

Excel Magic

The Road to Excellence



Excel studies indicate that business professionals spend as much as 50% of their time in Excel working on formatting – not checking data inputs, analyzing data, performing what-if analysis, or working activities that add meaningful value to an organization. Clearly, there is room for improvement!

In this session we will focus on workbooks and worksheets with a focus on Excel templates.

Display of Zeros and Precision as Displayed

One of the confounding problems of using any of the financial number formats (accounting, currency, and number) is the display of zeros. Recall that the third part of any number format code is the code to display zeros. However, the format code only applies when the value in a cell is equal to zero, not when the value in a cell *appears* to be zero, such as when a small value rounds off automatically to zero for display. This is especially problematic when using the accounting format because cells can be displayed as zeros, positive zeros, or negative zeros as shown in **Figure 1**.

		<u>Zero</u>	<u>Positive Zero</u>	<u>Negative Zero</u>
Accounting Format Display	\$	\$ -	\$ 0.00	\$ (0.00)
	w/o \$	\$ -	\$ 0.00	\$ (0.00)
Actual Number in Cell		\$ -	\$ 0.001	\$ (0.001)

Figure 1 - Zero Display Using the Accounting Format

Some practitioners have become so frustrated with this problem that they enter hard-coded zeros over formulas when this occurs so that zeros display consistently throughout their reports. In the process of overwriting their formulas, however, they potentially corrupt their worksheet so that it does not recalculate properly in the future.

There are two easily applied solutions to this problem. The most common solution is to round off calculations to the number of displayed decimals. In other words, the values **0.001** or **-0.001** (or smaller) rounded to two decimals would result in a cell value of zero, which would be displayed properly when using the accounting format. When a positive or negative zero cell is encountered, simply round the contents of the cell to the appropriate number of decimal places using the **ROUND** function.

The second solution to this problem is to enable global rounding in the affected workbook. When global rounding is enabled, all values are rounded to their cell formats. In other words, the values **0.001** or **-0.001** (or smaller) displayed with two decimals would automatically be rounded to a cell value of zero, which would be displayed properly when using the accounting format. To enable global rounding in a workbook if you use Excel 2010 or newer, click the **File** tab of the Ribbon, **Options, Advanced**, and in the section labeled **When calculating this workbook**, check the box next to **Set precision as displayed** and click **OK**.

If you use Excel 2007, click the **Office Button** and then **Excel Options**. Select **Advanced** on the **Navigation Bar** on the left. In the **Option Pane** on the right, check **Set precision as displayed** in the section entitled **When calculating this workbook**. Click **OK**.

Regardless of which version of Excel is running, enabling global rounding in a workbook causes Excel to display the warning shown in **Figure 2**.

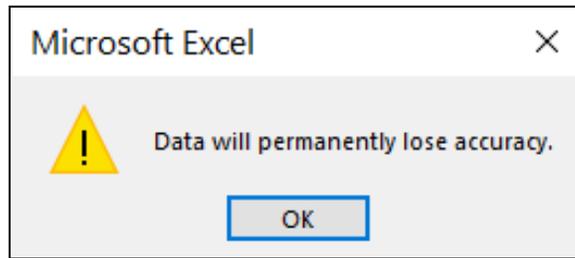


Figure 2 - Warning message displayed when Precision as Displayed is enabled

Do not be alarmed by the warning. Click **OK**, and all of the cells that contain zeros will now display properly.

Before continuing, an explanation of the warning message is in order. To do that, we must first review how Excel makes calculations. In default, Excel rounds off for display but uses the underlying data to make calculations. Precision as displayed alters the way that Excel evaluates formulas. With precision as displayed enabled, Excel ignores the underlying data and uses the data displayed on the screen to make calculations. Hence, when precision as displayed is enabled, all calculations will foot and cross-foot properly. In other words, practitioners will not encounter the proverbial one-cent rounding error that often results in worksheets because the numbers displayed on the screen are used to make the calculations. The example in **Figure 3** will help in explaining precision as displayed.

