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Annexure-B

GUIDELINES FOR PREPARATION OF PRELIMINARY ESTIMATES

TYPE OF ESTIMATES:

- Preliminary Estimate
- Detail Estimate

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PRELIMINARY ESTIMATE:

HEAD OF ACCOUNTS

- Revenue
- Development

REQUIREMENTS OF PRELIMINARY ESTIMATE

1. Request letter from requiring body
2. Approved site plan by the Department of Architecture
3. Approved building plan by the Department of Architecture
4. If approved building plan is not available, in case of urgency, preliminary estimates may be prepared based on space requirements furnished by the Department of Architecture

CHECK LIST BEFORE PREPARATION OF PRELIMINARY ESTIMATE:

1. Apparent soil condition and approximate cost for sub-soil investigation
2. Need for site improvement and approach road
3. Source of water supply
4. Surface water & sewerage disposal
5. Source of power supply
6. Source of gas supply

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- 7. Need for special type boundary wall or retaining wall
- 8. Structure type and structural system
- 9. Additional cost in foundation due to poor soil condition
- 10. Special type foundation: Raft or pile

COMPONENTS OF ESTIMATE

- 1. Project profile
- 2. Report
- 3. Abstract of cost
- 4. Estimate
- 5. Site plan
- 6. Building plan

REPORT SHOULD CONTAIN THE FOLLOWING COMPONENTS:

- 1. Background and objectives
- 2. Description of the project
- 3. Rates of estimate.
- 4. Mode of financing
- 5. Charges

COST FOR CONSTRUCTION BY DEPARTMENT AND PRIVATE OWNER:

- 1. Structure constructed by own management/ private owner: The cost will be reduced by **22.383%** (considering contractor's profit, overhead charge, VAT, price escalation and others).
- 2. Further judgement can be applied in reducing or increasing the cost comparing with PWD standard.

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DETAIL ESTIMATE

DETAIL ESTIMATE SHALL CONTAIN:

1. Report
2. Detail Building Plan, Elevation, Section and Structural Drawings
3. Detail measurement of each individual item along with their information in drawings, sites etc
4. An abstract of cost
5. Proposed works specially boundary wall, gate, road, external water supply, sewerage line shown in red

DETAILED ESTIMATES ARE PREPARED:

1. For preparation of tender documents and bill of quantity
2. For according technical sanction
3. To receive fund through "schedule process" from the revenue budget
4. For administrative approval of items of works, which are not components of approved scheme

IMPORTANT POINTS TO REMEMBER:

1. Rates of items not covered by PWD's schedule of rate shall be accompanied by analysis
2. Site improvement by carted earth must be accompanied by contour map duly signed by appropriate authority
3. Detail estimate of approved projects implemented through ADP must not be sent to Chief Engineer's Office for checking and approval. Additional chief Engineer has the full power to approve it
4. Detail estimates sent to Chief Engineer's office require prior approval of respective SE and ACE

SAMPLE FORMAT OF PRELIMINARY ESTIMATE

1. SOIL INVESTIGATION

: TK. A

2. CONSTRUCTION OF BUILDING

: TK. B

A. FOUNDATION COST: from PLAR Table

1. Add cost for saline zone
2. Add cost for $f_c = 32 \text{ MPa}$ (1: 1:25: 2.5) or $f_c = 40 \text{ MPa}$ (1: 1: 2) or $f_c = 50 \text{ MPa}$ concrete with stone chips
3. Add cost for high risk costal area
4. Add additional cost for extra depth of foundation
5. Add additional cost for basement floor (basement wall, floor and retaining piles if required)
6. Add cost for member weightage table-3 (For basement floor)
7. Add additional cost for extra length of Pile beyond 18m
8. Add additional cost for remote area

