description	ExtSystem	ExtObject	ExtIdentifier	SerialNumber	InstallationDate	WarrantyStar	TagNumber	BarCode	AssetIdentifier
3	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.DB.FamilyInstance	385552						
4	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.DB.FamilyInstance	385553						
5	Air Terminal	Autodesk Revit Architectur	Autodesk.Revit.DB.FamilyInstance	385554						

Figure 12: Right-side portion of a Revit **COBie2-Components** schedule view.

The schedule has several additional fields, which the user may populate with data, if that is required for the project’s COBie deliverables.

Revit users may also enter data for a component in the Revit **Properties** palette.

COBie data fields are listed under the “Other” section of the palette (Figure 13).

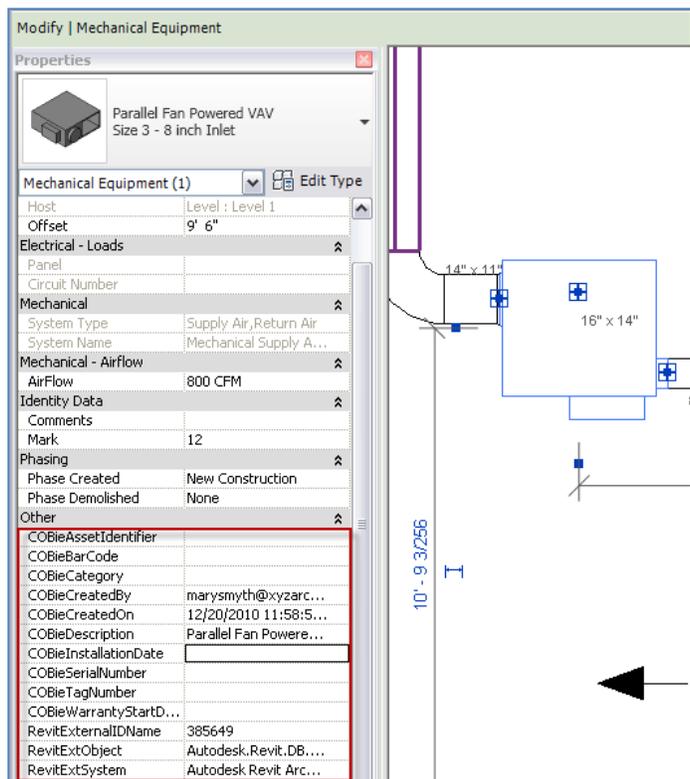


Figure 13: COBie data fields in the Property dialog for a selected component.

11. Using the Update COBie Parameters Macro

Installing the COBie template also adds the command **Update COBie V2.30 Parameters** to Revit. It is accessed through Revit's **External Tools** drop-down menu located on the command ribbon's **Add-In** tab. This macro populates COBie data fields that can be set at a project level by an automated routine.

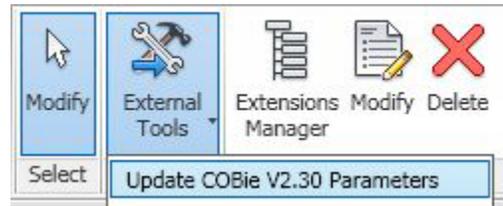


Figure 14: COBie command macro for updating parameter defaults

Running the **Update COBie V2.30 Parameters** macro within Revit will display a multiple option dialog (**Update COBie Parameters**) through which, the user can specify a number of COBie data fields to globally populate with Revit and user specified data.

These are:

- Created By *User name (email address is the COBie preferred format)*
- COBieCreatedOn *Date created*
- RevitExtSystem *Software used (e.g. Autodesk Revit Architecture 2011)*
- COBieTypeCategory *Family OmniClass Parameter (no user selection)*
- COBieDescription *Type Description/Family Name and Type*
- RevitExtObject *Revit Object Name*
- ExtIdentifier *ID field to attach a unique identifier to model objects. Choices are Revit ID or GUID (global universal ID)*

