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Basic principles for costing and accounting for folding paper box manufacturers

Folding Paper Box Association of America

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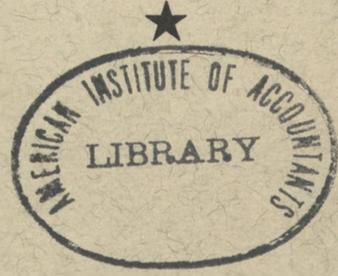
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BASIC PRINCIPLES FOR

COSTING AND
ACCOUNTING

FOR

FOLDING PAPER BOX
MANUFACTURERS



★ ★ ★ ★ ★

FOLDING PAPER BOX ASSOCIATION OF AMERICA
1st WEST 44th STREET NEW YORK CITY

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INTRODUCTION

The objective of every manufacturer is to sell his product at a price which will enable him to operate at a profit, and to do this it is necessary for the manufacturer to know his cost.

The method of costing should enable the member to secure accurate costs, provide a basis for determining proper selling prices, and furnish statistical data to enable him to exercise control over his manufacturing operations.

Due to the variations in the volume of business done by members in this industry, we have prepared five different plans for costing so that the smallest as well as the largest company can adopt the method which may be the most practical for his particular needs.

Ultimately it is hoped that this initial work will be developed through the activity of an Industry Cost Committee into a Standard Cost Accounting System which can be adopted by members and will serve as a means of comparison of costs between members.

These five plans are as follows -

PLAN I

This plan covers a simple method of costing which may readily be adopted by the small companies who employ one or two clerks and would not involve any additional clerical expense. To provide the greatest simplicity this Plan is based on a single overhead rate for all expenses.

The disadvantage of this Plan is that only one overhead rate is secured while, for accurate estimating, overhead rates for each department are preferable.

PLAN II

This Plan covers a method of costing which is a little more detailed than Plan I. A single overhead rate is still secured but separate labor operations are maintained for the major operations. This Plan is more desirable than Plan I because these separate labor operations will enable the member to create standard labor rates for estimating purposes.

Its disadvantage is that, as in Plan I, only one overhead rate is secured.

PLAN III

This Plan outlines a method of costing applicable to those members who desire to maintain separate costs for each job order. This Plan is based on two overhead rates, one for Factory Expenses and one for Sales and Administrative Expenses.

We believe that this Plan has certain advantages over Plans I and II, because the cost of each job may be compared with the estimated cost.

Its disadvantage is that only one overhead rate is secured for factory expenses instead of a separate rate for each operation.

PLAN IV

This is a method of costing which we believe is more desirable than any of the previous Plans referred to.

This plan produces rates of overhead for each factory operation and a rate for Sales and Administrative Expense. It also produces the cost of each item of each job order which then can be checked against the items appearing in the estimates.

As this Plan produces the cost of operating each department by classes of expenses, it will provide the member with a method of measuring all items of expenses so that he will be able to keep his expenses at a normal rate.

PLAN V

This plan is a brief outline of a method used in the development of standard costs that may be used in conjunction with the Plan outlined in Plan IV. This Plan contemplates the development of standards for all items of cost and all classes of expenses by departments.

The standard expense rates developed for each department should be based on the normal rate of operations for the particular department.

The advantages of standard cost over actual cost are:

1. Better control over Plant Operations.
2. Control over every item of expense.
3. It places the responsibility for the operations of each department on a specific person who must explain why his department may not be operating within it's budget.
4. It eliminates from cost the fluctuations in cost due to lack of volume or excess volume in subnormal or abnormal periods.
5. It indicates the possibility of eliminating excessive labor when volume is low.

GENERAL

The above mentioned Plans are more fully described on the following pages, but it should not be assumed that they are complete in all details. It is our belief that they are in sufficient detail to enable your accountant or bookkeeper to install whichever method is the most desirable for your company. If, as members adopt any of the plans suggested, necessity for elaboration or changes occurs, revisions of this Manual will be issued.

PLAN I

For the smaller companies who employ only one or two clerks the following costing method is suggested, and if adopted will furnish any company with the actual overhead rate of its plant.

From our experience the adoption of this plan will not increase your clerical work but will eliminate hap-hazard methods of accounting and place it on a definite basis so that the overhead rate will be comparable from month to month.

The following method produces an overhead rate on the basis of a percentage of direct labor. The purpose of this industry is to convert paper boxboard into finished boxes and it would appear more logical that overhead should be on the basis of direct labor rather than both labor and material.

The cost of all products are composed of three major items:

1. DIRECT LABOR - is the amount of money paid to employees who perform operations necessary to convert boxboard into finished boxes.

The operations consist of die-making, printing, cutting and creasing, gluing, stripping, stitching, packing, etc.

2. DIRECT MATERIALS - are those materials that are required to process sales orders and consist of such items as board, ink, engravings, electrotypes, packing materials, etc.

3. OVERHEAD - consists of all items of cost that are not directly applicable to the cost of any particular order and is made up of such items as:

Superintendent (provided he does not perform mechanical operations)

Foreman (provided he does not perform mechanical operations)
Elevator operators
Cleaners
Waste baler
Office employees
Salesmen
Shop supplies
Repairs to equipment (labor and material)
Office supplies
Commissions
Depreciation
Taxes
Rent

If accounts covering these three divisions of cost (Labor, Material, and Overhead) are not maintained in your ledger, it is necessary that such accounts be opened.

LABOR

As referred to above, labor is chargeable to either direct labor or overhead, according to the duties being performed by the individual employee except in cases when labor is charged to a capital account.

In order to obtain the amount expended for direct labor each month it will be necessary for you to distribute the time of your employees according to whether they are working on productive orders, which time is chargeable to Direct Labor, or working on such items as are chargeable to Overhead or some other account.

In most plants this distribution can be made either directly on the payroll sheet or on the daily time cards. The total payroll for each pay period as shown by the payroll is credited to Cash

and charged to either Direct Labor, Overhead or some other account as shown by the distribution.

