

## **COST ACCOUNTING STANDARD ON “OVERHEADS”**

The following is the text of the COST ACCOUNTING STANDARD 3 (CAS- 3) issued by the Council of the Institute of Cost and Works Accountants of India on “Overheads”. The standard deals with the method of collection, allocation, apportionment and absorption of overheads” In this Standard, the standard portions have been set in bold italic type. These should be read in the context of the background material which has been set in normal type.

### **1. Introduction**

**1.1** In Cost Accounting the analysis and collection of overheads, their allocation and apportionment to different cost centres and absorption to products or services plays an important role in determination of cost as well as control purposes. A system of better distribution of overheads can only ensure greater accuracy in determination of cost of products or services. It is, therefore, necessary to follow standard practices for allocation, apportionment and absorption of overheads for preparation of cost statements.

### **2. Objective**

2.1 The standard is to prescribe the methods of collection, allocation, apportionment of overheads to different cost centres and absorption thereof to products or services on a consistent and uniform basis in the preparation of cost statements and to facilitate inter-firm and intra-firm comparison.

2.2 The standardization of collection, allocation, apportionment and absorption of overheads is to provide a scientific basis for determination of cost of different activities, products, services, assets, etc.

2.3 The standard is to facilitate in taking commercial and strategic management decisions such as resource allocation, product mix optimization, make or buy decisions, price fixation etc.

2.4 The standard aims at ensuring better disclosure requirement and transparency in the cost statement.

### **3. Scope**

**3.1** *The standard should be followed for treatment of overheads by all enterprises including companies covered under Cost Accounting Records Rules issued in pursuant to Sec 209(1)(d) of the Companies Act, 1956 or under the provisions of any other Act, Rules and Regulations.*

3.2 The standard shall be applied in Cost and Management Accounting practices relating to

- (a) Cost of products, services or activities
- (b) Valuation of stock
- (c) Transfer pricing
- (d) Segment Performance
- (e) Excise / Custom duty, VAT, Income Tax, Service Tax and other levies, duties and abatement fixation

(f) Cost statements for any other purpose

#### **4. Definitions :**

**4.1 Overheads – Overheads comprise of indirect materials, indirect employee costs and indirect expenses which are not directly identifiable or allocable to a cost object in an economically feasible way.**

*Overheads are to be classified on the basis of functions to which the overheads are related ( Refer to ‘ Classification of cost’ – CAS-1), viz*

- *Production overheads*
- *Administrative overheads*
- *Selling overheads*
- *Distribution overheads*

*Overheads may also be classified on the basis of behaviour such as variable overheads, semi-variable overheads and fixed overheads.*

*Variable overheads comprise of expenses which vary in proportion to the change of volume of production. For example, cost of utilities etc.*

*Fixed overheads comprise of expenses whose value do not change with the change in volume of production such as salaries, rent etc.*

*Semi-variable overheads are partly affected by change in the production volume. They are further segregated into variable overheads and fixed overheads*

Any items of overheads arising out of abnormal situation in business activity should not be treated as overheads. They are charged to Costing Profit and Loss Account. Items not related to business activities such as donation, loss / profit on sale of assets etc are also not to be treated as overheads.

Borrowing cost and other financial charges including foreign exchange fluctuations will not form the part of overheads.

**4.2 Collection of Overheads - Collection of overheads means the pooling of indirect items of expenses from books of account and supportive/ corroborative records in logical groups having regards to their nature and purpose.**

Overheads are collected on the basis of pre-planned groupings, called cost pools. Homogeneity of the cost components in respect of their behaviour and character is to be considered in developing the cost pool. Variable and fixed overheads should be collected in separate cost pools under a cost centre. A great degree of homogeneity in the cost pools are to be maintained to make the apportionment of overheads more rational and scientific. A cost pool for maintenance expenses will help in apportioning them to different cost centres which use the maintenance service.

**4.3 Allocation of overheads – Allocation of overheads is assigning a whole item of cost directly to a cost centre.**

An item of expense which can be directly related to a cost centre is to be allocated to the cost centre. For example, depreciation of a particular machine should be allocated to a particular cost centre if the machine is directly attached to the cost centre.

