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## Practical Method of Cost Accounting in a Shipbuilding or a Ship Repair Plant

L. V. Hedrick

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**NATIONAL ASSOCIATION  
of  
COST ACCOUNTANTS**

Affiliated with The Canadian Society  
of Cost Accountants



**Official Publications**

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Vol. V      January 2, 1924      No. 8

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**A Practical Method of Cost  
Accounting in a Shipbuilding  
or Ship Repair Plant**

**BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK**

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### A Practical Method of Cost Accounting in a Shipbuilding or a Ship Repair Plant

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Hedrick-Garrett-Adelquist  
Los Angeles, Cal.

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**JANUARY 2, 1924**

# National Association of Cost Accountants

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## A PRACTICAL METHOD OF COST ACCOUNTING IN A SHIPBUILDING OR SHIP REPAIR PLANT

While this article is intended primarily to treat of the matter of shipbuilding and ship repair costs, it has been arranged and written with the hope that it may be of assistance in formulating cost procedure and methods for all manner of manufacturing industries and the like.<sup>1</sup> Minute detail has been omitted as far as possible, perhaps too largely so, here and there, and managerial or operating principles probably too largely encroached upon in preference. The chief aims of the article, however, are to offer ideas which are fundamentally sound in the gathering together of shipbuilding costs and their proper compilation, to be of the service which costs are intended to be, and also to give a fairly definite idea of the general cost administration of a shipbuilding plant.

### ESTIMATING DEPARTMENT

As in other industries, new business is either procured or created through the regular acknowledged channels or otherwise. Plans, specifications and requests for bids are routed through the Mailing Department to the Estimating Department. Here, the names of the companies requesting bids together with the nature and extent of the work to be done are sent promptly to the Comptroller's Division, which determines upon the advisability of granting credit, arranges the preparation of bid and contract bonds, when required, consults with the Insurance Department in the matter of procuring necessary marine or other insurance, discusses with the Executive Committee the intent of the proposed operating contracts, the advisability of creating sub-contracts for special jobs, and in general takes care of any other administrative measures which such contracts and proposals present. When sanctioned, the Estimating Department scrutinizes the plans and specifications, here and there designing and re-designing, first to suit the requirements of the work to be done, and second to determine any economical advantages to be gained from the use of materials carried in stock as against materials which can only be purchased at a sacrifice of time. Bids, when finally ready for presentment, are forwarded to an Executive Committee comprising the Management, the Comptroller and the Engineering, Operating and Selling Divisions, and upon their approval are forwarded through the mails or otherwise delivered.

<sup>1</sup>See page 15 for a list of forms.

## CONTRACT DEPARTMENT

The receipt of the acceptance of a bid usually entails the signing of a contract and specifications, the contract being forwarded to the Contract Department which functions as part of the Comptroller's Division. The Contract Department either makes necessary extracts from the contract for the information of departments interested or itself follows up the fulfillment of the contract. The Operating Department, Drafting Department, and Cost Department are furnished with information especially required by them for their own particular purposes in the carrying out of such contract and the fulfillment of all its obligations. The Operating Department at this time is supplied by the Estimating Department with a bill of material (see Form 1, page 16) together with information covering the requirements in regard to new materials. The Cost Department in its turn arranges to obtain and compile costs in a manner to make proper and required comparisons against the original estimate.

## WORK ORDERS

The job is actually started by the publication of a work order or series of work orders originating in the Operating Division. Copies of work orders are furnished any and all departments interested. Each work order, it might be stated, makes reference to the contract itself and covers in detail the work to be performed and in addition specifies the required time limit for performance. The Production Department, functioning under the Operating Division, keeps the foremen informed as to the time the various items of the work are required to meet the production schedules, advises them what material has been ordered, when it may be expected, what materials may be obtained from stock and, in general, maintains supervision over the progress and the rotation of the work.

While we have at this point transgressed somewhat in the matter of rotation, we might retrace our steps and consider the matter of employment of labor.

## EMPLOYMENT OF LABOR

An Employment Office is maintained, the functions of which are the hiring of employees, the proper recording of their grade or craft for the purpose of pay, their transfer, discharge, clearance, etc. All but the highly skilled artisans are hired for the various productive departments through the Employment Manager. Before employees are finally hired they undergo a medical examination for the purpose of establishing their fitness for the work for which they apply. The medical fitness of employees is most important in the elimination of abnormally high overhead (physically unfit employees in hazardous occupations can run up the overhead easily 50 per cent above what might be termed the normal overhead).