B. SUPER STRUCTURE COST: from PLAR Table

1. Add cost for saline zone
2. Add cost for $f_c = 32 \text{ MPa}$ (1: 1:25: 2.5) or $f_c = 40 \text{ MPa}$ (1: 1: 2) or $f_c = 50 \text{ MPa}$ concrete with stone chips
3. Add cost for high risk costal area/severe earthquake zone/ special type of structure
4. Add cost for member weightage table-3 (Including basement floor)
5. Add additional cost for extra height of floor beyond 3.35m (11'-0")
6. Add cost for Safety Canopy and Safety Net and other environmental considerations
7. Add cost for Construction Lift
8. Add cost for special ornamental works (if any)
9. Add cost for roof top gardening
10. Add cost for kitchen cabinet, wall cabinet, false ceiling and wall paneling etc,
11. Add cost for acoustic works (if any)
12. Add additional cost for remote area

3. INTERNAL WATER SUPPLY AND SANITATION

: Tk. C

4. INTERNAL ELECTRIFICATION

: Tk. D

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5. EXTERNAL WATER SUPPLY

: Tk. E

1. Construction of underground reservoir
2. Sinking of deep tube well/arranging water from WASA, Municipality or Public Health Engineering sources
3. Laying of distribution pipe lines
4. Construction of pump house
5. Supplying and installation of pumps
6. Sewage Treatment Plant (STP) and Water Treatment Plant (WTP)
7. Rain water harvesting system

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6. EXTERNAL ELECTRIFICATION

: Tk. F

1. Construction of Sub-station building
2. Supplying and installation of Sub-Station Equipment/Transformer
3. Supplying and installation of pump and motor set
4. HT/LT Line
5. PDB /DESA /DESCO /REB connection charges
6. Stand-by power and source
7. Earthling system
8. Overhead transmission line
9. Underground cable laying
10. Compound light /Garden light
11. Solar PV system

7. ELECTRO-MECHANICAL COMPONENT

: TK. G

1. Lift (.....Passengerstop) : Nos. x Unit Cost
2. Air conditioner and exhaust fans etc: Nos. x Unit cost

8. GAS CONNECTION NETWORK AND CHARGES

: TK. H

9. CONSTRUCTION OF COMPOUND DRAIN (Cost per meter of length)

: TK. I

10. CONSTRUCTION OF CULVERT/BRIDGE

: TK. J

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11. CONSTRUCTION OF INTERNAL / COMPOUND / APPROACH ROAD AND PAVEMENT	: TK. K
12. CONSTRUCTION OF BOUNDARY WALL AND GATES, RETAINING WALL	: TK. L
13. DEVELOPMENT OF SITE (cost on approximate quantity in cum)	: TK. M
14. ARBORICULTURE / LANDSCAPE / PLAYGROUND	: TK. N
15. FIRE FIGHTING	: TK. O
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SUB TOTAL	: TK. P
16. QUALITY ASSURANCE, MATERIAL SAMPLE COLLECTION & TESTING, ETC (1.00% on Tk. P)	: TK. Q
17. CONTINGENCY (Probable unforeseen expenditure related to work)	
A. Price Contingency (maximum 8.00% on Tk. P)	: Tk. R
B. Physical Contingency (maximum 2.00% on Tk. P)	: Tk. S
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SUB TOTAL	: TK. T
18. COST OF LAND	: TK. U
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GRAND TOTAL	: TK. V

(The Project cost stands at Tk. 'V' lakh)

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WORKED OUT EXAMPLE ON PREPARATION OF PRELIMINARY ESTIMATE

Building type : Residential
Building Category : Super (1250 sft/flat, 2 flats per floor)
Type of structure : R. C. C. frame structure with 1: 1.5: 3 concrete (stone chips)
Soil type : Bearing capacity of soil = 3 ksf
Foundation : Shallow foundation, 6 storeys
Plinth Area : 4003.93 sft (371.97 sqm)
Ground Floor : Parking
Site : Sylhet (very severe earth-quake zone)

1. SOIL INVESTIGATION

		Quantity/Amount		Unit Rate (Tk.)		Total Amount (Tk.)
(i)	Soil Investigation : LS or Actual cost (BH Nos. as primary, say)	5	nos.	Tk. 38,821.00	/no	Tk. 194,105.00
				"A"	=	Tk. 194,105.00