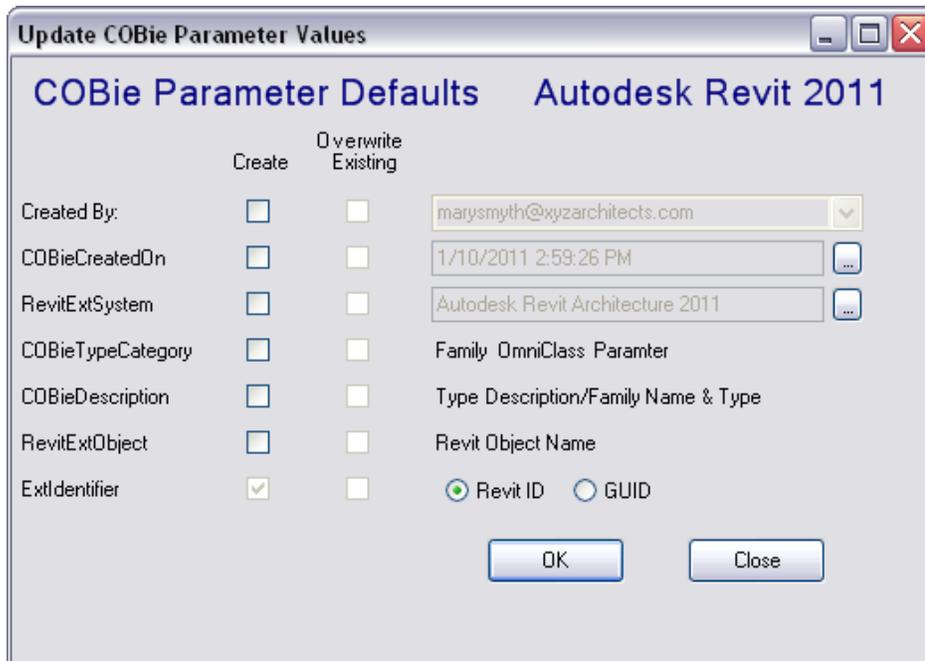


Figure 15 - Revit COBie Add-in application's **Update COBie Parameter Values** dialog box

The **Update COBie V2.30 Parameters** macro will add data entered into these COBie fields to each object instance in the Revit model. Clicking a box in the **Create** column, will populate data fields in model objects, but will not overwrite existing data. To do so, check the desired boxes in the **Overwrite Existing** column on the dialog box. After the macro finishes, a green check mark will appear on the right side of the dialog box to connote that the fields were successfully updated.

The user should run this macro from time to time as the Revit model is changed. It is very important for COBie records to have an unique ID field - using either the Revit ID or a GUID will work, the choice depends on your project guidance. The macro should always be run before any COBie data is exported for review or delivery.

12. Window and Door Objects are Scheduled Separately

The COBie Component worksheet contains a data field, **SpaceNames**, to record the space that a component object resides in. Since doors and windows typically straddle two spaces, connoting two “parent” spaces for a component presents a difficulty to correlate within Revit, which can only employ a single column field within the COBie data view to contain data - not a concatenated formula combining reference to two spaces.

To overcome this limitation, the COBie template uses a “work-around” export process, in which COBie-schedules for Door and Windows are developed and exported from Revit separately and imported into Excel in a special manner which will concatenate rooms on both sides of the door/window object. (See Section 15, **Instructions on Importing Door and Window Data into Excel**, for how to do this in Excel).

13. Room and Space Schedules

Since data can be developed and scheduled by employing either Revit rooms or spaces, the COBie template supplies two distinct schedule views that can accommodate this information and facilitate exporting the data for inclusion in the COBie **Space** spreadsheet. Check with your specific project guidelines for which to employ in your work process and deliverables.

14. Exporting Schedule Data

With any of the schedule views active, select the command sequence:

Revit > Export > Reports > Schedule

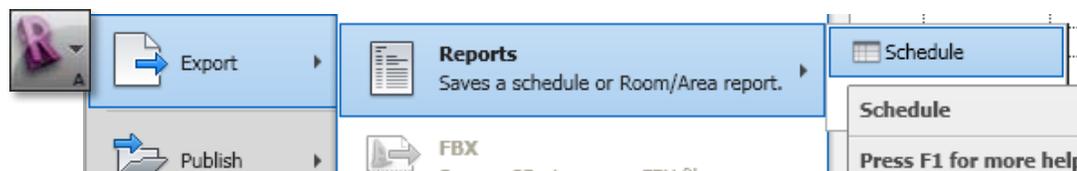


Figure 16 (above): Revit **Export Schedule** command sequence

- Type in a file name and select the location for the delimited text (.txt) file you are creating, and click on Save.
- On the **Export Schedule** dialog that is displayed next (Figure 16), select the default export choices and press OK.

