

---

# UNIT 6 MATERIAL AT SITE ACCOUNTS

---

## Structure

- 6.1 Introduction
  - Objectives
- 6.2 Register for Cement Consumption
- 6.3 Register for Steel Consumption
- 6.4 Materials Issued by Owners
- 6.5 Owner's Tools and Plant
- 6.6 POL Consumption Accounting
- 6.7 Equipment Spare Parts
- 6.8 Other Materials
- 6.9 Summary
- 6.10 Key Words
- 6.12 Answers to SAQs

---

## 6.1 INTRODUCTION

---

The execution of any construction project involves procurement of materials, tools, plants, equipment and POL etc. Certain materials are procured by Contractor while others may be supplied by the owner in compliance with the contract conditions. All these materials need to be accounted for, to plan their further procurement as well as to know the balances at any time and at the end of the contract. The unused materials belonging to the owner are required to be returned on completion. The Material at Site Accounts give an idea of consumption of materials in the project which can be cross checked from the estimates to find out that right quantities of materials have been incorporated in the work as per specifications.

### Objective

After studying this unit you should be able to :

- maintain Register of Consumption of Cement and Steel,
- maintain Register of Consumption of materials issued by owners,
- keep stock of Consumption of POL, and
- keep stock of Equipment spare parts.

---

## 6.2 REGISTER FOR CEMENT CONSUMPTION

---

Cement is one of the most vital materials which is essential for execution of any construction projects. Depending upon the contract conditions cement can be contractor's supply or it could be supplied by the owner. In Govt. Works, cement has been invariably supplied by Dept. to ensure its quality as well as to ensure its availability. However, with increased competition and easy availability of good quality of cement in the open market, cement has become contractor's supply.

Since cement is required continuously for execution, therefore large storage sheds are Constructed at Site. The Contractor takes advances on account of cement lying unused at site, which is required for subsequent use. Therefore the storage shed shall be provided with two locks on each door. The key of one lock at each door shall remain with the Engineer-In-Charge or Owner's representative and that of other lock

with the Contractor's authorised agent or engineer at the Works Site. This ensures that cement is removed from the storage shed only according to daily requirement with the knowledge of both parties.

The cement shall be stored on proper dunnages and atleast 30 cm away from the walls. There should be no entry for moisture and cement should not be stacked in very high piles to prevent its setting. Since cement loses its strength with time, therefore cement procurement should match the progress of the work.

In order to keep account of consumption, a "Register" is maintained at site which describes datewise the voucher no., total quantity received, location of work where consumed and quantity consumed, thus enabling it to work out the balance in hand daily, at site which can be physically checked and signed by both parties.

A typical format of "Register for Daily Cement Consumption" is shown below for your perusal:

**Register for Daily Cement Consumption**

Name of Work :

CA No.:

Contractor:

Date	Consumption				Bal. in Hand in Contractors Godown	Signature			
	USR. No & Date	Qty in Bags	Location of Work	Qty Consumed		Site Engineer	Engineer Incharge/Inspecting Officer	Contractor	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

This register should be checked daily by site engineer, once a fortnight by Engineer-in-Charge and once in a month by Project Manager. Sometimes, a surprise check may also be carried out to check the balance of cement at site. It shall be ensured that only that cement which has passed the specified tests shall be allowed to be stored in the storage shed and used in the work. Untested cement whose test results are awaited should be stored separately.

**6.3 REGISTER FOR STEEL CONSUMPTION**

Steel is perhaps the next most important material for any construction project. Like cement, in Govt. works it was supplied by the dept., but now with improved supply position and good quality of steel available in market, it is mostly the contractor's supply.

The contractor shall procure steel from reputed manufacturer and obtain test certificate before bringing the same to site. The site engineer shall inspect the test certificate and if required get samples tested from a reputed test house. Any items of steel not meeting the test requirement, shall be rejected and the particular consignment removed from the site by the contractor at his own cost. The contractor will have no claim on this account.

Unlike cement, steel is stored in open yards. However, care should be taken to store steel on raised platforms to save it from corrosion due to any rain water getting Collected at site. Also a coating of cement, when stored, prevents corrosion.

Since all stores are brought to site are also paid as advances in running account, therefore their accounting at site is very important. A typical specimen is given below:

**Register For Steel Consumption**

Name of Work:

Contract No:

Name of Contractor:

Date	Receipt		Consumption		Balance at Site	Signature			Remarks
	Voucher No.	Qty in kgs/MT	Location of Work	Qty Consumed kgs/MT		Site Engineer	Engineer-In-Charge	Contractor	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		8 mm							
		10 mm							
		12 mm							
		16 mm							
		18 mm							

You will appreciate that for the purpose of ease in accounting it shall be ensured that steel of same diameter are stored/stacked together at site. Any off-cuts shall also be accounted for as they may have to be auctioned, or returned at the time of final bill. Depending upon contract conditions they may have to be sold as scrap. These days except for 6 mm, all other diameters of deformed bars are generally used in the works. Usually the main producers supply steel of diameters 12 mm and above while small diameters are procured from authorised conversion agents. Such steel must be got tested before incorporation. Since payment in Running Account is made in the Interim Bill for steel, therefore it should be made only for tested steel and any untested steel should be segregated till its test results are received.

