



**ERP Consulting**  
**Web Development**  
**Custom Programming Solutions**  
**Desktop & Web Applications for Manfact**

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# **NorthClark Computing, Inc.**

## **Cost Estimating**

### **User Guide**

#### **Web and Desktop Applications for Manfact by Epicor**

**July 1, 2007**

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## **Introduction**

The Cost Estimating Module is an automated search, retrieval, and tabulation process to be used in the development of estimated costs.

Although the program may be run in stand-alone mode, it is most powerful when connected to the Manfact database. While connected, various files are utilized to support the estimating process including; bills of material, routings, vendor quotes, purchasing history, and work order history. Once the desired data has been extracted, the user may continue to refine the estimate in "offline" mode.

- ❑ The estimate is developed using a hierarchical structure that allows costs to be rolled-up and reported at various levels.
- ❑ The application uses a flexible spreadsheet format that allows the user to easily add and delete items from the estimate, and change the structure of the estimate.
- ❑ Estimated hours and amounts are stored by user-defined cost categories called Resources. Various estimating parameters are defined for each resource including: labor rate, mark-up percent, escalation rate, complexity factor, etc. (*See Resources Display for more information.*)
- ❑ The estimate may be developed for a specified quote quantity, taking into account smaller per-unit setup costs and more favorable prices due to larger purchasing quantities.
- ❑ A bill of material may be automatically loaded from the Manfact database and copied into the estimate. Each component of the BOM then becomes a line item on the estimate, which may be modified by the user as desired. (*See Load Bill of Material for more information.*)
- ❑ The system stores multiple cost sources for each estimate line item. Cost sources may be entered by the user, or obtained automatically from the Manfact database. For purchased parts, cost sources include purchase order history, vendor quotes, and current quantity on-hand. For assemblies, labor costs may be based on either a standard routing or work order history. (*See Cost Sources Display for more information.*)
- ❑ The system calculates a suggested selling price based on the desired profit percentage specified by the user. Profit requirements may vary by resource code if desired.
- ❑ To provide additional reporting flexibility, the estimate may be exported to Microsoft Excel or Microsoft Word. (*See Exporting to Excel or Exporting to Word for more information.*)

Each estimate is maintained as an individual Access database. These files may be stored on the user's local hard-drive or on a network drive. Thus, estimates may be easily copied or shared among different users using standard Windows desktop tools.

## Cost Estimating

The main screen is comprised of six "tabs".

**Estimate:** The Estimate Display is presented in spreadsheet format. Each row in the spreadsheet represents an item that will contribute to the total cost of the project.

**Item Detail:** The Item Detail Display contains more in depth information, including detailed information on labor and operating costs, for each item or row from the Estimate Display.

**Cost Sources:** The Cost Sources Display contains detailed cost source information for each item or row from the Estimate Display, and allows the user to choose from multiple cost sources.

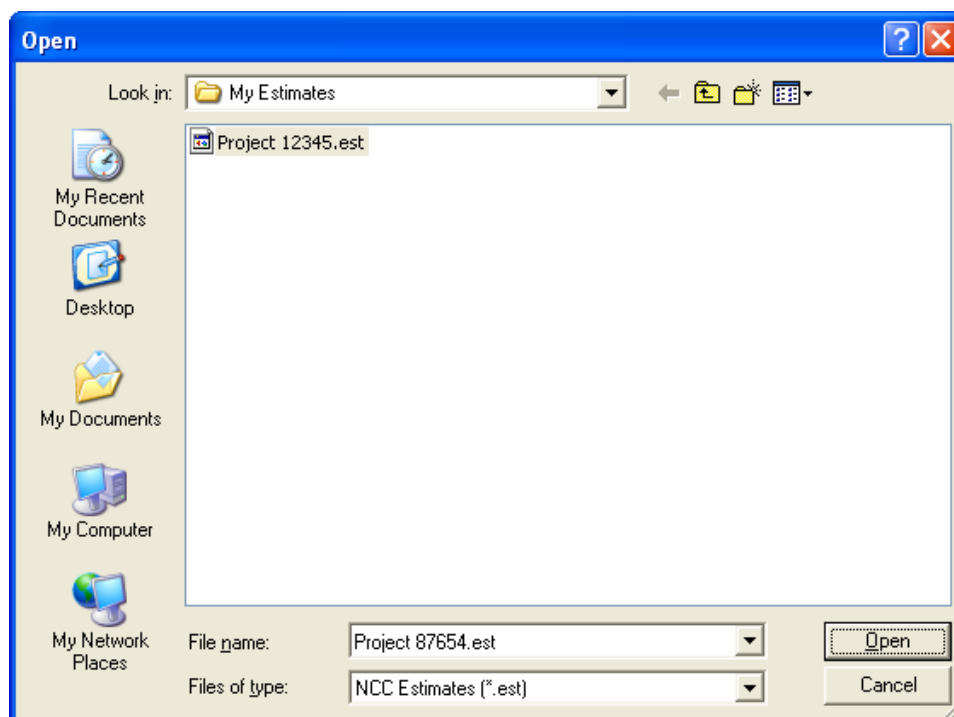
**Summary:** The Summary Display contains categorized project costs, calculated price and estimated profit for the project.

**Resources:** The Resources Display contains detailed resource information for each item or row from the Estimate Display.

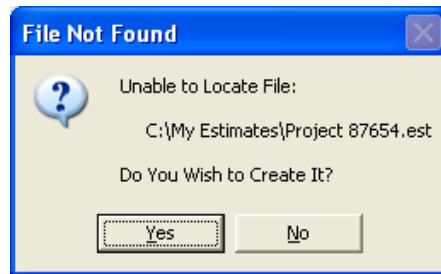
**General:** The General Display contains estimate and customer information and user notes.

## Open / Create an Estimate Database

To create a new Estimate, select *Open/Create an Estimate* from the *File* Menu.



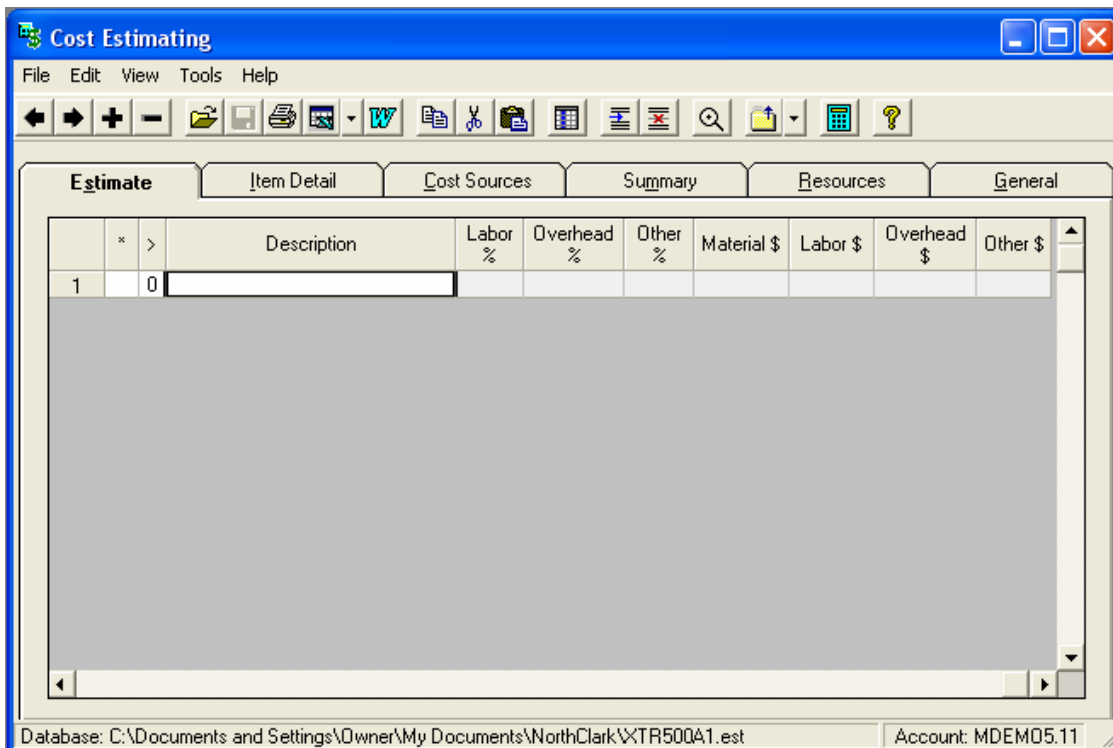
Browse to the folder where you wish to store your estimates. Open an existing file, or type the name of a new Estimate File you wish to create and click the **[Open]** button. If the estimate file does not exist, the following message is displayed:

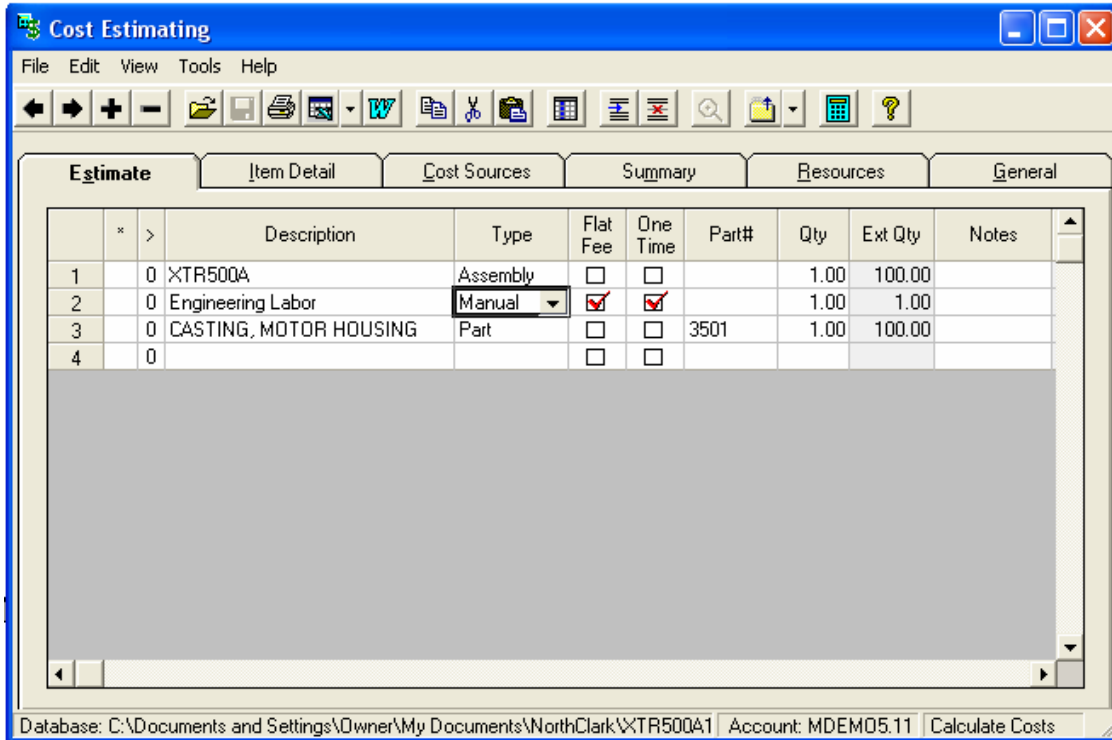


Click **[Yes]** to create a new Estimate File.

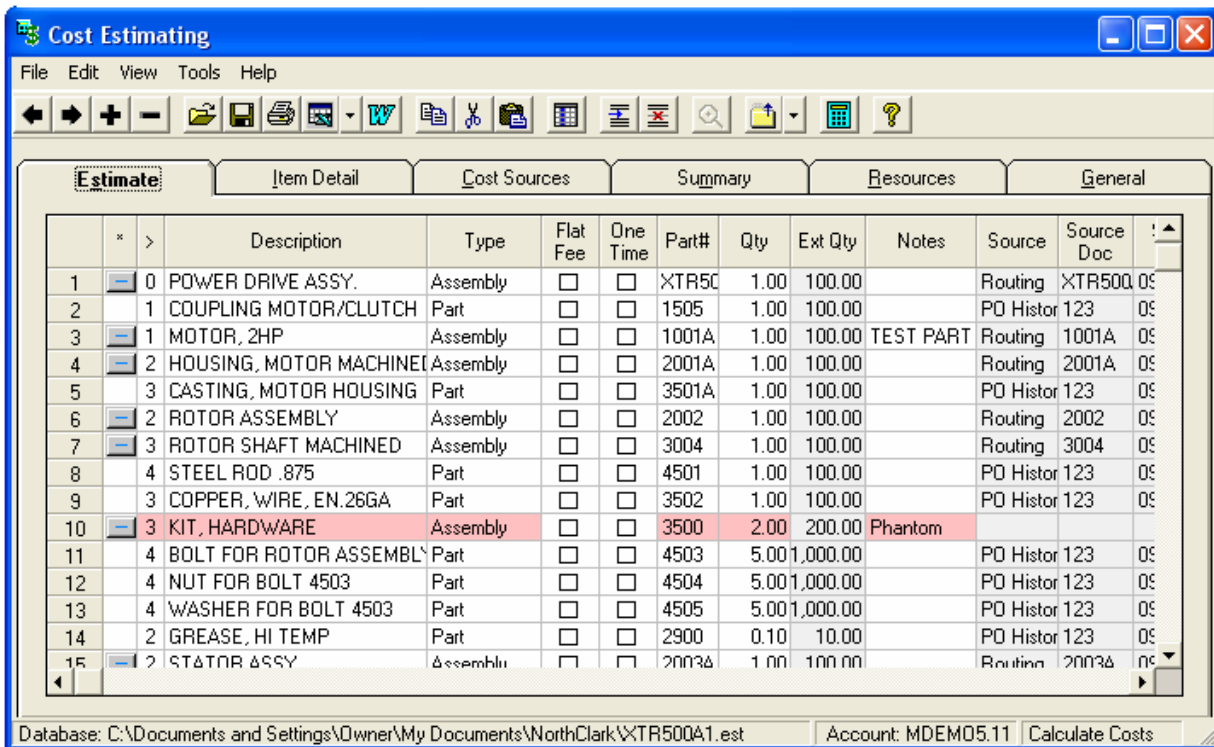
### Creating a New Estimate

Each row in the Estimate Display represents an item that will contribute to the total cost of the project. The item may be an assembly, a component part, a manual estimate, a separate project, or summary.





Any row in the Estimate Display that contains an error will be highlighted in RED.



Most Errors that occur in the Cost Estimating Module stem from a lack of data. Note that in the above screen shot, no Cost Source data has been entered in the highlighted rows. If said data is not available

from Manfact, you will need to research and enter the correct information. In this example the missing data is a routing for a phantom assembly. This would be an example of when you can clear an error.

By selecting "Errors" from the Edit menu, there are four options for handling Line Item (row) Errors.

- ❑ **View Errors** will display a line-by-line list of errors.
- ❑ **Selectively Clear Current Line Errors** allows the user to select which line errors to clear.
- ❑ **Clear All Current Line Errors** clears all errors on the current line.
- ❑ **Clear All Errors on All Lines** clears all errors on all lines.

\* Remember, if you clear line errors, and do not enter data in the cells in question, you will not be calculating that information in your Estimate.