2. CONSTRUCTION OF BUILDING

A. FOUNDATION COST

(i)	Foundation cost : From PLAR Table - 1, (For B.C.qa=3ksf) 371.97 sqm @ Tk. 16,635.00 per sqm	371.97	sqm	Tk. 16,635.00	/sqm	Tk. 6,186,722.85
				"B1"	=	Tk. 6,186,722.85

B. SUPER STRUCTURE COST

I.	(i)	Ground floor as Parking (from PLAR Table-2) 371.97 sqm @ Tk. 17,611.00	371.97	sqm	Tk. 17,611.00	/sqm	Tk. 6,549,707.01
	(ii)	Add extra cost for member weightage (M.W.) (from PLAR Table-3) 371.97 sqm @ Tk. 1,369.00 per sqm	371.97	sqm	Tk. 1,369.00	/sqm	Tk. 509,144.79
II.	(i)	1st floor (from PLAR Table-2) 371.97 sqm @ Tk. 29,465.00 per sqm	371.97	sqm	Tk. 29,465.00	/sqm	Tk. 10,958,328.15
	(ii)	Add extra cost for M.W (from PLAR Table-3) 371.97 sqm @ Tk. 1,095.00 per sqm	371.97	sqm	Tk. 1,095.00	/sqm	Tk. 407,241.45
III.	(i)	2nd floor (from PLAR Table-2) 371.97 sqm @ Tk. 29,907.00 per sqm	371.97	sqm	Tk. 29,907.00	/sqm	Tk. 11,122,712.37
	(ii)	Add extra cost for M.W (from PLAR Table-3) 371.97 sqm @ Tk. 821.00 per sqm	371.97	sqm	Tk. 821.00	/sqm	Tk. 305,338.11
IV.	(i)	3rd floor (from PLAR Table-2) 371.97 sqm @ Tk. 30, 356.00 per sqm	371.97	sqm	Tk. 30,356.00	/sqm	Tk. 11,289,699.96
	(ii)	Add extra cost for M.W (from PLAR Table-3) 371.97 sqm @ Tk. 548.00 per sqm	371.97	sqm	Tk. 548.00	/sqm	Tk. 203,806.68
V.	(i)	4th floor (from PLAR Table-2) 371.97 sqm @ Tk. 30,681.00 per sqm	371.97	sqm	Tk. 30,681.00	/sqm	Tk. 11,410,570.71
	(ii)	Add extra cost for M.W (from PLAR Table-3) 371.97 sqm @ Tk. 274.00 per sqm	371.97	sqm	Tk. 274.00	/sqm	Tk. 101,903.34
VI.	5th floor (from PLAR Table-2) 371.97 sqm @ Tk. 31,035.00 per sqm		371.97	sqm	Tk. 31,035.00	/sqm	Tk. 11,542,226.85
					"B2"	=	Tk. 64,400,679.42

C. ADDITIONAL SUPER STRUCTURE COST

VII.	Add extra super structure cost 3% for wind (other than coastal area) & earth quake load resisting structure.): 3% on Tk. 64,400,679.42	Tk. 64,400,679.42		3%		Tk. 1,932,020.38
VIII.	Extra cost for Rooftop & LC (From PLAR Table-2): 371.97 sqm @ Tk. 3,360.00 per sqm	371.97	sqm	Tk. 3,360.00	/sqm	Tk. 1,249,819.20
IX.	Extra cost for Roof top R.C. C Parapet (From additional cost chart item-3): 4x19.28x1m=77.14sqm @ Tk. 4,624.00 per sqm	77.14	sqm	Tk. 4,642.00	/sqm	Tk. 358,083.88
X.	Extra cost for Roof top R.C.C water tank (From additional cost chart item-4): 2000 gal. @ Tk. 178.00 per gal	2000	gallon	Tk. 178.00	/gal	Tk. 356,000.00
XI.	Extra cost for safety canopy	231.44	sqm	Tk. 2,421.00	/sqm	Tk. 560,316.24
XII.	Extra cost for safety net	4937.39	sqm	Tk. 51.00	/sqm	Tk. 251,806.72
				"B3"	=	Tk. 4,708,046.42
				Sub Total, "B" = (B1+B2+B3)		Tk. 75,295,448.69

