



# STANDARD METHOD OF MEASURING BUILDING WORK FOR AFRICA 2015 FIRST EDITION

## PREFACE

In August 2013 a working group comprising of Prof H M Siglé (chairman), Ms E Edwardes and Mr R de Villiers was appointed to prepare a Standard Method of Measuring Building Work for Africa *inter alia* taking into account the standard methods in use in Africa, being East Africa (Kenya, Tanzania and Uganda), Mauritius, Nigeria, South Africa and Zambia, but also taking into account international tendencies. The Association of South African Quantity Surveyors (ASAQS) agreed to fund this working group and to allow their Standard System of Measuring Building Work 1991 to be used as a base document

The Standard Method of Measurement for Africa committee of the Africa Association of Quantity Surveyors (AAQS), namely Messrs D N Kimoro (Kenya), M K Frimpong (Ghana), G Ndung'u (Zambia) and N Moorogan (Mauritius) were given the opportunity to provide input, firstly on the tabulated format and thereafter on the proposed new standard method

Concurrently the ASAQS agreed to make available its Model Bills of Quantities (abbreviated descriptions) as the base document for an updated version for use in conjunction with the Standard Method of Measuring Building Work for Africa. A working group comprising of Prof H M Siglé, Mr R de Villiers and Prof C H Klopper, funded by the AAQS, was appointed to undertake the task of updating the model bills

The AAQS Services and Model Documentation board sees the publication of the abovementioned two documents as a major step in standardising procurement documentation in Africa and improving the quality of such documentation

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## GENERAL INSTRUCTIONS

### NOTE

This standard system has been compiled in a tabulated format to suit the current method of setting out documents of this kind

**The following is to be noted:** Where items are grouped together in the “Item or work to be measured” column those items shall not be grouped together but shall each be given separately in the unit as shown in the “Unit” column, eg “Concrete, Formwork and Reinforcement” clause 2, concrete in “*Surface blindings, surface beds, surface beds cast in panels, footings, bases, underpinning, slabs inclusive of beams and inverted beams, isolated beams, lintels, stairs inclusive of landings and beams, walls, columns, hollow block slabs, coffered slabs, troughed slabs, etc*” shall each be given separately in m<sup>3</sup>

Where items may be grouped together it is specifically stated, eg “Concrete, Formwork and Reinforcement” clause 14, formwork to “*Edges, risers, ends and reveals exceeding 300mm high or wide*” shall be given together in m<sup>2</sup>

### 1 Bills of quantities

This standard system has been drawn up to provide a uniform basis for measuring building work. It is the result of negotiations between the various parties and embodies the minimum essentials of good practice

Bills of quantities shall reflect the work to be done as shown on the drawings or contained in the specification in accordance with the rules laid down in this standard system. No departure shall be made from this standard system except where no specific rule can be applied or where exceptional circumstances involving work of a different character or particular circumstances of execution require the provision of more detailed information in order to define the nature and extent of the work. In such cases separate items shall be given following the general principles contained herein and descriptions of such items shall provide all the information necessary for pricing

Descriptions in bills of quantities shall be comprehensive and clear. Unless otherwise stated the radii of circular, flowing and spherical work need not be stated

Unless otherwise stated the description of each item shall be deemed to include manufacturing, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting, waste, patterns, templates, plant, temporary works, return of packings, establishment charges, profit and other obligations arising out of the conditions of contract

Unless prescribed the method of execution of the work shall be at the discretion of the contractor

**2 Setting out of bills of quantities**

The bills of quantities shall be set out in the following format:

Item No | Description | Quantity | Rate | Amount

**3 Units**

Units used in the "Unit" column:

ha	hectare
kg	kilogramme
kN	kilonewton
kW	kilowatt
m	linear metre
m <sup>2</sup>	square metre
m <sup>3</sup>	cubic metre
mm	millimetre
No	number
t	ton

### 4 Order of items

The work shall be set out as far as possible in accordance with the following rules:

- 4.1 The work shall be divided into trades and sections of trades in the order as set out in this standard system. If necessary the work may be further divided into additional sub-sections to facilitate cost analyses, cost reporting, etc
- 4.2 Ancillary work applicable to a specific trade shall be given in that trade in accordance with the principles laid down in the relevant trades
- 4.3 Within each trade or section thereof the order shall be mass, volume, area, length and number
- 4.4 Subject to the above rules, items shall be arranged in their approximate order of value, the cheapest first

### 5 Order of dimensions

Dimensions shall as far as possible be given in the following sequence:

- 5.1 Horizontal at right angles to the line of sight
- 5.2 Horizontal parallel to the line of sight
- 5.3 Vertical

### 6 Net measurements

Unless otherwise stated all work shall be measured net as fixed in position. All wants shall be deducted and no allowance shall be made for waste, nor for passings and laps except where otherwise stated. Where laps occur they shall be included in the descriptions

Each measurement shall be taken to the nearest 10mm ie 5mm and over shall be regarded as 10mm and less than 5mm shall be disregarded. This rule shall not apply to any dimensions stated in the descriptions

**7 Fractional quantities**

Quantities shall be rounded off to the nearest whole unit. However, where the value of fractional quantities is of relative significance, quantities may be given to two decimal places

**8 Provisional quantities**

Where the quantity of any work cannot be accurately determined during preparation of the bills of quantities such work shall be described as provisional and subsequently remeasured

**9 Provisional sums**

Separate provisional sums shall be given for each class of work

Items shall be given for profit and for attendance where required. Descriptions of attendance shall include scaffolding and other facilities to be specially provided, prescribed protective measures, etc

**10 Contingencies etc**

Amounts required for contingencies, provision for contract price adjustments and other expenditure which cannot be determined during the preparation of the bills shall be given in the summary at the end of the bills of quantities

## PRELIMINARIES

Information and such requirements and restrictions of a general nature that may affect the cost of the works shall be given as items in this section such as:

- 1 Information concerning the bills of quantities and the availability of construction documentation
- 2 Names, addresses, telephone numbers, etc of the employer and consultants
- 3 Particulars of the contract documents
- 4 Clause headings of the relevant conditions of contract
- 5 Requirements with regard to insurances and securities
- 6 Identification of the site
- 7 Broad scope of the works stating inter alia overall size, height above and below ground level and number of storeys and the approximate area and height of any internal area with a floor to ceiling height in excess of 5m
- 8 Restrictions with regard to access, area to be occupied and procedure
- 9 Restrictions on the use or disposal of materials and articles found on the site
- 10 Responsibility for the preservation of boundary beacons etc
- 11 Results of soil investigations
- 12 Delegated authority to agents and others to perform duties for specific aspects of the works
- 13 Responsibility in respect of previous contracts
- 14 Responsibility in respect of the management and execution of the works
- 15 Responsibility and requirements for health and safety specification
- 16 Programming of the works and meetings
- 17 Samples of materials and workmanship, shop drawings and manufacturer's instructions
- 18 Enclosure of the works and protection of the public
- 19 Plant and temporary works such as roads, sheds, offices, toilets and notice boards
- 20 Temporary services such as water, electricity, lighting, information and communication systems, etc
- 21 Method of payment for preliminaries
- 22 Method of calculation for the adjustment of preliminaries
- 23 Method of pricing dayworks

## DEMOLITIONS

	Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1</b>	<b>Method and procedure</b>				
			1 Restrictions regarding blasting and the use of jack hammers, hydraulic breakers and shears, wrecking balls, etc shall be stated		
<b>2</b>	<b>General</b>				
	1 Breaking up and removing surface concrete etc	m <sup>2</sup>			
	2 Breaking up and removing kerbing and the like	m			
	3 Breaking down and removing fences, boundary walls, etc	m	2 General descriptions shall be given		
	4 Demolition and removal of buildings and other structures	No	3 General descriptions shall be given 4 Materials or components which are to remain the property of the employer shall be so described including storage, transport as necessary and handing over		
	5 Removal of foundations		5 Shall be dealt with in accordance with clause 5 of "Earthworks - Classification of material to be excavated"		
	6 Disposal of materials		6 Disposal of materials shall be described and where materials are to become the property of the contractor provision shall be made for allowing credit		



## ALTERATIONS

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 General</b>				
		1 Restrictions regarding the use of jack hammers etc shall be stated 2 Making good shall be included in the descriptions of the relevant alteration items where expedient, otherwise it shall be given separately in accordance with the principles laid down in the relevant trades 3 Prescribed strutting and shoring shall be given in accordance with the principles laid down in "Lateral Support"	1 Junctions of new with existing finishes 2 Strutting, shoring, etc incidental to alterations	
<b>2 Materials arising from alterations</b>				
		4 The manner of disposal of materials shall be stated and where materials are to become the property of the contractor provision shall be made for allowing credit 5 Where materials are permitted to be re-used in new work this shall be stated 6 Materials or components which are to remain the property of the employer shall be so described including storage, transport as necessary and handing over 7 Materials or components required to be set aside for re-use shall be so described	3 Temporary storage of materials or components required to be set aside for refixing	
<b>3 Barricades, screens, etc</b>				
1 Prescribed temporary barricades, screens, roofs, etc	m or No	8 Alternatively prescribed temporary barricades, screens, roofs, etc may be given in detail in accordance with the principles laid down in the relevant trades		
<b>4 Removals</b>				
2 Removal of walls, slabs and surface beds	m <sup>2</sup>			
3 Removal of concrete beams, columns and stairs	No or m <sup>3</sup>			

## ALTERATIONS *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>4 Removals (<i>continued</i>)</b>				
4 Removal of finishes from walls, floors, ceilings, etc	m <sup>2</sup>			
5 Removal of roofs	No	9 Descriptions shall include ceilings, eaves, etc		
6 Removal of suspended floors, panelling, ceilings, etc	m <sup>2</sup>	10 Descriptions shall include bearers, battens, brandering, skirtings, cornices, etc		
7 Removal of partitions	m	11 Descriptions shall include doors, ironmongery, glass, etc		
8 Removal of doors, windows, fittings, etc	No	12 Descriptions shall include frames, ironmongery, glass, sills, etc 13 Doors, windows, etc to be removed from walls to be demolished shall be given separately		
9 Removal of sanitary fittings, tanks, geysers, etc	No	14 Descriptions shall include disconnection from pipes, traps, etc		
10 Removal of pipes	m		4 Pipe fittings, valves, taps, traps, pipe supports, etc	
11 Alternatives		15 Alternatively items required to be given in cubic, square or linear metres may be given in number and descriptions may include making good and any incidental new work		
<b>5 Alteration work</b>				
12 Alteration work	No	16 Shall be given in inclusive items embodying more than one trade as necessary 17 Alternatively alteration work may be given in detail in accordance with the principles laid down in the relevant trades		
<b>6 Openings</b>				
13 Cutting or altering openings in structures	No	18 Descriptions shall include lintels, arches and making good to jambs and finishes all round		

## ALTERATIONS *continued*

	Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7</b>	<b>Building up openings</b>				
	14 Building up openings	No	19 Descriptions shall include bonding new to existing work, finishes, etc		
<b>8</b>	<b>Re-use of existing components</b>				
	15 Re-use of existing components	No	20 Alternatively re-use of existing components may be given in the units as provided for in the relevant trades		
<b>9</b>	<b>Work in patches</b>				
	16 Work in patches		21 Work in patches, not included in the foregoing, shall be so described		
<b>10</b>	<b>Sundries</b>				
	17 Hacking face or raking out joints of existing masonry for key for finishes	m <sup>2</sup>			
	18 Wedging up new walling to the underside of existing structures	m <sup>2</sup>	22 Shall be measured only when required for the support of existing work over		
	19 Making good to ends of walls	m			
	20 Making good to faces of walls where cross walls are removed	m			
	21 Cutting through floors or ceilings for the passage of new walls etc	m	23 Descriptions shall include making good to floors and ceilings where expedient		
22 Cutting through floors or ceilings for the passage of new columns etc	No				
<b>11</b>	<b>New work chiefly inside existing building(s)</b>				
	23 New work chiefly inside existing building(s)		24 Shall be given in accordance with the principles laid down in the relevant trades		

**NOTE:** External work of minor extent may be given in “Earthworks” in accordance with the principles laid down in “External Work” where applicable

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>1 Method and procedure</b>				
		1 Restrictions regarding blasting and the use of jack hammers, mechanical excavators, compactors, etc shall be stated 2 Excavation or filling which is to be done in a particular order or in sections, such as may be prescribed for the removal of lateral support to adjoining premises or for filling behind retaining walls, shall be so described 3 Prescribed multiple handling of material shall be included in the descriptions		
<b>2 Bulking</b>				
		4 No allowance shall be made in measurements of disposal and carting away of material for bulking		

## SITE CLEARANCE

<b>3 Site clearance</b>				
1 Digging up and removal of rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m <sup>2</sup>	5 Where the value is of relative significance, the removal of hedges etc shall be given separately in metres or in number		
2 Removal of larger trees and tree stumps exceeding 1m high	No	6 The girth around the trunk 1m high above ground level shall be stated, grouped in sizes exceeding 200mm and not exceeding 500mm girth and thereafter in stages of 500mm 7 Descriptions shall state whether roots are to be grubbed up and holes filled in, stating the method and/or degree of compaction		

## EARTHWORKS *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Site clearance (continued)</b>				
3 Removal of tree stumps not exceeding 1m high	No	8 The girth around the top of the stump shall be stated, grouped in sizes as in measurement rule 6 above 9 Descriptions shall state whether roots are to be grubbed up and holes filled in, stating the method and/or degree of compaction		

### EXCAVATIONS, FILLING, ETC

<b>4 Nature of material to be excavated</b>				
		10 The nature of the material to be excavated shall be described and if not known shall be assumed		
<b>5 Classification of material to be excavated</b>				
		11 Excavations shall be described to be in the type of material that is the least difficult to excavate 12 Excavations in material of a more difficult character shall be suitably classified and given as extra over, separating only "bulk" and "trenches and holes" and making no separation for depths 13 Breaking up and removing concrete, brickwork, etc encountered in excavations shall be similarly given		

## EARTHWORKS *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>6 Excavations</b>				
		14 The quantities of excavations shall be the net voids to be formed in accordance with the drawings and specifications and shall be not less than the horizontal area of the bottom of the relevant structures multiplied by the average depth from the surface 15 Existing voids shall be deducted 16 Where undercutting is prescribed the undercut work shall be kept separate, allowance for overbreak being made at an angle of 45 degrees	1 Setting aside excavated material within 100m from the perimeter of the excavations for use as filling, forming excavated surfaces to falls, slopes, contours, etc, trimming sides and stepping, levelling and ramming bottoms  2 Removal of disused drains, pipes, cables, etc encountered during excavations including cutting and stopping off	
4 Bulk excavations, excavations for trenches and excavations for holes	m <sup>3</sup>	17 Separated into successive depths of 2m related to the original or reduced ground level as the case may be		
5 Open face excavation such as cutting or levelling of sloping sites	m <sup>3</sup>	18 No distinction being made for depths		
6 Digging up topsoil to be preserved	m <sup>2</sup>		3 Setting aside within 100m from the perimeter of the excavation for use as filling	
<b>7 Diversion of services</b>				
7 Diversion of services including cutting, stopping off, etc		19 Shall be given in the relevant trades		
<b>8 Carting away of excavated material</b>				
8 Excavated material to be carted from the site	m <sup>3</sup>	20 Shall be given as extra over all excavations and, if to be dumped in a prescribed place, the location and approximate distance shall be stated		

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>9 Risk of collapse of excavations</b>				
9 Risk of collapse of excavations	m <sup>2</sup>	21 Shall be measured to all sides of excavations whether working space is given or not 22 The area for sloping sides shall be the mean length multiplied by the perpendicular height 23 Separate items shall be given for “bulk” and “trenches and holes” as well as for excavations from ground level to not exceeding 1,5m deep and from ground level to exceeding 1,5m deep 24 Risk of collapse shall not be measured where prescribed support is to be measured or where the excavated face is prescribed to be cut back to the angle of repose		
<b>10 Working space</b>				
10 Sides of excavations necessarily required to be excavated back for working space ie beyond the extent defined under clause 6 “Excavations”	m <sup>2</sup>	25 Descriptions shall include any consequent backfilling stating the method and/or degree of compaction 26 Shall be grouped in successive overall depths of not exceeding 500mm, exceeding 500mm and not exceeding 1,5m and thereafter in stages of 1,5m stating in each case the nature of the requirements and the distance between the structure and the side to be excavated back 27 Back excavations occurring in material of a more difficult character shall be given in square metres as extra over for each item of back excavation		
<b>11 Keeping excavations free of water</b>				
11 Keeping excavations free of all water other than subterranean water	Item			
<b>12 Dewatering</b>				
12 Removal of seepage water and water from other subterranean sources in excavations		28 Items such as the provision of pumps of a specific capacity, necessary pipework and a provisional number of pumping hours shall be given		