The entry required for this is as follows:

Dr. Direct labor	xxx	
Dr. Overhead	xxx	
Cr. Cash		xxx

An illustration of the payroll sheet and time card is shown as Exhibits 1 and 2 on pages 10 and 11.

MATERIALS

Materials purchased for use on productive orders are charged to Direct Materials and those for Overhead Expense to the Overhead account. Materials purchased for future use are charged to Material Account and credited to this account when actually taken from stock and put into production. Purchases of equipment are charged to Plant and Equipment account.

The distribution of materials to the various accounts may be obtained by posting all purchases made during the month to a columnar sheet showing the date of invoice, name of vendor, item purchased and the amount, with appropriate columns for recording the various accounts charged, for instance: Direct Materials, Overhead, Plant and Equipment Account and Material Account. See Exhibit 3 on Page 12 for form for recording distribution of material purchased. This form may also be used instead of an accounts payable ledger by adding additional columns to record the payments.

The total amount of all purchases for the month are credited to Accounts Payable and charged to the various accounts as shown by the distribution, namely: Direct Material, Overhead, Plant and Equipment, Material Accounts, etc.

An illustration of the entry required is -

Dr. Direct Materials	xx	
Dr. Overhead	xx	
Dr. Plant and Equipment	xx	
Dr. Material Account	xx	
		Cr. Accounts payable
		xx

COST OF OPERATIONS -

At the end of each accounting period, after all postings have been completed as referred to above, the total posting for the month to these accounts - Direct Labor, Direct Materials and Overhead - will represent your total cost of operations for the period.

Illustration:	Direct Labor	\$500.00
	Direct Materials	2000.00
	Overhead	<u>750.00</u>
	Cost of Operations	\$3250.00

The figures shown in above illustration are purely hypothetical and are not intended to represent the average overhead percentage of the industry.

OVERHEAD

The total amount of overhead for the accounting period divided by the Direct Labor for the corresponding period will give the actual overhead rate for the period.

Illustration:	Direct Labor	\$500.00
	Overhead	750.00

$$\$750.00 \div \$500.00 = 150\% \text{ overhead on direct labor.}$$

By applying the rate of overhead as developed above to the Direct Labor charges on your estimate, your estimates will then be in accordance with your actual plant costs. The changes in the percentage of overhead from month to month should be carefully watched so that your overhead expenses may be kept in line with your rate of operation.

In starting the operation of this plan, which should be after a regular monthly accounting period, an inventory of Direct Material should be taken and the amount set up in your "Direct Material Account". This will necessitate a journal entry crediting your Material Account and charging Direct Materials for the amount of the inventory.

After a reasonable period of operation under this plan average rates over a period of several months may be used for estimating purposes.

EXHIBIT 1

Plan 1

PAYROLL

Week ending _____

Employee	Rate	Hours	Amount		Direct	Overhead	
Totals							

PLAN II

The plan of costing outlined below is adaptable for companies employing two or more clerks. It gives the hourly labor cost of the important operations and thereby eliminates the inaccuracy of working with one average labor rate for the entire plant. We believe that the additional work involved over that outlined in Section I would not exceed $\frac{1}{2}$ of a clerk's time. The only difference between this plan and that outlined in Plan I is that the labor is sub-divided into the major operations such as:

Printing

Cutting and creasing

Stripping

Gluing

All other operations

The maintaining of separate costs of these labor classifications will enable the member to estimate his costs more accurately than the method outlined under Plan I, due to the variation in the rates of pay between different operations and within the different operations.

In order to secure the distribution of direct labor into classes as shown above it will only be necessary to provide additional columns on the payroll sheet, Exhibit I, (Plan I, Page 10) to record the distribution by operations or where the distribution is made from time tickets to record the amount of time spent on each operation.

MATERIALS

The accounting for materials is handled in the same

manner as prescribed in Plan I.

OVERHEAD

The total overhead expenses are obtained in the same manner as prescribed in Plan I with a single percentage rate applied to all direct labor operations.

The direct labor covered by the five classes referred to above (Printing, Cutting & Creasing, Stripping, Gluing and Other Operations) is totaled, and this total divided into the total overhead will produce the overhead percentage rate applicable to the direct labor.

Illustration:	Printing	\$250.00
	Cutting & Creasing	160.00
	Stripping	100.00
	Gluing	60.00
	All other operations	<u>40.00</u>
		\$610.00
	Total Overhead	915.00
	% Overhead to Labor	150%

As mentioned above, we believe that the additional cost involved in this plan over Plan I, is justifiable as this plan will furnish you the average hourly cost for each operation, thereby eliminating any guessing of the cost of labor per hour for these operations.

PLAN III

This plan of costing is recommended for companies who employ three or more clerks and who desire to maintain costs for each job. The plan involves more detail clerical work than required by Plan I or II as it contemplates maintaining these separate costs.

We believe that the additional cost involved in this plan would be offset by the benefits obtained, at least for a sufficient time for a company to determine whether it is making money or losing it on individual orders. This scheme is adaptable for companies who do not favor the use of a standard cost method or who do not have sufficient volume to warrant its installation. For those companies who can use standard cost methods, the standard cost routine is simpler than job order costing and furnishes a means for factory control by operations and elements of cost rather than by specific orders.

Under this plan a comparison between actual and estimated costs of each item of each job can be made. This will show the management how actual costs compare with the estimated costs and will enable it to adjust the conditions which caused any variations between actual and estimated costs.

This plan produces two overhead rates, one for Factory Expenses and one for Selling and Administrative Expenses.

LABOR

Each employee should report on a form similar to Exhibit I, (Page 21) the hours worked on each productive order or expense account.

These forms should be filled in by the employee and should show the order number, operation, and hours of work performed on each job order or expense account.

These forms should be turned in to the office each day and the total hours checked against the time clock record and any discrepancies adjusted before the payroll is computed.

The employees' daily time tickets (Exhibit 1, Page 21) should be rated and extended and the payroll hours posted, either from these tickets or from the time clock records.

The labor charged to the job order as shown by these tickets should be posted to the labor column on the respective job order cost sheet (Exhibit 4, Page 24) showing the operation performed.

