

BILL NO. 5.11.1**MECHANICAL INSTALLATIONS -****ABOVE GROUND PLUMBING AND DRAINAGE****RAINWATER DISPOSAL SYSTEM**

Coated cast iron pipes and fittings
complying with BS 460, with spigot
and socket ends jointed with gaskin
and cold caulking compound

1	50 mm Pipe.	Run
2	65 mm Pipe.	Run
3	100 mm Pipe.	Run

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Extra over pipework for the
following fittings

4	65 mm Bend with cleaning eye.	No.
5	100 mm Bend with access door.	No.
6	65 mm Junction with cleaning eye.	No.
7	100 mm Junction with access door.	No.
8	65 mm Reducing junction with cleaning eye.	No.
9	100 mm Reducing junction with access door.	No.

Coated cast grey iron pipes and
fittings complying with BS 4622
class **, with spigot and socket
ends jointed with gaskin and cold
caulking compound

10	100 mm Pipe.	Run
11	150 mm Pipe.	Run

Extra over pipework for the
following fittings

12	100 mm Bend with access door.	No.
13	150 mm Bend with access door.	No.
14	100 mm Junction with access door.	No.

15	150 mm Junction with access door.	No.
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16	100 mm Reducing junction with access door.	No.
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17	150 mm Reducing junction with access door.	No.
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Galvanised steel pipes complying with BS 1387 medium grade, and malleable cast iron fittings as BS 143 and 1256, with screwed and socket joints

18	40 mm Pipe.	Run
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19	50 mm Pipe.	Run
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uPVC pipes and fittings complying with BS 4514, with solvent welded spigot and socket joints

20	100 mm Pipe.	Run
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21	150 mm Pipe.	Run
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Extra over pipework for the
following fittings

22	100 mm Bend with access door.	No.
23	150 mm Bend with access door.	No.
24	100 mm Junction with access door.	No.
25	150 mm Junction with access door.	No.
26	100 mm Reducing junction with access door.	No.
27	150 mm Reducing junction with access door.	No.

Coated cast iron rainwater outlets

28	Rainwater outlet with 100 x 100 mm vertical grating and trap, luting flange and 65 mm straight outlet cast through 150 mm concrete wall and connected to cast iron pipe.	No.
29	Rainwater outlet with 150 mm diameter flat grating and trap, 100 mm straight outlet cast through 150 mm concrete slab and connected to uPVC pipe.	No.
30	Rainwater outlet with 250 mm diameter dome grating and trap, luting flange and 150 mm straight outlet cast through 150 mm concrete roof slab and connected to uPVC pipe.	No.

SOIL, WASTE AND VENTILATING SYSTEM

Coated cast iron pipes and fittings
complying with BS 416, with spigot
and socket ends jointed with gaskin
and caulked lead or patent caulking
 compound

31	50 mm Pipe.	Run
32	65 mm Pipe.	Run
33	100 mm Pipe.	Run

Extra over pipework for the
following fittings

34	65 mm Bend with access door.	No.
35	100 mm Bend with access door.	No.

Galvanised steel pipes complying
with BS 1387 medium grade, and
malleable cast iron fittings as BS
143 and 1256, with screwed and
socket joints

36	32 mm Pipe.	Run
37	40 mm Pipe.	Run

uPVC pipes and fittings complying
with BS 4514, with solvent welded
spigot and socket joints

38	40 mm Pipe.	Run
39	50 mm Pipe.	Run
40	80 mm Pipe.	Run
41	100 mm Pipe.	Run
42	150 mm Pipe.	Run

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Extra over pipework for the
following fittings

43	100 mm Bend.	No.
44	150 mm Junction.	No.
45	150 mm Reducing junction.	No.

Coated spun iron pressure pipes and
fittings complying with BS 1211
class B or BS 4622 class 1, with
spigot and socket ends jointed with
gaskin and caulked lead

		Run
46	100 mm Pipe.	
		Run
47	150 mm Pipe.	

Extra over pipework for the
following fittings

48	100 mm Bend with access door.	No.
49	150 mm Junction with access door.	No.
50	150 mm Reducing junction with access door.	No.

