

SBQ 2423

Costs Elements of Construction Projects

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Costs Elements of Construction Projects



Lecture Content

- Costs elements of building works
- Prime cost (pc sum) and Provisional Sums
- Rates and its constituents – labour, plants, equipments, ongoing or administration costs, profit

Example of building costs

Building costs is the cost of construction item stated in the Bills of Quantities where it state the location, material type and the dimension of the construction item. The costs should be in accordance to SMM2. the contractor will then price the elemental building costs for tender bidding purposes.

Bill of Quantities

Plan 2 - Building Works

Item	Description	Qty	Unit	Rate	Amount
	ROOF (Cont'd)				
	DISPOSAL EXISTING SLAB (Cont'd)				
	100 KANALKAT 900/900/1000 (Cont'd)				
	Aluminium Ceiling Profile 100 of adult approved member channel aluminium extrusion (minimum 15.5-2000) (Dimensionary range, including all accessories and materials, fixing to accordance with manufacturer's recommendations. (20)				
A	Steel, straight as shown 0200/500 100 nominal size	120	m		
B	Extra cost for addition to 100 plates with 1/4" ply sheathing	100	sq		
	Aluminium Ceiling Profile 100 of adult approved member channel aluminium extrusion (minimum 15.5-2000) (Dimensionary range, including all accessories and materials, fixing to accordance with manufacturer's recommendations. (20)				
C	Pipe, straight 100 nominal size	210	ft		
D	Extra cost addition to 100 diameter with 1/4" ply sheathing	80	sq		
E	Steel perforation and construction web	25	sq		
	Aluminum Insulation				
F	Various sections of mull, battens and slates of the structure				
	generally				
G	Testing and commissioning				
	performance				
H	water tightness				

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To Part Summary

Cost elements of building works

- Activity 1
- Recap what is the elements of building works
- You're given 2 minutes to list out the building elements as many as you can

Cost elements of building works

- Work below lowest floor finish
- Frame
- Upper floors
- Roof
- Stairs
- External walls
- Windows & external doors
- Internal walls & partitions
- Internal doors
- Internal wall finishes
- Internal floor finishes

Cost elements of building works (cont'd)

- Internal ceiling finishes
- External finishes
- Fittings & furnishings
- Sanitary appliances
- Plumbing installation
(water, soil, waste and vent)
- Special installations
including AC & ventilation,
electrical, fire protection,
lift & conveyor and
communication
- Builder's profit &
attendance on services
- Builder's work in
connection with services
- External works(within the
boundary of the premises)
including retaining walls,
roads & footpaths, car
park, turfing, landscaping,
fencing & gates, surface
water drainage, foul
drainage etc.

Prime Cost Sums (PC Sums)

- It may be included in BQ for works to be carried out by Nominated Sub-Con (NSC) or materials to be provided by NSC
- It is a portion of construction costs to be conducted by specialized NSC for works such as mechanical installations eg. Escalators, lifts etc
- Many queries can arise over PC sums such – defining the scope & extent of work, attendance items, and pricing builder's work associated with NSC

Provisional Sum

- It may be included in BQ for an item of work needed, but insufficiently designed or detailed to permit descriptions and measurement in accordance with SMM at the time of tender.
- It will eventually become the subject of an architect's instruction during construction.
- The item will be incorporated into the measured work of the contract subject to appropriate contract rules for measurement and valuation
- Example of items for provisional sum is excavation of earthworks and sometime for item that has no complete drawings stated in the Tender Document

Construction Rates

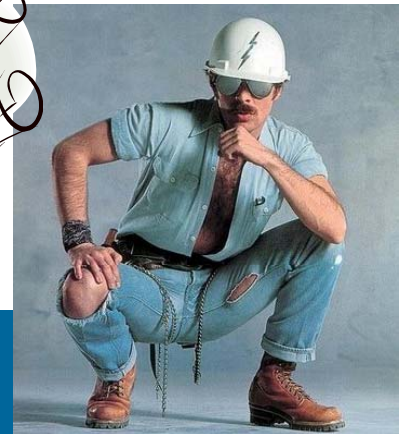
- There are basically two types of rate in construction works namely;
 - Unit rates
 - All in rates
- The unit rates is the amount of money for an item of work inclusive of the amount of labour, materials, plant & machineries & contractor's profit

