Using Bluebeam PDF Revu for Paperless Defects Lists and Quality Assurance

Introduction

In the traditional Defects List workflow, sliced up or folded pieces of the original plans, printed on paper, are hand-annotated by the defects list team on a walkthrough. Then those notes have to be deciphered and transferred into a spreadsheet that is sent back to the relevant contractors, creating work and opportunity for error. Use Bluebeam PDF Revu to eliminate steps and preserve the integrity of the markups as they travel up the chain.

Why Use Revu for your Defects List?

1) Revu can eliminate the printing and complex folding that costs organizations money. It can also eliminate the time-consuming task of slicing sketches out of the original drawing, blowing them up and photocopying them onto smaller sheets. In Revu, you always have access to the original drawing, and you can make zoomed-in sketches quickly, easily, and on-the-fly.

2) Tablet computer support makes Revu a true paper replacement. It's easy to carry and easy to use, and has all the convenience of paper.

3) When annotations are kept digital, the information can be distributed widely, to as many contractors as need it, at a low cost and with less risk of error. It can be exported quickly and easily into Excel or other spreadsheet programs as well. Bluebeam software also allows notes to be distributed in the original context as well as a sorted database, providing responsible parties more, and easier access to, visual information so the right things get fixed every time.

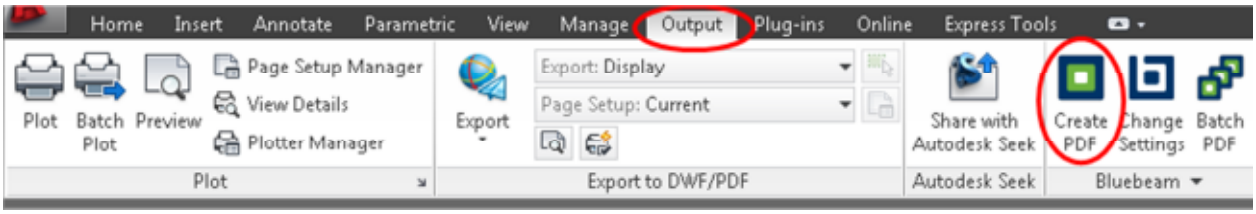
Using Revu for your Defects List: A Sample Workflow

To use Bluebeam for your Defects List, you'll first need project plans. These are typically created in a program like AutoCAD, SolidWorks, or Revit. Bluebeam's proprietary plugins to these programs will generate an accurate PDF directly from within the program used for design.

Generating a PDF using the Bluebeam PDF plugin:

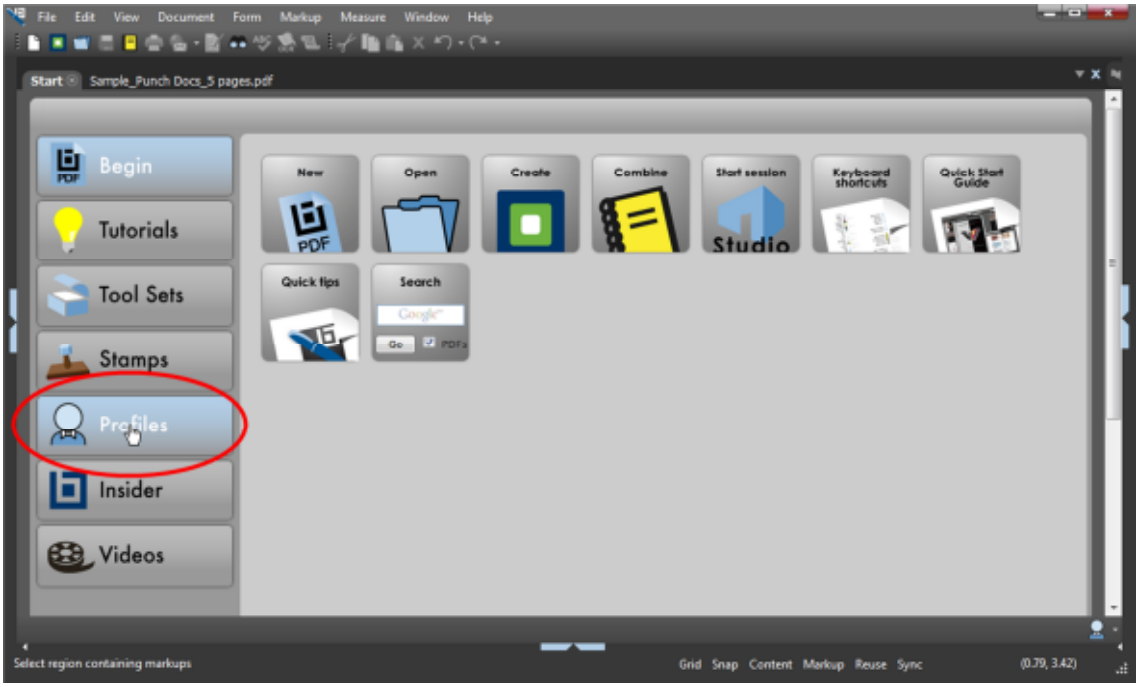
These instructions refer to AutoCAD 2012, but the procedure is very similar for Revit and SolidWorks.

- In AutoCAD, on the ribbon, click **Output**, then click **Create PDF**.
- Depending on your setup, a **Save As** dialog may appear. If so, type a name for the file, then click **OK**.