After prospective employees have passed the necessary formalities for the purpose of determining their fitness and capabilities, they are required to attach their signatures to a "Signature Card" which is forwarded to the Payroll Department, when the date of employment, scale of pay and payroll number have been filled in. Employment lists made up from these cards are sent to the departments interested. The first payroll entry is set up from this signature card, as are also the addressograph files and the employees' Income Record Cards for Income Tax purposes. Signature Cards are then maintained in a file for future use, a record being kept thereon as to an employee's qualifications, his previous employment, changes in scale of pay, inter-departmental transfers, termination and the reason therefor, and so on. It might be mentioned that the cards when filed are segregated by departments, then by divisions or grades within each department and further by alphabetical sequence within the division or grade.

Employees are permitted to enter and pass out of the plant through what are known as check gates during the regular hours only. Employees passing in or out of the plant during working hours are checked through a "Special Pass Gate" and a record kept of each employee. Each gate is equipped with a Time Clock. On entering the gates for the day's work the employee shows his badge to the gateman, who "rings in" a time card on the clock and hands it to the employee. At the time the employee leaves the yard the time card is presented to the gateman and the card is "rung out."

#### TIME CARDS

Time Card forms (see Form 8 [Front and Reverse] page 17) are of a special four section design with a balancing feature. The left hand or payroll section of the card contains the number of hours worked during the day and is balanced with the time as distributed on the remaining three sections, which sections cover the working time of the employee as chargeable to work orders and standing accounts.

The record of the hours worked together with the nature of the work performed, etc., are filled out by the employee. The verification and approval of this record is made by the foreman who affixes his signature on the time card. A final verification is made by the Payroll or Timekeeping Department.

Time Cards as accumulated for the day are sorted numerically under each department.

The cards are cut into their four sections. The Payroll section is retained by the Payroll Department for the purpose of entering on the payroll, and when posted is filed away by departments, by crafts in such departments, and further alphabetically according to the employee's name with the latest date in front and accumulated for a period of one week for the purpose of auditing the employee's record with each week's payroll as payrolls are maintained on a weekly basis. Employees working overtime

or on special shifts are provided with time cards of different colors for ready identification and are handled in a similar manner.

### LABOR DISTRIBUTION

The labor distribution sections of the time cards are sorted to work order or standing account numbers and are checked against a copy of the work order itself for the possible detection of errors or commissions. The hours as shown on these sections are posted to "Daily Distribution" sheets (see Form 9, page 18) specially printed to reflect the various crafts or departments, rates of pay, etc. The numbers of the various work orders worked upon are inserted in the column headings. The hours worked are posted in the column under the proper work order and on the line designating the employee's occupation which is covered by code and rate of pay. Further segregations are maintained as to straight time, overtime, piece work time, etc. After the hours have been posted, the extensions are computed, the hours and amounts are accumulated by order numbers, and a summary is compiled and forwarded to the Cost Department. Experience has proven that this method of distributing labor costs is handled more accurately and expeditiously in the Payroll Department than in the Cost Department as it completes the balancing feature before payroll and cost information are separated.

For purposes of Payroll Control the various crafts in a shop or department are assigned a series of payroll numbers, each series of numbers representing a certain craft or skill in occupation and further designating a set scale of pay. An illustration of the various classifications of a department is shown below:

DEPARTMENTS	CODES & NUMBERS	PAY RATE PER HOUR		
Blacksmith Department	BS	Graduated Crafts	1-25	.90
			26-50	.80
			51-100	.74
			101-200	.70
			201-300	.64
			301-400	.54
			401-500	.48
			501-600	.42
			601-700	.38
Boilermaking Department	BM	Graduated Crafts	101-200	.90
			201-300	.82
			301-400	.80
			401-500	.74
			501-600	.70
			601-700	.64
			701-800	.60
			801-900	.58
			901-1000	.54
			1001-1100	.50
			1101-1200	.48
			1201-1300	.42
			1301-1400	.38



As the payroll section of the time cards is entered on the Payroll Ledger, a set of control sheets is prepared reflecting the daily summary by payroll crafts. The control sheets are balanced with both the payroll and the labor distribution.