At the end of each month a summary of all daily time tickets should be prepared by accounts, such as Direct Labor, Factory Expense, and Sales and Administration Expense. A journal entry prepared from this summary is as follows:

Dr. Work in Process Labor (Direct Labor)	xxx
Dr. Factory Expense	xxx
Dr. Sales and Administration Expense	xxx
Cr. Payroll Account	xxx

The total amount charged to work in process labor must equal the total labor charged on the job order cost sheets.

MATERIALS

Direct materials are those materials that are required to process sales orders and are either purchased directly for a particular job or may be taken from materials in stock.

The purchased materials are posted from the voucher register (Exhibit 2, Page 22) to the individual job cost sheet, for the respective order, and the materials taken from stock are posted from the requisitions issued.

The journal entry for closing the voucher register to the general ledger is prepared by a journal entry as follows:

Dr. Work in Process Materials	xxx	
Dr. Work in Process Factory Expense	xxx	
Dr. Work in Process Sales and Administrative Expense	xxx	
		Cr. Accounts Payable xxx

All material requisitions, (Exhibit 3, Page 23), issued during the month should be summarized according to accounts charged. The journal entry required is as follows:

Dr. Work in Process Material	xxx	
Dr. Work in Process Factory Expense	xxx	
Dr. Work in Process Sales and Administrative Expense	xxx	
		Cr. Materials xxx

FACTORY EXPENSE

Consists of all items of expense chargeable to the factory departments that are not directly applicable to a particular order and consists of such items as -

Factory Supplies
Light and heat
Power
Rental charge for floor space (the portion applicable to selling and administrative expense should be charged to those accounts.)
Depreciation on equipment " " " "
Factory superintendent
Foreman
Cleaners
General Labor
et cetera

All charges to the factory expense account originate from the payroll, voucher register and material requisitions and are journalized from these records.

The total amount of factory expenses for the month is distributed by a percentage rate to all labor charged to the job orders.

Illustration: Assume that the total labor for the month charged to Work in Process Labor, amounted to \$5,000.00 and the total Factory Expenses were \$5,000.00, the percentage rate would be $\frac{\$5,000.00}{5,000.00}$ or 100%. This rate is then applied to all labor charged on the job orders and posted on the job cost sheets in the Factory Expense column.

The journal entry is -

Dr. Work in Process Factory Expenses	xxx
Cr. Factory Expenses	xxx

SELLING AND ADMINISTRATIVE EXPENSES

Consists of all items of expense applicable to selling and administrative activities such as

- Salesmens' salaries
- Commissions
- Traveling expenses
- Clerical labor
- Office supplies
- Salaries of officials
- Rental of floor space
- Depreciation of office equipment
- et cetera.

At the end of each month the overhead rate for Sales and Administrative Expense is obtained by dividing the total factory cost for the month (Labor, Material and Factory Expenses) that has been charged to the Work in Process Accounts into the total of the Sales and Administrative Expense Account as shown by the postings to the Sales and Administrative account in the general ledger.

Illustration: Assume that the factory cost for the month was as follows:

Material	\$ 9,000.00
Labor	5,000.00
Factory Expense	<u>1,000.00</u>
Total	\$15,000.00

and the Sales and Administrative Expenses for the month were \$3,000.00. The percentage rate of overhead for Sales and Administrative Expense then is $\frac{\$ 3,000.00}{15,000.00}$ or 20%. This percentage rate is applied to the Factory Costs as shown by the job costs. The journal entry to transfer the Sales and Administrative Expense to Work in Process is:

Dr. Work in Process Sales and Administrative Expense	xxx
Cr. Sales and Administrative expense	xxx

The above journal entry will close out Sales and Administrative Expense Accounts appearing in the general ledger.

Selling and Administrative expense may be charged to job orders at an average overhead rate. The difference between actual Selling and Administrative Expense and the amount applied at the average rate being charged or credited to Selling and Administrative Expense Variation Account.

JOB COST SHEET

A separate job cost sheet is (Exhibit 4, page 24) is issued for recording the cost of each job order. The postings to these job cost sheets are obtained from the following sources. A card record or envelope designed for this purpose may be used in place of a book record.

- | | |
|--|--------------------|
| 1. Employees' daily time tickets | Exhibit 1, page 21 |
| 2. Voucher Register | " 2, " 22 |
| 3. Material requisition | " 3, " 23 |
| 4. Factory Expense Distribution | " 4, " 24 |
| 5. Sales and Administrative Expense Distribution | |

At the end of each month all job orders completed during the

month are closed out to cost of sales by a journal entry. The cost of sales being the total of all Labor, Material, Factory Expenses and all Selling and Administrative Expenses which are recorded on the job cost sheets that have been completed during the month. The journal entry is:

Dr. Cost of Sales	xx	
Cr. Work in Process Labor		xx
Cr. Work in Process Material		xx
Cr. Work in Process Factory Exp.	xx	
Cr. Work in Process Sales and Administrative Expense		xx

The balance remaining in the Work in Process Accounts after the above entry, will represent the cost of uncompleted job orders and must balance with the corresponding general ledger accounts.

SHORTAGE

During the processing operations shortage occurs to some extent on every operation. Several sheets of board are usually spoiled during the make ready, while some sheets are spoiled in printing, cutting and creasing, and **stripping** and some boxes during the gluing operation.

We suggest that the spoilage incurred on a specific order should be charged to that order. This can be done by increasing the quantity of board required by a percentage based on your experience. As an illustration assume an order for 100,000 boxes 5 up.

This order would require 20,000 sheets. If from your experience this order would incur a 5% loss, it would require 21,000 sheets to produce the required amount of boxes as covered by the sales order.