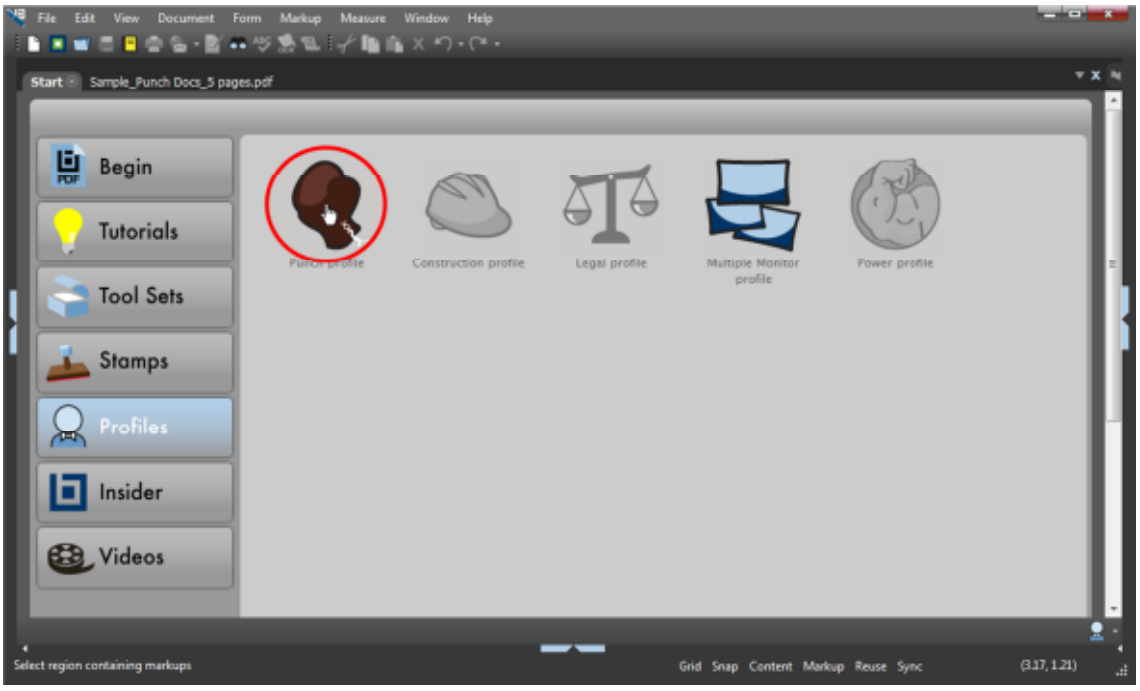


Importing the Defects List a.k.a. "Punch Profile" to Revu

The Punch profile sets up your workspace for your Defects List. Some editions of Revu include it; if yours doesn't you can download it for free from http://www.bluebeam.com/us/support/extensions-profiles.asp.



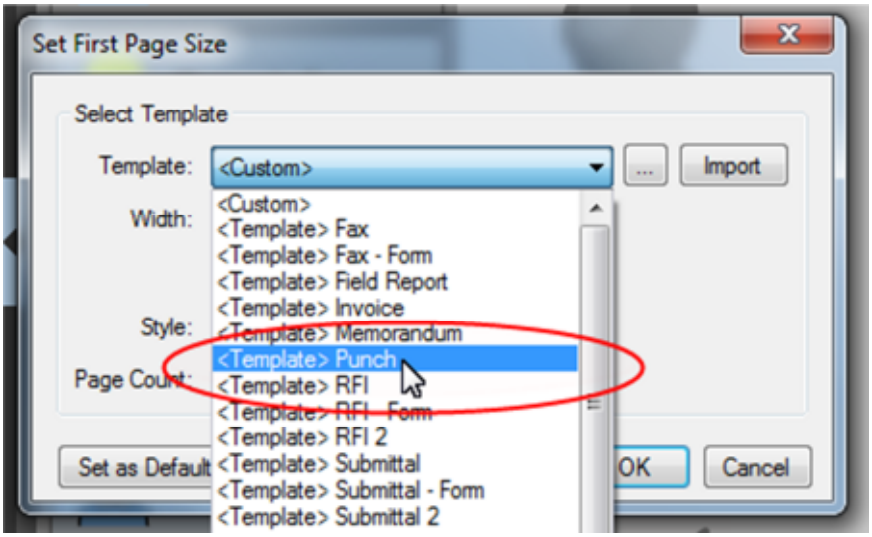
- On the **Start Page**, click **Profiles**, then click **Punch**.
  - or -
- If you have already imported the Punch profile but it is not active, in the  **Profile** list, click **Punch.**



Making a Defects List Template

Next you'll need a defects list template to paste your sketches onto. These typically have a logo and a few fields for useful information, such as Room Number. A sample template can be accessed from within Revu.

- On the **File** menu, click **New**.
- In the dialog, click the **Template** list, then click **<Template> Punch**.
- Click **OK**.



The included punch template has a space for your company logo and some fields at the bottom. You will probably want to customize this template and save a new version for your use. To create your own template, perform the following steps.

- Redesign the new document made from the Punch template until you like its look.
- Click the  **Flatten Markups** button. Ensure the **All Markups** setting is checked and click **Flatten**.

NOTE: If you do not see Flatten Markups, click *View* > *Toolbars* > *Document* to turn on the Document toolbar.

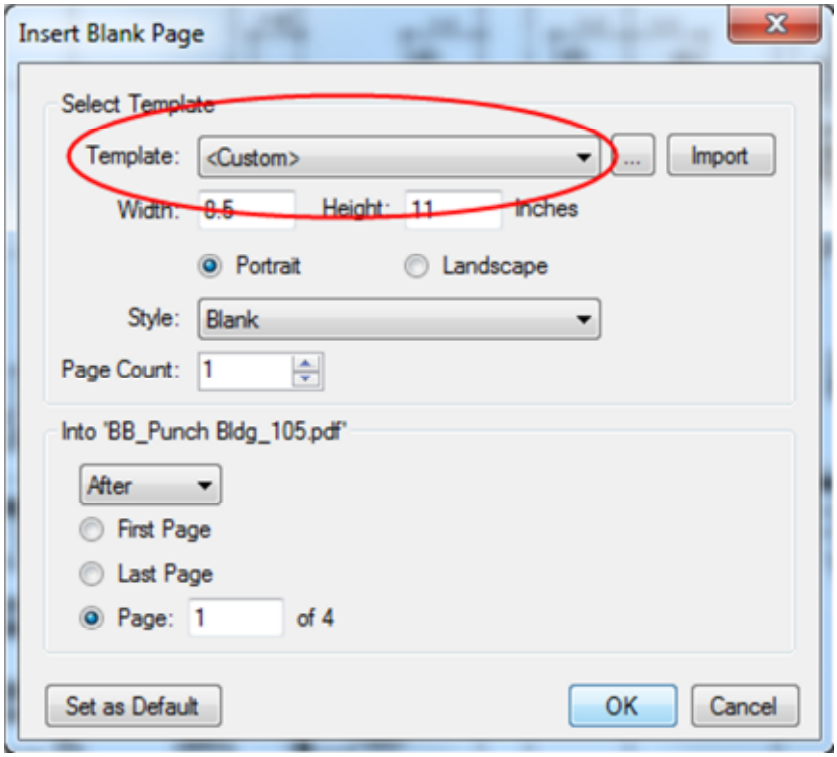
- Add any fields you want to remain editable during the defects list process, such as text boxes for Room Number and Date. **Do not flatten these fields.**
- On the **File** menu, click **Save.**
- Type a name for your template, then click **OK**.
- On the **File** menu, click **New**.
- Click the **Import** button to the right of the Template list.
- Choose the Defects List Sheet you just saved, then click **OK**.

You can create a new document with that template by clicking OK, or you can click Cancel to exit the New dialog. Either way the template will now appear in your Template list whenever you create a new document or blank page.

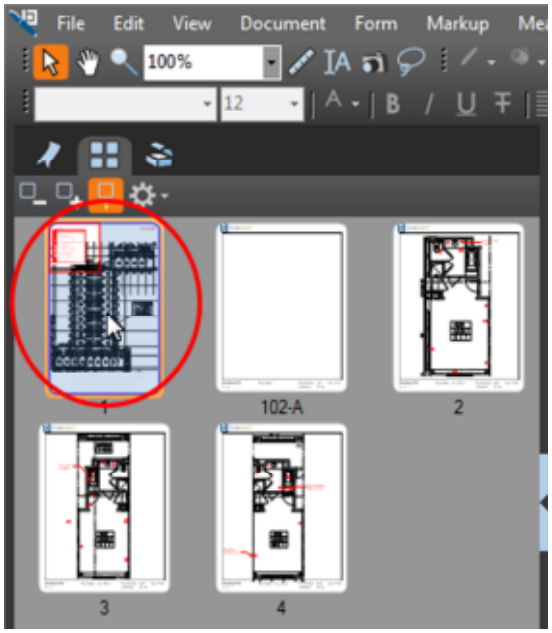
Making a Sketch

Now that you have your template saved, you'll want to make a defects list sheet or sketch.