Piece work is counted and checked by Piece Work Counters the same day that piece work is actually performed. Piece Work slips are prepared, priced and accounted for in the same manner as Time Cards. Payrolls, pay checks, etc., are printed by addressograph machines.

Transfers of employees from one department to another are arranged by foremen and the records accomplished by the Employment Department through the sending of daily lists of such transfers together with transfer cards to the Payroll Department. Transfer cards are signed by the interested foremen and by the General Superintendent. Changes in the scale of pay of employees are submitted by the foremen on a Change of Rate Card and forwarded to the General Superintendent for approval and in turn forwarded to the Payroll Department in proper time for that department to record the changes within the proper pay period.

An employee who resigns or terminates his services is furnished a termination card from his foreman. Only when clearance is obtained from the tool room office for the tools charged against him and his termination card O. K.'d by the Employment Office may the employee apply to the Payroll Department for his pay-off check.

#### MATERIAL

Material for quantity production is requisitioned by the Production Department and purchased either as required or at what appears, in an anticipated fluctuating market, the most prudent or opportune time to purchase. The Purchasing Department forwards a copy of the Purchase Order to the Receiving Clerk, to the Storeroom Clerk, to the Accounting Department and also to the Cost Department.

On certain jobs, the progress of which does not require a "follow-up" by the Production Department, material is ordered by the foreman in charge of the work, who is required to make out a requisition on a warehouse. The warehouse furnishes any material in stock. If the material is not in stock, a Purchase Requisition is prepared. Purchase requisitions are made out in quadruplicate. The original, signed by the warehouse foreman, is forwarded to the Production Department for checking against any possible duplication of order and then forwarded to the Purchase Department for the issuance of a purchase order.

Requisitions on the warehouse are issued to each foreman in books of fifty triplicate sets numbered in printing. When a requisition is written, two copies are sent to the warehouse and one copy is retained in the requisition book by the foreman. As materials are forwarded, a copy of the requisition is sent to the foreman receiving the material for his signature and returned

to the warehouse. The warehouses then check their records for the purpose of determining if the charge is a proper one against the Work Order; this also serves the purpose of determining if materials are being requisitioned in excess of requirements for the work and also furnishes a check on spoiled materials.

As requisitions are received by the warehouse daily, each requisition number is checked against the last preceding requisition number issued by each department; if any are found to be missing the matter is taken up with the Superintendent or Departmental foreman for an explanation as to its whereabouts. It is assumed that a requisition is of the same value as the material which is drawn from the stores and is just as much a liability to the company as an incoming invoice. For this reason all requisition books are periodically audited and it cannot be too strongly emphasized, notwithstanding the carelessness of the majority of firms in this respect, that materials are money, the kind of money, however, which is usually less cared for and less safeguarded than a dollar would be, and therefore worthy of somewhat special attention.

As signed copies of requisitions are received in the warehouse from the foreman, they are sent to the Cost Department for its use.

Whenever any material requisitioned from the warehouse is unused on a job, the foreman immediately issues a credit requisition. The warehouse signs the original requisition upon receipt of the material and forwards it to the Cost Department. In the same manner a check and record of "Credit Requisitions" is kept by the warehouse as outlined above for "Requisitions on the Warehouse."

Whenever any material in the course of manufacture is spoiled by the workman, a credit requisition is forwarded with the material to the warehouse, stating the reason for the spoilage. When received in the warehouse the Work Order number, as shown on the requisition upon which the material was originally ordered, is crossed out and a special work order number, for the charging of spoiled work, is substituted. The charges to these work orders are later charged to the expenses of the department. The time spent upon spoiled material up to the point of its becoming defective remains a charge on the employee's time card to the original Work Order number under which order the work is being carried on, and the time spent by the employee on the material which replaces it, up to the point of the former material becoming defective, is charged on a time card of a different color to denote that such time is to be charged to the work order covering defective or spoiled work.

If the work is spoiled, due to defectiveness of the material, a notation to this effect is made on the credit requisition sent to the warehouse. The time spent by the employee while working on the material is then made the subject of a note to the Payroll Department and as soon as the Accounting Department receives this information, a claim is made against the vendors of the

material for replacement, and also for the time of the employees expended on such work whenever this action is desired or found necessary.

