

BILL NO. 5.13

COMMUNICATIONS / SECURITY /
CONTROL SYSTEMS

PABX AND COMMUNICATION SYSTEM

Conduit points comprising draw
wires, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities with
earthing, all as described

1	Telephone outlet point.	No.
2	Data outlet point.	No.
3	AV outlet point.	No.

5.13/1 Carried to Collection \$

WATCHMAN TOUR SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

4	Watchman tour station.	No.
5	Laser printer.	No.
6	19" LCD monitor.	No.
7	Reader for watchman hand recorder.	No.
8	Hand recorder.	No.

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From watchman tour station (Ref. *)
to

9	Laser printer.	No.
10	19" LCD monitor.	No.
11	Reader for watchman hand recorder.	No.

Carried to Collection \$
5.13/2

COMMUNAL AERIAL BROADCAST
DISTRIBUTION (CABD) SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

12	TV antenna complete with stainless steel supporting masts, pole, components, fixings and accessories.	No.
13	Radio antenna.	No.
14	Channel amplifier.	No.
15	Pre-amplifier.	No.
16	Trap filter.	No.
17	Distribution amplifier.	No.
18	4-Way tee off.	No.
19	8-Way splitter.	No.
20	TV/FM outlet.	No.
21	Combiner.	No.
22	RF modulator.	No.

Carried to Collection \$
5.13/3

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

23	From TV/radio antenna to pre-amplifier.	No.
24	From TV/radio antenna to trap filter.	No.
25	From TV/radio antenna to channel amplifier.	No.
26	From pre-amplifier to channel amplifier.	No.
27	From channel amplifier to combiner.	No.
28	From RF modulator to combiner.	No.
29	From combiner to distribution amplifier.	No.
30	From distribution amplifier to 4-way tee off.	No.
31	From 4-way tee off to 8-way splitter.	No.
32	From 8-way splitter to TV/FM outlet.	No.

Carried to Collection \$
5.13/4

Equipment and accessories complete with all detailed and necessary components, including all cables and conduit connections to power points, fixing and supports, all as described

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|----|--|-----|
| 34 | Emergency call bell complete with
audio and visual alarm. | No. |
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Emergency call bell indication panel
and sub-panel, complete with all
necessary accessories,
interconnecting wiring, all cables
and conduit connections to power
points, fixings and supports, all as
described

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| 36 | Emergency call bell indication sub-panel (Ref. *). | No. |
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Uninterruptible Power Supply (UPS)
units complete with inverter,
rectifier, batteries, battery
chargers, all necessary accessories
and connections, including all
cables and conduit connections to
power points, fixing and supports,
all as described

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|----|---|-----|
| 37 | UPS unit with capacity to maintain
1/2 hour backup time. | No. |
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Carried to Collection \$

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From emergency call bell indication
panel (Ref. *) to

38	Emergency call bell.	No.
39	Emergency alarm bell push button.	No.
40	UPS unit.	No.
41	Emergency call bell indication sub-panel.	No.

CLOSED CIRCUIT TELEVISION (CCTV)
SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

42	Fixed colour CCTV camera with weatherproof housing and outdoor type pan/tilt platform, complete with 1/3" colour CCD camera, auto iris lens, wall-mounted bracket and all necessary accessories.	No.
43	Ceiling-mounted dome fixed colour CCTV camera with dustproof type housing, complete with 1/3" colour CCD camera, auto iris lens, mounting bracket and all necessary accessories.	No.
44	Workstation with 22" LCD colour monitor.	No.
45	CCTV digital encoder.	No.
46	Gigabit Ethernet and media converter.	No.
47	Optical fiber cable patch panel.	No.
48	Core switch.	No.
49	Video archive server.	No.
50	Directory and archive server.	No.
51	Storage tower.	No.