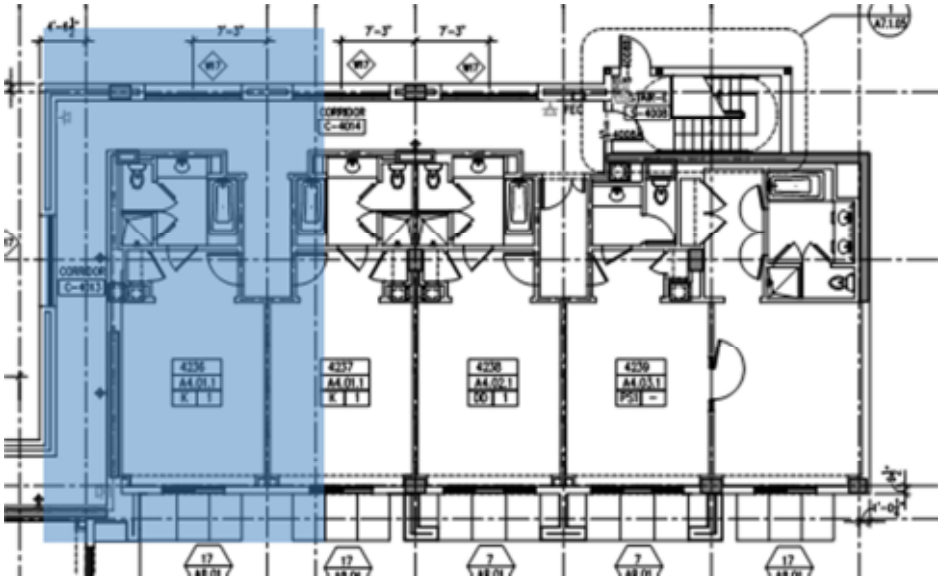
- In the  **Thumbnails** tab, click the  **gear** menu, then click **Insert Blank Page…**
- The **Insert Blank Page** dialog appears. Select your defects list template from the **Template** list and click **OK**.



- Navigate back to the full drawing using the **Thumbnails** tab and find the area you want to copy to your sketch.

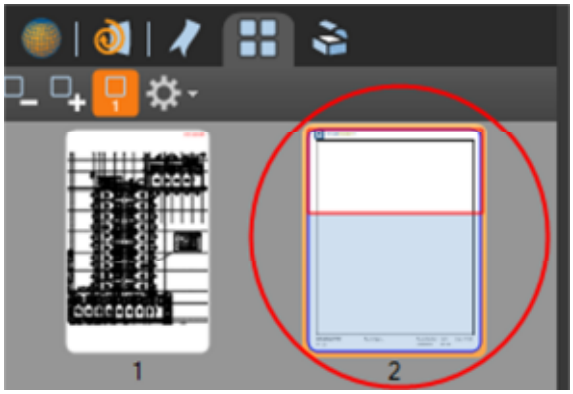


- Use the  **Snapshot** tool to **select the area**. A blue box will flash to show what has just been copied.

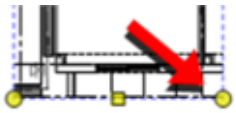


NOTE: If you do not see the Snapshot button, click *View* > *Toolbars* > *Document* to turn on the Document toolbar.

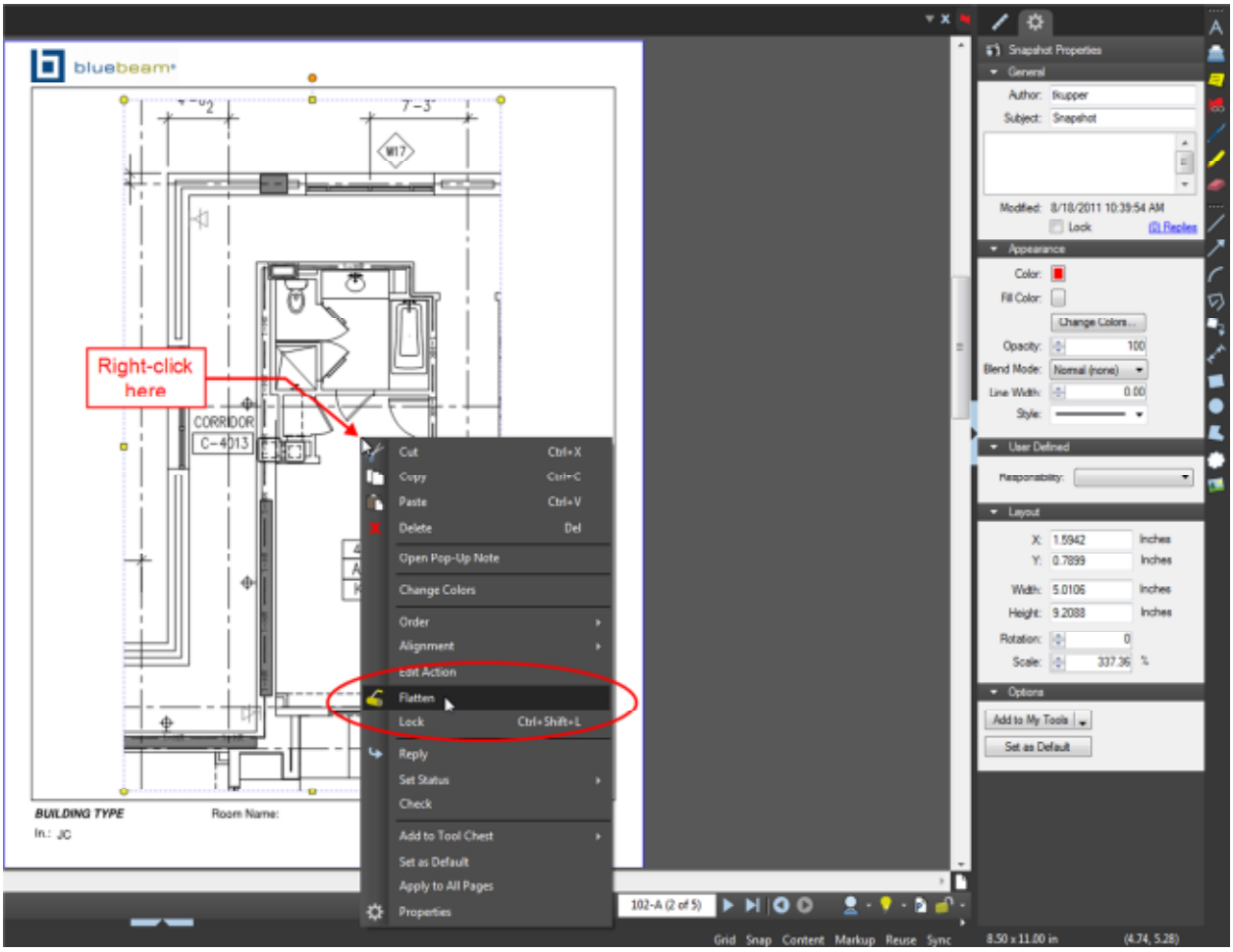
- Return to your sketch page by clicking the thumbnail in the **Thumbnails** tab.



