

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

1. PREAMBLE TO ALL TRADES

1.1 The requirement of all items contained in this section is to be taken into account when pricing this Bill of Quantities.

1.2 The term 'approved' shall mean approved by the Superintending Officer.

Abbreviations

1.3 Throughout these Bill of Quantities, the following abbreviations have been used:-

(i) General

- | | | | |
|-----|-------|---|---|
| (a) | B.S | - | The latest standard for a particular building material or component issued by the British Standards Institution |
| (b) | CP | - | The latest British Code of Practice issued by (B.S) Council of Codes of Practice the British Standard Institution |
| (c) | CP | - | The latest Civil Engineering Code of Practice, (CE) issued by the Institution of Civil Engineers, United Kingdom. |
| (d) | Gauge | - | Imperial standard wire gauge |
| (e) | S.W.G | - | Ditto |
| (f) | NO | - | Number |
| (g) | PRS | - | Pairs |
| (h) | S.O | - | Superintending Officer |

(ii) Metric Units

- | | | | |
|-----|----|---|-------------------|
| (a) | MC | - | Meter cube |
| (b) | MS | - | Meter Superficial |
| (c) | MR | - | Meter Lineal |

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1. PREAMBLE TO ALL TRADES (CONT'D)

(d)	M	-	Meter
(e)	CM	-	Centimeter
(f)	MM	-	Millimeter
(g)	KG	-	Kilogram
(h)	KN	-	Kilo Newton

(iii) Imperial Units

(a)	YC	-	Yard cube
(b)	YS	-	Yard superficial
(c)	YR	-	Yard lineal
(d)	Ton	-	Imperial tone
(e)	LBS	-	Pound
(f)	OZ	-	Ounce

Constructional Plant, Equipment, Vehicles and Machinery

- 1.4 The costs of providing piling equipment, constructional plant, equipment, vehicles and machinery for use directly in connection with the construction and completion of the Works are to be priced in the Preliminary Section of these Bills of Quantities. However, the costs of operating the same are to be included in the prices and rates of the relevant items in these Bills of Quantities.

Curved Of Circular Work

- 1.5 Work described in these Bills of Quantities as curved or circular shall be deemed to include all junctions between straight and curved or circular work.

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New and Old Work

1.6 Unless otherwise specified, the cost of making good at junction between new and old works shall be included in the prices and rates of the new works.

Items/Works Measured As Lump Sum Items

1.7 Prices and rates for item / works measured as Lump Sum shall be deemed to cover for providing everything necessary for the proper execution and completion of the item / works according to the true intent and meaning of the Contract Documents taken together whether the same may or may not be particularly shown or described provided the same is reasonably inferred therein.

Pricing Of Bills of Quantities

1.8 All items in these Bills of Quantities shall be priced by the Contractor. Should the Contractor fail to price any item, the value thereof shall be deemed to be included in the prices and rates of other items therein.

2. PILING WORKS

General

2.1 Prices and rates for piling are to include for works in whatever nature of site, water levels and soil strata through which the piles are to be driven or bored and any excavation required for working space.

Supplying Of Pre-cast Concrete / Timber Piles

2.2 Supplying of initial and extension piles are billed separately in meter lineal in these Bills of Quantities.

2.3 The prices for supply of initial or extension piles shall be deemed to cover for providing everything necessary as shown in the drawings and / or specified in these Bills of Quantities.

Handling, Transporting, Pitching and Driving Of Pre-cast Concrete / Timber Piles

2.4 The prices for handling, transporting, pitching and driving are to include for :-

- (i) Moving of piles frame about the site

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2. PILING WORKS (CONT'D)

- (ii) Extra excavation, earth filling, and ramming entailed in the movement / positioning of the piles frames
- (iii) Handling, transporting, pitching and driving of initial or extension piles irrespective of lengths
- (iv) Shaping of one end of the initial pile (if required)
- (v) Preparing pile head and fitting the same with protective strap / helmet
- (vi) Providing protective straps/helmets
- (vii) Re-driving of heaves piles
- (viii) Marking the piles
- (ix) Keeping and monitoring driving logs

2.5 Handling, transporting, pitching and driving of initial piles and extension piles are measured under an item. No distinction is made between initial and extension piles.

2.6 For the purposes of payment for handling, transporting, pitching and driving of piles, the payable lengths shall be deemed to be the lengths measured from the shoe point when pitched (i.e. the point when the pile stops setting under its own weight) to the shoe point when driven.

