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Standard Glass Container Association cost system

Fred J. Rummel

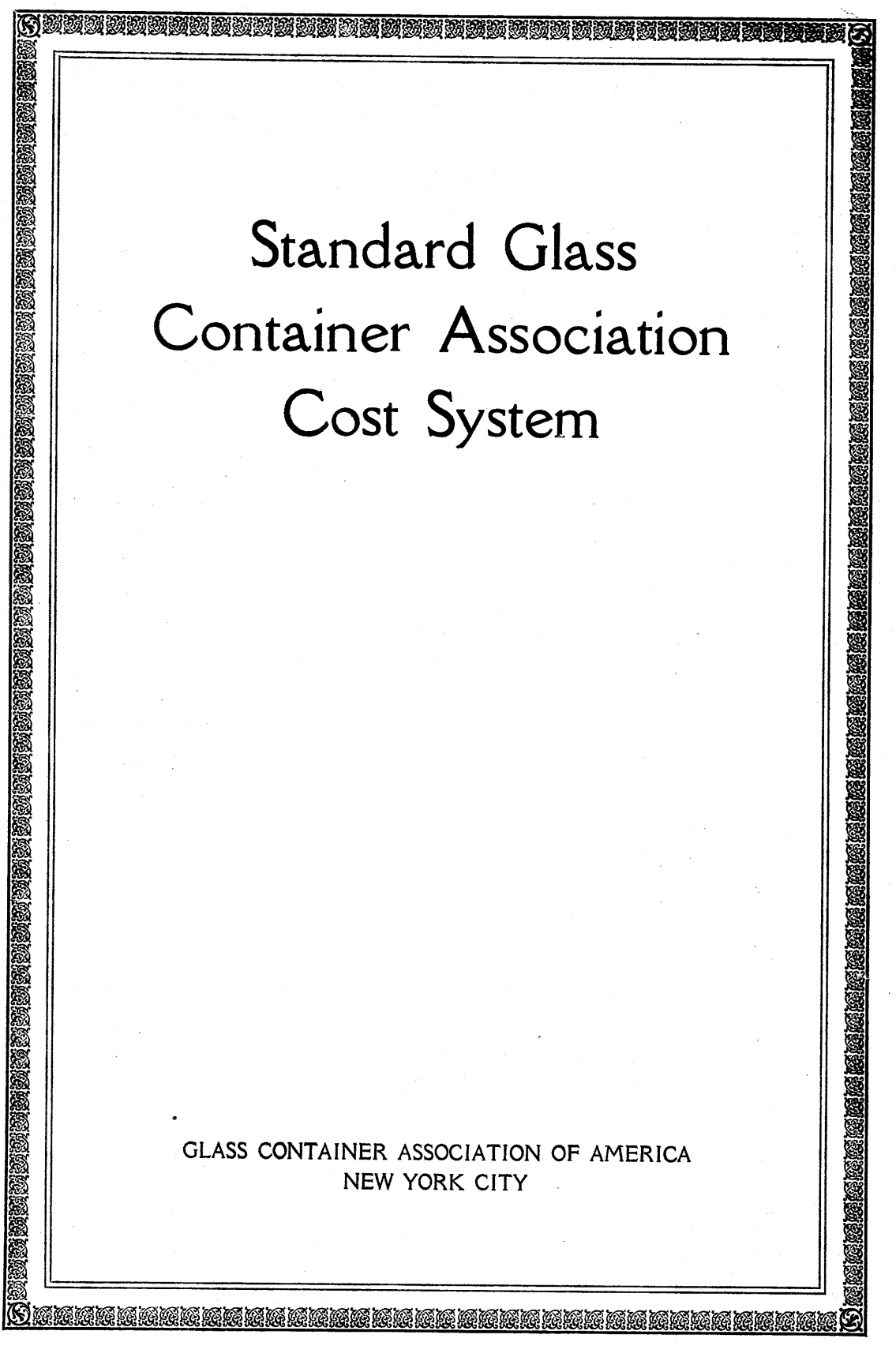
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Standard Glass Container Association Cost System

GLASS CONTAINER ASSOCIATION OF AMERICA
NEW YORK CITY

STANDARD
GLASS CONTAINER ASSOCIATION
COST SYSTEM

P r e p a r e d b y

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Statistical Department, Glass Container
Association of America, in Conjunction with
the Cost Executives of the Glass
Container Industry

GLASS CONTAINER ASSOCIATION *of* AMERICA
Twenty-two East Seventy-fifth Street
NEW YORK CITY
1926

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REPORT OF THE GLASS CONTAINER ASSOCIATION STATISTICAL COMMITTEE

Trade lines are building and using their own uniform cost systems in increasing numbers. Your Committee has viewed the subject in the light that it is desirable and essential that each manufacturer of glass containers should know his own costs and that his costs actually include all proper elements of cost, and that these elements be properly allocated.

That it is further desirable and essential that each manufacturer of glass containers should, as far as it is possible, know that all other manufacturers of glass containers are running their respective businesses with proper knowledge of their costs.

It has not been the intention of your Committee to lay down any hard and fast rule, but rather to set out a general plan which could be generally adopted by all the members of the Glass Container Association with perfect propriety, but perhaps with certain necessary and relatively immaterial modifications in individual instances.

Your Committee naturally expects that all members of the Glass Container Association will co-operate with the Director of Statistics and will endeavor to satisfy him that there will be made only such exceptions to the general plan as really are necessary, and as a result that each member of the Association will thus ultimately be able to assure the Director of Statistics, and through him all other members of the Association, that the costs of the Industry are known and are being kept on a proper and sound basis.