## EARTHWORKS *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>13 Filling</b>				
13 Filling of soil, stone, broken brick, etc for backfilling to trenches, holes, etc, for filling over site, for filling in landscape mounds, berms, etc and for filling under floors, steps, paving, etc	m <sup>3</sup>	29 Shall be measured to the volume after compaction, stating the method and/or degree of compaction 30 Separate items shall be given for filling obtained from the excavations or from specified borrow pits or supplied by the contractor 31 The approximate distance of haulage shall be stated if filling obtained from the excavations is hauled more than 100m from the perimeter of the excavations	4 Haulage not exceeding 100m from the perimeter of the excavations where filling is obtained from the excavations 5 Forming to falls, slopes, contours, etc	
14 Topsoil	m <sup>3</sup>	32 Measurement rules 30 and 31 above apply		
<b>14 Layer work</b>				
15 Subbase and base courses	m <sup>3</sup>	33 Shall be given in accordance with clause 13 "Filling"		
16 Stabilisation of layer works with lime, cement, etc	m <sup>3</sup>	34 Shall be given as extra over stating the rate of application		
<b>15 Compaction of surfaces</b>				
17 Compaction of natural or excavated ground surfaces	m <sup>2</sup>	35 Shall be measured only when the method (other than ramming bottoms referred to under clause 6 "Excavations") and/or degree of compaction is prescribed		



## EARTHWORKS *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>16 Gabions and interlocking block retaining structures</b>				
18 Retaining structures formed of filled gabion boxes and mattresses	m <sup>3</sup>	36 Shall be grouped in successive stages of 5m total heights 37 The sizes of the boxes and mattresses and the diaphragm spacings shall be stated		
19 Retaining structures formed of interlocking blocks	m <sup>2</sup>	38 The area of sloping structures shall be the mean length multiplied by the perpendicular height 39 Descriptions shall state the rate of slope and shall include filling of blocks with garden soil, concrete, etc		
20 Trench excavations, open face excavations, filling behind retaining structures, filter fabric, ground anchors, concrete foundations, etc		40 Shall be given separately in accordance with the principles laid down in the relevant trades		
<b>17 Filter fabric</b>				
21 Filter fabric	m <sup>2</sup>			
<b>18 Weedkillers, insecticides, etc</b>				
22 Treating surfaces with weedkillers, insecticides, etc	m <sup>2</sup>	41 Forming V-grooves along foundation walls etc and treating with insecticides shall be included in the descriptions		
<b>19 Tests</b>				
23 Tests to determine the degree of compaction or other properties of the ground or filling	No			

## LATERAL SUPPORT

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>1 Removal of lateral support</b>				
		1 Precautions to be taken and procedures to be followed when removing lateral support shall be given only if prescribed 2 In all other cases risk of collapse shall be given in accordance with the principles laid down in "Earthworks"		
<b>2 Insurance</b>				
1 Insurance against claims arising from the removal of lateral support	Item	3 Shall be allowed for, either by provisional sum or by stating the limit of the insurance cover required		
<b>3 Movement monitoring</b>				
2 Establishing of bench marks, pegs, etc for prescribed movement monitoring	Item			
3 Periodic movement surveys	No	4 Descriptions shall include the scope of the surveys		
<b>GROUND ANCHORING</b>				
<b>4 Descriptions</b>				
		5 The nature of the work and the excavated faces to be supported, any limitations affecting the ground anchoring, the strata through which the anchors will have to pass and the position of any cables, pipes or other services shall be described	1 Drilling	
<b>5 Establishment</b>				
4 Establishment of plant etc on the site	Item			
5 Subsequent establishments for testing, re-tensioning or de-stressing	Item			

## LATERAL SUPPORT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>6 Test anchors</b>				
6 Test anchors	No	6 Descriptions shall include the working load, lower anchorages, upper anchorages, thrust blocks and the free length of cable		
<b>7 Ground anchors</b>				
7 Classification		7 Ground anchors shall be given under headings stating the working load	2 Initial tensioning, initial acceptability testing and preparing load-extension related graphs	
8 Lower anchorages	No	8 Distinction shall be made between rock anchors and soft ground anchors		
9 Upper anchorages	No	9 Descriptions shall include prescribed protection against corrosion		
10 Free length of cable	m			
<b>8 Waterproofing of ground anchors</b>				
11 Testing and re-testing of cable holes for fissures and voids	No			
12 Cement grouting of cable holes to prevent ingress of water	kg			
13 Re-drilling holes, washing out of grout and encasing of cables	m			
<b>9 Testing, re-tensioning and de-stressing of ground anchors</b>				
14 Testing subsequent to initial acceptability testing, re-tensioning and de-stressing of ground anchors	No			

## LATERAL SUPPORT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>10 Rock bolts and rock dowels</b>				
15 Rock bolts, expanding rock bolts, rock dowels and soil nails	No	10 Descriptions shall include nuts, washers, thrust plates and grouting	3 Drilling	
<b>11 Soldiers, boarding, shotcreting, etc</b>				
16 Soldiers, boarding, shotcreting, fabric reinforcement, etc		11 Shall be given in appropriate items in accordance with clause 12 "Planking and strutting" or the principles laid down in the relevant trades		
17 Concrete or mortar packing behind soldiers	m	12 The minimum thickness shall be stated	4 Formwork	
18 Thrust blocks	No			

## PLANKING, STRUTTING AND SHORING

<b>12 Planking and strutting</b>				
19 Planking and strutting		13 Planking and strutting required to be left in shall be given separately	5 Wedges, nails, screws, etc	
20 Timber planking, precast concrete planking and metal or other sheeting	m <sup>2</sup>			
21 Timber strutting	m <sup>3</sup>			
22 Gum poles, logs and the like	m	14 The minimum diameter shall be stated		
23 Tubular and solid section steel strutting	t	15 Descriptions shall include bolting and welding		
24 Bolts and clamps	t	16 Alternatively bolts and clamps may be included with the relevant items		

## LATERAL SUPPORT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>13 Shoring units</b>				
25 Shoring units	No	17 Descriptions shall include sole pieces, wall plates, etc 18 The cubic metre content per unit if in timber and the tonnage per unit if in steel shall be stated		
26 Re-use of shoring units	No			
27 Timber cross bracing between shoring units	m <sup>3</sup>			
28 Steel cross bracing between shoring units	t			

## LATERAL SUPPORT PILING

<b>14 Lateral support piling</b>				
29 Lateral support piling		19 Shall be given in accordance with the principles laid down in "Piling"		

# PILING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>1 Site conditions</b>				
		1 The nature of the site with regard to contours, water tables, high and low water levels, strata through which piles will have to pass, etc shall be described		
<b>2 Nature of the work</b>				
		2 The nature of the work, any limitations on the methods to be used and special conditions such as piles sunk from basement level and from any level other than ground level shall be described 3 Trial piles, raking piles and piles in contact with one another shall be given separately	1 Staging, tubing, framing, rigs, jetting, etc	
<b>3 Establishment</b>				
1 Establishment of plant etc on the site	Item			
2 Subsequent establishments of plant etc for testing	Item			
<b>4 Setting up</b>				
3 Setting up plant at each pile position, other than sheet piling	No		2 Setting up plant for sheet piling	
<b>5 Reinforcement</b>				
4 Reinforcement		4 Shall be given in accordance with the principles laid down in "Concrete, Formwork and Reinforcement"		
<b>6 Exposing piles for inspection</b>				
5 Exposing piles for inspection	No	5 Descriptions shall include excavation and backfilling	3 Risk of collapse of excavations and keeping excavations free of water	

## PILING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7 Cutting off etc</b>				
6 Cutting off piles	No			
7 Cutting off sheet piling	m			
8 Stripping back heads of concrete piles to expose reinforcement	No			
<b>8 Testing</b>				
9 Testing of piles	No			

## PREFABRICATED PILING

<b>9 Precast concrete piles</b>				
10 Precast concrete piles	m	6 Measured for the designed length of pile before being driven 7 Reinforcement may be included in the descriptions or given separately	4 Moulds, joints, protection caps, rings, handling and pitching	
11 Rock shoes	No			
12 Driving	m	8 Separated into groups not exceeding 10m deep and thereafter in successive depths of 5m		
13 Dollying piles below ground level	No	9 Shall be grouped in successive stages of 1,5m total depths		
14 Concrete <i>in situ</i> in lengthening of piles	m <sup>3</sup>			
15 Formwork to concrete <i>in situ</i> lengthening of piles	m			
<b>10 Steel piles</b>				
16 Steel piles		10 Shall be given in accordance with the principles laid down in clause 9 "Precast concrete piles"	5 Joints, protection caps, rings, handling and pitching	

## PILING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>11 Sheet piling</b>				
17 Sheet piling	m <sup>2</sup>	11 Measured for the designed height of piling before being driven and along the length to be retained 12 Descriptions shall include shoes, laps and locking devices 13 Sheet piling required to be left in shall be given separately		
18 Driving	m <sup>2</sup>	14 Measured for the driven depth and along the length to be retained	6 Handling, pitching, protection caps and extracting	
19 Corner piles, junction piles and other special piles	m	15 Shall be given as extra over sheet piling		

### CONCRETE CAST *IN SITU* PILING

<b>12 Augered piles</b>				
20 Drilling	m	16 Separated into groups not exceeding 10m deep and thereafter in successive depths of 5m	7 Risk of collapse of excavations and keeping excavations free of water	
21 Under-reaming for enlarged feet	No	17 Shall be given as extra over drilling		
22 Work in material of a more difficult character	m <sup>3</sup>	18 Shall be suitably classified and given as extra over drilling and under-reaming		
23 Prescribed casing to prevent collapse of excavations or to exclude subterranean water	m			
24 Concrete	m	19 Measured through enlarged feet		
25 Additional concrete in enlarged feet	No			
26 Formwork to concrete above ground level	m			



Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>13 Driven, bored or similar tube piles</b>				
27 Driving or boring	m	20 Measured for the depth to which tubes are sunk and separated into groups not exceeding 10m deep and thereafter in successive depths of 5m	8 Risk of collapse of excavations and keeping excavations free of water 9 Extracting tubes	
28 Concrete	m	21 Measured from the top of the concrete to the depth to which tubes are sunk		
29 Expanded concrete bulbs at the bottom of piles	No			
<b>14 Disposal of excavated material</b>				
30 Disposal of excavated material		22 Shall be given in accordance with the principles laid down in "Earthworks"		

## CONCRETE, FORMWORK AND REINFORCEMENT

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>CONCRETE</b>				
<b>1 Classification etc</b>				
		1 Classified according to compressive strength or mix 2 Descriptions shall not include formwork or reinforcement unless otherwise stated		
<b>2 Concrete components</b>				
1 Surface blindings, surface beds, surface beds cast in panels, footings, bases, underpinning, slabs inclusive of beams and inverted beams, isolated beams, lintels, stairs inclusive of landings and beams, walls, columns, hollow block slabs, coffered slabs, troughed slabs, etc	m <sup>3</sup>	3 Components cast against excavated surfaces shall be given separately 4 Components to be post-tensioned shall be given separately 5 Components cast in sliding/climbing formwork shall be given separately 6 No deductions shall be made for voids not exceeding 0,1m <sup>3</sup> 7 No deductions shall be made for longitudinal pipes not exceeding 200mm external diameter, reinforcement, conduit, etc 8 Concrete in projections such as nibs, fins, strings, cornices and kerbs shall be included with the relevant components	1 Filling to irregularities where cast against excavated surfaces 2 Formwork in forming panels in surface beds 3 Shaped tops 4 Striking off and curing	
2 Gradings	m <sup>2</sup>		5 Working to falls and currents	
<b>3 Hollow blocks, spacing tiles and prefabricated beams</b>				
3 Hollow blocks	No		6 Closed ends	
4 Spacing tiles to soffits of solid sections	m <sup>2</sup>			
5 Spacing tiles to soffits of ribs	m			
6 Prefabricated beams	m	9 Classified in lengths not exceeding 5m and thereafter in stages of 2,5m 10 Reinforcement shall be included in the descriptions 11 Alternatively the working load shall be stated		

## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>4 Shotcrete</b>				
7 Shotcrete	m <sup>2</sup>	12 Descriptions may include formwork where expedient		
8 Additional shotcrete in thickening	m <sup>3</sup>			
<b>5 Prescribed curing compounds</b>				
9 Prescribed curing compounds	m <sup>2</sup>	13 No distinction shall be made for different concrete components		1 Curing treatment of the finished face of concrete other than striking off and curing
<b>6 Surface treatment</b>				
10 Surface treatment such as wood float, steel trowel, power float, evenly ribbed non-slip surface, sandblasting, bush-hammering, etc	m <sup>2</sup>			2 Surface treatment of the finished face of concrete other than striking off and curing
<b>7 Grooves, channels, mortices, etc</b>				
11 Grooves, channels and the like in tops of concrete	m		7 Angles, ends, etc	
12 Mortices and sinkings	No			
<b>8 Bedding under base plates etc</b>				
13 Non-shrink mortar or similar grouting under base plates etc	No		8 Formwork, chamfered edges, etc	
<b>9 Test blocks and testing</b>				
14 Test blocks and testing	No			

# CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>FORMWORK</b>				
<b>10 Formwork to components</b>				
<p>15 Walls, columns, beams, isolated beams, wall beams, slabs, hoods, stairs, shell construction, etc</p>	m <sup>2</sup>	<p>14 Formwork shall be measured to net surfaces of concrete to be supported, unless otherwise stated</p> <p>15 Formwork to components to be post-tensioned shall be given separately</p> <p>16 Sliding/climbing formwork shall be given separately</p> <p>17 Formwork to walls, columns and beams cast against excavated or existing surfaces shall be given separately</p> <p>18 Formwork to sides of inverted components shall be given separately</p> <p>19 Formwork to sloping components shall be given separately</p> <p>20 Formwork to circular, spherical and flowing components shall be given separately, distinction being made for work exceeding and not exceeding 1m radius</p> <p>21 No deductions shall be made for openings not exceeding 3m<sup>2</sup></p> <p>22 No deductions shall be made for intersections of ends of beams with beams, columns, walls, etc</p> <p>23 No deductions shall be made for intersections of tops of columns with slabs, beams, column caps, etc</p> <p>24 Formwork to render a prescribed finish to the concrete shall be given separately for the different components</p> <p>25 Alternatively formwork to render a prescribed finish to the concrete surfaces may be given as extra over rough formwork for the different components</p> <p>26 Formwork required to be left in and permanent formwork shall be given separately</p>	<p>9 Intersections, holes for rods, bolts, pipes and the like, propping, maintaining and removing</p> <p>10 Formwork required to support concrete at non-prescribed temporary breaks</p>	

## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>11 Additional requirements for formwork to walls</b>				
16 Walls other than inner face of shaft walls, outer face of walls flush with the perimeter of the concrete structure and sliding/climbing formwork	m <sup>2</sup>	27 Shall be separated into groups for walls not exceeding 3,5m in height above bearing level and thereafter for total heights above bearing level in successive stages of 1,5m 28 Stair walls stepped over treads and risers of stairs shall be given separately		
17 Inner face of shaft walls	m <sup>2</sup>	29 Size of shaft on plan shall be stated in the description 30 Total wall heights shall be stated in successive stages of 5m		
18 Outer face of walls flush with the perimeter of the concrete structure	m <sup>2</sup>	31 Total wall heights shall be stated in successive stages of 5m		
19 Sliding/climbing formwork to shaft walls	m <sup>2</sup>	32 Size of shaft on plan shall be stated in the description 33 Total wall heights shall be stated in successive stages of 5m 34 No deduction shall be made for openings		
<b>12 Additional requirements for formwork to columns</b>				
20 Columns other than circular and partly circular columns	m <sup>2</sup>	35 Formwork to columns of different shapes shall be given separately 36 Formwork to columns shall be separated into groups for columns not exceeding 3,5m in height above bearing level and thereafter for total heights above bearing level in successive stages of 1,5m 37 Formwork to columns projecting beyond the perimeter of the concrete structure shall be given separately stating the projection		
21 Circular and partly circular columns	No	38 Descriptions may include caps and bases 39 Formwork to circular and partly circular columns projecting beyond the perimeter of the concrete structure shall be given separately stating the projection		
22 Column caps and bases	No			

## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>13 Additional requirements for formwork to slabs, beams and stairs</b>				
23 Soffits of solid slabs and hoods, sides and soffits of beams and isolated beams and soffits of stairs and landings	m <sup>2</sup>	40 Formwork to soffits of solid slabs and hoods exceeding 250mm thick shall be given separately in stages of 250mm. No cognisance shall be taken of the additional thickness caused by inverted beams 41 Formwork to soffits shall be separated into groups propped to a height not exceeding 1,5m, exceeding 1,5m and not exceeding 3,5m and thereafter in stages of 1,5m 42 Formwork to soffits of sloping components shall be likewise categorised 43 No separation of height shall be made for formwork to soffits of stairs and landings 44 Formwork propped off sloping or stepped surfaces shall be given separately 45 Formwork to sides and soffits of isolated beams propped off isolated beams below, shall be given separately		
24 Soffits of composite hollow block slabs	m <sup>2</sup>	46 Measurement rules 41, 42 and 44 above apply 47 Shall be measured over the flush surfaces of adjacent solid concrete		
25 Soffits of coffered slabs	m <sup>2</sup>	48 Measurement rules 41, 42 and 44 above apply 49 Shall be measured to the full extent of the coffered area, the widths and centres of the ribs being stated		
26 Coffers	No			
27 Soffits of adjacent flush surfaces of coffered slabs	m <sup>2</sup>	50 Measurement rules 40, 41, 42 and 44 above apply		
28 Soffits of troughed slabs	m <sup>2</sup>	51 Measurement rules 41, 42 and 44 above apply 52 Shall be measured to the full extent of the troughed area, the widths and centres of the ribs being stated		
29 Troughs	m		11 Closed ends	

## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>13 Additional requirements for formwork to slabs, beams and stairs (continued)</b>				
30 Soffits of adjacent flush surfaces of troughed slabs	m <sup>2</sup>	53 Measurement rules 40, 41, 42 and 44 above apply		
31 Troughs of composite prefabricated beam and trough slabs	m		12 Closed ends	
32 Bearers supporting prefabricated beams of composite prefabricated beam and trough slabs	m	54 Shall be separated into groups propped to heights not exceeding 3,5m and thereafter in stages of 1,5m		
33 Soffits of adjacent flush surfaces of composite prefabricated beam and trough slabs	m <sup>2</sup>	55 Measurement rules 40, 41, 42 and 44 above apply		
<b>14 Edges, risers, ends and reveals</b>				
34 Edges, risers, ends and reveals exceeding 300mm high or wide	m <sup>2</sup>	56 Shall be given together in one item 57 Edges to concrete to be post-tensioned shall be given separately		3 Includes edges of openings where openings exceed 2m girth
35 Edges, risers, ends and reveals not exceeding 300mm high or wide	m	58 Reveals of openings in sliding/climbing formwork shall be given separately		
<b>15 Projections, grooves, etc</b>				
36 Projections, chamfers, splayed edges, grooves, rebates, etc	m	59 Distinction shall be made for the positions of projections, chamfers, etc relative to the component 60 The formwork to the general surfaces shall be measured past the projections, grooves, etc as if they do not exist	13 Stops, angles, etc	
37 Raised panels, pedestals, sinkings, etc	No	61 Where applicable the formwork to the general surfaces shall be measured past the raised panels, pedestals, etc as if they do not exist		
<b>16 Openings</b>				
38 Openings not exceeding 2m girth	No	62 Shall be grouped in stages of 1m girth		

## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>17</b> <b>Movement joints etc</b>				
39 Movement joints and prescribed construction joints exceeding 300mm high or wide	m <sup>2</sup>	63 Descriptions shall include joint forming material	14 Formwork	
40 Movement joints and prescribed construction joints not exceeding 300mm high or wide, rebated movement joints and joggle construction joints	m			

### REINFORCEMENT

<b>18</b> <b>General</b>		<p>64 Reinforcement shall be classified according to quality</p> <p>65 No separation of reinforcement shall be made for different concrete components</p> <p>66 Indented or other deformed reinforcement shall be given separately</p> <p>67 Curved reinforcement and helical reinforcement shall be given separately</p> <p>68 Reinforcement in sliding/climbing formwork shall be given separately</p> <p>69 Reinforcement to be galvanised or otherwise treated shall be given separately</p> <p>70 Reinforcement shall be measured to the designed lengths</p> <p>71 Calculation of masses shall be based on the values shown in the relevant Structural Steel Tables issued by the South African Institute of Steel Construction</p> <p>72 No allowance in the mass shall be made for rolling margin</p>	15 Bending, hooked ends and binding wire, cover blocks and spacers in accordance with the relevant SABS codes of practice and maintaining in position during concreting	
<b>19</b> <b>Reinforcement</b>				
41 Bar reinforcement	t	<p>73 Different diameters shall be given separately</p> <p>74 Bars in lengths exceeding 13m and not exceeding 18m shall be given separately and thereafter in stages of 1m</p> <p>75 Stools manufactured from round bar shall be included in the mass of the reinforcement</p>		



## CONCRETE, FORMWORK AND REINFORCEMENT *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>19 Reinforcement (continued)</b>				
42 Welded high chairs	t			
43 Mechanical splices and couplers	No		16 Preparation of bars	
44 Rails, angles and other rolled steel sections	t	76 Shall be given in accordance with the principles laid down in "Structural Steelwork"		
45 Twisted plate reinforcement	m			
46 Fabric reinforcement	m <sup>2</sup>	77 Fabric reinforcement in cages shall be given separately 78 No deductions shall be made for openings, wants, etc not exceeding 1m <sup>2</sup>	17 Bending to form cages	
<b>20 Pre-tensioned or post-tensioned reinforcement</b>				
47 General		79 The nature of the work and the general position and accessibility of stressing anchors shall be described 80 The work shall be given under headings stating the working load		
48 Pre-tensioned and post-tensioned tendon reinforcement	m	81 Tendon reinforcement shall be measured between anchor-ages and descriptions shall include sheathing, sleeves, threaded inlets and bleed pipes, supporting chairs, marking positions of cables and grouting or lubricating		
49 Prescribed couplers	No	82 Descriptions shall include corrosion protection and sleeves		
50 Looped anchors, fanned anchors, dead anchors, intermediate anchors and stressing anchors at ends	No	83 Descriptions shall include helical anchor reinforcement, recesses in concrete for anchors, holes through formwork for tendons, tensioning, retensioning, trimming ends of tendons, corrosion protection, filling in recesses and preparing prescribed tensioning records		
<b>21 Tests</b>				
51 Tests	No			

# PRECAST CONCRETE

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 General</b>				
		<ol style="list-style-type: none"> <li>1 Classified according to compressive strength or mix of the backing and type of facing or finish</li> <li>2 Work of similar design shall be suitably grouped under headings stating the general requirements</li> <li>3 Reinforcement may be included in the descriptions or given separately in accordance with the principles laid down in "Concrete, Formwork and Reinforcement"</li> <li>4 Bedding, jointing and pointing, finishing coats of sealer and the like and prescribed protective measures shall be included in the descriptions</li> <li>5 Metal cramps, dowels, brackets, bolts, etc and mortices and grouting shall be included in the descriptions of the relevant precast concrete components where expedient</li> <li>6 Alternatively metal cramps, dowels, brackets, bolts, etc and mortices and grouting may be given separately in number</li> </ol>	1 Moulds	
<b>2 Wall linings</b>				
1 Wall linings	m <sup>2</sup>	<ol style="list-style-type: none"> <li>7 Shall be separated into groups for slabs not exceeding 0,5m<sup>2</sup> on face and thereafter in successive stages of 0,5m<sup>2</sup></li> <li>8 Circular wall linings shall be given separately measured over the finished face and stating the radius</li> <li>9 No deduction shall be made for openings, wants, etc not exceeding 0,5m<sup>2</sup></li> </ol>		
2 Finished edges	m			
3 Circular cutting	m			

## PRECAST CONCRETE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Slab paving</b>				
4 Slab paving	m <sup>2</sup>	10 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
5 Finished edges	m			
6 Circular cutting	m			
<b>4 Copings, sills, etc</b>				
7 Copings, sills, strings, cornices, steps and the like	m	11 Circular work shall be given separately stating the mean radius, distinction being made between straight and curved lengths		
8 Special blocks forming fair ends, rounded ends, angles, intersections, etc	No	12 Shall be given as extra over		
<b>5 Sundry components</b>				
9 Sundry components such as plant boxes, bins, etc	No			
<b>6 Joint sealants, jointing strips, etc</b>				
10 Joint sealants, jointing strips, etc	m	13 Alternatively joint sealants, jointing strips, etc may be included in the descriptions of the relevant precast concrete where expedient		
<b>7 Holes, notches, etc</b>				
11 Holes, notches, etc	No			1 Formed after manufacturing of component

# MASONRY

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>MASONRY WORK</b>				
<b>1 Classification etc</b>				
		1 Classified according to material and quality of the masonry unit, the bond and the composition of the mortar 2 Separate items shall be given for different components such as underpinning, mass work, piers, projections, breasts, stacks, chimneys, walls and linings 3 Portions of walling between openings shall not be regarded as piers 4 Work threaded over vertical reinforcement shall be given separately 5 Circular work shall be given separately	1 Wedging, pinning, building solid against frames etc 2 Bedding of roof coverings, wall plates, base plates, etc 3 Ventilation flues through walls for air bricks etc 4 Building ends of rafters, joists, bars, pipes, bolts, etc into or through masonry work	
<b>2 Concrete filling</b>				
1 Concrete filling to hollow walls, blockwork, etc		6 Shall be given in accordance with the principles laid down in "Concrete, Formwork and Reinforcement" 7 Alternatively concrete filling may be included in the descriptions of the relevant items		
<b>BRICKWORK</b>				
<b>3 Mass brickwork and piers</b>				
2 Mass brickwork, irregular shaped piers and the like	m <sup>3</sup>	8 No deductions shall be made for voids not exceeding 0,1m <sup>3</sup>		
<b>4 Regular shaped piers</b>				
3 Rectangular, L-shaped, X-shaped piers and the like	m <sup>3</sup>	9 No deductions shall be made for voids not exceeding 0,1m <sup>3</sup> 10 Alternatively regular shaped piers may be given in metres		

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Walls and linings</b>				
4 Solid walls and linings	m <sup>2</sup>	11 Battered walls, ie walls of uniform thickness built to batter, shall be given separately stating the rate of batter 12 Brickwork with battered or oversailing face on one side shall be given separately, stating the average thickness and the rate of batter 13 Wall ties other than single wire type shall be included in the descriptions 14 No deductions shall be made for openings and recesses not exceeding 0,5m <sup>2</sup>	5 Temporary supports to oversailing faces 6 Single wire type wall ties 7 Hacking face or raking out joints of new brickwork for key for finishes	
5 Hollow walls	m <sup>2</sup>	15 The skins of hollow walls shall not be measured separately but the overall thickness and the thickness of the individual skins shall be stated 16 Wall ties other than single wire type shall be included in the descriptions 17 No deductions shall be made for openings and recesses not exceeding 0,5m <sup>2</sup>	8 Single wire type wall ties 9 Hacking face or raking out joints of new brickwork for key for finishes 10 Open perpend	
<b>6 Beamfilling</b>				
6 Beamfilling	m <sup>2</sup>			
<b>7 Vaulting</b>				
7 Vaulting	m <sup>2</sup>	18 Descriptions shall include centering		
<b>8 Brick lintels</b>				
8 Brick lintels	m <sup>2</sup>	19 Shall be given separately only when the type of brick and/or the composition of the mortar differs from the adjoining work		

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory Notes
<b>9 Forming toothings and bonding</b>				
9 Forming toothings and bonding new brickwork to existing	m <sup>2</sup>			
<b>10 Hacking face or raking out joints of existing brickwork for key</b>				
10 Hacking face or raking out joints of existing brickwork for key for finishes	m <sup>2</sup>			
<b>11 Building brickwork to a fair face</b>				
11 Building brickwork to a fair face	m <sup>2</sup>	20 Shall be given as extra over		
<b>12 Flues</b>				
12 Flues and finishing smooth thereof	m	21 Horizontal, vertical and raking flues shall be given separately		
<b>13 Splayed mortar fillets in cavities</b>				
13 Splayed mortar fillets in cavities of hollow walls	m		11 Mitres etc	
<b>14 Closing cavities</b>				
14 Brickwork in closing cavities of hollow walls	m	22 Horizontal, vertical and raking closing of cavities shall be given separately		
<b>15 Projections and cores</b>				
15 Pilasters, bands, oversailing courses, cores for mouldings and the like projecting beyond the face of the wall	m	23 Horizontal, vertical and raking projections shall be given separately	12 Angles, ends, etc	
16 Cores for shields, rosettes, etc	No			

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>16 Rough arches</b>				
17 Rough arches	No	24 Shall be described as extra for rough arch stating the shape, width of soffit, span and number of rings or depth 25 Descriptions shall include centres		
<b>17 Rough niches</b>				
18 Rough niches	No	26 Shall be measured only when not rectangular 27 Descriptions shall include closing of cavities in hollow walls, arches, shaped backs and heads, centres, etc		
<b>18 Joint forming material in movement joints</b>				
19 Joint forming material in movement joints	m <sup>2</sup>			
<b>19 Reinforcement to brickwork</b>				
20 Steel fabric and welded reinforcement	m		13 Building in	
21 Bar reinforcement	t	28 Different diameters shall be given separately		
<b>20 Fabricated lintels</b>				
22 Fabricated lintels	m	29 Shall be grouped in lengths not exceeding 3m and thereafter in stages of 1,5m	14 Propping	
<b>21 Turning pieces</b>				
23 Turning pieces to brick lintels etc	m		15 Propping	

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>FACE BRICKWORK</b>				
<b>22 General</b>				
		30 Distinction for circular work shall be made between work exceeding and not exceeding 2m radius		
<b>23 Face brickwork</b>				
24 Face brickwork	m <sup>2</sup>	31 Shall be given as extra over brickwork 32 Face brickwork to reveals and returns shall be measured to the net area exposed and shall be included with the general measurement of face brickwork 33 Face brickwork to piers and pilasters shall be given separately 34 Face brickwork to beamfilling shall be given separately 35 Face brickwork with battered or oversailing face shall be given separately, stating the rate of batter	16 Pointing exposed tops or soffits of battered and oversailing work	
<b>24 Walls faced both sides</b>				
25 Single skin brick walls faced both sides	m <sup>2</sup>			
26 Double skin brick walls faced both sides built in a bond that requires headers	m <sup>2</sup>			
<b>25 Cut face brick linings</b>				
27 Cut face brick linings to concrete etc	m <sup>2</sup>	36 Wall ties shall be included in the descriptions		
<b>26 Fair cutting to face brickwork</b>				
28 Fair raking, splay, circular and stepped cutting and fair cut squint quoins and birdsmouth angles	m	37 Alternatively fair cutting may be included with the items causing the cutting		
29 Fair cutting and fitting around pipes	No	38 Shall be grouped for pipes not exceeding 100mm external diameter and thereafter in stages of 100mm external diameter		



**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>26 Fair cutting to face brickwork (continued)</b>				
30 Fair cutting and fitting around joists, girders and the like	No	39 Shall be measured only when cutting to irregular profile is required. The shape and size of the joists, girders, etc shall be stated		
31 Forming toothings and bonding new face brickwork to existing	m			
<b>27 Special face bricks at angles</b>				
32 Special face bricks at squint quoins, birdsmouth angles, splayed or rounded angles and the like	m	40 Shall be given as extra over face brickwork	17 Angles, ends, etc	
<b>28 Face brick bands</b>				
33 Face brick bands	m	41 Shall be given as extra over brickwork 42 Horizontal, vertical and raking face brick bands shall be given separately 43 Descriptions shall include projecting or recessed courses	18 Angles, ends, etc	
<b>29 Face brick copings, lintels, sills, etc</b>				
34 Face brick copings, lintels, sills, etc	m	44 Horizontal and raking face brick copings etc shall be given separately	19 Angles, ends, etc	
<b>30 Face brick arches</b>				
35 Face brick arches	No	45 Shall be given as extra over brickwork 46 The shape, width of soffit, span and number of rings or depth, extent of pointing and whether formed of standard or special bricks, shall be stated 47 Descriptions shall include centres	20 Consequent cutting	

## MASONRY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>31 Face brick niches</b>				
36 Face brick niches	No	48 Shall be measured only when not rectangular 49 Shall be given as extra over brickwork 50 Descriptions shall include closing of cavities in hollow walls, arches, shaped backs and heads, centres, etc and whether formed of standard or special bricks	21 Consequent cutting	

## BLOCKWORK

<b>32 General</b>				
37 Blockwork		51 Shall be given in accordance with the foregoing principles with the following being applicable in addition 52 Descriptions shall include standard complementary blocks such as corner, three-quarter, half and quarter blocks prescribed for the construction of corners, reveals, ends of walls, etc and for bonding		
<b>33 Piers and pilasters</b>				
38 Piers and pilasters	m	53 Descriptions shall include corner blocks		
<b>34 Special blocks for copings, sills, lintels, etc</b>				
39 Special blocks for copings, sills, lintels, etc	m		22 Angles, ends, etc	

## MASONRY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>PAVING ETC</b>				
<b>35 Paving</b>				
40 Paving of bricks, concrete blocks, cement tiles, quarry tiles, etc	m <sup>2</sup>	54 The pattern shall be stated 55 Features differing from the pattern shall be given separately and descriptions shall include consequent cutting 56 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
41 Margins and borders	m		23 Fair edges, angles, ends, etc	
42 Circular cutting	m	57 Measured only when not included with the items causing the cutting		
43 Steps, kerbs, channels, etc	m		24 Angles, ends, etc	

