

A	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00
<u>Commissioning Team</u>			
B	Office Hours	Hrs	1.00
C	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00
D	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00
<u>Engineer</u>			
E	Office Hours	Hrs	1.00
F	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00
G	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00
<u>Draughts Person</u>			
H	Office Hours	Hrs	1.00
J	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00
K	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00
<u>EQUIPMENT AND MATERIAL COST</u>			
L	The cost of all equipment shall remain fixed	Item	Fixed
<u>TRANSPORT AND DELIVERY</u>			
<u>Distance of Return Trip to site</u>			
M	Vehicle up to 1 ton	Km	1
N	Vehicle up to 2 ton	Km	1
P	Vehicle up to 5 ton	Km	1

Carried to Collection

Section No. 7
Bill No. 1
Item rates as for Billed Items

R

M 381
Jmkf
R.

A	Vehicle up to 10 ton	Km	1
B	Vehicle up to 20 ton	Km	1
<u>MARK-UP OM COST</u>			
C	(Overhead & Profit)	Item	

Carried to Collection

Section No. 7
Bill No. 1
Item rates as for Billed Items

R

M 382
Jus

R.

Section No. 7

Bill No. 1

Item rates as for Billed Items

SUMMARY

Total Brought Forward from Page No.

**Page
No**

302

303

304

Amount

Carried Forward to Summary of Section No. 7

Section No. 7

Bill No. 1

Item rates as for Billed Items

R

M.
Jimi

R. 383

Item No	SECTION 7	Quantity	Rate	Amount
	<u>MECHANICAL WORKS - FIRE</u>			
	<u>BILL 2</u>			
	<u>WATER SUPPLY</u>			
	NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3			
	<i>(CPAP Work Group No. 170 unless otherwise stated)</i>			
	This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).			
	<u>PANELS</u>			
A	Conventional Fire Alarm Panel - ZITON ZP1-F2:99 or approved equivalent c/w user interface, power supply & 2x batteries	No	2	
B	Programming, device -,cable labelling, testing and commissioning of fire detection system	No	2	
	<u>DEVICES</u>			
C	Ceiling Optical Detector - conventional, c/w base	No	18	
D	Void Optical Detector - conventional, c/w base	No	1	Rate Only
E	Remote LED Indicator - mounted on ceiling for void detector	No	1	Rate Only
F	Rate-of-rise heat detector - conventional, c/w base	No	5	
G	Audible Fire Siren & Beacon combination unit - analogue, c/w base	No	5	
	Carried to Collection			R
	Section No. 7 Bill No. 2 FD-01			M JmL R. 3814

A	Manual Call Point - conventional, c/w surface mount back-box, hinged perspex cover and re-settable element	No	7	
B	Electro-Magnetic Door Hold-open Device	No	1	Rate Only
<u>INPUT & OUTPUT MODULES</u>				
C	Flow Switch Monitoring - Addressable input interface unit c/w surface box and sprague connection	No	1	
<u>CABLES & SUPPORTS</u>				
D	PH30 Fire alarm cable - 1,0mm ² 2 Core (/m)	m	550	
E	PVC conduits - Ø25 mm c/w stainless steel saddles (/m)	m	80	
F	Bosal steel conduits Ø25 mm (/m)	m	30	

Carried to Collection

Section No. 7
Bill No. 2
FD-01

R

M
Jmhl

R. 385

Section No. 7

Bill No. 2

FD-01

SUMMARY

Total Brought Forward from Page No.

**Page
No**

306

307

Amount

Carried Forward to Summary of Section No. 7

Section No. 7
Bill No. 2
FD-01

R

M
July

R. 386

SECTION SUMMARY - SECTION 7 - FIRE DETECTION

Bill No		Page No	Amount
1	Item rates as for Billed Items	305	
2	FD-01	308	
	Carried to Final Summary		R

