



Internal Controls in the Construction Sector

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Brief Overview of areas to be covered :-

Project Planning

Procurement

Stores

HR

Equipments

Accounts



Project Planning

- Floating a Tender for contractors
- Government Formalities
- Planning – Budgets, Funds, Project Timeline through PERT, CPM
- Lining up various functions
 - Engineering
 - Stores
 - HR
 - Accounts
 - Safety and Quality



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Some crucial Tender Terms

S. N	Details sought for	Catch
1	Work order Value?	Qty Variation not more than 25-30%. Incentive / Penalty (0.5-5%) Clause. Price Escalation Clause
1a	Physical visit of the work locations	Material Rates / Terrain for Equipments / Labour colony area / Distance from city.
2	FIM - RMC / Cement / Steel?	Wastage Norms, Debit Rates, Location of Client Stores (From Loading / Unloading perspective), Timely Receipt
3	Work completion period	Subject to drawings, front, resources
4	Free Facilities - Labour colony, Land, Power & Water supply.	Free or Chargeable. Single / Multiple point at site / At Labour Colony
4a	Mobilisation Advance and Time Limit	% given and recovery rate
5	Adhoc Payment against uncertified bills (75%) and status of remaining bill.	Strict commitment from client
6	Check whether any prescribed format for client bill?	Compliance with local laws
7	Whether the job is new or left over one?	Investigation required if it's a left over job – Impact of Margins
8	Safety / Quality Norms	Impact on Time and Money Formatting system of FQP

Cont...