## NATURAL STONEMWORK

### RUBBLE WALLING

<b>36 Mass and irregular rubble work</b>				
44 Mass and irregular rubble work	m <sup>3</sup>	58 No deductions shall be made for voids not exceeding 0,1m <sup>3</sup>		
<b>37 Walls and linings</b>				
45 Walls and linings	m <sup>2</sup>	59 No deductions shall be made for openings and recesses not exceeding 0,5m <sup>2</sup>		
<b>38 Beamfilling</b>				
46 Beamfilling	m <sup>2</sup>			

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>39 Facing and pointing</b>				
47 Facing and pointing		60 Facing and pointing shall be included in the descriptions of the relevant rubble work when practicable. When not practicable facing and pointing shall be given separately in square meters, no distinction being made for different components		
<b>40 Copings, sills, etc</b>				
48 Copings, sills, lintels, arches and the like which differ from the general work	m	61 Alternatively copings, sills, lintels, arches and the like which differ from the general work may be given in number	25 Angles, fair ends, etc	
<b>41 Pitched angles</b>				
49 Pitched angles	m	62 Descriptions shall state whether pitched from one or both faces		
<b>42 Trimming to receive plaster etc</b>				
50 Trimming to receive plaster etc	m <sup>2</sup>			
<b>43 Flues</b>				
51 Flues and finishing smooth thereof	m			
<b>44 Niches</b>				
52 Niches	No			
<b>45 Turning pieces and centres</b>				
53 Turning pieces to lintels etc	m		26 Propping	
54 Centres to arches	No			

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>STONEMWORK OF SLATE, MARBLE, GRANITE, ETC</b>				
<b>46 Classification etc</b>				
		63 Shall be classified according to the nature of the work such as ashlar walling, linings, paving, plinths, arches, etc 64 Circular work, circular sunk work, spherical work and spherical sunk work shall be given separately, the radius being stated 65 Labours shall be included in the descriptions of the relevant work when practicable. When not practicable labours shall be given separately 66 Descriptions shall state the type of dressing and distinction shall be made for sunk labours		
<b>47 Ashlar walling, linings and paving</b>				
55 Ashlar walling, linings and paving	m <sup>2</sup>	67 Shall be measured over the exposed surface and separated into groups for stones not exceeding 0,5m <sup>2</sup> on face and thereafter in successive stages of 0,5m <sup>2</sup> 68 No deductions shall be made for openings and recesses not exceeding 0,5m <sup>2</sup>		
56 Circular cutting	m			
<b>48 Margins, skirtings, cornices, etc</b>				
57 Margins, skirtings, cornices, copings, sills, kerbs, steps, etc	m	69 Shall be measured to the mean length		
58 Special stones in angles, returned ends, apexes, etc	No	70 Shall be given as extra over		
<b>49 Mouldings</b>				
59 Mouldings	m	71 Shall be measured to the mean length 72 Descriptions shall state the girth, width and projection		
60 Stopped ends, mitres, etc	No			

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>50 Columns, piers, etc</b>				
61 Columns, piers, lintels, etc and single stone sills, steps, thresholds, etc	No			
<b>51 Special features</b>				
62 Stones in arches, surrounds, etc and in features which differ in material or finish from the general work	No			
<b>52 Rough rebates, grooves, etc</b>				
63 Rough rebates, grooves, chases, joggle joints, etc	m		27 Stops, mitres, etc	
<b>53 Fair edges, angles, etc</b>				
64 Fair edges, rounded angles, chamfers, splays, rebates, flutes, throats, etc	m			
65 Stopped ends, mitres, etc	No			
<b>54 Holes, notches, etc</b>				
66 Holes, notches, etc	No			
<b>55 Cramps, dowels, etc</b>				
67 Metal cramps, dowels, ties, etc and mortices and grouting		73 Shall be included in the descriptions of the relevant stonework where expedient 74 Alternatively metal cramps, dowels, ties, etc may be given separately in number		
<b>56 Turning pieces and centres</b>				
68 Turning pieces to lintels etc	m		28 Propping	
69 Centres to arches	No			

**MASONRY** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>MISCELLANEOUS</b>				
<b>57 Bagging</b>				
70 Bagging walls	m <sup>2</sup>			
71 Bagging ceilings	m <sup>2</sup>			
<b>58 Quarry tiles, cement tiles, fibre-cement, etc</b>				
72 Sills, copings, etc of quarry tiles, cement tiles, fibre-cement and the like		75 May be given in this trade when appropriate in accordance with the foregoing principles		
<b>59 Ornamental blocks, glass blocks, etc</b>				
73 Decorative screen walling and grilles of ornamental blocks, glass blocks, etc		76 Shall be given in accordance with the foregoing principles		
<b>60 Hoop iron ties, cramps, etc</b>				
74 Hoop iron ties between concrete and masonry work, roof ties, cramps to frames, etc	No			
<b>61 Air bricks, etc</b>				
75 Air bricks, chimney pots, etc	No			
<b>62 Fireplaces</b>				
76 Fireplaces	No	77 Alternatively fireplaces may be given in detail in accordance with the foregoing principles		
<b>63 Special features</b>				
77 Circular columns, entasised columns, moulded panels, etc	No			

## WATERPROOFING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>DAMP PROOF COURSE</b>				
<b>1 General</b>				
1 Damp proof course	m <sup>2</sup>	1 No distinction shall be made for horizontal, vertical, in hollow walls, under sills, etc		

## WATERPROOFING

<b>2 Classification</b>				
		2 Shall be classified according to the nature of the work and be given under appropriate headings such as to underground structures, roofs, walls, facades, miscellaneous waterproofing, etc		

## SHEET OR MEMBRANE WATERPROOFING

<b>3 Sheet or membrane waterproofing</b>				
2 Waterproofing to floors, roofs, balconies, showers, inverted beams, box gutters, channels, ducts, walls, etc	m <sup>2</sup>	3 Waterproofing to floors and roofs shall be given in the following categories: 3.1 Flat – not exceeding 25 degrees from the horizontal 3.2 Sloping – exceeding 25 degrees from the horizontal stating the pitch 4 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup> 5 Waterproofing in turn-ups and turn-downs not exceeding 300mm girth shall be included in the general areas 6 Preparatory work, priming coats, adhesives, etc and paper, felt, plastic and other underlays shall be included in the descriptions 7 Work to circular surfaces shall be given separately, distinction being made between circular and spherical work	1 Dressing generally 2 Dressing into channels	1 Overlapping of turn-ups and turn-downs with waterproofing to vertical surfaces shall not be regarded as laps
3 Waterproofing in turn-ups and turn-downs exceeding 300mm girth	m <sup>2</sup>			



## WATERPROOFING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Sheet or membrane waterproofing (continued)</b>				
4 Additional membranes, fillets and sealing at turn-ups and turn-downs	m		3 Angles etc	
5 Dressing around pipes, handrails, into outlets, etc	No	8 Shall be suitably grouped 9 Descriptions shall include additional membranes, gussets, collars, etc		
6 Waterproofing to sumps, catchpits, etc	No			
<b>4 Protection</b>				
7 Paint, crushed stone layer, tiling, etc	m <sup>2</sup>			
<b>5 Flashing strips</b>				
8 Flashing strips	m		4 Angles etc	

## TROWELLED-ON WATERPROOFING

<b>6 Trowelled-on waterproofing</b>				
9 Waterproofing to floors, roofs, balconies, showers, inverted beams, box gutters, channels, ducts, walls, thresholds, etc	m <sup>2</sup>	10 Shall be given in accordance with the foregoing principles with the following being applicable in addition: 10.1 Distinction shall be made between work to circular and spherical surfaces exceeding and not exceeding 300mm radius	5 Labours such as fair, rounded and chamfered edges, trowel cuts, arrises, rounded external angles, etc	
10 Waterproofing in turn-ups and turn-downs	m	11 The average height shall be stated 12 Fillets shall be included in the descriptions	6 Angles etc	

## WATERPROOFING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>LIQUID WATERPROOFING</b>				
<b>7 Liquid waterproofing</b>				
11 Liquid waterproofing brushed or sprayed on	m <sup>2</sup>	13 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
<b>8 Membrane reinforced liquid waterproofing</b>				
12 Membrane reinforced liquid waterproofing brushed or sprayed on	m <sup>2</sup>	14 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
13 Dressing around pipes, handrails, into outlets, etc	No	15 Descriptions shall include additional membranes, gussets, collars, etc		
<b>WATERSTOPS, SEALING STRIPS, JOINT SEALANTS, ETC</b>				
<b>9 Waterstops, sealing strips, etc</b>				
14 Waterstops	m		7 Joints	2 Rubber and other proprietary waterstops in expansion joints etc
15 Angles and intersections to waterstops	No			
16 Sealing strips etc	m		8 Joints, angles, intersections, etc	3 Polyolefin and other proprietary sealing tape over expansion joints etc
<b>10 Joint sealants</b>				
17 Joint sealants	m	16 Sealants to joints in top surfaces, vertical surfaces and soffits shall be given separately		4 Resilient sealants to expansion joints etc
<b>11 Waterproofing additives</b>				
18 Waterproofing additives to concrete, plaster and the like		17 Shall be included in the appropriate items in the relevant trades		

## ROOF COVERINGS, CLADDINGS, ETC

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>SLATES, TILES AND SHINGLES</b>				
<b>1 General</b>				
1 Roof coverings and side and soffit claddings	m <sup>2</sup>	1 Shall be given in the following categories: 1.1 Roof coverings with pitches not exceeding 25 degrees 1.2 Roof coverings with pitches exceeding 25 degrees stating the pitch 1.3 Side claddings 1.4 Soffit claddings 1.5 Roof coverings and side and soffit claddings to dormers, turrets, etc 2 Circular, spherical and conical work shall each be given separately stating the radius 3 No deductions shall be made for openings, wants etc not exceeding 0,5m <sup>2</sup> 4 Battens, underlays and fixing accessories shall be included in the descriptions 5 Alternatively battens may be given in "Carpentry and Joinery"	1 One-and-a-half width slates, tiles or shingles at verges 2 Holes for fixing and notches	
<b>2 Circular cutting</b>				
2 Circular cutting	m			
<b>3 Eaves and verges</b>				
3 Undercloak course and any bedding and pointing	m			
4 Double eaves course	m	6 Shall be given as extra over and descriptions shall include fixing clips and tilting fillets		
5 Verge capping tiles	m			
<b>4 Ridges, hips, closed valleys and vertical angles</b>				
6 Ridges, hips, closed valleys and vertical angles	m	7 Descriptions shall include soakers and additional battens	3 Ends, intersections, etc	

**ROOF COVERINGS, CLADDINGS, ETC** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Purpose made tiles</b>				
7 Purpose made tiles to ends and to intersections between ridges and hips, ventilation tiles, etc	No	8 Shall be given as extra over		
<b>6 Insulation</b>				
8 Insulation	m <sup>2</sup>	9 Descriptions shall include supporting wires and fixing accessories		

**THATCH**

<b>7 General</b>				
9 Roof coverings and side and soffit claddings	m <sup>2</sup>	10 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup> 11 Distinction shall be made between general roof slopes and dormers, turrets, etc 12 Thatch incorporating a spread layer to exposed soffit shall be given separately 13 Battens, fixing rods, binding twine, fire retardant underlays or interlays and fireproofing treatment shall be included in the descriptions	4 Dressing to hips, valleys, eaves, verges and top edges	
<b>8 Ridges and apex caps</b>				
10 Ridges	m		5 Ends, intersections, etc	
11 Apex caps	No			
<b>9 Ornamental bands and runners</b>				
12 Ornamental bands and runners	m		6 Ends, intersections, etc	
<b>10 Prefabricated ridges, hips, ends, intersections, etc</b>				
13 Ridges and hips	m			
14 Ends, intersections, etc	No	14 Shall be given as extra over		

## ROOF COVERINGS, CLADDINGS, ETC *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>PROFILED SHEETING OF METAL, FIBRE-CEMENT, PLASTIC, ETC</b>				
<b>11 General</b>				
15 Roof coverings and side and soffit claddings	m <sup>2</sup>	15 Shall be measured net on the undeveloped surface area and shall be given in the following categories: 15.1 Roof coverings with pitches not exceeding 25 degrees 15.2 Roof coverings with pitches exceeding 25 degrees stating the pitch 15.3 Side claddings 15.4 Soffit claddings 15.5 Roof coverings and side and soffit claddings to dormers, turrets, etc 16 Roof coverings in single sheets exceeding 13m shall be given separately 17 Circular work shall be given separately stating the radius 18 No deductions shall be made for openings, wants etc not exceeding 0,5m <sup>2</sup> 19 Fixing accessories, sealing strips to laps and seam stitching shall be included in the descriptions	7 Holes for fixing and notches 8 Forming drips and turn-ups to troughs of metal roof covering	
<b>12 Circular cutting</b>				
16 Circular cutting	m			
<b>13 Cranks, bullnoses and curved turn-ups</b>				
17 Cranks, bullnoses and curved turn-ups	m	20 Shall be given as extra over stating the angle and, where appropriate, the radius		
<b>14 Rolled edges at verges</b>				
18 Rolled edges at verges	m			

**ROOF COVERINGS, CLADDINGS, ETC** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>15 Accessories</b>				
19 Accessories such as closers, ridge and hip coverings, flashings, etc	m		9 Holes for fixing, notches, ends, angles and intersections	
20 End caps, finials, etc	No			
<b>16 Special sheets</b>				
21 Ventilator sheets, sheets with flanges for pipes, etc	No	21 Shall be given as extra over the sheeting in which they occur		
22 Panels of translucent sheeting and isolated translucent sheets	m <sup>2</sup>	22 Shall be given as extra over the sheeting in which they occur 23 Alternatively panels and sheets may be given in number as extra over		
<b>17 Roof ventilators and rooflights</b>				
23 Roof ventilators and rooflights	No	24 Alternatively ventilators and rooflights may be given in metres in which case ends, corners, etc shall be given in number as extra over		
<b>18 Insulation</b>				
24 Insulation	m <sup>2</sup>	25 Descriptions shall include supporting wires and fixing accessories		

**ROOF COVERINGS, CLADDINGS, ETC** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>FLAT SHEET METAL</b>				
<b>19 General</b>				
25 Roof coverings and side and soffit claddings	m <sup>2</sup>	26 Shall be given in the following categories: 26.1 Roof coverings with pitches not exceeding 25 degrees 26.2 Roof coverings with pitches exceeding 25 degrees stating the pitch 26.3 Side claddings 26.4 Soffit claddings 26.5 Roof coverings and side and soffit claddings to dormers, turrets, etc 27 Circular, spherical and conical work shall be given separately stating the radius 28 Turn-ups and turn-downs shall be added to the general areas 29 No deductions shall be made for openings, wants etc not exceeding 0,5m <sup>2</sup> 30 Laps, seams, welts, clips, tacks, soldered dots, riveting, soldering, brazing, burning and nailing shall be included in the descriptions stating the extent of the laps and the type of seam, welt, etc	10 Angles, bending, dressing, bossing, wedging, holes for fixing and notches	
<b>20 Circular cutting</b>				
26 Circular cutting	m			
<b>21 End caps, finials, etc</b>				
27 End caps, finials, etc	No			

**ROOF COVERINGS, CLADDINGS, ETC** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>SHEET METAL FLASHINGS, LININGS, COPINGS, ETC</b>				
<b>22 General</b>				
		31 Laps, seams, welts, clips, tacks, soldered dots, riveting, soldering, brazing, burning and nailing shall be included in the descriptions stating the extent of the laps and the type of seam, welt, etc 32 The radius of circular work shall be stated	11 Angles, bending, dressing, bossing, wedging, holes for fixing and notches	
28 Circular cutting	m	33 Alternatively circular cutting may be included in the descriptions		
<b>23 Flashings</b>				
29 Flashings	m <sup>2</sup>	34 Alternatively flashings may be given in metres 35 Stepped cover flashings to roof pitches exceeding 25 degrees shall be given separately stating the pitch 36 Alternatively flashings may be included with the relevant items of roof coverings and side claddings	12 Ends, angles and intersections	
30 Flashings around pipes through roof coverings etc	No	37 Shall be grouped for pipes not exceeding 100mm external diameter and thereafter in stages of 100mm		
<b>24 Linings, copings, etc</b>				
31 Linings to valleys and gutters, copings and the like	m <sup>2</sup>	38 Alternatively linings etc may be given in metres	13 Ends, angles and intersections	



# CARPENTRY AND JOINERY

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>1 Classification etc</b>				
1 Timber		1 Shall be classified according to species and quality 2 Any required pre-treatment such as kiln drying and impregnation and any required pre-selection shall be stated 3 Sawn and wrought timbers shall be given separately stating the finished size 4 Timber described as wrought shall be deemed to be wrought on all faces 5 Wrought faces on sawn timbers shall be included in the descriptions of linear items but may be given in square metres where expedient 6 Circular work shall be given separately stating the radius and where necessary, stating which faces are circular		
2 Protective surface treatment such as creosote	m <sup>2</sup>			
<b>2 Labours</b>				
3 Circular cutting, rounded angles, rebates, grooves, chamfers, moulded edges, etc	m	7 Labours shall be included in the descriptions of timber which is given linear	1 Mitres, intersections, splay cut ends, stops, etc	
4 Rounded corners, scribed ends, shaped ends, etc	No			
<b>3 Fixing</b>				
5 Fixing timberwork		8 The method of fixing shall be stated 9 Holes and tapping of metalwork for the fixing of timber may be included in the descriptions of the relevant timberwork or included with the relevant metalwork 10 Descriptions shall include pelleting	2 Nails, screws, plugs, adhesives, holes, sinking, etc	