***The following columns are displayed:***

<b>Column Name</b>	<b>Description</b>
[+] or [-]	The estimate is a hierarchical structure displayed in outline form. Click [+] to expand an item and see constituent parts, or [-] to collapse and hide constituent parts.
Level	The roll up level of the item.
Description	The name or a brief description of the item.
Type	Select from the drop-down menu. Each item (row) will be one of the following types: <ul style="list-style-type: none"><li>• <b>Assembly:</b> Bill of material and routing data may be loaded from the Manfact database. Labor costs may be estimated using routings and/or historical work order data.</li><li>• <b>Part:</b> Vendor quotes and purchasing history may be used to estimate the cost.</li><li>• <b>Manual:</b> the user must enter all values.</li><li>• <b>Summary:</b> A subtotal line.</li></ul>
Flat Fee	Check for Flat Fee Items.
One Time	Check for One-Time Items.

Column Name	Description
Part Number	The Part Number is displayed for Assemblies and parts. Where applicable, the user may enter the part number, or it may be updated by the system when a bill of material structure is loaded onto the estimate.
Qty	The quantity of this item required to produce one unit.
Ext Qty	The unit quantity of this item multiplied by the quote quantity. ( <i>See General Display.</i> )
Notes	Any applicable notes for each row.
Source	The source used to estimate cost for this row. (Routing, Work Order History, Vendor Quote, Purchase Order History, or Manual Estimate.)
Source Doc	The identifier of the document used to estimate this row. (Work Order Number, Purchase Order Number, Quote Number, or Routing Identifier.)
Source Date	The date of the Source Document.
Source Qty	Source Quantity as of the Source Date.
Inc Cost	The incremental cost of the row, excluding any costs rolled-up from lower levels of the estimate.
Sub Cost	The portion of the total cost rolled up from lower levels of the estimate (system calculated).
Total Cost	Total estimated cost for the row (item).
Inc Hours	Incremental Hours of the row, excluding any hours rolled-up from lower levels of the estimate.
Sub Hours	The portion of the total hours rolled up from lower levels of the estimate (system calculated).
Total Hours	Total estimated hours for the item.
Material %	The total material cost of this row, divided by the total material cost of the estimate.
Labor %	The total labor cost of this row, divided by the total labor cost of the estimate.
Overhead %	The total overhead cost of this row, divided by the total overhead cost of the estimate.

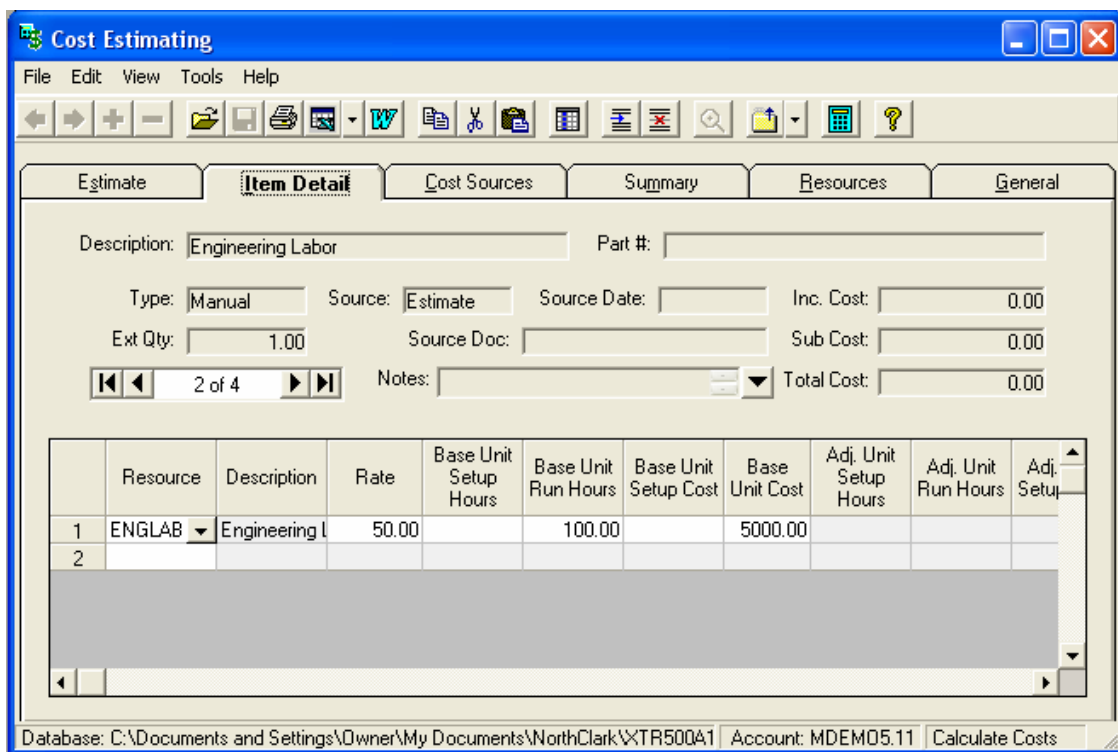


Column Name	Description
Other %	Any other cost of this row, divided by the total miscellaneous cost of the estimate.
Material \$	Dollar amount for Material Cost of this row.
	Dollar amount for Labor Cost of this row.
Overhead \$	Dollar amount for Overhead Cost of this row.
Other \$	

### Item Detail

This screen displays specific details, including labor and operating costs, for selected items or rows from your Estimate. The upper section displays Descriptive, Source, Quantity, and Cost data for the item.

Use the "Scroll Box" to navigate to other line items.



*The following columns are displayed:*

<b>Column Name</b>	<b>Description</b>
Resource	Resource Code or abbreviation.
Description	Resource Description.
Rate	Resource Rate used for calculation.
Base Unit Setup Hours	Per-unit setup hours for each resource.
Base Unit Run Hours	Per-unit run hours for each resource.
Base Unit Setup Cost	Per-unit setup cost for each resource.
Base Unit Cost	Total per-unit Cost for each resource, excluding any values rolled-up from lower levels of the estimate.
Adj. Unit Setup Hours	Unit Setup Hours may be adjusted for unforeseen difficulties or to adjust final cost.
Adj. Unit Run Hours	Unit Run Hours may be adjusted for unforeseen difficulties or to adjust final cost.
Adj. Unit Setup Cost	
Adj. Unit Cost	

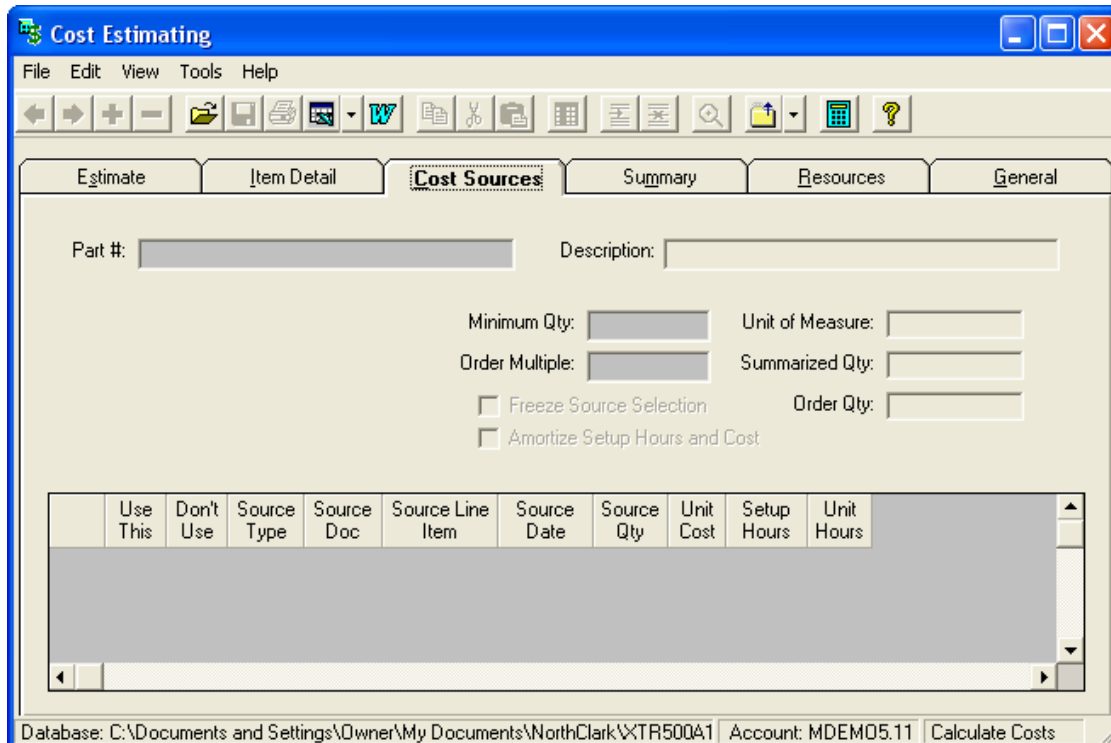
## **Cost Sources**

This screen displays detailed cost source information and options for items selected from your estimate.

The information shown on the Estimate Display represents the cost source currently selected for the row. You may scroll through a list of available sources and optionally select a different cost source for the item.

- Use the "Scroll Box" or the "Scroll Arrow" (next to the Part #) to navigate to other line items.
- Click the "Load Sources" Button to Load Cost Sources from Manfact. (The line directly below displays the last date and time Cost Sources were loaded.)
- Click "Best Fit" to allow the Cost Estimating Module to automatically select cost sources, based on order quantity and date.
- Click the checkbox to Freeze Source Selection.

- Click the [Recalculate] Button to recalculate Summarized Qty. and Order Qty. (You may edit Minimum Qty. and Order Multiple from this screen.)



*The following columns are displayed:*

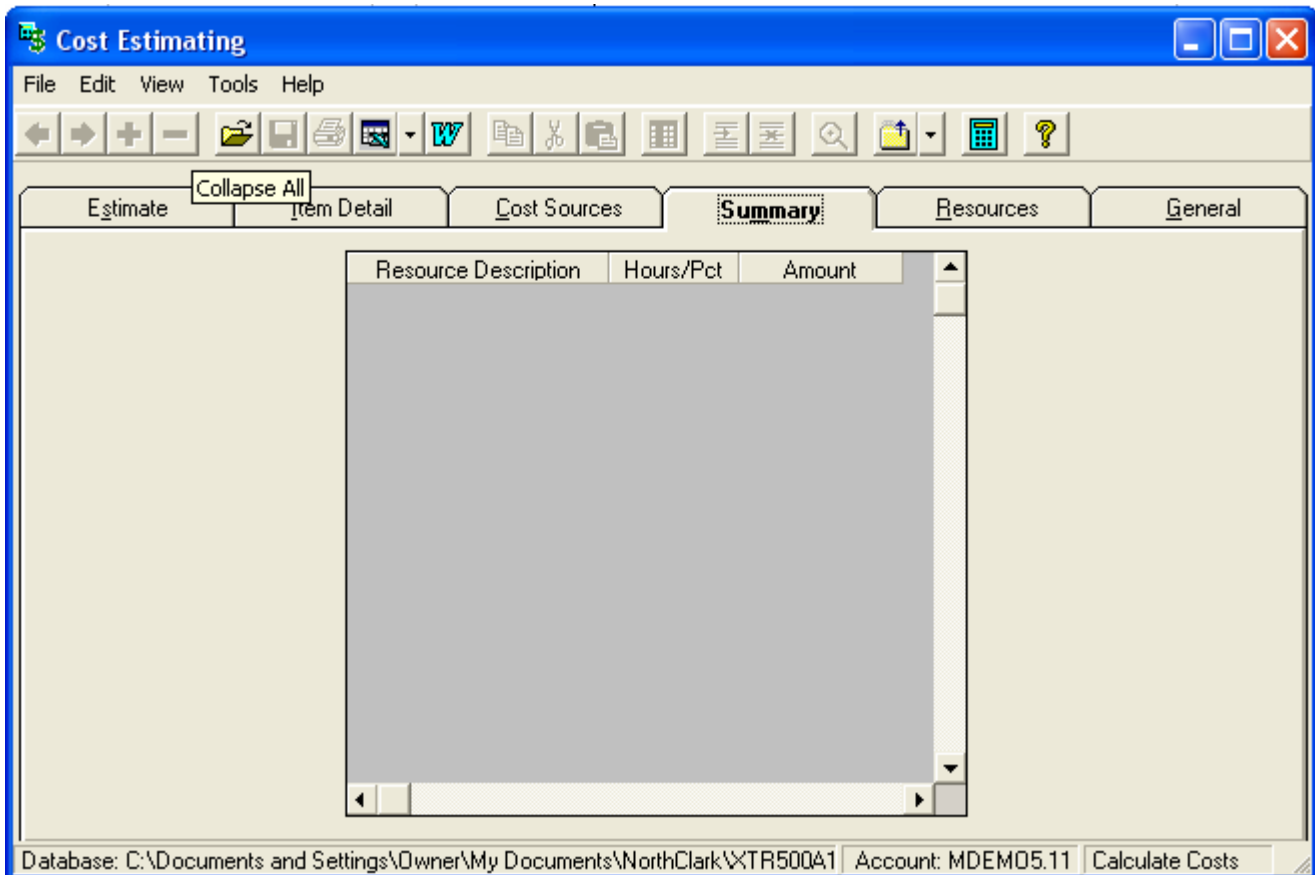
Column Name	Description
Use This	Click to select which cost source data to use in your Estimate.
Don't Use	Click to ignore this data in your Estimate.
Source Type	Displays the source type for the line item.
Source Doc	Cost Source Documentation. (Work Order, Purchase Order, or Routing Number).
Source Line Item	Line number on Cost Source Type (if applicable).
Source Date	The Date of the Cost Source documentation used.
Source Qty	Source Quantity as of the Source Date.
Unit Cost	Per-unit Cost of the item.
Setup Hours	Hours required for Setup.

Column Name	Description
Unit Hours	

## Summary

After calculating your Estimate, this screen will display summarized Cost Information with user defined sub totals for related Resources.

It also displays Total Estimated Cost, Calculated Price, and Estimated Profit for the project.



## Resources

The cost of an item may be broken down into multiple user-defined cost buckets called resources. In the Manfact system, resources may be assigned to Work Centers to categorize labor. In addition to labor, your company defines other types of resources including material, outside processing, fixed overhead, variable overhead, miscellaneous overhead, cost of money, and profit.

Scroll down to see definitions of all columns displayed. (Additional columns become visible as the screen is scrolled to the right.)