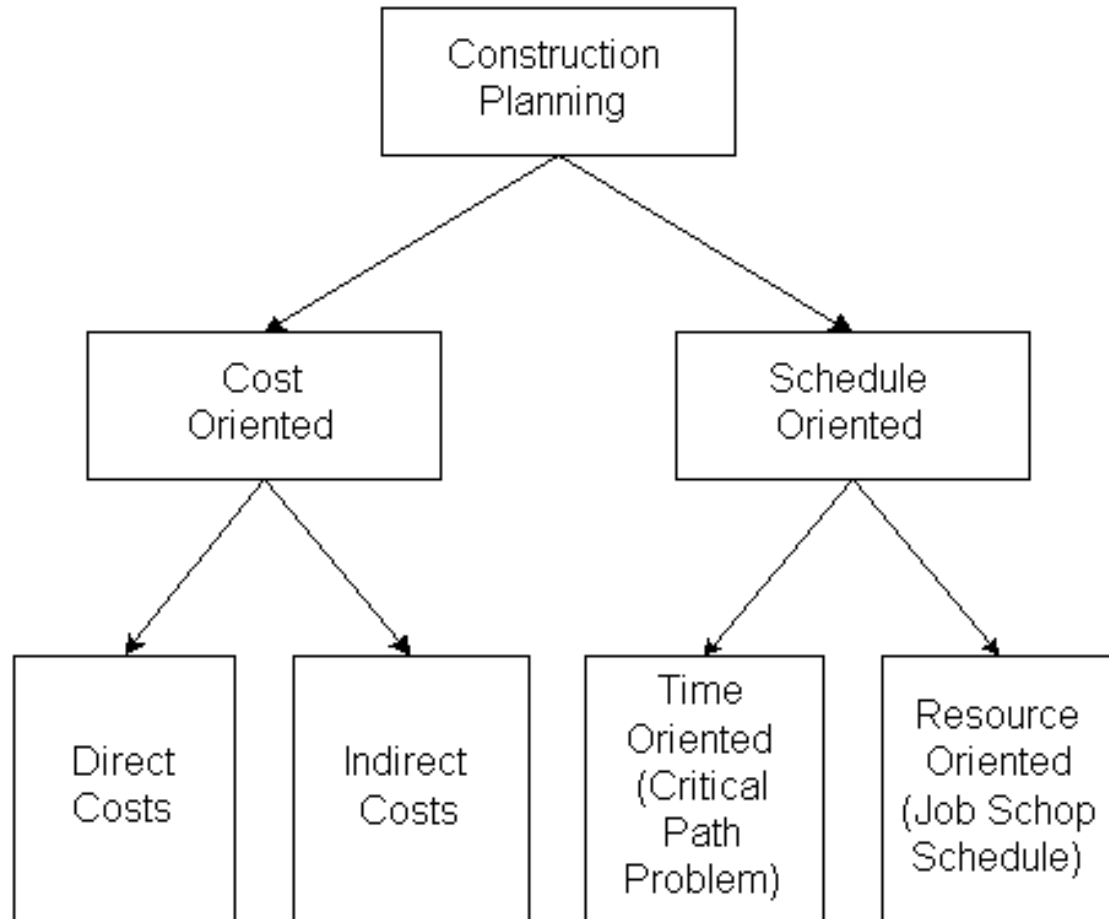


S.N	Details sought for	Catch
9	What are the requirements with each RA bill?	Third Party Physical Certification Reconciliation Statement of FIM
10	What are the rates of principal items (like Excavation, RMC supply, Shuttering etc.)	Higher Margin items in the end.
11	What deductions shall be made by client from RA bill	Only those agreed as per WO
12	Service tax / VAT / WCT extra or inclusive?	Exemptions – Paper Work
13	Whether running plant expansion or construction of new plant building?	If in running plant – Scarce area / Pollution – Impact on Labour.
15	Internal Logistics	Location - Porta Cabin / Client office / Labour Colony / Batching Plant / Store
16	Bank Guarantee	Amt / Performance / Time Validity
17	Performance Reporting	Daily / Weekly / Monthly for different matters
18	Statutory Compliance	Insurance / PF / CAR - Who's scope?
19	Credit Worthiness of Clients	This is important for receiving timely payment
20	Extra Items	Certification Time limits for extra items

So proper Site Investigation Reports needs to be prepared at Tender Stage

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- Cost Oriented Planning –

Convincing the EIC to prepare the Budgets is the biggest task. Because the forces are so dynamic, actual scenario is expected to be different from the work orders, hence he is not in a position to do so.



Issues faced in Tracking a Budget

- Cost of material may go up due to non-timely payment to suppliers
- Execution of extra items (non-tender)
- Inventory Valuation
 - Dispersed Qty at site
 - Wooden items in use
 - Items issued and lying at site – Aggregate / Binding Wire
- Impact of rework
- Delay in preparation of contractor bills
- Mismatch in overall Qty executed and that passed for contractors
- Resources issued with no debits on monthly basis
- Inter-site transfer of material
- Non-finalisation of contractor rates





[Mobilisation and Role of Engg Dept]

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Mobilisation Checklist

- Statutory registration numbers / Good Local consultants
- Resource Mobilisation
 - Equipments – JCB & Loader, Batching plant capacity, Miller, Crane, etc.
 - Vehicles – Staff Bus, Sumo, Utility, Trailer, Tractor & Dumper, Bike etc.
 - IT – Computers/Printer/Scanner/Copier/Internet/Telecom Network
 - Functional Heads – PM / Store / HR / Accounts
 - Office Stationery – Reports / Registers / Blank Slips
 - From client – Power / FIM / Drawings / Work Front
- Staff Accommodation / Mess / Guest House
- Onsite office set up
- Lining up the labour
- Logistics – Movement to site from various locations
- Local Survey – Materials and Services

Labour mobilisation Issues

- Special Points to be kept in mind for labour mobilisation
 - Mismatch in no. of labourers and work area
 - Areas where labour is available
 - Initial cost of mobilisation
 - Stay Arrangements – Water / Electricity / Toilet
 - Facilities offered by competitors
 - Watch for the sudden movement of labour
 - Recreation Facilities
 - Availability of credit in nearby locality for food items