Units Rec'd	Product Code	PO	Total	Average Unit Cost	
4	G217-9	06-1838	247.11	61.78	<div style="background-color: #e0ffe0; padding: 5px;"> 61.777500000000 32.948000000000 61.777500000000 141.205714285714 297.708714285714 </div>
15	H77-9	06-1838	494.22	32.95	
12	H83-3	06-1799	741.33	61.78	
7	K562-3	06-1803	988.44	141.21	
Total Received				<u>297.71</u>	
Units Rec'd	Product Code	PO	Total	Average Unit Cost	
4	G217-9	06-1838	247.11	61.78	<div style="background-color: #e0ffe0; padding: 5px;"> Solution: Enable Precision as Displayed. </div>
15	H77-9	06-1838	494.22	32.95	
12	H83-3	06-1799	741.33	61.78	
7	K562-3	06-1803	988.44	141.21	
Total Received				<u>297.72</u>	

Figure 3 - Rounding Error Corrected by Enabling Precision as Displayed

Note the one-cent (least significant digit) rounding error in the table at the top of **Figure 3**. The total displayed is \$297.71 but should read \$297.72. The error occurs because Excel is using the underlying data shown in the column displayed on the right to make the calculation. In the bottom table, precision as displayed has been enabled. In this case, Excel is using the data displayed on the face of the worksheet to make the calculation, and the rounding error disappears.

Now, we can get back to the warning message that appears when precision as displayed is enabled. The warning message refers to a problem that can arise when we enter constants (numbers) in a worksheet and do not display all of the decimals entered. In this circumstance, any decimals not displayed are truncated. For example, if we entered **2.2385** in a cell and displayed only two decimal places, the contents of the cell would be truncated to **2.24** if precision as displayed were enabled. Furthermore, if we tried to undo our change, we would find that this change cannot be undone – it is a permanent change. Under these circumstances, it would be wise to save workbooks before enabling precision as displayed.

Note that this issue does not arise when cells contain *formulas*. In other words, precision as displayed can be enabled or disabled at will without any impact on the accuracy of the underlying data when the data results from formulas. Since most, if not all, of our rounding issues result from floating point calculations, and since most practitioners are not likely to type in constants with more decimal places than are displayed, precision as displayed is not likely to pose a problem in day-to-day practice. In fact, many accounting professionals have altered their default templates, *book.xlsx* and *sheet.xlsx*, to enable precision as displayed so that all workbooks foot and cross-foot properly without using the round function in formulas. In those cases where precision as displayed is desired without permanent truncation of data on constants, simply preface the entry of the constant with an equals sign (=). Excel will treat the entry as a formula and precision as displayed will work to solve rounding and footing issues, yet because the formula is volatile in nature and recalculates, data is not permanently truncated.



If you import or rekey financial data into a worksheet and then display the data in thousands, millions, or billions using custom number formats as illustrated earlier in this chapter, and you enable precision as displayed to eliminate rounding errors in the resulting reports, your keyed data will be truncated. Make sure to save your original workbook with a different filename before enabling precision as displayed. A better solution would be to use formulas to create another worksheet in your workbook on which to apply the custom formats. Since the cells on the new worksheet contain formulas instead of constants (your imported or keyed numbers), precision as displayed can be enabled or disabled at will without affecting the data on your original worksheet.

Templates

There are two major advantages of converting pre-configured workbooks into templates.

1. Users do not waste time finding infrequently used templates because template files are stored in a common location. To open a template, select **New** from the **File** tab of the Ribbon in Excel 2010 or 2013, or from the **Office Button** in Excel 2007. In the **New Workbook** dialog box, double-click on the template from which to create a new workbook as shown in **Figure 4**.
2. Users do not have to waste time cleaning up a template after inadvertently saving data in a pre-configured workbook (**.xlsx**) file. If users are entering data in a previously unsaved template (**.xlt**), Excel displays the **Save As** dialog box when choosing to **Save** the workbook. In other words, users cannot easily save data over a template file, which relieves them of the time-consuming task of cleaning up a pre-configured workbook when they inadvertently overwrite one.