PVC floor drains

- | | | |
|----|---|-----|
| 51 | Floor drain with 65 mm diameter flat grating and 40 mm trap, 40 mm straight outlet cast through 150 mm concrete slab and connected to uPVC pipe. | No. |
| | | |
| 52 | Floor drain with 65 mm diameter grating with riser having one 50 mm inlet and 50 mm anti-syphon trap, 50 mm outlet cast through 150 mm concrete slab and connected to uPVC pipe. | No. |
| | | |
| 53 | Floor drain with 80 mm diameter grating with riser having two 50 mm inlets and 80 mm anti-syphon trap, 50 mm outlet cast through 150 mm concrete slab and connected to uPVC pipe. | No. |

Coated cast iron floor drains

- | | | |
|----|---|-----|
| 54 | Floor drain with 100 mm diameter chromium plated brass removable flat grating and 75 mm deep seal trap, 40 mm straight outlet cast through 150 mm concrete slab and connected to uPVC pipe. | No. |
|----|---|-----|

Sundries including joints to pipes

- | | | |
|----|---|-----|
| 55 | Standard uPVC vent cowl set in end of 100 mm uPVC pipe. | No. |
| | | |
| 56 | Strong copper wire balloon grating with pronged feet fixed in end of 100 mm cast iron pipe. | No. |

SANITARY FITTINGS

Supply and fix the following
sanitary fittings, all as described

Lavatory basins

57 White "Victory No. 310" 508 x 406 mm No.
vitreous china wash basin, complete
with a pair of cast iron brackets
and chromium plated brass fittings,
chain, rubber plug and one 13 mm
locally made chromium plated brass
high pressure pillar tap.

58 Coloured vitreous china lavatory No.
wall mounted basin, 504 x 457 mm
comprising :

American Standard "Roxalyn" basin
No. 0195.073 with concealed arms;

Heritage Aquaseal dual control
lavatory fittings No. 2103.844 with
chrome handles with chain stay,
chain and stopper drain;

Supply assembly No. 3405.172.

Vanity basins

59 Coloured enamelled cast iron oval No.
vanity basin, 19 $\frac{1}{4}$ " x 16 $\frac{1}{4}$ "
comprising :

Kohler "Farmington" self-rimming
basin No. K-2905-1;

Flair Bancroft No. K-7436-FL fitting
with aerator, valvet units, coupling
nuts and pop-up drain, chrome plated
finish and clear handles;

No. K-7666 angle loose key stops.

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60 Coloured vitreous china vanity basin, 28" x 19" comprising : No.

Kohler "Lady Vanity" basin No. K-2170;

No. K-7449-FL lavatory - shampoo fitting with valvet units, swing spout with aerator, coupling nuts, pop-up drain and shampoo spray with fittings gold plated and with amber handles;

No. K-7666 angle loose key stops.

Water closets

62 White vitreous china water closet comprising : No.

Victory No. 119 pedestal W.C. pan with 'P' trap and vent horn;

Pakai 9 litre high level plastic cistern complete with "Fordham Aquasave" ball valve with nylon cord pull and handle, flush pipe and wall brackets;

Black plastic seat and fittings with cover.

63 Coloured vitreous china water closet No.
comprising :

American Standard "Cadet" close-
coupled siphon jet toilet No.
2122.059 with cistern fitted with
"Shires" plastic valveless syphonic
flushing fittings, "Church" No.
5330.022 seat with cover and No.
34.05.172 supply assembly.

64 Coloured vitreous china water closet No.
comprising :

Kohler "Bolton" No. K-3475-EB close
coupled elongated siphon jet toilet
with cistern fitted with "Shires"
plastic valveless syphonic flushing
fittings, No. K-4652 coloured
"Lustra" seat and cover, No. K-7900
chrome plated supply and No. K-4562
bolt caps.

65 Coloured vitreous china water closet No.
comprising :

Kohler "Bolton" No. K-3475-EB close-
coupled elongated siphon jet toilet
with cistern fitted with "Shires"
plastic valveless syphonic flushing
fittings, No. K-4652 coloured
"Lustra" seat and cover, No. K-7638
supply, No. K-4562 bolt caps with
No. K-9417 trip lever to cistern
wall; all fittings gold plated
finish.

Bidets

66 Kohler "Caravelle" coloured vitreous No.
china bidet No. K-4862 with No. K-
9270-F1 gold plated fittings and No.
K-4562 bolt caps.

Baths and shower fittings

- 67 Coloured acid resisting enamelled No.
cast iron bath tub, 5'0" x 2'8"
comprising :

Kohler "Dynametric" bath No. K-
519/20-S with slip-resistant bottom;

Flair Dalton bath fittings No. K-
7004-Fl, less shower head, chrome
plated finish, clear handles;

Shower head No. K-6844, chrome
plated finish;

Clearpass No. K-7172-R chrome plated
finish pop-up drain.