Role of Project Manager



- **Organogram**
- **Work Planning Daily / Weekly / Monthly:**

When we plan for work – we need to keep in mind client priority, availability of resources, availability of drawing & front, weather, Funds etc.
- **Pre planning for FIM / Own Material:**

Pre planning (system and procedure) is required for FIM and Own material so as to make it available in time.
- **Complete responsibility to ensure compliance of the functions by all the Dept.:**

Engineering, HR & Admin, Stores, Accounts
- **Contractor Work Order:**

Contractor work order should be prepared on time with their acceptance.
- **Timely submission of bills with due verification from QSD at HO, if any . If delay reasons need to be submitted to HO.**





Role of Project Manager – cont...

- Ensuring proper back up in case if any employee leaves the organization.
- Weekly meetings with the Core team and ensuring due preparation of minutes for mailing the same to Head office.
- Checking all the records fortnightly viz. stores inflow, outflow, vehicle logbooks, and HR records.
- To focus on all areas where chances of cost overrun exist by ensuring regular monitoring.
- Maintaining employee morale under all situations.





Role of Project Manager – cont...

–Monitoring

- Time
- Current Cost
- Future Cost



Cost Control Strategies :-

- Pre-bidding Studies of project to determine the effect of -
Topography / Geology / Climate / Source of Materials /
Access to Project / Labour Supply / Local services
- Watch on Construction Schedule
- Use of substitute construction equipment
- Payment of Incentives to key persons
- Periodic meetings between site personnel
- Contracting specialised works to those who can execute more economically
- Improving facilities for maintenance of equipments

Reconciliation – FIM & Principal Material

- Standard Consumption norms to be defined for every item in the WO.
For e.g. – For 1 CUM of M20 - concrete production –
Cement – 140 Kg, Sand – 875 Kgs, Agg – 1100 Kgs



- Some issues
- Physical verification of Steel, Sand and Aggregate on the same day on which reco is prepared.
- Material scattered at various locations
- Consumption for unbilled extra items to be excluded.
- Stock records to be updated regularly.



Tomopop
wants to
know!

Project Completion – *cont....*

FIM and Raw Material Reconciliation with bill and balance qty.:

Some of the Common Issues Faced in Steel:-

- 12 mm TOR Steel has been consumed instead of 10mm TOR steel (as per drawings) without communication to the client.
- Scrap Controls – Definition of scrap might vary from project to project, returning servicable as scrap stock.
- Lack of Control on timely return of servicable steel.
- Rework
- Use of FIM in Own Structures like cement stores / office / labour colony
- Inter-contractor transfer without documentation
- Pilferage not being tracked

Reconciliation – FIM & Principal Material

- **Shuttering Repetitions**

Reconciliation on a Quarterly basis.

Basic benchmark for shuttering wooden consumption for single repetition
= 1 cum of concrete – 4 sq mtr of shuttering.

For housing projects, PVC shuttering can be very cost effective.

It is advisable to give one structure per contractor so that issue of wooden material can be tracked and debited in case of extra consumption.

Re-work

- Preparation of Non-Conformance Report (NCR)
- Identification of Proper reasons for Re-work
- Who shall bear the cost of change in drawings/specification
- Working out the cost involved





Commercial Procurement

i) Goods and ii) Services.

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Procurement



How do we negotiate



	Steel	Cement	Safety Items	Consumables
1.Competitive Bidding	Ok	OK	OK	OK
2.Reverse Auction	-	-	OK	OK
3.Bulk Buying	Ok	OK	OK	-
4.Rate contracts	Monthly	Monthly	Yearly	Yearly
5.Distribute the order between parties	OK	OK	OK	OK
6.Alternate source	OK	OK	OK	OK
Cost Analysis	-	-	OK	OK



Stores Related Controls - Material Issue / Receipt / Reconciliation Methods / Physical Verification Plan