## CARPENTRY AND JOINERY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>STRUCTURAL TIMBERWORK ETC</b>				
<b>4 Structural timbers</b>				
6 Structural timbers	m	11 Shall be measured to net lengths as fixed 12 Structural timbers, other than laminated timbers, required to be in single lengths, shall be given in the following categories: 12.1 Lengths not exceeding 2,4m 12.2 Lengths exceeding 2,4m and not exceeding 3,9m 12.3 Lengths exceeding 3,9m and not exceeding 6,6m 12.4 Lengths exceeding 6,6m 13 Laminated timbers required to be in single lengths exceeding 13m and not exceeding 18m shall be given separately and thereafter in stages of 1m 14 Members of roof trusses may be grouped together but wall plates, bearers, bracing, purlins, battens, fillets, trimmers, floor and ceiling joists and the like shall be given separately	3 Joints in the length 4 Holes, splay cut ends and mitres	
7 Wrought ends and wrought and shaped ends of sawn timber	No			
8 Fasteners, clips and connectors such as split rings and toothed rings	No		5 Grooves for split rings	
9 Shaped laminated timbers such as portal frames, arches, etc	No			
<b>5 Plate nailed timber roof truss construction</b>				
10 Plate nailed timber roof trusses	No		6 Splay cut ends, mitres, jointing, wrought and shaped ends, connections, bolts, cleats, gussets and timber connectors	
11 Valleys and hips	Sets			

## CARPENTRY AND JOINERY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Plate nailed timber roof truss construction (continued)</b>				
12 Wall plates, bracing, purlins, battens, etc		15 Shall be given in accordance with clause 4 "Structural timbers"		
13 Alternative		16 Alternatively plate nailed timber roof truss construction may be given as an item in which case descriptions shall include wall plates, bracing, purlins, battens, etc		
<b>6 Roof boarding</b>				
14 Roof and weather boarding, boarding to tank stands, gutter boarding and the like	m <sup>2</sup>	17 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	7 Notches and holes	
15 Nosings and edge strips	m		8 Mitres and intersections	
16 Trapdoors	No	18 Shall be given as extra over and descriptions shall include trimmers, margins, cover strips, etc		
<b>7 Eaves and verges</b>				
17 Eaves soffit covering		19 Shall be given in accordance with the principles laid down in "Ceilings, Partitions and Access Flooring"		
18 Fascias, barge boards, etc	m	20 Jointing strips shall be included in the descriptions	9 Mitres and intersections	

## FLOORS

<b>8 Floors</b>				
19 Boarding	m <sup>2</sup>	21 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	10 Notches and holes	
20 Boarding on concrete floors	m <sup>2</sup>			
21 Battens for boarding on concrete floors	m	22 Fixing accessories such as clips, wire ties, anchors, etc and saw-cuts in battens for same shall be included in the descriptions		
22 Skirtings	m	23 Skirtings stepped over treads and risers of stairs shall be given separately		

## CARPENTRY AND JOINERY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>TIMBER DOORS, WINDOWS, ETC</b>				
<b>9 Doors, windows, sashes, etc</b>				
23 Doors, windows, sashes, fanlights, fly screens and shutters	No	24 Descriptions shall include weatherboards, glazing beads, fixing beads, edge strips, etc 25 Descriptions of cased frames with sashes shall include pulleys, cords, counter weights and spring balances		
<b>10 Frames etc</b>				
24 Frames, mullions, transoms, posts, linings, architraves, cover strips, beads, etc	m	26 Framed work shall be given separately 27 Alternatively frames for doors and windows may be given in number 28 Descriptions shall include rounded angles, rebates, grooves, chamfers, moulded edges, etc	11 Mitres and intersections	
<b>SUNDRY JOINERY</b>				
<b>11 Rails etc</b>				
25 Dado rails, picture rails, etc	m		12 Mitres and intersections	
<b>12 Shelves and fittings</b>				
26 Shelves, divisions, sides, tops and the like	m <sup>2</sup>	29 Solid timber exceeding 300mm wide shall be given separately 30 No deductions shall be made for openings, wants, etc not exceeding 0,1m <sup>2</sup> 31 Descriptions shall include edge strips applied during manufacture	13 Housing, notches and holes	
27 Edge strips and veneered or thermosetting plastic edges applied after manufacture	m		14 Mitres and intersections	
28 Thermosetting plastic laminate boards with formed edges	No			

## CARPENTRY AND JOINERY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>12 Shelves and fittings (continued)</b>				
29 Standards, rails, cover strips, beads, skirtings, etc to fittings	m	32 Framed work shall be given separately	15 Mitres and intersections	
30 Fittings		33 Shall be measured in detail under headings and given in accordance with the foregoing principles and when of similar design shall be suitably grouped stating the general requirements and the number 34 Alternatively fittings may be given in number		
31 Doors, drawers, cash bowls and the like	No	35 Timber guides and runners shall be included in the descriptions of the drawers		
32 Notice boards, keyboards, blackboards, duckboards, etc	No	36 Alternatively notice boards, keyboards, blackboards, duckboards, etc may be measured in detail and given in accordance with the foregoing principles		
<b>13 Stairs</b>				
33 General		37 Stairs of similar design shall be suitably grouped under headings stating the general requirements		
34 Flooring to landings	m <sup>2</sup>			
35 Treads and risers	m	38 Descriptions shall include blocking pieces		
36 Brackets, housed ends, returned ends, rounded ends, quadrant ends, curtail ends, etc	No			
37 Winders	No			
38 Bearers, stringers, apron linings, cappings, handrails, etc	m	39 Wreathed work shall be so described 40 Continuous handrails shall be so described and descriptions shall include heading joints	16 Mitres and intersections	
39 Bends, ramps, knees, wreaths, scrolled ends, etc	No	41 Shall be given as extra over		
40 Balusters and newels	No	42 Descriptions shall include framing and housing 43 Balusters and newels framed or housed on rake shall be given separately		

## CARPENTRY AND JOINERY *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>14 Panelling</b>				
41 Panelling	m <sup>2</sup>	44 Descriptions shall state whether panels are to be matched 45 Framed panelling shall be suitably grouped for panels of different widths and descriptions shall state the height and the number of panels to the height and shall include fixing beads etc 46 Spandrel panelling shall be given separately 47 No deductions shall be made for openings, wants, etc not exceeding 0,1m <sup>2</sup> 48 No allowance shall be made in the measurement of boarded panelling for laps and tongues and net widths of boards shall be stated	17 Notches and holes	
42 Acoustic and vermin-proof linings, fabric backings, etc	m <sup>2</sup>	49 Alternatively acoustic and vermin-proof linings, fabric backings, etc may be included in the descriptions of the panelling		
43 Grounds	m	50 Alternatively grounds may be included in the descriptions of the panelling	18 Mitres and intersections	
44 Skirtings, plinths, cappings, bolection moulds, cover strips, beads, edge strips and surrounds	m			
45 Posts, pilasters, pediments, canopies, etc	No			

### PROCESSED MATERIALS

<b>15 Plastic, fibre-cement, etc</b>				
46 Plastic, fibre-cement, etc		51 Plastic, fibre-cement and other processed materials shall be given in accordance with the foregoing principles		

## CEILINGS, PARTITIONS AND ACCESS FLOORING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>CEILINGS</b>				
<b>1 General</b>				
		<ol style="list-style-type: none"> <li>1 Ceilings shall be given under headings separating nailed-up and suspended ceilings, distinction being made between horizontal, sloping and vertical ceilings</li> <li>2 No deductions shall be made for openings, wants, etc not exceeding 0,5m<sup>2</sup></li> <li>3 Brandering shall be included in the descriptions of nailed-up ceilings. When brandering is not to a regular pattern it shall be given separately in metres</li> <li>4 Circular work shall be given separately stating the mean radius</li> <li>5 Proprietary support systems for suspended ceilings shall be included in the descriptions of the ceilings               <ol style="list-style-type: none"> <li>5.1 When the support system is not to a regular pattern it shall be given separately, in which case brandering or bearers shall be given in metres and hangers in number</li> <li>5.2 A general description of the supporting structure from which ceilings are suspended shall be given</li> <li>5.3 Separate items shall be given for ceilings etc suspended not exceeding 1m below suspension level and thereafter in successive stages of 1m</li> </ol> </li> <li>6 Cover strips, jointing strips, etc shall be included in the descriptions</li> <li>7 Plastering shall be included in the descriptions</li> </ol>	1 Notches and holes	
1 Ceilings	m <sup>2</sup>			
2 Circular cutting	m			
3 Flush margins and borders not exceeding 1,2m wide of material differing from the general ceiling material	m	8	Shall be given in successive widths of 300mm	

## CEILING, PARTITIONS AND ACCESS FLOORING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 General (continued)</b>				
4 Bulkheads in ceilings which occur at a level or plane differing from the general ceiling level or plane, of which no horizontal, vertical or sloping dimension exceeds 1,2m	m	9 Dimensions of all faces shall be given in the description 10 Portions in excess of 1,2m shall be included with the ceilings where expedient or given separately in m <sup>2</sup> 11 Alternatively, when linear measurement is not practicable, bulkheads shall be given in detail in appropriate items		
5 Fire barriers and the like	m	12 Alternatively, when linear measurement is not practicable, fire barriers and the like shall be given in detail in appropriate items		
6 Trapdoors	No	13 Shall be given as extra over ceilings, bulkheads, etc	2 Trimmers	
7 Cornices	m		3 Mitres and intersections	
8 Openings for light fittings, mechanical diffusers, etc	No	14 Shall be given as extra over ceilings, bulkheads, etc	4 Additional trimmers, hangers, etc	
9 Insulation materials such as fibreglass and slagwool	m <sup>2</sup>	15 Stating whether in panels such as between roof timbers etc		

## PARTITIONS

<b>2 Partitions</b>				
10 Partitions	m	16 Descriptions shall include finishes 17 Alternatively finishes may be given in appropriate items in accordance with the principles laid down in the relevant trades	5 Notches and holes other than in glass 6 Cleats, screws, bolts, plates, etc	
11 Notches and holes in glass	No			
12 Ends, intersections, openings, doors and frames, special panels, etc	No	18 Shall be given as extra over 19 Descriptions shall include ironmongery and finishes 20 Alternatively ironmongery and finishes may be given in appropriate items in accordance with the principles laid down in the relevant trades		



## CEILING, PARTITIONS AND ACCESS FLOORING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>2 Partitions (continued)</b>				
13 Partitions (alternative)		21 When linear measurement is not practicable, partitions shall be measured in detail in which case boards, glass, etc shall be given in square metres, standards, rails, mullions, transoms, skirtings, cornices, cappings, beads, etc in metres and panels, doors, fanlights, borrowed lights and frames in number 22 Ironmongery and finishes shall be given in accordance with the principles laid down in the relevant trades	7 Notches and holes other than in glass 8 Mitres, intersections, cleats, screws, bolts, plates, etc	
14 Circular cutting	m			
15 Insulation materials such as fibreglass and slagwool if not included with panels etc	m <sup>2</sup>			

## ACCESS FLOORING

<b>3 Access flooring</b>				
16 Access flooring	m <sup>2</sup>	23 Descriptions shall include panels, support system, coverings, etc 24 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	9 Lifting and replacing panels for work executed under floors by others	
17 Ventilation grille panels, strengthened panels, etc	No	25 Shall be given as extra over		
18 Junctions against walls, columns, etc	m	26 Circular junctions shall be given separately	10 Additional pedestals and other support members	
19 Movement joints	m			
20 Dividers and fire barriers below access flooring	m			
21 Holes and outlets through floor panels and dividers	No			
22 Lifting tools	No			

## FLOOR COVERINGS, WALL LININGS, ETC

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Coverings and linings</b>				
1 Wood block, wood mosaic, thermoplastic, vinyl, linoleum, rubber, cork, carpeting and other similar coverings and linings	m <sup>2</sup>	1 Preparatory work, priming coats and adhesives shall be included in the descriptions 2 Descriptions shall include welding of plastic or rubber 3 Descriptions shall include underfelt for carpeting 4 Margins, borders and turn-ups exceeding 500mm wide or high shall be included in the general areas 5 Linings to reveals etc shall be included in the general areas 6 Work to circular surfaces shall be given separately 7 Dished flooring shall be given separately 8 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
<b>2 Circular cutting</b>				
2 Circular cutting	m			
<b>3 Margins, borders and turn-ups</b>				
3 Margins, borders and turn-ups not exceeding 500mm wide or high	m	9 Circular work may include circular cutting to surrounding work where expedient	1 Mitres etc	
<b>4 Insets</b>				
4 Insets	m or No	10 Circular work may include circular cutting to surrounding work where expedient	2 Mitres etc	
<b>5 Edge and cover strips</b>				
5 Edge and cover strips	m		3 Mitres etc	
<b>6 Skirtings</b>				
6 Skirtings of vinyl etc	m	11 Skirtings stepped over treads and risers of stairs shall be given separately	4 Mitres etc	

## FLOOR COVERINGS, WALL LININGS, ETC *continued*

	Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7</b>	<b>Stairs</b>				
	7 Covering to treads and risers	m <sup>2</sup>	12 Covering to winding stairs shall be given separately		
	8 Combined tread and riser coverings	m		5 Mitres etc	
<b>8</b>	<b>Nosings</b>				
	9 Nosings	m		6 Mitres etc	
<b>9</b>	<b>Plastic handrails</b>				
	10 Plastic handrails	m		7 Running joints, bends, wreaths, mitres, closed ends, etc	
<b>10</b>	<b>Polish, sealers, etc</b>				
	11 Polish, sealers, etc	m <sup>2</sup>	13 Alternatively polish, sealers, etc may be included in the descriptions		

## IRONMONGERY

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification etc</b>				
		1 Ironmongery fixed to timber, metalwork, masonry, etc shall be given separately 2 Preparation of metal doors and frames to receive ironmongery shall be included with the doors and frames or given separately in "Metalwork" as prescribed	1 Screws, plugs, etc and the preparation of timber, metalwork, masonry, etc	
<b>2 Components</b>				
1 Continuous hinges, tracks, channels, rods, rails, bars, etc	m			
2 Hinges, locks, handles, catches, hooks, towel rails, grab rails, etc, sets of floor spring hinges, sets of sliding gear for doors, cording sets, etc	No			
3 Locks	No	3 Descriptions shall include keys 4 "En suite" locks and master keys shall each be given separately		
<b>3 Metal shelving</b>				
4 Metal shelving, wall bands, standards and rails		5 Metal shelving shall be measured in detail with shelving, wall bands, standards and rails given in metres or in number and shelf brackets, foot pieces and the like in number 6 Alternatively metal shelving may be given in number as a unit including all components		
<b>4 Proprietary kitchen cupboards, lockers, writing boards, seats, etc</b>				
5 Proprietary kitchen cupboards, lockers, writing boards, seats, etc of metal, timber or other materials	No			

## STRUCTURAL STEELWORK

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification</b>				
		<ol style="list-style-type: none"> <li>1 Steelwork shall be classified according to the quality and composition</li> <li>2 Structures of similar nature and design shall be suitably grouped under headings stating the general requirements</li> <li>3 Circular work shall be given separately stating the mean radius and where necessary which faces are circular</li> <li>4 Work required to be prepared or painted before delivery shall be so described</li> <li>5 Work required to be galvanised, metal sprayed, epoxy coated or otherwise treated or finished shall be so described</li> <li>6 Work specifically required to be treated or finished before or after manufacture or assembly or after delivery to the site shall be so described</li> </ol>		
<b>2 General</b>				
		<ol style="list-style-type: none"> <li>7 Steelwork shall be measured to the designed sizes of components</li> <li>8 The calculation of masses shall be in accordance with "Structural Steel Tables" issued by the South African Institute of Steel Construction</li> <li>9 No allowance shall be made in the mass for rolling margin, rivets, black bolts, nuts, washers, distance pieces, packings, additional material in welding, decorative or protective treatment nor for temporary constructional aids</li> <li>10 Welding, holes, black bolts, nuts, washers, rivets, bolting and riveting integral with structural steelwork shall be included in the descriptions of the relevant work</li> <li>11 Rolled sections in single lengths exceeding 13m and not exceeding 18m shall be given separately and thereafter in stages of 1m</li> </ol>	<ol style="list-style-type: none"> <li>1 Scribed ends</li> </ol>	