Showers

- 68 American Standard No. 1218.080 No.
chrome plated shower with exposed
'Re-Nu' compression valve, 4 arm
handles, union elbows to wall,
adjustable ball joint shower head,
gooseneck riser 584 mm and wall
support.

Laundry sinks

- 69 White acid-resisting enamelled cast No.
iron laundry sink, 24" x 21"
comprising :

Kohler "Glen Falls" sink No. K-6757;

Metal support frame No. K-6699;

Hot and cold combination set with
threaded swing spout with aerator
No. K-7761-T.

Kitchen sinks

- | | | |
|----|---|-----|
| 70 | Aluminium "Diethelm" or stainless steel "Jaymac" combined reversible single drainer/sink 1050 x 450 mm overall with 430 x 355 x 150 mm deep bowl including outlet and waste fittings, rubber plug and chromium plated chain and one 13 mm chromium plated brass high pressure bib tap all fitted into top of timber sink unit (timber sink unit measured separately). | No. |
|----|---|-----|

TRAPS AND SUNDRIES

- | | | |
|----|--|-----|
| 71 | 32 mm McAlpine 75 mm deep seal, full bore, anti-syphon, heavy duty plastic bottle trap and joint to galvanised steel pipe. | No. |
| 72 | 40 mm McAlpine 75 mm deep seal, full bore, anti-syphon, heavy duty plastic bottle trap and joint to galvanised steel pipe. | No. |
| 73 | 40 mm Kohler 'P' trap No. K-9000 and joint to uPVC pipe. | No. |
| 74 | Philippine Standard No. PF340ER, coloured, recessed, build-in type soap holder. | No. |
| 75 | Philippine Standard No. PF350E, coloured, recessed, build-in type roll paper holder with plastic dowel. | No. |
| 76 | Approved Japanese manufactured coloured recessed build-in type vitreous china soap holder to match "Kohler" brand. | No. |

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25 mm Chromium plated brass towel
rails and matching end brackets
plugged and screwed to tiled wall

77 Towel rail 600 mm long. No.

78 Towel rail 700 mm long. No.

COLD WATER INSTALLATION

Copper pipes complying with BS EN
1057, with capillary/compression *
fittings as BS EN 1254-1 or 2

79 15 mm Pipe. Run

80 22 mm Pipe. Run

81 28 mm Pipe. Run

82 35 mm Pipe. Run

83 42 mm Pipe. Run

84 54 mm Pipe. Run

85 67 mm Pipe. Run

86 80 mm Pipe. Run

Extra over pipework for the
following fittings

87 67 mm Bend. No.

88 80 mm Bend. No.

89 67 mm Tee. No.

90 67 mm Reducing tee. No.

91 80 mm Reducing tee. No.

Copper pipes and fittings complying
with BS EN 1057, with composite
joints made with copper slip-on
bosses brazed to the pipes and steel
flanges as BS 4505:Part 3

92	22 mm Pipe.	Run
93	28 mm Pipe.	Run
94	35 mm Pipe.	Run
95	42 mm Pipe.	Run
96	54 mm Pipe.	Run
97	67 mm Pipe.	Run

Extra over pipework for the
following fittings

98	67 mm Bend.	No.
99	67 mm Tee.	No.
100	67 mm Reducing tee.	No.

Coated ductile iron pipes and
fittings complying with BS EN 598
K9, with spigot and socket ends with
'Tyton' flexible joints

101	80 mm Pipe.	Run
102	100 mm Pipe.	Run
103	150 mm Pipe.	Run

Extra over pipework for the
following fittings

104	100 mm Reducer.	No.
105	150 mm Reducer.	No.
106	80 mm Bend.	No.
107	100 mm Bend.	No.
108	80 mm Tee.	No.
109	100 mm Tee.	No.
110	100 mm Reducing tee.	No.
111	150 mm Reducing tee.	No.

Coated ductile iron pipes and
fittings complying with BS EN 598
K12, with flanged rubber flexible
joints

112	80 mm Pipe.	Run
113	100 mm Pipe.	Run
114	150 mm Pipe.	Run

Extra over pipework for the
following fittings

115	100 mm Reducer.	No.
116	150 mm Reducer.	No.
117	80 mm Bend.	No.
118	100 mm Bend.	No.
119	80 mm Tee.	No.
120	100 mm Tee.	No.
121	100 mm Reducing tee.	No.
122	150 mm Reducing tee.	No.