Should it be found that any company constantly furnishes defective castings or any other materials, the Purchasing Department is informed for their guidance in the future purchase of similar products.

Purchase requisitions to cover the replenishment of stock in the warehouse are issued by the warehouse foreman in the manner as already mentioned.

All purchase requisitions on the warehouse are checked against a copy of the Purchase Order, the articles purchased being entered on a commodity index. One copy of the Purchase Order is filed numerically and the other alphabetically. When the manifest is received, a notation of quantity, date of receipt, condition of material, etc., is made on the face of the purchase order. When the invoice is received from the Accounting Department, the invoice register number is noted on the Purchase Order. When all records upon the Purchase Order have been completed, it is filed in an order file.

If it is found on checking the invoice against the Purchase Order that any errors have been made in the shipment, or any articles are missing or damaged, a notation to that effect is made on the invoice sticker. When the invoice is returned to the Accounting Department, a debit memo is made against the vendor for the loss sustained or whatever action is necessary under the circumstances is taken. At this point it might be well to state that at the time of the receipt of the incoming invoices an invoice sticker (see Form 18, page 18) is immediately gummed to each invoice. The date of receipt, the purchase order number, f.o.b. point of delivery, terms of payment, signatures of approval, condition of arrival of goods, date of payment of invoice and other important information are noted thereon. The use of such information is quite obvious without further explanation. Before the invoice leaves the Accounting Department for this information, it is posted in the books of account, the reason being that 99 per cent or more of all invoices received are correct as rendered and for the sake of the correction of the remaining per cent, such corrections being the subject of later attention, it is not considered advisable to delay their entry in the books. This action also allows the prompt taking of Cash Discounts, a procedure difficult to accomplish if the invoices were located in some other part of the plant awaiting settlement of any error.

While upon the subject of invoices and purchase orders, it might be well to state that freight bills received from the Traffic Department are recorded also on the Purchase Order, forwarded to the Accounting Department and dealt with in the regular manner.

The Sales Department in making a sale of material from

stock, such sale not being covered by a work order, notifies the Billing Department of the details of the sale which immediately issues a Sales Order. The Sales Order reflects the kind of materials sold, f.o.b. point, how to be shipped, etc. Four copies of the Sales Order are forwarded to the Warehouse and the driver, taking the delivery of the material, is furnished with three copies, one of which is left at the yard pass gate as the driver passes through the yard, another is returned, signed by the consignee for receipt of materials, and the third copy is retained by the customer. Upon receipt of the signed copy from the consignee the Billing Department issues an invoice to cover.

The non-return of a Sales Order signed by the customer, however, will not preclude the issuance of an invoice as all Sales Orders are maintained and accounted for in a follow-up file until final disposal.

No material can leave the yard without a Sales Order. Material shipped from the yard and afterwards returned, as in the case of a loan, is the subject of what is known as a Loan Sales Order, a copy of which is held in a tickler file until the return of the material. Any charges in connection with a loan of material are mentioned on the Loan Sales Order and are the subject of later billing.

#### OVERHEAD

There are so many methods and means of distributing overhead that the subject can scarcely be done the justice which this important matter deserves in a brief article of this nature.

One method largely used and recognized by a majority of manufacturers is known as the productive-hour method. Where hand labor is concerned, the man-productive hour is the basis. The total direct hours divided into the total overhead expense determines the rate per hour, which rate, multiplied by the hours spent on a Work Order, gives the overhead expense chargeable to that particular order.

Where machines are the producing unit, the machine hour is used and the same method employed as in the case of the man hour.

In some plants an estimate of the overhead expense for the preceding year or years is taken, and this estimate, considered with conditions which it is anticipated will prevail in the coming year, is made the basis of distribution for such year. This figure, divided by the expected output in machine hours or in man hours gives the normal overhead expense rate to be applied to all work in the plant or in the department. At the end of the year or at the end of each month this rate is either reduced or increased according to the expenditures during such month, or the same rate is used throughout the year and the amount absorbed deducted from the amount of accumulated overhead for such year. The remaining balance is then made the basis of a charge or credit through a Burden Adjustment account.