- On the **Edit** menu, click **Paste** (or press **Ctrl + V**, or right-click on the page and click **Paste**).
- Click and drag a yellow **control point** to scale the sketch to the size of the page.



- Now you'll want to flatten the drawing so you can't accidentally move the sketch. However, you don't want to flatten the entire page, because you may still want to edit the fields in the page's footer. So just flatten the pasted snapshot of the drawing: In the **Workspace**, right-click on the drawing itself.



- Then, in the context menu, click **Flatten**.

This process is so easy it can even be done on the fly as the defects list team performs its walkthrough.

Using Tool Chest to your Defects List

Now we've got our sketch made and it's time to start your Defects List.

Revu's Tool Chest tab stores commonly used markups for easy access. Bluebeam includes many industry standard symbols for your convenience, but making and saving your own custom markups is also very easy with Revu.

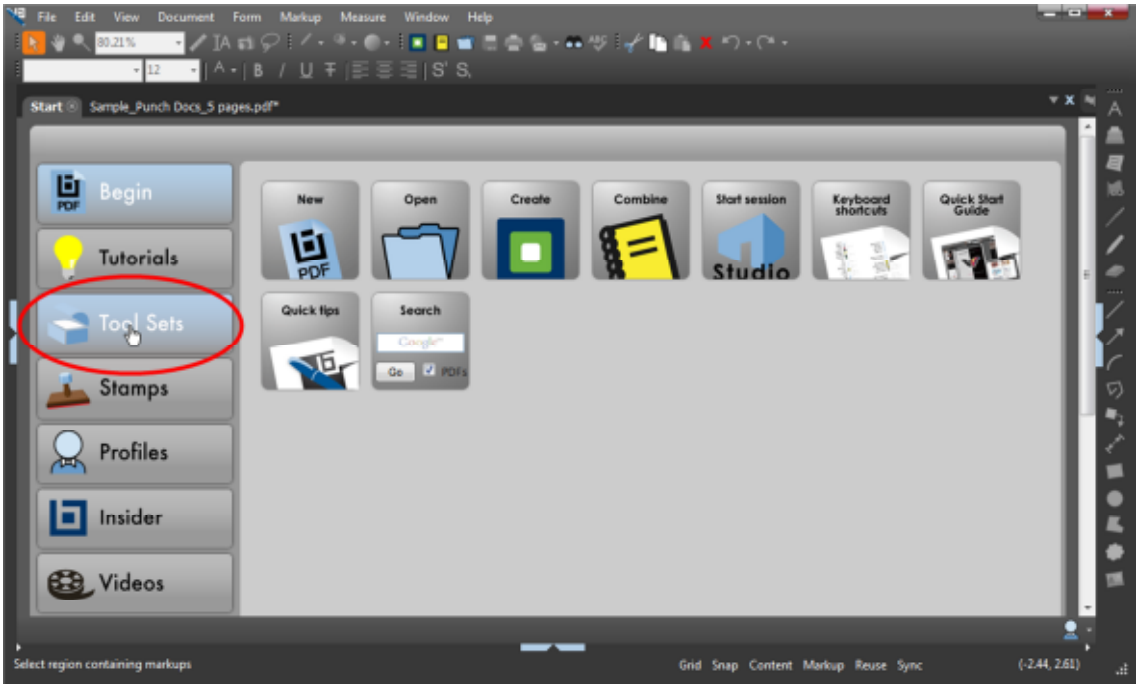
The Tool Chest tab in the left dock is like the traditional legend, but with the added benefit that every time you mark a drawing using the Tool Chest, the markup comes out exactly right, is easily readable, and is tracked in a database that stores what mark was placed where and when.

Using the Tool Sets to Markup

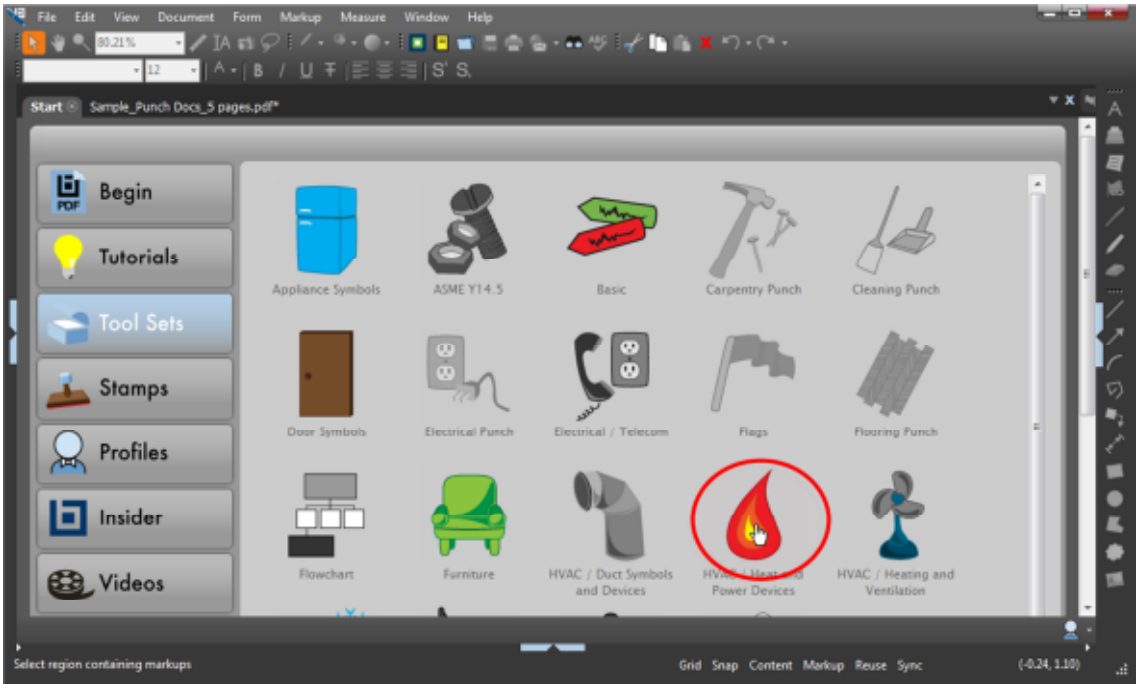
Tool sets are categories of tools that reside in the Tool Chest tab. Like in the real world, Revu groups Electrical tools together in a set, Plumbing in another, and so on. Tool sets that you have loaded can be shown or hidden by clicking the triangle to the left of the tool set's name.

To add markups, first load the tool sets you plan to use.

- On the **Start Page**, click **Tool Sets**.



- Click the desired tool sets to load them. If a tool set appears grayed out, it is already loaded.