Header pipes blanked off at open
ends

123	80 mm Pipe 2000 mm long with junctions for connection of 3 No. 80 mm pipes.	No.
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uPVC vent pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and jointed to tank
connectors

124	25 mm Vent pipe 900 mm girth.	No.
125	50 mm Vent pipe 2000 mm girth.	No.

uPVC washout pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including
brass high pressure drain cocks and
jointed to tank connectors

126 32 mm Washout pipe 950 mm long. No.

127 50 mm Washout pipe 950 mm long. No.

uPVC overflow pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and splayed ends
with hinged anti-vermin flaps and
jointed to tank connectors

128 25 mm Overflow pipe 1750 mm girth. No.

129 100 mm Overflow pipe 2150 mm girth. No.

uPVC warning pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and jointed to tank
connectors

130 25 mm Warning pipe 850 mm girth. No.

Gunmetal body valves

Stop valves

131 22 mm Diameter. No.

132 35 mm Diameter. No.

Gate valves

133 22 mm Diameter. No.

134 35 mm Diameter. No.

Non-return valves

135 54 mm Diameter. No.

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Cast iron body valvesStop valves

136	67 mm Diameter.	No.
137	80 mm Diameter.	No.

Gate valves

138	67 mm Diameter.	No.
139	80 mm Diameter.	No.

Non-return valves

140	67 mm Diameter.	No.
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Water hammer arrestors

141	80 mm Diameter.	No.
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Ball float valves of slow closing
type

142	To suit 80 mm pipe.	No.
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Automatic air vents complete with
non-ferrous floats and guides, and
non-corrodible valves and seats
including isolating valves

143	To suit 80 mm pipe.	No.
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Pressure gauges complete with cocks,
siphon pipework and connections

144	To suit 80 mm pipe.	No.
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Cast iron body strainers Y-type
pipeline strainers with brass
screens

145 80 mm Diameter. No.

Pressure reducing valve sets
comprising pressure switches,
pressure gauges, valves, fault
alarms, all necessary
interconnecting pipework and
fittings, all as described

146 80 mm Diameter. No.

Stainless steel expansion joints of
axial pattern bellow type complying
with BS EN 10088, complete with
liners and external protective
sleeves

147 To suit 80 mm pipe. No.

Closed-cell elastomeric thermal
insulation complying with BS 476
Part 6 & 7, flexible type
13 mm Thick fixing externally to
pipework and fittings

148 15 mm Pipe. Run

149 22 mm Pipe. Run

150 28 mm Pipe. Run

151 35 mm Pipe. Run

152 42 mm Pipe. Run

153 54 mm Pipe. Run

154 67 mm Pipe. Run

155 80 mm Pipe. Run

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Extra over 13 mm thick insulation
for the following fittings

156	67 mm Bend.	No.
157	80 mm Bend.	No.
158	67 mm Tee.	No.
159	67 mm Reducing tee.	No.
160	80 mm Reducing tee.	No.

13 mm Thick fixing externally to
header pipes

161	80 mm Pipe 2000 mm long with junctions for connection of 3 No. 80 mm pipes.	No.
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13 mm Thick to stop valves

162	22 mm Diameter.	No.
163	35 mm Diameter.	No.
164	67 mm Diameter.	No.
165	80 mm Diameter.	No.

13 mm Thick to gate valves

166	22 mm Diameter.	No.
167	35 mm Diameter.	No.
168	67 mm Diameter.	No.
169	80 mm Diameter.	No.

13 mm Thick to non-return valves

170	54 mm Diameter.	No.
171	67 mm Diameter.	No.

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13 mm Thick to automatic air vents

172	To suit 80 mm pipe.	No.
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13 mm Thick to pressure gauges

173	To suit 80 mm pipe.	No.
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13 mm Thick to Y-type strainers

174	80 mm Diameter.	No.
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13 mm Thick to pressure reducing valve sets

175	80 mm Diameter.	No.
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Protective coverings and finishings
complete with 0.6 mm thick plain
aluminium cladding to closed-cell
elastomeric thermal insulation
Fixing to 13 mm thick insulation for

176	15 mm Pipe.	Run
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177	22 mm Pipe.	Run
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178	28 mm Pipe.	Run
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179	35 mm Pipe.	Run
-----	-------------	-----

180	42 mm Pipe.	Run
-----	-------------	-----

181	54 mm Pipe.	Run
-----	-------------	-----

182	67 mm Pipe.	Run
-----	-------------	-----

183	80 mm Pipe.	Run
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Extra over protective coverings and
finishings for the following
fittings

184	67 mm Bend.	No.
185	80 mm Bend.	No.
186	67 mm Tee.	No.
187	67 mm Reducing tee.	No.
188	80 mm Reducing tee.	No.