Kavi - Running

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Store Team with Experience

- Store manpower depends on size of project, volume of material and stock movement and logistics.
- For a small site following if the ideal team
 - Store Incharge 1 = Master Degree / Specialization of store course and 5 years work Experience
 - Store Assistant 2 = B. Com / 12th passed and 2years work Experience (Material Chaser)
 - Data Entry 1 = Bachelor / Certified Computer Course degree and 2 years work Experience
 - Helpers 5 = Material loading & Un loading, Cleaning & maintenance

Computer literate with basic knowledge of identification of item, UOM & inward / outward procedures



Stores Premises

- **Stores Premises–**

- GI Sheets / PCC Structure properly covered
- Door and Window for Lights & Ventilation
- House keeping (cleanliness)
- Fire extinguisher
- Rack for stacking of material
- Weight machine (Capacity least 100kg)
- Liquid Cans – 2 Ltr / 5 Ltr
- Power connection
- Computer system with Printer & UPS
- Security guards at various points of store locations across the site



Setup of Stores



- It is suitable for proper control and supervision that stores should be near to
 - Batching plant,
 - Steel Yard,
 - Contractor office
 - Client store for best logistics
- Should be as near as possible to entrance so that outsiders do not have to roam around much.
- Store Location should have adequate space to facilitate material storage and physical verification.
- Also open space near stores is required to park Equipments and Vehicles (JCB, TM, Tractor, etc.)



Stacking & Labeling



- **Stacking of Material: -**

- Material not to be kept directly on ground (1ft above surface) - Rain
- Liquid Items should be tightly covered in order to avoid wastage
- Cement / Wooden Items need to be covered by Tarpoline for safety against rains
- Arrangement on the basis of frequency of usage and in order of priority
- Single item to be put at single place instead of multiple locations
- Easily countable (Proper policy for Bulk Items)



- **Safety to be ensured:-**

- Heavy material on surface / lower height & light weighted material in rack

- **Label should** be affixed on rack on each items with Material code (Additionally item description would be preferable)

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How couplers should be kept?



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Relationship with supplier



- Mgmt to ensure and check from time to time the relationship of store personnel with supplier –
 - If Frequent visits to supplier premises
 - Material Inwards to be checked by Site Engineer on Surprise basis
 - Material Receipt in day time
 - Quantity should not be left blank in supplier challan



Security Agency / Guard

- Stores should be backed by security personnel
 - Deployment of Guards as per requirement with uniform, stick, whistle & torch at store in two shifts.
 - Duty register / Card duly signed by store Incharge
 - Incident register (In case of theft)
 - Surprised visit should be carried out by HR incharge, specially during night
 - Surprised visit report required with monthly bill of external agency.



Material Inward



• I) FIM Material Inward-

A) Steel :

- Challan should have our indent number / date / quantity with weight slip.
- Weight should be carried out at the time of material unloading.
- Qty should always be mentioned as per dia and as per no.s and it should be kept dia wise in steel yard. Dia wise steel record and no.s measurement will also help in cross verification of weight as per defined ISI standard
- Dia wise record will facilitate FIM reco
- Client should inform about the dispatch of FIM in advance
- Test Certificate



Material Inward



B) Cement : (FIM Material)

- Inward should be on weight and challan also have quantity in numbers of bag.
- Weight should be carried out at the time of unloading (Powder form).
- This net weight quantity should be mentioned as received with mention of damaged bags in challan and the same should be conveyed to client / supplier store.
- Also in case of rain/fog, if material is received without proper cover, the fact needs to be mentioned on the challan
- Store should verify no. of cement bags and ensure proper stacking at time of unloading itself.
- Stacking to ensure FIFO basis consumption
- Control on Empty bags is required



Material Inward

Continue..

C) RMC (Ready Mix Concrete): *(FIM Material)*

- Client may give RMC instead of cement
- Physical received and challan / slip quantity should be the same
- Any difference needs to be communicated to the client on a regular basis. This is the case when client has outsourced RMC production.
- Further monthly reconciliation should be done to resolve the dispute, if any.
- Testing at the time of concrete pouring if distance is higher- ????
- Special Precautions required if mu client location.