Now it's time to annotate. Simply click the tool in the tool set and click again in the workspace to place the markup.

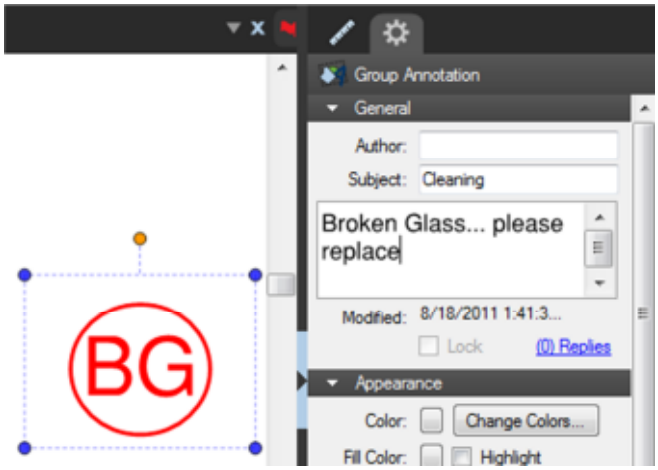
While marking up you'll mostly use the included, industry-standard markups. But for unexpected or specialized markups, you can create a custom markup and save it in the Tool Chest. Once saved, markups in the Tool Chest will remain available for every project you work on in Revu.

Creating a Custom Tool Set

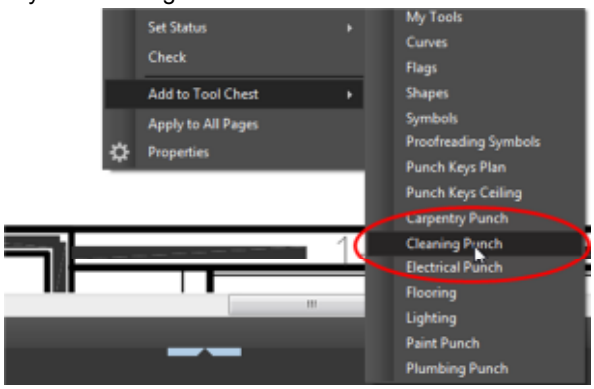
As an example, let's say that you have placed a punch/defect symbol GL for Glass Cleaning. But you need instead a symbol BG for Broken Glass. Create a custom markup for Broken Glass as follows:

- On the markup, double-click the letters to select them.

- Type BG for Broken Glass and click again. The symbol will have changed.
- Open the  **Properties** tab on the **right Dock**.
- Click in the **comment box** below the Subject and type **a new description** of the markup, for example "Broken Glass… please replace."



- Right-click the new markup, hover over **Add to Tool Chest**, then click **Cleaning Punch** to add this markup to your Cleaning Punch tool set.



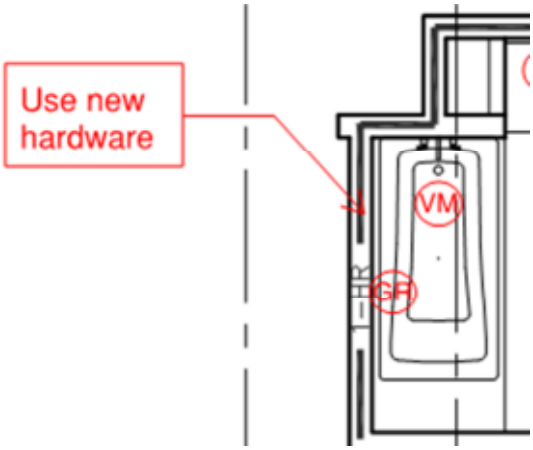
Adding Callouts to Markups

In the traditional defects list process, additional information that cannot be expressed with standard symbols is written on the sketches by hand and transcribed later. But with Revu, you can add callouts to provide information quickly and easily.

- With the  **Callout** tool, click on the workspace to set the location to which the callout's leader will point.

NOTE: If you do not see the Callout button, click *View* > *Toolbars* > *Shapes* to turn on the Shapes toolbar.

- Click again to set the location where the callout text will reside.
- Type some text into the callout's text box.
- In the  **Properties** tab, give the line a **width** of 1 point to create a box around the callout text.
- If you want your callout to point multiple places, right-click on the callout and click **Add Leader**.



Adding Images to Defects List Documents

Sometimes an image can explain a problem much more effectively than a written note. When using Revu on a tablet computer for Defects List, this is very easy. Just use the tablet's built-in camera to take a snapshot of the problem. Then, in Revu, use the Image tool to place your image.

- Click the  **Image** button to launch an **Open File** dialog.

NOTE: If you do not see the Image button, click *View* > *Toolbars* > *Shapes* to turn on the Shapes toolbar.

- Navigate to the picture you wish to place and click **OK**.
- Then click the  **Place Image** tool where you want the picture to appear. Move and resize as necessary.

NOTE: Any image file, not just those taken with the tablet's built-in camera, can be imported via this same method. To use an external digital camera, for instance, refer to the camera's documentation to transfer the photo onto the Tablet PC, then import to Revu.

Using the Markups List

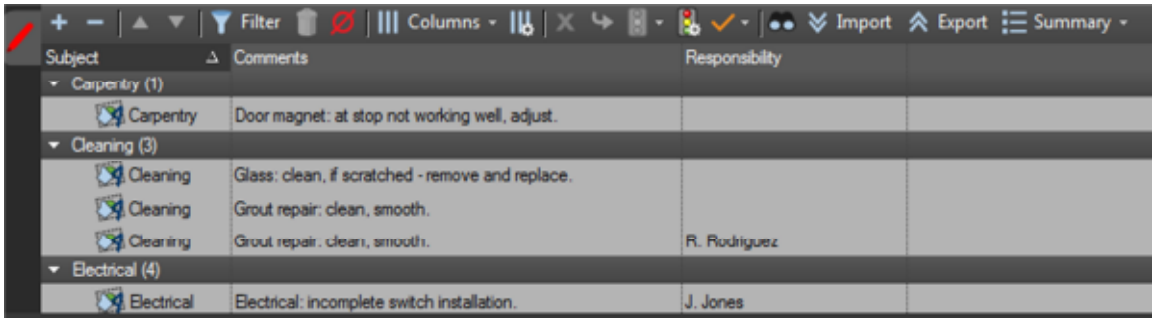
The Markups List is where Revu's utility in the Defects List/Punch use case really takes off. Traditionally this is the part of the process where someone would need to comb through each defects list sketch and painstakingly transfer handwritten notes to an Excel spreadsheet in order to distribute the information about what still needs to be done back to the relevant parties. But, as you did your defects list walk, Revu has been tracking all of that for you. Just open the Markups List to see a list view of every markup you've

made. That list can be exported to Excel or other spreadsheet programs, and it can be sorted and filtered in a number of ways to improve workflows.

The Markups List has a Subject field which allows you to sort by the discipline associated with each tool set. It also has a Responsibility field so if multiple parties are responsible for a single discipline, you can easily separate out the right data for the right subcontractors. Bluebeam also has an auto-complete feature that learns as you type, so you'll only have to type out full names once and thereafter a few letters will prompt Revu to auto-complete the name for you.