---

## 6.4 MATERIALS ISSUED BY OWNERS

---

Materials which owner is prepared to supply are shown in a Schedule which also stipulates place of issue and rate to be charged.

Owner's materials is generally of two types:

Materials supplied at Issue Rate – like cement, steel, bitumen.

Materials issued free for fixing – like sanitary fittings, electric fittings.

Usually, in Govt. works, these materials are specified in a separate schedule sometimes called Schedule 'B'. This schedule is very exhaustive and gives following details:

- a) List of stores with their description. Whether free issue or on payment. If on payment then what is the price to be charged. Whether the complete material is to be issued or it will be issued in stages.
- b) Place of Issue
- c) In case existing surplus stock with owner is intended to be consumed, then particulars are to be given with regard to:
  - i) Quantity available

- ii) Condition of Store
- iii) Rate of conversion from weight to volume
- iv) Disposal of empty cement bags and containers
- v) Return of waste, off cuts of steel sections

Soon after acceptance of tender, the contractor shall agree in writing with the Owner's engineer on a phased programme of his requirements with regard to delivery of materials. The contractor shall bear the cost of loading, transporting to site, unloading, storing under cover as required, assembling and joining the several parts together as necessary and incorporating or fixing materials in the works including all preparatory work etc.

All materials issued to the contractor by owner for incorporation or fixing in the Construction Works, shall on completion or on foreclosure of the work and before submission of bills, are to be returned by the contractor at his expense at the place of issue after making due allowance for actual consumption, reasonable wear and tear and waste. Surplus materials returned by the contractor shall be credited to him after taking into consideration any deterioration or damage which may have been caused to the said materials while in the custody of the contractor.

If on completion of works, the contractor fails to return surplus materials, issued by owner, then in addition to any other liability, the contractor may be asked to pay for them at penalty rates, which could be market rates or double the issue rate as may be decided by owner.

In view of above repercussions it is important that proper accounts is kept for all materials issued by owner, together with all documentary proof like measurements, receipts, vouchers and a regular account of materials drawn and consumed must be kept.

A sample of an unstamped dated acknowledgement Receipt for "Stores Issued by the Owner to Contractor" is given at Appendix "A". In this receipt full particulars of the stores issued to a contractor, including the recovery rates and total cost changeable to him is filled and signature on receipt taken from the Contractor before the stores are issued to him.

These details are also entered in the Contractor's ledger.

The second type of material which may be issued are those which are issued "free for fixing" like sanitary fittings and electrical fittings. Since these are part of final finishes, therefore they shall be issued to Contractor only at that stage, as otherwise there is a likelihood of their getting damaged in Contractors stores. The Contractor is paid only the "fixing charges" for which the rates shall be agreed to in advance in the Contract agreement.

Another facility or commodity supplied to contractor is water which may be available at site owned by owner. The Water Consumption accounting can be kept by installing a meter whose readings are taken jointly by the agent of owner and Contractor at the time of making periodic payments. However, where metered Water Supply is not feasible, in such cases charges of water are assessed as a percentage of work done by Contractor. Similarly if electricity is to be supplied by owner than its accounting will have to be done by metered supply. However, its availability shall be made known by owner so that in case it is interrupted supply then Contractor can make his own stand by arrangements like use of a generator.

---

## 6.5 OWNER'S TOOLS AND PLANTS

---

In Contracts under a separate Schedule Tool and plants or equipments are also supplied by the owner either free or against payment at predetermined rate. In Govt

works, the rates for hire are stated in the Schedule together with the details of equipment. One frequent case is that of Road Roller which is issued by owner on hire for road work. In such a case, the crew, fuel and lubricants are invariably provided by the owner and hire charges are worked out.

The cost of any loss, damage etc. other than due to fair wear and tear, together with transportation and any other incidental charges are recovered from the Contractor.

This is done by maintaining a Log Book which keeps complete record of usage of the tool and plant, crew employed and fuel and lubricants consumed.

The Contractor is required to submit his Schedule of requirement well in advance to the owner so that the equipment is made available accordingly.