Follow the same process with each of the schedules you wish to export.

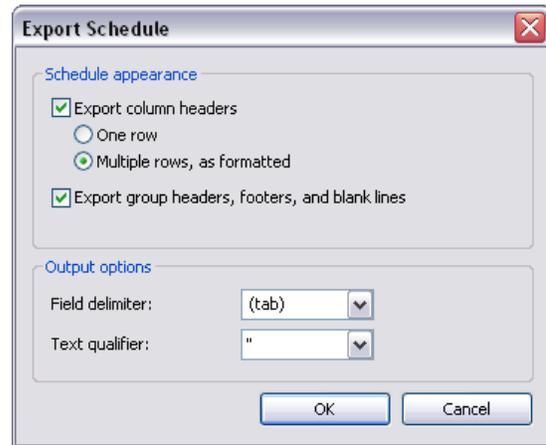


Figure 17 (right): Default schedule appearance and output options for Revit schedule export.

15. Importing Data Into Microsoft Excel

- In an MS Excel worksession, load the COBie-formatted worksheet created during the installation process (**COBie2_30_Candidate1_Template.xls**), or one that has been created from this template for your specific project, if that exists.
- Select the tab in the Excel file to access the schedule/worksheet you are going to import.
- Open the text file you just exported from Revit in a text editor, such as Notepad.

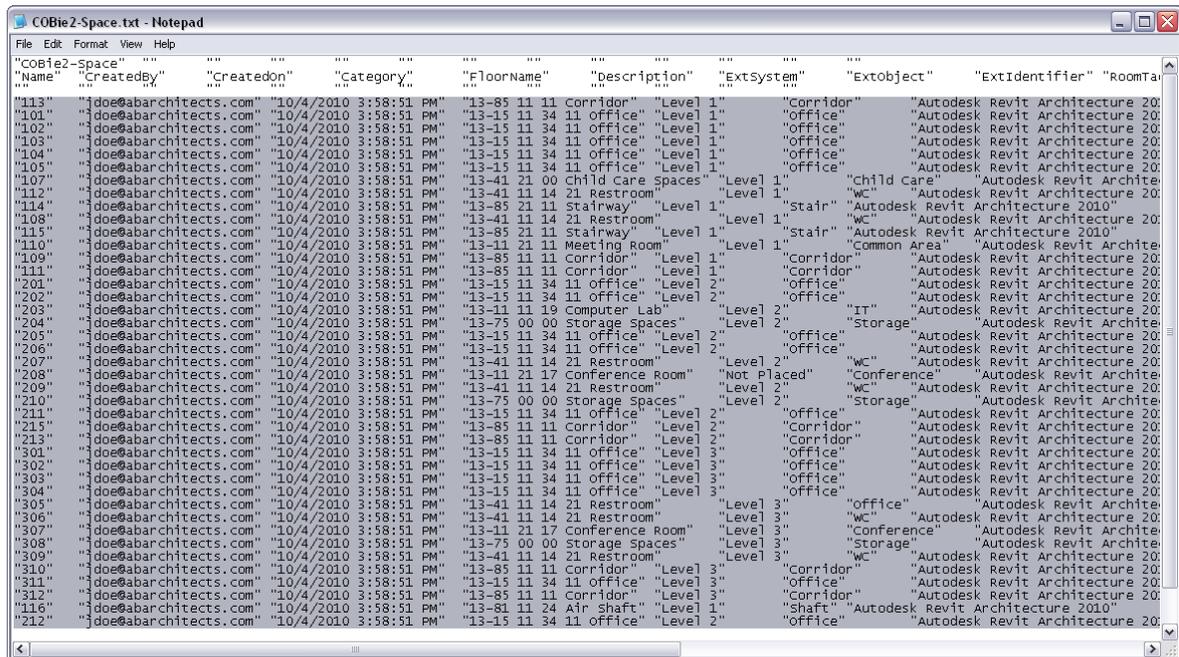


Figure 18 (above): Space schedule exported from Revit, displayed in a text editor, highlighting the data lines to be imported into Excel

- Highlight the data lines (not the headers) for each record you wish to import, and copy to the clipboard (press Ctrl C).