Section No. 7

Handwritten: 21 July

R. **387**

Item No		Quantity	Rate	Amount
	<u>SECTION 8</u>			
	<u>DOMESTIC WATER & INTERNAL DRAINAGE</u>			
	<u>BILL 1</u>			
	<u>ITEM RATES AS FOR BILLED ITEMS</u>			
	NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3			
	<i>(CPAP Work Group No. 148 unless otherwise stated)</i>			
	This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).			
	Non Scheduled Bill, Provisional Sum & Tenant Requirement Item Rates			
	<u>LABOUR COST</u>			
	Rates for non scheduled items are to be applied to the hours worked and are to include for the cost of labour, all levies, bonuses and leave pay.			
	<u>Erection Team</u>			
A	Office Hours	Hrs	1.00	
B	After Hours (Weekdays & Saturdays)	Hrs	1.00	
C	After Hours (Sundays & Public Holidays)	Hrs	1.00	
	<u>Fabrication Team</u>			
D	Office Hours	Hrs	1.00	
E	After Hours (Weekdays & Saturdays)	Hrs	1.00	
	Carried to Collection			R
	Section No. 8 Bill No. 1 Item rates as for Billed Items			M Jm41

A	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00		
<u>Commissioning Team</u>					
B	Office Hours	Hrs	1.00		
C	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00		
D	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00		
<u>Engineer</u>					
E	Office Hours	Hrs	1.00		
F	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00		
G	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00		
<u>Draughts Person</u>					
H	Office Hours	Hrs	1.00		
J	After Hours (<i>Weekdays & Saturdays</i>)	Hrs	1.00		
K	After Hours (<i>Sundays & Public Holidays</i>)	Hrs	1.00		
<u>EQUIPMENT AND MATERIAL COST</u>					
L	The cost of all equipment shall remain fixed			Item	Fixed
	Distance of Return Trip to site				
M	Vehicle up to 1 ton	Km	1		
N	Vehicle up to 2 ton	Km	1		
P	Vehicle up to 5 ton	Km	1		
Q	Vehicle up to 10 ton	Km	1		
Carried to Collection					
Section No. 8 Bill No. 1 Item rates as for Billed Items				R	

M
Jmhl
R. 389

A Vehicle up to 20 ton

Km

1

MARK-UP OM COST

B (Overhead & Profit)

Item

Carried to Collection

Section No. 8
Bill No. 1
Item rates as for Billed Items

R

M
Joshi

R. 390

Section No. 8

Bill No. 1

Item rates as for Billed Items

SUMMARY

Total Brought Forward from Page No.

**Page
No**

310

311

312

Amount

Carried Forward to Summary of Section No. 8

Section No. 8

Bill No. 1

Item rates as for Billed Items

R

M

Subtotal

R.

391

Item No		Quantity	Rate	Amount
	<u>SECTION 8</u>			
	<u>DOMESTIC WATER & INTERNAL DRAINAGE</u>			
	<u>BILL 2</u>			
	<u>DOMESTIC WATER & INTERNAL DRAINAGE</u>			
	NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3			
	<i>(CPAP Work Group No. 148 unless otherwise stated)</i>			
	This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).			
	Non Scheduled Bill, Provisional Sum & Tenant Requirement Item Rates			
	<u>DOMESTIC INTERNAL WATER</u>			
	<u>For the complete supply, delivery and installation of supply piping including all valves, fittings, hangers, supports, expansion elbows, pipe sleeves chasing into walls and necessary accessories as specified and required by the manufacturer. Rates to include sleeving where piping penetrates concrete slabs, walls and where piping is buried within concrete walls</u>			
	<u>"Geberit Mepla" or similar approved -PEX/AL/HDPE (multi-layer piping SANS 21003)</u>			
A	Ø20mm Diamater (PEX/AL/HDPE Ø20mm x 2.25mm)	m	872	
B	Ø26mm Diamater (PEX/AL/HDPE Ø26mm x 3mm)	m	152	
C	Ø32mm Diamater (PEX/AL/HDPE Ø32mm x 3mm)	m	297	
	Carried to Collection			R
	Section No. 8 Bill No. 2 Domestic Internal Water			M Muh / R. 392