The screenshot shows the 'Cost Estimating' application window. The 'Resources' tab is active, displaying a table with the following data:

	Resource Code	Type	Description	Rate	Hours or Amt	Complexity Factor	Escalation Rate	Profit %	Cost of Money %	Base Resources
1	MTL	Material	Direct Material				0.00	100.00		
2	LAB	Labor	Direct Labor	10.00	Hrs	1.00		100.00		
3	OPC	Outside Proc.	Outside Processing				0.00	100.00		
4	ENGLAB	Labor	Engineering Labor	50.00	Hrs			100.00		
5		Sub-Total	Total Direct Cost							
6	FOH	Fixed Ovhd	Fixed Overhead	150.00	Amt			100.00		ENGLAB
7	VOH	Var. Ovhd	Variable Overhead	300.00	Amt			100.00		ENGLAB
8	MOH	Other Ovhd	Misc. Overhead	25.00	Amt			100.00		ADJ
9		Sub-Total	Total Overhead							
10	ADJ	Material	Adjustment				0.00	100.00		
11		Sub-Total	Total Direct Cost							
12										

Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est Account: MDEM05.11 Calculate Costs

The following columns are displayed:

- Resource Code - Resources are coded by type or process.
- Type - Select Line Item Type from the pull down menu. Each Item will be one of the following types:
  - Material:** Any Material Resource used.
  - Labor:** Any Process that requires labor.
  - Fixed Ovhd.:** (Fixed Overhead) Resources with fixed overhead or cost.
  - Var. Ovhd.:** (Variable Overhead) Resources with variable overhead or cost.
  - Other Ovhd.:** (Other Overhead) Any miscellaneous overhead or cost.
  - Outside Proc.:** (Outside Process) Any cost incurred via outside services or processes.
  - Other Cost:** Any resource that does not fit the above categories.
  - Subtotal:** The Summary Display will show a subtotal for any sets of resources between Subtotal rows in this

	Display.
Description	- A description of Resource Code or Resource Type.
Rate	- Rate used for calculating Labor or Overhead.
Hours or Amt.	- For overhead resources, specify whether the calculation is based on labor hours or resource amounts.
Complexity Factor	- This factor may be used to inflate (or deflate) the estimated labor hours for a specific resource during the cost roll-up process. The hours are simply multiplied by the entry you make in this field.
Escalation Rate	- This is an inflation rate per year that may be applied to material costs. The following formula applies: Estimate = $Q * (R + 1)^T$ Q = Price Quoted R = Escalation Rate (expressed as a decimal) T = Time in years  For example, we have a quote for \$100 that is one year old, and we expect to begin production one year from now. So the quote will be two years old by the time we are ready to purchase the material. Assume an escalation rate of 3% per year. Our estimated cost is: $100 * (1.03)^2 = \$106.$
Profit %	- Profit percentage for item or process.
Cost of Money %	- Enter Cost of Money % or interest rate for resources that tie up capital over time.
Base Resources	-

### General

This screen displays general information on your estimate, including customer, model, estimate history, project and profit information.

- Adjust Quote Quantity to calculate for the number of units.

The screenshot shows the 'Cost Estimating' application window. The title bar reads 'Cost Estimating' and includes standard window controls. The menu bar contains 'File', 'Edit', 'View', 'Tools', and 'Help'. A toolbar with various icons is located below the menu bar. The main area is divided into tabs: 'Estimate', 'Item Detail', 'Cost Sources', 'Summary', 'Resources', and 'General'. The 'General' tab is active and contains the following fields:

Estimate Number:	<input type="text" value="1"/>	Revision:	<input type="text" value="A"/>	Customer Name:	<input type="text" value="ABC Power"/>
Description:	<input type="text" value="Power Generator"/>		Model Number:	<input type="text" value="XTR500A1"/>	
Quote Quantity:	<input type="text" value="100"/>	RFQ Date:	<input type="text" value="9 /23/20"/>	Cost Calculated:	<input type="text" value="0.00"/>
Starting Unit:	<input type="text" value="1"/>	Project Start:	<input type="text" value="9 /23/20"/>	Price Calculated:	<input type="text" value="0.00"/>
Award %:	<input type="text" value="0"/>	Submitted:	<input type="text" value="9 /23/20"/>	Price Quoted:	<input type="text" value="0.00"/>
Status:	<input type="text" value="Pending"/>	Won/Lost:	<input type="text" value="9 /23/20"/>	Gross Profit:	<input type="text" value="0.00"/>
Notes:	<input type="text"/>				

At the bottom of the window, the status bar displays: 'Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est', 'Account: MDEM05.11', and a 'Calculate Costs' button.

Common Cost Estimating Procedure

- Set Up Resources
  - Below is a sample copy of what a Resource view might look like.

	Resource Code	Type	Description	Rate	Hours or Amt	Complexity Factor	Escalation Rate	Profit %	Cost of Money %	Base Resources
1	MTL	Material	Direct Material				0.00	100.00		
2	LAB	Labor	Direct Labor	10.00	Hrs	1.00		100.00		
3	OPC	Outside Proc.	Outside Processing				0.00	100.00		
4	ENGLAB	Labor	Engineering Labor	50.00	Hrs			100.00		
5		Sub-Total	Total Direct Cost							
6	FDH	Fixed Ovhd	Fixed Overhead	150.00	Amt			100.00		ENGLAB
7	VDH	Var. Ovhd	Variable Overhead	300.00	Amt			100.00		ENGLAB
8	MOH	Other Ovhd	Misc. Overhead	25.00	Amt			100.00		ADJ
9		Sub-Total	Total Overhead							
10	ADJ	Material	Adjustment				0.00	100.00		
11		Sub-Total	Total Direct Cost							
12										

Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est Account: MDEM05.11 Calculate Costs

- Set Cost Estimating Options (*see Options*)
- Enter Estimate Details (*see Estimate*)
  - If you have entered an assembly Load Data from Manfact – Bill of Materials (*see Load Data from Manfact*). The following is how the view will look after the Bill of Material has been loaded.
  - If you have entered a part or exploded an assembly Load Data from Manfact – Cost Sources (*See Load Data from Manfact*)
  - If you have entered a project Load Data from Manfact – Project (see Load Data from Project).
  - Review the Cost Source information and verify the selection of the source is correct.
    - For Projects select the Project line item on the Estimate page



- Double click the Project line item. This will take you to a blank Item Detail view.
- Click on the Cost Source tab.
- Click on the [Load Sources] button
- Select the Project you want to use for the Estimate.
  - Calculate the Estimate (*see Calculate Estimate*)
  - Review the Estimate Results. As required review the Item Detail or Cost Source view.

*Note, you may show red/pink lines that indicate an error when there really isn't one. This will occur for assemblies coded as XP (Phantom) or Top Level Projects.*

	*	>	Description	Flat Fee	One Time	Part#	Qty	Ext Qty	Notes	Source	Source Doc	Source Date	Source Q
40		3	CASTING, HANDLE COUPLING	<input type="checkbox"/>	<input type="checkbox"/>	3508A	1.00	100.00		PO Histor	124	09/19/06	1.00
41		1	KIT, HARDWARE	<input type="checkbox"/>	<input type="checkbox"/>	1005	3.00	300.00	PHANTOM				
42		2	LARGE BOLT FOR XTR ASSY.	<input type="checkbox"/>	<input type="checkbox"/>	2505	3.00	900.00	1005 IS	PO Histor	123	09/19/06	1.00
43		2	NUT FOR BOLT 4503	<input type="checkbox"/>	<input type="checkbox"/>	2506	3.00	900.00	1005 IS	PO Histor	123	09/19/06	1.00
44		0	Engineering Labor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		1.00	1.00		Estimate			
45		0	CASTING, MOTOR HOUSING	<input type="checkbox"/>	<input type="checkbox"/>	3501	1.00	100.00		Qty On-h			85
46		0	SYSTEM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	100	1.00	1.00					
47		1	PROJECT MANAGEMENT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.1	1.00	1.00		Project B	100.1	10/02/06	
48		1	DESIGN ENGINEERING	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.2	1.00	1.00		Project B	100.2	10/02/06	
49		1	MANUFACTURING	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.3	1.00	1.00		Project B	100.3	10/02/06	
50		1	SUPPORT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.4	1.00	1.00					
51		2	INSTALLATION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.4.1	1.00	1.00		Project B	100.4.1	10/02/06	
52		2	TRAINING	<input checked="" type="checkbox"/>	<input type="checkbox"/>	100.4.2	1.00	1.00		Project B	100.4.2	10/02/06	
53		0		<input type="checkbox"/>	<input type="checkbox"/>								

- Once everything appears accurate, check your Summary view to see the total costs and profits of this Estimate. Below is an example of the Summary view after all actions has been completed.

**Cost Estimating**

File Edit View Tools Help

← → + - [Icons]

Estimate Item Detail Cost Sources **Summary** Resources General

Summary Generated:  
10/02/06 10:44:54 PM

Resource Description	Hours/Pct	Amount
Direct Material		72,200.00
Direct Labor	707.01	1,997.91
Engineering Labor	100.00	5,000.00
<b>Total Direct Cost</b>	<b>807.01</b>	<b>79,197.91</b>
Fixed Overhead	150.00%	4,483.27
Variable Overhead	300.00%	11,139.30
<b>Total Overhead</b>		<b>15,622.57</b>
Mfg Engineering	20.00	400.00
Engineering OH	120.00%	13,920.00
Mech Engineering	20.00	500.00
Engineering Design	80.00	2,400.00
Manufacturing Labor	600.00	7,200.00
Manufacturing OH	110.00%	10,274.00
Technical Labor	15.00	270.00
Support Material		1,800.00
Outside Processing		700.00
Technical Support	40.00	800.00
<b>Total Estimated Cost</b>		<b>133,084.48</b>

Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est Account: MDEM05.11

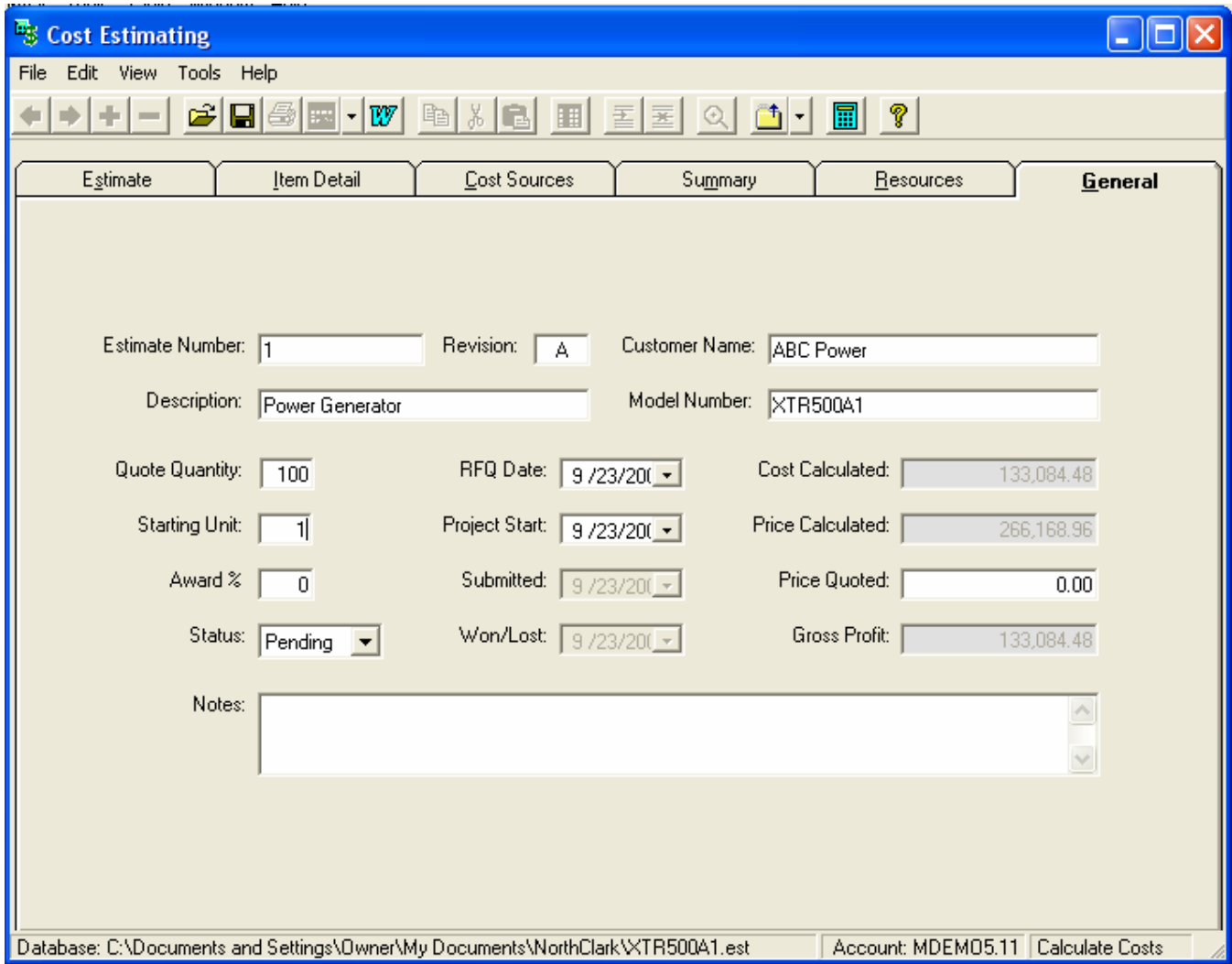
The screenshot shows the 'Cost Estimating' application window. The 'Summary' tab is active, displaying a table of cost components. The table has three columns: 'Resource Description', 'Hours/Pct', and 'Amount'. The data is as follows:

Resource Description	Hours/Pct	Amount
Total Overhead		15,622.57
Mfg Engineering	20.00	400.00
Engineering OH	120.00%	13,920.00
Mech Engineering	20.00	500.00
Engineering Design	80.00	2,400.00
Manufacturing Labor	600.00	7,200.00
Manufacturing OH	110.00%	10,274.00
Technical Labor	15.00	270.00
Support Material		1,800.00
Outside Processing		700.00
Technical Support	40.00	800.00
Total Estimated Cost		133,084.48
Calculated Price		266,168.96
Profit	100.00%	133,084.48
Unit Cost		1,330.84
Unit Price		2,661.69

Summary Generated:  
10/02/06 10:44:54 PM

Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est Account: MDEM05.11

- ❑ If the totals do not seem reasonable go back and review the details of your estimate.
- ❑ The last thing you can do is review the General Display.



### Main Menu Options

Following is a brief description of the options available from the Main Menu of the Cost Estimating application.

Menu	Option	Description
File	Open/Create an Estimate	<p>Your cost estimating information is stored in a Microsoft Access Database. Use the Open Dialog screen as illustrated below to locate your file. Note, the file name will default to the last database you opened.</p> <p>Creating a New Database</p> <p>You can create a new database using this screen. Simply type in a new name at the file name prompt, and the system responds:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Unable to Locate File. Do You Wish to Create It?</li> </ul>

		Click [Yes] to create the new database, or [No] to cancel.
File	Find an Estimate	Locate an existing estimate. ( <i>See Find an Estimate</i> ).
File	Save Estimate	Save Estimate to the File.
File	Save Estimate As	First save of an Estimate requires you to define the Save As file name and location.
File	Revert to Last Save	This option will restore your Estimate to its condition as of the last time you saved it to disk.
File	Export	Export data from the active spreadsheet.
File	Print Current Display	<i>See Print in General Section.</i>
File	Export to Excel	<i>See Export to Excel in General Section.</i>
File	Export to Word	<i>See Export to Word in General Section.</i>
File	Import a Worksheet	<i>See Import a Worksheet in General Section.</i>
File	Exit	Close the application
Edit	Copy	Copy data to the Windows clipboard.
Edit	Cut	Cut data from the field and copy it to the Windows clipboard.
Edit	Paste	Paste data from the Windows clipboard.
Edit	Fill	Update all of the selected cells from the Windows clipboard.
Edit	Insert a Row	Insert a Row immediately above the row you have your cursor on.
Edit	Delete a Row	Delete the Row you have your cursor on.
Edit	Indent Row	Indent the Row you have your cursor on.
Edit	Outdent Row	Outdent the Row you have your cursor on.
Edit	Errors	<i>See Errors in Estimate Section.</i>
View	Expand All	Expand and show all levels of the estimate.
View	Collapse All	Collapse and show only the top level of the estimate.
View	Unhide All	Expose all columns previously hidden.