OTHER BUILDING COST

3.	Internal Sanitary & Water Supply (From additional cost chart, item-6): Consider G.F parking area cost 50%. 5.5x371.97 sqm @ Tk. 1,907.00 per sqm	2045.84	sqm	Tk. 1,907.00	/sqm	Tk. 3,901,407.35
4.	Internal Electrification (From additional cost chart, item-7): Consider G.F parking area cost 50%. 5.5x371.97 sqm @ Tk. 2,490.00 per sqm	2045.84	sqm	Tk. 2,490.00	/sqm	Tk. 5,094,129.15
5.	External Water Supply.					
(i)	Construction of underground reservoir (From	10000	gallon	Tk. 106.00	/gal	Tk. 1,060,000.00

	additional cost chart, item-9-i-a) : 10,000 gal. @ Tk. 106.00 per gal					
(ii)	Sinking of deep tube well/arranging water from WASA, Municipality or Public Health Engineering sources, WASA/Municipal charge as per requirement. Actual cost	1	No.	E		E
(iii)	Laying of distribution pipe lines as per requirement. Actual cost					
(iv)	Construction of pump house as per requirement. Actual cost					
(v)	Supplying and installation of pumps as per requirement. Actual cost.					
(vi)	Installation of Sewage Treatment Plant (STP) and Water Treatment Plant (WTP) as per requirement. Actual cost					
(vii)	Installation of Rain water harvesting system as per requirement. Actual cost					

6. External Electrification						
(i)	Sub-station building	1	No.	F		F
(ii)	Sub-station Equipment/Transformer					
(iii)	Pump & Motor set in/c installation					
(iv)	H.T./L.T. Line					
(v)	PDB /DESA /DESCO /REB Charge					
(vi)	Standby Power & Source					
(vii)	Earthing System					
(viii)	Overhead Transmission					
(ix)	Underground cable laying					
(x)	Compound light. Wiring system & other safety system					
(xi)	Solar PV system					

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7. Electro-Mechanical Component.					
(i)	Lift. Not required	1	No.	G	G
(ii)	Air Condition Not required				

8. Gas Connection.						
(i)	Ground Floor. (From additional cost chart item-8-i) Consider 50% cost as parking 0.50 x 371.97 sqm @ Tk. 455.00 per sqm	185.985	sqm	Tk. 455.00	/sqm	Tk. 84,623.18
(ii)	Other floor (From additional cost chart item-8-ii): 5 x 371.97 sqm @ Tk. 182.00 per sqm	1859.85	sqm	Tk. 182.00	/sqm	Tk. 338,492.70
9.	Construction of Compound drain Cost on meter basis (From additional cost chart item-15-i/ii/iii)					I
10.	Construction of Culvert					J
11.	Approach Road As per requirement. (From additional cost chart item-13-i/ii)					K
12.	(i) Boundary Wall. As per requirement (From additional cost chart item-11-i/ii/iii/iv/v/vi/vii)					L
	(ii) Gate, As per requirement (From additional cost chart item-11-viii/ix)					
13.	Site improvement					M
14.	Arboriculture/Landscape (As per requirement):					N
15.	Fire Fighting (As per requirement):					O
				Total "C"	=	sum of cost from item 3 to 15
				Sub-Total "P"	=	(A+B+C)

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16.	Quality Assurance, Material Sample Collection & Testing (1% of P)	"Q"	=	1% of "P"
17.	Contingency (5% of P) or Actual need	"R+S"	=	5% of "P" or actual need
		Sub Total, "T"	=	(P+Q+R+S)
18.	Cost of Land	"U"		U
		Grand Total, "V"	=	(T+U)

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