A	Ø40mm Diamater (PEX/AL/HDPE Ø40mm x 3.5mm)	m	70
B	Ø50mm Diamater (PEX/AL/HDPE Ø50mm x 4mm)	m	13
C	Ø63mm Diamater (PEX/AL/HDPE Ø63mm x 4mm)	m	5
<u>"Geberit Mepla" or similar approved -PEX/AL/HDPE Pipe Fittings (multi-layer piping SANS 21003)</u>			
D	Ø20-20mm Elbow	No	508
E	Ø26-26mm Elbow	No	55
F	Ø32-32mm Elbow	No	70
G	Ø40-40mm Elbow	No	3
H	Ø50-50mm Elbow	No	6
J	Ø26-20mm Reducer	No	31
K	Ø32-20mm Reducer	No	30
L	Ø32-26mm Reducer	No	24
M	Ø40-32mm Reducer	No	2
N	Ø50-32mm Reducer	No	2
P	Ø63-40mm Reducer	No	1
Q	Ø20-20-20mm T-Piece	No	38
R	Ø26-20-20mm T-Piece	No	7
S	Ø26-26-20mm T-Piece	No	18
T	Ø26-26-26mm T-Piece	No	37
U	Ø32-20-26mm T-Piece	No	37
V	Ø32-26-26mm T-Piece	No	15
W	Ø32-32-20mm T-Piece	No	69
X	Ø63-32-40mm T-Piece	No	1

Carried to Collection

Section No. 8
Bill No. 2
Domestic Internal Water

R

M
Jmk)

R.

293

A	Ø32-32-32mm T-Piece	No	26
B	Ø40-32-26mm T-Piece	No	1
C	Ø40-40-32mm T-Piece	No	2
D	Ø40-40-40mm T-Piece	No	1
E	Ø50-50-40mm T-Piece	No	1
F	Ø20-15mm Wall Plate Elbow short	No	131
G	Ø26-20mm Wall Plate Elbow short	No	7
<u>Supply and Install Copper piping (conform to SANS 460, copper class 2)</u>			
H	Ø15mm Diamater	m	48
J	Ø22mm Diamater	m	97
<u>Supply and install Capillary fittings (conform to SANS 1067)</u>			
K	Ø15mm Fittings	No	74
L	Ø22mm Fittings	No	78
<u>Mepla Valves including pipe fitting connections to MEPLA piping or similar approved</u>			
M	20mm diameter Geberit Mepla Ball Valve	No	14
N	26mm diameter Geberit Mepla Ball Valve	No	18
P	32mm diameter Geberit Mepla Ball Valve	No	16
Q	40mm diameter Geberit Mepla Ball Valve	No	3
R	50mm diameter Geberit Mepla Ball Valve	No	4
<u>Y-strainers including pipe fitting connections to HDPE piping</u>			
S	Ø25mm	No	3
T	Ø40mm	No	1

Carried to Collection

Section No. 8
Bill No. 2
Domestic Internal Water

R

M
-m (1)

R. 39W

A	Ø50mm	No	2
<u>Temperature Balancing / Flow Control Valves</u>			
<u>Complete temperature gauge, identification lug, temperature scale, locking screw, including brass straight coupler compression type connections to HDPE piping. TA Hydronics TA Therm or other approved</u>			
B	20mm Diameter	No	1
<u>Thermostatic mixing valves</u>			
<u>Including built-in non-return valves and including brass straight coupler compression type connections to Mepla piping Danfoss TVM-H or other approved. Including Mepla Connections</u>			
C	20mm Diameter	No	1
<u>Supply and install (41x41)mm Unistrut channel</u>			
D	(Cabstrut or other approved) as special brackets and supports for the pipework to the building roof and wall structure, complete with necessary fittings and accessories as per manufacturer's recommendation	m	164
<u>Pressure Regulating Valve @400kPa including pipe fitting connections to MEPLA piping or similar approved</u>			
E	25mm diameter PRV	No	3
F	32mm diameter PRV	No	2
G	40mm diameter PRV	No	1
H	40mm diameter PRV	No	2
<u>Water Meter including pipe fitting connections to MEPLA piping or similar approved</u>			
J	25mm diameter SENSUS 420 Water Meter or similar approved	No	3
K	40mm diameter SENSUS 420 Water Meter or similar approved	No	1