	Columns	
View	Auto Fit Columns	Automatically adjust the width of each column to accommodate your data.
View	Zoom	View, print and/or edit the expanded contents of a field.
View	Display Options	Set user preferences affecting the appearance of the screen.
Tools	Calculate Estimate	<i>See Calculate Estimate</i>
Tools	Load Data from Manfact	<i>See Load Data from Manfact</i>
Tools	Initialize Resource Table	<i>See Initialize Resource Table</i>
Tools	Search for Part in Manfact	<i>See Search for a Part in Manfact.</i>
Tools	Search for a Project in Manfact	<i>See Search for a Part in Manfact.</i>
Tools	Find an Item in the Estimate	<i>See Find an Item in the Estimate.</i>
Tools	Find Next	<i>See Find Next.</i>
Tools	View Estimate As Average Unit Cost	<i>See View Estimate as Average Unit Cost.</i>
Tools	Options	<i>See Options.</i>

Right Click Menu

The following tasks can be found on various menu options.

Copy	-	Copy data to the Windows clipboard.
Cut	-	Cut data from the field and copy it to the Windows clipboard.
Paste	-	Paste data from the Windows clipboard.

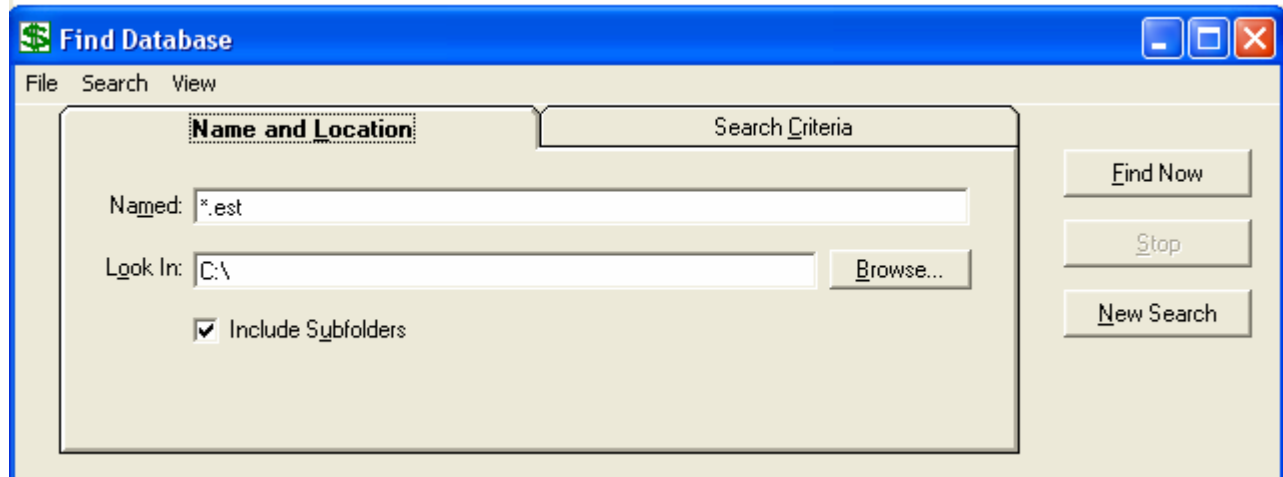
Fill	-	Update all of the selected cells from the Windows clipboard.
Cancel	-	Cancel last action.
Undo	-	Undo last action and return information as it was before the action.
Select All	-	Select all transactions on the view.
Sort by Ascending Order	-	Sort transactions in ascending order.
Sort by Descending Order	-	Sort transactions in descending order
Find an Item in an Estimate	-	<i>See Find an Item in the Estimate.</i>
View Item Detail	-	Takes you to Item Detail View ( <i>See Item Detail</i> )
View Cost Sources	-	Takes you to Cost Sources View ( <i>See Cost Sources</i> )
Clear All Errors on All Lines	-	Clears all errors on all lines. ( <i>See Errors in Estimate section.</i> )
Zoom	-	View, print and/or edit the expanded contents of a field.

## File Menu

### Find an Estimate

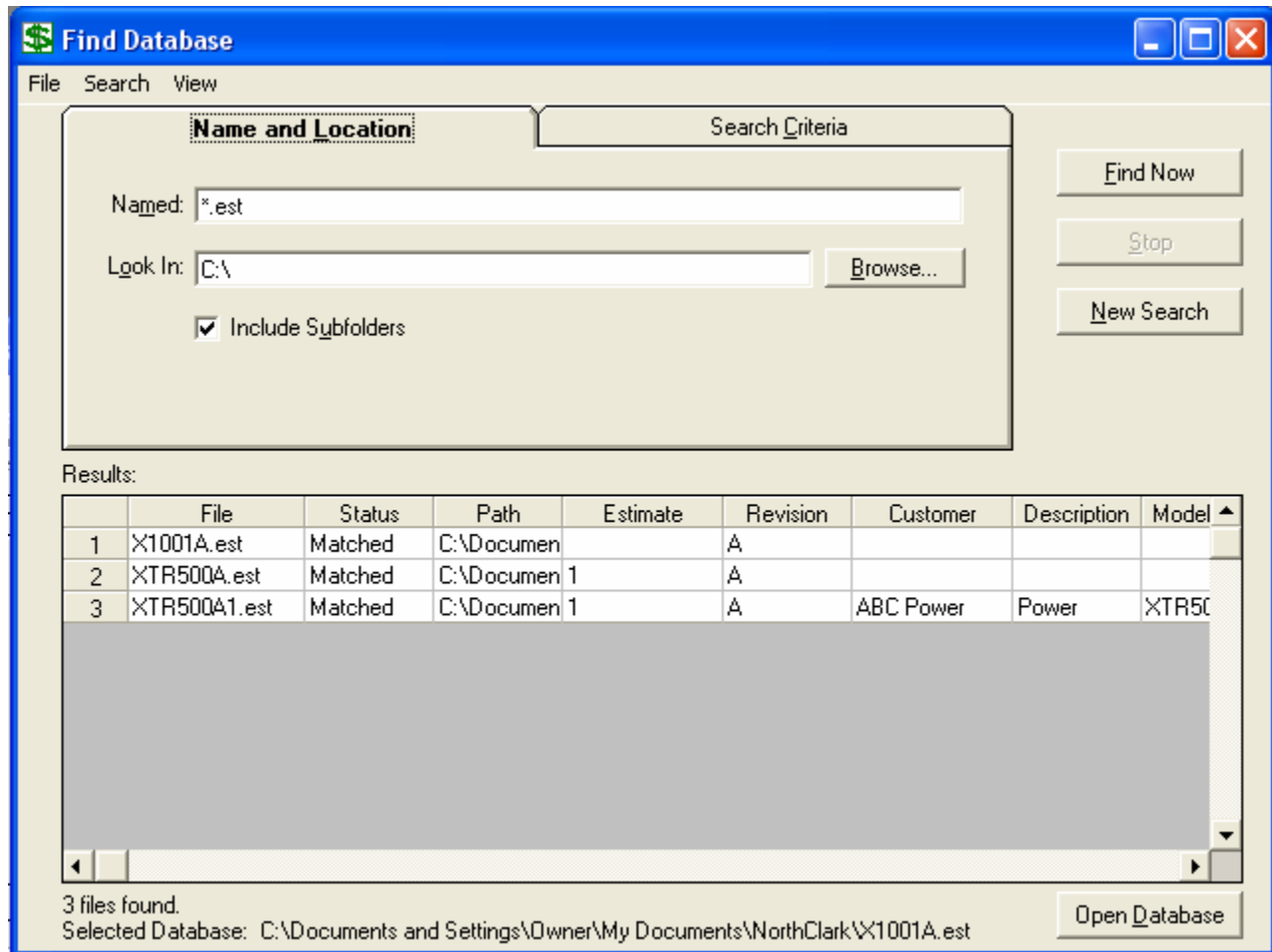
This feature allows you to search for a specific Estimate.

- When you select Find an Estimate from the File Menu the screen below appears.

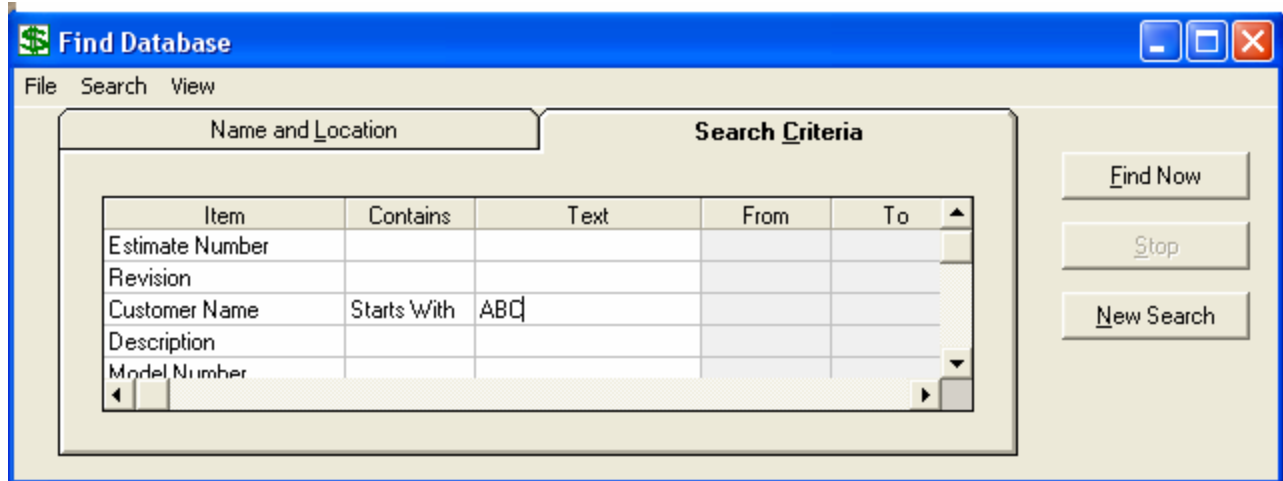


- ❑ If you know the File Name and Path of the Estimate you wish to locate you may enter it manually, or Click the Browse Button.
- ❑ Use the Browse Dialog (illustrated below) to locate the folder in which your file is located.
- ❑ If you skip this step, the system will search the entire Hard Drive. (This may take several minutes, depending on the size of the selected Drive.)





- Highlight the row with the File Name you wish to work with. Then click [Open Database]
- Or you may click the Search Criteria Tab (illustrated below) to define the parameters by which you wish to locate the Estimate.
- If you skip this step, the system will return the entire contents of the selected folder. (matching the selected file extension)



- ❑ Select the **Item** you wish to use for your search. (Use the Scroll Bar to view the full list.) The following **Items** are available: Estimate Number, Revision, Customer Name, Description, Model Number, Quote Quantity, Starting Unit, Award %, Status, RFQ Date, Project Start, Submitted, Won/Lost, Cost Calculated, Price Calculated, Price Quoted, Gross Profit.

- ❑ Fill in the fields to the right of the selected **Item**.

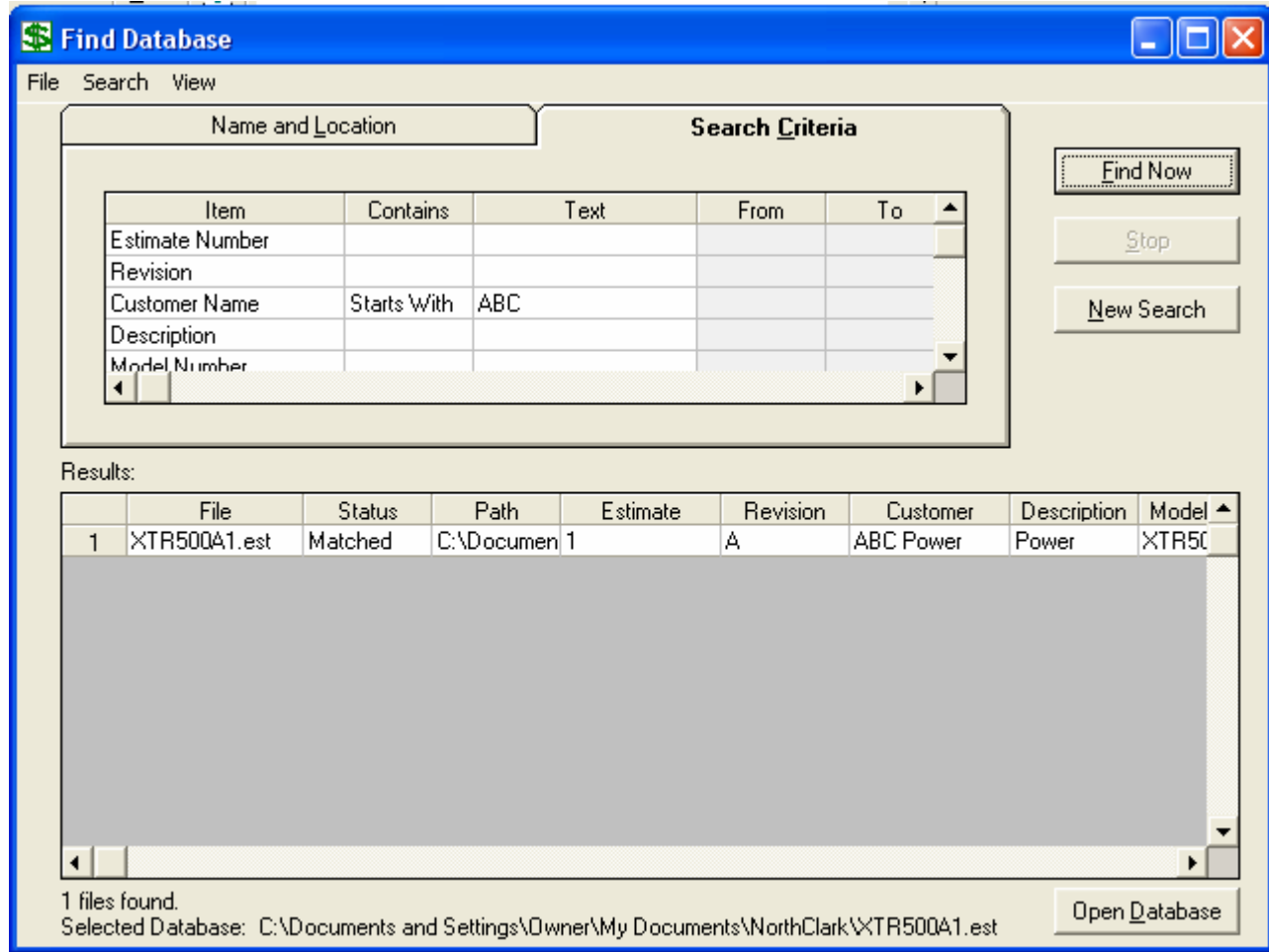
**Contains:** Select "Contains", "Starts With", or "Ends With" from the pull down menu.