Material Inward Continue..



- **II) Procured Material Inward:**

Sand & Aggregate / Boulder & Rubble:

- Sand & Aggregate preferably to be purchased on CFT basis. Also advisable in rainy season.
- CFT basis material should be measured every time by three point of vehicle and considered average area and this quantity mentioned as received in challan
- Boulder / Rubble on MT basis due to voids
- These items should be delivered by supplier with proper intimation
- Materials would be delivered during day time
- Location of Weigh Bridge
- In rainy season stock would be store of Sand & Aggregate for any short fall and avoid to pay more cost
- Royalty slips



Material Inward

Continue..

- **II) Procured Material Inward:**

- **Binding Wire** should always be weighed at the time of inward and its thickness should be matched as per order. No. of Bundles should also be mentioned in the challan.
- **Conplast / Admixture** - Inwards with manufacturing & expiry date and number of drum and the same should be visible on each drum
- **Wooden material:**
 - Plywood = This should be as per specification given in PO like thickness, weight per sheet, regular or water proof, size, qty. in numbers and sq.ft.
 - Batten = Batten size should be as per specification of PO like thickness & length, Abnormal damage & short length pieces should not be allowed and the qty should be mentioned in CFT in challan



Material Inward

Continue..

III) Loan Transaction:

- This happens, where more than one contractor work in the same client premises.
 - This type of transactions should be done by site Project Manager in emergency case only and with approval from his higher authority.
 - This is returnable basis so the same should not be outstanding for more than specified days and should not be a routine practise.
 - Quantitative document should be generated and kept in record



Material Outward

- Codification of materials
 - Divide the materials into Capital Goods / Construction Materials / Consumables and Tools.
 - Codes as per class of material.
- Material Issue Slip
 - Duplicate
 - Authorised from Site Engg.
 - Basis of Computer Entry
 - Watch on Missing serial numbers
- Steel, Sand, Agg., etc consumption entry should atleast be passed as per RA Bills certified quantity.
- In case of emergency /break down of batching plant if RMC procured from other sources, then FIM Cement can be issued to supplier and rate should be excluding cement.
- Returnable register to be kept separately. Material required in same form from receiver
- Computer System to have Alternate UOM provision – E.g. Wooden Items, Sand, Aggregate.
- Free And Chargeable Materials List with stores.