Your Committee does not purpose that there shall be any interchange of cost information or cost statistics between members, nor that any cost report shall be made to the Association. Each member is simply asked to keep his own individual costs properly, and to follow the general plan as far as possible.

STATISTICAL COMMITTEE

J. S. ALGEO, *Chairman*
F. H. MAY
J. H. McNERNEY
F. E. REED
A. W. SHERWOOD
R. R. UNDERWOOD
F. J. RUMMEL, *Secretary*

STANDARD GLASS CONTAINER ASSOCIATION COST SYSTEM

“Progress waits for no man, industry or business—only those who can qualify to the public in giving it what it wants in quality and at the lowest cost receive the largest volume of business.”

“The new competition is eliminating many old, established lines and making over many others in the strife for public favor.”

*“In determining these changes, cost accounting is the important measuring stick—it shows the executive how many dollars he must recover before profits can accrue—it restrains price cutting tendencies on the sound basis of knowledge of the line separating profit from loss. Cost accounting is the tool of both management and workers when rightly designed and used—profitable to both.”**

FUNCTIONS OF A UNIFORM COST SYSTEM

- (1) It forms a basis for the most intelligent pricing of a product.
- (2) It gives plant statistics in terms of unit operating rates and detailed departmental costs.
- (3) It gives a check on plant efficiency and tells the reason for our low or high cost figures.
- (4) By the use of a budget and standard rates it enables us to show normal costs both in periods of reduced activity and in periods when activity is much greater than normal.
- (5) It gives the executive monthly reports showing the condition of the business and the experience of the period.
- (6) It gives a basis for weeding out unprofitable lines.
- (7) For the industry as a whole, it gives cost figures which show differences due to local conditions only, and not to different methods of costing.

*Bulletin of Commerce of the United States.

(8) It is a safeguard against market demoralization which may happen when certain plants do not know their costs or are using different methods.

FUNDAMENTALS

(1) *Simplicity*

The methods used must be simple and understandable so that all the fundamentals can be covered with the least possible effort.

(2) *Flexibility*

The methods must be flexible enough to meet any degree of refinement that any individual plant may require.

(3) *Operation*

The items of cost must be grouped to give the fewest possible units of cost to be recorded against the individual article. An attempt to apply too many cost elements involves too much detail.

(4) *Principle*

The individual product must be charged with the various elements of cost in the same proportion that it has benefited from them.

GENERAL PLAN

In laying out a cost plan it is essential that we obtain all the items of expense that enter into the cost of the products, and for simplicity these items of cost must be classified into groups so that we can obtain the cost of an article with the application of a few rates rather than trying to find the share of each item of expense apportioned to each gross of bottles.

For this purpose the entire business is laid out into departments or cost centers, each performing a certain function in the manufacture of glass, and into which all items of expense are naturally divided.

Having obtained these departmental costs we find there are certain departments, or cost centers, like power or steam that give their entire output to other departments. These departments, which we will call indirect, are charged or distributed to the departments actually producing the product, and which we will call direct operating departments. With all items of expense broken down to the direct operating centers we next find some unit of operation as weight or time which will reflect the effort or cost of producing the ware

in each direct department. All the expenses then are further broken down to these units, thus obtaining rates which with the units for each class of ware will readily give the final cost of any bottle produced.

COST DIVISIONS

(1) The following cost centers or departments are suggested for obtaining departmental costs.

| | |
|---------------------------------|--------------------------------|
| Buildings (Rent) | Automatic Machines or Hand |
| Power Plant | Centers |
| Steam Plant | Direct Machine or Hand Labor |
| Gas Producer Plant or Fuel Pur- | Blowing Room |
| chased | Lehrs |
| Mold Shop | Selecting |
| Repair and Maintenance Dept. | Finished Stock Storage |
| (Machine Shop) | Shipping |
| Raw Materials | Box Shop or Package Department |
| Raw Materials Storage and Mix- | General Factory |
| ing | Administrative |
| Melting or Tank | Selling |

(2) The next step is to allocate each item of expense or cost to its respective cost center. Then through distribution of the indirect centers to the direct operating centers a rate can be determined for application on one of the following ways:

- a—Weight of glass in the finished bottle.
- b—Time.
- c—Direct labor cost producing the bottle.

VOUCHER RECORD

(Form No. 1—see page 4)

For simplicity and accuracy it is necessary that all accounts payable be recorded in the voucher register. This assures us that all items of cost and expense are used in our final costs. The following is suggested for a Voucher Register:

When a bill or account is approved for payment it should be entered in the Accounts Payable Column and then distributed across either to the Operating Account or to the proper account in the General Ledger. For clerical simplicity it will be necessary to use a series of symbols to designate the department and the character of each item of expense for each department. A suggested chart of symbols follows. A combination of the two will be used.

VOUCHER REGISTER

| DATE | VENDOR | VOUCHER No. | ACCT'S PAYABLE | PAYMENT | | MANUFACTURING | | | ADM. SELLING | GENERAL LEDGER |
|------|-----------------|-------------|----------------|---------|-----------|---------------|-------|---------|--------------|----------------|
| | | | | DATE | CHECK No. | MATERIAL | TRMM. | PACKING | | |
| | Brought Forward | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
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| 24 | | | | | | | | | | |
| 25 | | | | | | | | | | |
| | CARRIED FORWARD | | | | | | | | | |
| | FOOTING | | | | | | | | | |

That is Supplies for Building will be noted in the account column A-2; Coal for Boiler C-5; etc.