Carried to Collection

Section No. 8
Bill No. 2
Domestic Internal Water

R

M
smu

R. 395

A	50mm diameter HELIX H4000 WOLTMANN Water Meter or similar approved	No	2
	<u>Non Return Valve including pipe fitting connections to MEPLA piping or similar approved</u>		
B	25mm diameter Non Return Valve	No	8
C	32mm diameter Non Return Valve	No	3
D	40mm diameter Non Return Valve	No	1
E	50mm diameter Non Return Valve	No	3
	<u>PAINTING & LABELLING</u>		
F	Allow for painting and labelling of piping as specified to SANS 10140. The surfaces shall be cleaned, primed, undercoated and finished in high quality gloss paint. The length of the band shall be same as the final pipe diameter, but not less than 100 mm. Where three strips are required per band, each strip shall be one third of the final pipe diameter but not less than 35 mm. Where 150mm lengths alone are colour painted, the 50mm band shall be centrally placed on the 150 mm length. The direction of flow shall be indicated with a (25 x 100)mm long black arrow at intervals of approximately 4 m and at valves and junctions. Flow lines shall be marked with an F and return lines with an R at each arrow		Item
	<u>DW AIR RELEASE AND VENT VALVES</u>		
G	20mm diameter Air Vent Valve	No	8
H	15mm diameter Automatic Air Release Valve	No	8
J	20mm diameter Chrome Brass Ball Valve	No	8
K	15mm diameter Chrome Brass Ball Valve	No	8
L	32mm diameter Circulating Pump Including Electrical Supply	No	8

Carried to Collection

Section No. 8
Bill No. 2
Domestic Internal Water

R

01

June 1

Section No. 8

Bill No. 2

Domestic Internal Water

SUMMARY

Total Brought Forward from Page No.

**Page
No**

314

315

316

317

318

Amount

Carried Forward to Summary of Section No. 8

Section No. 8

Bill No. 2

Domestic Internal Water

R

M

cmw

Item No	Quantity	Rate	Amount
<u>SECTION 8</u>			
<u>DOMESTIC WATER & INTERNAL DRAINAGE</u>			
<u>BILL 3</u>			
<u>PLANT ROOM WATER SUPPLIES</u>			
NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3			
<i>(CPAP Work Group No. 148 unless otherwise stated)</i>			
This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).			
Non Scheduled Bill, Provisional Sum & Tenant Requirement Item Rates			
<u>PLANT ROOM WATER SUPPLIES</u>			
For the complete supply, delivery and installation of the cold water supply manifold & piping from tanks to below ground connections within building footprint, pumps & piping to and from tanks, cold water mains connection and piping to tanks and building - all inside the plant room. Incoming civil mains by others			
<u>Domestic Water booster pumps</u>			
A	Domestic booster pump - Wilo/Grundfoss, Duty/Standby or similar approved dual pumps set with auto switch over to deliver 250l/min @60m. VSD control, dry run protection	No	1
B	Cables - 4x1.5mm ² PVC PVC SWA PVC ECC copper cable (FROM ISOLATOR TO PUMPS)	m	40
Carried to Collection			R
Section No. 8 Bill No. 3 Plant Room Water Supplies			M

398' R.
sm h/

A	25mm Diameter galvanised Conduit saddled/fixd to cable tray or building structure.	m	30
B	25mm Diameter Flexible Conduit saddled/fixd to cable tray or building structure.	m	8
C	50mm Diameter Galvanised round box	No	6
<u>Galvanized Piping (conform to SANS 62-1 & 62-2, Steel pipes – Part 1)</u>			
D	dia 50 mm	m	54
E	dia 80 mm	m	36
F	dia 100 mm	m	18
<u>Galvanized Piping (conform to SANS 62-1 & 62-2, Steel pipes – Part 1)</u>			
G	dia 50mm T-piece	No	3
H	dia 80mm T-piece	No	2
J	dia 100mm T-piece	No	1
K	dia 80mm x 50mm Reducing T-piece	No	2
L	Ø40-40mm Elbow	No	2
M	dia 100mm x 80mm Reducing T-piece	No	1
N	dia 100mm x 80mm Reducing T-piece	No	24
P	dia 50mm Elbow or bend (short radius)	No	8
Q	dia 80mm Elbow or bend (short radius)	No	6
R	dia 100mm Elbow or bend (short radius)	No	38
S	dia 50mm Hexagon nipple	No	16
T	dia 80mm Hexagon nipple	No	12
U	dia 100mm Hexagon nipple	No	30

Carried to Collection

Section No. 8
Bill No. 3
Plant Room Water Supplies

R

M

Jmh
R.