Fixing to 13 mm thick insulation for
header pipes

189	80 mm Pipe 2000 mm long with junctions for connection of 3 No. 80 mm pipes.	No.
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Protective coverings and finishings
complete with 0.6 mm thick plain
aluminium clad hinged split boxes
to closed-cell elastomeric thermal
insulation

Fixing to 13 mm thick insulation to
stop valves

190	22 mm Diameter.	No.
191	35 mm Diameter.	No.
192	67 mm Diameter.	No.
193	80 mm Diameter.	No.

Fixing to 13 mm thick insulation to
gate valves

194	22 mm Diameter.	No.
195	35 mm Diameter.	No.
196	67 mm Diameter.	No.

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197 80 mm Diameter. No.

Fixing to 13 mm thick insulation to
non-return valves

198 54 mm Diameter. No.

199 67 mm Diameter. No.

Fixing to 13 mm thick insulation to
automatic air vents

200 To suit 80 mm pipe. No.

Fixing to 13 mm thick insulation to
pressure gauges

201 To suit 80 mm pipe. No.

Fixing to 13 mm thick insulation to
Y-type strainers

202 80 mm Diameter. No.

Fixing to 13 mm thick insulation to
pressure reducing valve sets

203 80 mm Diameter. No.

Level switches for high level alarm,
low level alarm, pump cut-in, cut-
out and reset signal, complete with
all necessary fittings

204 Approved type. No.

Fibreglass water tanks complete with anti-siphon pipes, overflow pipes, warning pipes, vents, sealed covers, valves (ball float valves measured separately), drain outlets with cocks, tank connectors, tank supports, cat ladders, all necessary ancillary components, all as described

205 Capacity of 36000 litres. No.

Pressure vessels complete with all necessary tank fittings, valve assembly, drain outlets with cocks, tank support, fixing and accessories

206 Capacity of 500 litres. No.

Gunmetal puddle flange tank connectors fixed through concrete tank wall or base including joints to pipes

207 22 mm Connector. No.

208 28 mm Connector. No.

209 35 mm Connector. No.

210 54 mm Connector. No.

Sundries including joints to pipes

211 Take delivery of and install only water meter for cold water supply system connected to * mm ** pipe. No.

Pumping system

Fresh water pumps system comprising
drives, motors, switches, emergency
stops, controls, contactors, relays,
anti-vibration floor mounts,
acoustic treatment, protective
guards, unions, valves, flanges,
guages, strainers, painting, all
interconnecting pipework and
fittings and connecting to system
with flexible couplings, etc. all
necessary ancillary components to
work in full working order, all as
described

212	Vertical multi-stage centrifugal pumps each capable of delivering * litres per second against head of * m cut-in and * m cut-out. (Ref. *)	No.
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FLUSHING WATER INSTALLATION

uPVC pipes complying with BS 3505
class E, with fittings as BS 4346,
with solvent welded spigot and
socket joints

213	25 mm Pipe.	Run
214	32 mm Pipe.	Run
215	50 mm Pipe.	Run
216	65 mm Pipe.	Run

Extra over pipework for the
following fittings

217	65 mm Reducer.	No.
218	65 mm Bend.	No.
219	65 mm Tee.	No.
220	65 mm Reducing tee.	No.

Coated ductile iron pipes and
fittings complying with BS EN 598
K9, with spigot and socket ends with
'Tyton' flexible joints

221	80 mm Pipe.	Run
222	100 mm Pipe.	Run
223	150 mm Pipe.	Run

Extra over pipework for the
following fittings

224	100 mm Reducer.	No.
225	150 mm Reducer.	No.
226	80 mm Bend.	No.
227	100 mm Bend.	No.
228	80 mm Tee.	No.
229	100 mm Tee.	No.
230	100 mm Reducing tee.	No.
231	150 mm Reducing tee.	No.