**STRUCTURAL STEELWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Steelwork</b>				
1 Columns, beams and other members	t	12 Shall be classified according to cross-sectional size		
2 Compound and latticed columns, beams and other members	t	13 Shall be so described stating the cross-sectional size of the main components		
3 Caps, bases and connections		14 Shall be included in the descriptions of the relevant members, no distinction being made for size or shape and their mass shall be added to the mass thereof		
4 Roof trusses	t	15 Shall be given in one item for each truss or each group of similar trusses stating for each item the number of trusses, shape, overall size, construction and type of components (flats, angles, tees, tubes, etc) 16 The cross-sectional size of components of a truss need not be stated		
5 Purlins, girts, bracing, sag rods, etc	t	17 The type of components (flats, angles, tees, tubes, etc) shall be stated 18 Connections shall be included in the descriptions of the relevant members and their mass shall be added to the mass thereof 19 The cross-sectional size of components need not be stated		
6 Roof gutters, rainwater pipes, etc integral with structural steelwork	t	20 Shall be given in suitable inclusive items 21 The mass of angles, stopped ends, outlets, offsets, shoes, etc shall be included in the mass of the roof gutter etc		
7 Stairs, balustrading, handrails, cat ladders, flooring, etc integral with structural steelwork	t or kg	22 Shall be given in suitable inclusive items stating for each item the construction, type of components (flats, angles, tees, tubes, etc) and the number where relevant 23 The cross-sectional size of components need not be stated		
8 Circular cutting	m			

**STRUCTURAL STEELWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Steelwork (continued)</b>				
9 Bends and machined ends	No			
10 High tensile bolts and high strength friction grip bolts including nuts and washers	t	24 Shall be given separately under the relevant headings		
11 Ragbolts, expanding bolts, anchor bolts, machined bolts, etc	No	25 Descriptions shall include nuts and washers, 26 Distinction shall be made for those requiring to be embedded in tops, sides or soffits of concrete		
12 Patent balustrading, patent clips and other items integral with structural steelwork not marketed in mass	m or No			
<b>4 Tests</b>				
13 Tests	No			

## METALWORK

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>1 Classification etc</b>				
		<ol style="list-style-type: none"> <li>1 Metalwork shall be classified according to type, quality and composition of the metal</li> <li>2 Circular work shall be given separately stating the mean radius and where necessary which faces are circular</li> <li>3 Work required to be prepared or painted before delivery to the site shall be so described</li> <li>4 Work required to be galvanised, chromium plated, anodized, metal sprayed, epoxy coated, stove enamelled, vitreous enamelled or otherwise treated or finished shall be so described</li> <li>5 Work specifically required to be treated or finished before or after manufacture or assembly or after delivery to the site shall be so described</li> <li>6 Welding, brazing, soldering, holes, bolting, rivets and riveting shall be included in the descriptions of the relevant work</li> </ol>		
<b>2 Circular cutting</b>				
1 Circular cutting	m			

## STEELWORK

<b>3 Sundry steelwork</b>				
2 Rolled or drawn solid sections	kg	<ol style="list-style-type: none"> <li>7 Shall be measured to the designed sizes of components</li> <li>8 Calculation of masses shall be in accordance with the "Structural Steel Tables" issued by the South African Institute of Steel Construction</li> <li>9 No allowance shall be made in the mass for rolling margin, rivets, additional material in welding, decorative or protective treatment nor for temporary constructional aids</li> <li>10 The cross-sectional size of components shall be stated</li> </ol>		



**METALWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Sundry steelwork (continued)</b>				
3 Tubular work generally	m			
4 Tubular columns	No	11 Descriptions shall include cap and base plates		
5 Screwed and socketed piping		12 Shall be given in accordance with the principles laid down in "Plumbing and Drainage"		
6 Sheeting, wire mesh, screening, expanded metal, gratings and the like	m <sup>2</sup>	13 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	1 Holes and notches	
7 Bolts including nuts and washers	kg			
8 Ragbolts, expanding bolts, anchor bolts, etc	No	14 Descriptions shall include nuts and washers 15 Distinction shall be made for those requiring to be embedded in tops, sides or soffits of concrete		
<b>4 Stairs, balustrading, cat ladders, grilles, gates, framework, etc</b>				
9 Stairs, balustrading, cat ladders, grilles, gates, framework, etc	kg or m or No	16 Shall be given in inclusive items stating for each item the construction and the cross-sectional size of components and the number where relevant 17 Alternatively when inclusive items are not practicable, work of similar design shall be suitably grouped under headings stating the general requirements in which case separate items shall be given for the different components stating cross-sectional sizes		
10 Fanged, rounded, scribed, closed and scrolled ends, intersections, bends, wreaths, etc	No	18 Shall be given as extra over rails etc	2 Running joints	
<b>5 Minor work</b>				
11 Brackets, anchors, etc	No			

**METALWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>6 Fixing accessories to structural timberwork</b>				
12 Bolts including nuts and washers	kg			
13 Ragbolts, expanding bolts, anchor bolts, etc	No	19 Distinction shall be made for those requiring to be embedded in tops, sides or soffits of concrete		
<b>7 Ribbed floors and permanent decking</b>				
14 Ribbed floors and permanent decking	m <sup>2</sup>	20 Shall be measured net on the plane or undeveloped surface area 21 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
15 Closed ends to ribs	m			
<b>8 Floors etc formed of open grillework or gratings</b>				
16 Floors etc formed of open grillework or gratings	m <sup>2</sup>	22 If in banded panels the sizes of the panels shall be stated 23 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>		
17 Stair treads	No			
<b>9 Skirtings etc</b>				
18 Skirtings, picture rails, copings, etc	m	24 Skirtings stepped over treads and risers of stairs shall be given separately	3 Running joints and mitres	
19 Corner pieces, end caps, switch sockets, etc	No	25 Shall be given as extra over		

**OTHER METALS**

<b>10 Aluminium, copper, lead, etc</b>				
20 Metalwork		26 Metalwork of aluminium, copper, lead, zinc, stainless steel, brass, bronze, etc shall be given in accordance with the foregoing principles 27 Solid sections of metals not marketed in mass shall be given in metres or in number		

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>DOORS, WINDOWS, CURTAIN WALLING, SHOPFRONTS, ETC</b>				
<b>STEEL DOOR FRAMES, DOORS, WINDOWS, ETC</b>				
<b>11 Door frames</b>				
21 Pressed steel door frames	No	28 The size of the door, fanlight, sidelight, etc shall be stated 29 Ironmongery normally supplied by the manufacturers of the frames shall be included in the descriptions 30 Preparation for ironmongery to be fitted or accommodated shall be included in the descriptions or given separately in number		
<b>12 Doors</b>				
22 Pressed steel doors	No	31 Descriptions shall include frames and ironmongery		
<b>13 Windows etc</b>				
23 Windows, doors, etc of rolled sections	No	32 Ironmongery and attached burglar bars shall be included in the descriptions		
		33 Components of coupled windows and doors may be given separately, in which case coupling mullions and transoms shall be given either in metres or in number	4 Mitres etc	
		34 Sub-frames, sills, surrounds, sliding gear, etc may be included in the descriptions or given separately in metres or in number 35 Steel and other panels, fixed steel louvres and fixed louvre shoes may be included in the descriptions or given separately in number		
<b>14 Fly screens and burglar screens</b>				
24 Fly screens and burglar screens	No			

**METALWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>15 Adjustable louvres</b>				
25 Adjustable louvre insert units	No	36 Descriptions shall include glass louvre blades		
<b>16 Miscellaneous</b>				
26 Strongroom doors, roller shutters, collapsible gates, roof lights, pavement lights, fireplace units, stoves, etc	No			

**ALUMINIUM WINDOWS, DOORS, ETC**

<b>17 Windows, doors, screens, etc</b>				
27 Windows, doors, fly screens, burglar screens, adjustable louvre insert units, etc		37 Shall be given in accordance with the principles laid down in sub-section "Steel door frames, doors, windows, etc" but descriptions shall include glass and other panels and sealing of windows, doors, etc against adjoining work		

**CURTAIN WALLS, SHOPFRONTS, ETC**

<b>18 Curtain walls, shopfronts, etc</b>				
28 General		38 Curtain walls, shopfronts, etc shall be suitably grouped under headings stating the general requirements 39 Separate items shall be given for the different components		
29 Components such as heads, sills, transoms and mullions	m or No	40 Waterproofing and sealing components, insulation between different metals and electrical bonding shall be included in the descriptions	5 Mitres, intersections, cleats, screws, bolts, plates, etc	
30 Windows, doors, fanlights, grilles, panels, glass, etc	No	41 Descriptions shall include ironmongery and finishes 42 Alternatively timberwork, ironmongery, glass, painting and other integral work may be measured separately and given in appropriate items in accordance with the principles laid down in the relevant trades		

**METALWORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>18</b> <b>Curtain walls, shopfronts, etc</b> <i>(continued)</i>				
31 Insulating material such as fibreglass and slagwool not included with panels etc	m <sup>2</sup>			
32 Cladding to structural steel components and to columns, beams, etc	m	43 Measurement rule 40 above applies	6 Mitres, intersections, cleats, screws, bolts, plates, etc	
33 Alternative		44 Where practicable curtain walls, shopfronts, etc may be given in number in which case descriptions shall include all components, windows, doors, fanlights, grilles, panels, ironmongery, glass, insulation, finishes, etc as well as cladding to structural steel components, columns, beams, etc 45 Measurement rule 40 above applies		

# PLASTERING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification etc</b>				
		1 Shall be classified according to composition, texture, and preparatory work 2 Patterned, sloping, weathered, troughed, ribbed and coffered work, work to falls or to falls and currents, work incorporating heating or similar equipment and work in sunk or raised panels not exceeding 2m <sup>2</sup> shall be given separately 3 Work to circular surfaces shall be given separately, distinction being made between circular and spherical work		
<b>2 Plaster and other <i>in situ</i> finishes</b>				
1 Finishes to elements such as floors and landings, treads and risers of stairs, walls inclusive of flush columns and beams, columns, ceilings and beams	m <sup>2</sup>	4 Finishes shall be measured over the net area to be covered 5 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup> 6 Reedings to treads shall be included in the descriptions	1 Curing 2 Labours such as fair, rounded and chamfered edges, trowel cuts, throats, V-joints and angles	
2 Finishes to narrow widths not exceeding 300mm wide – except to treads and risers of stairs, columns, beams, troughed, ribbed and coffered work and that in the flush face caused by projections and openings	m <sup>2</sup>	7 Shall be described as narrow widths and no distinction shall be made for different components		
<b>3 Labours on finishes</b>				
3 Reedings	m <sup>2</sup>			
4 Forming channels	m		3 Outlets, angles, stopped ends, etc	

## PLASTERING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>4 Skirtings and stoolings</b>				
5 Skirtings	m	8 Skirtings stepped over treads and risers of stairs shall be given separately	4 Ends, mitres etc	
6 Stoolings	No			
<b>5 Finishes to kerbs, sills, etc</b>				
7 Finishes to kerbs, sills, copings, nibs, surrounds and the like	m		5 Ends, mitres, etc	
<b>6 Mouldings</b>				
8 Mouldings	m	9 The girth, width and projection shall be stated 10 Descriptions shall include ends, mitres and intersections when the girth does not exceed 300mm		
9 Ends, mitres and intersections when the girth of the moulding exceeds 300mm	No			
10 Enrichments	No			
<b>7 Ornaments etc</b>				
11 Ornaments, air gratings, etc	No			
<b>8 Dividing strips, edge trims, etc</b>				
12 Dividing strips, edge trims, etc	m		6 Mitres etc	
<b>9 Metal lathing</b>				
13 Metal lathing and the like to receive <i>in situ</i> finishes	m <sup>2</sup>		7 Laps and holes	

# TILING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification etc</b>				
		1 Shall be classified according to the type and size of tile, preparatory work, method of fixing, etc 2 Tiling laid to a pattern shall be so described 3 Tiling to falls or to falls and currents and tiling in isolated panels not exceeding 1m <sup>2</sup> shall be given separately 4 Work to circular surfaces shall be given separately, distinction being made between work exceeding and not exceeding 300mm radius and also between circular and spherical work		
<b>2 Beds and backings</b>				
1 Beds and backings		5 Beds and backings shall be included in the descriptions 6 When tiling is prescribed to be fixed with adhesive the beds and backings shall be given separately in "Plastering" 7 Beds and backings incorporating heating or similar equipment shall be so described		
<b>3 Tiling</b>				
2 Tiling to elements such as floors and landings, walls inclusive of flush columns and beams, columns, ceilings and beams	m <sup>2</sup>	8 Shall be measured over the net area to be covered 9 No deductions shall be made for openings, wants, etc not exceeding 0,1m <sup>2</sup>	1 Pointing fair exposed edges	
3 Tiling to narrow widths not exceeding 300mm wide – except to columns, beams and that in the flush face caused by projections and openings	m <sup>2</sup>	10 Shall be described as narrow widths and no distinction shall be made for different components		
<b>4 Cutting</b>				
4 Circular cutting	m			
5 Fair exposed cutting and fitting around pipes, balusters and the like	No	11 Shall be suitably grouped		



**TILING** *continued*

	Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5</b>	<b>Mitred corners and special edge and corner tiles</b>				
	6 Mitred corners	m			
	7 Special edge and corner tiles	m	12 Shall be given as extra over, no distinction being made for different components		
<b>6</b>	<b>Treads, risers, sills, copings, skirtings, etc</b>				
	8 Treads, risers, sills, copings, skirtings, bands, margins, beads, mouldings and the like	m	13 Skirtings etc stepped over treads and risers of stairs shall be given separately	2 Mitres etc	
	9 End tiles and external and internal angle tiles	No	14 Shall be given as extra over		
<b>7</b>	<b>Channels</b>				
	10 Scum and block channels	m			
	11 Fair ends, stopped ends, intersections, angles and outlets	No	15 Shall be given as extra over		
<b>8</b>	<b>Soap dishes etc</b>				
	12 Soap dishes, foot rests, toilet paper holders, access panels and the like	No		3 Forming recesses etc	
<b>9</b>	<b>Dividing strips, edge trims, etc</b>				
	13 Dividing strips, edge trims, etc	m		4 Mitres etc	

## PLUMBING AND DRAINAGE

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>RAINWATER DISPOSAL</b>				
<b>1</b>	<b>Roof gutters, rainwater pipes, etc</b>			
1	m		1	Jointing
2	No	1	Shall be given as extra over	
3	No			
4	No			1 For long lengths of stormwater channels, refer to "External Work"

## PIPEWORK ETC

<b>2</b>	<b>Pipes, pipe fittings, etc</b>			
5	m	2 Pipes and pipe fittings which are wrapped, coated or lined in the course of manufacture shall be so described 3 The method of jointing shall be stated 4 No distinction shall be made between pipes fixed vertically, horizontally or to falls nor between pipes fixed to different elements, cast in, built in, etc 5 Pipes chased in and pipes suspended exceeding 1m below suspension level shall be given separately 6 Pipework in ground shall be given separately and descriptions may include pipe trenches in accordance with clause 4 "Pipe trenches (method B)"	2	Short lengths, nipples and running joints such as sockets, collars, couplers, etc 3 Bending, jointing pipes of differing materials and jointing pipes to taps, valves, traps, etc 4 Pipe supports such as clips, saddles, holderbats, hangers, etc 5 Holes for pipes and cutting and fitting around pipes unless otherwise stated in the relevant trades
6	No	7	Alternatively, where expedient welded joints may be included in the descriptions of the piping	
7	No	8	Alternatively, where expedient flanges on pipes and gasket and bolt sets may be included in the descriptions of the piping	

## PLUMBING AND DRAINAGE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>2 Pipes, pipe fittings, etc (continued)</b>				
8 Prescribed purpose made pipe supports		9 Shall be given separately in accordance with the principles laid down in the relevant trades		
9 Service pipes and flexible connecting pipes	No	10 Descriptions shall include connectors		
10 Pipe fittings	No	11 Shall be given as extra over 12 Fittings such as bushes, bends, tees, junctions, unions, etc to pipes not exceeding 30mm internal diameter shall be given together for each diameter of pipe 13 Fittings to pipes exceeding 30mm internal diameter shall be given separately for each diameter of pipe and for each type of fitting 14 Flanges on pipe fittings shall be included in the descriptions of the fittings		
11 Adaptors or similar pipe fittings at joints between pipes of differing materials and at connections of pipes to taps, valves, traps, etc		15 Shall be given in accordance with the principles laid down for pipe fittings		
12 Pipe closers which are prescribed to be measured on site and cut to exact length	No	16 Shall be given as extra over the pipe in which they occur		
13 Testing of welded joints	No			