Bored Cast-In-Situ Piles

General

2.7 Bored cast-in-situ concrete piles are measured generally in accordance with the British Standard Method of Measurement of Building Works published by the Royal Institution of Chartered Surveyors, 12 Great George Street, Parliament Square, London, United Kingdom. Other items are measured in accordance with the latest Standard of Measurement of Building Works for use in Malaysia.

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2. PILING WORKS (CONT'D)

Measurement Of Boring

2.8 Boring is measured from the bottom level of the bore to formation level.

Measurement of Piles

2.9 Bored cast-in-situ piles other than test piles are measured net, i.e. from the bottom level of the bore to the cut-off level of the pile. Test piles are measured the full length as required for testing of the pile.

Prices for Piles and Boring

2.10 The items given under the various trades of Excavation and Earth Work, Concrete Works, etc. which are included in the prices of bored piles, shall apply accordingly.

2.11 Subject to paragraph 2.9 above, the Contractor shall allow in his prices and rates any extra length that may be required above the cut-off levels.

Steel Sheet Piling

Measurement

2.12 Only steel sheet piling which form permanent parts of the Works is allowed in these Bills of Quantities. The cost of providing steel sheet piling which do both form a permanent parts of the Works is deemed to be included in the prices and rates of the permanent parts of the Works for which the use of sheet piling is necessary.

Supplying Of Steel Sheet Piling

2.13 Prices and rates for supplying of steel sheet piling are to include for extra material at laps, welding along interlocks and coating with approved anti-rust paint.

Driving Of Steel Sheet Piling

2.14 The items given under paragraphs 2.4, 2.5 and 2.6 above, i.e. Handling, Transporting, Pitching and Driving concrete / timber piles shall apply accordingly.

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3. EXCAVATIONS AND EARTH WORKS

- 3.1 Unless otherwise stated, depths of excavations are measured from the general formation levels to the bottom of the excavations.
- 3.2 The depths of trench excavations are given in 1.50m stages.
- 3.3 Quantities of each fill are measured net (i.e. excluding volumes occupied by a permanent part of the Works to be executed under the Contract).
- 3.4 Prices for excavation are to be include for:-
 - (i) Excavating in whatever type of material excluding rock as defined in the Specification, met with on the surface of or in the excavations
 - (ii) Getting the material out of the excavations
 - (iii) Removing of loose boulders of size not exceeding 0.17 MC if in general excavation of size not exceeding 0.08MC if in excavation for trenches and foundation pit
 - (iv) Keeping the excavation free of water
 - (v) Upholding and maintaining sides of the excavations by whatever means necessary including the use of betonies and any special shoring or sheet piling etc., as any be necessary but which do not form a permanent part of the Works to be executed, but excluding any planking and strutting to be left in or any sheet piling etc. which forms a permanent part of the Works to executed
 - (vi) Backfilling of selected excavated materials into piaterials into the excavations and compacting the same methods and in the manner as specified in the Specification
- 3.5 Prices for earth fill shall include for:-
 - (i) Settlement or displacement of fill over soft areas.
 - (ii) Leveling surfaces of the platform and forming the necessary slopes.
 - (iii) Keeping the platform and slopes free from water or damage.
 - (iv) Multiple handling and transporting about the site.

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3. EXCAVATIONS AND EARTH WORKS (CONT'D)

- 3.6 Prices and rates for trench excavation shall include for surface and basement trenches. No distinction shall be made between surface and basement trenches.
- 3.7 Prices and rates for earth, sand, quarry dust and the like material in fillings, beds, and blinding, etc. shall include for leveling surfaces of the same on grading surfaces of the same to falls or chambers, trimming; sides of the same to form vertical battering or sloping surfaces, and any temporary retaining boards as may be required.
- 3.8 Prices and rates for hare core, crusher run and the like material in fillings and beds etc. shall include for hand packing the same; to form vertical, battering or sloping surface, and any temporary retaining boards as may be required.
- 3.9 Prices and rates for hardcore, crusher run and the like material in fillings and beds etc. to receive concrete or paving shall include for blinding the same with sand or quarry dust and leveling surfaces of the same or grading surfaces of the same to falls or cambers and well watered.

4. CONCRETE WORKS

Concrete

- 4.1 Prices and rates for concrete are to include for:-
- (i) All hoisting and placing in required positions
 - (ii) Working between and around reinforcement
 - (iii) Tamping and / or vibrating to give through compaction
 - (iv) Forming or cutting
 - (v) Grooves
 - (vi) Chases
 - (vii) Mortises
 - (viii) Holes and other sundry like helms, including all making good

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4. CONCRETE WORKS (CONT'D)

Reinforcement

4.2 Prices and rates for reinforcement are to include for:-

- (i) Cutting to lengths
- (ii) Hooked ends
- (iii) Bends
- (iv) Placing in position prior to casting
- (v) Tying, tying wire, spacer bar and distance blocks
- (vi) Allowance for laps and framing notches around obstructions in case of fabric reinforcement

Note: The weight of rod reinforcement given in the Bills excludes both the weight of tying wire and any allowance for rolling margin and prices and rates are to include for these items.