If a plant has made a study of its overhead problem, many

and devious are the ways in which it may gain advantage. While of course it would not be a good plan to discourse upon the many methods and uses to which a study of the overhead problem can be put, one fairly good plan is to prepare a chart of the Work Orders in progress, showing opposite each the value of the labor, material and overhead which was used in the original estimate, and reflecting, as the job progresses, the amount of overhead being absorbed by each job. In having this information accumulated day by day or periodically and also by showing on the chart the physical progress of the job for comparison with both the estimate and the actual performance, it can always be quickly learned whether or not the overhead being absorbed by such job or accumulation of jobs is sufficient as compared to the estimate upon which the work was secured. If a saving is being consistently shown, and a very desirable job is being bid on, it is a simple matter for the management, if the procuring of the job is worthy of such steps, to submit a bid without even considering overhead charges. Another very important use to which such a chart serves is to acquaint the Sales Department with the overhead it may use in acquiring business. The subject of the distribution of overhead in general is apparently so well and thoroughly covered in existing literature that little more need be mentioned in this article regarding it.

#### THE ACCUMULATION OF COSTS BY THE COST DEPARTMENT

The requisitions on the warehouse for materials are promptly received from the warehouse by the Pricing Department where unit prices are inserted and the prices extended by comptometer operators and forwarded to the Cost Department. The requisitions are then sorted to Work Order numbers and those for each job are attached, the total amount computed for each order and noted on the reverse side of the last requisition. A recapitulation sheet is prepared showing the order numbers and the amount chargeable to each. Postings are then made to the Cost Ledgers and balanced with the recapitulation sheet. The recapitulation sheet number is then stamped on each requisition for identification purposes and the requisitions are filed under their respective Work Order numbers, the latest date in front.

Credit requisitions as received from the warehouse are checked against the former requisition, priced accordingly and posted in the Cost Ledger in the same manner as the charge requisitions.

The Accounting Department daily furnishes the Cost Department with copies of Material invoices after they have been posted in the Accounts Payable and Distribution Ledgers. These are sorted by Work Order numbers and those for each job are assembled. The total amount of the invoices is then taken for each job and this total, as in the case of requisitions, is noted on the reverse side of the last invoice. A recapitulation is made showing the total charge to each order number and the same procedure is followed as outlined under the subject of Warehouse requisitions.

Labor distribution sheets and the supporting labor coupons are received daily from the Payroll Department. The labor coupons are immediately filed under their respective Order numbers first in date order, then by departments and further by crafts within the departments. These files serve as a permanent and original record for statistical cost compilation. The labor costs for each Work Order as accumulated on the labor distribution sheets are posted to their corresponding work order sheet on the Cost Ledgers.

As copies of Purchase Orders are received by the Cost Department, the order number is noted on the Cost Ledger Sheet of the Work Order for which the purchase was made. Invoices as received, covering these purchases, are compared with the Purchase Order and posted to the Cost Ledger. As the fulfillment of a Purchase Order is made by the vendor, it is noted on the Ledger sheet. All Purchase Orders unfilled represent the liability still to be applied to costs and serve as a means of ascertaining the estimated total cost as work progresses.

Each work order as issued and sent to the Cost Department is scrutinized and checked to determine that proper information is reflected thereon. Cost Ledger sheets reflecting this information are then typed for each Work Order and placed in the Cost Ledgers. The date of issuance of each Work Order is registered in a Work Order register and the copy of the work order itself is then filed.

Each day a Work Bulletin, issued by the Production Department, is received by the Cost Department showing a list of new Work Orders opened and a list of the work orders completed. This bulletin discloses to the Cost Department the date on which all costs applying against such work order will be in their hands as well as being a means of check on Work Orders issued.

## REPORTS AND STATEMENTS

The Cost Department compiles each day a report showing the total productive hours worked by all employees and in addition the class of work, the order number, and also the number of men employed on each job. In addition to serving many other uses, this report keeps the Estimating Department informed as to the percentage of capacity at which the departments are working, and is also useful to denote the amount of additional work which can be handled throughout the plant with a balanced organization.

On work involving considerable expenditure, the Cost Department, at certain intervals, furnishes a statement of "Costs to Date" on each job. This statement of the actual expenditure to date together with a statement of the physical percentage of completion is most useful as a forecast of the profit and progress being made on these jobs and is also used as a basis for progressive billing on contract work.