**Text:** Enter the text, or partial text, for which you wish to search. (In the example above, we are searching for a Customer Name that Contains ""ABC""

*(Note: The **Contains** and **Text** columns are disabled for any **Item** that is a date, set quantity, or dollar amount.)*

**From** and **To:** Use these columns to enter a range of values or dates for any **Item** that is a date, set quantity, or dollar amount.

- ❑ Click the Find Now Button when you have entered your search criteria.
- ❑ Your search results are displayed on the screen below.



- ❑ Click on any cell to select the database on that row.
- ❑ Use the [Open Database] Button to Open the selected file.

## Tools Menu

### Calculate Estimate

Select this option when you are ready to calculate the estimate. Be sure you have entered or imported data into all required fields. (You may also use this feature to "find" any lines with missing data.)

The Cost Estimating Module calculates the estimate in the following manner:

- ❑ Cost Sources for each Item are finalized and multiplied by Quantity, Extended Quantity, Quantity Ordered, and any Adjusted Costs.
- ❑ Cost Source data is applied to Resources, such as Overhead, and calculated with consideration of Rate, Complexity Factor, Escalation Rate, Profit %, and Cost of Money %.

- ❑ Incremental and Sub Costs are Rolled Up to each level.
- ❑ The dollar amounts for each row (Item) are calculated to percentages of over all cost for Material, Labor, Overhead, and Other cost.
- ❑ The Summary is generated, with consideration of all Cost Source data, Resource data, and user defined subtotals.
- ❑ Any lines containing Errors or incomplete data are highlighted.

### Load Data From Manfact

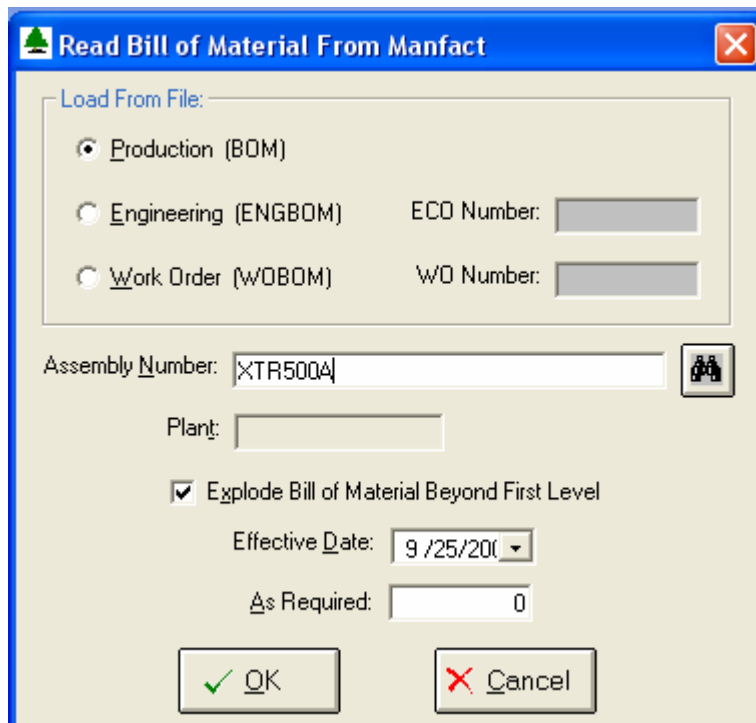
This process allows you to begin building or add to your estimate using the information available from Manfact.

The following options are available:

### ***Load Bill of Material***

This option is available for any Assembly Item.

Use the screen illustrated below to locate the desired Bill of Material.



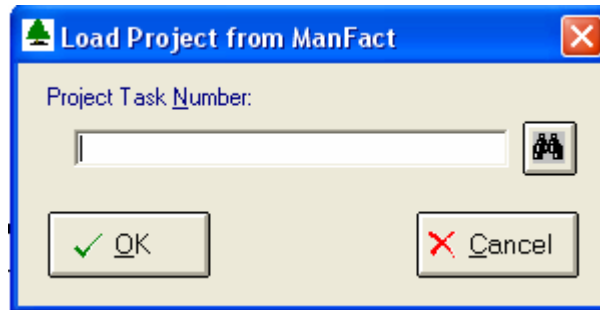
- ❑ Select file type from which to load this data Production, Engineering (enter ECO Number), or Work Order (enter WO Number).
- ❑ Enter Assembly Number or Search by clicking the Icon to the right. (*See Part Number Search*)
- ❑ (If desired) Click to Explode Bill of Material Beyond First Level.
- ❑ Set Effective Date.
- ❑ Click [OK].

**Load Cost Sources** You may manually enter Cost Source information or select from various Cost Sources stored in Manfact.

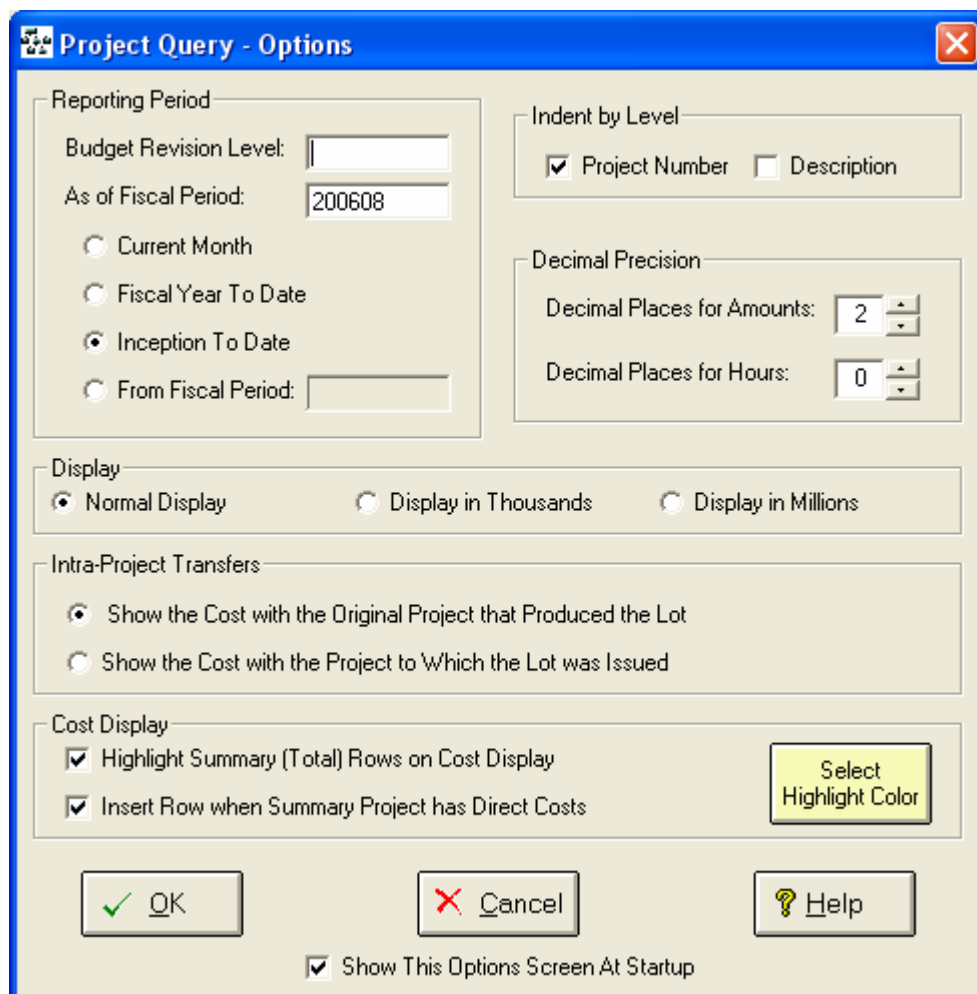
- When you select "Load Data From Manfact" > "Cost Sources" from the Tools Menu, the Cost Estimating Module searches Manfact for all Cost Source Data available for each Item in the estimate. All cost sources found for any given Item will be shown in the Cost Source Display.

Load Project This option is available for any Project.

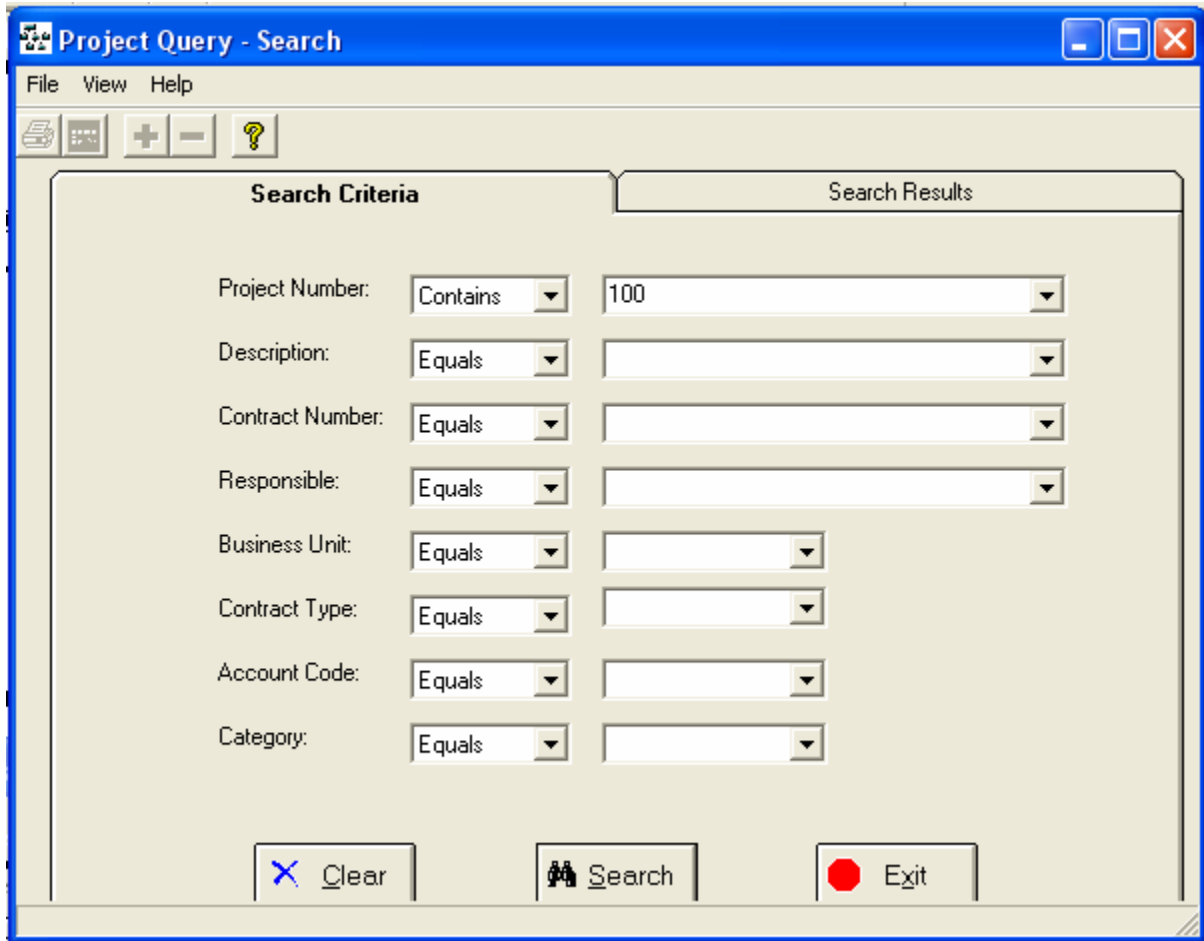
Use the screen illustrated below to locate the desired Project.



- Enter the top level Project Number or you may perform a search by using the search icon to the right of the entry field.
  - If you perform a search below is the first screen that will appear.



- Once you have updated all of your selection criteria click on the [OK] button and you will be taken to the following screen.



- Afterwards you will get the specified records on the Search Results Tab.

### Initialize Resource Table

The following two methods are available to aid in Resource Initialization:

#### ***Load From Manfact***

Information for several commonly used resources is available from existing Manfact Work Order Records.

- The system can load this data into your current estimate.

For example: If your company's engineering labor has previously been calculated at the rate, complexity factor, profit %, and cost of money %, you wish to use in the current estimate, you may load these rates from an existing Manfact Work Order Record. (You may still edit any of this data after initializing the resource table.)



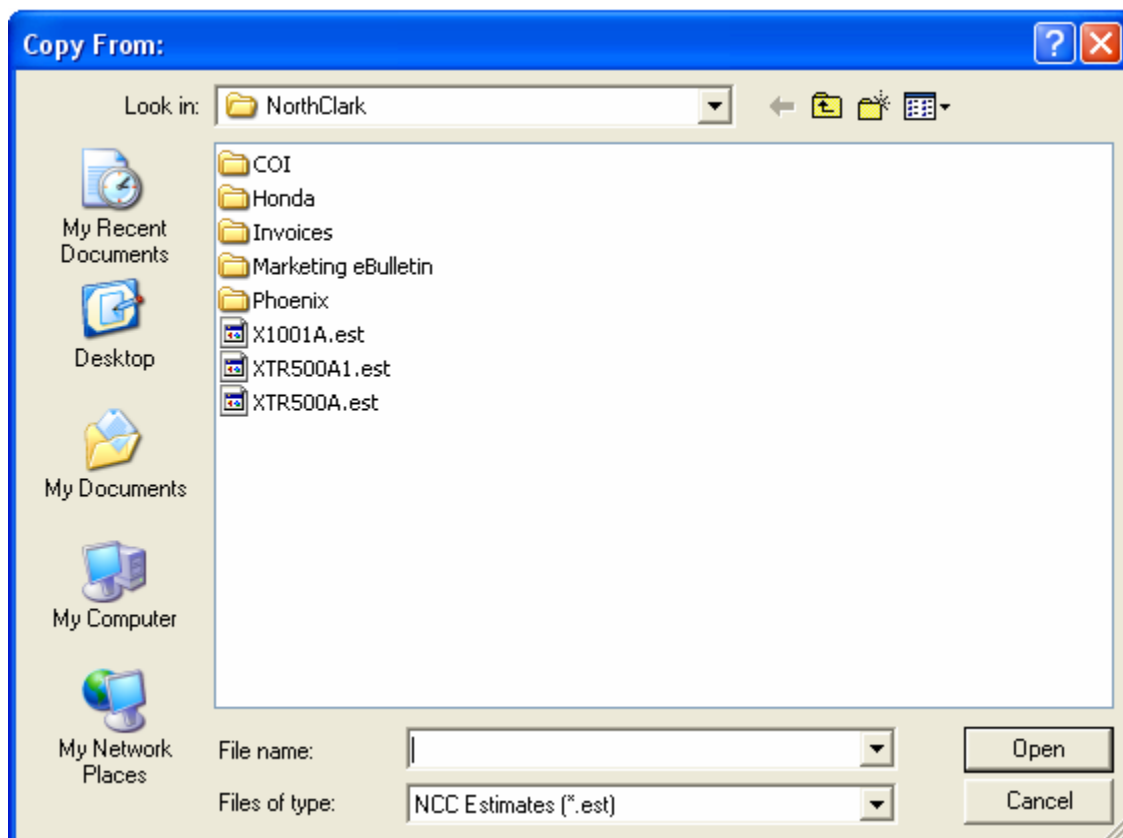
### Copy From Estimate

Information for commonly used resources may be available from an existing estimate.