Coated ductile iron pipes and
fittings complying with BS EN 598
K12, with flanged rubber flexible
joints

232	80 mm Pipe.	Run
233	100 mm Pipe.	Run
234	150 mm Pipe.	Run

Extra over pipework for the
following fittings

235	100 mm Reducer.	No.
236	150 mm Reducer.	No.
237	80 mm Bend.	No.
238	100 mm Bend.	No.
239	80 mm Tee.	No.
240	100 mm Tee.	No.
241	100 mm Reducing tee.	No.
242	150 mm Reducing tee.	No.

Header pipes blanked off at open
ends

243	100 mm Pipe 2000 mm long with junctions for connection 3 No. 100 mm pipes.	No.
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uPVC vent pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and jointed to tank
connectors

244	25 mm Vent pipe 900 mm girth.	No.
245	50 mm Vent pipe 2000 mm girth.	No.

uPVC washout pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including
brass high pressure drain cocks and
jointed to tank connectors

246 32 mm Washout pipe 950 mm long. No.

247 50 mm Washout pipe 950 mm long. No.

uPVC overflow pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and splayed ends
with hinged anti-vermin flaps and
jointed to tank connectors

248 25 mm Overflow pipe 1750 mm girth. No.

249 100 mm Overflow pipe 2150 mm girth. No.

uPVC warning pipes and fittings
complying with BS 3505 class C,
solvent welded joints, including all
necessary bends and jointed to tank
connectors

250 25 mm Warning pipe 850 mm girth. No.

Gunmetal body valves

Stop valves

251 25 mm Diameter. No.

252 32 mm Diameter. No.

Gate valves

253 25 mm Diameter. No.

254 32 mm Diameter. No.

Non-return valves

255 50 mm Diameter. No.

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Cast iron body valvesStop valves

256	65 mm Diameter.	No.
257	80 mm Diameter.	No.

Gate valves

258	65 mm Diameter.	No.
259	80 mm Diameter.	No.

Non-return valves

260	65 mm Diameter.	No.
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Water hammer arrestors

261	80 mm Diameter.	No.
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Ball float valves of slow closing
type

262	To suit 80 mm pipe.	No.
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Automatic air vents complete with
non-ferrous floats and guides, and
non-corrodible valves and seats
including isolating valves

263	To suit 80 mm pipe.	No.
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Pressure gauges complete with cocks,
siphon pipework and connections

264	To suit 80 mm pipe.	No.
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Cast iron body strainers Y-type
pipeline strainers with brass
screens

265 80 mm Diameter. No.

Pressure reducing valve sets
comprising pressure switches,
pressure gauges, valves, fault
alarms, all necessary
interconnecting pipework and
fittings, all as described

266 80 mm Diameter. No.

Rubber flexible joints of double or
multiple arch/sphere type complying
with BS EN 1092, complete with
resilient neoprene sleeves and
washers

267 To suit 80 mm pipe. No.

Level switches for high level alarm,
low level alarm, pump cut-in, cut-
out and reset signal, complete with
all necessary fittings

268 Approved type. No.

Fibreglass water tanks complete with
anti-siphon pipes, overflow pipes,
warning pipes, vents, sealed covers,
valves (ball float valves measured
separately), drain outlets with
cocks, tank connectors, tank
supports, cat ladders, all necessary
 ancillary components, all as

269 Capacity of 33000 litres. No.

Pressure vessels complete with all
necessary tank fittings, valve
assembly, drain outlets with cocks,
tank support, fixing and accessories

270 Capacity of 500 litre. No.

Gunmetal puddle flange tank
connectors fixed through concrete
tank wall or base including joints
to pipes

271 25 mm Connector. No.

272 32 mm Connector. No.

273 50 mm Connector. No.

Sundries including joints to pipes

274 Take delivery of and install only No.
 water meter for flush water supply
 system connected to * mm ** pipe.

Pumping system

Flush water pumps system comprising
drives, motors, switches, emergency
stops, controls, contactors, relays,
anti-vibration floor mounts,
acoustic treatment, protective
guards, unions, valves, flanges,
guages, strainers, painting, all
interconnecting pipework and
fittings and connecting to system
with flexible couplings, etc. all
necessary ancillary components to
work in full working order, all as
described

275	Vertical multi-stage centrifugal pumps each capable of delivering * litres per second against head of * m cut-in and * m cut-out. (Ref. *)	No.
-----	--	-----

HOT WATER INSTALLATION

Plastic covered copper pipes
complying with BS EN 1057 as
'Kuterlux', with capillary/
compression* fittings as BS EN 1254-
1 or 2 including wrapping joints and
fittings with adhesive PVC tape

276	28 mm Pipe.	Run
277	54 mm Pipe.	Run
278	76 mm Pipe.	Run

Extra over pipework for the
following fittings

279	76 mm Bend.	No.
280	76 mm Tee.	No.
281	76 mm Reducing tee.	No.