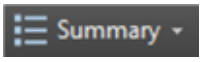
These columns are set up already in the punch profile, but the Markups List is totally customizable to suit your particular needs. To learn more about User Defined Columns in the Markups List, launch the help in Revu under **Help > Help** and search for "User Defined Columns."

To open the Markups List, click  to show the bottom dock or click **View > Tabs > Markups**.



Exporting a Summary

Revu will export summaries in CSV, XML, as a PDF or as a printed document. Let's walk through exporting a Markups List summary to Excel using XML.

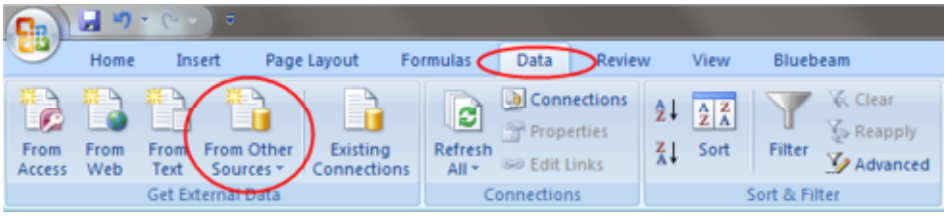
- On the **Markups List** button bar, click 

Summary, then click **XML Summary**.
- Enter the range of pages you want summarized (like from your first Defects List Sheet to your last) and click **OK**.
- Chose a location to save the file, such as your Desktop, and click **OK**.

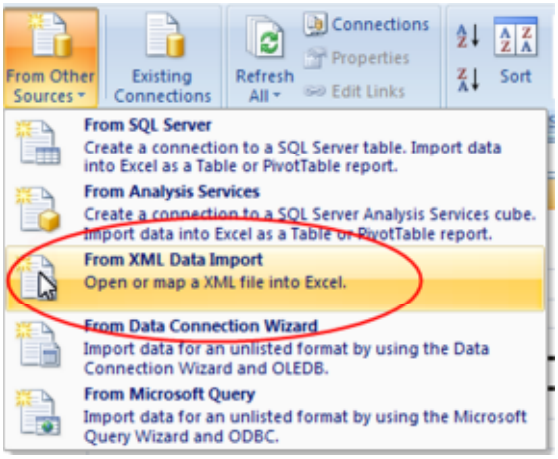
Importing a Summary to Excel

You'll now want to import the data to Excel. The following instructions refer to Excel 2007; for other versions the process is similar but slightly different. For more information on Excel please refer to Microsoft's documentation.

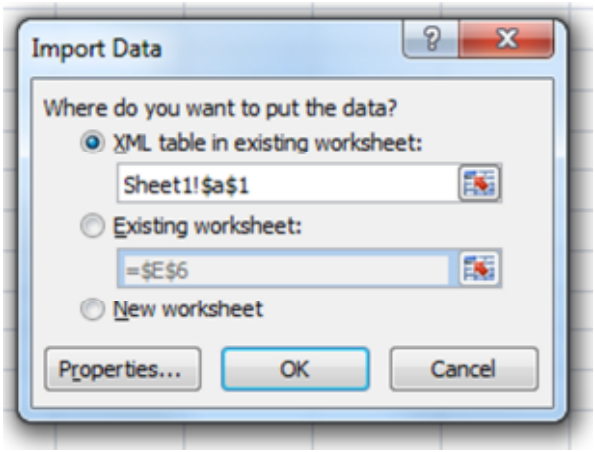
- In Excel, on the ribbon, click **Data** then **From Other Sources**.



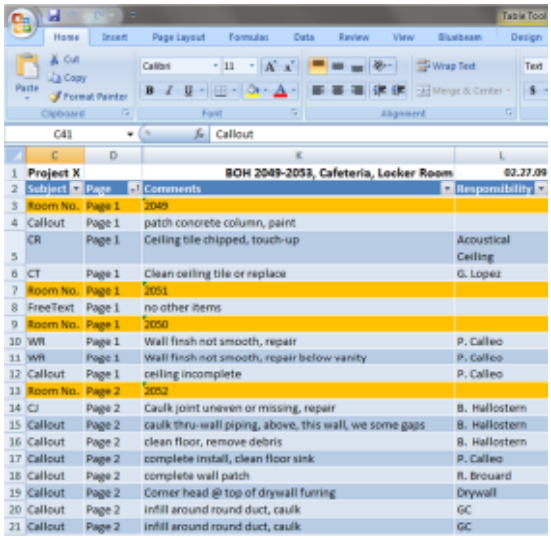
- Click **From XML Data Import**.



- In the **Open** dialog, select the file you exported from Revu, then click **OK**.
- Choose a cell in column A to begin the import on, then click **OK**.



The Excel spreadsheet will then display the data you exported.



	C	D	K	L
1	Project X		BOH 2049-2053, Cafeteria, Locker Room	02.27.09
2	Subject	Page	Comments	Responsibility
3	Room No.	Page 1	2049	
4	Callout	Page 1	patch concrete column, paint	
5	CR	Page 1	Ceiling tile chipped, touch-up	Acoustical Ceiling
6	CT	Page 1	Clean ceiling tile or replace	G. Lopez
7	Room No.	Page 1	2051	
8	FreeText	Page 1	no other items	
9	Room No.	Page 1	2050	
10	WR	Page 1	Wall finish not smooth, repair	P. Calleo
11	WR	Page 1	Wall finish not smooth, repair below vanity	P. Calleo
12	Callout	Page 1	ceiling incomplete	P. Calleo
13	Room No.	Page 2	2052	
14	CJ	Page 2	Caulk joint uneven or missing, repair	B. Hallostern
15	Callout	Page 2	caulk thru-wall piping, above, this wall, we some gaps	B. Hallostern
16	Callout	Page 2	clean floor, remove debris	B. Hallostern
17	Callout	Page 2	complete install, clean floor sink	P. Calleo
18	Callout	Page 2	complete wall patch	R. Brouard
19	Callout	Page 2	Corner head @ top of drywall furring	Drywall
20	Callout	Page 2	infill around round duct, caulk	GC
21	Callout	Page 2	infill around round duct, caulk	GC

Now you'll want to hide columns A and B, which contain information about the Version and Document Name.

- On the worksheet, right-click the column header **A**.
- Click **Hide**.
- Right-click column header **B**.
- Click **Hide**.

Now the data you imported will match exactly the data in the Markups List.

Using Revu for Quality Assurance

Revu continues to be useful through the Quality Assurance inspection process as well. It keeps a detailed database of issues identified by the defects list team and it has easy access to the original drawings, the marked up defects list sheets, and any notes or media that were added during the defects list walk, and it's all accessible by a simple click. Just click any markup in the Markups List to jump directly to it in the workspace.

Using the Status Column

To perform Quality Assurance inspections with Revu, use the Status column.