- ❑ The system can copy this data into your current estimate.

For example: If your company's engineering labor has previously been calculated at the rate, complexity factor, profit %, and cost of money %, you wish to use in the current estimate, you may copy these rates from an existing estimate. (You may still edit any of this data after initializing the resource table.)

- ❑ Use the screen illustrated below to browse for the estimate from which you wish to copy resource information.

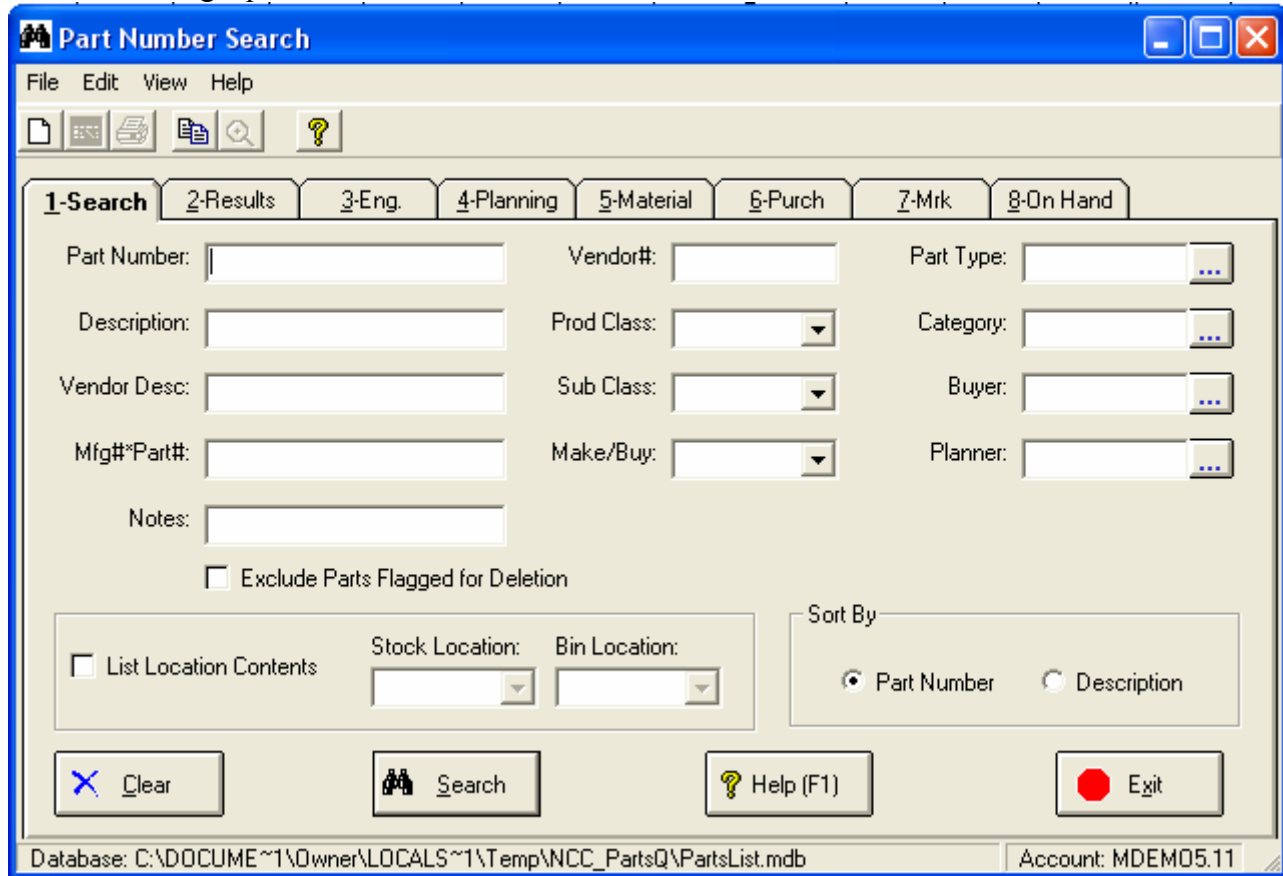


### Search for Part in Manfact

The Part Number Search query helps you locate a Manfact Part Number using a variety of search criteria and provides you with an Inquiry Only process for users who do not have Parts Master Update authorization.

### Environment

The main screen is composed of eight “tabs”. The Search and Results tab are the two tabs that will be utilized in locating a part number.



The remaining tabs display information that is contained in the Manfact PARTS and Inventory files, organized by departments: Engineering, Planning, Material, Purchasing, Marketing and On Hand.

### Locating a Part Number

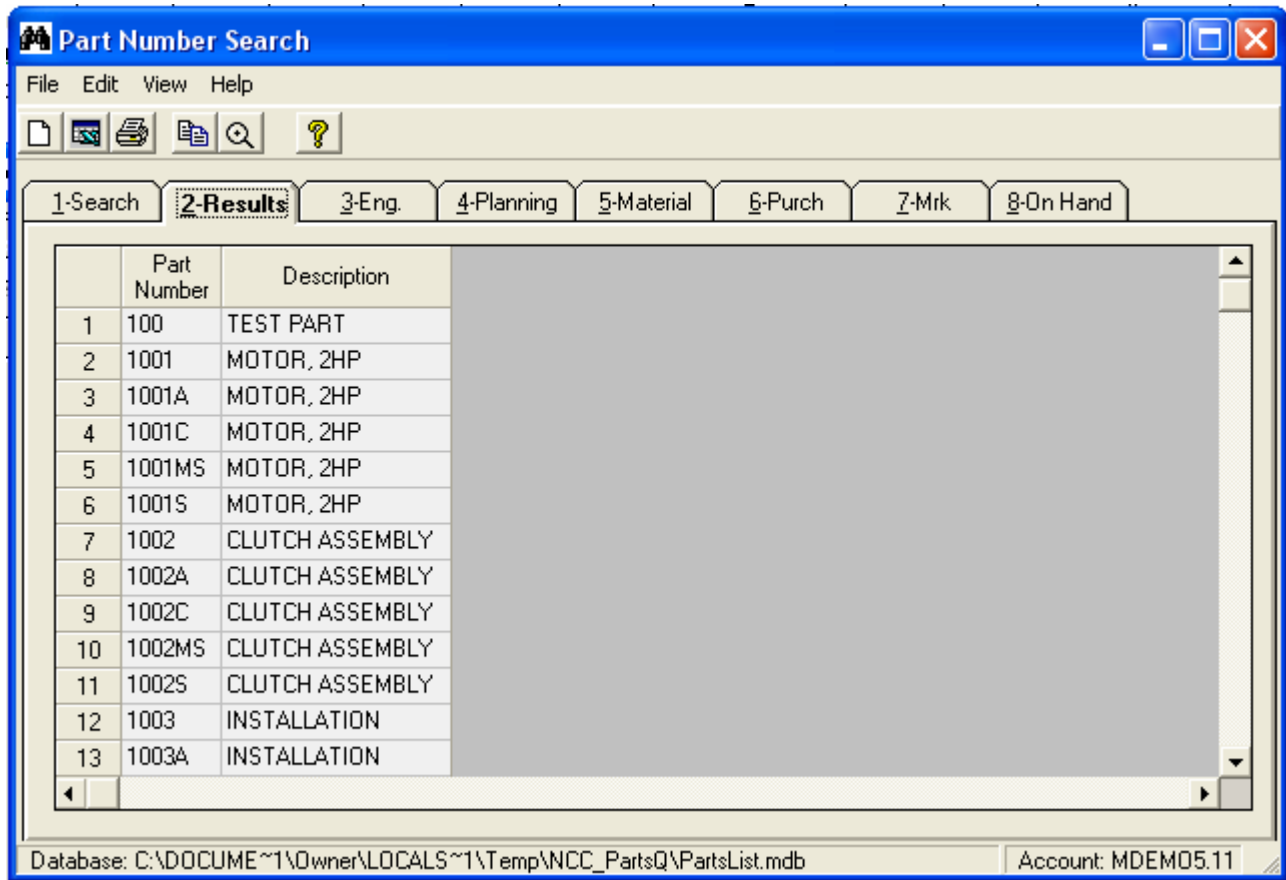
When you enter the Part Number Search procedure, the first tab that you will be taken to is the Search tab. If you know the part number that you want to inquire on, you can simply enter the part number, press the Enter key and you will be immediately directed to the Engineering tab. If you don't know the specific part number, but know some basic information about the item, several fields are available to use in narrowing your search.

The fields you may use in your search include: Part Number, Description, Vendor Description, Mfg#\*Part#, Notes, Vendor #, Product Class, Sub-Class, Part Type, Category, Buyer, Planner, and Make/Buy Code. You may use as many of the search fields as necessary to narrow your search to the fewest number of records. If you don't know the specific details of a particular field, you might use *wildcarding* to enter only a portion of the item's part number, description, etc.

To further assist you in locating the desired part number, you may Sort the search results by either the Manfact Part Number or the Engineering Description.

**Search Results**

After you choose the [Search] command, the results are displayed on Tab 2 “Results”, Part Number Search. One part number and its associated description are displayed on each row of the list. You can Returning to the Search window and using the Sort By option sort change the way the information.



For more details on the Part Number Search application see the full documentation.

*Note: The NCC Part Number Search Query is sold separately. If this option is not currently available, please contact your System Administrator or NorthClark Computing, Inc. to obtain a copy of NCC\_PARTSQ.*

Search for Project in Manfact

If you perform a search below is the first screen that will appear.

**Project Query - Options**

Reporting Period

Budget Revision Level:

As of Fiscal Period:

Current Month

Fiscal Year To Date

Inception To Date

From Fiscal Period:

Indent by Level

Project Number  Description

Decimal Precision

Decimal Places for Amounts:

Decimal Places for Hours:

Display

Normal Display  Display in Thousands  Display in Millions

Intra-Project Transfers

Show the Cost with the Original Project that Produced the Lot

Show the Cost with the Project to Which the Lot was Issued

Cost Display

Highlight Summary (Total) Rows on Cost Display

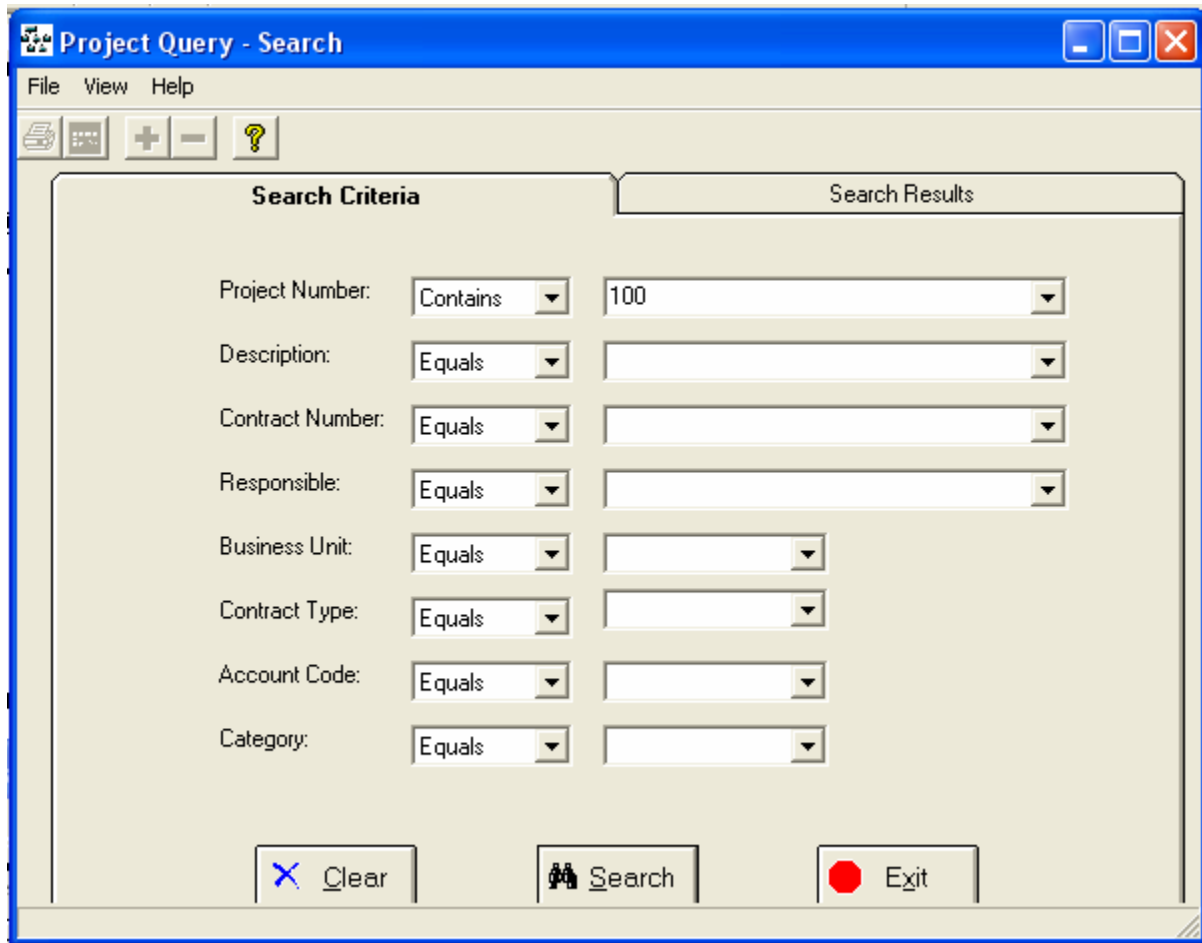
Insert Row when Summary Project has Direct Costs

Select Highlight Color

Show This Options Screen At Startup

OK Cancel Help

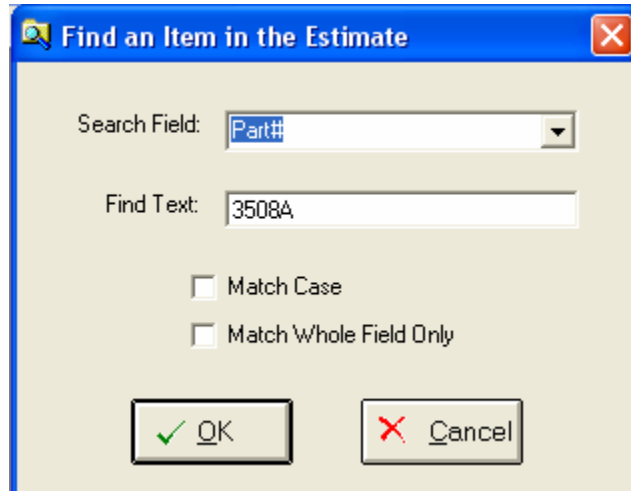
- Once you have updated all of your selection criteria click on the [OK] button and you will be taken to the following screen.



- Afterwards you will get the specified records on the Search Results Tab.

#### Find an Item in the Estimate/Find Next

You may search your Estimate for a specific item, or specific information. You may search for this data again by selecting Find Next.



