

Professional Estimator Templates

The screenshot displays the Millennium Professional Estimator software interface, version 2.4.70, developed by S. Thatcher of GraphiTech Computer Systems. The interface is organized into several functional areas:

- Basic Information:** Includes fields for Customer & Phone, Job Description, and Estimated By.
- Run Options & Job Type:** Radio buttons for Sheetwise/W&T and Flat Sheet/Booklet.
- Mode Selections:** Radio buttons for New Quote, Retrieve Quote, New Job, and Retrieve Job.
- Layout:** Radio buttons for Portrait and Landscape, accompanied by a toolbar with various icons.
- Press Information:** Fields for Offset (4C MANN ROLND), Gripper (Width/Depth), Press Size (11x17), Speed/Difficulty (5), and Runs (1) Sheets (1).
- Stock, Plates & Imaging:** Fields for Size (23x35), Inv OnHand (24.70), Total Plates (4), Type (LL Metal), Out (4), Cal (0.004), WashUp (4), Up (2), On (1), Sides (1), and Pgs.
- Bindery:** A list of bindery options including Fold, Baum-1, Perf, Press-2, Padding-3, Drilling-4, Cutting-33, Gathering-43, MBColator-35, Stapler-36, Numbering-37, and Wrapping-38.
- SetUp SRPD Help:** A section with various status indicators (OP, MU, FP, NT, SS, OR, FC, SV).
- Cell Descriptions:** A text area for job description with a note about the AI button.
- Click Here to Add Notes:** A button for adding notes.
- Finished Layouts:** A section for finished layouts.
- Verification Count 1st Quantity:** Fields for Press Clicks (500), Press Stk Count (500), and Inventory Count (125).
- Dimension Sort Options:** Radio buttons for Square Inch and 1st Dimension.

At the bottom, there are fields for Quote Number, Job Number, Current Date (01/01/18), and Due Date (01/05/18).

By GraphiTech Computer Systems

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The Professional Estimator

Introduction

The Millennium Professional Estimator provides an exceptional platform for quoting virtually any printing job, from simple 1 or 2 color flyers to complex multi-signature, multi-part jobs.

In order to really get to know the power and flexibility of the GraphiTech Millennium Estimator, it is suggested that you spend some time performing the following quotes using the data specified.

See Appendix for a list of the Bindery data used.

In general, this documentation applies to sheet fed equipment along with associated bindery, pre-press and inventory items.

We will start out with a review of what items are needed when doing an estimate. Since the Professional Estimator program requests significantly more information than you could possibly know when doing an estimate (because the program doubles as an Order Entry System as well), it is a good idea to begin to understand what minimums are required to perform an estimate.

Starting the Estimate

After loading the program, you will be shown the Worksheet as indicated on the cover of this document. Then, for a new quote, simply click on the "New Quote" or "New Job" button. Note: If retrieving a previous quote or job, click on "Retrieve Quote" or "Retrieve Job".

For this example, we will use 1000 for the initial quantity. No additional quantities are required. Note however that up to 4 quantities are available for a quote.

General Information: The minimum amount of information needed for a quote or job is as follows:

1. Customer Name
2. Job Description
3. New Quote or Job button selected

You may be as descriptive as needed in the "Job Description" area but remember that this is, just a job description. It does not need information that would normally be given to production personnel since there are numerous note sections for that purpose.

Sample Estimates

Example 1 – Bindery Input

Start this estimate as described earlier by entering a single quantity of 1000. Use the default stock and default press information (8.5x11 Finished Sheet, 11x17 Press Sheet and 23x35 Stock Sheet).

We will be looking at the following bindery operations: *Fold, Perf, Pad, Cut, Drill, Gather, Multi-Bin Collate, Stitch (Staple), Number and Wrap*.

Enter a single setup in Bindery: Enter a "1" in each cell of Bindery (right side of the Worksheet). Be sure you have a customer entered, a description and have clicked on the New Quote button. When ready, hit the Red Quote button.

Bindery	SetUp	SRPD	Help	Bindery	SetUp	Qty	Cost
Fold, Baum-1	1	2005	?	Fold, Baum-1	1		\$14.09
Perf, Press-2	1		?	Perf, Press-2	1		\$23.07
Padding-3	1		?	Padding-3	1		\$7.29
Drilling-4	1		?	Drilling-4	1		\$3.74
Cutting-33	1		?	Cutting-33	1		\$4.08
Gathering-43	1		?	Gathering-43	1		\$13.75
MBColator-35	1		?	MBColator-35	1		\$28.43
Stapler-36	1		?	Stapler-36	1		\$19.52
Numbering-37	1		?	Numbering-37	1		\$13.52
Wrapping-38	1		?	Wrapping-38	1		\$1.00

Figure 2 – Bindery Input

Note: The SRPD* shown above is a shorthand way of remembering the significance of entries made. The S=Sheet size (0=Finished, 1=Bleed, 2=Press and 3=Parent), R=Additional Runs, P=Percentage of run (in increments of 10% where 0=100%) and D=Difficulty (0-9 where 5 is average difficulty). In the folding line, an entry of 1.2005 means 1 setup, Sheet size(2)=Press, Additional Runs is zero and Percentage of Run is 100% (the meaning of zero there represents the full run). The difficulty is set to 5, which is the normal difficulty.

The Question Mark brings up a help screen that allows you to enter the SRPD values with greater ease than trying to remember what they stand for. In time however, most people stop using the help screen and just enter the values manually. See Figure 3.

Figure 3 – Worksheet Bindery Input

Why do we need so many items here? Suppose a customer came to you and wanted you to estimate the cost of printing 25000 brochures with half of them folded and the other half drilled to 3-hole standard. Or, using the same example, suppose we need to pre-cut the parent sheet (23x35 for example) before running on the press (11x17). If we are cutting the 23x35 parent sheet, we simply indicate that we want two cuts of the parent sheet. The computer will calculate the quantity to be cut along with the time required to lift the larger sheet into the cutter and maneuver it for the second cut.

Did you know that some estimating programs have no provision for handling different type sheets (they expect you to make the adjustment when entering the information)? One program we know of charged the same price for cutting 25000 sheets of 8.5x11 as it did to cut 25000 sheets of 23x35. The only problem was that in reality, the 23x35 sheet took 3.5 times longer to cut! Another example for using the “Additional Runs” area would be when you need to score on the folder and then run the folding job. This could all be entered as a single item if desired by adding an additional run and an additional setup.

Now let's look at how the price for gathering was derived.

Gathering Calculations: Looking at the File Structure for Gathering (see Figure 4), we see the speed or Units/Hour is set to 2000. This means for gathering that we can gather 2000 units or sheets per hour. Since we are quoting the job for 1000 sheets (gathering does not make much sense here but is used for illustrative purposes), the time required would be $1000/2000 = 0.5$ Hours or 30 minutes. If we add the setup time of 3 minutes to this we get a total of 33 minutes of setup. Multiplying this times our hourly cost gives; $33/60 * 25 = \$13.75$ where 33/60 gives us the number of hours, rather than minutes.

We used gathering because it had a constant speed and did not involve any speed flags.

The screenshot shows the 'Bindery Edit' dialog box with the title 'Bindery Operations & Impact Flags'. The 'Gathering' bindery is selected in the dropdown menu. The 'Bindery Name' is 'Gathering' and the 'Bindery Type' is 'Gathering'. The 'Cost/Hour' is 25, 'Min Speed (uph)' is 2000, 'Max Speed (uph)' is 2000, 'Min Sheet Size' is empty, 'Max Sheet Size' is empty, 'Add'l Run Time %' is 10, 'Setup Time' is 3, 'Add'l Setup Time' is 3, 'Spoilage Eff.' is 50, 'Spoilage K-Factor' is 5, 'Speed Efficiency' is 10, and 'Speed K-Factor' is 5. The 'Impact Flags' section has checkboxes for Stock, Carbonless, Pages, Length, Square In., Thickness, Multi-Bin, No Signatures, Delivery, Linear Padding, Packaging, Weight Based, Foil, Press Sheet, Die Cut, and Padding. The 'Waste/Spoilage' section has input fields for Sheets (0), Max Run % (0), and Min Run % (0). At the bottom, there are buttons for Save, Delete, Duplicate, Cancel, and Exit.

Figure 4 – File Structure for Gathering

Now let's look at cutting in which there are several speed flags that must be employed.

The screenshot shows the 'Bindery Edit' dialog box with the title 'Bindery Operations & Impact Flags'. The 'Cutting' bindery is selected in the dropdown menu. The 'Bindery Name' is 'Cutting' and the 'Bindery Type' is 'Cutting'. The 'Cost/Hour' is 35, 'Min Speed (uph)' is 60000, 'Max Speed (uph)' is 60000, 'Min Sheet Size' is empty, 'Max Sheet Size' is empty, 'Add'l Run Time %' is 25, 'Setup Time' is 6, 'Add'l Setup Time' is 0.6, 'Spoilage Eff.' is 50, 'Spoilage K-Factor' is 5, 'Speed Efficiency' is 1, and 'Speed K-Factor' is 5. The 'Impact Flags' section has checkboxes for Stock, Carbonless, Pages (checked), Length (checked), Square In., Thickness (checked), Multi-Bin, No Signatures, Delivery, Linear Padding, Packaging, Weight Based, Foil, Press Sheet, Die Cut, and Padding. The 'Waste/Spoilage' section has input fields for Sheets (2), Max Run % (0), and Min Run % (0). At the bottom, there are buttons for Save, Delete, Duplicate, Cancel, and Exit.

Figure 5 – File Structure for Cutting

Cutter Calculations: Again we have 1000 sheets and we plan to make a single cut to the finished size of 8.5x11 (this could be an edge or face cut). The speed

with which we can cut is shown as 60,000 sheets per hour. This represents the number of 8.5x11 sheets that may be placed into the cutter, cut and then removed from the cutter. There are several impact flags that are marked, namely Length, Pages and Thickness. In other words, the speed of 60000 would be modified if we were using any size other than 8.5x11 by the ratio of 11 divided by the length of sheet. If we were cutting a 23x35, then the speed would be reduced to $11/35 * 60000 = 18857$ sheets per hour. Often a cutter is expressed as Sheets per Lift and Lifts per Hour. In other words if we can cut 500 sheets per lift and can perform 120 lifts per hour just cutting 8.5x11 sheets in half, then the speed will result as $120 * 500 = 60,000$ sheets per hour. We know from time studies that it takes approximately 1.5-2.0 minutes per lift (or 30-40 lifts per hour) when cutting 23x35 stock of 0.004 thickness. If we can still place 500 sheets in a lift then the speed will be between 15,000 and 20,000 sheets per hour. In our example above, we calculated the speed to be 18,857 which is in the 1.6 minutes per lift range.

How Caliper effects Speed: If we had used a thickness that was 0.008 for example, then the speed of the cutter would be cut in half by the following formula: 0.004 divided by Caliper Used, or $0.004 / 0.008 = 0.5$ times the speed. This is done because if the caliper is 0.008, then we can only get 250 sheets into the cutter for each lift, rather than the original 500 sheets per lift. Of course, all this is fully automatic.

How Pages effect Speed: If we are producing a magazine or book, and we wish to make a final three sided trim, the speed of the operation will be reduced by Pages divided by two. That is because when we place a book into the cutter, every two pages is equivalent to a single sheet of paper, thus a 32 page book (even if the quantity is 1000 books) will result in a time that is identical to cutting 16,000 sheets, or $32 \text{ pages} / 2 * 1000 \text{ sheets} = 16,000 \text{ sheets}$.

Cutter Time and Cost: This is done in a manner similar to Gathering except for the above mention Impact Flags. The Quantity is 1000 and the speed is 60,000 thus the time involved is $1000 \text{ sheets} / 60,000 \text{ sheets per hour} = 1/60^{\text{th}}$ of an hour or 1 minute. Setup time is 6 minutes added to the run time of 1-minute results in a total time of 7 minutes. This calculates out to a cost of $7 / 60 * \$35/\text{hour} = \4.08 Note that a waste factor of 2 sheets was specified in the file, but only one sheet was shown as wasted in Figure 3. Anyone care to answer that? Remember that waste is in Press Sheets and we were cutting Finished Sheets. So, even though we wasted two finished sheets, these were converted to one press sheet.