**4.4 Apportionment of overhead - Apportionment of overhead is distribution of overheads to more than one cost centre on some equitable basis.**

When the indirect costs are common to different cost centres, these are to be apportioned to the cost centres on an equitable basis. For example, the expenditure on general repair and maintenance pertaining to a department can be allocated to that department but has to be apportioned to various machines (Cost Centres) in the department. If the department is involved in the production of a single product, the whole repair & maintenance of the department may be allocated to the product.

**4.5 Primary and Secondary Distribution of Overheads :**

*In case of multi-product environment, there are common service cost centres which are providing services to the various production cost centres and other service cost centres. The costs of services are required to be apportioned to the relevant cost centres. First step to be followed is to apportion the overheads to different cost centres and then second step is to apportion the costs of service cost centres to production cost centres on an equitable basis. The first step is termed as primary distribution and the second step is termed as secondary distribution of overheads.*

**4.6 Absorption of overheads - Absorption of overheads is charging of overheads from cost centres to products or services by means of absorption rates for each cost center which is calculated as follows :**

$$\text{Overhead absorption Rate} = \frac{\text{Total overheads of the cost centre}}{\text{Total quantum of base}}$$

*The base ( denominator) is selected on the basis of type of the cost centre and its contribution to the products or services, for example, machine hours, labour hours, quantity produced etc.*

*Overhead absorbed = Overhead absorption rate x units of base in product or service*

**4.7 Normal Capacity is the production achieved or achievable on an average over a period or season under normal circumstances taking into account the loss of capacity resulting from planned maintenance. (CAS-2)**

**5. Apportionment and absorption of Production Overheads**

**5.1 Overheads are to be apportioned to different cost centres based on following two principles :**

- i) Cause and Effect - Cause is the process or operation or activity and effect is the incurrence of cost. Apportionment of overheads based on this criterion ensures better rationality as it is guided by the relationship between cost object and cost.*
- ii) Benefits received – overheads are to be apportioned to the various cost centres in proportion to the benefits received by them.*

**5.2 Primary Distribution of overheads :**

*Basis of primary apportionment of items of production overheads is to be selected to distribute them among the cost centres following the above two principles as given above in 5.1.*

Basis of apportionment must be rational to distribute overheads. Once the base is selected, the same is to be followed consistently and uniformly. However, change in basis for apportionment can be adopted only when it is considered necessary due to change in circumstances like change in technology, degree of mechanization, product mix, etc. In case of such changes, proper disclosure in cost records is essential.

Examples of basis of primary distribution of some items of production overheads

Item of Cost	Basis of Apportionment
Power	(H.P. rating of Machines x hours x LF *
Fuel	Consumption rate x hour
Jigs, tools & fixtures	Machine hours or Man hours
Crane hire charges	Crane hours or weight of materials handled
Supervisors' salary & fringe benefits	Number of employees
Labour welfare cost	Number of employees
Rent & rates	Floor or Space area
Insurance	Value of fixed asset
Depreciation	Value of fixed asset

\* LF = Motor Load Factor

**5.3 Secondary Distribution of Overheads :**

*Secondary distribution of overheads may be done by following either Reciprocal basis or Non-Reciprocal Basis. While reciprocal basis considers the exchange of service among the service departments, non-reciprocal basis considers only one directional service flow from a service cost centre to other production cost centre(s).*

**5.4 Secondary Apportionment of Overheads on Reciprocal Basis**

*The services rendered by certain service cost centres are also utilized by other service cost centres. In reciprocal secondary distribution, the cost of service cost centres are*

*apportioned to production cost centres as well as other service cost centres. In such case, any one of the following three methods may be followed :*

- I. Repeated Distribution Method*
- II. Trial & Error Method*
- III. Simultaneous Equation Method*