Non Moving material

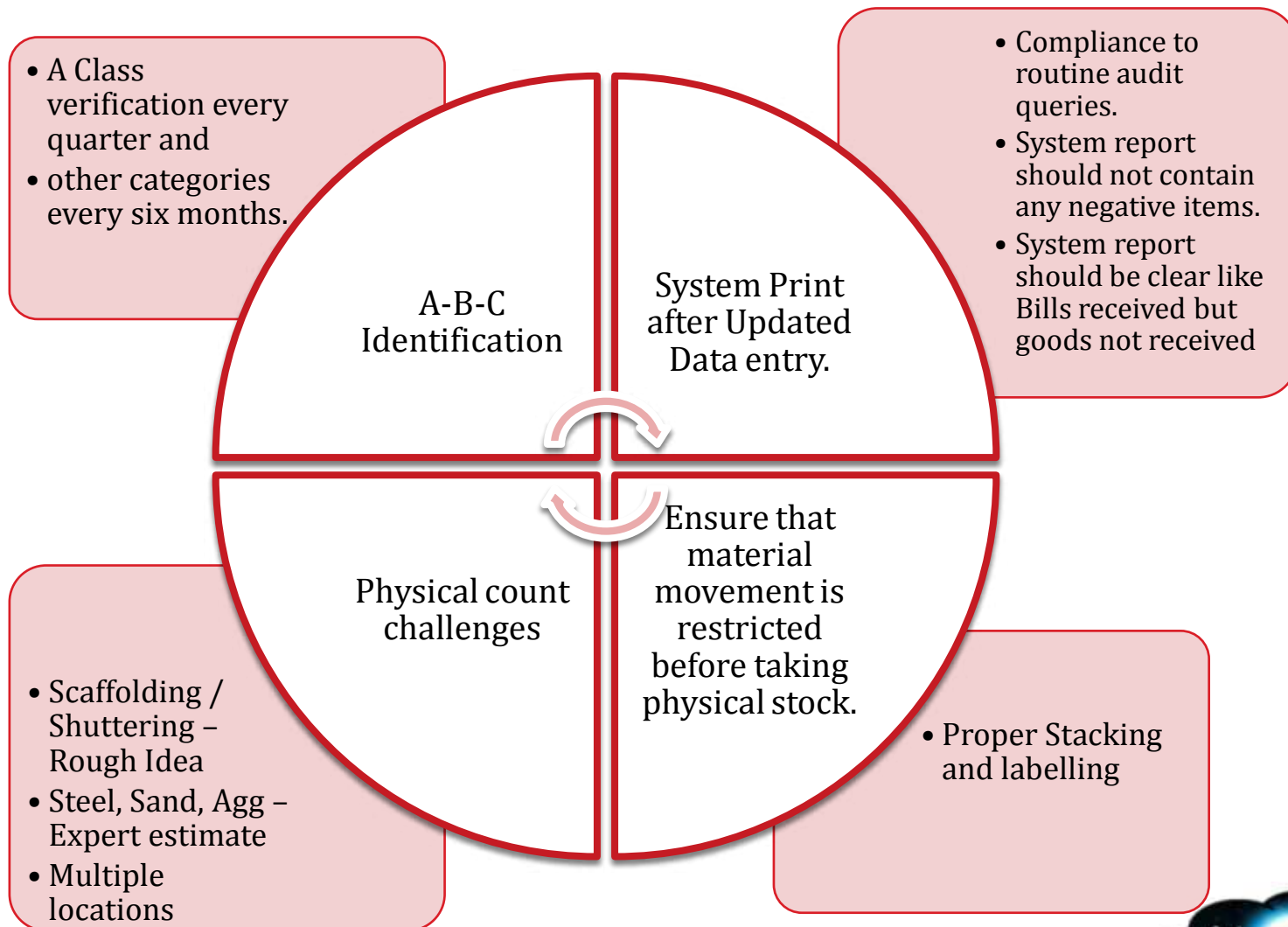
- Store should not allow those material which are not required or
- excess quantity as compared to required at site
- Disadvantage of non movement items –
 - Staff engagment
 - Cost of logistics & Inventory carrying cost
 - Space usage of store
 - Problem to Handling / Take care



Site visit by Store personal

- Store personal should visit site on every day for following purposes:
 - Idle material
 - Damage & Scattered material
 - Ensure that no material is lying in mud or in excavated holes, before back filing (Especially scaffolding material like coupler, pipes & shuttering plate etc..)

Physical Stock Verification



Control over Fuel Consumption

Following points need to be taken care for Equipments - JCB, Miller, and Crane / Vehicles:-

- Store should have resources like –
 - Fuel pipe, Filter & pump to fill fuel from one to another can,
 - Two standard size Barrels of 200Ltrs capacity,
 - Fuel small Can of 1ltr, 5Ltrs, 10Ltrs
 - Scale to measure balance stock of fuel (Rod)
- Lock and key - Fuel tank
- All vehicle and equipment Meters should be in working condition.
- MRN containing authorisation from Project Manager & HR Incharge for fuel issue with vehicle & equipment number.
- Physical meter reading should be verified and mentioned in log sheet at time of fuel issue.
- If vehicle permanently work at single location, name of location is compulsory.
- Vehicle Report - MIS.
- Tracking fuel given on chargeable / Free issue basis.



Other Areas -



Scrap Yard

Items in Scrap yard should be properly segregated as per nature and length to enable re-use.

Frequent Disposal of scrap Items required.