Looking at Padding: (Please note that the padding file setup will require Impact flags of Thickness and Pages). Padding was entered as a 1. This would only be a correct entry if we were padding Carbonless stock. In effect, we should have entered 50 or 100 to indicate the number of sheets per pad. Using a 1 eliminated the chipboard and stabbing costs of the file. Thus the time for the padding would have been 8.5 inches of face multiplied times the number of sheets (1000) multiplied times the Caliper of the sheet (0.004) = 34 square inches. Since we are padding at the rate of 800+ square inches per hour, the time to actually pad this was 2.55 minutes. The setup time was shown to be 15 minutes thus we have a total time of 17.55 minutes or rounding up, 18 minutes. The cost would be $17.55 / 60 * 25 = 17.31$ (slight error due to speed actually higher than 800)

If you were to go back to the estimate and put in a padding file of 50 setups (actually type the number 50 as you cannot scroll to numbers larger than 5), this then refers to 50 sheets per pad. The result is 20 pads therefore we will have a cost that is \$2 higher than before, due to the 10 cents per pad used for stabbing and chipboard costs. $20 \text{ pads} * \$0.10 = \2.00 Try to experiment with different entries on various bindery operations. For example, look at the costs of both MR and SET UP compared to an additional run. The difference between the two will give you an idea of the cost of just the run time on certain jobs. You will notice that run costs are usually very, very

low on small quantities which is why setup costs are so important. Remember, when running small quantities, the cost is primarily that of setup.

Looking at Wrapping: Generally, wrapping involves a retail price to the customer of between \$0.50 to \$2.00 per package. In our example, each package will cost the customer \$1.30 after the markup. To arrive at a price, the program looks at the number of packages that can be wrapped in an hour (in this case 60, or one per minute). The file is set up so that there are 500 sheets per package of 0.004 thick stock. Since our estimate involved 1000 finished and delivered brochures, there will be 2 packages created.

The time is calculated at 2 packages / 60 packages per hour = 2/60 of an hour. Since our cost is \$30 per hour, we multiply the time (in hours) times the cost per hour to obtain the total cost for the job. $2/60 \text{ times } \$30 = 60/60 = \1 . The \$1 cost is then marked up by 30% to \$1.30 when summarized in the Time Cost summary of Retail price.

Note that each bindery item shown is for the cost and is shown for the first quantity only. Later in Vers 2.4.72, a complete Bindery Time Cost summary will show the Input, Run Time, Spoilage or Waste, Cost and Retail for every quantity.

Example 2 – 8 Page Newsletter

Basic Input

Description: Quote an 8-page newsletter printed in black ink with an average of 30% coverage per signature. The press sheet will be 11x17 and the folded newsletter will be 8.5x11. Customer desires a three-hole drill and stitched (stapled) when complete. A final face trim will be made to the newsletter prior to delivery. A \$5 delivery charge is added to cost of job.

Beginning the Estimate: There are two ways to start this estimate. One would be to retrieve a template that you had created earlier (not done yet) or enter the information from scratch.

Cancel Previous Work: If you are entering this information from scratch, click on the Eraser Icon in order to erase the current quote from memory (does not erase it from the saved quotes).

Customer Name: Enter a new customer or use the drop down selection.

Run Option: No Change. W&T has the same plates for the front of the sheet as it does for the back of the sheet. Sheetwise has different plates for the front and back side of the sheet.

Job Type: Look at the Left Side of the Worksheet Under Job Type where it asks about Flat Sheet or Booklet. In this example, we want to quote this as a booklet, so be sure to click on the radio button that says Booklet.

Mode Selections: Now click on New Quote.

Description: Enter a short description, similar to "8 page 1/1 newsletter". There is a reason for us to make this the description and will be explained after entering the quantities.

Press Input: Once we get to the Press area (First Column), we need to select the 1C ABDick press.

Finished Size: For this quote, we will be using a finished size of 8.5x11.

Press Size: The Press Size will be 11x17. In other words, we will be running the press sheet through the press and gripping it on the short 11" side.

Difficulty: No Change.

Runs: Because we will be running the front and the back of the sheet for every signature, initially put in 2.

Sigs: Enter a 1 here.

Plates: In the second column, be sure to enter a 2 for the plates.. One for each side of this signature.

Quantities: Enter 4 quantities.

Artificial Intelligence: If you had entered the description similar to the example above, and you had entered the press info as described, you will now be able to use the AI button located to the right of the "Estimated By" window. If you click that button now, the program will determine the number of runs, signatures and plates required in order to generate 8 pages. And since we had said we wish to run this 1/1, that information is used to determine the number of plates.

Runs, Plates, Sigs: You should see that we need to have 4 runs, 2 sigs and 4 plates to quote this job.

Alternate Data Entry: Another way of entering the information would be to click on the Question Mark and enter the number of sigs required. See Figure 6.

# of Orig	B&W	Color	Col & B&W
1/0		4/0	4/1
1/1	2	4/4	0/0

Exit Calculate Sig/Run/Plate Count

Figure 6 -- Entering number of sigs printed 1/1

3rd Alternative: And the last method of entering number of pages, sigs, plates and runs is to first, enter the values for a single signature (as we have been doing for the above as well). Then pages will read 4. If we want an 8 page newsletter, then enter an 8 where the pages cell is located and hit enter. The program will calculate the correct number of sigs, plates and runs for you. Same is true if you enter 32, 16 or even 10.

Split Signature: But if you enter 10 in pages, you will be provided with what is called a Split Signature. Two of the sigs will be printed as sheetwise and the last sig will be printed as a W&T. We will wind up with 5 runs, 2.5 sigs and 5 plates.

Stock: The stock entry will be skipped (assuming that we are using the default stock of 23x35 offset with a price of \$55, \$52 and \$49 per thousand based on 1, 4 and 16 carton respectively). If the prices are not as shown, then go to the data files in File Maintenance and change the stock to reflect these prices. Then return to the quote and re-select stock Number 1. The stock prices will change to the modified prices just made.

Booklet: Since this is a booklet type job, be sure you have entered Booklet under Job Type. With a finished, folded size of 8.5x11 and a press size of 11x17, a single signature will produce 4 pages. In order to get 8 pages, we need an additional signature, so this number becomes 2. Each signature will be run through the press 2 times, so the total runs will then be 4. We will need 4 plates as well since each side of each signature will require 1 plate. Verify that you entered the correct runs, signatures and plates by looking at the Press Count and the Stock Count (both shown without waste for clarity).

Spot Color? Suppose the customer decided that they wanted to add a spot color to the front page of this job. How would you go about it? One thing you know is that an extra plate would be required and you would need to run one side of the signature through the press again (assuming a 1-color press). Thus you have complete latitude as to how many runs, signatures and plates will be used to produce any type of job. The answer would be a total of 2 Signatures, 5 runs and 5 plates.

Stock Count & Press Count

But back to our standard Newsletter. If our customer wants 1000 newsletters, then we will need to run 1 signature through, resulting in 1000 sheets passing through the press. Then we will pass another signature through resulting in another 1000 sheets. The total stock will then be 2000 sheets, but because we need to run the backside of each signature, our total press run will be 4000.

The Press & Stock Count Equations

The following is used to identify both Stock and Press Count:

$$\text{Stock Count} = \text{Quantity} * \text{Signatures} * \text{On / Up}$$

$$\text{Press Count} = \text{Quantity} * \text{Runs} * \text{On / Up}$$

Both of these values do not include waste in order to retain a clear picture of required quantities. So far, the values for Up and On have been 1, but later we will look at estimates that involve both Up and On.

Ink Coverage

Now let's move on to Ink. Here we will identify black ink with coverage per signature of 20%, or 10% per side. (If desired, review various coverages in the table on Ink in the Appendix). The data files contain the coverage for black ink at a value of 335,000 square inches per pound and a cost of \$7.00 per pound. These values may or may not reflect your actual mileage or cost.

When we actually quote this job, we will also look at how the Ink was computed for this example. Below is the input used for this quote. We got to this screen by clicking on the question mark next to the Ink.

Front Inks			Back Inks		
Color	PMS	% Cov	Color	PMS	% Cov
Black		10	Black		10

Figure 7 – Ink Coverage 10% per side

Bindery Input

Our next screen shows the bindery items that will be used on this quote. They consist of Cutting the Parent Sheet, Folding and Gathering the Press Sheet, Drilling, Stitching and Trimming (cutting) the finished sheet. Note that we selected the Cutting operation for a final three sided trim simply because we do not have two types of cutters identified. For some, it is easier to have two or more identical cutters in the file so that when making a final three-sided trim for example, they can select the bindery item called Trim rather than Cutting. But it will be the same piece of equipment, just named differently. The drill will require 3 setups for the standard drill while the stapler will require 2 setups. The cutting will consist of 2 bust cuts of the parent sheet followed by a final 3-sided trim of the folded piece. Finally, the job will be wrapped.

Bindery		SetUp SRPD Help	
Fold, Baum-1	1	2005	?
Perf. Press-2			?
Padding-3			?
Drilling-4	3		?
Cutting-33	3	3005	?
Gathering-43			?
Final Trim-61	3		?
Stapler-36	2		?
Numbering-37			?
Wrapping-38	1		?

Figure 8 – Bindery Input

Outside Services

Moving to the Outside Services area (The Paperclip Icon) will allow us to add in the

Additional Services					
Service or Operation		Vendor Name		Service Description	
Delivery		Our Truck			
Qty 1	Qty 2	Qty 3	Qty 4	% Markup	
1000				30	
Cost 1	Cost 2	Cost 3	Cost 4	Outside Services Total	
5	5	5	5	5	

Selected Services				
Service Type	Vendor	Description	Cost	% M
Delivery	Our Truck		5	

General Comments

Deliver to their Baker Street address rather than downtown.

delivery charge. Since a delivery charge is not shown there, we will need to add it to the Vendor Screen first.

(Available Vers 2.4.71).

Start by clicking on the down arrow under “Vendor Service”. Then click on “Add New”.

Type in the name “Delivery” and click OK. Under the title “Vendor Name”, click the down arrow there as well.

Click Add New and enter “Local” or “Our Truck” or something similar.

For Vers 2.4.70 and

Figure 9 – Outside Services

earlier, place the delivery cost into the Cell described as Add\$/Type.

Please note that you can only have one Vendor Name per Vendor Service!

Quoted Worksheet

Once all the information has been loaded, you can quote the job by clicking on the Red Quote Icon.

Figure 10 shows all the Bindery Output as well as a complete and scrollable Time and Cost summary in the lower left. If you wish to print that Time and Cost summary, select Reports in the Top Menu and click on TimeCost Summary.