At the end of each day, the Cost Ledger sheets are totaled and balanced with the General Ledger Control. A monthly statement is prepared showing the value of materials (both from requisitions

on the warehouse and from invoices), the value of labor and the amount of overhead taken into Work in Process during the month.

A statement of Plant Betterment and Plant Repair jobs completed during a week or month is prepared in detail showing the work order number, opening and closing date of the work order, description and place of work, etc., labor, materials, and overhead, when applied; an entry is then prepared crediting Work in Process and charging the various asset or departmental expense accounts for which the expenditures were incurred. Standing orders for the accumulation of Departmental expenses are handled in a like manner. A detailed statement of completed Revenue Work Orders is also prepared.

It might be well to mention at this point that expenditures should not be incurred for Plant Betterment, Addition or Improvement work or Plant Maintenance and Repair Work amounting to \$50.00 or more without proper authorization and approval. Requests for all Betterment, Addition or Improvement Work irrespective of the amount of cost should be made on A.F.E. (authorization for expenditure) forms. (See Form 23, page 19). This request must state the estimated amount of expenditure, the reason for request and other salient information and must be approved and authorized by two members of the executive committee. Requests to cover maintenance and repair work, wherein the cost of such maintenance or repairs amounts to \$50.00 or more should be made on a G.M.O. (General Manager's Order) form. (See Form 24, page 20.) This request should also state the estimated amount of expenditure, reason for the request, etc. and must be approved and authorized by the General Manager. Progressively, as well as upon completion, expenditures are compared with the original estimates for A.F.E.'s and G.M.O.'s. These comparisons serve as a check and a verification of expenditures as incurred against the expenditures authorized.

A detailed and descriptive break down analysis of Departmental expenses is maintained by the Cost Department, and each week a statement is prepared reflecting the amount of labor and materials expended by each department. A copy of this statement is furnished to each department head and Superintendent. A chart is also drafted representing the average daily operating expenses of each department together with a comparison of current expenses with previous expenses. This information is the subject of discussion at weekly or periodical meetings of the departmental superintendents, general superintendents and the Management and is the means of keeping the departmental overhead down to a minimum.

#### BILLING

A copy of each Work Order, Purchase Order, and Sales Order together with any other salient information from a billing stand-

point, are accumulated in an open file in the Billing Department until a job is ready to be billed.

Time coupons for time and material jobs, as soon as posted in the Cost Books, are sent to the Billing Department and checked against the reports furnished daily by Time Checkers. Special Time Checkers, operating under the supervision of the Billing Department report the time worked, materials used, etc., on time and material jobs. From these reports a recapitulation is made of the total labor and machine cost value expended by each department on each Work Order number. The Time Checkers also report each day the work performed by the plant tugs; this record is also posted to the recap sheets. Similarly, the daily log of the operations of the drydock is received showing the date and time a vessel is docked, the gross tonnage of the vessel, date and time undocked, together with a brief description of the work performed while the vessel is on the drydock. From this log the number of drydock days chargeable to each job is obtained and posted to the recap sheets. A copy of the daily Work Bulletin, which reports the jobs open and closed each day is also received by the Billing Department; as jobs are reported closed, the file folders, covering such work orders, are transferred to an unbilled file until such time as they are ready to be invoiced.

As jobs are ready for invoicing, a draft of each invoice is prepared, the labor and machine values being taken from the recap sheets, and the material values from all sources of such information. The draft is then sent to the Cost Department, Sales Department, Works Manager, Chief Engineer, General Manager and Comptroller to be checked and scrutinized, after which an invoice is typed and forwarded to the customer. The Accounts Receivable Department is furnished with a copy of the invoice and the Cost Department is advised of the invoice number, the number being recorded for reference purposes on the Cost Ledger Sheet. Cards are prepared covering each invoice, cross indexing in numerous ways all possible information for reference purposes.

#### MISCELLANEOUS

An important item of cost is marine insurance, which must be carefully considered.

A great many plants operate a fleet of motor trucks for delivery inside the yard and also for outside service.

Guards for fire protection and other purposes are necessary.