Cost Division Symbols

A—Building
 B—Power
 C—Steam
 D—Gas Producer or Fuel Purchased
 E—Mold Shop
 F—Repair and Maintenance
 G—General Factory
 H—Raw Material Storage and Mixing
 I—Tank or Melting
 K—Automatic Machines or Hand Center
 L—Direct Machine or Hand Labor
 M—Blowing Room
 N—Lehrs
 O—Selecting
 P—Finished Stock Storage
 R—Shipping
 S—Box Shop
 T—Administrative
 U—Selling

Expense Symbols

1—Indirect Labor
 2—Supplies
 3—Repairs and Maintenance
 4—Power Purchased
 5—Coal
 6—Natural Gas
 7—Liability Insurance
 8—Pensions
 9—Light
 10—Water
 11—Lubricating Oil
 12—Mold Materials
 13—Foremen
 14—Receiving Expense

15—Shipping Expense
 16—Truck or Drayage
 17—Experimental Expense
 18—
 19—
 30—
 40—Executive Salaries
 41—Clerical Salaries
 42—Directors' Fees
 43—Dues
 44—Association Dues
 45—Legal Expense
 46—Auditing Expense
 47—Credits
 48—Telephone and Telegraph
 49—Stationery and Supplies
 50—Postage
 51—Traveling Expense
 52—Donations
 53—Purchasing
 54—
 70—Advertising
 71—Salesmen's Salaries
 72—Commissions
 73—Branch Office Expenses
 74—Collection Expense
 75—Credit Agencies
 76—
 77—
 78—
 100—Sand
 101—Soda Ash
 102—Nitre
 103—Lime
 104—Manganese
 120—Paper Cartons
 121—Box Shop
 122—Nails
 123—Paper
 124—Packers

The total of each column in the Voucher Record will be posted to a corresponding control account in the General Ledger. One exception will be the General Ledger Column which will be posted individually. The total being used only to prove the Voucher Register and make it self-balancing.

*COST LEDGER

Raw Materials. (Form No. 2)

Under this, include all items of raw material including cullet that goes into the glass batch. Since we want only the raw materials going into the packed glass, deduct the cullet made, leaving the remainder as the total cost of finished ware.

The cost of raw materials should include freight and any other incidental cost up to the batch bins. Cullet may be priced either at the market value or at the individual's valuation. The total net cost of finished ware is divided by pounds of finished ware giving the net cost per pound for packed glass.

Fixed Charges. (Form No. 3)

By fixed charges we mean taxes, insurance and depreciation. All three of these are part of the operation cost. While taxes and insurance are only paid once a year and depreciation is solely a bookkeeping entry, yet each bottle must bear its proportionate share of this expense.

In distributing these items of expense we will use the cost value of the buildings and equipment in each one of our cost divisions. The government has recommended this basis for depreciation, and since all three are closely related we should use the same basis for all. It will be necessary to first determine these amounts for each cost division per year and then for a month.

The following rates for depreciation are suggested:

| BUILDINGS | | | |
|--------------------------|------|--------------------------|------|
| Concrete | 3% | Ordinary Brick | 4% |
| Mill Construction | 3% | Frame | 7% |
| MACHINERY AND EQUIPMENT | | | |
| Steam and Power Plant . | 10% | Other Glass Machines . . | 12½% |
| Producer Plant | 10% | Lehrs | 10% |
| Mixers | 10% | Conveyors | 10% |
| Tank | 5% | Other Machines and | |
| Owens Machines | 15% | Equipment | 10% |
| Feeders and Flow Device: | 12½% | Automobiles | 25% |
| Semi-Automatic | 20% | Office Equipment | 10% |

Labor. (Form No. 4)

The payroll is analyzed, charging each department or center with the labor performed in that department. That is, tankmen

*All forms for cost ledger are shown on last pages of this manual.

will be charged to tank, firemen to steam plant, etc. Labor on Automatic machines, semi-automatic or hand gathers should be charged direct to the job where possible; if not practical, then charge this payroll to the machine or shop center.

The same should hold true of boys in the shop except where some machines on a tank have automatic conveyors while others are carried in by hand; boy labor should then be charged to the shop center.

Buildings or Rent. (Form No. 5)

Buildings accrue certain charges like taxes, insurance, depreciation, watchmen, light, etc., that are comparable to a rent charge. These charges then are distributed on a square foot basis for the space occupied by each department.

Steam. (Form No. 6)

The cost of this department is distributed to the departments using steam. In most cases an exact measurement of steam used in the departments will be impracticable. Therefore a standard percentage will be used for distribution.

Power. (Form No. 7)

The cost of the Power Department is distributed to the departments on the basis of H. P. hours. Take the H. P. rating of all the motors in each department, find the H. P. actually used, multiply this by the hours worked per day, then by days worked per week, giving the H. P. hours worked per week. Distribute the power charge on the basis of weekly H. P. hours.

Fuel. (Form No. 8)

The cost of the producer department or the natural gas bill is distributed to Tank, Lehr, Steam, etc., according to meter readings. Where meters are not available an arbitrary or standard percentage of distribution will be used.

General Factory. (Form No. 9)

Under this heading all charges to the operating division which are not directly assignable to any department are collected. We might enumerate superintendence, general supplies, general maintenance, etc.

This division should be distributed to the direct operating departments on some unit which will reflect the effort given each center. However, since there is no comparable unit between tanks, machines, selecting, etc., it is necessary to distribute on a standard percentage. The following is suggested:

| | | | |
|--------------------|---------------|-----------------------------|-----|
| Tank | 30% | Mixing | 5% |
| General Shop | 35% | Selecting and Sorting | 15% |
| Lehrs | 5% | Shipping | 5% |
| | Storage | | 5% |

Mold Shop. (Form No. 10)

Conservative practice is to charge the entire cost of this department (both maintenance and new molds) to operating expense. This is charged to the machine centers on the basis of mold hours. That is, if we have eight and ten mold machines we take the total mold hours for the eight mold machines and the ten mold machines and distribute the total cost on this basis.