Carried to Collection \$
5.13/7

Uninterruptible Power Supply (UPS)
units complete with inverter,
rectifier, batteries, battery
chargers, all necessary accessories
and connections, including all
cables and conduit connections to
power points, fixing and supports,
all as described

52	UPS unit with capacity to maintain 1/2 hour backup time.	No.
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Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

53	From CCTV camera to CCTV digital encoder.	No.
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54	From CCTV digital encoder to gigabit Ethernet and media converter.	No.
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55	From gigabit Ethernet and media converter to optical fiber cable patch panel.	No.
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56	From core switch to optical fiber cable patch panel.	No.
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57	From video archive server to core switch.	No.
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58	From directory and archive server to core switch.	No.
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59	From workstation to core switch.	No.
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60	From storage tower to video archive server.	No.
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61	From workstation to gigabit Ethernet and media converter.	No.
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Carried to Collection \$

5.13/9 Carried to Collection \$

PANIC ALARM SYSTEM

Uninterruptible Power Supply (UPS)
units complete with inverter,
rectifier, batteries, battery
chargers, all necessary accessories
and connections, including all
cables and conduit connections to
power points, fixing and supports,
all as described

62	UPS unit with capacity to maintain 1/2 hour backup time.	No.
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Panic alarm indication panel,
complete with all necessary
accessories, intercom battery and
charger, intercom with speaker and
microphone, all necessary
interconnecting wiring, all cables
and conduit connections to power
points, fixings and supports, all as
described

63	Panic alarm indication panel (Ref. *).	No.
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Panic alarm panel with panic alarm
push button and intercom, complete
with all necessary accessories,
interconnecting wiring, all cables
and conduit connections to power
points, fixings and supports, all as
described

64	Panic alarm panel with push button (Ref. *).	No.
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Carried to Collection \$
5.13/10

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From panic alarm indication panel
(Ref. *) to

65	Panic alarm panel with panic alarm push button and intercom.	No.
66	UPS unit.	No.

Carried to Collection \$
5.13/11

ACCESS CONTROL/CENTRAL SMART CARD
SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

67	Magnetic door contact.	No.	
68	By-pass keyswitch of tamper resistant type complete with indicating lamp and flashing red light.	No.	
69	Deadlock latchbolt with local alarm key-operated with lock set.	No.	
70	Electrical door lock with tenant push and timer for resetting.	No.	
71	Door release button.	No.	
72	Smartcard reader of modular design complete with LED indicator.	No.	
73	Breakglass unit.	No.	
74	Door bell button.	No.	
75	Door lock with card reader.	No.	
76	Door bell unit.	No.	
77	Door lock controller with power supply unit.	No.	
78	Card reader controller with power supply unit.	No.	
79	Smart card access control station.	No.	
80	Smart card reader and writer.	No.	
		Carried to Collection	\$
81	Smart card router.	No.	

5.13/12

5.13/13 Carried to Collection \$

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|----|-----------------------------------|-----|
| 82 | Laser printer. | No. |
| 83 | 19" LCD monitor. | No. |
| 84 | Card reader controller. | No. |
| 85 | Smartcard and access card holder. | No. |

Combination locks complete with electrical latch and mechanical locks, 4-digit entry code number panel, red light, all fittings and accessories, including all cables and conduit connections to power points, fixing and supports, all as described

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| 86 | Approved type. | No. |
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Door monitoring panel for access control system and door monitoring system, complete with all necessary accessories, interconnecting wiring, all cables and conduit connections to power points, fixings and supports, all as described

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| 87 | Door monitoring panel (Ref. *) | No. |
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Uninterruptible Power Supply (UPS) units complete with inverter, rectifier, batteries, battery chargers, all necessary accessories and connections, including all cables and conduit connections to power points, fixing and supports, all as described

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| 88 | UPS unit with capacity to maintain 1/2 hour backup time. | No. |
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Carried to Collection \$
5.13/14

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From door monitoring panel (Ref. *)
to

89	Magnetic door contact.	No.
90	By-pass keyswitch.	No.
91	Deadlock latchbolt with local alarm.	No.
92	Breakglass unit.	No.
93	Door bell button.	No.
94	Door bell unit.	No.

From door lock controller via card
reader controller to

95	Electrical door lock.	No.
96	Door release button.	No.
97	Smartcard reader.	No.
98	Combination lock.	No.
99	AFA panel.	No.

Carried to Collection \$
5.13/15

From smart card access control
station to

100	Smart card reader and writer.	No.
101	Smart card router.	No.
102	Laser printer.	No.
103	19" LCD monitor.	No.
104	Card reader controller.	No.
105	UPS unit.	No.