#### **5.4.1 Repeated Distribution Method**

*Steps to be followed under this method are :*

- i) The proportion at which the costs of a service cost centres are to be distributed to production cost centres and other service cost centres are determined.*
- ii) Costs of first service cost centres are to be apportioned to production cost centres and service cost centres in the proportion as determined in step (i).*
- iii) Similarly, the cost of other service cost centres are to be apportioned.*
- iv) This process as stated in (ii) and (iii) are to be continued till the figures remaining undistributed in the service cost centres are negligibly small. The negligible small amount left with service centre may be distributed to production cost centres.*

For example, refer to Exhibit 1

#### **5.4.2 Trial and Error Method**

*This method is to be followed when the question of distribution of costs of service cost centres which are interlocked among themselves arises. In the first stage, gross costs of services of service cost centres are determined and then in the second stage, costs of service centres are apportioned to production cost centres. Steps to be followed :*

- i) The proportion at which the costs of a service cost centre to be distributed to production cost centres and other service cost centres is determined.*
- ii) Cost of first service cost centre is distributed to the other service centres in the proportion of service they received from the first as assessed in step (i).*
- iii) In the next step, total cost of second service cost centre so arrived has to be distributed to the other service centres in the proportion of service they received from the second as assessed in step (i).*
- iv) Similarly, the cost of other service cost centres are to be apportioned to the service cost centres.*
- v) This process as described in (iii) and (iv) is to be continued till the figures remaining undistributed in the service cost centres are negligibly small.*
- vi) At the last, total cost of service cost centres to be distributed to production cost centres.*

For example, refer to Exhibit 2

#### **5.4.3 Simultaneous Equation Method**

*The simultaneous equation method is to be adopted to take care of secondary distribution of cost of service cost centres to production cost centres with the help of mathematical formulation and solution. Steps to be followed :*

- i) Proportion of service benefits received by different cost centres from a cost centre are assessed on the basis of records*

- ii) *The same ratios are used as coefficients in the equations framed for apportionment of cost of service cost centres to production cost centres.*
- iii) *Solution of the equations gives the cost of service cost centres.*
- iv) *Cost of service cost centres to be distributed to production cost centres*

For example, refer to Exhibit 3

**5.5 Secondary Apportionment of Overheads on Non-Reciprocal basis**

*In non-reciprocal secondary distribution, the costs of service cost centres are apportioned to the production cost centres. Steps involved are :*

- i) *The cost of first service cost centre is apportioned on a suitable basis to production cost centres.*
- ii) *The next step is to apportion the cost of second service centre to the production cost centres as indicated in stage (i).*
- iii) *The process is to be continued till the costs of all service cost centres are apportioned.*

For example, refer to Exhibit 4

**5.6 Common bases for absorption of Production overheads from production cost centres to products or services :**

<i>Bases of denominator</i>	<i>Applicability</i>
<i>Unit of Production</i>	<i>When single product is produced or various products are similar in specification.</i>
<i>Direct labour cost</i>	<i>When conversion process is labour intensive and wage rates are substantially uniform</i>
<i>Direct labour hour</i>	<i>When conversion process is labour intensive</i>
<i>Machine Hour or Vessel Occupancy or Reaction Hour or Crushing Hour etc</i>	<i>When production mainly depends on performance of the base</i>

**5.7 Absorption of Production Overheads and production capacity**

*Overheads shall be analysed into variable overheads and fixed overheads.*

*The variable production overheads shall be absorbed to products or services based on actual capacity utilisation.*

*The fixed production overheads and other similar item of fixed costs such as quality control cost shall be absorbed in the production cost on the basis of the normal capacity or actual capacity utilization of the plant, whichever is higher.*

*In case of less production than normal, under-absorption of overheads shall be adjusted with Costing Profit & Loss Account. In case of higher production than normal, the over-absorption of overheads shall also be adjusted with Costing Profit & Loss Account.*

### 5.8 Absorption of Production overheads :

*Production Overheads absorption rate for each cost centre is to be determined with the help of quantum base as indicated in 5.6 above and the formula as indicated below :*

$$\text{Fixed overheads absorption rate} = \frac{\text{Fixed overheads}}{\text{Normal or actual quantum of base, whichever is higher}}$$

$$\text{Variable overheads absorption rate} = \frac{\text{Variable overheads}}{\text{Actual quantum of base}}$$