Raw Material Storage and Mixing. (Form No. 11)

The cost of operating this department is very closely related to the number of pounds of batch handled. The cost, then, is charged on the basis of pounds of glass in the finished ware.

Tanks. (Form No. 12)

This cost division includes tankmen, fuel, repairs, and all other charges pertaining to the tank operation. For statistical purposes it may be advisable to keep the cost of the Owens revolving pots in a separate center. Should this be the case the total cost will be closed into the tank division. The tank expense is distributed to the ware on the basis of machine hours. Where different types of equipment are used on the tank, the tank should be apportioned to each machine center on a basis of the share of the tank that each machine center uses. That is, if we have equipment making only small ware on the same tank with machines making only large ware, or if we have six mold machines on the same tank with ten mold machines, then the tank should be divided according to the part that each type of equipment uses. This total then is divided by the shop hours to obtain a rate for figuring costs. Unless there is a great difference in equipment the above details should be avoided and the straight shop or machine hour used.

Blowing Room. (Form No. 13)

The purpose of this center is to collect all items of expense that are chargeable to machine centers but which are difficult to distribute to definite machine groups. This will include cullet men, foremen, general factory and general upkeep of the hot end. This is distributed to the machine centers on the basis of active machine hours. Where semi-automatics are used on the same tank with automatic machines all must be converted to one unit for distribution—as, one automatic machine hour will equal two semi-automatic machine hours, etc.

Machine or Hand Centers. (Form No. 14)

The total cost of operating the shop, which includes the share of mold expense, general shop, etc., for each hand or machine group is applied on the active shop hour basis.

Lehrs. (Form No. 15)

For automatic machine equipment, shop or machine hours will be the basis for distribution of lehr costs.

For hand shops, lehr space is more nearly reflected by weight, so pounds of finished ware will be used to distribute lehr expense.

Selecting. (Form No. 16)

The total cost of this department is applied on the machine or blowing hour basis. This is on the theory that it takes as long to select and pack one turn of ware as it does another.

Where standard rates for selecting are available, charge the labor cost direct to the ware and apply the overhead on a machine or shop hour basis.

Finished Stock Storage. (Form No. 17)

Storing or warehousing finished ware at the factory will be treated as a separate cost center. This will be applied against the ware on the basis of pounds of finished ware.

Shipping.

In order not to include shipping expense in our finished stock inventory it will be set up as a cost center and charged direct to cost of sales. This center will include shipping labor, supervision, lumber for bulking cars, etc., and will be charged against the

ware on a cwt. basis. Where practical, a differential should be made for each different type of shipment.

Delivery Truck Center.

Where conditions warrant, a center will be set up for trucking finished ware. This will be applied to ware trucked on the basis of gross or cwt. of ware trucked, whichever is most equitable. This trucking to be considered in lieu of freight.

Box Shop. (Form No. 18)

Standard prices per crate for every style and size used should be carefully worked out. Crates purchased outside should be taken into consideration. The package department will be credited with the standard amount for each crate used and will be charged with all the operating expenses, including new and old packages purchased. This will give an operating gain or loss for this department.

Administrative. (Form No. 19)

Under this heading we have executive charges and clerical salaries, telephone and telegraph, purchasing, credits, accounting, traffic, reserve for bad debts, etc. Care should be taken that all charges for the factory, as payroll department, which may accrue in the general office are taken out and charged to the general factory account. The total administrative charge will be charged direct to the product as a percentage to manufacturing cost in the same manner as selling expense.

Selling Expense. (Form No. 20)

The total cost of this division is divided by the total manufacturing cost of sales, not including packages or freight, thereby obtaining a percentage to be applied on the finished cost of the bottle for selling expense.

All expenses accruing to shipments after leaving the factory, including warehousing, breaking up pool cars, drayage, etc., exclusive of freight, will be charged to Selling Expense.

Summary of Cost Ledger

The following is a summary of distributions and basis of rates for all departments:

| DEPARTMENT | DISTRIBUTION |
|------------------------------|-------------------------------------|
| Buildings or Rent | Square Foot |
| Steam | Percentage |
| Power | Horse Power Hours |
| Mold Shops | Mold Hours |
| Producer or Fuel | Percentage |
| Administrative | Percentage to Manufacturing Cost |
| General Factory | Fixed Percentage |
| Batch Materials | Cwt. Finished Ware |
| Batch Storage and Mixing.... | Cwt. Finished Ware |
| Tank | Machine or Shop Hours |
| Blowing Room | To Machine Centers on Machine Hours |
| Machine or Hand Centers.... | Machine or Shop Hours |
| Lehrs | Machine Hours or Cwt. Finished Ware |
| Selecting | Machine or Shop Hours |
| Finished Stock Storage | Cwt. Finished Ware |
| Shipping | Cwt. Finished Ware |
| Box Shop | Standard Cost Each Package |
| Selling | Percentage to Manufacturing Cost |

MISCELLANEOUS RESERVES

Reserve for Tank Repairs.

It is essential that we set up a reserve during the active life of a tank that will take care of the periodic repairs. The amount for this reserve is taken from past experience, bearing in mind that one year only the side-walls and feeders are repaired while other years we have the additional expense of repairs to bottom or crown. A share of this is charged monthly to the tank or melting center. The credit being handled in the general ledger in the same manner as reserve for depreciation. The cost of tank repairs is charged against this reserve and is not directly an operating charge. At the end of the accounting period this account may be adjusted according to the anticipated repairs for the coming year.

Reserve for Repair Expense.