EXHIBIT 3

<u>MATERIAL REQUISITION</u>			
Date _____			
Charge to _____			
The following material is required for above account			
Quantity	Description	Price	Amount

<u>JOB COST SHEET</u>									
					Order No. _____				
					Customer's Order No. _____				
Customer _____									
Selling Price _____									
Date Billed _____									
Quantity Billed _____									
Description of Order _____									
Date	Materials		Labor		Factory Expense	Total Factory Expense	Sales and Adminis. Expense	Total Cost	
	Kind	Amount	Operation	Amount					
Total									

PLAN IV

While Plan III enables the member to obtain the cost of each individual order, it does not enable him to maintain complete control over all operations and expense accounts. It is our belief that plan IV is preferable for members who have a sufficient clerical force, or who are willing to increase their clerical expense to operate it. We believe that the clerical work involved in this plan over Plan III would not exceed more than the time of one additional clerk.

Under this plan the manufacturing cost of each job is obtained by adding the separate costs for various processing operations through which the job has progressed. The processing costs are obtained by considering each process a separate factory unit and developing the cost of that process. These factory units are known as cost centers or departments, each unit being charged directly with all direct expenses, and with the proper share of all indirect expenditures from which it benefits. From the total cost of operating each cost center or department a rate is developed for charging all jobs processed by the department.

There are two classes of cost centers - direct or productive, and indirect or non-productive. The direct operating centers are those that perform a definite operation upon a job and the labor cost is recorded by direct charges to the jobs processed. The indirect centers do not perform any processing operation directly chargeable to a job, but render services necessary for the proper

functioning of the direct centers. The cost of operating the indirect centers is prorated to the direct centers, the cost therefore being recovered in the operating rates of the direct centers.

COST CENTERS OR DEPARTMENT

Indirect Center or Department

(EXHIBIT A - page 33)

- A. Building Expense
- B. General Factory
- C. General Press

Selling and Administration Departments

(EXHIBIT B - page 34)

- D. Selling Expense
- E. Administrative Expense

Direct Cost Centers or Departments

(EXHIBIT C - page 35)

- F. Composition
- G. Stock Storage and Handling
- H. Job Presses
- I. 1 Color Cylinder Presses
- J. 2 Color Cylinder Presses
- K. Bronzing
- L. Waxing
- M. Die Making
- N. Cutting and Creasing Platen
- O. Cutting and Creasing Cylinder
- P. Hand Work
- Q. Strippers
- R. Stitching
- S. Auto Gluing
- T. Hand Gluing Machine

U. Brightwood Machines

V. Packing and Wrapping

W. Shipping and Finished Stock Storage

In some plants where certain operations are not important, several may be combined.

CLASSIFICATION OF EXPENSE ACCOUNTS

Building Expenses include all expenses applicable to the cost of maintaining the building, such as heat and light, taxes, water, repairs to building, rent, depreciation, etc. The building expense is apportioned to all cost centers on the basis of the space occupied. This is done by entries on the respective department expense reports. Space used for halls, stairways, washrooms, etc., should be charged to General Factory (See Exhibit A, page 33) for allocation of this expense.

General Factory expense covers such expenses that cannot be charged directly to a productive center, such as factory superintendent, general sweepers, cleaners, etc. General Factory expense is apportioned to all departments on the basis of the total expense and direct labor of all the cost centers (See Exhibit A, page 33).

General Press expenses cover all expenses of a general nature applicable to the printing departments, such as Superintendent of Printing Department, Press Cleaners, etc. These expenses are apportioned to the printing departments on the same basis as the general factory expenses (See Exhibit A, page 33).

Selling Expense includes all expenses applicable to sales such as sales manager, advertising, sales commissions, salaries of salesmen and the Sales Department clerical staff, etc. The selling expense is charged with a portion of the administrative expenses.

Administrative Expense covers all expenses of the officials of the company and all clerical and accounting work not charged to other departments. The total administrative expense is prorated to General Factory Expense and to Selling Expense. This proration should be made by a journal entry.

Productive Departments - Each productive department should be charged for all items of expense which can be properly charged to such department, and is also charged a prorata share of the expenses of the service departments as referred to above.

* * * * *

The total expenses of each cost center will be obtained from the summary of all expenses for the period by posting the totals of the various classes of expenses to the respective department expense account.

The following forms are designed for the recording of expenses.

Service Departments Distribution (Exhibit A, Page 33)

Material Requisition (" D, " 36)

Daily Time Tickets (" E, " 37)

Job Cost Sheet (" F, " 38)

Building Expense is prorated on the basis of the area occupied by each cost center.

Material Requisition (Exhibit D, page 36) is used to record all items of stock or supplies taken from the inventory account which are chargeable to expense accounts or productive orders.

Daily Time Tickets (Exhibit E, Page 37) is used to record the daily time of all employees according to the cost center or expense account on which the employee may be working.

Inventory Record (Exhibit G, page 39) all material issued by requisitions should be priced from the inventory cards, extended and posted as withdrawals on the inventory cards. The kind of material, quantity, price, and amount should also be posted in the material columns on the individual job cost sheet. At the end of each month a tabulation of all requisitions issued during the month should be made according to the account charged and the following journal entry should be prepared.

Illustration of Journal Entry

Dr. Work in Process (for all amounts charged on job cost sheets)	xxx
Dr. Factory Expense	xxx
Dr. Selling and Administrative	xxx
Cr. Materials taken from stock	xx
Cr. Supplies " " "	xx

Employees' Daily Time Tickets (Exhibit E, page 37) a separate daily time ticket should be filled in by each employee showing his name, department, operation, and the time charged to each order or expense account. These tickets should be rated and extended by the payroll clerk and compared with the total hours as recorded by the time clock. In cases where several employees are assigned to one operation a single ticket may be used for all employees on that operation instead of individual time tickets.

The charges to jobs should be posted to the individual job cost sheet (Exhibit F, page 38) and the charges to expense accounts should be tabulated for posting to the different departmental expense accounts.

At the end of each week or month a summary of all time tickets should be prepared by account number on columnar forms. The total of this distribution must balance with the total payroll for the period.

A journal entry should be prepared from the totals obtained on the above summary charging the Work in Process labor account or expense accounts in the general ledger and crediting Payroll account.