Compensation insurance and its relation to admiralty losses must be considered. All of these points are of great importance to the Cost Accountant. The reason for perpetual inventories on certain materials and the disregard for a perpetual inventory system on other materials—these and numerous other such subjects are disposed of daily, but are of the greatest moment in so far as costs are concerned.

The brief resumé in this article of a certain method in



the accounting for costs has been written with the thought of reflecting the control of information for costs from inception (acquisition of contract or job, acquisition of labor, acquisition of materials) to conclusion (billing of revenue or departmental finished or completed work) and the "tying-in" (accounting of labor and material values purchased and consumed or used in work completed) or balancing feature of values.

Intentional elimination has been made of those subjects and methods of general accounting that should be thoroughly understood by accountants and, therefore, have not been considered essential to present in this article.

#### LIST OF FORMS

The following is a list of forms used in the operation of the cost methods described in this article. Forms 1, 8, 10, 18, 23 and 24 are reproduced in this article.

- 1 Bill of Material.
- 2 Work Order.
- 3 Requisition for Employee or Employment Card.
- 4 Employee's Signature Card.
- 5 Daily Record of Men Employed.
- 6 Employee's Income Record.
- 7 Daily Record of Employees in and out of Plant during Working Hours.
- 8 Time Card with Employee's instructions on reverse side.
- 9 Daily Labor Distribution—Part of Classification only.
- 10 Daily Labor Distribution—Recapitulation by Job numbers—Part of Classification only.
- 11 Payroll—Sample Ledger Sheet.
- 12 Daily Summary of Crafts—Part of Classification of Crafts.
- 13 Change of Rate Card with Instructions on Reverse Side.
- 14 Employment Termination Card—With instructions on reverse side.
- 15 Purchase Requisition.
- 16 Requisition on Stores.
- 17 Material Returned to Stores.
- 18 Invoice Sticker.
- 19 Sales Order.
- 20 Cost Ledger Sheet.
- 21 Checker's Daily Reports—Repair Work.
- 22 Rough Draft of Bill.
- 23 A.F.E.
- 24 G.M.O.

DEPT.			DESCRIPTION		MATERIAL		NO. REQ.	SOURCE SUPPLY	PATTERN NO.	REFERENCE DESIG. NO.	INSPECTION NO.	FORMULARY CHECKS NO.	DATE RECEIVED	DATE ISSUED	REMARKS			
MADE BY _____			CHECKED _____		APPROVED _____		DATE _____ 192_									E. M. NO. _____	MULL No. _____	JOB No. _____

Form 1

SIGNATURE OF CHECKER PASSED OUT AT		P. M.		JOB NO.		JOB NO.	
REASON		A. M.		EMPLOYEE'S SIGNATURE		EMPLOYEE'S SIGNATURE	
FOREMAN AUTHORIZED ODD LUNCH HOUR		FOREMAN		DATE		DATE	
FROM		TO		DEPT.		DEPT.	
FOREMAN		FOREMAN		NUMBER		NUMBER	
REMARKS:		REMARKS:		EMPLOYEE'S SIGNATURE		EMPLOYEE'S SIGNATURE	
				NAME OF JOB		NAME OF JOB	
				WORK HOURS		WORK HOURS	
				STRAIGHT TIME		STRAIGHT TIME	
				OVERTIME		OVERTIME	
				NATURE OF WORK		NATURE OF WORK	
				PLACE OF WORK		PLACE OF WORK	
				No 149347 C		No 149347 B	
				No 149347 A		No 149347	

Form 8 (Front)

# INSTRUCTIONS

You must show your badge to the gateman when entering the yard.

Wear your badge in plain sight at all times.

Keep this time card with you at all times while in the yard.

Write your name and number plainly in each space provided for same on this time card immediately upon entering the yard.

## OVERTIME

Overtime will not be paid unless duly authorized by the Works Manager.

Overtime worked during a lunch hour must be indicated by your foreman in the space for "Remarks" on this time card, otherwise lunch hour will be deducted.

## ODD LUNCH HOUR

If you take a lunch hour at any time other than the regular lunch hour, same must be authorized by foreman in space under "Authorized Odd Lunch."

## PASS OUT

When leaving the yard at any time before the end of your shift your foreman must fill out the space marked "Passed Out At" and sign his name.

## GENERAL

Your time card **MUST** be handed to the gateman when going off shift.

Erasure of clock mark on this card is sufficient cause for discharge.