There are many other items of expense during the period of tank repairs that should be provided for in our costs during the active life of the tank. This will include fixed charges, repairs to producers, repairs to equipment, and general factory expense. They are charged monthly against the general factory division, the credit being handled on the general ledger the same as reserve for depreciation and reserve for tank repairs.

In factories where normal or standard costs are very accurately developed the following method for handling the above two re-

erves is suggested. Normal costs are developed including tank repairs and repairs to equipment based on 100% expense of each department for the period and then divided by the reduced activity for the period due to the shut-down. These rates are used then monthly to determine the normal or standard cost, the difference from actual being charged to a reserve account which we will call "Reserve for Repair Expense." In this manner our entire operation is based on the budgetted cost and normal or standard rates.

Reserve for Bad Debts.

This reserve is calculated from the average of accounts lost or from a percentage on sales, and charged monthly to the administrative division.

MISCELLANEOUS CHARGES

Interest on borrowed money and interest on bonds will be a charge against income, and not as an operating cost.

Discounts on purchases will be an addition to income—discounts on sales a deduction from income.

Allowances on sales arising from over charges and errors in billing will be a deduction from sales. Allowances for defective ware will be charged as an operating cost against the general factory center.

STANDARDS

Rates.

If we take actual rates for calculating costs we find a great variation month by month. In periods of great activity we show a very small cost while in periods of reduced activity our costs are very high. This makes it essential that we establish rates that approach the average of the two periods and gives a cost that reflects normal operation of the factory. To secure these rates, take from past performances, or if changes are to be made, the anticipated cost of operating each department, and make up a budget of expenses for the coming year. Activity should be taken as a percentage of normal production. This gives a standard rate for all cost calculations. The difference between standard and actual cost is calculated each month in the cost ledger and the difference carried to profit or loss in the general ledger under the caption of "*Variation from Standard.*" Standards should be revised whenever there is a

change in manufacturing conditions that materially affect the operating cost.

Standard Costs.

From past performances for production and with the use of standard rates we establish standard costs. Periodically work out the cost of each bottle based on the average production and the standard operating rates. Monthly extend the production of each bottle at the standard cost and take the total and compare with the total actual cost for the factory. The difference is carried to profit and loss under the caption "*Variation in Standard Costs.*"

In addition to stabilizing costs, standards also directly reflect the efficiency of the factory.

FINAL COST

Production Record. (Form No. 21)

It is necessary to keep an accurate record of production, production hours, good ware, bad ware, packages, etc. The form shown on the back of the Job Cost Card may be used.

Costs. (Form No. 22)

Possibly the most vital part of cost work is developing definite costs by classes of product. This is essential for establishing selling prices, determining unprofitable lines and necessary for costing sales.

BOOKKEEPING PROCEDURE

It is essential that the cost system become an integral part of the bookkeeping procedure. Only by this check with the general books of Account can the accuracy of the cost figures be assured, and only as the cost system gives an accurate cost of sales can a proper Profit and Loss Statement be taken from the General Books.

A bird's eye view of the bookkeeping method is shown by Form No. 28.

By means of Fixed Journal entries shown on Form No. 23 the general books are closed monthly giving a balance sheet and profit and loss statement.

It will be noticed that the various operating accounts are credited at standard rates, the difference being carried to Profit and Loss under the Variation from Standard account.

Forms No. 24 and 25 show the monthly balance sheet and profit and loss statement which are obtained after closing the books.

MONTHLY REPORTS TO EXECUTIVES

In addition to the regular Balance Sheet and Profit and Loss Statement the executive should have reports showing the actual operation of the business. Several forms are submitted for these reports though many more details may be submitted if desired.

Form No. 26—Shows the variation between Standard and Actual operation. This gives the executive a direct check on the efficiency of his factory and the apparent reasons for high or low costs for the month.

Form No. 27—Shows the Profit and Loss by classes of product in total. This gives the executive and sales department a direct check on the profitable or unprofitable items in the line. It shows the factory the particular items or lines upon which they must concentrate their efforts to get their costs in line with the selling price.

| Raw Materials | | | | | | | | | | | | |
|-------------------------|---------|--|-----------|--|-------|--|----------|--|-----------|--|-------|--|
| Item | January | | | | | | February | | | | | |
| | Pounds | | Unit Cost | | Total | | Pounds | | Unit Cost | | Total | |
| Batches Made | | | | | | | | | | | | |
| Sand | | | | | | | | | | | | |
| Soda Ash | | | | | | | | | | | | |
| Lime | | | | | | | | | | | | |
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| Cullet Used | | | | | | | | | | | | |
| Total | | | | | | | | | | | | |
| Less Cullet Made | | | | | | | | | | | | |
| Net Materials | | | | | | | | | | | | |
| Total Lbs. Fin. Ware | | | | | | | | | | | | |
| Cost per Cut. Fin. Ware | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| LEDGER | | | | | | | | | | | | |
| Total Actual Cost | | | | | | | | | | | | |
| Cost at Standard Rates | | | | | | | | | | | | |
| Gain or Loss | | | | | | | | | | | | |
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| Distribution of Fixed Charges | | | | | | | | |
|-------------------------------|---------------------------------------|------------|-------|------------------|--------------|--------|------|-------|
| Dist. | Departments | Cost Value | Taxes | Insur- urance | Depreciation | | Year | Month |
| | | | | | Rate | Amount | | |
| | Buildings | | | | | | | |
| * | Machinery and Equipment | | | | | | | |
| | Raw Materials Inv. | | | | | | | |
| | Finished Stock Inv. | | | | | | | |
| | Totals | | | | | | | |
| | *Distribution Machinery and Equipment | | | | | | | |
| | Power | | | | | | | |
| | Steam Plant | | | | | | | |
| | Fuel—Gas Producer | | | | | | | |
| | Mold Shop | | | | | | | |
| | General Factory | | | | | | | |
| | Mixing | | | | | | | |
| | Tank | | | | | | | |
| | Machine or Hand Center | | | | | | | |
| | Lehrs | | | | | | | |
| | Sorting and Selecting | | | | | | | |
| | Finished Stock Storage | | | | | | | |
| | Box Shop | | | | | | | |
| | Administrative | | | | | | | |
| | Totals | | | | | | | |