399

A	dia 50mm Socket union	No	18
B	dia 80mm Socket union	No	18
C	dia 50mm Table D 8 hole threaded flange adaptor inc bolts, nuts, flat washers and neoprene full face gasket	No	10
D	dia 80mm Table D 8 hole threaded flange adaptor inc bolts, nuts, flat washers and neoprene full face gasket	No	6
E	dia 100mm Table D 8 hole threaded flange adaptor inc bolts, nuts, flat washers and neoprene full face gasket	No	1
<u>Table D Flanged Gate Valves</u>			
F	dia 50mm Threaded gate valve	No	6
G	dia 80mm Flanged gate valve	No	4
H	dia 100mm Flanged gate valve	No	3
<u>Flanged Y-strainers threaded</u>			
J	dia 50mm	No	3
K	dia 80mm	No	2
L	dia 100mm	No	1
<u>Non-return valves threaded</u>			
M	dia 50mm	No	2
N	dia 80mm	No	2
P	dia 100mm	No	1
<u>Pressure Reducing Valve threaded</u>			
<u>Pressure reducing valve with pressure gauge @400kPa including pipe fitting connections to galvanized piping</u>			
Q	Ø50mm diameter	No	1

Water Meter

Carried to Collection

Section No. 8
Bill No. 3
Plant Room Water Supplies

R

M

smh
R.

400

<u>Water meter (Elster Kent) including pipe fitting connections to galvanized piping</u>				
A	Ø32mm diameter	No	1	
B	Ø50mm diameter	No	2	
<u>Supply and install (41x41)mm Unistrut channel</u>				
C	Supply, deliver and install wall and floor mounted pipe supports complete with galvanised cantilever brackets (41x41)mm Unistrut channel with (45x135)mm welded baseplate, 300mm long, plastic end cap, pipe split clamp brackets 100mm long threaded rod and nuts M10, 2 x anchors and fasteners for fixing into walls and floor		Item	
<u>Denso Wrapping</u>				
D	Densyl petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd Pipes or similar approved to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with 10% overlaps. Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including mastic, tape, "Layflat" sheeting, securing of the same, etc. Prices for wrapping of pipes shall include for all work as described to couplings in length		Item	
<u>Borehole & Water Purification</u>				
E	JOJO 5,5kl water tank c/w fittings and infill valve control via paddle float level control	No	1	
F	Borehole Pump and Controls PC Allowance		Item	500 000.00
G	Water Purification Plant PC Allowance		Item	500 000.00
<u>Additional Equipment</u>				
H	Pressure gauge c/w isolating valve (800kPa)	No	4	
Carried to Collection				
Section No. 8				
Bill No. 3				
Plant Room Water Supplies				
				R
				M

401

Smh
R.

PAINTING & LABELLING

A Allow for painting and labelling of piping as specified to SANS 10140. The surfaces shall be cleaned, primed, undercoated and finished in high quality gloss paint. The length of the band shall be same as the final pipe diameter, but not less than 100 mm. Where three strips are required per band, each strip shall be one third of the final pipe diameter but not less than 35 mm. Where 150mm lengths alone are colour painted, the 50mm band shall be centrally placed on the 150 mm length. The direction of flow shall be indicated with a (25 x 100)mm long black arrow at intervals of approximately 4 m and at valves and junctions. Flow lines shall be marked with an F and return lines with an R at each arrow

Item

Carried to Collection

Section No. 8
Bill No. 3
Plant Room Water Supplies

R

M

Jan 4
R.

407

Section No. 8

Bill No. 3

Plant Room Water Supplies

SUMMARY

Total Brought Forward from Page No.

**Page
No**

Amount

320

321

322

323

324

Carried Forward to Summary of Section No. 8

Section No. 8

Bill No. 3

Plant Room Water Supplies

R

M

Sm L/
R.