COBie for Autodesk® Revit® 2011

- In the Excel worksheet, place the cursor on the first cell of the first line that you want to place your imported data.
- Paste the data into the Excel worksheet (press Ctrl V) and save the file under a project specific name (to differentiate it from the Excel template file).

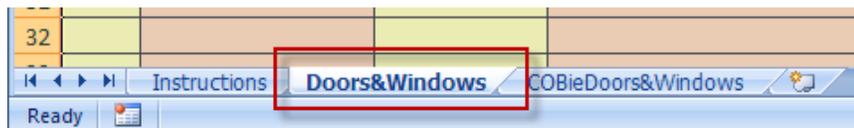
	A	B	C	D	E	F	G
1	Name	CreatedBy	CreatedOn	Category	FloorName	Description	ExtSystem
2	113	jdoe@abarchitects.com	10/4/2010 15:58	13-85 11 11 Corridor	Level 1	Corridor	Autodesk Revit Architecture 2010
3	101	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 1	Office	Autodesk Revit Architecture 2010
4	102	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 1	Office	Autodesk Revit Architecture 2010
5	103	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 1	Office	Autodesk Revit Architecture 2010
6	104	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 1	Office	Autodesk Revit Architecture 2010
7	105	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 1	Office	Autodesk Revit Architecture 2010
8	107	jdoe@abarchitects.com	10/4/2010 15:58	13-41 21 00 Child Care Spaces	Level 1	Child Care	Autodesk Revit Architecture 2010
9	112	jdoe@abarchitects.com	10/4/2010 15:58	13-41 11 14 21 Restroom	Level 1	WC	Autodesk Revit Architecture 2010
10	114	jdoe@abarchitects.com	10/4/2010 15:58	13-85 21 11 Stairway	Level 1	Stair	Autodesk Revit Architecture 2010
11	108	jdoe@abarchitects.com	10/4/2010 15:58	13-41 11 14 21 Restroom	Level 1	WC	Autodesk Revit Architecture 2010
12	115	jdoe@abarchitects.com	10/4/2010 15:58	13-85 21 11 Stairway	Level 1	Stair	Autodesk Revit Architecture 2010
13	110	jdoe@abarchitects.com	10/4/2010 15:58	13-11 21 11 Meeting Room	Level 1	Common Area	Autodesk Revit Architecture 2010
14	109	jdoe@abarchitects.com	10/4/2010 15:58	13-85 11 11 Corridor	Level 1	Corridor	Autodesk Revit Architecture 2010
15	111	jdoe@abarchitects.com	10/4/2010 15:58	13-85 11 11 Corridor	Level 1	Corridor	Autodesk Revit Architecture 2010
16	201	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 2	Office	Autodesk Revit Architecture 2010
17	202	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 2	Office	Autodesk Revit Architecture 2010
18	203	jdoe@abarchitects.com	10/4/2010 15:58	13-11 11 19 Computer Lab	Level 2	IT	Autodesk Revit Architecture 2010
19	204	jdoe@abarchitects.com	10/4/2010 15:58	13-75 00 00 Storage Spaces	Level 2	Storage	Autodesk Revit Architecture 2010
20	205	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 2	Office	Autodesk Revit Architecture 2010
21	206	jdoe@abarchitects.com	10/4/2010 15:58	13-15 11 34 11 Office	Level 2	Office	Autodesk Revit Architecture 2010
22	207	jdoe@abarchitects.com	10/4/2010 15:58	13-41 11 14 21 Restroom	Level 2	WC	Autodesk Revit Architecture 2010
23	208	jdoe@abarchitects.com	10/4/2010 15:58	13-11 21 17 Conference Room	Not Placed	nference	Autodesk Revit Architecture 2010
24	209	jdoe@abarchitects.com	10/4/2010 15:58	13-41 11 14 21 Restroom	Level 2	WC	Autodesk Revit Architecture 2010