Allow for signal circuits comprising
cables of approved type including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as describedFrom door lock controller via card
reader controller

106	For interfacing with smart card access control station.	1	Item
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Carried to Collection \$
5.13/16

AUTOMATIC CARPARK CONTROL SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

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| 107 | Proximity card reader unit complete with help intercom station at entrance. | No. |
| 108 | Proximity reader / writer. | No. |
| 109 | Carpark control main station complete with 17" LCD monitor, fixed inside shroff office. | No. |
| 110 | Main intercom unit fixed inside shroff office. | No. |
| 111 | Manual switch for barrier control fixed inside shroff office. | No. |
| 112 | Motorized barrier gate at entrance. | No. |
| 113 | Motorized barrier gate at exit. | No. |

Uninterruptible Power Supply (UPS)
units complete with inverter,
rectifier, batteries, battery
chargers, all necessary accessories
and connections, including all
cables and conduit connections to
power points, fixing and supports,
all as described

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| 114 | UPS unit with capacity to maintain 1/2 hour backup time. | No. |
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Presence or passage loop detector,
drawing into and including 25 mm
diameter galvanized steel conduits

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| 115 | Approved type. | No. | Carried to Collection | \$ |
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Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From carpark proximity card reader
unit to

116	Carpark control main station.	No.
117	Main intercom unit.	No.
118	Motorized barrier gate.	No.
119	Presence or passage loop detector.	No.
120	Proximity reader / writer.	No.
121	UPS unit.	No.

Carried to Collection \$
5.13/18

AUTOMATIC TEMPERATURE CONTROL (ATC)
SYSTEM

Equipment and accessories complete
with all detailed and necessary
components, including all cables and
conduit connections to power points,
fixing and supports, all as
described

122	Flow sensor.	No.
123	Flow switch.	No.
124	Energy meter.	No.
125	Pressure sensor.	No.
126	Pressure switch.	No.
127	Differential pressure sensor / transmitter.	No.
128	Temperature sensor.	No.
129	Relative humidity sensor.	No.
130	CO2 sensor.	No.
131	Thermostat and 3-speed regulator.	No.
132	Conductivity sensor.	No.
133	Differential pressure switch.	No.
134	Static pressure sensor.	No.
135	Room thermostat.	No.
136	DDC outstation.	No.
137	Marshalling / interfacing box.	No.
138	Portable DDC operator terminal.	No.

Carried to Collection \$
5.13/19

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

From local motor control panel /
motor control center via DDC
controller / marshalling box to

139	Flow sensor.	No.
140	Flow switch.	No.
141	Energy meter.	No.
142	Pressure sensor.	No.
143	Pressure switch.	No.
144	Differential pressure sensor / transmitter.	No.
145	Temperature sensor.	No.
146	Relative humidity sensor.	No.
147	CO2 sensor.	No.
148	Thermostat and 3-speed regulator.	No.
149	Conductivity sensor.	No.
150	Differential pressure switch.	No.
151	Static pressure sensor.	No.
152	Room thermostat.	No.

Carried to Collection \$
5.13/20

153	Two way on/off motorised control valve.	No.
154	Two way modulating motorised control valve.	No.
155	Frequency inverter.	No.
156	Motorised on/off volume control damper.	No.
157	Motorised modulating volume control damper.	No.
158	Level switch.	No.
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159	Allow for supply and installation of complete programming of the DDC system, all as described.	1 Item
160	Allow for the design, supply and installation of system operation software, all as described.	1 Item

Carried to Collection \$
5.13/21

BUILDING MANAGEMENT SYSTEM (BMS)

161	Allow for design, supply and installation of BMS outstation, mounting racks and console desks complete with ventilation fans for accommodation of BMS, all as described.	1	Item
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Equipment and accessories complete with all detailed and necessary components, including all cables and conduit connections to power points, fixing and supports, all as described

162	Main workstation complete with network encoder, central processing unit, 21-inch LCD colour monitor, keyboard, mouse, etc.		Set
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163	Repeater workstation complete with network encoder, central processing unit, 21-inch LCD colour monitor, keyboard, mouse, etc.		Set
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164	Laptop complete with proprietary software for communication tools to configuration of DDC.		No.
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165	Dot matrix alarm printer.		No.
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166	A3 colour laser printer with network card.		No.
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167	Access switch.		No.
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168	Distribution switch.		No.
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169	Core switch.		No.
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170	Touch screen panel.		No.
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171	Portable DDC operator's terminal.		No.
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172	Optical fibre patch panel.	Carried to No. 5.13/22	Collection \$
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173	DDC outstation.	No.
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Carried to Collection \$
5.13/23