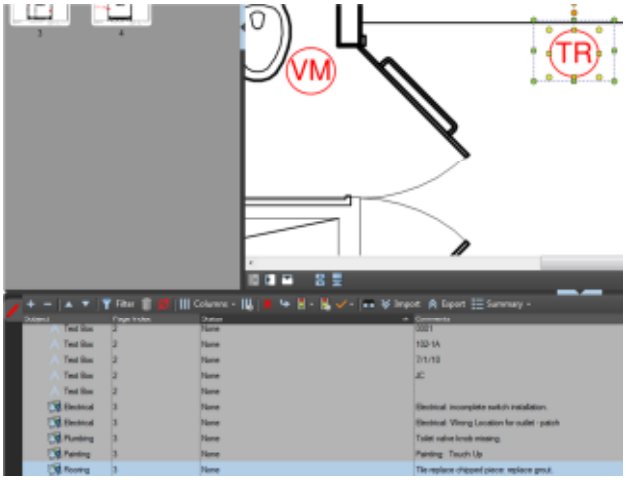
- On the Markups List button bar, click 

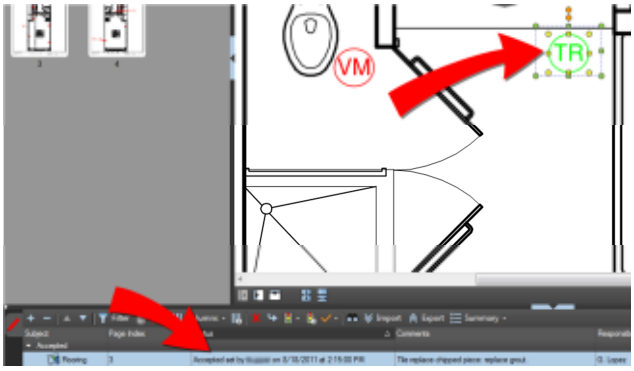
Columns, then **Status**.

Now you can sort your list, say by page, and as your Quality Assurance team walks they can set the status of each markup. To set a markup status as Accepted, do the following.

- Select the markup by clicking it in the **Markups List** or on the **Workspace**.
- On the **Markups List** button bar, click  **Status** and then click **Accepted**.

NOTE: Status changes are saved as a permanent record including the identity of the person who changed the status. So, if one person takes responsibility for a status by marking it Accepted and later someone else verifies the work is finished and marks it Complete, both Status markups remain along with the time and person who made them, creating a clear line of accountability.



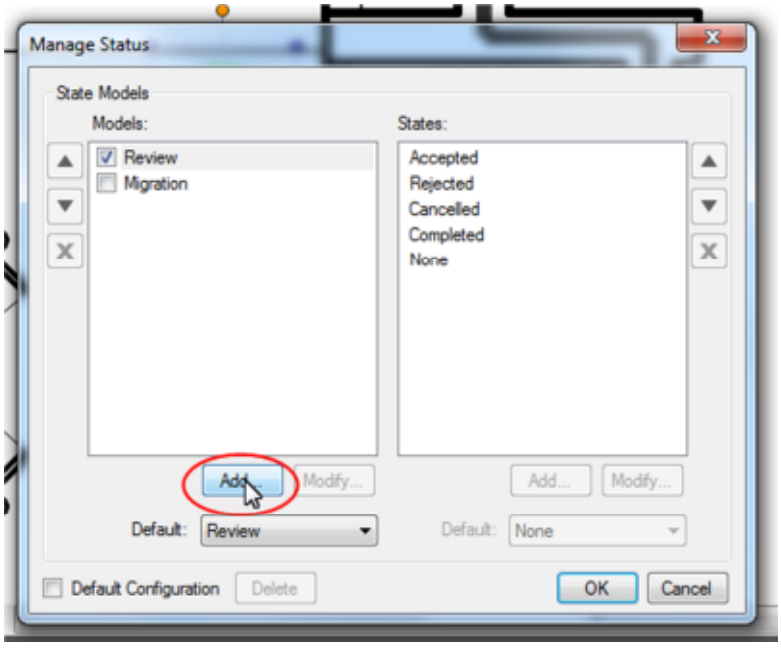


Creating a Custom Status

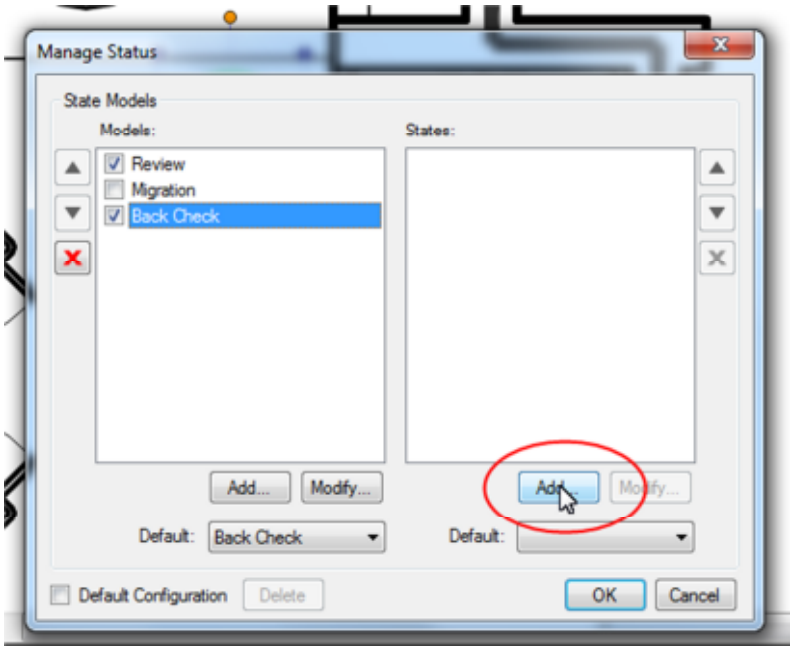
By default Revu supports the standard Review Model states of Accepted, Rejected, Cancelled, Completed, and none. But you can also create custom states to better suit your workflow. In order to add custom states, you must first add a custom status Model.

- On the **Markups List** button bar, click  **Manage Status**.