Analysis of Payroll Distribution

Buildings

Watchman
Janitor

General Factory Labor

Miscellaneous Labor
Yard Trucking Labor
Carpenter
Blacksmith
Tinshop Labor
Electricians
Pipe Fitters

Blowing Room

Machinists
Cullet Boys

Lehr Expense

Lehr Labor

Steam Plant

Fireman

Power

Tank and Lehr Fuel

Crushers
Stokers
Cinder Shovelers
Cinder Wheelers
Gas Man
Foreman

Mold Shop

Storage and Mixing

Storage Labor
Mixing Labor

Tank

Tankmen
Melting
Teasers
Furnace Feeders
Cullet Wheelers

Machine or Shop Center

Operators
Pressers
Machinists
Boys
Etc.

Direct Piece Work Labor

Gatherers
Machine Operators

Selecting and Packing

Selectors
Packers

Storage

Truckers
Pilers
Re-Pilers
Washers

Shipping

Shipping Labor

Box Shop

| Buildings or Rent | | | | | | | | | | |
|-----------------------|----------|--|-------|--|---------|--|---------|--|----------|---------|
| Elements | Standard | | | | January | | | | February | |
| | Year | | Month | | Month | | To-Date | | Month | To-Date |
| Watchman | | | | | | | | | | |
| Indirect Labor | | | | | | | | | | |
| Supplies | | | | | | | | | | |
| Rep. and Maint. | | | | | | | | | | |
| Steam Heat | | | | | | | | | | |
| Light | | | | | | | | | | |
| | | | | | | | | | | |
| Fixed Charges | | | | | | | | | | |
| | | | | | | | | | | |
| Total Cost | | | | | | | | | | |
| No. Sq. Ft. | | | | | | | | | | |
| Cost per Sq. Ft. | | | | | | | | | | |
| | | | | | | | | | | |
| Distribution | | | | | | | | | | |
| Dept. Sq. Ft. | | | | | | | | | | |
| Steam Plant | | | | | | | | | | |
| Power | | | | | | | | | | |
| Material Stor. & Mix. | | | | | | | | | | |
| Tank | | | | | | | | | | |
| Blowing Room | | | | | | | | | | |
| Lehrs | | | | | | | | | | |
| Selecting | | | | | | | | | | |
| Mold Shop | | | | | | | | | | |
| Fin. Stock Storage | | | | | | | | | | |
| Box Shop | | | | | | | | | | |
| Administrative | | | | | | | | | | |
| | | | | | | | | | | |

| General Factory | | | | | | | | | | | |
|-----------------|---------------------|----------|-------|---------|---------|--|-------|----------|--|--|--|
| | Elements | Standard | | January | | | | February | | | |
| | | Year | Month | Month | To-Date | | Month | To-Date | | | |
| | Labor | | | | | | | | | | |
| | Superintendence | | | | | | | | | | |
| | Supplies | | | | | | | | | | |
| | Rep. and Maint. | | | | | | | | | | |
| | Liability Insurance | | | | | | | | | | |
| | Pensions | | | | | | | | | | |
| | Receiving Expense | | | | | | | | | | |
| | Truck or Drayage | | | | | | | | | | |
| | Experimental Exp. | | | | | | | | | | |
| | Carpenter | | | | | | | | | | |
| | Tinner | | | | | | | | | | |
| | Blacksmith | | | | | | | | | | |
| | Electricians | | | | | | | | | | |
| | | | | | | | | | | | |
| | Reserve Repair Exp. | | | | | | | | | | |
| | Fixed Charges | | | | | | | | | | |
| | | | | | | | | | | | |
| | Total Cost | | | | | | | | | | |
| | Distribution | | | | | | | | | | |
| | 30% Tanks | | | | | | | | | | |
| | 35% Blowing Room | | | | | | | | | | |
| | 5% Lehrs | | | | | | | | | | |
| | 5% Mixing | | | | | | | | | | |
| | 15% Selecting | | | | | | | | | | |
| | 5% Box Shop | | | | | | | | | | |
| | 5% Stock Storage | | | | | | | | | | |
| | 5% Shipping | | | | | | | | | | |
| | | | | | | | | | | | |

| Machine or Hand Center | | | | | | | | | | | |
|------------------------|---------------------|----------|--|-------|--|---------|--|---------|--|----------|---------|
| | Elements | Standard | | | | January | | | | February | |
| | | Year | | Month | | Month | | To-Date | | Month | To-Date |
| | Indirect Labor | | | | | | | | | | |
| | Supplies | | | | | | | | | | |
| | Rep. and Maint. | | | | | | | | | | |
| | Lubricating Oil | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Building | | | | | | | | | | |
| | Power | | | | | | | | | | |
| | Blowing Room | | | | | | | | | | |
| | Mold Shop | | | | | | | | | | |
| | | | | | | | | | | | |
| | Fixed Charges | | | | | | | | | | |
| | | | | | | | | | | | |
| | Total Cost | | | | | | | | | | |
| | Total Charged Hrs. | | | | | | | | | | |
| | Cost per Hour | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | LEDGER | | | | | | | | | | |
| | Total Actual Cost | | | | | | | | | | |
| | Total Standard Cost | | | | | | | | | | |
| | Gain or Loss | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | DIRECT LABOR | | | | | | | | | | |
| | | | | | | | | | | | |

