

COMPUTATION BOOK FORMS

- The Florida Department of Transportation has modified the Computation Book Forms to assist the user in usability and accuracy while entering data.
- The Computation Book Forms are now formatted as worksheets in Microsoft Excel.
- The 2001 Basis of Estimates (BOE) manual, until revised, is the required edition for all 2001 and later jobs, until the manual is revised.

The following steps will explain the processes to enter data in the revised Computation Book Forms. Please follow each step exactly or the forms will not work properly.

Gathering Data:

There are four steps to follow at the beginning of a project to ensure all the information to complete the forms is available. The steps are listed in the sequential order they should be followed:

1. Determine if the job is Metric or English.
2. Make a list of the pay items.
3. List the accuracy of each pay item from the current BOE manual.
 - The accuracy for the example below is “Each” and the accuracy would be entered in the Excel Computation Book Form as “1”.
 - The following table is a list of accuracy designations that the BOE manual may use and the equivalent numerical representation for the accuracies that Excel uses. The numeric accuracies should be recorded in the gathered data for each pay item.

BOE Manual Accuracy		Computation Book Form Accuracy
Assembly	Per Analysis	1 *
Cubic (unit of measure)	Per Hour	
Each (unit of measure)	Per Intersection	
Linear (unit of measure)	Per (unit of measure)	
Location	Per Well	
Lump Sum	Square (unit of measure)	
Man Hour	Unit of Measure	
10 th of a Unit of Measure		0.1
100 th of a Unit of Measure		0.01
1000 th of a Unit of Measure		0.001

4. List the Computation Book Form for each pay item from the current BOE manual.
 - The example below is “COMP 700-050-03”.

709- 3a-	PAVEMENT MESSAGES, TWO REACTIVE COMPONENTS
English Item(s):	Unit EA <u>Accuracy Each</u>
	Detail
	Reference
Metric Item(s):	Original, Design <u>COMP 700-050-03/3a</u> CADD 625-000-02/22
2709- 31-	Locate in contract plans, summarize quantities by location on tabulation of quantities sheet (CADD 625-000-02) in the plans.
	Final, Construction
	Final quantity must be recorded in space provided on tabulation sheet in plans. All changes must be shown on final plans sheets. (If it is not feasible to use plan sheets, record final measurements in a field book and transfer final quantity to CADD form.
Plan Quantity?	
no	FEPDM Chapter(s) 7, 13

In the BOE 2001 Manual, a chart of the Computation Book Forms is on Page 1-2. (See below).

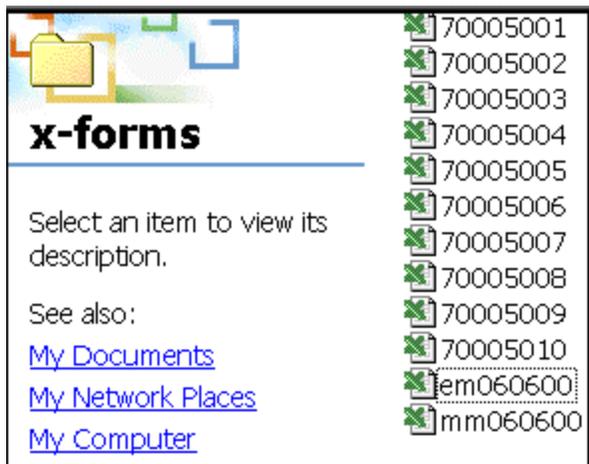
<i>Form Number</i>	<i>Form Title</i>	<i>CADD Form Number</i>
700-050-01	Area Computations	FORM1
700-050-1a	Area Computations Continuation	FORM1A
700-050-02	Curb and/or Gutter Computation	FORM2
700-050-2a	Curb and/or Gutter Computation Continuation	FORM2A
700-050-03	Linear Measurement, Component Weight, Per Hour, Per Day or Per Each Computations	FORM3
700-050-3a	Linear Measurement, Component Weight, Per Hour, Per Day or Per Each Computations Continuation	FORM3A
700-050-04	Volume Measure Items	FORM4
700-050-4a	Volume Measure Items Continuation	FORM4A
700-050-05	Lump Sum Quantities	FORM5
700-050-06	Weight Measure or Liquid Volume Computations	FORM6
700-050-6a	Weight Measure or Liquid Volume Computations Continuation	FORM6A
700-050-07	Concrete & Reinforcing Steel Computations	FORM7
700-050-7a	Concrete & Reinforcing Steel Computations Continuation	FORM7A
700-050-08	Piling Tabulation	FORM8
700-050-8a	Piling Tabulation Continuation	FORM8A
700-050-09	Linear Measurement Computation with Components	FORM9
700-050-9a	Linear Measurement Computation with Components Continuation	FORM9A
700-050-10	Computation Book Pay Item Summary Sheet	NA
700-050-11	Computation Book Pay Item Summary and Certification Sheet	NA
The following are Final Estimates Site Source Records		
700-050-50	Off Duty Police Officer	NA
700-050-51	Daily Log Sheet, Maintenance of Traffic	NA
700-050-52	Daily Log Sheet (Striping)	NA
700-050-54	Daily Report of Truck-Measured Material	NA
700-050-55	Daily Log Sheet for Tracking Grassing Items	NA
700-050-56	Daily Log Sheet for Miscellaneous Items	NA