Journal

Dr. Work in Process Labor	xx
Dr. Factory Expense	xx
Dr. Selling and Administrative Expense	xx
Cr. Payroll Account	xx

Voucher Register - all invoices received covering purchases of every kind and description should be recorded in this register with the name of the vendor and the amount. The amount charged to the various accounts should be posted in their respective columns. At the end of each accounting period after balancing this register, the totals of the individual columns should be charged to the respective accounts in the ledger and the total amount credited to Accounts Payable.

The individual expense accounts and job cost sheets are also posted from this register or from a summary sheet. The voucher register is closed by the following journal entry.

Illustration of Journal Entry

Dr. Work in Process Material	xx
Dr. Factory Expense	xx
Dr. Selling and Administrative Expense	xx
Cr. Accounts Payable	xxx

Factory Expense Accounts - After all postings have been made to the work sheets for the accounting period, the amounts should be transferred to the respective departmental expense reports. If only a few entries are necessary the posting can be made direct to departmental expense reports. The service departments (Building, General

The difference between the actual selling expenses for the month and the amount charged to cost of sales is charged or credited to Selling Expense Variation Account. If this method is used it will not be necessary to post the selling expenses to the job cost sheets.

Job Cost Sheets - After all entries are posted on the job cost sheets and are balanced with the work in process accounts, the jobs which have been completed during the month should be drawn off on a columnar form and a journal entry should be prepared crediting the work in process accounts and debiting the cost of goods sold, finished goods or material account. (Job Cost may be maintained on cards or on an envelope designed for this purpose in lieu of on a book sheet.)

The balance remaining in the work in process accounts after closing the books for the accounting period must balance with the cost recorded on the job cost sheets and represents the amount expended on uncompleted orders.

Two separate overhead rates, one for Factory Expenses and one ✓ for Selling and Administrative, may be used instead of one combined rate as referred to above.

STATEMENT OF DEPARTMENTAL EXPENSES

Service Departments					
		A	B		C
		Building Expense	General Factory		General Press
Fixed Charges					
01	Depreciation				
02	Insurance				
03	Taxes				
010	Building Rental				
011	Repairs				
012	Supplies				
031	Supervision and Clerical				
034	Indirect Labor				
TOTAL DIRECT					
Building Expense Apportioned					
TOTAL					

Distribution as follows

ALL DEPARTMENTS

ALL DEPARTMENTS

ALL PRINTING DEPARTMENTS

REQUISITION FOR MATERIAL AND SUPPLIES

Date _____ 1935

Storekeeper _____

Deliver to _____ Department

Charge _____

Quantity	Description	Price	Amount

Foreman

<u>EMPLOYEES DAILY TIME REPORT</u>							
<u>Operations</u> M.R. - Makeready R. - Running W.U. - Wash Up							
Employee _____				Date _____			
Dept. _____							
Machine Number	Operation	Order or Expense	Hours	Rate		Amount	

In order to record the amount of time devoted to Makeready, Running and Wash up, the symbols shown in the upper left hand corner of the form should be recorded in the operation column.

PLAN V

DEVELOPMENT OF STANDARD COSTS

The costing method outlined in Plan IV can be adjusted to a standard cost basis by the development of standard rates for all direct materials, direct labor, factory expenses and selling expenses. While ordinarily worth the effort expended, the development of standard cost methods involves considerable detail. We are giving herewith merely an outline of the general principles of a standard cost method and illustration of its application.

Each of those companies who wish to go into this method of costing will no doubt have several special problems which cannot be covered in this general outline.

DIRECT MATERIAL

Standard Prices should be developed for all classes and kinds of material used. In developing standard prices for materials, care should be taken that inbound freight charges are included in the cost. After these prices are developed, adjustment should be made in the inventory account to cover materials in stock at the standard prices for the respective kind of materials and all materials purchased should be charged to jobs or inventory at the standard rates, the difference between actual cost including freight and the standard cost being charged to the Material Variation Account. An extra column should be added to the Voucher Register to record variations. This column should be headed "Material Variations."

Illustration: Assume that the standard cost for a certain kind of material (say electrotypes) was set at 6¢ per square inch, and that a purchase of 1000 square inches was made at 5¢ per square inch. The amount chargeable to cost at the standard rate would be 1000 x 6¢ or \$60.00 while the actual cost was \$50.00. The difference

between the standard and actual cost would, in this example, be charged to the Material Variation Account.

LABOR

The standard labor rates may be developed as follows:

1. Time studies should be made of all labor operations and hourly operating rates set for each operation.
2. A standard labor rate per hour can be developed for each class of labor by dividing the total hours of each class of labor into the total payroll for that class.

After the standard labor rates are developed for each class of labor, all direct labor hours chargeable to jobs should be at the standard labor rate for each respective class of labor and the difference between the standard and actual rate charged or credited to the Labor Variation Account. The Labor Variation is obtained by extending the time cards both at the actual and standard rates and charging or crediting the difference to Labor Variation Account.

FACTORY EXPENSES AND SELLING AND ADMINISTRATIVE EXPENSES

Standard rates for these expenses are developed by setting up a budget for each department by classes of expenses. The classes of expenses for each department or cost center are divided into Fixed Expenses and Variable Expenses. The amount of each class of Expense is based on the estimated expense required to produce a normal volume of productive units and will have to be based on the past experience of the particular company. The normal volume of productive units may be either direct labor dollars or productive hours, preferably hours.

FIXED EXPENSES

These are items of expense that do not vary with the volume of production and include such items as Foreman, Superintendent, Rent,

Depreciation, Taxes, Insurance, Office Employees, et cetera. The percentage rate for Fixed Expenses for each department is arrived at by dividing the total budgeted Fixed Expense for the department into the normal volume of production units for the department.

VARIABLE EXPENSES

These are items of expense that vary with production to some extent, but not directly, and include such expenses as indirect labor, supplies, repairs, et cetera. The variable expense budget is set up on a basis of the amount of each class of expenses necessary to operate the particular department at its normal rate of productivity and a percentage rate is developed for each class of expenses of each department by dividing the budget for each class of expense by the standard labor for the department.