Figure 19: COBie-formatted Excel worksheet, populated with **Space** data that was exported from Revit

16. Instructions on Importing Door and Window Data into Excel

- In Revit:
 - With the **COBie2-Component-Door** schedule view active in your Revit worksession, execute the command: **Export > Reports > Schedule** and save the text file (as explained in the previous section).
 - Do the same with the **COBie2-Component-Window** schedule, if desired.
- With the exported schedule's text (.txt) file:
 - Open the text file in a text editor such as Notepad (similar to that shown in Figure 17)
 - Highlight the data lines (not the headers) for each record you wish to import to the COBie project spreadsheet, and copy (press Ctrl C).

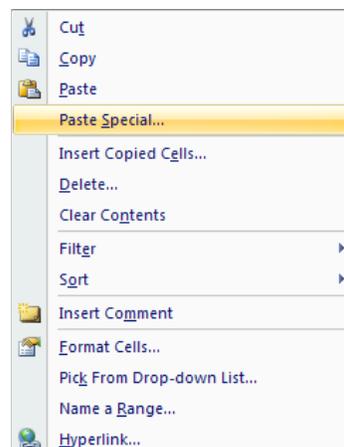
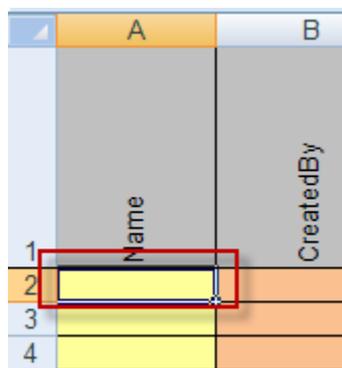
- In the **COBieDoor&WindowReformatterPopulated.xls** Excel file:
 - Select the **Doors&Windows** worksheet (second tab)



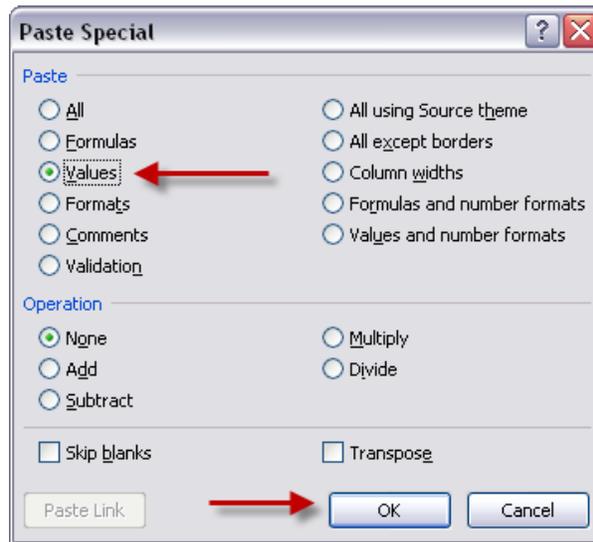
- Place the cursor on the first cell of the first line that you want to place your data into (cell A2 if you have not added any data to this spreadsheet yet)
 - Paste the data that you've just copied from the text file (press Ctrl V)
 - Now select the **COBieDoors&Windows** worksheet in that same Excel file (third tab)
 - Select all rows in that worksheet which contain data
 - Right click and copy the data (or press Ctrl C)
- In Excel, open the project's COBie spreadsheet (created from the Excel template file **COBie2_30_Candidate1_Template.xls**) and:
 - Select the **Component** worksheet



- Click in the first empty cell in the worksheet's **Column A** (the **Name** data column)
- Right click on the worksheet and select **Paste Special** from the Excel drop down menu



- The Excel Paste Special dialog will be displayed. Under the **Paste** section, select **Values** and click **OK**



17. Uninstalling the Add-in

To uninstall the COBie Add-in application, go to the Windows Control Panel, run **Add or Remove Programs** and select **Autodesk Revit 2011 COBie V2_30 Add-In**.