Copy Forms to Project Directory:

The Excel forms are programmed to work from a single directory; therefore, all files for the Computation Book Forms MUST be copied from the FDOT 2000 base directory to the project directory.

The following steps are based on having the FDOT 2000 software installed on the local disk drive, <C:. The **Create Project** program creates a folder named **compbook** in the project directory.

1. To **C**opy the Computation Book Forms files from the base location:
 - a. Locate **Windows Explorer** and open. Possible locations may be:
 - 1) On the desktop; or
 - 2) Go to **Start < Documents < My Documents**.
 - Possible file location: **c:/WINNT/explorer** and double click to open.
 - b. Possible location of Computation Book Form files: **C:/FDOT2000/geopak/Comp_Rpt/x-forms**. If the files are not located in this directory, contact the Systems Administrator for their location.
 - c. Click on the first Excel file in the x-forms folder, **70005001.xls**. This will be listed first if the icons are arranged by Name or by Type.



- d. Hold down the **[Shift]** key and click on the last file, **mm060600.xls**. This will highlight all the files.
 - e. Right click in the highlighted area and choose **C**opy; or go to the toolbar menu and choose **E**dit < **C**opy.
2. To **P**aste the Computation Book Forms into the project directory:
 - a. In **Windows Explorer**, go to the **compbook** folder in the project directory.
 - b. **P**aste the files in the open folder.
 - 1) Click on the **compbook** folder;
 - 2) Right click on the highlighted folder and choose **P**aste; or
 - 3) Go to **E**dit < **P**aste on the toolbar menu.

All the Excel Computation Book Forms files should be in the project directory and data can be entered from the pay item information previously gathered.

Check for the Latest Version of Pay Items List:

The listings of all the pay items are in the following two files: **em060600.xls** and **mm060600.xls**. The following is a breakdown of how the files are named:

- **em** English manual
- **mm** Metric manual
- **060600** June 6, 2000 (This date can change depending on the date the Florida Department of Transportation Estimates Office creates the latest version of the pay items listing files.)

The files used in these instructions were created on June 6, 2000. There are two ways to access the FDOT Estimates Office current pay items listing:

1. The following note is at the bottom of the **Setup** worksheet in every form and will link to the FDOT web site for the Estimates Office updates by clicking on **download.htm**.

NOTE: If the **Select Pay Item** list is blank, open the current Basis of Estimates file first. It is available from the FDOT web site: [download.htm](#)

- Click on the [download.htm](#) in the Setup worksheet and it will link to the FDOT web site for the Estimates Office updates; or
2. Open an Internet browser and go to the FDOT web site by typing the following URL address: www.dot.state.fl.us/estimates/2001BOE/download.htm.

Creating the Pay Item File:

Open **Windows Explorer** and go to the **compbook** folder in the project directory. Choose one of the two files below depending on the type of job: English or Metric.