5.9 *A pre-determined rate may be used on a provisional basis for internal management decision making such as cost estimates for quotation, fixation of selling price etc. These rates are to be calculated for each cost centre for a particular period. Budgeted overheads for the respective cost centres for the period concerned are to be taken as numerator and budgeted normal base for the period as denominator for determining the rate.*

$$\text{Pre-determined overhead Rate} = \frac{\text{Budgeted Overheads for the period}}{\text{Budgeted normal base for the period}}$$

*The amount of total overheads absorbed by a product, service or activity will be the sum total of the overheads absorbed from individual cost centres on pre-determined basis. The difference between overheads absorbed on pre-determined basis and the actual overheads incurred is the under- or over-absorption of overheads.*

*The under- or over- absorption of overheads is mainly due to variation between the estimation and actual.*

## 6. Apportionment and absorption of Administrative Overheads

6.1 Administrative overheads include the following items of cost :

- Printing and stationery, other office supplies
- Employees cost – salaries of administrative staff
- Establishment expenses – Office rent & rates, insurance, depreciation of office building and other assets, legal expenses, audit fees, bank charges etc.

6.2 Administrative overheads are to be collected in different cost pools such as :

- General Office
- Personnel department
- Accounts department

- Legal department
- Secretarial department etc

**6.3 Administrative overheads are to be further analysed into two – one for production activities and other for sales and distribution activities. Costs collected under the cost pools indicated in 6.2 above are to be distributed to administrative overheads relating to production activities and administrative overheads relating to selling and distribution activities on rational basis for each cost pool.**

**6.4 Administrative overheads relating to production activities are to be apportioned to different production cost centres on the basis conversion costs of production cost centres. The apportioned overheads are absorbed to products on the basis of the normal capacity or actual capacity, whichever is higher.**

***In case of under-absorption or over-absorption of administrative overheads relating to production, the same shall also be adjusted with Costing Profit & Loss Account.***

## **7. Apportionment and absorption of Selling overheads and Distribution overheads**

**7.1 The selling overheads and distribution overheads are collected under different cost pools such as :**

***Selling Overheads :***

- (i) Sales Employees cost***
- (ii) Rent***
- (iii) Traveling expenses***
- (iv) Warranty claim***
- (v) Brokerage & Commission***
- (vi) Advertisement relating to sales and sales promotion***
- (vii) Sales incentive***
- (viii) Bad debt etc***

***Distribution Overheads :***

- (i) Secondary Packaging***
- (ii) Freight & forwarding***
- (iii) Warehousing & storage***
- (iv) Insurance etc.***

**7.2 Some items of selling overheads and distribution overheads are directly identified and absorbed to products or services and remaining part of selling and distribution overhead along with the with share of administration overheads relating to selling and distribution activities are to be apportioned to various products or jobs or services on the basis of net actual sales value (i.e. Gross sales value less excise duty, sales tax and other government levies).**



## 8. Presentation and Disclosure:

**8.1** *Once the basis of collection, allocation, apportionment and absorption for different production cost centres are selected, the same shall be followed consistently and uniformly*

**8.2** *Change in basis for collection, allocation, apportionment and absorption can be adopted only when it is compelled by the change in circumstances like change in technology, refinement and improvement in the basis etc and the change would provide more scientific approach. In case of such changes, proper disclosure in cost records is essential..*

**8.3** *Any change in basis for collection, allocation, apportionment and absorption which has a material effect on the cost of the product should be disclosed in the cost statements. Where the effect of such change is not ascertainable wholly or partly, the fact should be indicated in the cost statement.*