Each accounting period the Variable Expense Budget for the period is recalculated by multiplying the percentage rate by the standard labor of the particular department for the month.

By referring to Exhibit A, page 44, as an illustration it will be found that the Standard Variable Expense Budget for Indirect Labor is \$300.00 or 15% of the Standard Labor Budget, \$2,000.00. To calculate this budget for a period in which the standard labor was \$1,900.00, the \$1,900.00 is multiplied by 15% which produces \$285.00 as the Variable Budgeted Expense for Indirect Labor for that month (See Exhibit A, page 44.)

EXHIBIT A

This is a typical department expense budget showing the comparison between budgeted and actual expenses and the variations from the budget.

A summary on page 44A shows the amount of expenses absorbed into cost and the variations between actual expenses and the standard budgeted expenses for all departments for the month.

The volume variation is the difference between the budgeted fixed expenses and the amount of fixed expenses absorbed in cost.

The expenditure variation is the difference between budgeted expenses and actual expenses and in the example shown by Exhibit A, page 44 shows a loss on Fixed Expenses of \$35.00 and a profit on Variable Expenses of \$75.00.

EXHIBIT B

Is a chart showing the budgeted expenses and absorption of Fixed and Variable Expenses at different percentages of activity. It will be noted that on a basis of 60% activity the budgeted expenses amount to \$1,100.00, whereas the amount absorbed in cost on the standard cost basis is \$800.00.

PRINTING DEPARTMENTAL EXPENSES

PLAN V

MONTH OF SEPTEMBER 1935

FIXED EXPENSE

	<u>Budget</u>	<u>Actual Expense</u>	<u>Over or Under Budget</u>
Foreman	\$ 250.	\$250.	
Rent	200.	235.	\$35. x
Depreciation	200.	200.	
Insurance	50.	50.	
Taxes	100.	100.	
Total Fixed Expenses	\$ 800.	\$ 835	\$35. x

UNIT OF ACTIVITY

	<u>Budget</u>	<u>Actual</u>	<u>Standard</u>	<u>Variation</u>	<u>% Activity</u>
Standard Labor	\$2000.		\$1900.		95

VARIABLE EXPENSE

	<u>Standard Budget</u>		<u>Budget</u>	<u>Actual Expense</u>	<u>Over or Under Budget</u>
	<u>Amount</u>	<u>%</u>			
Indirect Labor	\$ 300.	15.0	\$ 285.	\$ 300.	\$15. x
Supplies	400.	20.0	380.	315.	65.
Repairs	200.	10.0	190.	160.	30.
Power	100.	5.0	95.	100.	5. x
Total Variable Expense	\$1000.	50.0	\$ 950.	\$ 875.	\$75.
(x Denotes Under Budget)					
Total Expense			\$1750.	\$1710.	\$40.

September 1935

EXHIBIT A1

SUMMARY OF VARIATIONS

X, Y, Z COMPANY

Department	A	B	C	D	E	F	G	H
	Budgeted Standard Labor	Budgeted Standard Expense	Standard Expense Rate Col - $\frac{A}{B}$	Standard Labor for the Month	Standard Expense Absorbed in Cost Col D x Col C	Actual Expenses for the Month	Volume Variations Col E-Col B	Expenditure Variation Col B - F
Printing 1 color	\$ 2000	\$ 800	40%	1900	760	835	40 *	35 *
Printing 2 color	3000	1500	50	3100	1550	1485	50	15
Platen C & C	2000	700	35	1700	615	640	85 *	60
Cylinder C & C	3000	1350	45	3050	1373	1420	23	70 *
Stripping	1000	300	30	1100	330	310	30	10 *
Automatic Gluing	1600	960	60	1700	1020	940	60	20
	\$12600	\$5610	-	12550	5648	5630	38	20 *

VARIABLE EXPENSES

Department	A	B	C	D	THIS MONTH		F	G
	Budgeted Standard Labor	Budgeted Standard Expense	Standard Expense Rate Col - $\frac{A}{B}$	Standard Labor	Standard Expenses Absorbed in Cost Col D x Col C	Actual Expenses for the Month	Expenditure Variation Col E-Col F	
Printing 1 color	\$ 2000	\$1000	50%B	1900	950	875	75	
Printing 2 colors	3000	1800	60	3100	1860	1910	60 *	
Platen C & C	2000	800	40	1700	680	595	85	
Cylinder C & C	3000	1500	50	3050	1525	1580	55 *	
Stripping	1000	200	20	1100	220	205	20	
Automatic Gluing	1600	800	50	1700	850	800	50	
* Red figures	12600	6100	-	12550	6090	5965	115	