Formwork

4.3 Prices and rates for formwork are to include for :-

- (i) Splayed edges
- (ii) Notching
- (iii) Allowance for overlaps and passing at angles
- (iv) Battens
- (v) Strutting any height when required
- (vi) Bolting and edging
- (vii) Basing, striking and removal

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

4. CONCRETE WORKS (CONT'D)

Left In Formwork

- 4.4 'Left in' formwork as specified in these Bills of Quantities shall mean formwork which will form a permanent part of the Works.

Pre-cast Concrete

- 4.5 All work in pre-cast concrete shall be deemed to be in concrete (1:2:4-20mm) as described later in these Bills of Quantities. Prices shall include for all casting, formwork, handling, hoisting, placing in position and setting, bedding, joining and pointing in cement mortar (1:3) unless otherwise particularly specified.

5. BRICKWORK

- 5.1 Prices and rates for brickwork and block work are to include for:-

- (i) All rough and fair cutting
- (ii) Overselling and receding courses
- (iii) Rough relieving and discharging arches
- (iv) Wedging and pinning
- (v) Raking out joint for and pointing flashing
- (vi) Bedding plates
- (vii) Bedding and pinning frames
- (viii) Purging and coring flues
- (ix) Plumbing angles
- (x) Labor eaves filling
- (xi) Forming square and rebated reveals, cut squints or bird mouths and notches
- (xii) Cutting and pinning and / or building in

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

5. BRICKWORK (CONT'D)

- (xiii) Making good
- (xiv) Sundry like items

6. DRAINS

- 6.1 The items given under the various Trades of Excavation and Earth Works, Concrete Works, Brickwork, etc. which are deemed included in the prices and rates of drains, shall apply accordingly.
- 6.2 Prices and rates for cast iron and salt glazed ware pipes are to include for short lengths, sockets, jointing, fixing and the like.

7. SCREED, PAVINGS AND TILING WORKS

General

- 7.1 Prices and rates for screed, paving and tiling are to include for:-
 - (i) Narrow widths and small quantities
 - (ii) Temporary rules
 - (iii) Arises and rounded angles
 - (iv) Working into channels and for fittings and making good up to reveals, steps around columns, balusters, pipes, gratings, fitting and the like.
- 7.2 Where the thickness of floor screed and paving is stated as 'average', these are required to be laid to falls and currents and the Contractor shall be deemed to have included for this in his prices and rates.

Tiling

- 7.3 Prices and rates for tiling are to receive tiles:
 - (i) Preparation of surfaces to receive tiles
 - (ii) Laying to falls and current as instructed

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7. SCREED, PAVINGS AND TILING WORKS (CONT'D)

- (iii) Rounded edges of projecting tiles
- (iv) Protecting, cleaning off and polishing on completion

Skirting, Risers and Other Lineal Items

- 7.4 Prices and rates for skirting, risers, channels, and the like are to include for all short lengths, formed cut and purpose-made angles, junctions, ends, etc. and making good and any other sundry items of a like nature. In the case of mosaic tiling, the prices are also to include for cove tiles and tiles set in at 45 degrees to the horizontal.

8. CARPENTRY WORKS

Carpentry Timber

- 8.1 Prices and rates for all carpentry timber are to include for pressure treating as described later and all labor in notching, baring, halving, mortising, tanning and wedging, scaring, dovetailing, sinking, for heads of bolts and nuts, trimming for opening and properly spiking as required.

All Work Deemed To Be Sawn

- 8.2 All carpenter's work shall be deemed to be left with a sawn surface except where particularly described to be wrote and prices ire to include for this.

Plugging and Fixing Woodwork Etc.

- 8.3 Where work is described as "plugged", it shall include for shot fired fixings where approved or casting in or mortising for and inserting fibrous or other approved fixing materials and fixing with suitable nails screws to any wall or concrete surfaces.