Plastic covered copper pipes
complying with BS EN 1057 as
'Kuterlux Plus', with
capillary/compression* fittings as
BS EN 1254-1 or 2 including wrapping
joints and fittings with adhesive
PVC tape

282	15 mm Pipe.	Run
283	22 mm Pipe.	Run

Header pipes blanked off at open
ends

284	76 mm Pipe 2000 mm long with junctions for connection of 3 No. 76 mm pipes.	No.
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Gunmental body valvesGate valves

285	28 mm Diameter.	No.
286	54 mm Diameter.	No.

Globe valves

287	54 mm Diameter.	No.
-----	-----------------	-----

Closed-cell elastomeric thermal
insulation complying with BS 476
Part 6 & 7, flexible type13 mm Thick fixing externally to
pipework and fittings

288	28 mm Pipe.	Run
289	54 mm Pipe.	Run
290	76 mm Pipe.	Run

Extra over 13 mm thick insulation
for the following fittings

291	76 mm Bend.	No.
292	76 mm Tee.	No.
293	76 mm Reducing tee.	No.

13 mm Thick fixing externally to
header pipes

294	76 mm Pipe 2000 mm long with junctions for connection of 3 No. 76 mm pipes.	No.
-----	---	-----

13 mm Thick to gate valves

295	28 mm Diameter.	No.
-----	-----------------	-----

296	54 mm Diameter.	No.
-----	-----------------	-----

13 mm Thick to globe valves

297	54 mm Diameter.	No.
-----	-----------------	-----

Protective coverings and finishings

complete with 0.6 mm thick plain
aluminium cladding to closed-cell
elastomeric thermal insulation

Fixing to 13 mm thick insulation for

298	28 mm Pipe.	Run
-----	-------------	-----

299	54 mm Pipe.	Run
-----	-------------	-----

300	76 mm Pipe.	Run
-----	-------------	-----

Extra over protective coverings and
finishings for the following
fittings

301	76 mm Bend.	No.
-----	-------------	-----

302	76 mm Tee.	No.
-----	------------	-----

303	76 mm Reducing tee.	No.
-----	---------------------	-----

Fixing to 13 mm thick insulation for
header pipes

304	76 mm Pipe 2000 mm long with junctions for connection of 3 No. 76 mm pipes.	No.
-----	---	-----

Protective coverings and finishings
complete with 0.6 mm thick plain
aluminium clad hinged split boxes
to closed-cell elastomeric thermal
insulation

Fixing to 13 mm thick insulation to
gate valves

305 28 mm Diameter. No.

306 54 mm Diameter. No.

Fixing to 13 mm thick insulation to
globe valves

307 54 mm Diameter. No.

Sundries including joints to pipes

308 Take delivery of and install only No.
water check meter for hot water
supply system connected to * mm **
pipe.

ELECTRICAL AND CONTROL SYSTEM

Local motor control panels including
metal casings and all busbars,
moulded case circuit breakers,
overload relays, switches, fuses,
isolators, current transformers,
motor starters, contactors, meters,
push buttons, emergency push
buttons, indicating lamps, relays,
battery and charger sets, internal
interconnecting wirings, interlocks
volt free dry contact, BMS
interfacing and fire tripping
facilities, instruments and
accessories as required, including
glanding, termination cables,
earthing, bonding, cable
containments and fixings, all as
described

Local motor control panels for

309	Set of * No. fresh water pumps (Ref. *) .	No.
310	Set of * No. flush water pumps (Ref. *) .	No.

Electrical power circuits comprising
approved power supply cables,
drawing into and including conduits
and fittings and/or flexible
conduits and fittings and any cable
installing facilities, with
earthing, all as described

From power supply to

311	Local motor control panel (Ref. *) .	No.
-----	--------------------------------------	-----

Electrical power and control
circuits including necessary circuit
and associated control equipment,
complete with terminations,
interconnecting wirings, fire
resistance cable, conduit, trunking,
cable tray, junction boxes, earth
continuities and all necessary
accessories, all as described

From local motor control panels to

312	Fresh water pump (ref. *).	No.
313	Flush water pump (ref. *).	No.
314	Pressure reducing valve set.	No.
315	Level switch.	No.