The essential contents of a log book for this purpose could be:

- i) Description of Owner's Equipment
- ii) Date of use
- iii) Activity on which the equipment used
- iv) Travelling time from site to site
- v) Actual working hours
- vi) Fuel, lubricants issued, consumed, balance
- vii) Signature of Crew, Operator
- viii) Signature of agent of Contractor

The recovery charges should be prepared regularly so that they can be recovered from payments of work being made by owner at specified intervals.

---

## 6.6 POL CONSUMPTION ACCOUNTING

---

Petrol, Oil and Lubricants are required to operate vehicles, generators, tools, plant and several construction equipment which are used directly and indirectly for execution of works. They therefore contribute towards the total cost of a project. In order to optimise their use and to plan their supply schedules, it is necessary to maintain proper accounts. This is possible if a log book is maintained for all vehicles, plants and equipments. A major part of POL is consumed in the vehicles which are used for transport of staff, stores, inspection, purchasing and liaison.

Every vehicle shall have a Driver's Car Diary in which every trip shall be entered date-wise, showing specific nature of duty, place of commencement to place of completion, kilometer readings, kilometers run, signature of user and petrol in tank, drawn, consumed and balance at the end of the journey. A sample format is given below.

---

**Driver's Car Diary  
Outer Cover**

(This book must always be with the Car)

Vehicle No. ....  
Make (Type) .....  
Office .....  
From ..... To .....

---

**Driver's Car Diary  
Inner Page**

Date	Specific Nature of Duty	From	To	Milo-meter Reading	Kilo-meters	Signat-ure of User	Petrol				Signat-ure of issuer of POL	Remarks
							In Tank	Drawn	Consumed	Balance		

The Car diaries of all vehicles shall be checked by the Transport Incharge, every morning. At the end of the month, the distance covered and the monthly POL consumption shall be entered in "Vehicle Log Book" whose sample is shown below:

**Vehicle Log Book  
Distance Covered and Pol Consumed**

Month	Kilometer Reading at the End of Month	Distance Covered During the Month	Fuel Consumed During the Month	Average kPL	Static Run	Fuel Consumed	Signature of Transport Incharge
Jan							
Feb							
Mar							
April							
May							
Jun							
July							
Aug							
Sep							
Oct							
Nov							
Dec							
Total kM run during the year ..... on the existing engine ..... since last overhand ..... by the vehicle No. ....							Signature of Transport Incharge

The transport incharge shall check and sign each log book and shall also check counterfoils of fuel requisition and see that they are entered in car diary regularly. A weekly record of all POL Requisitions can be prepared as per proforma suggested

below:

Pol Requisition for the Week Ending 7, March 98																						
Sl No.	Vehicle No.	2-3-98			3-3-98			4-3-98			5-3-98			6-3-98			7-3-98			Total		
		DHPP	87MT	OMD	DHPP	87MT	OMD	DHPP	87MT	OMD	DHPP	87MT	OMD	DHPP	87MT	OMD	DHPP	87MT	OMD	DHPP	87MT	OMD
1)																						
2)																						
3)																						
	Total																					
POL Incharge Signature											Transport Incharge Signature											

At the end of the month, the transport incharge shall compare the total kilometre run with the total fuel consumed to determine any inefficiency of engine, pilferage of fuel, and running repair costs.

The maintenance of above documents for POL Accounting will enable to keep a tight control on consumption of POL and will also help in working out the costs of fuel and repairs.

## 6.7 EQUIPMENT SPARE PARTS

Every major equipment or plant has a Plant Record Book. The objects of this book are to maintain (i) a history of the plant in detail, (ii) a record of capital cost of installation, (iii) a record of depreciation and in the end a record of authorised major spare parts.

The need for spare parts arises from the necessity of planning of maintenance of each equipment so that it gives uninterrupted service for execution of construction projects. The procurement of spare parts, tools and other parts is an inherent component of maintenance whether it is preventive maintenance or breakdown maintenance.

The list of authorised spare parts for each machinery is approved by the incharge of equipment in the top management. The spare parts requirement can be worked out as per actual consumption of spares for last two years of similar equipment to avoid over provisioning of spares.

The "Demand for Spare Parts for Equipment" Sample proforma is given below:

<b>DEMAND FOR SPARE PARTS FOR EQUIPMENT</b>							
Description of Equipment :							
Equipment No :							
Maker's Name :							
Demand No. And Date :							
Item No.	Description of Spare Part	Maker's Part No.	Accounting Unit	Quantity Required	Quantity Issued	Quantity to Follow	Remarks
Certified that demand has been made on actual requirement and required for (Signature of person preparing the Demand),				stocking replacement (Signature of Person Authorising Issue)			

As can be seen, the demand form should indicate full details of spare parts so that correct spare part can be procured and stocked or used for replacement. In order to ensure proper accounting of major spare parts following procedure can be followed:

- a) Each major spare part will be listed separately under the following headings:
  - i) Replacement part for equipment on page no. ....
  - ii) Description of spare part
  - iii) Date and cost of purchase
  - iv) Annual Depreciation charge
- b) The total annual capital charges will be included in the capital account of the equipment.
- c) Before any part of a equipment which has reached 50% of its life is replaced, the case be examined by top management on its economics.