Millennium Professional Estimator
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Basic Information
Customer & Phone: 800-634-8324
GraphiTech Computer Systems

Job Description
8 page newsletter 1/1

Run Options
☒ Sheetwise
☐ W&T

Job Type
☐ Flat Sheet
☒ Booklet

Mode Selections
☐ New Quote ☒ Retrieve Quote
☐ New Job ☒ Retrieve Job

Layout
☒ Portrait
☐ Landscape

Press Information
Offset: 1C ABDICK
Gripper: 11
Finished Size: 8.5x11
Finished Bleed: ☒
MAX Press Size: 11x17
Speed/Difficulty: 5
Gutter: 0.0625
Runs: 4
Sigs: 2
Parts: 1
%OvrRun: ?
1st Quantity: 1000
2nd Quantity: 2000
3rd Quantity: 3000
4th Quantity: 4000

Stock, Plates & Imaging
0001-20# white bond
Size: 23x35
M's OnHand: 0.78
1 Ctn: 55.00 4 Ctn: 52.00 16 Ctn: 49.00
Total Plates: 4 Type: LL Metal
Out: 4 Cal: 0.004 WashUp: 0
Up: 1 On: 1 Sides: 2 Pgs: 8
Pre Flight \$: 0 Design \$: 0
Add \$/Type: 0 Rip \$/Paste: 0
Blk Ink %: 20 Imaging \$: 0
Color Ink %: 0 Ad'l % MU: 0

Bindery
Fold, Baum-1: 1
Perf, Press-2: 1
Padding-3: 1
Drilling-4: 3
Cutting-33: 3
Gathering-43: 2
Final Trim-61: 3
Stapler-36: 2
Numbering-37: 1
Wrapping-38: 1

Setup
1
1
3
2
3
2
1

Qty1 Cost
\$20.57

\$12.99
\$5.60
\$30.00
\$7.70
\$23.87

\$4.00

Item Description	1000	2000	3000	4000
Modified Selling Price:	\$394.87	\$568.76	\$742.32	\$913.56
Selling Price for Job:	\$394.87	\$568.76	\$742.32	\$913.56
Additional Thousand Price:	\$221.95	\$197.92	\$189.78	\$185.15
Price Per Thousand:	\$394.87	\$284.38	\$247.44	\$228.39
Overall % MarkUp:	0.00	0.00	0.00	0.00

Quote Number: 00000011 Job Number: Current Date: 01/25/18 Due Date: 01/31/18

Figure 10 – Newsletter Quoted Worksheet

In this quote, we elected to go ahead and quote 4 different quantities so that you would be able to see how the program varies the speed and waste for each quantity. The first section below each quantity shows effective and modified Impressions per hour. The difference between these two values is as follows: The Modified value of speed is based on the speed curve you see when you are in the press section of the quote. The Effective value is the value of speed when factors such as shutting down the press to reload or wearing out plates are taken into consideration, makeready time, etc.

Total Run & Makeready Waste may often show a fairly high number in the small run area and may in some cases cause you to think the program is in error. But remember that on a short run, you will usually have high makeready amounts per plate as well as high run waste.

For example, in this quote we are showing almost a 6% waste for the 1000 quantity. Also note that you DO NOT add the press and bindery run waste to determine the total waste. Let's look at how the ~6% was arrived at. The press required 5 sheets per plate. With 4 plates that amounts to 20 sheets. The run waste was 0% for the press (not a usual condition). The bindery requires 2 parent sheets for the cutter (8 press sheets), 2 finished sheets for the trim (1 Press Sheet), and 35 setup sheets for the folder (Press Sheets) and 5 sheets for the drill (Press Sheets). This accounts for 50 press sheets.

The folder also will have a run waste of 1.8%. Since 2000 sheets will pass through the folder, this amounts to 36 sheets. The drill requires a run waste of 0.45%. Again with 2000 sheets being drilled, this amounts to 9 sheets for a total of 45 sheets. Total bindery waste is 96 sheets. Total press waste is 20 sheets. Therefore total waste is equal to 116 sheets. This value is somewhat shy of the value the computer calculated (119) due to rounding of percentages, etc.

Print Operations Time/Cost Summary									
Quote No:	00000011	Sect No:	1	Date:	01/25/18	Estimator:			
Acct Name:	GraphTech Computer Systems			Due:	01/31/18	Production:	Sheetwise		
Phone:	800-634-8324	Colors:				Finish Size:	8.5x11		
Stock:	0001-20# white bond, Caliper = 0.004						Bleed Size:		
Desc:	8 page newsletter 1/1						Press Size:	11x17	
Pre-Press Summary					Bindery Summary (Qty=1000)				
Item:	Cost	Item:	\$U	Time	Cost	Item:	\$U	Time	Cost
Pre-Flight Cost:	\$0.00	Fold, Baum	1		\$20.57	Gathering	2		\$30.00
Ripping Cost:	\$0.00	Perf, Press	0		\$0.00	Final Trim	3		\$7.70
Imaging Cost:	\$0.00	Padding	0		\$0.00	Stapler	2		\$23.87
Design Cost:	\$0.00	Drilling	3		\$12.99	Numbering	0		\$0.00
Add'l Dollar Cost:	\$0.00	Cutting	3		\$5.60	Wrapping	1		\$4.00
Press Summary									
Item:	1000	2000	3000	4000					
Modified Selling Price of Job:	\$354.87	\$568.76	\$742.32	\$913.56					
Selling Price of Job:	\$354.87	\$568.76	\$742.32	\$913.56					
Additional Price/1000:	\$221.95	\$197.92	\$189.78	\$185.15					
Price/1000:	\$354.87	\$284.38	\$247.44	\$228.39					
Overall % Markup:	0.00	0.00	0.00	0.00					
Overall % Gross Margin:	0.00	0.00	0.00	0.00					
Effective Impressions/Hr:	3151	4026	4501	4820					
Modified Impressions/Hr:	5197	5381	5540	5675					
Modified Press Run Waste:	0.00	0.00	0.00	0.00					
Add'l Run Waste Bindery:	2.25	2.02	1.82	1.66					
Total Run + Mkrdy Waste:	5.95	3.95	3.15	2.66					
Press Time (less waste):	000:46	001:29	002:10	002:49					
Press Time (waste):	000:03	000:03	000:04	000:04					
Total Setup Time:	001:10	001:10	001:10	001:10					
Pre-Press Time:	000:00	000:00	000:00	000:00					
Wash-up Time:	000:00	000:00	000:00	000:00					
Bindery Time:	003:47	006:32	009:17	012:00					
Press Cost (less waste):	\$34.63	\$66.91	\$97.47	\$126.88					
Press Cost (waste):	\$1.97	\$2.56	\$2.99	\$3.30					
Total Setup Cost:	\$52.50	\$52.50	\$52.50	\$52.50					
Pre-Press Cost:	\$0.00	\$0.00	\$0.00	\$0.00					
Vendor Services:	\$5.00	\$5.00	\$5.00	\$5.00					
Stock Cost (less waste):	\$27.50	\$55.00	\$82.50	\$110.00					
Stock Cost (waste):	\$1.64	\$2.17	\$2.60	\$2.93					
Washup Cost:	\$0.00	\$0.00	\$0.00	\$0.00					
Plate Cost:	\$72.00	\$72.00	\$72.00	\$72.00					
Total Bindery Cost:	\$104.73	\$178.12	\$251.13	\$323.71					
Cost of Black Ink:	\$1.66	\$3.25	\$4.84	\$6.42					
Cost of Color Ink:	\$0.00	\$0.00	\$0.00	\$0.00					
Total Plates Required:	4	4	4	4					
Stock Waste:	119	158	189	213					
Press Sheets to Order:	2119	4158	6189	8213					
Parent Sheets to Order:	530	1040	1548	2054					
Lbs. of Stock to Order:	32	62	93	123					
Delivered Weight of Order:	28	56	84	112					
Press Count:	4000	8000	12000	16000					
Lbs. of Black Ink Used:	0.24	0.46	0.69	0.92					
Lbs. of Color Ink Used:	0.00	0.00	0.00	0.00					
Total Time Required:	005:45	009:15	012:41	016:04					
Total Cost for Job:	\$301.63	\$437.51	\$571.02	\$702.74					
Additional Cost/1000:	\$168.69	\$152.25	\$145.99	\$142.42					

Figure 11 – Time Cost Summary of Newsletter

Example 3 – 2/2 Sales Brochure

Description: Quote a 2/2 brochure by running this job 2 up. Brochure size is 5.5x8.5 after folding. Run as an 8.5x11 finished size on an 11x17 press sheet using 20# offset (stock #1). Job will need to be folded and cut.

Explaining the Estimate: There are several ways you could actually estimate this job.

1. In this First case, we will quote the job as a SHEET mode rather than BOOK. Enter the 8.5x11 into the finished size and the 11x17 into the press size. Be sure to specify that we will be in SHEET mode. By doing this, the computer will set number UP to be equal to 2. That means we will have 2 finished 8.5x11 brochures for each press sheet that is printed. When we get to specifying the folding, we must be sure to identify the folded piece as the FINISHED rather than the default PRESS sheet. In this way, the computer will know that it is the 8.5x11 that will be folded and not the 11x17.
2. An alternate method would be to enter the 5.5x8.5 as the finished size and the 11x17 as the press size. Then specify how many up we plan to run the job. We would also need to run this job in BOOK mode because the press sheet will need to be folded after it is cut in half. This particular exercise is much more difficult at this time so we will look at estimating the job based on the method of item 1.

Fill out the Worksheet and select stock number 1 (if not already as the default. Be sure to set 1000 as the beginning quantity. Be sure to specify the press as the **2C ABDick**. Also, be sure the press sheet is set to 11x17 first. Then set the finished sheet to 8.5x11.

Since this job will be entered as a simple 2 up job running on a 2-color press, let's first determine the number of runs we will have. Since this is a 2/2 (2 color, 2 sides), and we can print 2 colors per run (or pass), we will be running the job once, turn it over and run it again for a total of 2 runs. Since we are also running this as a straight 2 up job (no W&T), we will need 4 plates. We are only using a single signature for the job (remember that signatures represents the number of different 2-sided press sheets that are to be printed).

Note that the press count is 1000 and the stock count is 500 (both assuming no waste for clarity – actual press count is higher as is stock count). Because we are cutting 4 press sheets from our parent sheet, we only need 125 sheets (plus waste).

Bindery Screen: In this example, we need to specify that we wish to fold the job and we wish to cut the press sheet in half. The folding will require a single gate setup of the finished sheet. (Note that we must specify the finished size of the fold otherwise the folder will think we are folding the press sheet to 8.5x11 when in fact we are folding the 8.5x11 in half to 5.5x8.5. We will also need to make 2 face trims plus 2 bust cuts of the parent sheet. Also a single cut of the press sheet will be required.

The screenshot shows the Millennium Professional Estimator software interface. The title bar reads "Millennium Professional Estimator". The menu bar includes "File", "Edit", "Actions", "Reports", "Maintenance", and "Help". The main window has a header with "Millennium Professional Estimator" and "(c) 2011-2018 by S. Thatcher of GraphiTech Computer Systems Version 2.4.70".

The interface is divided into several sections:

- Basic Information:** Customer & Phone: 800-634-8324, Job Description: 2/2 Brochure, Estimated By: [blank].
- Run Options:** Sheetwise (selected), W&T.
- Job Type:** Flat Sheet (selected), Booklet.
- Mode Selections:** New Quote, Retrieve Quote, New Job, Retrieve Job.
- Layout:** Portrait (selected), Landscape.
- Press Information:** Offset: 2C AB DICK, Gripper: 11 (selected), 17, Gripper: MAX, Press Size: 11x17, Speed/Difficulty: 5, Runs: 2, Sheets: 1, Parts: 1, 1st Quantity: 1000, 2nd Quantity: 0, 3rd Quantity: 0, 4th Quantity: 0, %OvrRun: [blank].
- Stock, Plates & Imaging:** 0001-20# white bond, Size: 23x35, M's OnHand: 0.78, 1 Ctn: 55.00, 4 Ctn: 52.00, 16 Ctn: 49.00, Total Plates: 4, Type: SL Metal, Out: 4, Cal: 0.004, WashUp: 2, Up: 2, On: 1, Sides: 1, Pgs: [blank], Pre Flight \$: 0, Design \$: 0, Add \$/Type: 0, Rip \$/Paste: 0, Blk Ink %: 0, Imaging \$: 0, Color Ink %: 0, Ad'l % MU: 0.
- Bindery:** Fold, Baum-1, 1, Perf, Press-2, Padding-3, Drilling-4, Cutting-33, 4, 3005, Gathering-43, MBColator-35, Stapler-36, Numbering-37, Press Cut-62, 1, 2005.
- SetUp SRPD Help:** [blank].
- Cell Descriptions:** Select from any item within the list. You may use duplicate items such as two cutters, etc.
- Click Here to Add Notes:** [blank].
- Finished Layouts:** [blank].
- Verification Count 1st Quantity:** Press Clicks: 1000, Press Stk Count: 500, Inventory Count: 125.
- Dimension Sort Options:** Square Inch (selected), 1st Dimension.