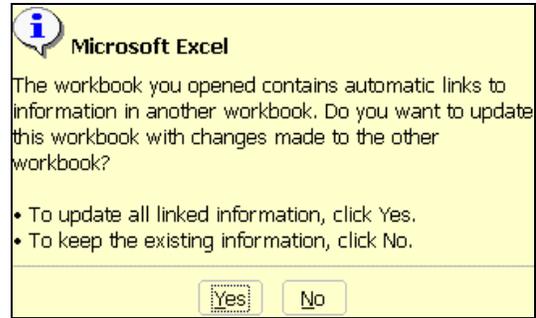
1. English Job
 - Choose file **em060600.xls** (or the latest file) and rename the file to **PayItem.xls** (no space).
 - Open **PayItem.xls** and rename the worksheet tab at the bottom left of the worksheet to



Be careful when renaming the files to **PayItem.xls**. Do not leave a space in between Pay and Item; otherwise, the following message will appear when a form is opened:

2. Metric Job

- Choose file **mm060600.xls** (or the latest file) and rename the file to **PayItem.xls** (no space).
- Open **PayItem.xls** and rename the worksheet tab at the bottom left of the worksheet to



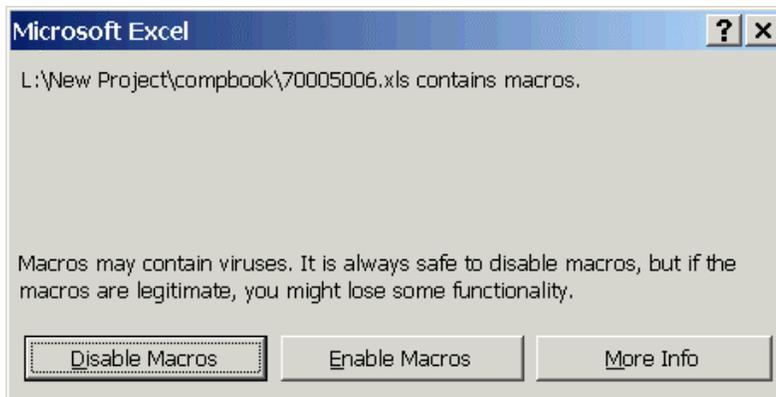
Click **No**. Exit out of the existing **Pay Item.xls** file and return to **Windows Explorer**. Rename the **Pay Item.xls** file to **PayItem.xls**.

The **PayItem.xls** file *MUST* be opened prior to opening any *Computation Book Forms files*. Once **PayItem.xls** is opened, any *Computation Book Form file* can be accessed.

Opening Excel Computation Book Forms:

Use the pay item information gathered (see [Gathering Data](#)) to begin entering information in the forms:

1. Go to the project directory folder in **Windows Explorer**. Keep **Windows Explorer** open while the Excel worksheets are open. This will allow fewer steps to access the *Computation Book Forms files*.
2. Open **PayItem.xls**.
3. Return to **Windows Explorer** and open the first form listed for a pay item.
4. The following message will appear on the screen:



The **Enable Macros** message will appear every time a *Computation Book Forms file* is opened.

ALWAYS choose **Enable Macros** for each *Computation Book Form file*.

5. Click on **Enable Macros** and the form will open.

The following is *Computation Book Form 700-050-05* and it has been numbered with five different selection areas, which are similar in all the forms. A breakdown of which forms use which selection areas are also listed.

Computation
Book Forms

- 700-050-01
- 700-050-02
- 700-050-03
- 700-050-04
- 700-050-05
- 700-050-06
- 700-050-08
- 700-050-010
- 700-050-011

Select Pay Item

102- 2- 1
102- 2- 2
102- 2- 3
102- 2- 4
102- 2- 5
102- 2- 6
102- 2- 7
102- 2- 8
102- 2- 9
102- 2- 10
102- 2- 11
102- 2- 12
102- 2- 13
102- 2- 14
102- 2- 15
102- 2- 16
102- 2- 17
102- 2- 18
102- 2- 19
102- 2- 20
102- 2- 21

Select a pay item.

Note how the **Pay Item Unit:** in the **Selected Pay Item** section changes depending on the pay item chosen. This will also match the column in the worksheet which has a unit measurement.

Computation
Book Form

- 700-050-07

Select Pay Item

[Volume Component]

350- 78-
352- 70-
353- 70-
353- 72- 2
353- 72- 3
353- 72- 4
353- 72- 14
354- 70-
370- 1-
400- 1- 1
400- 1- 2

[Weight Component]

410- 70- 83
410- 70- 84
410- 70- 96
410- 70-103
410- 70-106
410- 70-127
410- 70-186
410- 70-198
410- 70-248
415- 1- 1

This form has two separate pay items on the same sheet. Choose the pay item from each data field:

1. Volume Component
2. Weight Component

Computation
Book Form

700-050-09

Select Pay Item
(Linear Component)

530- 77- 2
530- 77- 3
530- 78-
532- 70-
534- 70-
534- 72- 2
536- 1- 1

(Each Component 1)