### Exhibit 1

#### Reciprocal Overheads Apportionment : Repeated Method

	Production Department			Service Department	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio apportionment from Repair	40%	35%	15%	10%	
Distribution from					
Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00
Stores Dept.	2500.00	1000.00	750.00	-5000.00	750.00
Total	38000.00	32900.00	15550.00	0.00	6750.00
Repairs & Maintenance Dept	2700.00	2362.50	1012.50	675.00	-6750.00
Total	40700.00	35262.50	16562.50	675.00	0.00
Stores Dept.	337.50	135.00	101.25	-675.00	101.25
Total	41037.50	35397.50	16663.75	0.00	101.25
Repairs & Maintenance Dept	40.50	35.44	15.19	10.13	-101.25
Total	41078.00	35432.94	16678.94	10.13	0.00
Stores Dept.	5.06	2.03	1.52	-10.13	1.52
Total	41083.06	35434.96	16680.46	0.00	1.52
Repairs & Maintenance Dept	0.61	0.53	0.23	0.15	-1.52
Total	41083.67	35435.49	16680.68	0.15	0.00
Stores Dept.	0.10	0.03	0.02	-0.15	0.00
Total	41083.77	35435.52	16680.71	0.00	0.00

## Exhibit 2

### Reciprocal Overhead Apportionment : Trial & Error Method

	Production Department			Service Department	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio of apportionment from Repair	40%	35%	15%	10%	
Distribution from					
Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00
Distribution between service centres					
Stores Dept.				0.00	750.00
Total				5000.00	6750.00
Repairs & Maintenance To stores				675.00	0
Stores Dept. to Repair & Maint				0.00	101.25
Repairs & Maintenance To stores				10.13	0.00
Stores Dept. to Repair & Maint				0.00	1.52
Repairs & Maintenance To stores				0.15	0.00
Stores Dept. to Repair & Maint				0.00	0.02
Gross cost of service cost centres				5685.28	6852.79
Stores to Production cost centres	2842.63	1137.06	852.79	-5685.28	
Repairs & Maint to Production centres	2741.14	2398.46	1027.92		-6852.79
Total	41083.77	35435.52	16680.71	0	0

## Exhibit 3

### Reciprocal Overhead Apportionment : Simultaneous Equation Method

	Production Departments			Service Departments	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio of apportionment from Repair	40%	35%	15%	10%	
Distribution from					
Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00

Let x, y be Store Dept and Repair & Maintenance Dept expenses respectively.

$$x - 0.10y = 5000$$

$$-0.15x + y = 6000$$

$$\text{Solving } x = 5685.28, \quad y = 6852.79$$

Now, distribution of expenses will be as follows :

	Production Departments			Service Departments	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%

Ratio of apportionment from Repair	40%	35%	15%	10%		
Amounts from Primary Distribution	35500.00	31900.00	14800.00	5685.28	6852.79	
Stores to Production cost centres	2842.63	1137.06	852.79	-5685.28		
Repairs & Maint to Production centres	2741.14	2398.46	1027.92		-6852.79	
Total	41083.77	35435.52	16680.71	0	0	

## Exhibit 4

### Non-Reciprocal Overheads Apportionment

#### Primary Distribution

Expenses	Basis of allocation / apportionment	Total (Rs.)	Production Departments			Service Departments	
			Machine Shop	Assembly Shop	Finishing Dept	Stores	Repairs & Maint.
Consumable stores	Direct Materials	15,400	5,200	6,000	2,000	600	1,600
Supervision	Direct Wages	22,800	7,900	5,100	6,100	2,200	1,500
Rent & Rates	Area	10,000	3,000	2,000	2,500	1,000	1,500
Insurance	Asset Value	2,000	800	900	200	50	50
Depreciation	Asset Value	30,000	12,000	13,500	3,000	750	750
Power	H.PxHoursx LF	9,000	5,400	3,600	-	-	-
Light & Heat	Area	4,000	1,200	800	1,000	400	600
Total		93,200	35,500	31,900	14,800	5,000	6,000

#### Secondary Distribution

Expenses	Basis of allocation / apportionment	Total (Rs.)	Production Departments			Service Departments	
			Machine Shop	Assembly Shop	Finishing Dept	Stores	Repairs & Maint.
Primary dist. (earlier Table)		93,200	35,500	31,900	14,800	5,000	6,000
Stores	Direct Material (9 : 6 : 5)		2,250	1,500	1,250	- 5,000	
Repairs & Maint	Direct (2 : 3 : 1)		2,000	3,000	1,000		- 6,000
		93,200	39,750	36,400	17,050	0	0