## PLUMBING AND DRAINAGE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Pipe trenches (method A)</b>				
14 Pipe trenches		17 Shall be given in accordance with the principles laid down in "Earthworks" 18 Where no width of excavation is prescribed it shall be calculated as follows: Trenches not exceeding 1m deep shall be taken of such width as to provide a clearance of 300mm on each side of the pipe or group of pipes. The width of the trench shall be increased by 100mm for each successive depth of 1m to a maximum width which provides a clearance of 500mm on each side of the pipe or group of pipes	6 Any additional excavation and backfilling necessary at joints, risk of collapse of excavations and keeping excavations free of water	
15 Bedding under and filling around pipes comprising sand, crushed stone, concrete, etc	m <sup>3</sup>	19 No deduction shall be made for pipes not exceeding 200mm external diameter		
<b>4 Pipe trenches (method B)</b>				
16 Pipe trenches		20 Where expedient pipe trenches may be included in the descriptions of the pipe or group of pipes and separated into successive total depths in increments of 1m, in which case descriptions shall include excavation, bedding, backfilling, compaction and disposal of surplus material 21 Excavations in material of a more difficult character shall be suitably classified and given in cubic metres as extra over, in which case the width of the excavations shall be determined as described in clause 3 "Pipe trenches (method A)"	7 Any additional excavation and backfilling necessary at joints, risk of collapse of excavations and keeping excavations free of water	

## PLUMBING AND DRAINAGE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Pipe insulation and protection</b>				
17 Insulating and protective wrappings, coatings and linings to pipes	m	22 Internal diameter of the pipe shall be stated		2 Other than those applied in the course of manufacture
18 Insulation etc around fittings, valves, etc to pipes not exceeding 30mm internal diameter	No	23 Shall be given together as extra over for each diameter of pipe		
19 Insulation etc around fittings, valves, etc to pipes exceeding 30mm internal diameter	No	24 Shall be given separately as extra over for each diameter of pipe and for each type of fitting, valve, etc		
<b>6 Encasing</b>				
20 Concrete encasing to pipes	m	25 Alternatively encasing may be given in cubic metres in which case no deduction shall be made for pipes not exceeding 200mm external diameter	8 Formwork	
<b>7 Anchor blocks, thrust blocks, etc</b>				
21 Concrete anchor blocks, thrust blocks, etc		26 Shall be given in accordance with the principles laid down in "Concrete, Formwork and Reinforcement" 27 Alternatively blocks may be given in number in which case descriptions shall include formwork and reinforcement		
<b>8 Gulleys, grease traps, etc</b>				
22 Gulleys, grease traps, intercepting traps, etc	No			
<b>9 Inspection chambers, catch pits, etc</b>				
23 Inspection chambers, catch pits, junction boxes, valve boxes, septic tanks, conservancy tanks, etc		28 Shall be given in accordance with the principles laid down in the relevant trades 29 Alternatively inspection chambers, catch pits, etc may be given in number		

## PLUMBING AND DRAINAGE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>10 Soakage pits, french drains, etc</b>				
24 Soakage pits, french drains, etc	No	30 Alternatively soakage pits, french drains, etc may be given in accordance with the principles laid down in the relevant trades		
<b>11 Connections</b>				
25 Connections of new to existing pipes	No		9 Necessary fittings	
25 Connections to services of the local authority	Item	31 Shall be allowed for by provisional sum		
<b>SANITARY FITTINGS, TANKS, GEYSERS, ETC</b>				
<b>12 Sanitary fittings etc</b>				
27 Sanitary fittings	No			
<b>13 Tanks, geysers, etc</b>				
28 Tanks, geysers, boilers, heat pumps, incinerators, etc	No			
<b>14 Taps, valves, etc</b>				
29 Taps, valves, shower roses, meters, etc	No			
<b>15 Waste unions, traps, etc</b>				
30 Waste unions, traps, etc	No			

## PLUMBING AND DRAINAGE *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>FIRE HOSE REELS AND FIRE FIGHTING EQUIPMENT</b>				
<b>16 Fire hose reels etc</b>				
31 Fire hose reels, booster connections, hydrants, pressure gauges, etc	No			
<b>17 Fire fighting equipment</b>				
32 Fire fighting equipment such as extinguishers, blankets, buckets, etc	No			
<b>SLEEVES, HOLES, ETC</b>				
<b>18 Sleeves</b>				
33 Sleeves through slabs, beams, walls, etc	No	32 Shall be given together grouped for pipes not exceeding 100mm external diameter and thereafter in stages of 100mm, separated in successive lengths of 250mm		
<b>19 Holes</b>				
34 Holes for pipes and cutting and fitting around pipes		33 Shall be given in the relevant trades where stated		
<b>20 Flashings</b>				
35 Flashings around pipes through roof coverings		34 Shall be given in "Roof Coverings, Claddings, etc"		
<b>GENERAL</b>				
<b>21 Testing</b>				
36 Testing	Item	35 Various systems shall be kept separate		

## ELECTRICAL WORK

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification</b>				
		1 Classified according to the nature of the installation such as high tension supply, low tension supply, low tension distribution, general lighting and power, uninterrupted power supply, external lighting, etc		
<b>2 Connection to main supply</b>				
1 Connection to main supply	Item	2 Shall be allowed for by provisional sum		
<b>3 Main supply and equipment</b>				
2 Generators, transformers, mini-substations, low tension distribution cubicles, switchgear, etc	No			
3 Poles, cross arms, insulators, street lights, brackets, stays, struts, other equipment and bases	No			
<b>4 Distribution boards etc</b>				
4 Distribution boards, switch boards, meter boards and the like	No	3 Given under headings and classified according to type 4 Descriptions shall include busbars, jumpers, neutral bars, internal wiring and connections, space for future equipment blanking and the like	1 Identification markers, labels, legend cards, etc	
5 Equipment such as isolators, circuit breakers, earth leakage units, transformers, time switches, surge protectors and measuring instruments	No	5 Alternatively equipment may be included in the descriptions of the boards		



**ELECTRICAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Cables</b>				
6 Cables	m		2 Allowance for snaking	
7 Cable terminations and prescribed running joints	No		3 Glands and allowance for making off	
8 Protection such as slabs and metal sheeting and warning devices such as PVC marker tapes	m			
9 Cable route markers	No			
<b>6 Cable trenches (method A)</b>				
10 Cable trenches		6 Shall be given in accordance with the principles laid down in "Earthworks" 7 Where no width of excavation is prescribed it shall be calculated as follows: Trenches not exceeding 1m deep shall be taken of such width as to provide a clearance of 300mm on each side of the cable or group of cables. The width of the trench shall be increased by 100mm for each successive depth of 1m to a maximum width which provides a clearance of 500mm on each side of the cable or group of cables	4 Risk of collapse of excavations and keeping excavations free of water	
11 Bedding under and filling around cables comprising sand etc	m <sup>3</sup>			

**ELECTRICAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7 Cable trenches (method B)</b>				
12 Cable trenches		8 Where expedient cable trenches may be included in the description of the cable or group of cables and separated into successive total depths in increments of 1m, in which case descriptions shall include excavation, bedding, backfilling, compaction and disposal of surplus material  9 Excavations in material of a more difficult character shall be suitably classified and given in cubic metres as extra over, in which case the width of the excavations shall be determined as described in clause 6 "Cable trenches (method A)"	5 Risk of collapse of excavations and keeping excavations free of water	
<b>8 Conduit</b>				
13 Conduit	m	10 No distinction shall be made between conduit fixed vertically or horizontally 11 No distinction shall be made between conduit fixed to different elements, cast in, chased in, built in, etc	6 Bending, threading, jointing, short lengths, couplings, bends, tees, saddles, draw boxes and the like  7 Holes for conduit and cutting and fitting around conduit unless otherwise stated in the relevant trades	
14 Flexible conduit	No		8 Connectors	
<b>9 Outlet boxes, cover plates, etc</b>				
15 Switch, socket and other outlet boxes	No	12 No distinction shall be made for number of entries	9 Locknuts and bushes	
16 Cover plates, dome covers, ball and socket covers and the like	No	13 Alternatively cover plates etc may be included in the descriptions of the outlet boxes		

**ELECTRICAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>10 Cable trunking etc</b>				
17 Cable trunking, cable trays and ladders, floor and skirting trunking, lighting channels, etc	m		10 Forming holes for conduit entries or fittings	
18 Fittings to cable trunking etc such as angles, stopped ends, junctions and outlets	No			
19 Suspension rods, fixing brackets, cable clamps and short lengths of channel for cable trunking fixing	No	14 Alternatively suspension rods etc may be included in the descriptions of the trunking etc		
<b>11 Draw wires</b>				
20 Draw wires required to be left in	m	15 Alternatively draw wires may be included in the descriptions of the conduit		
<b>12 Conductors</b>				
21 Bare and insulated conductors in conduit etc	m		11 Allowance for additional length at connections	
22 Open wired conductors	m	16 Descriptions shall include bobbins, cleats, clips and binding wire		
<b>13 Busbar systems</b>				
23 Busbars	m			
24 Fittings etc such as elbows, tees, crosses, end covers, feed units, tap-off boxes and fixing brackets	No	17 Alternatively fixing brackets may be included in the descriptions of the busbars		
<b>14 Socket outlets and light switches</b>				
25 Socket outlets and light switches	No	18 Descriptions shall include cover plates		
<b>15 Fittings, equipment, etc</b>				
26 Luminaires, bells, telephones, speakers, geysers, stoves, heaters, clocks, thermostats, starters, motors, stand-by equipment, battery chargers, control panels, etc	No	19 Lamps shall be included with the relevant luminaires 20 Alternatively lamps may be given separately in number	12 Mounting plates, brackets, connectors, etc	

## ELECTRICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>16 Earthing</b>				
27 Earthing the system	Item			
28 Earth resistivity testing	Item			
<b>17 Lightning protection</b>				
29 Conductors of tape, wire and the like	m		13 Bending and jointing	
30 Short coupling lengths such as between roofs and eaves gutters and from down conductors to earth terminals	No		14 Jointing and excavation	
31 Air and earth terminals	No			
<b>18 Holes</b>				
32 Holes for conduit and cutting and fitting around conduit etc		21 Shall be given in the relevant trades where stated		

## ELECTRONIC INSTALLATIONS

<b>19 Communication, security and control installations</b>				
33 Installations such as telecommunication, public address, closed circuit television, data transmission, access control, security, fire detection, building management systems, etc		22 Shall be given in accordance with the foregoing principles		

**ELECTRICAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>GENERAL</b>				
<b>20 Testing and commissioning</b>				
34 Testing and commissioning the installation	Item			
<b>21 Drawings, manuals, etc</b>				
35 Provision of as-built drawings, manuals, operative training, etc	Item			
<b>22 Replacement parts etc</b>				
36 Replacement parts, tool kits, etc	No			

## MECHANICAL WORK

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
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### HEATING, VENTILATION AND AIR CONDITIONING INSTALLATIONS, ETC

1 Classification				
		1	Classified according to the nature of the installation such as heating, ventilation, air conditioning, fire protection, boiler, gas, refrigeration, compressed air, etc	
2 Equipment				
1	Items of equipment such as chillers and heat pumps, air handling equipment, fans, air conditioning units, heat exchangers, motors, pumps, boilers, tanks, compressors, attenuators, etc	No	2 Descriptions shall include pipework, ductwork and electrical work integral with the item of equipment, paint or other finishes, accessories where expedient, assembling and jointing together of components and jointing to pipes, ducts and the like as well as vibration isolation and noise attenuation requirements	

### PIPEWORK ETC

3 Pipes, pipe fittings, etc				
2	Pipes	m	<p>3 Pipes and pipe fittings which are wrapped, coated or lined in the course of manufacture shall be so described</p> <p>4 Pipework prescribed to be temporarily fixed in position, dismantled for plating or other finishing and subsequently refixed shall be so described</p> <p>5 Pipework to be executed in prescribed cut lengths shall be given separately</p> <p>6 The method of jointing shall be stated</p> <p>7 No distinction shall be made between pipes fixed vertically, horizontally or to falls, nor between pipes fixed to different elements, cast in, built in, etc</p> <p>8 Pipes chased in and pipes suspended exceeding 1m below suspension level shall be given separately</p> <p>9 Pipework in ground shall be given separately and descriptions may include pipe trenches in accordance with clause 6 "Pipe trenches (method B)"</p>	<p>1 Short lengths, nipples and running joints such as sockets, collars, couplers, etc</p> <p>2 Bending pipes, jointing pipes of differing materials and jointing pipes to taps, valves, traps, etc</p> <p>3 Pipe supports such as clips, saddles, holderbats, hangers, etc</p> <p>4 Holes for pipes and cutting and fitting around pipes unless otherwise stated in the relevant trades</p>

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Pipes, pipe fittings, etc (continued)</b>				
3 Welded joints	No	10 Alternatively, where expedient welded joints may be included in the descriptions of the piping		
4 Flanges on pipes and gasket and bolt sets	No	11 Alternatively, where expedient flanges on pipes and gasket and bolt sets may be included in the descriptions of the piping		
5 Prescribed purpose-made pipe supports		12 Shall be given separately in accordance with the principles laid down in the relevant trades		
6 Service pipes and flexible connecting pipes	No	13 Descriptions shall include connectors		
7 Pipe fittings	No	14 Shall be given as extra over 15 Fittings such as bushes, bends, tees, junctions, unions, etc to pipes not exceeding 60mm internal diameter shall be given together for each diameter of pipe 16 Fittings to pipes exceeding 60mm internal diameter shall be given separately for each diameter of pipe and for each type of fitting 17 Flanges on pipe fittings shall be included in the descriptions of the fittings		
8 Adaptors or similar pipe fittings at joints between pipes of differing materials and at connections of pipes to taps, valves, traps, etc	No	18 Shall be given in accordance with the principles laid down for pipe fittings		
9 Pipe closers which are prescribed to be measured on site and cut to exact length	No	19 Shall be given as extra over the pipe in which they occur		
10 Testing of welded joints	No			

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>4 Valves etc</b>				
11 Valves, meters, pressure gauges, strainers, sprinkler heads, etc	No			
<b>5 Pipe trenches (method A)</b>				
12 Pipe trenches		20 Shall be given in accordance with the principles laid down in "Earthworks" 21 Where no width of excavation is prescribed it shall be calculated as follows: Trenches not exceeding 1m deep shall be taken of such width as to provide a clearance of 300mm on each side of the pipe or group of pipes. The width of the trench shall be increased by 100mm for each successive depth of 1m to a maximum width which provides a clearance of 500mm on each side of the pipe or group of pipes	5 Any additional excavation and backfilling necessary at joints, risk of collapse of excavations and keeping excavations free of water	
13 Bedding under and filling around pipes comprising sand, crushed stone, concrete, etc	m <sup>3</sup>	22 No deduction shall be made for pipes not exceeding 200mm external diameter		
<b>6 Pipe trenches (method B)</b>				
14 Pipe trenches		23 Where expedient pipe trenches may be included in the descriptions of the pipe or group of pipes and separated into successive total depths in increments of 1m, in which case descriptions shall include excavation, bedding, backfilling, compaction and disposal of surplus material 24 Excavations in material of a more difficult character shall be suitably classified and given in cubic metres as extra over, in which case the width of the excavations shall be determined as described in clause 5 "Pipe trenches (method A)"	6 Any additional excavation and backfilling necessary at joints, risk of collapse of excavations and keeping excavations free of water	



**MECHANICAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7 Pipe insulation and protection</b>				
15 Insulating and protective wrappings, coatings and linings to pipes	m	25 Internal diameter of the pipe shall be stated		1 Other than those applied in the course of manufacture
16 Insulation etc around fittings, valves, etc to pipes not exceeding 60mm internal diameter	No	26 Shall be given together as extra over for each diameter of pipe		
17 Insulation etc around fittings, valves, etc to pipes exceeding 60mm internal diameter	No	27 Shall be given separately as extra over for each diameter of pipe and for each type of fitting, valve, etc		
<b>8 Encasing</b>				
18 Concrete encasing to pipes	m	28 Alternatively encasing may be given in cubic metres in which case no deductions shall be made for pipes not exceeding 200mm external diameter	7 Formwork	
<b>9 Anchor blocks, thrust blocks, etc</b>				
19 Concrete anchor blocks, thrust blocks, etc		29 Shall be given in accordance with the principles laid down in "Concrete, Formwork and Reinforcement" 30 Alternatively blocks may be given in number in which case descriptions shall include formwork and reinforcement		
<b>10 Inspection chambers, junction boxes, etc</b>				
20 Inspection chambers, junction boxes, etc		31 Shall be given in accordance with the principles laid down in the relevant trades 32 Alternatively inspection chambers, catch pits, etc may be given in number		

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>DUCTWORK ETC</b>				
<b>11 Ducting</b>				
21 Rectangular low pressure galvanised sheet metal ducting	m <sup>2</sup>	33 Shall be measured over ducting fittings and grouped according to size in the following categories: 33.1 Width or height not exceeding 750mm and sum of two adjacent sides not exceeding 1,15m 33.2 Width or height not exceeding 750mm and sum of two adjacent sides exceeding 1,15m 33.3 Width or height exceeding 750mm and not exceeding 1,35m 33.4 Width or height exceeding 1,35m and not exceeding 2,1m 33.5 Width or height exceeding 2,1m 34 Where an in-line reduction in size of ducting occurs, the larger size shall be measured over the full length of the fitting 35 No distinction shall be made between ducting fixed vertically, horizontally or raking nor between ducting fixed to different elements 36 Separate items shall be given for ducting suspended not exceeding 1m below suspension level and thereafter in successive stages of 1m measured from the underside of the ducting. A general description of the supporting structure from which ducting is suspended shall be given 37 Ducting to a curve shall be given separately stating the mean radius 38 Supports shall be included in the descriptions of ducting or may be given separately in accordance with the principles laid down in the relevant trades	8 Jointing	
22 Round low pressure galvanised sheet metal ducting	m	39 Shall be measured over ducting fittings	9 Jointing	
23 Rectangular ducting other than low pressure galvanised sheet metal ducting	m	40 Measurement rules 34 to 38 above apply		