Construction Rates (cont'd)

- All in rate is used to calculate additional or omission of works not stated in the contract. It usually consists of hourly rate of labour, hourly operating hour for plant & machineries, cost per unit for materials delivered and unloaded on site and profit.
- All in rate is usually more expensive than the unit rate as the contractor need to include cost risk as the item usually differ from what has been specified in the contract. Additionally, the all in rate will be applicable during the construction period.

Labour costs

- The composition of labour costs very much depends on;
 - Their experience
 - Labour supply
 - Levy
 - Administration



Labour costs (cont'd)



- Hourly rate of construction labourers is determined by either union wage, open-shop wage or prevailing wage.
- Union wage is the rate used should the labour is a member of labour union. This include fringe benefit.
- Open-shop wage is the rate agreed between each individual employer and employee.
- Prevailing wage is used when the project is funded by federal government. They usually have established the prevailing rate in which the rate based on each craft and geographic location.



Labour costs (cont'd)

- In addition to the hourly rate, the cost of labour should also include the following costs;
- Levy – as required by the government for immigrant workers
- Workers' compensation and employer's liability insurance – to cover the costs of accident should it occur



Plants costs

- Construction equipment can be purchased or rented. The choice between purchase or rental usually depends on the amount of time the equipments will be used in the contractor's operations.
- Should the equipment will be used extensively, then it is economic to purchase and vice versa.
- The equipment may also be leased with an option to purchase at a specific monthly rate



Plants costs (cont'd)

Purchased

Ownership cost

- Investment
- Depreciation
- Taxes and insurance

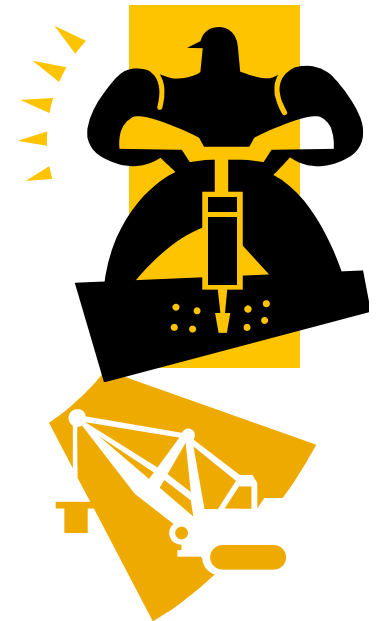
Operating costs

- Maintenance and repair
- Fuel and lubricating oil

Rental

Rental costs

Operation of equipments exclusive of services and breakdown maintenance



On-going/administrative costs

- Throughout the project, the contractor must be the costs of operation and maintenance of construction site. The followings are some example of on-going/administrative costs
- Office supply – papers, photocopiers, fax machine, shop-drawings
- Utility bills – electric, water supply, telecommunications
- Care and maintenance of site – site cleanliness
- Security – for stored materials and plant and machineries
- Signages – especially for the health and safety measures
- Entertainment – during the conduct of site meeting. Usually this include refreshment during the site meeting and lunch after the site meeting



Profit

- The profit costs varies between different grade/class of contractors as well as their specializations.
- Usually, the percentage of profit varies from 3-10% of the net construction rate.
- The profit usually translates the frequency of jobs and the number of on-going projects in hand among the contractor

Reference and further readings

- Edition, Peurifoy, R.L and Oberlander, G.D. – Estimating Construction Costs, 5th Edition McGraw-Hill, 2002.
- Popescu, C.M, Phaobunjong, K, Ovararin, N – Estimating Building Costs, Marcel Dekker Inc 2003.