403

Item No		Quantity	Rate	Amount
	<u>SECTION 8</u>			
	<u>DOMESTIC WATER & INTERNAL DRAINAGE</u>			
	<u>BILL 4</u>			
	<u>HOT WATER GENERATION</u>			
	NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3			
	<i>(CPAP Work Group No. 148 unless otherwise stated)</i>			
	This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).			
	Non Scheduled Bill, Provisional Sum & Tenant Requirement Item Rates			
	<u>HOT WATER GENERATION</u>			
	For the complete supply, delivery and installation of the hot water generating and circulating system, piping from the hot water vessels to the heat pumps			
	<u>Integrated Heat Pump Water Heater</u>			
A	Kwikot HP-300-V intergrated heat pump or similar product with 5 year warranty c/w all necessary safety valves and pipe fittings	No	1	
B	Kwikot HP-200-V intergrated heat pump or similar product with 5 year warranty c/w all necessary safety valves and pipe fittings	No	1	
C	Kwikot HP-250-V intergrated heat pump or similar product with 5 year warranty c/w all necessary safety valves and pipe fittings	No	1	Rate Only
	Carried to Collection			
	Section No. 8			R
	Bill No. 4			
	Hot Water Generation			M

404
Jmh
R.

Electric Water Heaters

A	Kwikot Superline 400 Dual 100 Litres SANS 151, renewable energy ready Geyser or similar c/w Kwikot installation kit (HP-KIT 400/600) and all necessary fitting, pipes, insulation, safety valve, geyser blancket & SANS compliant geyser tray, & drain piping or similar approved	No	2	
B	Kwikot Superline 400 Dual 200 Litres SANS 151, renewable energy ready Geyser or similar c/w Kwikot installation kit (HP-KIT 400/600) and all necessary fitting, pipes, insulation, safety valve, geyser blancket & SANS compliant geyser tray, & drain piping or similar approved	No	6	
C	Kwikot Superline 400 Dual 300 Litres SANS 151, renewable energy ready Geyser or similar c/w Kwikot installation kit (HP-KIT 400/600) and all necessary fitting, pipes, insulation, safety valve, geyser blancket & SANS compliant geyser tray, & drain piping or similar approved	No	1	
D	Kwikot Prisma Classiqie FPRX-10-UB (Under Bain) point of use water heater or similar approved, c/w Counter surface push through mixer, stop cock and spout connectors	No	1	
E	Kwikot Prisma Classiqie FPRX-15-UB (Under Bain) point of use water heater or similar approved, c/w Counter surface push through mixer, stop cock and spout connectors	No	1	
F	Kwikot Prisma Classiqie FPRX-15-OB (Over Bain) point of use water heater or similar approved, c/w Over counter push through mixer, stop cock and spout connectors	No	1	Rate Only

Carried to Collection

Section No. 8
Bill No. 4
Hot Water Generation

R

M

Smh
R.

405

Heat Pumps - Water Heaters

A For the supply, install & commissioning of 5.1kW "Alliance" or similar approved ALLWH50R410 air cooled recirculating heat pump type, water heater, heating reservoir water to a temperature of between 55 - 60°C, with minimum ambient temperature of -7°C, including controls, automatic defrost cycle, connection to main control panel, with maximum noise level of 55dB(A), fittings, copper pipework, insulation, cladding, bends, tees, circulation pumps (duty & standby) and necessary accessories as specified for interconnecting to standard 200L electric water heater. Include wall mounting brackets (Alliance, Airco or similar)

No 6

B For the supply, install & commissioning of 7.4kW "Alliance" or similar approved ALLWH72R410 air cooled recirculating heat pump type water heater, heating reservoir water to a temperature of between 55 - 60°C, with minimum ambient temperature of -7°C, including controls, automatic defrost cycle, connection to main control panel, with maximum noise level of 55dB(A), fittings, copper pipework, insulation, cladding, bends, tees, circulation pumps (duty & standby) and necessary accessories as specified for interconnecting to standard 200L electric water heater. Including wall mounting brackets (Alliance, Airco or similar)

No 1

Water Meter

Water meter (Elster Kent or similar approved) including pipe fitting connections to galvanized piping

C 40mm diameter

No 1

D Ø50mm diameter

No 1

Supply and install (41x41)mm Unistrut channel

E Supply, deliver and install wall and floor mounted pipe supports complete with galvanised cantilever brackets (41x41)mm Unistrut channel with (45x135)mm welded baseplate, 300mm long, plastic end cap, pipe split clamp brackets 100mm long threaded rod and nuts M10, 2 x anchors and fasteners for fixing into walls and floor

Item

Carried to Collection

Section No. 8
Bill No. 4
Hot Water Generation

R

M

Jmw
R.