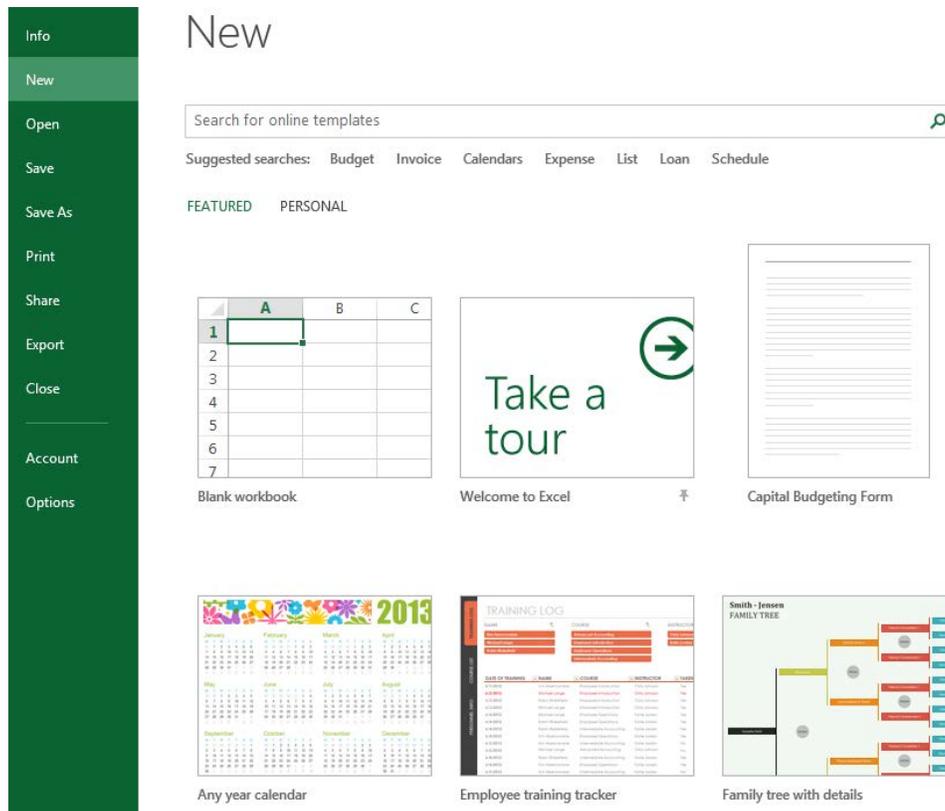


Figure 1 - Opening a Template in Excel

To convert pre-configured workbooks to templates, simply save the workbooks as template files. First, open a pre-configured workbook. Then use the keyboard shortcut **F12** to open the **Save As** dialog box. Select **Excel Template** in the **Save as type** drop-down box at the bottom of the **Save As** dialog as shown in **Figure 5**. Type in a descriptive name for the template and click **Save**.