9. JOINERY WORK

Joinery Timber

- 9.1 Prices and rates for all joinery timber are to include for:-
- (i) Pressure treated as later described

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

9. JOINERY WORK (CONT'D)

- (ii) Wrought finish (unless an item is expressly stated to be sawn)
 - (iii) All cutting, notching, holes, housed ends, miters, ends, shaped ends, angles, junctions, heading joist and short lengths
 - (iv) Planting on with nails or brads etc. punched in
 - (v) Any either items of a like nature
- 9.2 Concrete platforms, floor and wall finished, and sanitary fittings related with joinery fittings are measured separately
- 9.3 Subject to paragraph 9.2 above, prices for joinery fittings which are measured in numbers are deemed to include for providing everything necessary for the proper execution and completion of the items as shown in the drawings, specified in the Specification and / or in these Bills of Quantities

10. SUSPENDED CEILING

- 10.1 Suspended ceilings are measured in meter superficial. Rates per meter superficial of suspended ceilings are deemed to include for providing everything necessary for the proper execution and completion of the items as shown in the drawings and / or specified in these Bills of Quantities
- 10.2 Prices and rates for suspended ceilings are also to include for:-
- (i) Narrow widths and small quantities
 - (ii) Temporary rules
 - (iii) Miters, edge trims and fair cutting to ceiling boards and tiles at margins and
 - (iv) Borders
 - (v) All making good and any sundry item\$ of like nature

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

11. IRONMONGERY

- 11.1 Prices and rates for ironmongery are to include for fixing with screws of the same finish as fitting and for all cutting, sinking, boring and mortising as required, oiling, easing and adjusting all moving parts, taking off and refixing after painting where necessary and leaving in perfect working order including handing the keys property labeled to the Superintending Officer satisfaction on completion

12. STEEL AND IRONWORK

- 12.1 No allowance has been made in the weight of steel for rolling margin
- 12.2 Prices and rates for steel and ironwork are to include for:-
- (i) Allowance for rolling margin
 - (ii) All labour in cutting to length, drilling holes
 - (iii) Rivets, if necessary
 - (iv) Additional costs involved in using members which are larger than the manufacturer's standard stock size if required
 - (v) Working with members of various sizes and lengths

13. PLASTERING WORK

Plastering

- 13.1 Prices and rates for plastering, etc. shall be held to include for:-
- (i) Narrow width and small quantities
 - (ii) Temporary rules
 - (iii) Joints between different types of plastering
 - (iv) Internal angle, arises and quirks
 - (v) Rounded coves and external angles not exceeding 25" radius

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

13. PLASTERING WORK (CONT'D)

- (vi) Miters stop, etc. on all the foregoing and to cornices, moldings, enrichments, coves, grooves, skirting, gutters and strings
- (vii) Raking out joints or hacking any surfaces to form key
- (viii) All making good and any sundry item of a like nature

14. PLUMBING INSTALLATION

General

- 14.1 Prices and rates for pipe works shall include for short lengths, and joints in the running length including fixing and the like, and for all perforations, chases, etc. in brickwork, block work, concrete, etc. and for all making good

Galvanized Mild Steel Or Unplasticised Polyvinyl Chloride Tubings

- 14.2 All tubings have been measured the nett lengths as fixed, measured over bends, junction, etc.
- 14.3 Prices and rates for fittings to all tubings described as 'extra for' should be the cost of the fittings extra only over the length of tubings.
- 14.4 Prices and rates for mild steel or unplasticised polyvinyl chloride tubings are to include for:-
- (i) All short runnings length
 - (ii) Sockets
 - (iii) Connectors
 - (iv) Backnuts
 - (v) Elbows and bends
 - (vi) Fire-bends
 - (vii) Tees
 - (viii) Diminishing pieces

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

14. PLUMBING INSTALLATION (CONT'D)

- (ix) Plugs
- (x) Other items of a like nature

Copper Tubing

14.5 Prices and rates for copper tubings are to include for:-

- (i) All short running lengths
- (ii) Made bends
- (iii) Running joints
- (iv) Other items of a like nature

15. GLAZING WORK

15.1 Prices and rates for glass are to include for all necessary additional cost involved in using sheets which are large than the manufacturer's standard stock sizes if required.

16. PAINTING WORK

16.1 Prices and rates for all painting works are to include for preparation of surfaces for painting as described, painting in any colour or tint (including mixing of paints to derive any tint or colour required), all necessary scaffolding and temporary platform.

16.2 Prices and rates for painting on steel structures are to include for painting on brackets, cleats, rivets, bolts, etc.

16.3 Prices and rates for painting on pipes are to include for painting on fittings, clips, brackets, etc.

17. DESIGN AND BUILT ITEM

17.1 The Lump Sum price entered into the bills of quantities in respect of a design and built item shall be deemed to include all charges for transport, handling, custom duties, sales tax and other taxes, where applicable, and other costs and expenses, overheads and profit for the design and construction of the item complete. No tax exemption will be allowed by the Government.