

PROJECT COST ESTIMATES & FEASIBILITIES

Project Cost and budget management

Project success elements

- Scope – meet the scope defined for the project
- **Budget** – It is within established budget
- Programme – It is designed and constructed within the established programme
- Meets or exceeds industry standard of quality
- Communication – is well documented and communicated

Project Cost Estimate

- Estimate – a prediction of quantities, cost and resources required for defined scope of a project
- As a prediction there will be risks and uncertainties that must be addressed
- Estimates are used as inputs for budgeting, cost analysis and decision making on a project
- Determined using experience and forecasting of future costs within a given time frame

Types of Estimates

- Order of magnitude estimate – early or preliminary prediction of cost based on similar previous projects or rate per square metre of a similar project. Level of information usually low and level of accuracy equally low - -50% to +50% or more
- Elemental estimate – level of information has increased and costs can be categorised into various elements of the project, e.g. foundations, floors, external walls, roof, fittings, electrical installation, etc. Level of accuracy improves to about -25% to +25%

- Detailed estimate – detailed design available and schedule of materials can be produced. This can be in the form of Bills of Quantities or Schedule of Materials for pricing. Level of accuracy has increased to -10% to +10%

Use of Estimating Techniques

- Single Rate estimates or Rate/m². Very crude method usually based on previous experience of similar projects. Must not be relied on for budget approval purposes. Use for initial investigations only.
- Elemental estimate or project cost plan. As the name implies this is used when more planning information is available. Can be used for budget approval or in smaller projects for final procurement.
- Detailed schedule of materials estimate. Widely used in building projects for procuring contractors.

Components of a Project Estimate

- Cost of design – consulting team fees
- Cost of construction
 - Contractor's general expenses – plant, insurances, site establishment
 - Material
 - Labour
 - Overhead
 - Profit
- Contingencies
 - Project unknowns & risk allowance
 - Construction period variances
- Cost of land, finance, rates & taxes, municipal planning fees, etc

Typical Estimate Template

- **Single Rate Estimate.**
 - Building size: 200m²
 - Applicable rate / m² derived from previous experience: R2,000/m²
 - Project estimate = 200m² x R2,000 = R400,000
 - Pitfalls – use with caution as 2 buildings with same area may cost differently.

- Building 1 has 2,000m² floor area and is 3,5m high floor to ceiling height
- Building 2 has same floor area but is 3,0m high floor to ceiling
- Building 1 will have 500mm more walls and plaster and paint than building 2
- Building 1: $2000 \times 3000 = R6,000,000$
- Building 2: $2000 \times 2900 = R5,800,000$
- The additional 500mm height costs R200,000

More factors that will influence rate/m²

- Shape of the building
- Number of internal walls within the building
- Services within – air-conditioning, lifts, etc
- Finishes – marble floors vs vinyl tiles
- Extent of external works – paving, landscaping, etc

Use rate/m² with caution!!!

- **Elemental Estimate**

- Sub structure – Foundations, Ground floor slab
- Superstructure – Structural frame comprising columns & upper floor slabs, External walls, Internal walls, Roof
- Internal finishes – floor and wall finishes, ceilings
- Services – electrical and lift installations, airconditioning, fire installation
- External works – paving, boundary wall, landscaping, etc
- Contingency sum
- Preliminary and general items
- Escalation
- Value Added Tax

ELEMENTAL COST PLAN	Floor Area 1 590m ²	
	Description	Amount
1	Substructure	100 000
2	Ground floor construction	70 000
3	Structural Frame	800 000
4	External Envelope	900 000
5	Roofs	600 000
6	Internal divisions	300 000
7	Internal floor finishes	400 000
8	Internal wall finishes	80 000
9	Ceilings & Bulkheads	200 000
10	Fittings	1 000 000
11	Services	1 000 000
12	Plumbing Installation	700 000
13	Sprinklers, hydrants & hose reels	30 000
14	External Works	900 000
Sub Total		R 7 080 000
15	Preliminaries	380 000
16	Allowance for Contingencies	400 000
	Sub Total Construction Costs	7 860 000
17	Escalation	120 000
Estimated Total Project Cost Excluding VAT		R 7 980 000
Rate per square metre of floor area For given specification and assumptions		R 5,019/m²

Bills of Quantities

DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>BILL NO. 3</u>				
<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
<u>REINFORCED CONCRETE</u>				
<u>20MPa/19mm concrete</u>				
Surface beds	m3	100	1 000,00	100 000,00
<u>20MPa/19mm concrete</u>				
Strip footings	m3	80	1 000,00	80 000,00
Column bases	m3	50	1 000,00	50 000,00
<u>25MPa/19mm concrete</u>				
Slabs including beams and inverted beams	m3	100	1 200,00	120 000,00
Stairs including landings, beams and inverted beams	m3	40	1 200,00	48 000,00
Carried to summary				398 000,00

Project Capital Cost

Additional items to include to obtain total estimate for feasibility and approval

- Land cost + transfer costs
- Finance cost
- Bond raising fee
- Plan approval fees
- Rates & taxes
- Geotechnical investigation
- Registration
- NHRBC fees
- VAT

GPF APPROVALS

To arrive at a feasible project and get funding approvals certain milestones and thresholds must be achieved

1. Provide Business plan including cost estimates and income projections
2. Land or building must have appropriate zoning
3. For Greenfield developments opportunity cost per unit should not exceed R60 000
4. The sale agreement must be signed by both parties
5. The value of the project on completion should exceed the total development cost

Choosing the Professional Team

- Professional team must be registered with their respective bodies, Institute of Architects; Engineering Council; etc
- Must have Professional Indemnity, with the relevant qualifications and experience

THANK YOU