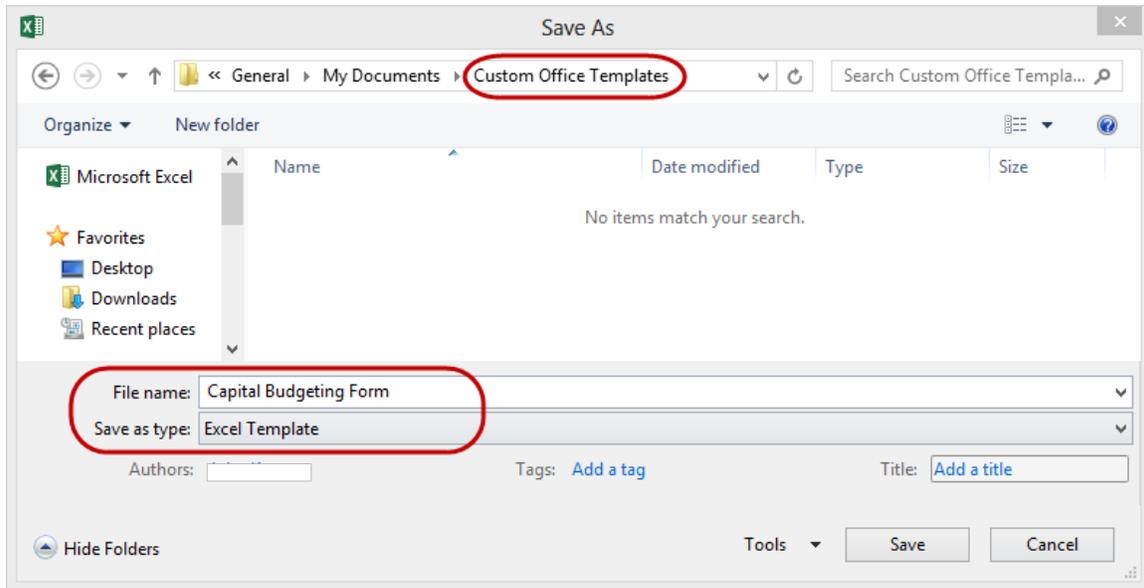


Figure 5 - Saving a Workbook as a Template



Note that the process described above saves a copy of the workbook as a template. The original workbook will still be available in its original folder. In addition, templates can be updated by simply saving a newer version over an older template. To delete a template that is no longer used, navigate to the Custom Office Templates folder and delete the file.

Understanding and Modifying Excel's Default Templates

Now that we have covered the fundamentals of templates, let's examine Excel's default templates, **book.xlsx** and **sheet.xlsx**. These two files control Excel's user environment. A copy of **book.xlsx** with all of its settings is opened each time Excel is opened or whenever a new blank workbook is created. Likewise, Excel inserts a copy of **sheet.xlsx** with all of its settings whenever a new worksheet is inserted into an existing workbook. Modifying these files allows users to customize their work environment in ways that are not generally possible through the user interface.

Let's take just one example. Most accounting professionals would change the default number format from General to the Accounting format if they knew how. Changing the default number format is not possible through the GUI, but it is just a simple process for those who understand the significance of the default templates.

To change the default number format to the Accounting format, follow these steps.

1. Open a blank workbook.
2. On the **Home** tab of the Ribbon, select **Cell Styles**. In the **Style Gallery**, right-click on the **Normal** style and choose **Modify**.
3. In the **Style** dialog box, click **Format**.
4. On the **Number** tab of the **Format Cells** dialog box, select **Accounting** with **2 Decimal places** and **Symbol** as **None**.

5. Set precision as displayed (global rounding),
6. Create any custom headers and footers, and named styles.
7. Click **OK** to close the Format Cells window and **OK** to close the Style window.
8. Save the blank workbook as **book.xlsx** in the **XLstart** folder.
9. Delete all sheets but one and save the workbook as **sheet.xlsx** in the **XLstart** folder.

To Locate the XLStart folder

Any workbook, template, or workspace file that you place in the XLStart folder is automatically opened when you start Excel. To find out the path of the XLStart folder, check the Trust Center settings. To do so:

1. Click File > Options.
2. Click Trust Center, and then under Microsoft Office Excel Trust Center, click Trust Center Settings.
3. Click Trusted Locations, and then verify the path to the XLStart folder in the list of trusted locations.