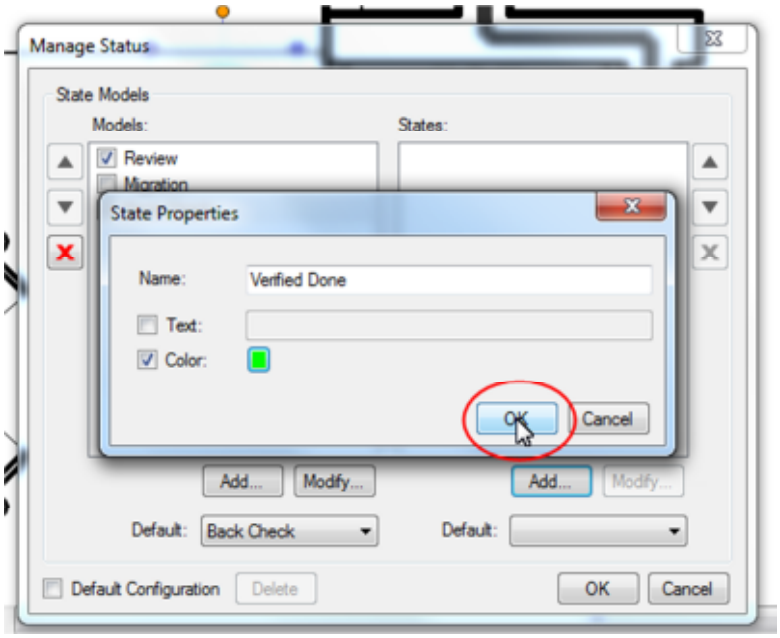
- Below the **Models** list, click **Add…**



- Type a name for the model (in this example, Back Check/Quality Assurance) and click **OK**. Click the new model to select it.
- Below the **Status** list, click **Add…**

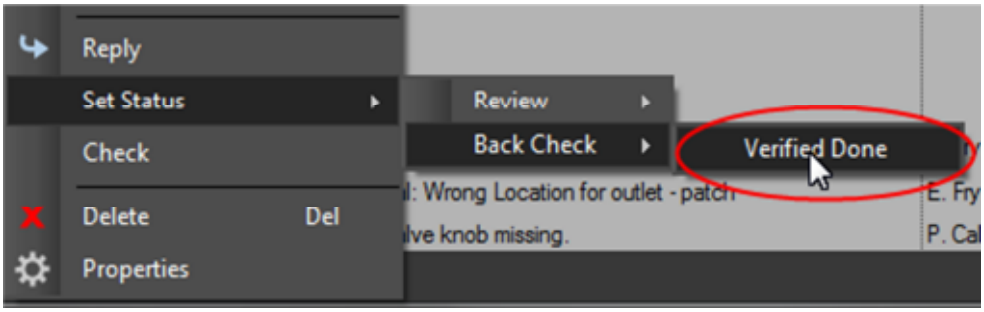


- Type a name for the new status, add text or choose a color if desired, and click **OK**.



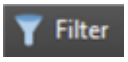
- Click **OK** to exit the Manage Status dialog.

Now, when you click the Status list, you will see submenus named for the Review model and the new model you've created. Under the new model, your custom status will be available.



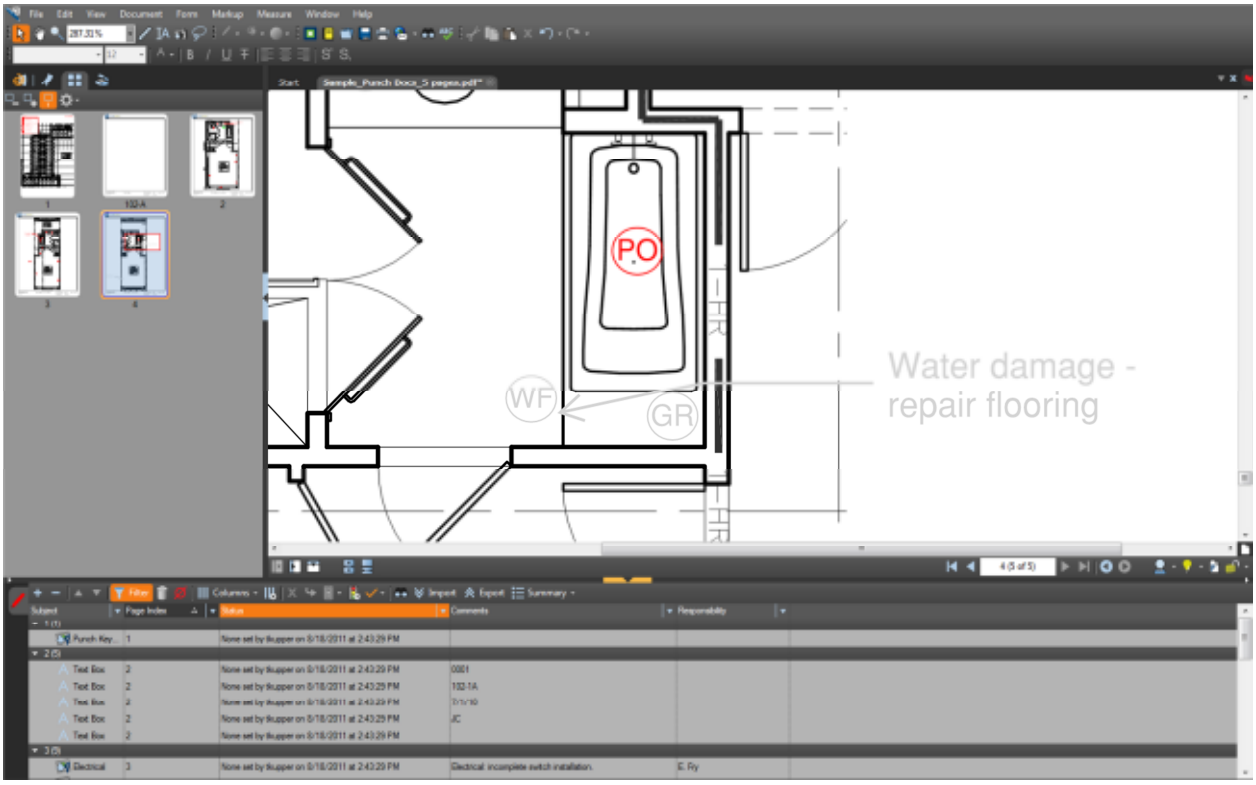
Filtering the Markups List to Instantly See What Needs Doing

During your Quality Assurance Inspection, you may find that you want to check just those items that do not have a status set, or that have a particular status set (such as Rejected). This is fast and easy to do using the Filter.

- In the **Markups List** button bar, click 

Filter.
- The column headers in the Markups List will become lists, indicated by down-facing arrows.
- Click the  **blue arrow to the right of Status** and then click **None**.

This will display only items with a status of None in the list, while in the workspace the hidden items will appear grayed out. You can also export a summary of the filtered markups, easily sending only the work that's left to be done to Excel.



To filter by any other column value, follow the same procedure. This feature allows you to check only the work of a particular responsible party, only a particular room, and so on.

Using Studio for Real-time Defects List and Quality Assurance

That covers the most common workflow for Defects List and Quality Assurance inspection with Revu. But Revu's built-in Studio collaboration feature can save even more time in the right circumstances.

If the worksite is Wi-Fi enabled or your tablet PC has always-on internet connectivity through a cellular network, as is increasingly the case, you can store your Defects List and Quality Assurance inspection files in the cloud and have multiple parties access them from any tablet or desktop PC anywhere, as long as it's on the internet. This might, for example, allow contractors to follow the Defects List team only a few minutes behind with complete access to the Defects List. Some of our customers who were working with unusually tight deadlines have used this feature to do near-simultaneous Defects List, correction work, and subsequent Quality Assurance inspections and have seen a tremendous increase in efficiency. To learn more about Studio, refer to this tutorial:
http://www.bluebeam.com/us/_media/pdfs/tutorials/9/bluebeam-studio.pdf