4406

Denso Wrapping

A Densyl petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd Pipes or similar approved to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with 10% overlaps. Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including mastic, tape, "Layflat" sheeting, securing of the same, etc. Prices for wrapping of pipes shall include for all work as described to couplings in length

Item

Electrical Supply

Power supply with isolator to be provided by others. Allowance is only for connection from isolator to heat pump and water circulators

B Cables - 4x1.5mm² PVC PVC SWA PVC ECC copper cable. (FROM ISOLATOR TO HEAT PUMP)

m

6

C Cables - 4x1.5mm² PVC PVC SWA PVC ECC copper cable (FROM ISOLATOR TO PUMPS)

m

28

D Control cabling

m

28

E dia 25mm Galvanised Conduit saddled/fixd to cable tray or building structure

m

28

F dia 25mm Flexible Conduit saddled/fixd to cable tray or building structure

m

28

K-Flex Lagging

For the complete supply, delivery and installation of K-Flex Lagging insulation around hot water piping

G dia 20-22mm

m

140

H dia 26-28mm

m

64

J dia 32-40mm

m

86

Carried to Collection

R

Section No. 8
Bill No. 4
Hot Water Generation

M

Jmh
R.

407

Section No. 8

Bill No. 4

Hot Water Generation

SUMMARY

Total Brought Forward from Page No.

**Page
No**

Amount

326

327

328

329

Carried Forward to Summary of Section No. 8

Section No. 8

Bill No. 4

Hot Water Generation

R

NA

July

R.

408

Item
 No

Quantity

Rate

Amount

SECTION 8

DOMESTIC WATER & INTERNAL DRAINAGE

BILL 5

SANITARY INTERNAL DRAINAGE

NOTE : For all TRADE NAMES and the use of alternative items, refer to Section 3: Specific Preliminaries item C3

(CPAP Work Group No. 146 unless otherwise stated)

This Bill of Quantities have been drawn up in accordance with the provisions of the Model Bill of Quantities for Mechanical Work, published by the Association of South African Quantity Surveyors (July 1990).

Non Scheduled Bill, Provisional Sum & Tenant Requirement Item Rates

SANITARY INTERNAL DRAINAGE

High density polyethylene (HDPE) pipes and fittings

Pipes shall be type VI and of the class specified with "Geberit" or similar approved
 Unless specifically otherwise stated, descriptions of pipes and fittings shall be deemed to include electrofusion jointed

Densyl petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd or similar approved

Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with 10% overlaps

Carried to Collection

Section No. 8
 Bill No. 5
 Sanitary Internal Drainage

R

M

Jmh

-R.

4409

Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including mastic, tape, "Layflat" sheeting, securing of the same, etc.

Prices for wrapping of pipes shall include for all work as described to couplings in length

Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid and bedded in accordance with manufacturers' instructions and trenches shall be carefully backfilled

Where no manufacturer's instruction exist, pipe shall be laid in accordance with Clause 5.1 and 5.2 of each of the following:

SANS 1200L: Medium pressure pipe lines

SANS 1200LD: Sewers

SANS 1200LE: Storm water drainage

Pipe trenches, etc. shall be backfilled in accordance with Clause 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB: Earthworks (Pipe Trenches)

Pipes shall be bedded in accordance with Clause 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB: Bedding (Pipes)

Unless otherwise described, bedding of rigid pipes shall be Class B bedding

General

Descriptions of overflow where measured in number, shall be deemed to include joints to cisterns and splay cut ends

Descriptions of pipes laid and including trenches and of inspection chambers, catchpits, etc. shall be deemed to include excavation, bedding, backfilling, compaction to minimum of 93% Mod AASHTO density and disposal of surplus material on site

Supply and Install Geberit HDPE

Carried to Collection

Section No. 8
Bill No. 5
Sanitary Internal Drainage

R

X

410

Imh)
R.