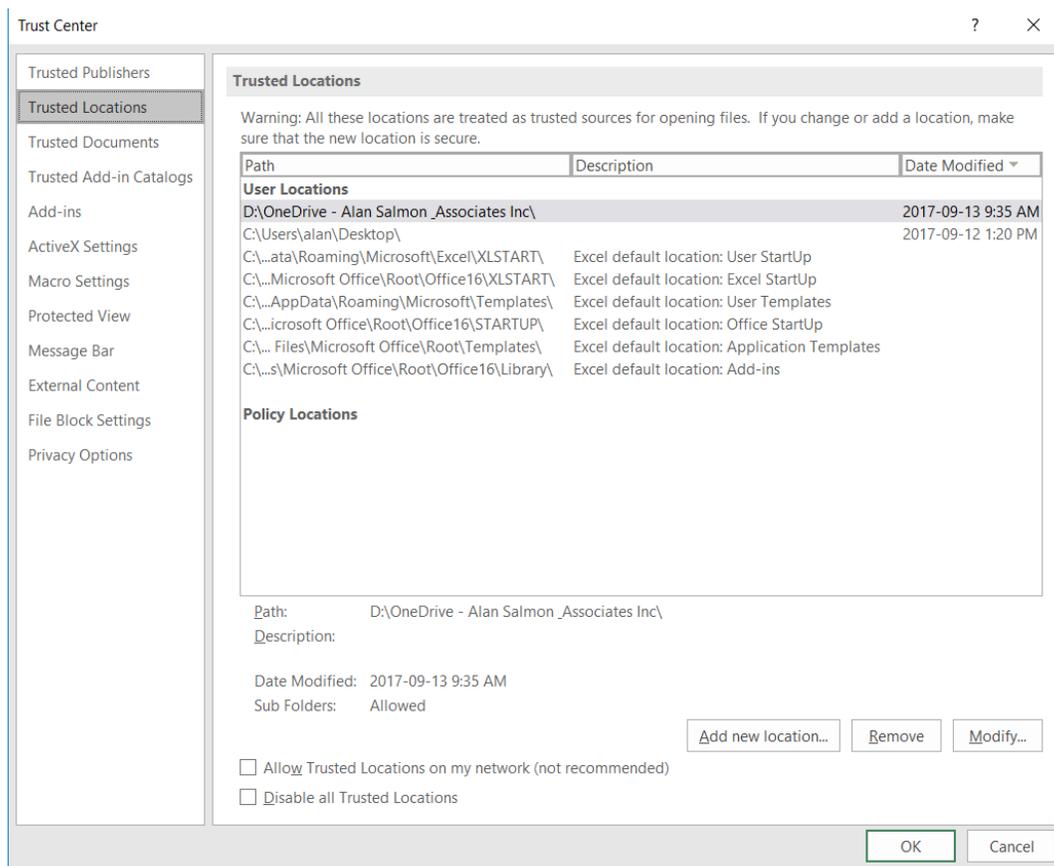


Figure6 – Finding the Location of the XLSTART Folder

That's it! The next time Excel is opened, or a user clicks on the **New** workbook button, the new settings will be pre-configured in the workbook created. In our opinion, any settings made repetitively in nearly every workbook should be included in the default templates. Here are some common settings that may be included in the *book.xltx* and *sheet.xltx*:



The changes made to the default templates have a *prospective* impact only. The new settings only affect workbooks created after the changes are made and do not have any influence on existing workbooks *unless* a new worksheet is inserted into an existing workbook. In that case, only the new worksheet will be affected.

Note that any settings made by using the default workbooks can be modified within the individual workbooks created. For example, Precision as Displayed may be set in the default templates, but that does not preclude a user from turning off the setting in an individual workbook created from the default templates.

Compiled Financials

The **Compiled Financials** workbook is less of a template than a demonstration vehicle for illustrating advanced techniques useful in constructing templates. Many of the techniques used have already been discussed, but we have put them all together, with a few new tricks, in this workbook. There are eight worksheets in the workbook: **Assumptions**, **Ad Hoc Notes**, **Cover**, **TOC**, **Compilation Report**, **Balance Sheet**, **Results of Operations**, and **Notes to Financials**. Let us examine the Assumptions sheet first. All other sheets link to the Assumptions worksheet. This worksheet contains cells for the entry of the company name and location, fiscal year beginning and end, reporting period, period end date, inventory valuation method, depreciation method, and the date of the compilation report. Formulas compute the fiscal year end, prior year, and the financial reporting date. Many of the assumptions are entered using form controls. As the information changes on the Assumptions worksheet, the changes link through to the other worksheets, thereby updating them for any changes in assumptions. For example, as the company name and location is changed, every reference to the company name and location updates in the other sheets, even on the Cover and the Compilation Report worksheets that contain embedded Word documents.



To update the embedded Word documents, double-click on each one of the documents to activate (open) them. The Word documents will update the links on activation. Click outside of the embedded document to deactivate (close) the document.

Figure 65 shows the data entry section of the Assumption worksheet. The cells with light blue background are computed. Note the company name in cell C4. That cell links using simple formulas to the headings of the Balance Sheet, Results of Operation, and Notes to Financials. The cell is also linked into the embedded Word documents using **Paste, Paste Special, Unformatted Text with link** as described in Chapter Two. The same process was used in linking the company location, period, period end date, and compilation report date to the embedded Word documents.