536- 1- 9
536- 1- 10
536- 2-
536- 7-
536- 8-
536- 8- 1

(Each Component 2)

536- 8- 4
536- 8- 5
536- 8- 6
536- 73-
536- 75-
536- 76-
536- 82-

This form has three separate pay items on the same sheet. Choose the pay item from each data field:

1. Linear Component
2. Each Component 1
3. Each Component 2

Selected Pay Item (2):

All fields for "Selected Pay Item" are automatically input when a pay item and accuracy are selected. Although the fields are accessible and data can be entered directly into a cell, the existing formula will be overwritten. Only add information and overwrite a formula to add a new pay item not listed in the Pay Item workbook.

Selected Pay Item

Pay Item Number: 110- 4-

Pay Item Description: PAVEMENT REMOVAL OF EXISTING CONCRETE

Pay Item Unit: SY **Pay Item Unit Accuracy:** 1

Select Accuracy (3):

Computation Book Forms

- 700-050-01
- 700-050-02
- 700-050-03
- 700-050-04
- 700-050-06
- 700-050-08
- 700-050-010
- 700-050-011

The accuracy for each pay item is found in the BOE manual and explained in the [“Gathering Data”](#) section above.

Computation Book Form

- 700-050-05

Secondary Unit Item

Computation Book Form

- 700-050-07

Computation Book Form

- 700-050-09

Select Units (4):

Computation Book Forms

English or Metric is the same for all forms.

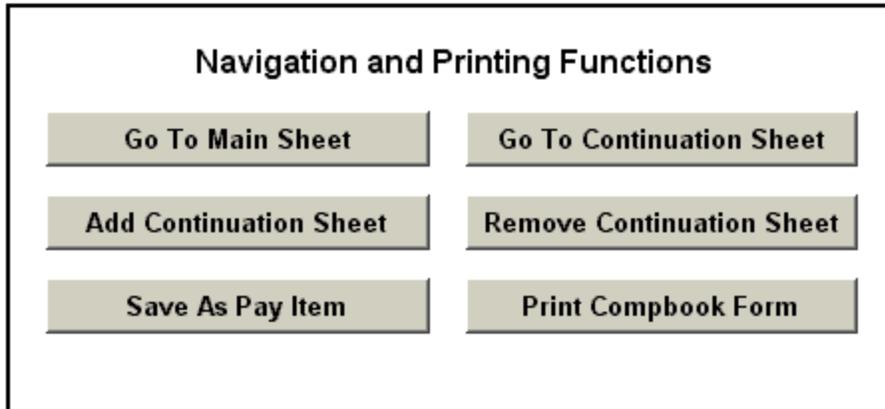
Choose either English or Metric. This sets the accuracy of stationing and the length and width entries as follows:

- English = 2 decimal places

- Metric = 3 decimal places

Navigation and Printing Functions (5):

When all the above choices have been made (Pay item, Accuracy, and Units), information can be entered into the worksheet forms. The following will explain the buttons that access the forms:



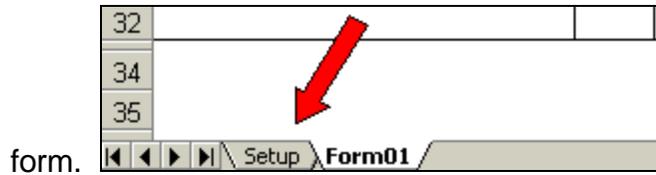
Note the naming format for the locator tabs at the bottom of each worksheet. Clicking on the tabs will allow movement within the workbook. The following illustration is an example of Form 700-050-02 with an explanation of each tab:

35	
Setup	This is the Setup worksheet for every form.
Form02	This is the first page for Form 700-050-02. (For example, the tab for Form 700-050-03 would be Form03 .)
Form02A_P1	These are the continuation pages for Form 700-050-02. Each continuation form is named as follows:
Form02A_P2	<ul style="list-style-type: none"> • The form's last two numbers (02); • The extension A to represent a continuation page; and • P(number) to represent the page number for the form. The first continuation page is _P1; the second page is _P2, and so on.

1. Go To Main Sheet:

Click on the **Go To Main Sheet** button and the first page of the form will open. Begin entering information as described in the [Excel Basics](#) instructions.

To return to the **Setup** worksheet, click on the **Setup** button at the bottom left of the current



form.