At the bottom, the status bar shows: Quote Number: 00000014, Job Number: [blank], Current Date: 01/25/18, Due Date: 01/31/18.

Figure 12 – Worksheet Input for 2/2 Brochure

This is the primary focus of this quote. To show how you can fold a job even when in sheet mode. Just remember that the flat folded piece must be showing in either the finished or press sheet size cells and you must specify which size you want to fold (unless Press which is the default).

What if we ran this as W&T? Let's look at how this job would be different. First, the press screen would have how many plates? You would also need to click the W&T button and possibly specify the type of W&T you will be using. Now how many runs will be used?

Remember the definition of runs is equal to the number of times a sheet passes through the press. Since you will be turning off the press, reloading the paper and running the job through again, you will need to specify 2 runs. How many plates again? The answer is 2 because the same plates are used to print the backside as well.

By the way, did you notice that the Press File for plates contains setup times for W&T? It may not be as large a time as initial setup, but it does require some time. Same is true for registration.

What are the Press Count and the Stock Count?

Are they the same as before?

Let's analyze the problem. We are still running 2 up. That means that we need to have 500 sheets of stock for the job (again assuming no waste for clarity). We will be running the stock through the press 1 time, turning it over and running it through again. Press count will then be 1000. So yes, the press and stock counts are the same. Our biggest savings will be in the number of plates and makeready times, thus our customer will save about \$40 by our thoughtfulness. And we will probably win the bid as well.

One final thought...

Suppose the customer had two different brochures and the customer still wanted 1000 of each. This example brings up a new method of estimating a job in which you have more than 1 form on a press sheet. (Previously, we looked at the same form on the press sheet whereas now, we want to look at two different forms on the press sheet).

The way to enter that type of job is fairly straightforward. In fact it differs in only one way from our original quote of this section. Note the word "On" in Figure 12 above. Previously it was either 0 or 1.

ON vs UP

The definition of this word is that On = the number of forms that are different. It can also never be greater than the number Up.

Well then, how does the press and stock count change as a result of this seemingly insignificant entry? Note that after placing a 2 in the ON cell and hitting enter, the press count is now 2000 and the stock count is now 1000. If we were to quote the job, we would find that it cost approximately \$30 additional to produce two different forms for this customer as opposed to the single brochure.

Now for the big question. How would we go about making this job (with two different forms) a W&T?

The answer: Same as before. See above.

Example 4 – 4 up Business Cards

This next example is rather simple, but is used to describe procedure rather than providing a rigorous exercise.

Description: This particular job will be printed 4 up on an oversize card (5x7) with a finished size of 2x3.5 (business card size). We will be using a card stock #8 which is a 26x40 stock. You can see the type of layout shown below in Figure 13.

Worksheet: Once we have selected our stock (#8 from the stock screen) we will be entering the required information into the press screen. Look over Figure 13A and be sure you have similar results.

The screenshot shows the GraphiTech Layout Program interface. It has two main sections for layout configuration, each with a diagram and a list of parameters.

Left Section: Number Up: Finished Forms on Press Sheet

- Diagram: Shows a 4x1 grid of cards with dimensions PSW (Press Sheet Width) and PSD (Press Sheet Depth).
- Parameters:
 - FRAME #: 1
 - STANDARD OUT: 4
 - MAXIMUM OUT: 4
 - PSW-SHT WIDTH: 7.0000
 - PSD-SHT DEPTH: 5.0000
 - X=FIN SHT DIM: 3.5000
 - Y=FIN SHT DIM: 2.0000
 - % STOCK WASTE: 20.0%

Right Section: Number Out: Press Sheets on Parent Sheet

- Diagram: Shows a 29x7 grid of cards with dimensions WID (Width) and DEP (Depth).
- Parameters:
 - FRAME #: 4
 - STANDARD OUT: 24
 - STAGGER OUT: 5
 - TOTAL OUT: 29
 - MAXIMUM OUT: 29
 - WID-SHT WIDTH: 40.0000
 - DEP-SHT DEPTH: 26.0000
 - X=PRS SHT DIM: 5.0000
 - Y=PRS SHT DIM: 7.0000
 - x=SWING CUT: 7.0000
 - y=SWING CUT: 5.0000
 - % STOCK WASTE: 2.4%

Buttons on the right include: Re-Start, Clear Scr, Print Layout, and Exit.

Figure 13 – Business Card Layout

Note that the computer specified that we will be running the job 4 Up and that we can get 29 5x7 sheets out of the 26x40 sheet. Just exactly how we are to specify the cutting for such a layout is easily found from the above cutting diagram.

Figure 13 on the left illustrates how the 4 up is to be run while the right side of Figure 13 shows the 29 up. Figuring out the number of cuts on the press sheet is easy... just 3. Now let's look at the cuts for the Press Sheet. If we look at the layout, you will notice that it includes a dutch cut along the bottom in order to achieve the 29 out. After the cut, both the vertical and the horizontal dimensions are exactly matched with the width and depth of the cards. There is no waste there but there is a small amount of waste on the dutch portion on the bottom.

Number of Cuts: Let's look at how to go about figuring the number of cuts of the parent sheet. This will be approximate however since there may be more than one solution.

Starting on the bottom, we make a single cut to separate the dutch portion from the remaining cards. Then 2 horizontal cuts from the top down to separate the main group of cards. Then, after stacking, we make the remaining 7-8 cuts (depending on the size of the Press Sheet). The Dutch layout is cut separately (approx. 5 cuts).

Grain Problem? At this point, the dutch at bottom gives us all exact cards except for possible grain considerations. But if this was a concern, simply choose a layout that doesn't include the dutch cut.

General Rule of Cutting: A fast and dirty method of calculating the number of cuts is to divide the number out by 2. The method is most often very close (plus or minus 1 or 2 cuts for large number out examples) but becomes less accurate for smaller number outs such as 3-7 involving dutch cuts.

It's up to you at this point to determine the cuts of the press sheet and of the parent sheet.

Now let's move to a new estimate called "Split Signature"

The screenshot shows the 'Professional Estimator' software interface for GraphiTech. The title bar indicates 'GraphiTech's Millennium Professional Estimator' and 'Version 2.4.80'. The interface is divided into several sections:

- Basic Information:** Phone/Cont: 800-634-8324, Job Description: Business Cards, 2/0 4 up ABDick 2 color, Coated Cover.
- Run Options:** Sheetwise, W&T, Job Type: Flat Sheet, Booklet.
- Mode Selections:** New Quote, Retrieve Quote, New Job, Retrieve Job.
- Layout:** Portrait, Landscape.
- Press Information:** Offset: 2C AB DICK, Gripper: 5, Finished Size: 2x3.5, Press Size: 5x7, Speed/Difficulty: 5, Runs: 1, Sheets: 1, Parts: 1, 1st Quantity: 1000, 2nd Quantity: 2000, 3rd Quantity: 3000, 4th Quantity: 4000.
- Stock, Plates & Imaging:** Size: 26x40, M's OnHand: 1.00, 1Ctn: 350.00, 4Ctn: 350.00, 16Ctn: 350.00, Total Plates: 2, Type: SL Metal, Out: 29, Cal: 0.008, WashUp: 0, Up: 4, On: 1, Sides: 1, Pgs: 1, Pre Flight \$: 5, Design \$: 0, Add \$/Type: 0, Rip \$/Paste: 0, Blk Ink %: 10, Imaging \$: 0, Color Ink %: 15, Ad'l % MU: 0.
- Bindery:** Fold, Baum-1, Perf, Press-2, Padding-3, Drilling-4, Cutting-33, Gathering-43, MBColorator-35, Wrapping-38, Numbering-37, Press Cut-62.
- SetUp SRPD Help:** Various checkboxes for different setup options.
- Cell Descriptions:** Enter Job Description. The AI button top right will interpret several entries you make in order to fill out the worksheet. If you state the word Pages or Pgs in your description, the number before the word will be used to identify quantities in sigs, runs, plates, modes, etc. If you further specify colors per side using 4/4 or 3/2, etc., then the current number of runs and sigs and plates will be identified.
- Finished Layouts:** A preview area showing the layout of the business cards.
- Verification Count 1st Quantity:** Press Clicks: 250, Press Stk Count: 250, Inventory Count: 9.
- Dimension Sort Options:** Square Inch, 1st Dimension.

At the bottom, there are fields for Quote Number: 00000005, Job Number:, Current Date: 12/31/17, and Due Date: 01/05/18.

Figure 13A – Business Card Worksheet

Example 5 – 12 Page Booklet (Split Sigs)

In this example, we will be looking at the concept of **Split Signatures**. The GraphiTech Millennium software has been designed to allow the estimator to input two or more different signatures on the same part of the estimate. In other words, we will be running 2 signatures, one of them an 8-page signature and the other a 2 Up W&T (1/2 Signature) of 4 pages resulting in a total of 12 pages. Note that to use this method, you must be using the same stock for both signatures, or you must use an average cost for the two different stocks.

The customer desired an estimate for a 12 Page 8.5x11 booklet in quantities of 1M, 2M, 3M and 4M printed on Enamel stock in 2 colors per side (2/2). We plan to run this on a 40" press with a press sheet of 17.5x22.5. To start, enter a short description and a customer account. Next select the Job Type and create a new Quote. Then select the stock (in this case stock number 6) followed by a selection of the press.

After entering the stock, the next thing you must do is to enter the known sheet sizes you will be working with. We know we want an 8.5x11 finished size so that is entered first. We also want to run this on our 2-color 40" press (or any other 2 color press), so we enter a 17.5x22.5 as our press sheet.

The screenshot displays the GraphiTech's Millennium Professional Estimator software interface. The window title is "Professional Estimator". The main menu bar includes File, Edit, Actions, Reports, Maintenance, and Help. The title bar shows "GraphiTech's Millennium Professional Estimator" and "(c) 2011-2018 by S. Thatcher of GraphiTech Computer Systems Version 2.4.80".

The interface is divided into several sections:

- Basic Information:** Phone/Cont: 800-634-8324, Job Description: 12 page 2/2 booklet Split Sig Example, Estimated By: [blank].
- Run Options:** Sheetwise (selected), W&T, Flat Sheet, Booklet.
- Mode Selections:** New Quote, Retrieve Quote, New Job, Retrieve Job.
- Layout:** Portrait (selected), Landscape.
- Press Information:** Offset: 2/C-40, Gripper: 5, Finished Size: 8.5x11, Press Size: 17.5x22.5, Speed/Difficulty: 5, Runs: 3, Sigs: 1.5, 1st Quantity: 1000, 2nd Quantity: 2000, 3rd Quantity: 3000, 4th Quantity: 4000.
- Stock, Plates & Imaging:** Stock: 0006-70# Warren Enamel, Size: 17.5x22.5, M's OnHand: 22.00, Total Plates: 6, Type: LL Metal, Out: 1, Cal: 0.004, WashUp: 2, Up: 1, On: 1, Sides: 2, Pgs: 12, Pre Flight \$: 0, Design \$: 0, Add \$/Type: 0, Rip \$/Paste: 0, Blk Ink %: 0, Imaging \$: 0, Color Ink %: 0, Ad'll % MU: 0.
- Bindery:** Fold, Baum-1, 3, 2005, Perf, Press-2, Padding-3, Drilling-4, Cutting-33, Gathering-43, Wrapping-38, Stapler-36, Numbering-37, Final Trim-61.
- Verification Count 1st Quantity:** Press Clicks: 3000, Press Stk Count: 1500, Inventory Count: 1500.
- Dimension Sort Options:** Square Inch (selected), 1st Dimension.

The bottom of the window shows the Quote Number: 00000016, Job Number: [blank], Current Date: 01/26/18, and Due Date: 02/01/18.