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>11 Ducting (continued)</b>				
24 Ducting fittings	No	41 Shall be given as extra over 42 Reducers, radius bends, square bends, transformations, spigots, branches and tees shall be given together for each category or size of ducting 43 All other ducting fittings shall be given separately for each category or size of ducting and for each type of fitting 44 Stopped ends shall be given separately for each category or size of ducting	10 Forming openings and jointing to ducting	
25 Flexible ducting	No	45 Shall be grouped for ducting not exceeding 1,5m girth and thereafter in successive girths of 1,5m 46 Descriptions shall include connectors	11 Jointing	

<b>12 Ducting insulation and protection</b>				
26 Insulating and protective wrappings, coatings and linings to ducting	m <sup>2</sup>	47 Shall be measured to the external or internal surface of the ducting 48 Alternatively wrappings etc may be included in the descriptions of the ducting	12 Working around ducting fittings	

<b>13 Diffusers, grilles, etc</b>				
27 Diffusers, grilles, attenuators, dampers, filters, etc	No			

## CONVEYING INSTALLATIONS

<b>14 Lift installations</b>				
		49 Lift installations shall be suitably grouped under headings stating whether it comprises a single lift or a bank of lifts		

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>14 Lift installations (continued)</b>				
28 Cars	No	50 Descriptions shall include frames, guides, enclosures, base, car doors, door opening devices, locking and safety devices, inspection doors, sills, internal finishes, fittings such as handrails, mirrors, etc and lighting and ventilation requirements		
29 Landing entrances	No	51 Descriptions shall include frames, sills, landing doors, door opening devices, locking and safety devices, etc		
30 Power units	No	52 Descriptions shall include supports, sheaves, sound reducing material, switching equipment, etc		
31 Support work in lift shafts comprising guide rails, brackets, plates, buffers, supports, sheave beams, etc	Item			
32 Ropes comprising cables, clamps, etc	Item			
33 Counterweights comprising frames, guides, compensation, etc	Item			
34 Governors and safety gears	Item			
35 Operation and control system comprising car operator panels, car position and direction indicators, landing position and direction indicators, call buttons, lanterns and gongs, load weighing devices, intercommunication, detectors, wiring, etc	Item			
36 Temporary use of lifts comprising temporary enclosures, protection, finishes, etc, refurbishment, completion and re-commissioning	Item			
<b>15 Hoist, escalator and conveyor installations</b>				
37 Hoist, escalator and conveyor installations		53 Shall be given in accordance with the principles laid down in clause 14 "Lift installations"		

## MECHANICAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>OTHER MECHANICAL INSTALLATIONS</b>				
<b>16 Building management systems etc</b>				
38 Building management and equipment control systems		54 Shall be given in accordance with the foregoing principles		
<b>17 Material handling installations, disposal installations, etc</b>				
39 Installations such as material handling, refuse disposal, waste compaction, incineration, etc		55 Shall be given in accordance with the foregoing principles		
<b>GENERAL</b>				
<b>18 Testing and commissioning</b>				
40 Testing and commissioning	Item	56 Descriptions shall include details of testing and requirements such as provision of instruments and appliances, performance logging, fuel, power, water, etc		
<b>19 Drawings, manuals, etc</b>				
41 Provision of as-built drawings, manuals, operative training, etc	Item			
<b>20 Identification markers etc</b>				
42 Identification markers, direction indicators, labels, legend cards, etc			13 Identification markers, direction indicators, labels, legend cards, etc	
<b>21 Replacement parts etc</b>				
43 Replacement parts, tool kits, etc	No			
<b>22 Electrical work and work by other trades</b>				
44 Electrical work and work by other trades integral with mechanical installations		57 Shall be given in accordance with the principles laid down in the relevant trades		

## GLAZING

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification etc</b>				
		1 Classified according to type, quality, thickness and size 2 Descriptions of glass shall state the method of glazing and the material of the frames to receive the glass 3 Descriptions of glass in beaded frames shall state the method by which beads are fixed 4 Glass shall be grouped according to size in the following categories: 4.1 Not exceeding 0,1m <sup>2</sup> 4.2 Exceeding 0,1m <sup>2</sup> and not exceeding 0,5m <sup>2</sup> 4.3 Exceeding 0,5m <sup>2</sup> and not exceeding 2m <sup>2</sup> 4.4 Thereafter in stages of 2m <sup>2</sup>		
1 Glass	m <sup>2</sup>			
2 Glass in shapes which are not rectangular	m <sup>2</sup>			
<b>2 Glazing beads, gaskets, sealing, etc</b>				
3 Glazing beads		5 Glazing beads shall be given separately in the relevant trades		
4 Glazing gaskets, cover beading and the like	m		1 Mitres	
5 Moulded corners to gaskets	No	6 Shall be given as extra over		
6 Sealing of joints in panes with silicone	m			
<b>3 Labours on glass</b>				
7 Grounding, sandblasting, embossing or brilliant cutting to panes	No	7 Descriptions shall include designs		
8 Labours to edges such as bevelled or polished	m			
9 Holes, finger grips, etc	No			
<b>4 Glass louvre blades</b>				
10 Glass louvre blades	No	8 Descriptions shall include labours to edges		

## GLAZING *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>5 Glass tops, shelves, doors, mirrors, etc</b>				
11 Glass tops, shelves, doors, mirrors, etc	No	9 Descriptions shall include labours to edges, holes, finger grips, screws, clips, etc		
<b>6 Bent glass</b>				
12 Panes of bent glass	No	10 The radius shall be stated		
<b>7 Leaded and coppered lights</b>				
13 Panels of leaded or coppered lights	m <sup>2</sup>	11 Descriptions shall state the shape and average size of panes and method of fixing and shall include comes, saddle bars, etc		
<b>8 Patent glazing</b>				
14 Patent glazing	No	12 Descriptions shall include all components forming an integral part of the glazing system 13 Alternatively when inclusive numbered items are not practicable, patent glazing may be given in detail in which case glass shall be given in square metres grouped according to size in the categories provided for in clause 1 "Classification etc". Glazing bars, glazing wings, head and sill members, dividers, etc shall be given in metres and stops, fixing saddles and the like shall be given in number. Descriptions shall include cleats, bolts, plates and other incidentals		
<b>9 Materials resembling glass</b>				
15 Materials resembling glass such as acrylic, polycarbonate, etc		14 Shall be given in accordance with the foregoing principles		

# PAINTWORK

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1 Classification etc</b>				
		<ol style="list-style-type: none"> <li>1 Classified according to the specification of the paint, preparatory work and the material to be painted such as plaster, concrete, brick, wood or metal, distinction being made between floated and textured plaster surfaces and smooth and rough concrete surfaces</li> <li>2 Separate items shall be given for paintwork on different components, except where they can be suitably grouped as general surfaces</li> <li>3 Paintwork on columns, beams, ribs, hoods and fins shall be included with painting walls or ceilings as the case may be</li> </ol>		
<b>2 Colours</b>				
		<ol style="list-style-type: none"> <li>4 Paintwork shall be classified in the different colour groups "White", "Pastel", "Deep" and "Transparent" (in accordance with the Natural Colour System (NCS) adopted by the SA National Standards)</li> <li>5 Paintwork in one colour group may be given as extra over paintwork in another colour group</li> <li>6 No further distinction shall be made for colour except for the following:               <ol style="list-style-type: none"> <li>6.1 Paintwork on mouldings and bands picked out in colours differing from the surrounding paintwork, shall be given separately</li> <li>6.2 Paintwork on walls, ceilings, etc to patterns in more than one colour, which shall be given separately as in patterned multi-colours</li> </ol> </li> </ol>		
<b>3 Paintwork</b>				
1 Paintwork generally	m <sup>2</sup>	7 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	1 Cutting in of edges	
2 Paintwork on profiled surfaces	m <sup>2</sup>	8 May be measured over the flat area stating that the work has been measured on flat		



## PAINTWORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>3 Paintwork (continued)</b>				
3 Paintwork on gates, grilles, burglar screens, balustrades, etc	m <sup>2</sup>	9 Shall be measured over the full flat area of both sides 10 Alternatively paintwork may be given in detail in accordance with the principles laid down for paintwork not exceeding 300mm wide or girth and not adjoining similarly painted work		
4 Paintwork not exceeding 300mm wide or girth and not adjoining similarly painted work	m			
5 Painted lines	m			
<b>4 Trusses and lattice work</b>				
6 Paintwork on members of trusses and lattice work	m <sup>2</sup>			
<b>5 Frames etc</b>				
7 Paintwork on frames etc	m <sup>2</sup>			
<b>6 Windows, sash doors, etc</b>				
8 Paintwork on windows, sash doors, fanlights, louvred units, etc	m <sup>2</sup>	11 Shall be measured over the full flat area of both sides 12 Painting "cottage pane" windows etc and windows with burglar bars, steel louveres, etc shall be given separately		
<b>7 Signwriting and gilding</b>				
9 Letters, numerals, figures, motifs and punctuation marks	No	13 Shall be given together in one item, distinction being made for height and style only		
<b>8 Polishing</b>				
10 Polishing		14 Polishing shall be given in accordance with the foregoing principles		

## PAPERHANGING

	Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>1</b>	<b>Classification</b>				
			1 Classified according to the type of material, preparatory work and the nature of the surfaces to be prepared		
<b>2</b>	<b>Paperhanging</b>				
	1 Paperhanging to elements such as walls inclusive of columns and ceilings inclusive of beams	m <sup>2</sup>	2 No deductions shall be made for openings, wants, etc not exceeding 0,5m <sup>2</sup>	1 Matching	
<b>3</b>	<b>Borders and motifs</b>				
	2 Border and panel strips	m	3 Descriptions shall include cutting to profile	2 Mitres and intersections	
	3 Motifs	No			
<b>4</b>	<b>Hessian, canvas, etc</b>				
	4 Hessian, canvas and other similar fabrics fixed to wall or ceiling surfaces		4 Shall be given in accordance with the foregoing principles		

## EXTERNAL WORK

**NOTE:** External work of minor extent may be given in "Earthworks" under suitable headings

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>LANDSCAPING</b>				
<b>1 Contouring etc</b>				
		1 Excavation, filling, digging up and removing topsoil, etc shall be given in accordance with the principles laid down in "Earthworks"		
<b>2 Topsoil, compost, lime and fertilizer</b>				
1 Topsoil and compost	m <sup>3</sup>	2 Topsoil shall be given in accordance with the principles laid down "Earthworks" 3 Topsoil and compost to plant boxes shall be given separately		
2 Lime and fertilizer	kg		1 Spreading and mixing	
<b>3 Plant bed preparation</b>				
3 Cultivating plant bed surfaces	m <sup>2</sup>			
<b>4 Mulch</b>				
4 Mulch	m <sup>2</sup>			
<b>5 Grassing, ground cover, etc</b>				
5 Grassing, ground cover, herbaceous plants, etc	m <sup>2</sup>		2 Watering, mowing, trimming edges, maintaining and protection	
<b>6 Trees, shrubs, etc</b>				
6 Trees, shrubs, bulbs and plants	No		3 Excavation, planting, back-filling, damming around and maintaining in position 4 Watering, pruning, maintaining and protection	
7 Removing and repositioning of existing trees	No			

**EXTERNAL WORK** *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>7 Pruning of existing trees and shrubs</b>				
8 Pruning of existing trees and shrubs	No			
<b>8 Pitching, pebble covering, etc</b>				
9 Pitching, pebble covering, etc	m <sup>2</sup>			
<b>9 Rockery boulders</b>				
10 Rockery boulders	No	4 May be suitably grouped		
<b>10 Retaining structures</b>				
11 Retaining structures formed of filled gabion boxes and mattresses, concrete, precast concrete, interlocking blocks, masonry, etc		5 Shall be given in accordance with the principles laid down in the relevant trades		
<b>11 Filter fabric</b>				
12 Filter fabric	m <sup>2</sup>			
<b>12 Paving etc</b>				
13 Paving etc		6 Shall be given in accordance with the principles laid down in the relevant trades		
<b>13 Weedkillers, insecticides, etc</b>				
14 Treating surfaces with weedkillers, insecticides, etc	m <sup>2</sup>			
<b>14 Ponds, water features, etc</b>				
15 Ponds, water features, etc formed of concrete, precast concrete, masonry, etc		7 Shall be given under suitable headings in accordance with the principles laid down in the relevant trades		
<b>15 Benches, tables, etc</b>				
16 Benches, tables, etc	No			

## EXTERNAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>16 Drainage</b>				
17 Drainage		8 Shall be given in accordance with the principles laid down in "Plumbing and Drainage"		
<b>17 Irrigation systems</b>				
18 Irrigation systems		9 Shall be given in accordance with the principles laid down in the relevant trades		
<b>18 Effect lighting</b>				
19 Effect lighting		10 Shall be given in accordance with the principles laid down in "Electrical Work"		

## ROADWORK AND PARKING

<b>19 Excavations and filling</b>				
20 Excavations and filling		11 Shall be given in accordance with the principles laid down in "Earthworks"		
<b>20 Layer work</b>				
21 Sub-base and base courses		12 Shall be given in accordance with the principles laid down in "Earthworks"		
22 Stabilisation of layer works with lime, cement, etc				
<b>21 Compaction of natural or excavated ground surfaces</b>				
23 Compaction of natural or excavated ground surfaces	m <sup>2</sup>	13 Shall be measured only when the method and/or degree of compaction is prescribed		
<b>22 Road and parking surfacing</b>				
24 Road and parking surfacing of gravel, concrete, tarmacadam, blocks, etc	m <sup>2</sup>	14 No deductions shall be made for openings, wants, etc not exceeding 1m <sup>2</sup>		
25 Movement joints	m			

## EXTERNAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>23 Channels, humps and shoulders</b>				
26 Channels, humps and shoulders formed in road surfacing	m or No	15 Shall be given as extra over		
<b>24 Channelling, kerbing, edging, etc</b>				
27 Channelling, kerbing, edging, etc of concrete, brick, stone and the like	m	16 Circular channelling, kerbing or edging shall be given separately, distinction being made between work exceeding and not exceeding 4m radius	5 Earthworks, formwork, finishes, angles, ends, etc	
<b>25 Road signs, crash barriers, etc</b>				
28 Road signs, crash barriers, etc		17 Shall be given in accordance with the principles laid down in the relevant trades 18 Paintwork shall be included in the descriptions		
<b>26 Drainage</b>				
29 Drainage		19 Shall be given in accordance with the principles laid down in "Plumbing and Drainage"		
<b>27 Road markings</b>				
30 Painted lines, letters, etc		20 Shall be given in accordance with the principles laid down in "Paintwork"		

## STORMWATER CHANNELS

<b>28 Stormwater channels</b>				
31 Stormwater channels of concrete	m	21 Descriptions shall include earthworks, formwork and finishes		
32 Angles, intersections, ends, etc	No	22 Shall be given together as extra over		

## EXTERNAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
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### FENCING

29 Fencing, posts, gates, etc				
33 Fencing	m	23 The height above ground level or other base shall be stated 24 Descriptions shall include site clearance and the preparation of ground 25 Descriptions shall include bolts and straining eye bolts 26 Posts and stays which occur at regular intervals may be included in the descriptions or may be given separately in number. Descriptions shall include caps, base plates, arms or brackets for overhang, pointing and driving 27 Fencing to a curve shall be given separately stating whether straight or circular between posts 28 If circular between posts the radius shall be stated	6 Holes, binding wire, screws, nails, etc	
34 Posts and stays differing from those included in the descriptions	No	29 Shall be given separately as extra over		
35 Gates	No	30 Descriptions shall include hinges, latches, stops, runners, etc	7 Holes, binding wire, screws, nails, etc	

30 Concrete bases and kerbs				
36 Bases to posts and stays		31 Shall be included in the descriptions or may be given in number	8 Earthworks, formwork, etc	
37 Kerbs	m			

### WASHING LINES

31 Washing lines				
38 Washing lines	No	32 Alternatively washing lines may be given in detail in accordance with the foregoing principles		

## EXTERNAL WORK *continued*

Item or work to be measured	Unit	Measurement rules	Descriptions shall be deemed to include	Explanatory notes
<b>PAINTING</b>				
<b>32</b>	<b>Painting</b>			
	39 Painting fencing, washing lines, etc	33 Painting shall be included in the descriptions 34 Alternatively painting may be given separately in accordance with the principles laid down in "Paintwork"		

