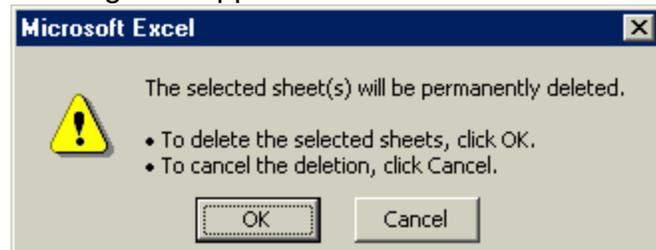
2. **Add Continuation Sheet:** To add an additional sheet to the form, click on the **Add Continuation Sheet** button.

Excel will automatically add a continuation sheet to the end of the worksheet and adjust the formula for the grand total on the first sheet.

3. **Go To Continuation Sheet:** To go to the last continuation sheet click on the **Go To Continuation Sheet** button. This will move to the last continuation sheet in the form.

4. **Remove Continuation Sheet:**

To remove the last continuation sheet, click on the **Remove Continuation Sheet** button. The **Setup** worksheet will automatically move to the last continuation sheet created. The following message will appear:



Choose **OK** or **Cancel**. If **OK** is chosen, the sheet will be removed and the Grand Total formula will automatically be reset.

5. **Save as Pay Item:**

Each pay item must be saved to the current directory. Click on **Save as Pay Item** and the form will automatically be saved in the project directory as **[pay item number].xls**. Do not move these files or rename them.

When the **Save as Pay Item** button is chosen for a form which was previously saved, the following message will appear:



Choose **Yes** to overwrite the existing file and save all the changes made.

- All English pay items will start with a zero or one.
- All Metric pay items will start with a two or three.

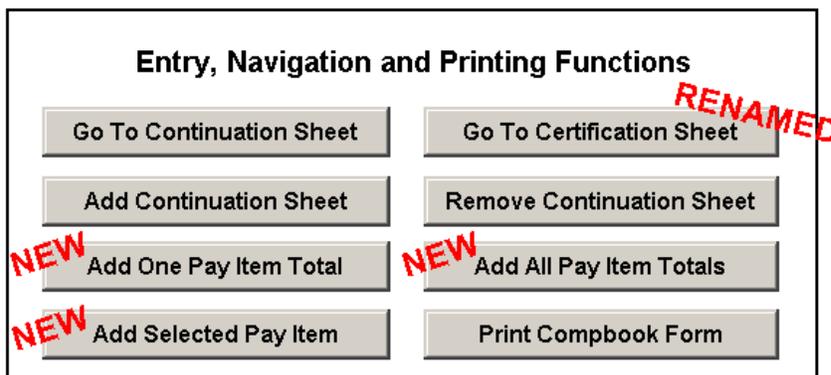
The numbers are formatted in this manner to numerically sort them for the summary sheet.

6. **Print Compbook Form:**

The printer setup should already be set. See the Printing section of the [Excel Basics](#) instructions for more detail. To print, click on the **Print Compbook Form** button and it will print to the default printer, legal size, and landscape orientation.

Summary and Certification Sheet:

The Summary and Certification sheet will summarize all the pay item sheets. The Navigation and Printing Functions are similar but there are some differences due to additional options.



The NEW and RENAMED options are listed below:

1. **Add One Pay Item Total** Choose this option to add the new total of only one pay item, which has been changed. This will save

time because only the specified pay item will be recalculated, not the whole form.

When chosen, an open dialog box will open for the user to pick an Excel workbook to retrieve the pay item to add to the summary sheet.

2. Add Selected Pay Item

Choose this option to add a selected pay item to the summary sheet. In the **Setup** sheet:

1. Select the pay item to add.
2. Choose **Add Selected Pay Item**. The pay item will be added to summary sheet.
3. To view: choose the last page of the form 10 tab (below left of screen). The quantity will automatically be entered as "1".

3. Go To Certification Sheet

This will go to the last worksheet, which is the certification sheet.

4. Add All Pay Item Totals

Excel will look for every workbook in the current directory, which the summary sheet opened. It only processes workbooks which were saved with the **Save As Pay Item** button.

If multiple pay items have been edited, choose this option and all the pay items will be re-calculated with the correct total. If this is the first time to summarize the pay items, choose this button.

SAVE AS PAY ITEM is no longer a function key. To save the summary sheet:

1. Choose **File < Save As**.
2. Choose the **compbook** folder in the project directory.
3. **Save As < Summary.xls**.