Figure 14 – Worksheet for 12 page booklet

Immediately that will show an 8-page signature. With a 2-color press, we know that we need 2 runs (one front and one back) for the job. Also, we will need 4 plates. Now how do we enter the other 4 pages? First, we know we will need a half signature (1/2 of an 8 page sig will result in a 4 page sig). And since this will be a W&T, we know that we will only need 2 plates (they will be used for both front and back side).

And because we will be running this 4 pager as a W&T, our total run length will be only 1 run of a full signature resulting in a total runs of 3 runs will be only 1 because we are making half of a full run on one side and a half run on the other side resulting in a full run if it were a full signature. Remember that Runs covers the Press count and Signatures cover the Stock count.

By looking at the computer generated stock and press count, we see that we have the correct entry. Our press will be running 1000 on one side of the full sheet followed by another run of 1000 on the back side. The W&T signature (which is actually full size but is run W&T resulting in only a half run per side). Since only 500 sheets will be run on the front and then on the back, the result is a total of 1000 (or 1 run of a normal signature). Thus our RUN is 3 and our press count is 3000 plus waste. The stock count on the other hand includes the 1000 for the first signature and the 500 used for the W&T. This is why the result of the stock count is 1500 and why we used 1.5 signatures.

Note that in general, you do not need to determine half runs and half sigs when working with a W&T by itself. The case above is a special one in which we are telling the computer that we are running two different types of jobs.

Note: *Even though this was fun to try and figure out, there is an even faster way of entering this split signature. By having the press, finished size, press size and stock already entered along with a single signature specification (i.e. 2 runs, 1 sig and 4 plates), we can hit the AI button and it will read in our description that we want 12 pages and automatically create the number of runs, sigs and plates for us. This will also work if we wanted an 84 page booklet, etc.*

What Other Operations will be needed? First, we will need to specify how the plates will be prepared, i.e., Direct to Plate, Ripping, or the older method of using negatives and burning the plate (unless we have opted to include those in the cost of the plate within the press file).

Second we will need to specify the number of cuts required for this job. In this example, we are running the same press sheet as the Parent (Inventory) sheet, thus no cuts are required to obtain the press sheets. We will need to make a final three sided trim however, so we need to enter that and to be certain to specify the Finished Sheet that will be cut.

Note that our Worksheet shows 2 different cuts however they both accomplish the same thing except one is more descriptive than the other. So remove one of the cuts if you happened to put in both.

Note: The program will (because we are in book production) automatically specify the correct number of books that can be loaded to the cutter and will assume we are placing the final folded booklets into the cutter for these trims.

In addition, we will be making 3 setups for the folder; 2 for the sheetwise fold and 1 for the W&T. The folder will not, however, compensate for the smaller size of the W&T, thus the cost displayed will be slightly higher than what would actually be calculated taking these items separately. For example, we could specify 2 folders, one with 2 setups folding 60% of the stock (for the 1000 sheets of sheetwise) and another with 1 setup folding 30% of the stock (for the 500 sheets of W&T). We should get approximately the same answer as we did when entering a 3 above using just the one entry.

In Gathering, we could enter a 2 to indicate that we will have 2 stations to setup and for stapling we have entered a 2 for the 2 staples. Wrapping was also indicated with the use of a 1 which means only that we will be using the default number of sheets (converted to pages) that is found in the bindery file for wrapping.

Example 6 – 3-Part Carbonless

In this example we will estimate 1M, 2M, 3M and 4M 3-part carbonless printed in black ink on one side only. We will be padding and fan-apart the sets. The first example will use a pre-collated, 3-part stock. In the next example, we will discuss how you may use three different stocks rather than using pre-collated stock.

Select the required stock from the list (stock #12) but make sure the number of parts is identified as 3. You will note that as soon as you enter the stock number, you will be warned that the press sheet is being replaced by the parent size since we can't run a press sheet larger than the stock itself.

After entering customer, Job Type and New Quote, enter the quantities desired by the customer. These quantities will be the number of sets the customer wants, not the total number of sheets. For example, when the customer requests 1000 3-part carbonless, they will receive 1000 sets, therefore we enter the quantity as 1000.

Note that although the Qty shows as 1000, the stock count shows 3000 as does the press count.

Bindery will be entered as 1 setup for padding. This should result in a time of 22 minutes (quote this example with just the padding and look at the Time Cost lower left for Bindery Time). The time is arrived at in the following manner.

First there is a setup time of 15 minutes. The speed will be approximately 845 sq. inches per hour. Since we have 1000 times 8.5 inches times 0.004 inches of thickness, we have 102 square inches we need to pad. The time that this will take is $102 \text{ divided by } 845 = 0.1207 \text{ hours}$ or multiplying by 60minutes/hour results in 7.24 minutes. Adding the 7.24 minutes to the 15 minutes setup provides the 22 minutes (rounded off) for padding.

Example 7 – Bank Book of 3 part with chipboard cover

In this example, we will estimate the cost to produce 100 bank deposit books. Each book consists of 50 sets of 3 part carbonless with a single chipboard cover wrapped around the bank book.

The top 2 sheets consists of a 16 lb stock, 1 coated back (cb), the second coated front and back (cfb) and a third stock of 24 lb. coated front (cf). The procedure is to create a stock that actually is priced based on the average of all three stocks. In other words, add up the cost per thousand sheets for each stock and divide by three to obtain the average cost per thousand sheets. As for the caliper, add up each stock's thickness and also divide by three to obtain the average caliper (needed for padding). After creating the stock (similar to the one shown below where we modified stock # 84) in the data files, we start to enter the data into the press screen. See Figure 15.

For review, we need to stitch and cover every 50 sets with unprinted tag, stitch it at the top, and glue a cover in position around the 50 sets. Since the customer wanted 100 books, we will need to wrap, stitch and glue 100 books, as well as produce 100 sets of the 3-part, 50 per book NCR forms.

There are a couple of ways to actually perform this quote.

Procedure One: In one method, we would actually perform 2 quotes. The first

The screenshot shows the 'GraphiTech Millennium Stock File' window. It has a menu bar with 'New', 'Edit', 'Refresh', 'Save', 'Cancel', 'Duplicate', 'History', 'Print', and 'Delete'. Below the menu is a 'Sheet Stock' section with a search bar and 'Sheet' and 'Roll' radio buttons. A table lists stock items with columns: Stk#, Stock Description, Size, Color, Basis, and Caliper. The selected item is 0084, 3/P-11 ncr p/c rv blk, 8.5x11, WHITE, 15, 0.0035. Below the table, various specifications are listed, including Stock Number (0084), Description (3/P-11 ncr p/c rv blk), Stock Size (8.5x11), Weight/M sheets of PARS (8), Basis Weight of Stock (15), Last Price Update (01/18), Binery Running Efficiency % (95), Min. Cartons for Re-Order (0), Press Running Efficiency % (95), Caliper (.004, etc.) (0.0047), Thousands/Carton (5), Cost/M at 1 (13.81), Cost/M at 4 (12.44), Cost/M at 16 (11.96), Cartons On Hand (0.000), MTD Carton Usage (0.000), YTD Carton Usage (0.000), Color (WHITE), Coat (0), Brand (SLOAN/DILL), Type (pt3), Vendor Code (01), Code2 (02), Location (81), Cartons on Order (0), Cartons Unallocated (0), Qty Efficiency (20), and Qty K-Factor (5).

Figure 15 – 3-Part stock of different sheets (1 cb, 1cbf, 1cf)

The screenshot shows the 'Millennium Professional Estimator' window. It has a menu bar with 'File', 'Edit', 'Actions', 'Reports', 'Maintenance', and 'Help'. Below the menu is a 'Basic Information' section with 'Customer & Phone' (000-634-8324) and 'Job Description' (100 books of 50 sets - 3 part carbonless plus tag cover 1/0). The 'Run Options' section has 'Sheetwise' and 'W&T' radio buttons. The 'Mode Selections' section has 'New Quote', 'Retrieve Quote', 'New Job', and 'Retrieve Job' radio buttons. The 'Layout' section has 'Portrait' and 'Landscape' radio buttons. The 'Press Information' section has 'Offset' (2C AB DICK), 'Gripper' (11), 'Speed/Difficulty' (3), 'Runs' (1), 'Sheets' (1), 'Parts' (3), '1st Quantity' (5000), '2nd Quantity' (0), '3rd Quantity' (0), and '4th Quantity' (0). The 'Stock, Plates & Imaging' section has 'Size' (8.5x11), 'M's OnHand' (0.00), 'Total Plates' (2), 'Type' (SL Metal), 'Up' (1), 'On' (1), 'Sides' (1), 'Pre Flight' (0), 'Design' (0), 'Add S/Type' (0), 'Rip S/Paste' (0), 'Bk Ink %' (0), 'Imaging' (0), 'Color Ink %' (0), and 'Adt % MU' (0). The 'Binery' section has 'Fold, Baum-1', 'Perf. Press-2', 'Padding-3', 'Drilling-4', 'Cutting-33', 'Gathering-43', 'MBColorator-35', 'Stapler-36', 'Numbering-37', and 'Wrapping-38'. The 'Verification Count' section has 'Press Clicks' (15000), 'Press Stk Count' (15000), and 'Inventory Count' (15000). The 'Dimension Sort Options' section has 'Square Inch' and '1st Dimension' radio buttons. The bottom of the window shows 'Quote Number' (00000018), 'Job Number', 'Current Date' (01/26/18), and 'Due Date' (02/01/18).

Figure 16 – Worksheet entries for First Part

would include the 3 part carbonless and knowing that we needed to have a total of 100 books of 50 sets each (of 3-part), this would result in printing 5000 sets of 3-part (50 times 100). Since the first part of the quote only involves a single press run, a single signature and a single plate, we may simply enter it as a quantity of 5000 sets of 3-part! That will provide us with the correct number for press runs and stock.

Note in the lower right the Verification count which should match with the actual quantities required for this job.

Also note that the speed is showing as red for this part of the job. That is because the efficiency of the press and bindery are reduced as a result of using this stock.

In other words, it is known that this stock will jam up in both bindery as well as press so the press is being run very slowly to account for this

fact. So slow that is running below it's slowest setting (not actually but only because it is shut down so often it appears to be running that slow).

Second Part of Job: This involves the use of the tag stock only. In other words, there is no press work for this stock. Be sure the first part has been saved by either quoting it or clicking on the Save Job or Quote Icon.

Note 1: Whenever you select a new part, the older information is retained in order to make it easier to see what was done previously and to avoid having to re-enter too much information. In some cases however, you will need to delete some bindery or pre-press info that applies only to the first part.

Now you need to click on the right arrow under the Large Number 1 showing just above the red speed marker. You will be asked if this is a new part 2 for this quote. Click on the word "Yes".

In the Press cell, click on "<None>" so that any costs from plates or press runs will not be a part of the quote. You don't need to change the runs, sigs or plates since they are not used in the calculations at this point.

For the Bindery Operations, we will need to stitch or staple 100 books which is the reason we specify a 1 in setups for stapling. Although in reality, we will be stapling through the tag cover into the 50 sets of 3-part carbonless, we will get the correct answer simply by stating that we have 1 staple in each of the 100 tag sheets.

New Tag Wrap Bindery File: Now for the Tag Wrap around the previously printed books, we will create a new bindery file called Tag Wrap.

Figure 17 illustrates how to build that particular file. To arrive at the numbers shown, we decided that we could wrap individual booklets at the rate of one every 20 seconds or 3 per minute. Converting that to number per hour results in the rate of 180. Because when using this tag wrap, we only want to include 1 tag per book so the sheets per package or wraps per book will be one (1). And because this does not involve any machinery, a BHR analysis concluded that \$15 per hour was sufficient for the labor involved.