Distribution of Scrap wood amongst labour

Portal Based Disposal
www.metaljunction.com

Human Resource



- Sub – Contractor Management
 - Sub-contractor Data bank on the basis of skill set and past performance.
 - Master Details of Sub-contractors
 - Incentive scheme for time bound completion
 - Labour Gate Pass



Labour Over time:

There should be proper system to record the duty hours in the labour card:-

- Contractor name and labour name
- In time and out time
- Company supervisor sign for allowing OT who shall also be responsible to reply why OT was allowed.
- Track of supervisor sanctioning highest OT
- Labour / sub contractor sign is required

Daily report & Control – Labour:

- HO must ask for manpower report and work progress report from Site on a daily basis to assess the work performance.

Human Resource – cont....

- **Hired Camp**

- Lease Agreement
- Distance from the Site
- Proper Planning to avoid Hotel Expenditure



- **Mess - Staff:**

- Self vs Contracted
- Fixed Payment to employees
- Policy should also be defined for other facilities of stay and in house entertainment by way of TV, reading materials, sports and club activities etc.

- **Group Employee Health Insurance Policy:**

- HRD needs to evaluate group medical policy v/s medical allowance. It is advisable to go for mediclaim Insurance for which policy should be well defined.
- Accordingly all concerned employees and officers should be covered as per policy which should be taken from General Insurance Company with full negotiation.
- There should be one officer in charge for claim settlement in time so as to get the benefit of the Insurance.

Human Resource – cont....

- **Vehicle Report**
 - Vehicles – Taxi Passing with Third Party Insurance
- **Admin Assets & Control**
 - Laptop
 - Data Card
 - CUG Mobile connections – SIM card
 - Mobile Instrument
 - Camp / Guest House & Mess, Vehicles, Equipment etc.



HR should have master data of details of all admin assets and this should be updated on regular basis

(Monthly / Quarterly / Half yearly) like

- Name of asset
 - Asset user name
 - Location
 - Insurance period and Service provider, if applicable
- Company can take undertaking from employee against asset given for use. There should be well designed policy in place about entitlement to regulate the use of such assets.

Control Points for Equipments

Own vs Hire

- ✓ Transit Miller
- ✓ Batching Plant
- ✓ Concrete Pump
- ✓ Crane
- ✓ Excavator
- ✓ Tractor Trolley
- ✓ Scaffolding Pipes
- ✓ Shuttering Material
- ✓ Walkway Jali
- ✓ Clamps
- ✓ Other support structures



Equipment History Sheet

- Cost
- Life
- Depreciation
- Repairs and Maintenance
- Accidents
- Maintenance Schedule



Commercial Procurement

i) Services

Equipment / Machinery / Plant / Tools provide by Client:

- Condition of equipment – Third party can be appointed
- Maintenance scope
- Operation of Equipment
- Round the clock Availability
- Advisable to clear the commercial aspects for supplies beyond the scope as this might result in recovery from the contractor.
- Transportation point for FIM & Transit risk within the site.

Buying or Hiring

- Buy – Value * 4 Times should be the turnover.
- Future Planning – Residential / Commercial / Industrial / Power
- Debt : Equity ratio should not be more than 2:1.
- Buy – Own O&M Team, Driver

Hired Equipment Controls



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Transit Mixture on Hire

- Equipment with Basic things Hours & Kms meters in working condition, Proper number Plate / identification mark, Front, Break lights in working condition with Mirrors, night radium plate / colors, First aid, Tools & tackles

- 10 Minimum Expected Output per month Needs to be decided for each and every project - Suggestible Qty - 2000 CUM **II) Hired**

Conditions:

- 11 Hiring approx. amount. Monthly Basis - Rs.1.25 Lacs (Excluding Fuel)
- 12 Minimum Working Duration in a month Flexible 260hrs in a month (Note 3)
- 13 Fuel & Power, Oil & Lubricants **a)** Its advisable to ask the supplier to quote his rate with Fuel. Oil and Lubricant should always be in supplier scope. **b)** If fuel is in our scope then avg consumption norms may be fixed. Fuel consumption per hour as per site experience.