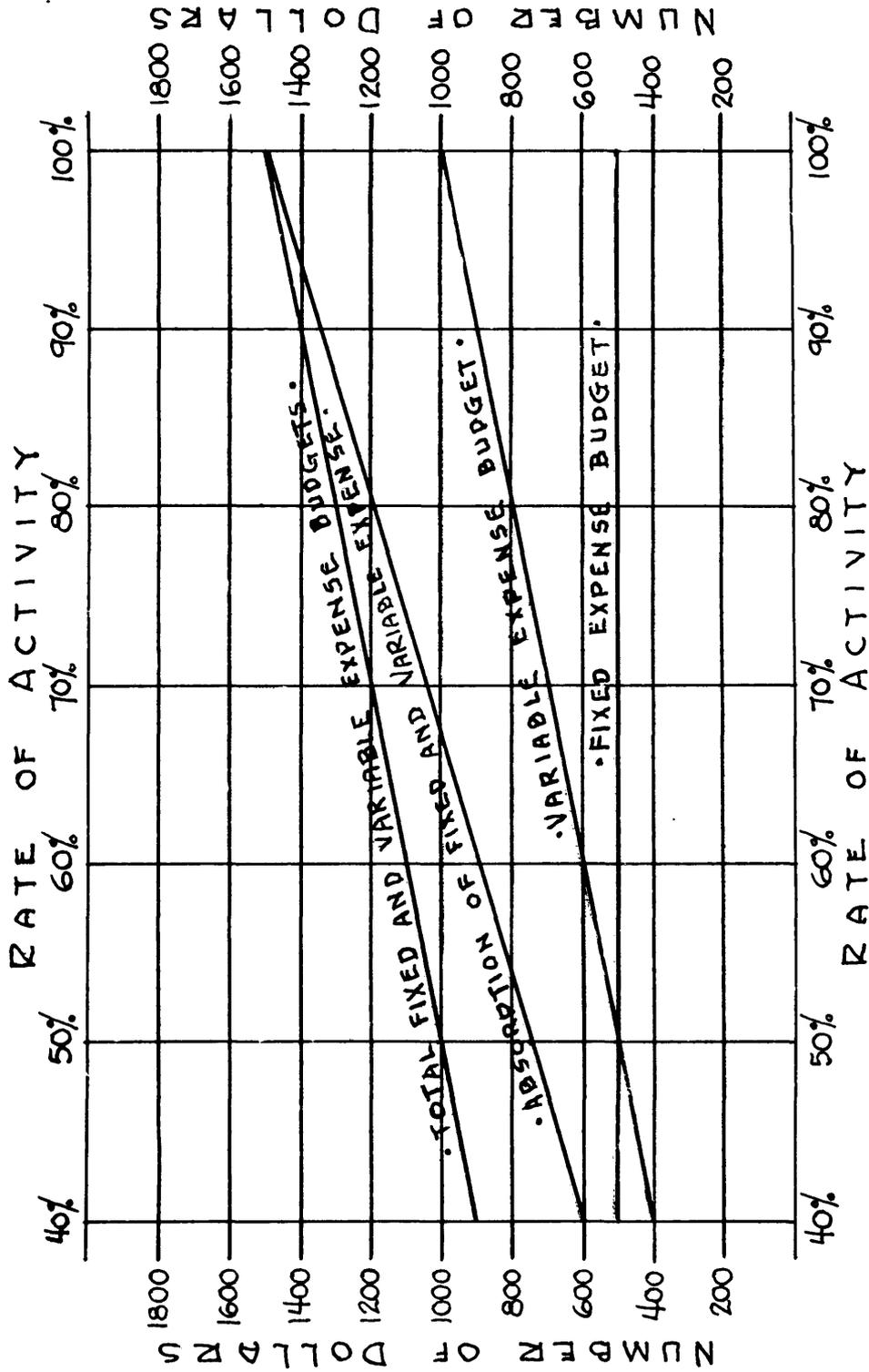


CHART SHOWING
 BUDGETED FIXED AND VARIABLE EXPENSES
 AND

ABSORPTION OF EXPENSES AT VARIOUS RATES OF ACTIVITY

GENERAL ACCOUNTING AND NECESSARY
ROUTINE FOR COST INSTALLATION

The accounting method outlined below is applicable to all of the costing plans referred to previously, with slight modifications.

Books Required

The books of original entry consist of -

- Cash Book
- Voucher Register
- Sales Register
- General Journal

Cash Book

The Cash Book is used for recording all cash receipts and disbursements. As cash is received it is entered as a debit to Cash and as a credit to Accounts Receivable or some other account. When cash is disbursed it is entered in the Cash Book as a credit to Cash and a debit to Accounts Payable or similar account. The grand totals of the individual accounts in the Cash Book are posted to the corresponding accounts in the general ledger each month after closing the Cash Book. The postings to the Accounts Receivable and Accounts Payable should be made daily.

Voucher Register

This is used for recording the distribution of purchase invoices and is often referred to as the Purchase Register. All invoices after approval are entered here as a credit to Accounts Payable and as a debit to the proper accounts. A columnar pad can be used for this purpose.

Sales Register

This record is used for recording the invoices of the sales

shipped. The Accounts ~~Payable~~ account is debited and the proper sales account credited. In cases where only one sales account is maintained or where classes of sales are designated by different series of order numbers, copies of the original invoices may be substituted for this record. The total invoices for the period are tabulated and charged to Accounts Receivable and debited to Sales. The total of each invoice is posted to the customer's sheet in the Accounts Receivable ledger.

General Journal

The general journal is used for transfer of entries between accounts and for closing out the operating accounts at the end of the period.

BOOKS OF FINAL ENTRY

General Ledger

This book contains all the controlling accounts and a detail classification of accounts as shown on Exhibit A, page 52. All the Detail accounts are maintained in the subsidiary records.

Accounts Receivable Ledger

A separate subsidiary ledger is used for recording the customer accounts. Only the total balance due from all customers appears in the General Ledger, the full details appearing in the Accounts Receivable Ledger. The posting of the debits in the Accounts Receivable Ledger originate from the sales register, or copies of invoices, whichever method is used.

Accounts Payable

The Accounts Payable ledger is used for recording the amounts due to vendors. Only the total amount of Accounts Payable will appear in the General Ledger Account. The detail postings to the credit of this account originate in the Voucher Register. It is

possible to eliminate the accounts Payable ledger and use the voucher register for this purpose, If this is done the voucher register must of course be kept in balance with the control account in the general ledger.

SUBSIDIARY RECORDS

Equipment and Depreciation

This is a record of the cost of each piece of equipment owned and should show the date purchased and the amount of depreciation which has been charged into cost. It may be kept on ledger sheets or on a card file and should agree with the individual control accounts in the General Ledger.

Stock Ledger for Detail Inventories

This is a subsidiary ledger in which is carried the detail perpetual inventory accounts for the various materials and supply items. Only the total balance of the account will appear in the general ledger. The full details covering kind of material, quantity, and price will be shown in the subsidiary ledger. It is preferable to maintain these records on cards.

Note Register

This is a subsidiary record of the Notes Receivable and Notes Payable Account in the General Ledger and shows the date of note, amount due maker, date due, interest rate, interest payment dates, and all other information for each note. The balance of the account should agree with the General Ledger Account.

Payroll Book

A payroll should be maintained covering all employees with their names, rates of pay, hours and weekly earnings. The total amount of the weekly payroll should be charged to Accrued Payroll and credited to Cash.

