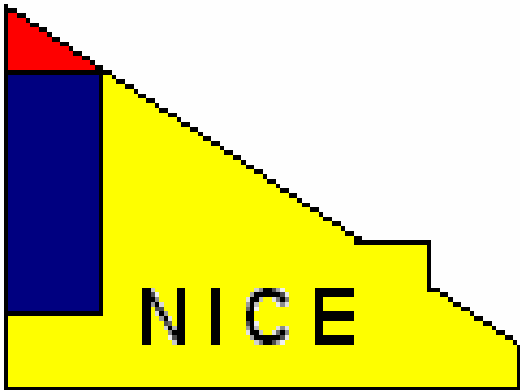


# PROJECT CONTROLS

## - *WASTAGE CONTROL AT PROJECT SITES*

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# Outset of Management

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- Pride in Construction Engineering
  - Construction history
  - Perception of Clients/consultants and contractor – To change
  - Management in construction?
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## MEANING OF MANAGEMENT

- MAN
- AGE
- MEN
- T

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- Man – the performer
  - Age – Exposure/experience
  - Men – Resources (Man/Machine/  
Materials/Money/Minutes/  
Information/ Technology and Space)
  - T –  
Leadership+ Innovation+ Diplomacy  
i.e Tactfully
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# Meaning of the engineer

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- ❑ Comes from the Latin word Ingenium meaning
  - ❑ Very intelligent
  - ❑ Innovative and
  - ❑ Cost efficient.
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# COMPONENTS OF COST

- DIRECT MATERIALS
- DIRECT LABOUR
- DIRECT MACHINERY
- INDIRECT MACHINERY
- INDIRECT LABOUR
- FEES OF SANCTIONING AUTHORITY
- INTEREST ON LOAN
- PROFIT
- INSURANCE
- ARCHITECT'S FEES & SUPERVISION CHARGES
- COMPENSATION FOR DAMAGES
- WATER AND ELECTRICITY
- ADMINISTRATIVE EXPENSES
- MAINTENANCE

# HOW TO CONTROL COST

- ❑ FINISH IN TIME
- ❑ MINIMUM CHANGES IN ORIGINAL DESIGN
- ❑ LEAST MAKE BREAK/ REWORK
- ❑ FINAL ESTIMATE TO BE BASED ON EXACT BOQ AND DESIGN
- ❑ AVOID LUMP SUM CONTRACTS
- ❑ KEEP CHECK ON LABOUR AND MATERIAL COSTS
- ❑ AVOID REWORK DUE TO BAD QUALITY
- ❑ OPTIMISE USAGE OF MATERIAL
- ❑ ENHANCE LABOUR PRODUCTIVITY THROUGH SKILLS TRAINING
- ❑ EFFICIENT MANAGEMENT INFORMATION SYSTEMS FOR TIMELY DECISION MAKING

# DEFINITION OF WASTAGE

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- Construction material wastages can be defined as the difference between the value of materials delivered and accepted on site and those properly used as specified and accurately measured in the work.
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# WASTAGE AT CONSTRUCTION SITE

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ABOUT 5 – 10 PERCENT OF BUILDING MATERIALS END UP AS WASTE ON BUILDING SITES.

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# CASE STUDY

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- A field study was conducted on the following sites to study wastage, the sites were (bangalore):
    - 20 MLD STP – SPCL
    - 70 MLD STP – L&t
    - ADONIS (COMMERCIAL BUILDING) - JMC
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# RESULTS

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## □ GENERAL MATERIAL WASTAGE

▪ Figures in percent

Material	SPCL	L&T	JMC
Cement	3.65	2.2	2.5
Steel	3.165	3.42	2.02
Aggregate	3.45	2.62	1.2
Sand	2.5	2.15	3.8

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# GENERAL OBSERVATIONS

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- ❑ L&T was using a batching plant, with transit mixers and concrete pump.
  - ❑ JMC used RMC from a nearby birla plant.
  - ❑ SPCL were using mixers for concrete preparation.
  - ❑ JMC barbending was done at their central yard as per barbending schedule.
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# Other survey results

<u>Design Attributes</u>	<u>Points</u>
Design changes while construction	5
Inexperience of methods/sequence	4
Lack of attention to dimension	4
Lack of knowledge about std sizes	4
Lack of information in drawings	3
Complexity of detailing	4
Errors in contract documents	1
Incomplete contract document	2
Selection of low quality products	3

Operational Attributes	Points
Damages to work done due to subsequent trades	5
Errors by tradesmen / labourers	4
Required qty. unclear due to improper planning	4
Delay in passing information to the contractor	3
Use of incorrect material thus requiring replacement	4
Accidents due to negligence	3
Malfunctioning of equipment	2
Inclement weather	3

<u>Material Handling Attributes</u>	<u>Points</u>
Inappropriate storage	4
Material supplied loose	5
Damages while transporting	4
Unfriendly attitudes of project team and labourers	3
Use of materials close to workplace	2
Theft	3

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Procurement Attributes	Points
Lack of possibility to order small quantity	4
Ordering errors (too much or too little)	3
Purchase not comply with specifications	3

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<u>Waste Preventing Attributes</u>	<u>Points</u>
Proper storage facility	5
Accountability system for sub contractors for extraordinary waste	4
Effective wastage accounting system	4
Selecting proper equipment and qualified operators	5
Having updated plans / schedules	3
Employ material controller	3
Improve site security requirement	3

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# ***Best way to manage waste is to avoid it in the first place.***

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- Tools for wastage control
    - Material reconciliation.
    - Material Accounting.
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# Select clients of NICE

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- ❑ **ETA ASCON, Dubai**
- ❑ **Science Technology Park, Department of Science & Technology, Govt. of India, University of Pune, Pune.**
- ❑ **ACTCO, Abu Dhabi**
- ❑ **Achalare Associates, Pune**
- ❑ **USAEP, A USAID Organisation.**
- ❑ **HONAI Constructions**
- ❑ **Rohan Builders**
- ❑ **Maharashtra Institute of Technology**
- ❑ **Desai Constructions, Gujarat**
- ❑ **Kalpataru Power transmission (I) Ltd.**

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□ THANK  
YOU

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