Signal and control circuits
comprising cables of approved type
and size, drawing into and including
conduits and fittings and/or
flexible conduits and fittings and
any cable installing facilities,
with earthing, all as described

174	From main workstation to dot matrix alarm printer.	No.
175	From main workstation to A3 colour laser printer.	No.
176	From access switch to main workstation.	No.
177	From access switch to DDC outstation.	No.
178	From access switch to touch screen panel.	No.
179	From access switch to distribution switch.	No.
180	From distribution switch to core switch.	No.
181	From distribution switch to repeater workstation.	No.
182	From core switch to patch panel.	No.

Carried to Collection \$
5.13/24

Conduit points comprising draw wires, drawing into and including conduits and fittings and/or flexible conduits and fittings and any cable installing facilities with earthing, all as described

183 Telephone outlet point. No.

Allow for signal circuits comprising cables of approved type including conduits and fittings and/or flexible conduits and fittings and any cable installing facilities, with earthing, all as described

From DDC outstations to marshalling boxes

184 For interfacing with LV switchboards. 1 Item

185 For interfacing with lighting control system. 1 Item

186 For interfacing with emergency generator system. 1 Item

187 For interfacing with ELV system. 1 Item

188 For interfacing with water leakage detection system. 1 Item

189 For interfacing with MVAC system. 1 Item

190 For interfacing with fire services system. 1 Item

191 For interfacing with AFA system. 1 Item

192 For interfacing with plumbing and drainage system. 1 Item

193 For interfacing with lift and escalator system. 1 Item

Carried to Collection \$
5.13/25

194	For interfacing with UPS system.	1	Item
195	For interfacing with digital metering and energy management system.	1	Item
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196	Allow for design, supply and installation of electrical power supply including power outlets, trunkings, conduits, cables and accessories from power supply point (power supply point provided by others) to equipment, all as described.	1	Item
197	Allow for supply and installation of complete programming of the DDC system, all as described.	1	Item
198	Allow for design, supply and installation of system operation software, all as described.	1	Item

Carried to Collection \$
5.13/26

COMMUNICATIONS / SECURITY / CONTROL
SYSTEMS SUNDRIES

The following items are in respect
of the whole Communications /
Security / Control Systems

199	Allow for marking the positions of holes, mortices, chases and the like in the structure.	1	Item
200	Allow for inspection, testing and commissioning of the complete Communications / Security / Control Systems, all as described.	1	Item
201	Allow for inspection, attendance, operation and maintenance of the complete Communications / Security / Control Systems during the Defects Liability Period, all as described.	1	Item
202	Allow for providing all necessary power and water, diesel and fuels in connection with inspection, testing, setting to work, commissioning and maintenance.	1	Item
203	Allow for providing installation drawings including detailed design, working and builder's work drawings, all as described.	1	Item
204	Allow for providing as-built drawings, all as described.	1	Item
205	Allow for providing Operation and Maintenance (O&M) manuals and user manuals, all as described.	1	Item
206	Allow for providing training and tuition to employer's staff, all as described.	1	Item

Carried to Collection \$
5.13/27

207	Allow for providing earthing up to the nearest earthing terminals, all as described.	1	Item
208	Allow for providing sample boards, all as described.	1	Item
209	Allow for providing mock-ups and prototypes, all as described.	1	Item
210	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
211	Allow for providing spares and tools, all as described.	1	Item
212	Allow for disconnecting, setting aside and refixing for the convenience of other trades.	1	Item

Carried to Collection \$
5.13/28

BILL NO. 5.13**COMMUNICATIONS / SECURITY /
CONTROL SYSTEMS****COLLECTION**

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BILL NO. 5.13**COMMUNICATIONS / SECURITY /**
CONTROL SYSTEMS

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Carried forward \$

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BILL NO. 5.13**COMMUNICATIONS / SECURITY /**
CONTROL SYSTEMS**TOTAL - BILL NO. 5.13**

Carried to Summary of Bill No. 5 \$