- ❑ Select the field you wish to search from the pull down menu.
- ❑ Enter the text for which you wish to search.
- ❑ Select to match Case or Whole Field Only. (You may leave both unselected to just jump to the next place the text occurs.)

#### View Estimate as Average Unit Cost

The view of an Estimate provides the user with a display that is identical but has been divided by the Estimate quantity. Below is an example of the Average Unit Cost view.

The screenshot shows a software window titled "Estimate as Average Unit Cost" with a menu bar (File, Edit, View, Tools, Help) and a toolbar. The main area contains a table with the following data:

	*	>	Description	Source Date	Source Qty	Inc. Cost	Sub Cost	Total Cost	Inc. Hours	Sub Hours	Total Hours	Material %	La
36	-	2	FRAME MEMBERS	09/25/06	200.00	14.45	2.24	16.69	0.68	0.00	0.68		
37		3	I - BEAM STEEL 3 X 4 X 2	09/19/06	1,000.00	2.24	0.00	2.24	0.00	0.00	0.00	0.30	
38		2	WHEELS 4 INCH	09/19/06	1,000.00	16.20	0.00	16.20	0.00	0.00	0.00	2.17	
39	-	2	HANDLE COUPLING MAC	09/25/06	75.00	2.64	4.00	6.64	0.12	0.00	0.12		
40		3	CASTING, HANDLE COUPL	09/19/06	1,000.00	4.00	0.00	4.00	0.00	0.00	0.00	0.54	
41	-	1	KIT, HARDWARE			0.00	224.55	224.55	0.00	0.00	0.00		
42		2	LARGE BOLT FOR XTR A	09/19/06	1,000.00	112.50	0.00	112.50	0.00	0.00	0.00	15.06	
43		2	NUT FOR BOLT 4503	09/19/06	1,000.00	112.05	0.00	112.05	0.00	0.00	0.00	15.00	
44		0	Engineering Labor			110.00	0.00	110.00	1.00	0.00	1.00		2
45		0	CASTING, MOTOR HOUS		850.00	15.00	0.00	15.00	0.00	0.00	0.00	2.01	
46	-	0	SYSTEM			0.00	722.64	722.64	0.00	7.75	7.75		
47		1	PROJECT MANAGEMENT	10/02/06	1.00	56.10	0.00	56.10	0.55	0.00	0.55		
48		1	DESIGN ENGINEERING	10/02/06	1.00	56.10	0.00	56.10	0.65	0.00	0.65		
49		1	MANUFACTURING	10/02/06	1.00	551.20	0.00	551.20	6.00	0.00	6.00	53.55	3
50	-	1	SUPPORT			0.00	59.24	59.24	0.00	0.55	0.55		
51		2	INSTALLATION	10/02/06	1.00	23.64	0.00	23.64	0.15	0.00	0.15	2.01	
52		2	TRAINING	10/02/06	1.00	35.60	0.00	35.60	0.40	0.00	0.40	1.34	

Compared o the original Estimate page.

The screenshot shows the 'Cost Estimating' application window. The main area contains a table with the following data:

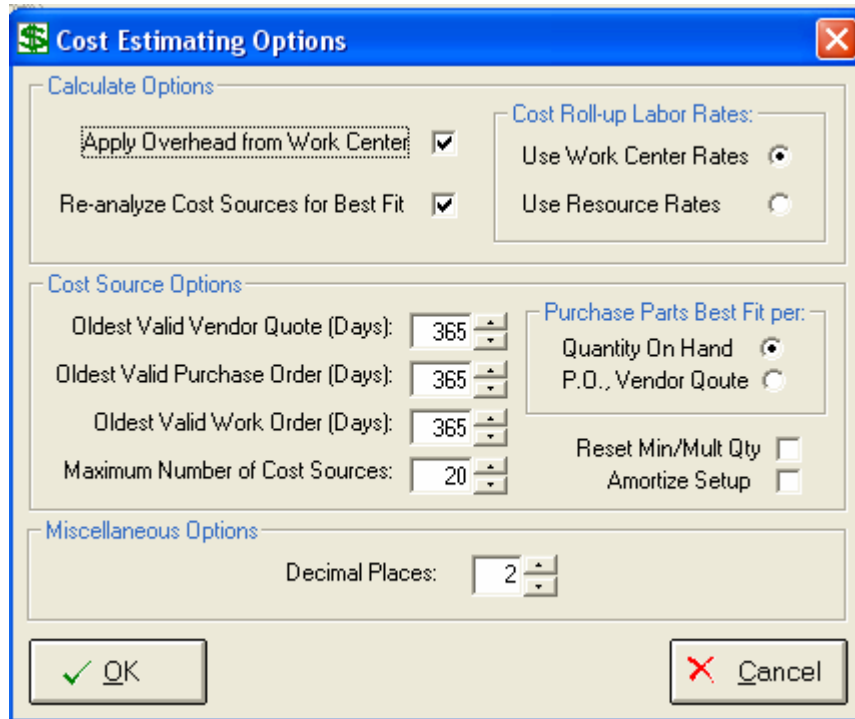
	*	>	Description	Source Date	Source Qty	Inc. Cost	Sub Cost	Total Cost	Inc. Hours	Sub Hours	Total Hours	Mat
31		1	INSTALLATION	09/19/06	1,000.00	100.00		100.00				
32	-	1	FRAME ASSY.	09/25/06	50.00	5,709.40	6,418.37	12,127.76	202.10	188.43	390.53	
33		2	RIVET 1 X .375	09/19/06	1,000.00	240.00		240.00				
34	-	2	PLATFORM	09/25/06	50.00	2,125.58	100.00	2,225.58	108.16		108.16	
35		3	SHEET STEEL 1 X 4 X .250	09/19/06	1,000.00	100.00		100.00				
36	-	2	FRAME MEMBERS	09/25/06	200.00	1,444.53	224.00	1,668.53	68.10		68.10	
37		3	I - BEAM STEEL 3 X 4 X 2	09/19/06	1,000.00	224.00		224.00				
38		2	WHEELS 4 INCH	09/19/06	1,000.00	1,620.00		1,620.00				
39	-	2	HANDLE COUPLING MACHINE	09/25/06	75.00	264.27	400.00	664.27	12.17		12.17	
40		3	CASTING, HANDLE COUPLING	09/19/06	1,000.00	400.00		400.00				
41	-	1	KIT, HARDWARE				22,455.00	22,455.00				
42		2	LARGE BOLT FOR XTR ASSY.	09/19/06	1,000.00	11,250.00		11,250.00				1
43		2	NUT FOR BOLT 4503	09/19/06	1,000.00	11,205.00		11,205.00				1
44		0	Engineering Labor			11,000.00		11,000.00	100.00		100.00	
45		0	CASTING, MOTOR HOUSING		850.00	1,500.00		1,500.00				
46	-	0	SYSTEM				72,264.00	72,264.00		775.00	775.00	
47		1	PROJECT MANAGEMENT	10/02/06	1.00	5,610.00		5,610.00	55.00		55.00	
48		1	DESIGN ENGINEERING	10/02/06	1.00	5,610.00		5,610.00	65.00		65.00	
49		1	MANUFACTURING	10/02/06	1.00	55,120.00		55,120.00	600.00		600.00	5
50	-	1	SUPPORT				5,924.00	5,924.00		55.00	55.00	
51		2	INSTALLATION	10/02/06	1.00	2,364.00		2,364.00	15.00		15.00	
52		2	TRAINING	10/02/06	1.00	3,560.00		3,560.00	40.00		40.00	

Database: C:\Documents and Settings\Owner\My Documents\NorthClark\XTR500A1.est Account: MDEM05.11 Calculate Costs

Options

You may customize your estimate as per the options displayed below:



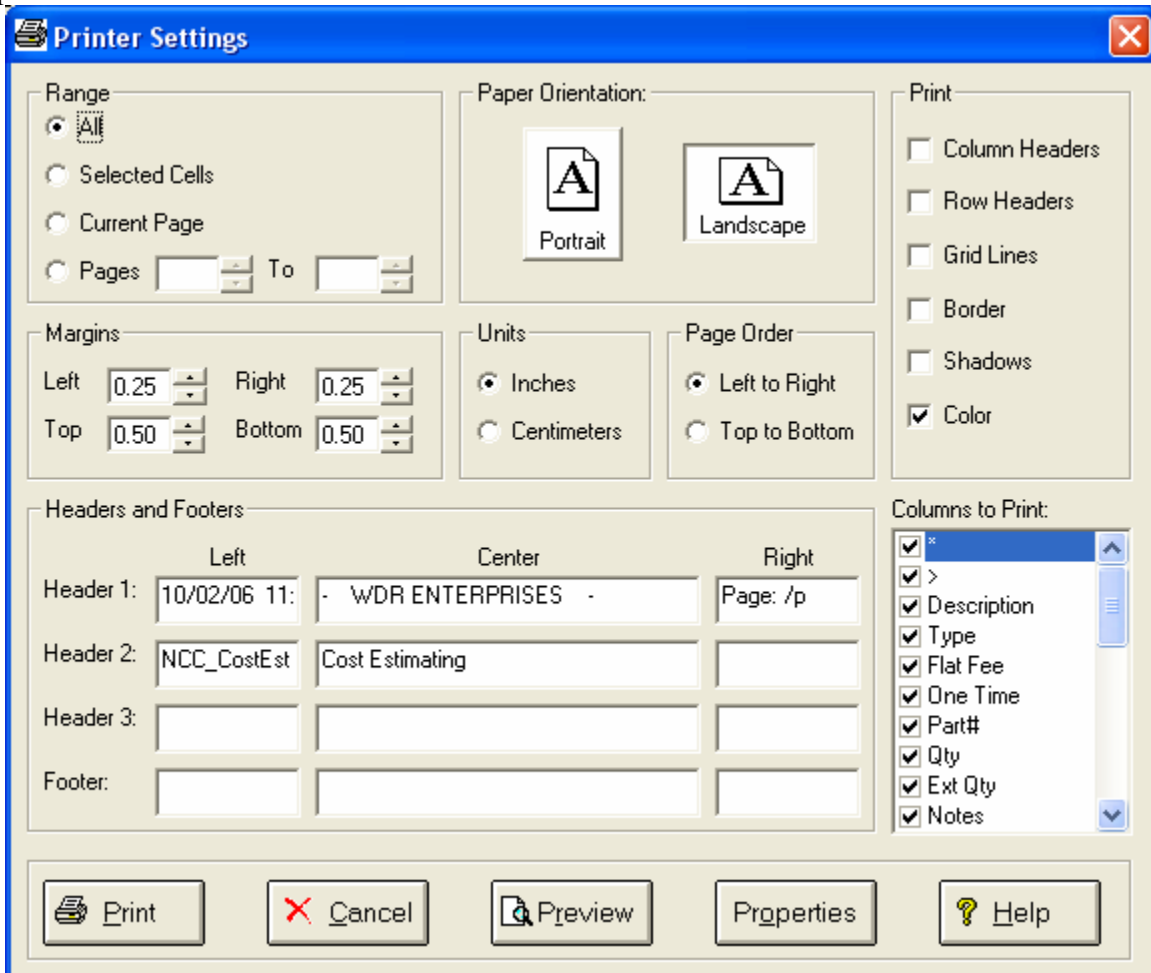


- ❑ Apply Overhead from work center: Overhead will be calculated automatically and included in the estimate. The calculation may be based on work center rates and/or overhead pools assigned to the estimate.
- ❑ Re-analyze Cost Sources for Best Fit: The system can select a Cost Source for each item based on the "best fit", taking into account the order quantity and the date of the Cost Source.
- ❑ Roll Up Labor Rates: Use Work Center Rates or Resource Rates: In the Manufact system, resources may be assigned to Work Centers to categorize labor, or you may modify Resource Rates from the Resources Display.
- ❑ Oldest Valid Vendor Quote, Purchase Order, and Work Order: Use the arrows to select age limits for Cost Source documentation.
- ❑ Maximum Number of Cost Sources: Use the arrows to limit total number of Cost Sources used.
- ❑ Purchase Parts Best Fit Per: Quantity on Hand or P.O., Vendor Quote: When selecting the "best fit" cost source for a part, the system can include Quantity on hand for any item, and increase to the Minimum Order Qty, rounded to the nearest Order Multiple for the part. You may alternately select to use Only a P.O. / Vendor Quote for your estimate.
- ❑ Reset Min/Mult. Quantity: Minimum Quantity and Order Multiple may be adjusted from the Cost Sources Display. Check this box to reset.
- ❑ Decimal Places: Select decimal places for summarized amounts.

## General Information

### Printing a Spreadsheet

Below is a sample of the screen that will appear when you select the **Print** option. This will print the current active spreadsheet, so be sure to click on the spreadsheet you wish to print before choosing the Print option.



#### **Range - Selecting a Print Range**

You may choose to print the entire spreadsheet (all), selected cells (those that you have highlighted on the current screen), the current page (only the rows that are currently visible on your screen), or a range of page numbers.

#### **Orientation - Portrait or Landscape**

You may print your report in portrait mode (normal) or landscape mode (sideways). Printing in landscape mode will allow you to fit more columns of information on your report.

#### **Margins - Report Margins**

You can make your report more attractive by setting the top, bottom, left, and right margins. Reduce the left and right margins if you need to fit more columns on the report.

#### **Units - Inches or Centimeters?**

Are the margins you entered expressed in inches or centimeters?

#### **Page Order**

If your report is too wide, it may span multiple pages. When this occurs, do you want the report printed from top to bottom or left to right?

**What Do You Want to Print?**

You can customize the appearance of your report by printing (or not printing) column headers, row headers, grid lines, borders, shadow, and color.

**Headers and Footers**

Your report may have up to three lines for the heading, and one line for the footer. The system initially displays a default heading, which you may modify if desired.