The screenshot shows a software window titled "Bindery Edit" with a sub-header "Bindery Operations & Impact Flags". The "Tag Wrap" bindery is selected. The "Bindery Name" is "Tag Wrap" and the "Bindery Type" is "Packaging". The "Cost/Hour" is set to 15. The "Min Speed (uph)" and "Max Speed (uph)" are both set to 180. The "Min Sheet Size" and "Max Sheet Size" are empty. The "Sheets/Pkg" is set to 1. The "Setup Time" and "Add'l Setup Time" are both set to 0. The "Spoilage Eff." is set to 50. The "Spoilage K-Factor" is set to 5. The "Speed Efficiency" is set to 20. The "Speed K-Factor" is set to 5. The "Impact Flags" section includes checkboxes for Stock, Carbonless, Pages, Length, Square In., Thickness, Multi-Bin, No Signatures, Delivery, Linear Padding, Packaging (checked), Weight Based, Foil, Press Sheet, Die Cut, and Padding. The "Waste/Spoilage" section includes fields for Sheets (0), Max Run % (0), and Min Run % (0). At the bottom, there are buttons for Delete, Save, Duplicate, and Exit, along with a note: "Select Bindery Item at Top to Edit or Duplicate."

Figure 17 – Tag Wrap Bindery Operation

Now, we return to our estimate and quote the second part of the job using our new stock and files.

The Stock we wish to use here is #92, 11tag ncr tag, 8.5x11

With 100 entered for quantity (since we have 100 books we wish to wrap), we can then easily look at the bindery operation called "Perf, Press" and, using the drop down arrow, select "Tag Wrap" in its place.

After selecting the tag from the stock inventory screen (stock # 92), we'll begin filling out the changes to the press screen.

The press screen for this portion of the job should read <None> and the stock would be #92 tag. The Bindery includes a 1 for Padding, a 1 for stapling and a 1 for tag wrap.

NOTE: No care has been taken in this quote to discern the actual sizes required for the tag, but rather the underlying technique involved. If you wanted to be precise in this estimate, then you would have entered the finished size as the size of the bank book (probably 3x6).

Bindery	SetUp	Qty	Cost
Fold, Baum-1			
Perf, Press-2			
Padding-3	1		\$6.32
Drilling-4			
Cutting-33	4		\$4.75
Gathering-43			
MBColator-35			
Stapler-36	1		\$3.45
Numbering-37			
Tag Wrap-63	1		\$8.33

Figure 18 – Bindery results for 2nd part of job

The resulting Bindery costs are shown for this job in Figure 18. The one on the right shows the cutting added and the one on the left shows cutting left off and the problem with stapling.

In Figure 19, the cutting was determined from the layout shown. The cuts involved were 1 to remove the waste on the bottom side and then 3 cuts to remove the finished pieces.

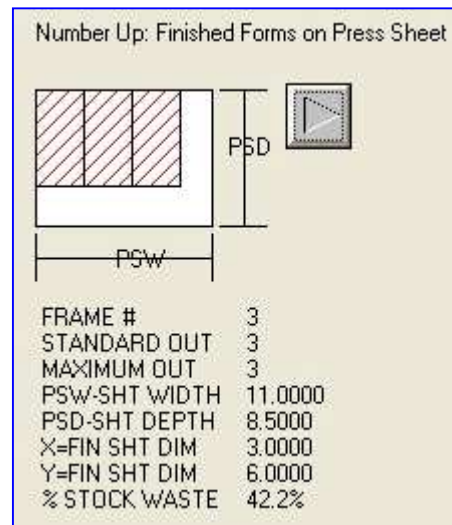


Figure 19 – Cutting the tag wrap

Padding: Lets start first with Padding. The padding cost is equal to 100 sheets * 3 inches * 0.0075 inchesw/sheet divided by 800 sq inches/sheet times \$25 = \$0.07, while the setup cost is 15 minutes/60 minutes * \$25 which amounts to \$6.25. Add the \$6.25 and \$0.07 and we get \$6.32.

Cutting: We are cutting 100 sheets of 8.5x11 which can be cut at a rate of 60,000 sheets per hour. The first cut will take $100/60000 * 0.0075/0.004 * \$35/\text{Hour} = \$0.07$. Each add'l cut will be 25% of that or approximately \$0.015 each cut for a total of \$0.10. The setup time is 6 minutes for the first cut and 0.6 minutes for each add'l cut resulting in a total of 7.8 minutes and a cost of $7.8/60 * 35 = \$4.55$ Add to that our \$0.10 and we get \$4.65 (slightly higher than the calculated value).

Stapling: This one is straight forward. We can do 1400 staples per hour and we will be doing 100, therefore the run cost is $100/1400 * \$25/\text{Hr} = \1.79 . The setup time is 4

Minutes for a cost of $4/60 * 25 = 1.67$. Adding the two we get \$3.46 but if we eliminate the rounding errors, we get \$3.45.

Tag Wrap: No setup time here just a run cost of $100/180 * 15 = \$8.33$.

Professional Estimator

File Edit Actions Reports Maintenance Help

GraphiTech's Millennium Professional Estimator

(c) 2011-2018 by S. Thatcher of GraphiTech Computer Systems Version 2.4.80

Basic Information
Phone/Cont: 800-634-8324
GraphiTech Computer Systems

Job Description
100 books of 50 sets - 3 part carbonless plus tag cover 1/0

Run Options
☒ Sheetwise
☐ W&T

Job Type
☒ Flat Sheet
☐ Booklet

Mode Selections
☐ New Quote
☐ Retrieve Quote
☐ New Job
☐ Retrieve Job

Layout
☒ Portrait
☐ Landscape

Press Information
Gripper: 5
Gripper: 7
Gutter: 0
Runs: 1
Sheets: 1
Parts: 1
1st Quantity: 100
2nd Quantity: 0
3rd Quantity: 0
4th Quantity: 0
%OvrRun: 0

Stock, Plates & Imaging
Size: 8.5x11
M's OnHand: 0.00
1Ctn: 28.11
4Ctn: 25.34
16Ctn: 24.36
Total Plates: 2
Type: SL Metal
Out: 1
Cal: 0.0075
WashUp: 2
Up: 3
On: 1
Sides: 1
Pgs: 1
Pre Flight \$: 0
Design \$: 0
Add \$/Type: 0
Rip \$/Paste: 0
Blk Ink %: 0
Imaging \$: 0
Color Ink %: 0
Ad'll % MU: 0

Bindery
Fold, Baum-1
Perf, Press-2
Padding-3
Drilling-4
Cutting-33
Gathering-43
MBColator-35
Stapler-36
Numbering-37
Tag Wrap-63

Setup: Qty1 Cost
1 1 \$6.32
4 4 \$4.66
1 1 \$3.45
1 1 \$8.33

Verification Count 1st Quantity
Press Clicks: 0
Press Stk Count: 34
Inventory Count: 34

Dimension Sort Options
☐ Square Inch
☒ 1st Dimension

Item Description	100	0	0	0
Modified Selling Price:	\$31.09	\$0.00	\$0.00	\$0.00
Selling Price for Job:	\$31.09	\$0.00	\$0.00	\$0.00
Additional Thousand Price:	\$0.00	\$0.00	\$0.00	\$0.00
Price Per Thousand:	\$0.00	\$0.00	\$0.00	\$0.00
Overall % MarkUp:	0.00	0.00	0.00	0.00

Quote Number: 00000018 Job Number: Current Date: 01/26/18 Due Date: 02/01/18

Figure 19A – Tag Wrap Worksheet

Front Desk

Using Templates to Build Front Desk

Now that we have built a number of different estimates, we will show how to add an existing quote into the database of Front Desk Templates.

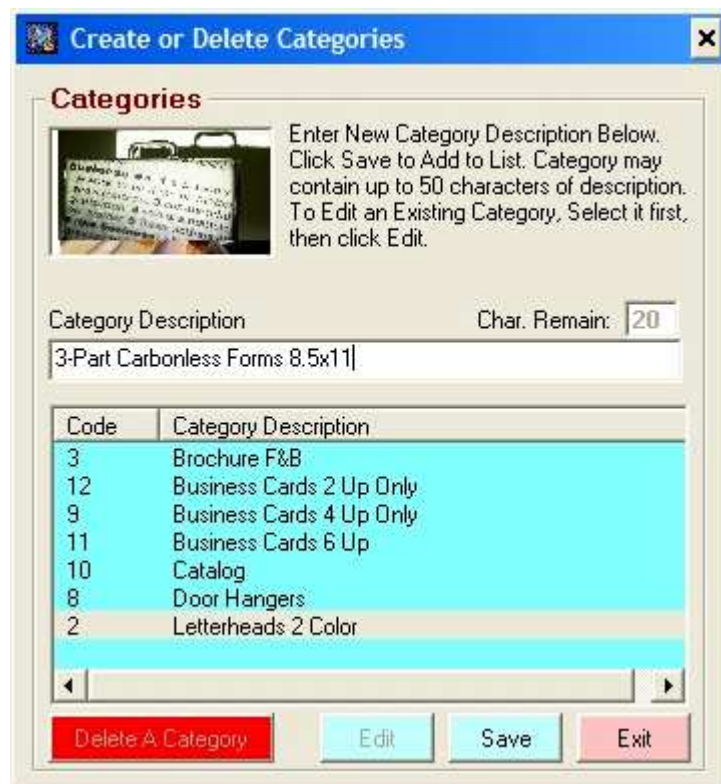


Figure 20 – Create a Category

We are going to look at the 3-part carbonless estimate that we created earlier in Example 6. Be sure to read the Warning if running Vers 2.4.70 or earlier.

In order to save some time when creating products in Front Desk, you have the option of retrieving a quote or job at the worksheet and then going to Front Desk by clicking the icon. Then, at the Front Desk menu, select "File" followed by "Products". When you do, (assuming you have already created a Category), you will have that estimate showing as part of the template so no search is then required. If you have a blank worksheet, then all the saved quotes and jobs will appear when you go to the "Products" of Front Desk.

For now, select the Front Desk Icon called "Front Desk". Then select the "File" in the menu at top of page.

After creating the Category, (see Figure 20 and 21), we need to access the File Menu again and select Products (see Figure 23).

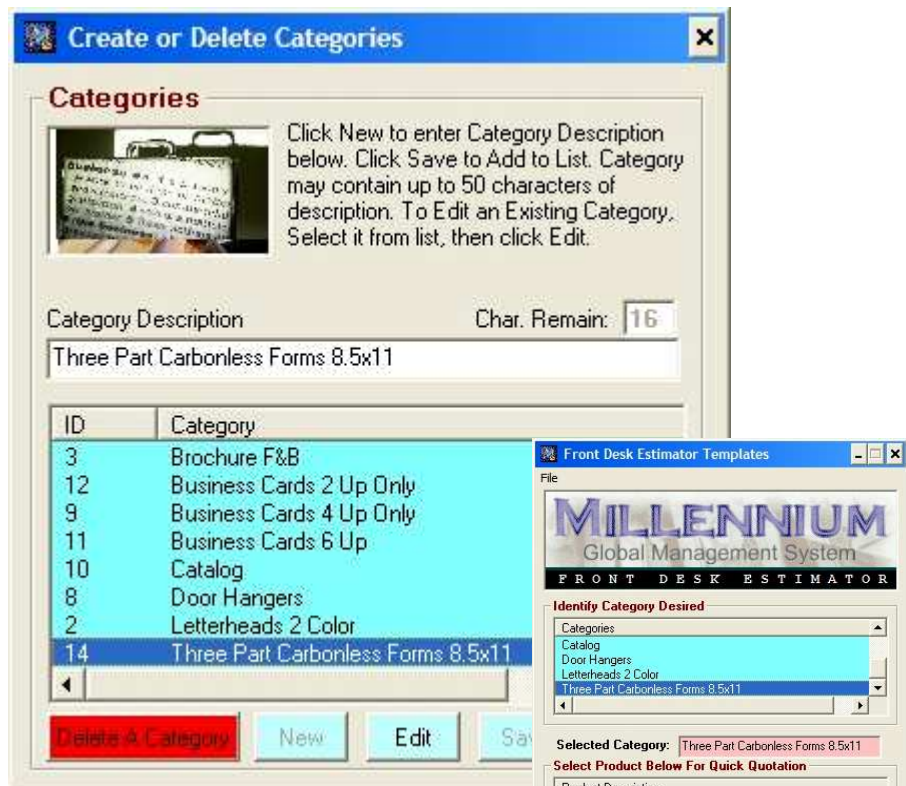


Figure 21 – Create a Non Hyphenated Category

There are several ways to do this. As mentioned previously, versions later than 2.4.70 have the capability to bring up the desired product immediately.