| Lehrs | | | | | | | | | | | |
|-------|---------------------|----------|--|-------|--|---------|---------|--|----------|---------|--|
| | Elements | Standard | | | | January | | | February | | |
| | | Year | | Month | | Month | To-Date | | Month | To-Date | |
| | Labor | | | | | | | | | | |
| | Supplies | | | | | | | | | | |
| | Rep. and Maint. | | | | | | | | | | |
| | Fuel | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Building | | | | | | | | | | |
| | Power | | | | | | | | | | |
| | General Factory | | | | | | | | | | |
| | | | | | | | | | | | |
| | Fixed Charges | | | | | | | | | | |
| | | | | | | | | | | | |
| | Total Cost | | | | | | | | | | |
| | Total Machine Hours | | | | | | | | | | |
| | Cost per Hour | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | LEDGER | | | | | | | | | | |
| | Total Actual Cost | | | | | | | | | | |
| | Total Standard Cost | | | | | | | | | | |
| | Gain or Loss | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Selecting | | | | | | | | | | | |
|---------------------|----------|-------|--|--|---------|---------|--|--|----------|---------|--|
| Elements | Standard | | | | January | | | | February | | |
| | Year | Month | | | Month | To-Date | | | Month | To-Date | |
| Labor | | | | | | | | | | | |
| Supplies | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Building | | | | | | | | | | | |
| General Factory | | | | | | | | | | | |
| | | | | | | | | | | | |
| Fixed Charges | | | | | | | | | | | |
| | | | | | | | | | | | |
| Total Cost | | | | | | | | | | | |
| Total Shop Hours | | | | | | | | | | | |
| Cost per Hour | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| LEDGER | | | | | | | | | | | |
| Total Actual Cost | | | | | | | | | | | |
| Total Standard Cost | | | | | | | | | | | |
| Gain or Loss | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Storage | | | | | | | | | | | |
|---------|------------------------|----------|--|-------|--|---------|--|---------|--|----------|---------|
| | Elements | Standard | | | | January | | | | February | |
| | | Year | | Month | | Month | | To-Date | | Month | To-Date |
| | Labor | | | | | | | | | | |
| | Supplies | | | | | | | | | | |
| | Rep. and Maint. | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Building | | | | | | | | | | |
| | Power | | | | | | | | | | |
| | General Factory | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Fixed Charges | | | | | | | | | | |
| | Fixed Chgs. Fin. Stock | | | | | | | | | | |
| | | | | | | | | | | | |
| | Total Cost | | | | | | | | | | |
| | Cwt. Good Ware | | | | | | | | | | |
| | Cost per Cwt. | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | LEDGER | | | | | | | | | | |
| | Total Actual Cost | | | | | | | | | | |
| | Total Standard Cost | | | | | | | | | | |
| | Gain or Loss | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Box Shop | | | | | | | | | | | | |
|----------------------|----------|--|-------|--|---------|--|---------|--|----------|--|---------|--|
| Elements | Standard | | | | January | | | | February | | | |
| | Year | | Month | | Month | | To-Date | | Month | | To-Date | |
| Labor | | | | | | | | | | | | |
| Supplies | | | | | | | | | | | | |
| Rep. and Maint. | | | | | | | | | | | | |
| Box Materials | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Building | | | | | | | | | | | | |
| Power | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Fixed Charges | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Total Cost | | | | | | | | | | | | |
| Value Boxes Produced | | | | | | | | | | | | |
| Variation | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| LEDGER | | | | | | | | | | | | |
| Total Actual Cost | | | | | | | | | | | | |
| Total Standard Cost | | | | | | | | | | | | |
| Gain or Loss | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| Administrative | | | | | | | | | | | |
|----------------|---------------------|----------|--|-------|--|---------|--|---------|--|----------|---------|
| | Elements | Standard | | | | January | | | | February | |
| | | Year | | Month | | Month | | To-Date | | Month | To-Date |
| | Salaries | | | | | | | | | | |
| | Stationery and Sup. | | | | | | | | | | |
| | Postage | | | | | | | | | | |
| | Tel.—Tel. | | | | | | | | | | |
| | Dues | | | | | | | | | | |
| | Donations | | | | | | | | | | |
| | Directors Fees | | | | | | | | | | |
| | Legal Expense | | | | | | | | | | |
| | Auditing Expense | | | | | | | | | | |
| | Traveling Expense | | | | | | | | | | |
| | Purchasing | | | | | | | | | | |
| | Credits | | | | | | | | | | |
| | Traffic | | | | | | | | | | |
| | Reserve Bad Debts | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Building | | | | | | | | | | |
| | Fixed Charges | | | | | | | | | | |
| | | | | | | | | | | | |
| | Total Cost | | | | | | | | | | |
| | Total Mfg. Cost | | | | | | | | | | |
| | % to Mfg. Cost | | | | | | | | | | |
| | | | | | | | | | | | |
| | LEDGER | | | | | | | | | | |
| | Total Actual Cost | | | | | | | | | | |
| | Total Standard Cost | | | | | | | | | | |
| | Gain or Loss | | | | | | | | | | |
| | | | | | | | | | | | |

| Selling | | | | | | | | | | | |
|-----------------------------|----------|-------|--|-------|---------|--|-------|---------|----------|--|--|
| Elements | Standard | | | | January | | | | February | | |
| | Year | Month | | Month | To-Date | | Month | To-Date | | | |
| Salaries | | | | | | | | | | | |
| Commissions | | | | | | | | | | | |
| Traveling Expense | | | | | | | | | | | |
| Advertising | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Fixed Charges | | | | | | | | | | | |
| | | | | | | | | | | | |
| Total Cost | | | | | | | | | | | |
| Total Mfg. Cost | | | | | | | | | | | |
| % Selling Exp. to Mfg. Cost | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| LEDGER | | | | | | | | | | | |
| Total Actual Cost | | | | | | | | | | | |
| Total Standard Cost | | | | | | | | | | | |
| Gain or Loss | | | | | | | | | | | |