**Activity 1**

- 1) Compare the "Register for Cement Consumption" being used at your site with the one given in this unit.
- 2) Prepare a list of prominent Cement and Steel Manufacturers in India.
- 3) Check, whether at your site, tested, cement and steel is segregated from the cement and steel which has just been received and whose test report is awaited.

**SAQ 1**

- i) What are the different types of "Owner's Materials"?
- ii) What are the essential contents of a log book for Owner's equipment?
- iii) What procedure should be followed to ensure proper accounting of major spare parts?



## 6.8 OTHER MATERIALS

In addition to above materials discussed in previous sections, there are several ways of materials accounting at site which can be adopted at site. The exact details and requirement will vary from site to site and the site staff can design a format suitable for their needs.

- a) A general method of material accounting for any material coming to site could comprise:
  - i) Date
  - ii) Supplied by/Received from
  - iii) Supply/purchase order no.
  - iv) Description of material
  - v) Quantity ordered
  - vi) Quantity received in acceptable condition
  - vii) Discrepancy/shortage
- b) A more specific method of material accounting could be related to the drawing or activity for which the material is to be used. This accounting will obviously be more detailed. It could comprise following information.
  - i) Activity name from CPM
  - ii) Number of Project Drawing
  - iii) Description
  - iv) Total Quantity Required
  - v) Supplied by
  - vi) Order No.
  - vii) Quantity received in acceptable condition
  - viii) Date of receipt
  - ix) Issue Voucher No. and date etc.

At site, an item may be required to be transferred from one location to another location. For all such intersite transfers "Material Transfer Note" shall be issued. A sample of "Material Transfer Note" is given below for your study:

Material Transfer Note									
Transfer Note No. ....									
Transferring Site					Receiving Site				
Job No.					Job No.				
Code No. of Material Transferring Site	Description	Quantity	Accounting Unit	Price	Amount	Despatched by	Received by	New Code No. Receiving Site	Remarks

On completion of a job, sum total of all consumptions, transfers and disposals compared with receipts shall be closed duly balanced for all materials.

---

## 6.9 SUMMARY

---

The "Material At Site Accounts" are very essential to undertake procurement, issue, receipts, transfers and monitor consumption and surpluses.

While the format for "site accounts" may vary with origin of material i.e., whether it is contractor's supply or Owner's material, it enables to exercise control on their flow into the construction project. Keeping in view the large number and diverse specifications of materials required and used in different activities and based on drawings, it is not possible to monitor them unless and until proper material accounts are maintained. They also provide the link between the planner, the purchaser and the consumer agencies in a large construction project.

---

## 6.10 KEY WORDS

---

<b>POL</b>	:	Petrol, Oil, Lubricants
<b>T&amp;P</b>	:	Tools and Plants
<b>USR</b>	:	Unstamped Receipt
<b>Log Book</b>	:	A record of running of a equipment, plant

---

## 6.11 ANSWERS TO SAQs

---

### SAQ 1

- i) See Text 6.4
- ii) See Text 6.5
- iii) See Text 6.7

**RECEIPT FOR STORES ISSUED BY THE OWNER TO CONTRACTOR**

Item.	No.	Rate.		Per	Amount	
		Rs.	pa.		Rs.	pa.

Supplied in connection with Estimate No.

Signature of  
Site Engineer

Entered in Expenses Ledger No.  
Item No.  
and Contractor's ledger

Signature of  
Contractor

Dated

Date

Signature of  
Accountant (or Accounts Clerk).

---

## FURTHER READING

---

- 1) Clough, Richard H., *Construction Project Management*, Wiley-Inter-science, John Wiley & Sons, Inc., 1972.
- 2) Fisk, Edward R., *Construction Project Administration*, John Wiley & Sons, New York.
- 3) Gilbreath, Robert D., *Managing Construction Contracts*, John Wiley & Sons, New York, 1982.
- 4) Singh, Harpal, *Construction Management and Accounts*, Tata McGraw Hills, 1981.
- 5) Joy P.K., *Handbook of Construction Management*, Second Edition, Macmillan India Limited, 1991.
- 6) Joy P.K., *Total Project Management, The Indian Context*, Revised Edition, Macmillan India Ltd, 1996.
- 7) Instructions Issued by various Departments.
- 8) Kerridge, Arthur K and Charles H. Vervalin, *Engineering and Construction Project Management*, Gulf Publishing Co., London, 1986.
- 9) Fisk, Edward R., *Construction Project Administration*, John Wiley & Sons, New York.