	A	B	C
1	Financial Statement Preparation		
2	Assumption Sheet		
3			
4	Company Information	Company Name	GTM Construction, Inc
5		Company Location	Green Bay, WI
6		Fiscal Year Begin Date	January 1 <input type="button" value="v"/>
7		Fiscal Year End Date	December 31
8			
9		Inventory Valuation Method	weighted average cost <input type="button" value="v"/>
10		Depreciation Method	straight-line <input type="button" value="v"/>
11			
12	Reporting Period	Period	Month <input type="button" value="v"/>
13		Reporting Period End	September 30 <input type="button" value="v"/>
14		Current Year	2012 <input type="button" value="v"/>
15		Prior Year	2011
16		Financials Report Date	September 30, 2012
17			
18	Letter	Compilation Report Date	October 25, 2012

Figure 7 - Data Entry Section in the Assumption Worksheet

Several of the inputs are entered using form controls. For example, the current year reporting period is input using a **spinner** control, which we discussed earlier in this chapter. The other controls are **combination list box** (combo box) controls. The setup for a combo box is significantly different from a spinner. Let us examine the steps to set up a combo box for the inventory valuation method. A combo box requires a list of values (**input range**) from which the user will select and a target cell (**cell link**) within which the control will return the row number of the value selected. We will use defined names for both the input range and the cell link. All defined names for the combo box controls in Compiled Financials are in plain view just to the right of the data input section of the Assumptions worksheet as shown in **Figure 7**. Note that the name of each defined name is shaded in green, and the actual range of the defined name is shaded in light green. In an actual template, the defined names would likely be hidden on another sheet.

K	L	M
	InvVal	
	first-in first-out (FIFO)	
	last-in first-out (LIFO)	
	weighted average cost	
	specific identification	
	InvValRow	
	3	

Figure 7 - Defined Names for Inventory Valuation Combo Box

To create the defined names, follow the process described below.

1. Enter the labels shown in **Figure 8** in a single column with appropriate spacing. Make sure to enter them just as they are to be used. In our example, the inventory valuation method will be concatenated with other text to form a footnote on accounting policies, so they are entered in lowercase just they are to appear in the footnote.
2. Highlight the range containing the labels "first-in first-out" through "specific identification." Now, type in the name **InvVal** in the **Range Box** just below the Ribbon. Repeat the process for the defined name **InvValRow**. Note that this defined name will include one *blank* cell. The defined name will not have data in the cell, as is shown above, before the combo box is used for the first time.

Now that the precedent-defined names are created, add a **combo box** to the worksheet.

1. Make sure that the **Insert Controls** button appears on the **QAT**.
2. Click on the **Insert Controls** button and select the control that you want to add. In this case, choose the **Combo Box** as shown in **Figure 67**.

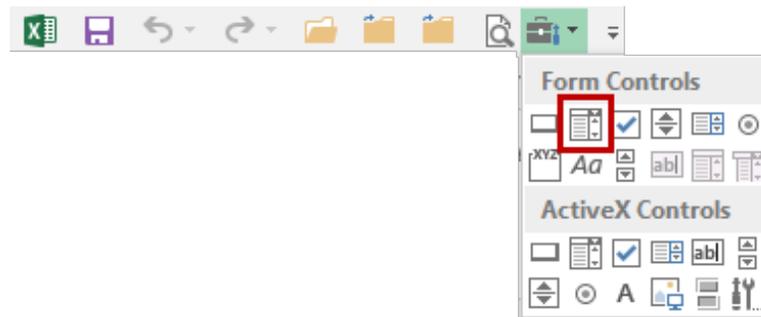


Figure 8 - Selecting a Combo Box Control on the Forms Toolbar

3. Click on the worksheet at the location where you want to place the control and drag the control to the appropriate size. In this case, we placed the control just over cell C9.
4. Right-click on the control and choose **Format Control**. Enter the data as displayed in **Figure 9**. Note the use of the defined names in place of cell references when specifying the **Input range** and **Cell link**.