GLASS CONTAINER ASSOCIATION

| Production Record | | | | | | | | | |
|-------------------|-------------|------|-------|------|-----|---------|-----|------|-------|
| Day | Shop Record | | | Good | Bad | Package | | | |
| | Shop | Hrs. | Labor | | | Hrs. | No. | Doz. | Desc. |
| | | | | | | | | | |
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| Cost Card | | | | | | |
|-----------------------|-----------|------|---------------|--------|--------|--------|
| Weight | | | Name | | | |
| Capacity..... | | | Finish..... | | | |
| Prod. per Hr..... | | | Month of..... | | | |
| % Loss..... | | | Package..... | | | |
| Details | | | Standard | | Actual | |
| Item | No. Units | Unit | Rate | Amount | Rate | Amount |
| Batch | | Cwt. | | | | |
| Lehrs | | Cwt. | | | | |
| Stock Storage | | Cwt. | | | | |
| Tank | | Hrs. | | | | |
| Shop Hours | | Hrs. | | | | |
| Selecting | | Hrs. | | | | |
| Labor | | | | | | |
| Royalty | | | | | | |
| Bottle Cost | | | | | | |
| Shipping | | | | | | |
| Administrative | | | | | | |
| Selling | | | | | | |
| Package Cost | | | | | | |
| Trimmings | | | | | | |
| | | | | | | |
| Cost to Make and Sell | | | | | | |
| Freight | | | | | | |
| Cost of Sales | | | | | | |
| Selling Price | | | | | | |
| Profit or Loss | | | | | | |
| % | | | | | | |
| | | | | | | |
| | | | | | | |

FORM NO. 22 (Front of Cost Card)

Monthly Fixed Journal Entries

MANUFACTURING
 ADMINISTRATIVE

I

to

RESERVE FOR DEPRECIATION
 TAXES
 INSURANCE
 PERIODIC REPAIRS
 REPAIR EXPENSE
 BAD DEBTS

To charge cost of operation with monthly reserves.

MANUFACTURING

II

to

RAW MATERIAL

To charge operations with batch materials used.

COST OF SALES

III

to

MANUFACTURING

To charge cost of sales for expense of shipping ware at standard.

MANUFACTURED STOCK

IV

to

MANUFACTURING

To charge manufactured stock with the standard cost of ware made.

COST OF SALES

V

to

MANUFACTURED STOCK
 PACKAGES
 TRIMMINGS
 ADMINISTRATIVE
 SELLING

To charge cost of sales with standard cost of goods sold, packages, trimmings, administrative and selling expense at standard.

Monthly Fixed Journal Entries—Continued

VI

MANUFACTURING
ADMINISTRATIVE
SELLING

to

VARIATION FROM STANDARD

To close balance of manufacturing, administrative and selling expenses to the variation from standard account.

(NOTE: Entry will be reversed whenever operating costs are greater than standard costs.)

VII

TRADING

to

COST OF SALES

To close cost of sales into trading.

VIII

SALES

to

RETURN AND ALLOWANCES

To charge returns and allowances against sales.

IX

SALES

to

TRADING

To close sales into trading accounts.

X

TRADING

to

PROFIT AND LOSS

To close trading into profit and loss.

Balance Sheet

ASSETS

Current

Cash
 Accounts Receivable
 Bills Receivable
 Raw Material Inventory
 Finished Stock Inventory
 Outside Investments

Fixed

Land and Buildings
 Machinery
 Tank and Lehrs
 Molds

Reserves

Reserve for Standards
 Tax Reserve
 Insurance Reserve
 Reserve Tank Repairs
 Reserve Repair Expense
 Reserve Bad Debts

LIABILITIES

Current

Accounts Payable
 Notes Payable
 Bills Payable

Fixed

Capital Stock
 Bonds

Reserves

Depreciation Reserve
 Reserve for Standard
 Tax Reserve
 Insurance Reserve
 Reserve Tank Repairs
 Reserve Repair Expense
 Reserve Bad Debts

Profit and Loss

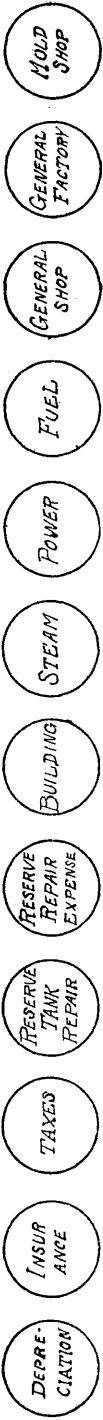
Profit and Loss
 Surplus

| Profit and Loss Statement | | |
|---------------------------------------|--|--|
| Month of 192 . . . | | |
| Gross Sales | | |
| Less Returns and Allowances | | |
| Net Sales | | |
| Less, Cost of Sales at Standard | | |
| Profit at Standard Cost | | |
| Plus or Minus Variation from Standard | | |
| Net Operating Profit for Period | | |
| Add— | | |
| Discounts on Purchases | | |
| Other Income | | |
| Less— | | |
| Discounts on Sales | | |
| Interest on Borrowed Money | | |
| Interest on Bonds | | |
| Other Deductions | | |
| Net Profit for Period | | |
| | | |

CHART of BOOKKEEPING METHODS

FIXED CHARGES

INDIRECT CENTERS



DIRECT OPERATING CENTERS