ABOVE GROUND PLUMBING AND DRAINAGE
SUNDRIES

The following items are in respect
of the whole Above Ground Plumbing
and Drainage Installation

316	Allow for marking the positions of holes, mortices, chases and the like in the structure.	1	Item
317	Allow for inspection, testing and commissioning of the complete Above Ground Plumbing and Drainage Installation, all as described.	1	Item
318	Allow for inspection, attendance, operation and maintenance during the Defects Liability Period, all as described.	1	Item
319	Allow for providing all necessary power and water, diesel, gas and fuels in connection with testing, commissioning and maintenance.	1	Item
320	Allow for providing installation drawings including detailed design, working and builder's work drawings, all as described.	1	Item
321	Allow for providing as-built drawings, all as described.	1	Item
322	Allow for providing Operation and Maintenance (O&M) Manuals and User Manuals, all as described.	1	Item
323	Allow for providing earthing up to the nearest earthing terminals, all as described.	1	Item
324	Allow for providing training of the Employer's staff, all as described.	1	Item

5.11.1/42

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/Volumes/A Bootable USB/Model Bills/Bill No. 5 - Superstructure/5-11-1 Mechanical Installations -
Above Ground Plumbing and Drainage - Jan 2008 (2012-06-24) - Carried to Collection \$

325	Allow for providing sample boards, all as described.	1	Item
326	Allow for priming and painting to all pipework, gutters and sanitary fittings.	1	Item
327	Allow for providing mock-ups and prototypes.	1	Item
328	Allow for supplying and fixing non fire rated sleeves and the like and fixing fire rated sleeves and the like provided by Nominated Sub- Contractors.	1	Item
329	Allow for providing spare and tools, all as described.	1	Item
330	Allow for disconnecting, setting aside and refixing for the convenience of other trades.	1	Item
331	Allow for obtaining evidence, documents, Certificate of Approval etc., all as described.	1	Item

BILL NO. 5.11.1MECHANICAL INSTALLATIONS -ABOVE GROUND PLUMBING AND DRAINAGECOLLECTION

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" " " "	5.11.1/3
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" " " "	5.11.1/12
" " " "	5.11.1/13
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" " " "	5.11.1/16
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/Volumes/A Bootable USB/Model Bills/Bill No. 5 - Superstructure/5-11-1 Mechanical Installations -
 Above Ground Plumbing and Drainage - Jan 2008 (2012-06-27).xlsx

BILL NO. 5.11.1

MECHANICAL INSTALLATIONS -

ABOVE GROUND PLUMBING AND DRAINAGE

Carried forward \$

BILL NO. 5.11.1MECHANICAL INSTALLATIONS -ABOVE GROUND PLUMBING AND DRAINAGECOLLECTION (Cont'd)

				Brought forward	\$
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"	"	"	"	5.11.1/20	
"	"	"	"	5.11.1/21	
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"	"	"	"	5.11.1/23	
"	"	"	"	5.11.1/24	
"	"	"	"	5.11.1/25	
"	"	"	"	5.11.1/26	
"	"	"	"	5.11.1/27	
"	"	"	"	5.11.1/28	
"	"	"	"	5.11.1/29	
"	"	"	"	5.11.1/30	
"	"	"	"	5.11.1/31	
"	"	"	"	5.11.1/32	
"	"	"	"	5.11.1/33	
"	"	"	"	5.11.1/34	
"	"	"	"	5.11.1/35	

5.11.1/46

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/Volumes/A Bootable USB/Model Bills/Bill No. 5 - Superstructure/5-11-1 Mechanical Installations -
 Above Ground Plumbing and Drainage - Jan 2008 (2012-06-27).xlsx

BILL NO. 5.11.1

MECHANICAL INSTALLATIONS -

ABOVE GROUND PLUMBING AND DRAINAGE

Carried forward \$

BILL NO. 5.11.1**MECHANICAL INSTALLATIONS -****ABOVE GROUND PLUMBING AND DRAINAGE****COLLECTION (Cont'd)**

				Brought forward	\$
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"	"	"	"	5.11.1/37	
"	"	"	"	5.11.1/38	
"	"	"	"	5.11.1/39	
"	"	"	"	5.11.1/40	
"	"	"	"	5.11.1/41	

BILL NO. 5.11.1

MECHANICAL INSTALLATIONS -

ABOVE GROUND PLUMBING AND DRAINAGE

TOTAL - BILL NO. 5.11.1

Carried to Summary of Bill No. 5 \$