But an alternate method is to search for the quote or job number which will generally bring up only one item in the list of quotes, making it much easier to choose.

Next you click on the selection showing the quote list and enter an appropriate description for your product.

Figure 22 – Front Desk Menu

Front Desk Product Selection

Products

1. Select Category Desired Below.
2. Select Desired Quote or Job from the list below.
3. If you wish to display only specific listings, use the Search Box to identify only Specific Items below.
4. Create New Product Description and Click "Create Product".
5. Modify or Delete an Existing Product.

Category

1. Select Desired Category Below, followed by selection of Desired Quote or Job at Bottom.
5. Modify or Delete an Existing Product.

Category Description

Business Cards 2 Up Only
Business Cards 4 Up Only
Business Cards 6 Up
Catalog
Door Hangers
Letterheads 2 Color
Three Part Carbonless Forms 8.5x11

Black Ink, 1/0

Delete Existing Product
Edit Existing Product

Desired Quote or Jobs Used for Product Selection

2. The Contents of your current Quote/Job file are shown below.
3. Search Parameters:

OrdNum	PartNo	QorJ	Description
00000014	1	Q	2/2 Brochure
00000016	1	Q	12 page 2/2 booklet Split Sig Example
00000017	1	Q	3 part carbonless
00000018	1	Q	100 books of 50 sets - 3 part carbonless plus tag cover 1/0
00000018	2	Q	100 books of 50 sets - 3 part carbonless plus tag cover 1/0
00001004	1	J	4 color brochure
00001005	1	J	Test Stock Usage. Cartons on Hand=24.71Cartons of 5000 each. If we use 5000*4
00001006	1	J	32 page 4/4 booklet. fold, stitch and trim. Add 3 hole standard.
00001007	1	J	Sample Description to Test for Stock Usage

4. Product Description:

Figure 24– Create a Product by clicking on quote in file

Click on "Create Product" and you've created your first Front Desk entry.

Testing: You can test it out from the Main Front Desk screen shown in Figure 22 by selecting the Category, followed by the Product desired. Once this is done, you will be given a selection screen that allows you to either create a new quote or to edit the template itself.

Appendix

Bindery Files

In these examples, we were using the bindery files shown below. It is recommended that you modify the existing bindery files to those shown below so that consistency can be maintained. This will provide you with experience in changing various files as well as give you correctly established bindery files for later modifications.

Folder

This file (Fold, Baum) contains an Impact Flag that identifies “Press Sheet” as being used when performing the calculations. You may modify this when performing the actual quote however.

The screenshot shows a software window titled "Bindery Edit" with a sub-header "Bindery Operations & Impact Flags". At the top, a dropdown menu shows "Fold, Baum". Below this, a list of fields for bindery operations includes: Bindery Name (Fold, Baum), Bindery Type (Folding), Cost/Hour (35), Min Speed (uph) (12000), Max Speed (uph) (13000), Min Sheet Size, Max Sheet Size, Add'l Run Time % (0), Setup Time (20), Add'l Setup Time (7), Spoilage Eff. (50), Spoilage K-Factor (5), Speed Efficiency (20), and Speed K-Factor (4). To the right, under "Impact Flags", there are two columns of checkboxes. The first column has "Stock" (checked), "Carbonless", "Pages", "Length" (checked), "Square In.", "Thickness", "Multi-Bin", and "No Signatures". The second column has "Delivery", "Linear Padding", "Packaging", "Weight Based", "Foil", "Press Sheet" (checked), "Die Cut", and "Padding". Below the flags, a section titled "Waste/Spoilage" contains fields for Sheets (35), Max Run % (2), and Min Run % (0.5). At the bottom, there are buttons for Save, Delete, Duplicate, Cancel, and Exit, along with a note: "Select Bindery Item at Top to Edit or Duplicate."

Figure 1-Folder

Note that the other flags are “Stock” and “Length”. The Stock Flag will result in a review of the stock file to see if there is a reduction in speed as a result of using a particular stock while the Length Flag results in the speed of the folder being set to a ratio of 11 divided by the length of the sheet passing through the folder. Some

people, when setting up a tabletop folder, prefer to have the “Length” flag unchecked. In other words, they do not want to obtain any change in speed, regardless of the sheet size. Usually this is done when you are folding sheets of 8.5x11 or 11x17 exclusively.

Note: The sheet length used by the Folder is the last dimension entered into the Worksheet cell. If you entered a press sheet of 11x17, it will use the 17" side that passes through the folder.

Perforator

The perforator shown above is “Press Based”. In other words, we will be using a blanket to hold the perfs and be running the stock through the press to obtain the desired perf marks on the sheet.

Bindery Edit

Bindery Operations & Impact Flags

Perf. Press

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Perf. Press

Bindery Type: Perforating

Cost/Hour: 50

Min Speed (uph): 3500

Max Speed (uph): 4000

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 0

Setup Time: 10

Add'l Setup Time: 3

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 10

Speed K-Factor: 5

Impact Flags

<input checked="" type="checkbox"/> Stock	<input type="checkbox"/> Delivery
<input type="checkbox"/> Carbonless	<input type="checkbox"/> Linear Padding
<input type="checkbox"/> Pages	<input type="checkbox"/> Packaging
<input type="checkbox"/> Length	<input type="checkbox"/> Weight Based
<input type="checkbox"/> Square In.	<input type="checkbox"/> Foil
<input type="checkbox"/> Thickness	<input type="checkbox"/> Press Sheet
<input type="checkbox"/> Multi-Bin	<input type="checkbox"/> Die Cut
<input type="checkbox"/> No Signatures	<input type="checkbox"/> Padding

Waste/Spoilage

Sheets: 25

Max Run %: 3

Min Run %: 0.5

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 2 – Perforator

The only flag in place is one of “Stock”, although possibly the “Carbonless” flag could be employed as well.

Padding

The Padding file employs several flags; Pages and Thickness. Since the Padding file utilizes the face of the pad (i.e., the actual edge or caliper of the sheet times the number of sheets provides the length while the sheet width provides the width of the face), both pages and thickness will affect the face dimensions directly. Now why you would actually pad anything that was folded is an unknown and may never occur in your quotes.

By having the speed vary between 800 and 1000 sq. inches per hour, we are stating that as the person performs the painting of the pad, they will become more efficient and thus operate faster as the quantity of the job becomes higher.

Figure 3 - Padding

Chipboard Cost: When working with the Padding file, the cost used for the chipboard is based on 8.5x11 along with stabbing cost. If using smaller pads (say 3x5), the chipboard and stabbing cost will be reduced by the ratio of pad size ($3 \times 5 = 15$) divided by 93.5sq inches (8.5x11). So, for example, a 5.5x8.5 pad (46.75 sq inches) will have a cost one half of the 8.5x11 chipboard. The cost of padding the face (quantity x caliper x length or width of sheet being padded) will result in total square inches. The file should have a pad rate of about 400-800 sq inches per hour. To determine the number of sheets per pad, go to the bindery section of the estimate and select padding. In the setup area, enter the number of sheets per pad (this will have to be entered manually as the scroll bar will only go from 1 to 9). The program will determine the number of actual pads that will be used and calculate the cost of the chipboard based on that calculation.

What Dimension is used for the Padded Face? When you enter a dimension into the worksheet, the first dimension entered is the padded face width. So if you entered 5.5x8.5, then the face of the padded area would be 5.5 times caliper times quantity. If you had entered 11x8.5, the padded face would be 11.

Carbonless: When not using chipboard, as in carbonless, just use a 1 for setups in the Bindery section of estimate and no chipboard will be used, just the fan apart glue required for the sets.

Finding Rates from known Cost per Pad: If you wish to reverse calculate the actual painting rate, etc., first determine how much you charge for a given pad. Let's say that a 5.5x8.5 pad will be sold for 25 cents. The cost of the pad

would be 0.25/1.3 if we use a 30% markup, or \$0.1923 per pad. Of this amount, we have a 2-cent cost for the chipboard, leaving \$0.1723 per pad. Let's also assume that this pad contains 50 sheets of 0.004 thickness paper (20# bond or offset). We will also assume that we set the padding hourly rate at \$30 per hour. To determine the number of square inches per hour we can pad, we will calculate that this one pad will have a face of $5.5 * 0.004 * 50$ sheets = 1.1 square inches. We also know that we have spent (or should have) a time of $0.1723/30 = 0.00574$ hours painting this one pad (or 60 minutes/hour * 0.00574 hours = 0.3446 minutes per pad). Now we know that there are 60 minutes in an hour and so we could produce 60 Minutes/hour/0.3446 Minutes/Pad = 174 pads/hour. Since each pad had a face of 1.1 square inches, then the total square inches we can paint in one hour will equal $174 * 1.1 = 191.4$ square inches per hour. Thus the rate we would use in the file would be 191 at \$30 per hour with a 4 cent cost per chipboard.

Note: Prior to version 1.50.0270, the program will double the cost of padding as a result of an error. To fix this problem, simply half the cost per hour in the file along with half the cost of the chipboard. If you are on maintenance, you will receive an update that fixes this problem.

Cutting & Trimming

Bindery Edit

Bindery Operations & Impact Flags

Cutting

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Cutting

Bindery Type: Cutting

Cost/Hour: 35

Min Speed (uph): 60000

Max Speed (uph): 60000

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 25

Setup Time: 6

Add'l Setup Time: 0.6

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 1

Speed K-Factor: 5

Impact Flags

☐ Stock ☐ Delivery

☐ Carbonless ☐ Linear Padding

☒ Pages ☐ Packaging

☒ Length ☐ Weight Based

☐ Square In. ☐ Foil

☒ Thickness ☐ Press Sheet

☐ Multi-Bin ☐ Die Cut

☐ No Signatures ☐ Padding

Waste/Spoilage

Sheets: 2

Max Run %: 0

Min Run %: 0

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 4 – Trimming and/or Cutting

In this piece of equipment we are able to identify many more characteristics. Flags employed are Pages, Thickness and Length. The Pages and Thickness flags will affect the speed of cutting by limiting the number of sheets per lift. The Length will affect the speed of the cutting by either making it more or less difficult to load the stock into the cutter.

As discussed previously in the first example of estimating, the start-up speed of 60,000 was chosen based on the fact that our cutter can accept 500 sheets per lift of 8.5x11 20# bond (caliper of 0.004). In addition, the operator was timed and found to

be able to make a single cut to that lift in about 30 seconds, thus they are able to make two cuts per minute or 120 cuts per hour. By multiplying Sheets/Lift times Lifts/Hour we arrive at Sheets/Hour.

But because the value of 60,000 is true only for an 8.5x11 sheet of 0.004 thickness, we need to adjust this speed for larger and/or thicker or thinner sheets, such as onionskin or index, thus the need for the impact flags as specified. Now you may want to calculate the speed for 23x35 first and work backwards since the more critical time is really for the larger sheet. Suppose you have clocked the time to lift 500 sheets of 23x35 60# offset into the cutter as 2 minutes. That includes jogging and loading approximately 50-100 sheets at a time until the throat of the cutter is approximately full. So we are then only able to make 1 lift per 2 minutes or 30 lifts per hour. If we placed 500 sheets in each lift, our actual rate would be $500 * 30 = 15000$ sheets per hour. But we cannot just put this number into the file. We need to back it down to 8.5x11, thus we need to increase our speed by a ratio of 35/11 or $3.182 * 15000 = 47727$. This is the number that is then entered into the file under rate for 8.5x11 stock of 0.004 thickness.