Transit Mixture on Hire

- 14 Daily Log Book / Records Supplier to maintain daily log book / records with sign of both - operator and Company authorized person.
- 15 Lock & key & Daily Records custody? If fuel is in the scope of company, Fuel Tank Key and Records should lie with the company.

Role of Site Accounts and Co-ordination with Head Office



Changing Def'n - Democracy

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Model of Accounting – Branch / Centralized

- The model most prevalent, provided you have good team of accountants with you is the HO and Branch Model.
- Branches maintain accounts at the construction site itself. Because if we have a smart accountant at the site that would serve as the best internal control measure.
- Integration of accounts and Inventory would then be possible.
- Complexity involved is you then need a perfect co-ordination between HO and Branches. Reconciliation between the two is required on a regular basis. As many a times HO would directly be making payment to Branch's creditors without routing the same through the branch.
- In case of centralised accounting the certification systems have to be perfect. You would need all the documents to be certified by the Site Incharge and respective area incharge before booking the same in accounts.



Role of Site Accounts – *cont....*

Onsite Integration Model for a Construction Site

- Using cloud servers, access can be given to multiple locations without buying any software / hardware.
- Stores Material Receipt entry can be passed from the site provided there is a proper internet connectivity.
- When the purchase Invoices are received the same are certified by the stores department and the printed MIN is then attached behind the invoices.
- Accounts then enters the rates of materials picking up the tracking number. Any deviations are settled by way of Debit / Credit Note.
- Materials are then issued by way of Delivery Note to either the client / sub-contractors.





- Payment Advice Format

					Site : _____	Date : _____
Sr.No.	A) Supplier of Material	B) Supplier of Capital Goods	C) Sub-Contractors	D) Rent (Labour Colony / Room / House)	E) Vehicle Hire / Petroleum Suppliers	
1	Purchase Order	Purchase Order	Work Order	Rent Agreement	Log sheet	
2	Tax Invoice	Tax/Retail Invoice	RA Bill	L.C. visiting Reports - HR	Auth.-Commercial/H.R.	
3	Authorization from Site EIC	Authorization from Project Director	Authorization from Commercial Dept.	Authorization from H.R.	Authorization from Site Incharge	
4	Authorization from Project Director	Authorization from Commercial Dept.	Authorization from Project Director	Authorization from Commercial Dept.	Authorization from Project Director	
5	Authorization from Commercial Dept.	Stamp of Quality & Installation from Site Incharge	Authorization from Site Incharge	Authorization from Project Director	Bill Entry in books of accounts with Deduction (maintenance /spare parts...)	
6	Stamp of Quality & Qty. verification from stores	Bill Entry in books of accounts with all deduction (TDS / VAT & Other)	Debit notes receive & entered from Stores (Safety material) & H.R.D. (G.P.'s)	Bill Entry in books of accounts with Deduction (TDS)	Bill / Voucher / Supporting Proper filing	
7	Reconciliation of Material against Client Billing	Bill / Voucher / Supporting Proper filing	Bill Entry in books of accounts with all deduction (TDS / Retention)	Bill / Voucher / Supporting Proper filing	Monthly Vehicle Report of payment month	
8	Bill Entry in books of accounts with all deduction (TDS/VAT & Other)	Receive party's Confirmation Statement	Bill / Voucher / Supporting Proper filing	Supplier master form	Supplier master form	
9	Receive party's Confirmation Statement with Reco.	Status of excise credit	Client vs. Subcontractor Qty.	Authorization from Internal Auditor	Authorization from Internal Auditor	
10	Whether Against "C" Form	Whether Against "C" Form	EIC Performance Report for the site			
13	Remarks required if On Account or Advance: -					
For H. O. use	Amount Released					
	Details of Payment (chq no. etc.)					
	Remarks					

Thanks



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