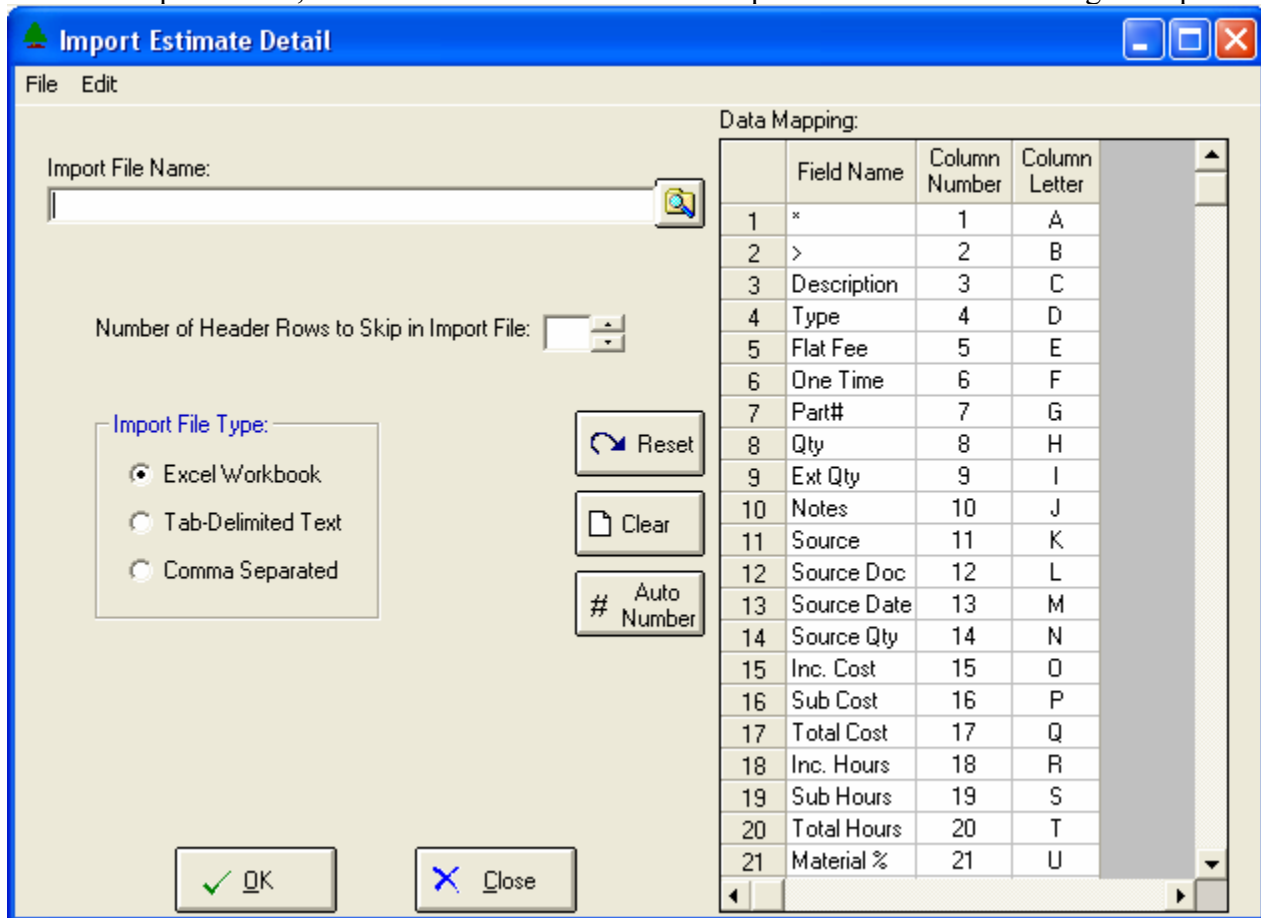
*Tip:* Use /p to designate a page number.

**Which Columns Do You Want to Print?**

The columns that are available for printing are listed. Select the columns you wish to include on your report.

**Importing Data from Excel**

This screen below is displayed when you choose the option to Import data from a Microsoft Excel spreadsheet, a tab-delimited text file, or a comma-separated text file. The data will be imported to the current active spreadsheet, so be sure to click on the desired spreadsheet before choosing this option.



**Import File Name**

Enter the path for the file that you wish to import. You may browse the files by clicking on the button next to the text box.

*Header Rows*

Enter the number of rows at the beginning of the file that are not to be imported

*Import File Type*

Select the type of file that you are importing

*Data Mapping*

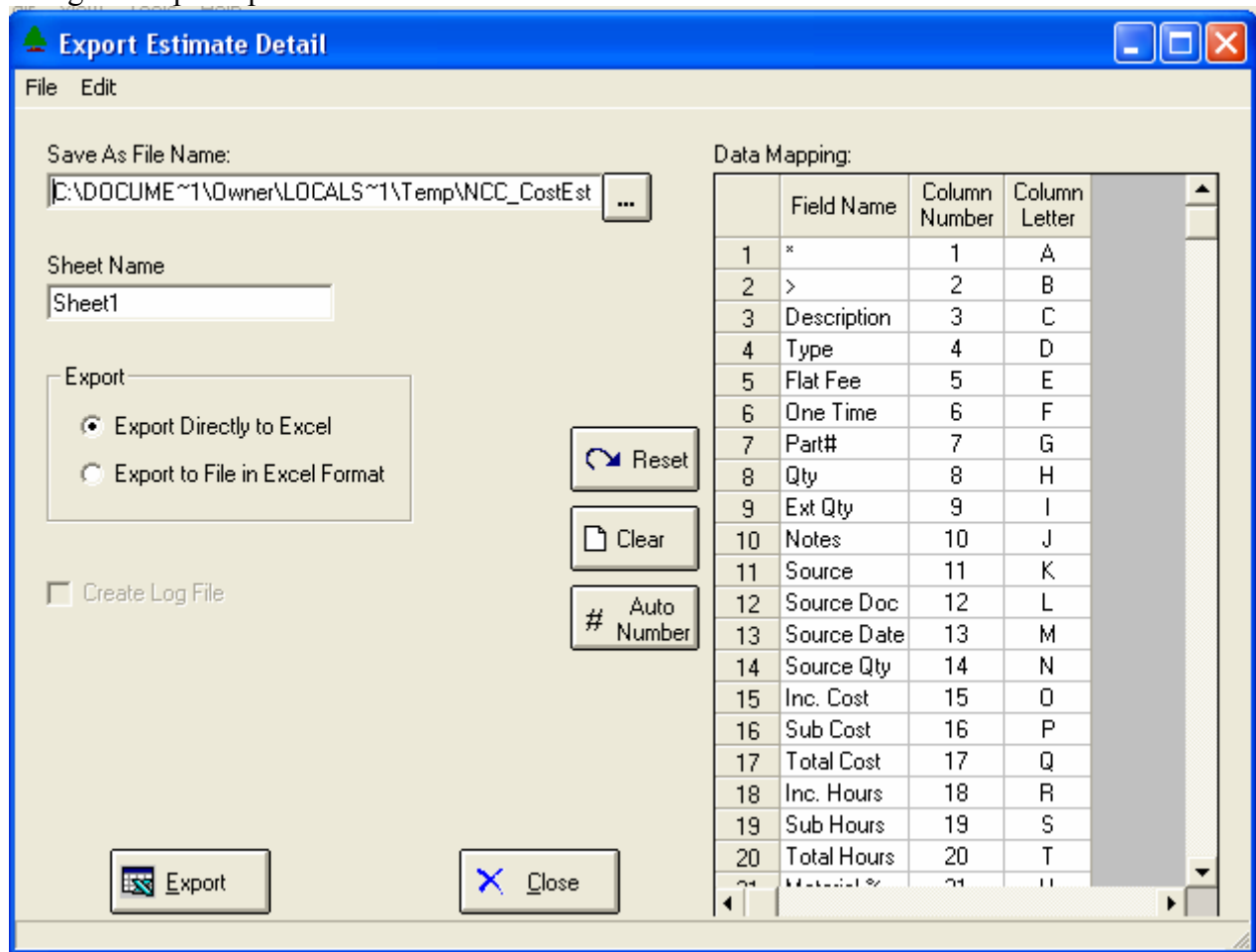
Enter the Column Number or Letter where data resides on the Excel file. You may revert to the original selections by clicking on the [Reset] button.

*Import Data*

Click OK to begin the import procedure.

## Exporting a Spreadsheet to Excel

Below is a sample of the screen that will appear when you select the **Export to Excel** option. This will export the current active spreadsheet, so be sure to click on the spreadsheet you wish to print before choosing the Export option.



*Save As File Name*

Enter the pathname of the file you wish to create. You may **Browse** the files by clicking the button to locate the drive and folder where the file will be stored.

*Sheet Name*

Enter the Excel sheet name to create. This will automatically default to Sheet1.

*Export to Excel or to a File?*

You may export the contents of the display directly to Excel, or you may choose to create a file in Excel format.

**Create a Log File?**

Select this option to create a log file. The log file contains error messages and other information about how your Excel file was created. The name of the log file is "CreateExcelFile.log", and it will be stored in the same folder as your spreadsheet.

**Data Mapping**

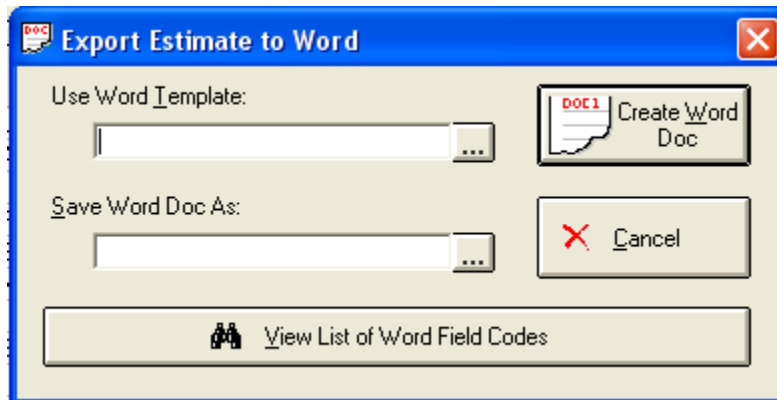
You may move data to alternate columns by changing the column number or letter. You may also remove a column by removing the row that contains the column information you do not wish to export. You may reset back to the original column by clicking the [Reset] button.

**Export Button**

After all required information has been entered click the [Export] button to export your data to Microsoft Excel.

**Exporting to Word**

This screen is displayed when you choose the option to export data to Microsoft Word.



\*You must specify a template, filename, and pathname prior to creating your Word Document.

**Use a Word Template**

You may browse for a Microsoft Word Template to use for your Estimate.

**Create Word Document**

After all required information has been entered, click this button to export you data to Microsoft Word.

**View Word Field Codes**

Click here to view or edit Word Field Codes to be used in your Estimate Document.

## **Editing Features**

### ***Copy, Cut, Paste and Fill***

You may use the standard Windows Copy, Cut, and Paste features to copy data to the Windows clipboard, or to paste data from the clipboard into a cell.

To copy data, hold down the left mouse button and highlight one or more cells, then choose **Copy**.

There are multiple ways to enter this command:

1. From the **Edit** menu choose **Copy**.
2. Click the **Right Mouse** button, and then choose **Copy** from the pop-up menu.
3. Click the corresponding icon on the toolbar.
4. Hold down the **Ctrl** key and type the letter **C** (**Ctrl-C**).

You can use the Cut command (Ctrl-X) and the Paste command (Ctrl-V) in similar fashion.

To copy the contents of an entire row, click once on the row header (the number displayed on the left side of the first cell), and then choose **Copy**. Now click on the row header that you want to copy the data to and choose **Paste**.

If you want to update several cells with the same value, highlight all of the cells you wish to update then choose **Fill Cells**. This command will update each cell with the current information from the clipboard.

### ***Zoom***

This feature allows you to view, print and/or edit the expanded contents of a field. It is especially useful for multi-line information such as notes and long descriptions.

- You may "Zoom in" on any selected item by selecting Zoom from the Edit Menu, clicking the magnifying glass on the toolbar, or selecting Zoom from the right click menu.
- The Column Name will appear in the Title Bar with "Edit" or "View". You may edit the field when it is allowed. Click "**OK**" when finished, or "**Cancel**" to revert to the original data.
- To print the selected item, click on the printer icon and the information will be sent to your local printer.

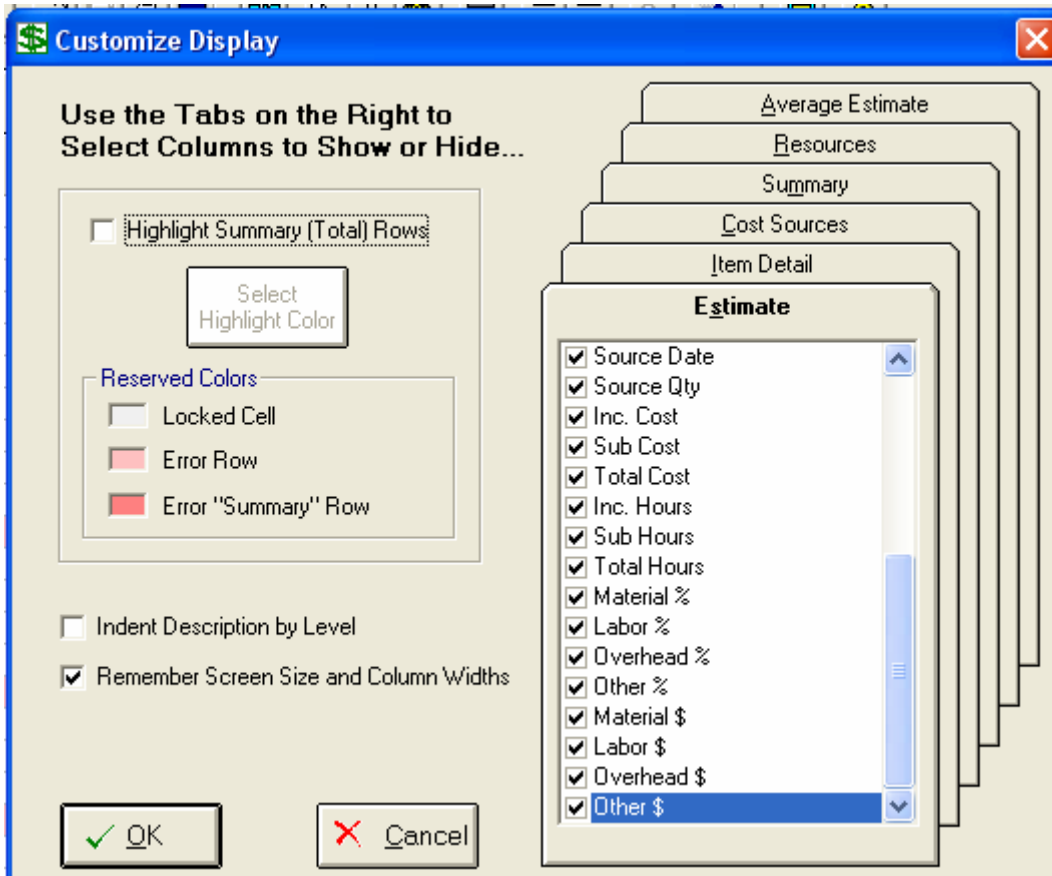
Locked fields may be viewed but not modified using the Zoom Feature. If the field is locked, "**View**" will appear in the Title Bar, and there will only be a single command button labeled "**Done**".

## **Customizing Your Display / Arranging Columns**

Use the Customize Display Screen to make the following changes:

- Each tab contains a list of fields that corresponds to a screen used in this application. Use the checkboxes to show or hide each field.
- Select the color to use for highlighting Summary Rows.
- Select the color to use for highlighting Rows that have errors.
- You may opt for the system to "Remember Screen Size and Column Widths". Any changes you make to the screen's appearance will be saved and applied the next time you launch this application.

- ❑ Indent Description by Level. Checking this box will allow you to view the estimate as indented structure. This may make it easier for you to follow the flow of the estimate.
- ❑ Click "OK" to apply any changes you have made or "Cancel" to revert to the previous settings.



Note, these settings are stored in the Windows Registry for each user.

## Wildcarding

Wildcarding is a powerful feature that allows you to search using a portion of the field. You tell the system you want to use a wildcard by typing three periods “...” or an asterisk “\*” at the beginning or end of your search entry. Here are some examples of wildcard commands and their expected results:

Part Number:	XTR... (or XTR*)	Returns part numbers that begin with “XTR”
Description:	...VALVE... (or *VALVE*)	Returns parts with the word “VALVE” anywhere in the description.
Category:	...A (or *A)	Returns parts with a category ending with the letter “A”.