Trial Balance

After all postings for the month have been made in the General Ledger a trial balance should be prepared. This may be prepared on a columnar sheet or in a Standard Trial Balance Book. The net amounts of each account are posted to the debit or credit column, according to the balance of the account. The grand total of all postings to the debit side of the trial balance must equal the grand total of the postings to the credit side. If these columns do not add to the same amount it is necessary to recheck the additions and postings so that they are in balance before the statements are prepared.

Balance Sheet and Profit and Loss Accounts

From the balances as shown on the trial balance the Balance Sheet and Profit and Loss Accounts are prepared. A typical Balance Sheet and Profit and Loss Statement is shown as Exhibits B and C, pages 53 and 54.

NECESSARY ROUTINE

In order to install the costing systems described under Plans III, IV, and V, it will be necessary to take an inventory of the following accounts at the close of an accounting period, in order to properly set up the records. If any of these accounts are already maintained, it will not be necessary to inventory such accounts.

MATERIALS AND SUPPLIES

A physical inventory of all items should be taken as of the date of changing your accounting methods. This should be accomplished by an actual count of the quantity of each different class and kind of material and pricing it at its original cost or market value whichever you desire. Separate inventory cards or ledger sheets should be prepared showing the kind, quantity, size, weight and price of each item.

If separate inventory cards are to be maintained the grand total of all inventory cards should be posted to the Material and Supplies Account in the General Ledger.

WORK IN PROCESS MATERIAL

An inventory of all materials charged to uncompleted or unshipped orders should be prepared and a separate job cost sheet opened for each job order. This material is priced at its original cost. The grand total of all materials posted to the job cost sheets is charged to the general ledger account "Work in Process Material".

WORK IN PROCESS LABOR

An inventory of all labor expended on uncompleted orders should be prepared showing the amount spent on each order which is uncompleted or unshipped. The amount is posted to the job cost sheets

for each order. The grand total of all labor posted to the job cost sheets is posted to the general ledger account "Work in Process Labor".

WORK IN PROCESS FACTORY EXPENSES

Factory expense is pro rated on all direct labor charged to the various jobs as recorded on the job cost sheets. An overhead percentage rate is obtained for each direct labor department by dividing the labor into the overhead for the department. This rate is then applied to all labor as shown on the job cost sheets and the amount applicable to each job is posted on the respective job cost sheet. The overhead expense rate developed for the first month's operation may be used. The total of all overhead expense posted to the job cost sheets is carried to the general ledger account "Work in Process Factory Expense".

WORK IN PROCESS SALES AND ADMINISTRATIVE EXPENSES

The same procedure as shown under Factory Expense is applicable to this class of expense.

CLASSIFICATION OF GENERAL LEDGER ACCOUNTS

<u>Account Number</u>	<u>Name</u>
10	Cash
11	Petty Cash
12	Accounts Receivable
13	Notes Receivable
14	Raw Material Inventories
15	Supplies
16	Work in Process Account
16-1	Work in Process Labor
16-2	Work in Process Material
16-3	Work in Process Factory Expense
16-4	Work in Process Selling Expense
17	Outside Investments
18	Real Estate
19	Buildings
20	Machinery
21	Furniture and Fixtures
22	Automobiles and Trucks
30	Prepaid Insurance
40	Accounts Payable
41	Notes Payable
42	Accrued Payroll
50	Reserve for Depreciation - Buildings
51	Reserve for Depreciation - Machinery
52	Reserve for Depreciation - Furniture and Fixtures
53	Reserve for Depreciation - Automobiles
54	Reserve for Taxes
55	Reserve for Bad Debts
60	Capital Stock
61	Surplus
62	Profit & Loss
65	Interest Received
66	Interest Paid
70	Sales
71	Sales Returns and Allowances
72	Cost of Goods Sold
80	Factory Expenses
81	Selling Expenses
82	Administrative Expenses

GENERAL BALANCE SHEET

<u>Assets</u>	<u>Liabilities</u>
<u>Current</u>	<u>Current</u>
Cash	Accounts Payable
Accounts Receivable (net)	Notes Payable
Notes Receivable (net)	Accrued Taxes
Securities owned	Accrued Payroll
	Accrued Interest
Total	Total Current Liabilities
<u>Inventories</u>	<u>Fixed Liabilities</u>
Raw Materials	Bonded Debt
Supplies	
Work in Process	Total
Finished Goods	
Total	<u>Reserves (not already deducted)</u>
Total Current Assets	<u>Capital Stock & Supplies</u>
<u>Fixed Assets</u>	Capital Stock - Preferred
Land	Capital Stock - Refunded
Buildings	Capital Surplus
Machinery & Tools	Earned Surplus
Furniture & Fixtures	Current Profit & Loss
Automobiles & Motor Trucks	Total Capital & Surplus
Less Depreciation Reserve	
Total Net Fixed Assets	Total Liabilities
<u>Other Assets</u>	
Investments in subsidiary companies	
Good Will	
Patents	
Total	
<u>Deferred Assets</u>	
Prepaid Insurance	
Prepaid Taxes	
Prepaid Interest	
Other Deferred Items	
Total	
Total Assets	

PROFIT & LOSS STATEMENT

Gross Sales	
Less	
Returns and allowances	
Outward freight and express	
Total deductions	_____
Net Sales	_____
Cost of goods sold	_____
Operating Profit	_____
<u>Miscellaneous Income</u>	
Discounts Earned	
Interest Earned	
Dividends Received	
Scrap Sales (Net)	
Total Miscellaneous Income	_____ _____
<u>Miscellaneous Expenses</u>	
Discount allowed	
Interest Paid	
Miscellaneous	
Total Miscellaneous Expenses	_____ _____
Total Net Profit	_____ _____

Cost of goods sold includes Selling and Administrative Expenses.
Where standard cost is used cost of goods sold should be subdivided into:

1. Standard Cost of Goods Sold
2. Variations from Standards Labor
3. Variations from Standards Material
4. Fixed Expense Variation
5. Variable Expense Variation