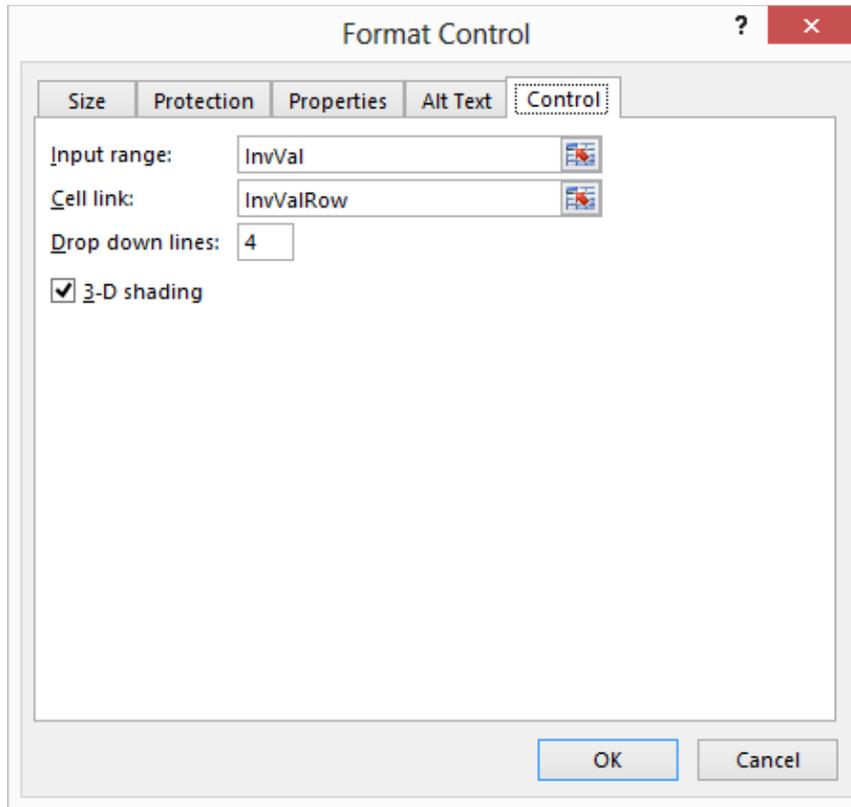


Figure 9 - Formatting a Combo Box Form Control

The other combo boxes for fiscal year end, depreciation method, period, and period end are created and formatted similarly. Now, let us examine how the inventory valuation method selected in the combo box is used in the workbook. Navigate to the Notes to Financials worksheet and then to paragraph C of the Summary of Significant Accounting Policies as shown in **Figure 10**. The second sentence in that paragraph uses a formula to concatenate the inventory valuation method selected in the combo box.

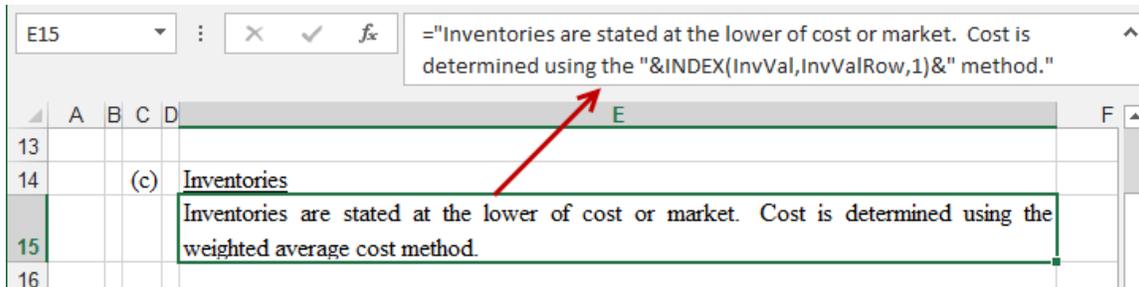


Figure 10 - Footnote Built Using Selection from Combo Box

Here is the formula to construct the paragraph.

**= "Inventories are stated at the lower of cost or market. Cost is determined using the
&INDEX(InvVal,InvValRow,1)&" method.**

In this case, the inventory method is chosen using the INDEX function with reference to the defined names **InvVal** and **InvValRow**. As the values in those defined names change, the sentence updates automatically to reflect the change.

Also used in this worksheet are Camera pictures to produce supplementary schedules in the footnotes as shown in **Figure 11**.

(6) Property, plant and equipment are as follows:

	2012	2011
Leasehold Improvements	\$ 379,778	\$ 370,778
Machinery and Equipment	1,278,229	1,264,582
Computer Software	186,218	179,068
	\$ 1,844,225	\$ 1,814,428

Figure 11 - Using Camera Objects for Supplemental Schedules in Footnotes

The Camera ranges are located on the Ad Hoc Notes worksheet. Camera pictures are used so that the supplemental schedules can have column widths and formatting independent of the general area in which they are inserted. The use of Camera pictures is covered in Chapter Two.