The waste for cutting is really only 1 or 2 marking sheets. There is no running waste except in the classic example of making the wrong cut on the entire job! As for setup, usually we identify a few minutes for the operator to read the job jacket and set up the initial cut. The additional setup time is based on how long it takes to make succeeding adjustments for each additional cut. Note that the additional run time is specified as 25%. This means that each time we turn the lift to make another cut, we will be using 25% of the amount of time it took to lift the stock into the cutter, make the first cut and drop it to the floor. This value varies depending on the type of cutter, manual or automated with airbed.

Drilling

Bindery Edit

Bindery Operations & Impact Flags

Drilling

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Drilling

Bindery Type: Drilling

Cost/Hour: 25

Min Speed (uph): 14400

Max Speed (uph): 18000

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 20

Setup Time: 5

Add'l Setup Time: 2

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 30

Speed K-Factor: 5

Impact Flags

- ☐ Stock
- ☐ Carbonless
- ☒ Pages
- ☒ Length
- ☐ Square In.
- ☒ Thickness
- ☐ Multi-Bin
- ☐ No Signatures
- ☐ Delivery
- ☐ Linear Padding
- ☐ Packaging
- ☐ Weight Based
- ☐ Foil
- ☐ Press Sheet
- ☐ Die Cut
- ☐ Padding

Waste/Spoilage

Sheets: 5

Max Run %: 0.5

Min Run %: 0

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 5 - Drilling

In the Drilling operation, the additional run time % is 20, and refers to the percentage of original time to move the lift when using a single head spindle. If using a multihead spindle, then the run time percentage would be 0%, but there would still be additional setup time for the additional spindles.

Gathering

Bindery Edit

Bindery Operations & Impact Flags

Gathering

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Gathering

Bindery Type: Gathering

Cost/Hour: 25

Min Speed (uph): 2000

Max Speed (uph): 2000

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 10

Setup Time: 3

Add'l Setup Time: 3

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 10

Speed K-Factor: 5

Impact Flags

☐ Stock ☐ Delivery

☐ Carbonless ☐ Linear Padding

☐ Pages ☐ Packaging

☐ Length ☐ Weight Based

☐ Square In. ☐ Foil

☐ Thickness ☐ Press Sheet

☐ Multi-Bin ☐ Die Cut

☐ No Signatures ☐ Padding

Waste/Spoilage

Sheets: 0

Max Run %: 0

Min Run %: 0

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 6 - Gathering

Gathering is another one of those manual operations in which there is seldom an increase in speed due to increased efficiencies. People generally tend to become less efficient with time rather than more efficient. Thus the speed is set to a constant value of 2000 and represents the number of sheets per hour (not sets per hour!). If we have a job that requires 4 stations of 1000 sheets then our total quantity will be 4000 sheets. If 2000 sheets per hour can be accomplished, then the job will take 2 hours to collate. But because the user now needs to walk down a table to gather, there is a 10% penalty per station to account for that short walk. When you specify in the quote that you will be setting up 4 stations, there will be 3 minutes per station plus a run time penalty of 10% for each additional station or a total run time of 130% of a single station.

Multi-Binder

A Multi-bin collator basically performs gathering, 3-knife trimming, and stitching all in one operation. There are usually a limited number of bins that may be used to load stock. Note that the Flags for this type of file are identified as Pages, Thickness and Multi-Bin.

Now if you actually were to enter this into the estimate (just add another bindery item to the first estimate example only use 4 setups and change the press screen to

reflect 4 signatures), you will find that the time to complete the job will be 1:03... not much different than when you had entered a 1. In other words, the speed of the equipment is based on sets, and consequently as long as we are able to fill each bin, the basic time will remain the same except for setup times added based on the additional bins being loaded (in this case another 5-6 minutes).

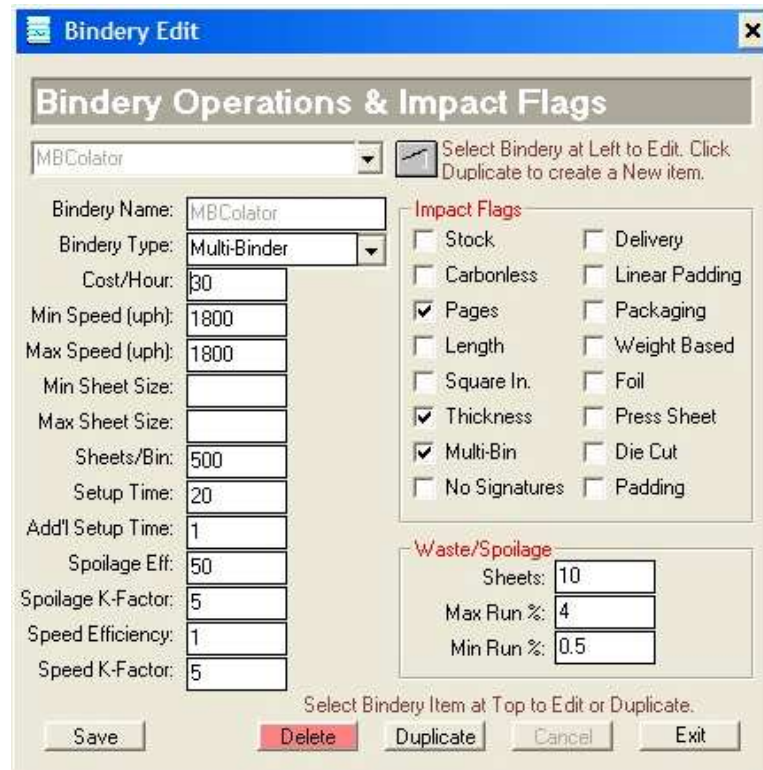


Figure 7 – Multi-Binder

One of the most interesting aspects to this bindery operation is the following:

Suppose you have a job that requires 8 signatures but your equipment will only handle 5 bins! As long as you enter only 4 or 5 bins when you quote the job, the bindery file will automatically reload the job for the remaining 3-4 signatures, and charge for a second run through the equipment. You don't have to do anything except remember that you don't want to enter a value in the estimate that will exceed the number of bins you have available.

Stapler/Stitcher

This operation is used to combine multiple signatures (either flat or folded) into a flat manual or booklet. The equipment operates on the quantity of the jobs but does not include signatures in determining the total amount of paper passing through the equipment. In other words, a booklet of 8 signatures and a quantity of 1000 finished booklets, would only be concerned with the 1000 booklets, not with the 8000 total sheets of paper used to construct the booklet. The flag that is used to achieve this result is shown as "No Signatures".

Note that there is no set up waste or running waste attributed to this operation.

Bindery Edit

Bindery Operations & Impact Flags

Stapler

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Stapler

Bindery Type: Stitching

Cost/Hour: 25

Min Speed (uph): 1400

Max Speed (uph): 1400

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 15

Setup Time: 4

Add'l Setup Time: 4

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 1

Speed K-Factor: 5

Impact Flags

☐ Stock ☐ Delivery

☐ Carbonless ☐ Linear Padding

☐ Pages ☐ Packaging

☐ Length ☐ Weight Based

☐ Square In. ☐ Foil

☐ Thickness ☐ Press Sheet

☐ Multi-Bin ☐ Die Cut

☒ No Signatures ☐ Padding

Waste/Spoilage

Sheets: 0

Max Run %: 0

Min Run %: 0

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 8-Stapler/Stitcher

Numbering

Bindery Edit

Bindery Operations & Impact Flags

Numbering

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Numbering

Bindery Type: Numbering

Cost/Hour: 25

Min Speed (uph): 3500

Max Speed (uph): 4500

Min Sheet Size:

Max Sheet Size:

Add'l Run Time %: 0

Setup Time: 15

Add'l Setup Time: 5

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 10

Speed K-Factor: 5

Impact Flags

☐ Stock ☐ Delivery

☒ Carbonless ☐ Linear Padding

☐ Pages ☐ Packaging

☐ Length ☐ Weight Based

☐ Square In. ☐ Foil

☐ Thickness ☐ Press Sheet

☐ Multi-Bin ☐ Die Cut

☐ No Signatures ☐ Padding

Waste/Spoilage

Sheets: 20

Max Run %: 2

Min Run %: 0.5

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 9 - Numbering

Numbering may be performed using a hand numbering unit, a letterpress or on some offset and web presses. In general, it is an operation that is done on the press sheet, but that is entirely left to the estimator to determine the sheet size that will be used.

If most of your numbering work is done on the Press sheet, be sure to check the box next to "Press Sheet" for this file.

Wrapping or Packaging

This file is another one that generally requires no waste. The 60 stated below is indicating that we feel that our bindery people can wrap 60 packages/boxes an hour. By using the Impact Flags of Pages and Thickness, an adjustment in the numbers of sheets that occupy this package will be made.

Bindery Edit

Bindery Operations & Impact Flags

Wrapping

Select Bindery at Left to Edit. Click Duplicate to create a New item.

Bindery Name: Wrapping

Bindery Type: Wrapping

Cost/Hour: 30

Min Speed (uph): 60

Max Speed (uph): 60

Min Sheet Size:

Max Sheet Size:

Sheets/Pkg: 500

Setup Time: 0

Add'l Setup Time: 0

Spoilage Eff: 50

Spoilage K-Factor: 5

Speed Efficiency: 1

Speed K-Factor: 5

Impact Flags

☐ Stock ☐ Delivery

☐ Carbonless ☐ Linear Padding

☒ Pages ☒ Packaging

☐ Length ☐ Weight Based

☐ Square In. ☐ Foil

☒ Thickness ☐ Press Sheet

☐ Multi-Bin ☐ Die Cut

☐ No Signatures ☐ Padding

Waste/Spoilage

Sheets: 0

Max Run %: 0

Min Run %: 0

Select Bindery Item at Top to Edit or Duplicate.

Save Delete Duplicate Cancel Exit

Figure 10 – Wrapping or Packaging

If desired, a minimum cost can be placed into the file to account for smaller jobs. Note that we specify the number of sheets per package in this file. Therefore, you may want to create a number of different wrapping files, each with a different number of sheets per package.

Glossary of Terms

Caliper

This is the thickness of a stock. It is used to automatically adjust lift heights in various bindery operations and is used to artificially modify speed of certain equipment.

Makeready (MR)

Makeready consists of the time required to mount plates, adjust registration, feeder and delivery tables, as defined in the Press and Bindery files.

Plates

When specifying plates, we are actually telling the computer the amount of makeready time we will have for each plate. In addition, any costs associated with the plate will be included as well.

Quantity

The quantity entered for a quote is always the finished size quantity desired by the customer.

Run

In the Press Screen, this is the total number of press passes (Runs) for the job. If running a 2 color press in which we desire a 4/3 job, the runs will be equal to 4. If we have 2 different signatures (in other words 2 different forms desired by the customer) where one is 4/3 and the other is 2/2, we will have a total of 6 runs. This term also is a factor in calculating the Press Count.

Signature

A Signature is the front and back Press Form of a job or partial job. An 8 page Signature contains 4 different forms on the front and 4 different forms on the back. If running in Sheet Production, the form layout might consist of identical fronts and backs resulting in 4 Up rather than 8 pages. This term also is a factor in calculating the Stock Count.

SRPD

A Shorthand method of describing the data entry for bindery. S=Sheet Size (0=Finished, 1=Bleed, 2=Press and 3=Parent), R=Additional Runs, P=Percentage of Run (in 10% increments) and D=Difficulty (1-9 with 5 being average and no entry as default of 5)

Units/Hour

A generic term to describe the speed or rate of an operation. It may be Inches per hour, cutoffs per hour, sheets per hour, etc.

W&T

This term refers to a signature (Press Sheet) that is run 2 up with the front and back side of the form printed on the same side of the sheet. The result of this type of run is to reduce the number of plates required since both front and back are on the same plate. The actual terminology may be to Work & Tumble or Work & Turn.

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