Your time card must be filled out and signed by your Foreman or the Time Checker, before going off Shift.

Form 8 (Reverse)

### DAILY LABOR DISTRIBUTION

OCCUPATION	CRAFTS		JOB No.		
	CODE AND NUMBERS	RATE	REG. HRS.	O. T. HRS.	AMOUNT

Form 10

### INVOICE STICKER

INVOICE RECEIVED	DISTRIBUTION	
TERMS	ACCT NO.	AMOUNT
BY		
EXTENSIONS CHECKS		
BY		
INVOICE REGISTER NO.		
ENTERED - ACCTS PAYABLE LEDGER		
CONTROL NO.	LINE NO.	
PRICES CHECKED	F O B	REMARKS
	POINT	
ENTERED		
P O NO.	BY	
MATERIAL RECEIVED		
BY		
TRANSPORTATION CHARGES O K		CLAIM REPORT
BY	NO.	BY

Form 18

AUTHORIZATION OF EXECUTIVE COMMITTEE

FOR

BETTERMENT, ADDITION OF  
IMPROVEMENT EXPENDITURE.

IRRESPECTIVE OF AMOUNT OF COST.

No.

A. F. E.

DATE \_\_\_\_\_ 192\_\_

TO THE  
EXECUTIVE COMMITTEE:

REQUEST IS HEREWITR MADE FOR THE APPROVAL OF AN EXPENDITURE OF  
\$ \_\_\_\_\_ TO COVER THE COST OF WORK DESCRIBED PER DETAILED ESTIMATE  
BELOW.

192

DATE WORK TO START

192

DATE WORK TO BE COMPLETED

W. O. NO. \_\_\_\_\_  
WHEN AUTHORIZED BY EXECUTIVE COMMITTEE

of Job

DETAIL OF DESCRIPTION OF WORK REQUESTED	ESTIMATED COST		ACCOUNT NO.	AMOUNT	SUMMARY OF COST.		
	DETAIL	TOTAL			MATERIAL	LABOR	OVERHEAD
<p><b>NOTE:</b> Request must be made on this form to cover any and all work of a betterment-addition or improvement nature irrespective of amount of cost. <b>NO WORK</b> to be performed until approved and authorized by two members of the Executive Committee.</p>							
<p>BETTERMENT-ADDITION OR IMPROVEMENT TO PLANT.</p>							
<p>BETTERMENT-ADDITION OR IMPROVEMENT TO MACHY</p>							
<p>TOTAL</p>							
<p>BETTERMENT, ADDITION OR IMPROVEMENT REQUESTED</p>					<p>APPROVED AND AUTHORIZED FOR EXECUTIVE COMMITTEE</p>		

BY \_\_\_\_\_

BY \_\_\_\_\_

Form 23

AUTHORIZATION OF GENERAL MANAGER

FOR

**MAINTENANCE AND REPAIR**

WHEREIN COST AMOUNTS TO \$50.00 OR MORE.

**G. M. O.**

TO THE

GENERAL MANAGER:

DATE \_\_\_\_\_ 192\_\_

REQUEST IS HEREWITH MADE FOR THE APPROVAL OF AN EXPENDITURE OF \$ \_\_\_\_\_ TO COVER THE COST OF WORK DESCRIBED PER DETAILED ESTIMATE BELOW.

LOCATION OF WORK \_\_\_\_\_ DATE WORK TO START \_\_\_\_\_ 192\_\_

REASON FOR REQUEST \_\_\_\_\_ DATE WORK TO BE COMPLETED \_\_\_\_\_ 192\_\_

W. O. NO. \_\_\_\_\_  
WHEN AUTHORIZED BY GENERAL MANAGER.

DETAIL OF DESCRIPTION OF WORK REQUESTED

ESTIMATED COST  
DETAIL  
TOTAL


ALLOCATION OF COST	ACCOUNT NO	AMOUNT	SUMMARY OF COST		
			MATERIAL	LABOR	OVERHEAD
MAINTENANCE-PLANT					
MCH'Y					
REPAIRS					
PLANT					
MCH'Y					
TOTAL					

MAINTENANCE AND REPAIR REQUESTED

APPROVED AND AUTHORIZED

BY \_\_\_\_\_ GENERAL MANAGER.

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