



BLOCK PLAN SCALE 1:1000

SCHEDULE OF PIPE MATERIALS

LOCATION	USAGE	MATERIAL STANDARD
ABOVEGROUND	PIPE WORK UP TO & INCLUDING 150MM DIAMETER	GALVANIZED MILD STEEL PIPES TO BS1387 MEDIUM GRADE FOR SCREWING TO BS21 PIPE THREADS
ABOVEGROUND	PIPE WORK 200MM DIAMETER	DUCTILE IRON PIPES TO BS EN455:2002, CLASS K9 COLD BITUMEN COATED EXTERNALLY AND INTERNALLY TO BS 3416:1991 TYPE II

DRAWING LIST

DRAWING NO.	REVISION	DRAWING TITLE
FS-1	0	F.S. NOTES, BLOCK PLAN, LEGEND, ABBREVIATION, DRAWING LIST, PIPE MATERIAL SCHEDULE, PUMP SCHEDULE, VERTICAL LINE DIAGRAM & SPRINKLER PIPE LOSS CALCULATION
FS-2	0	F.S. LAYOUT PLAN

PUMP SCHEDULE

DESCRIPTION	PRESSURE (BAR)	FLOW (L/MIN.)	PUMP SPEED (RPM)	PUMP RATING (KW)	POWER SUPPLY (volts/phases/Hz)
TWO HOSE REEL PUMPS (FSP-1 AS DUTY & FSP-2 AS STAND-BY PUMP OR VISE VERSA)	5.5	30	2900 MAXIMUM	1.5 KW	380/3/50
TWO SPRINKLER BOOSTER PUMPS (SPR-1 AS DUTY & SPR-2 AS STAND-BY PUMP OR VISE VERSA)	1.4 / 2.9 / 3.2	2250 / 1350 / 1100	2900 MAXIMUM	18.5 KW	380/3/50
SPRINKLER JOCKEY PUMP (SPJ-1)	5.5	30	2900 MAXIMUM	1.5 KW	380/3/50

FIRE SERVICES NOTE:

- NO STORAGE OF DANGEROUS GOODS WITHOUT THE PERMISSION BY THE DIRECTOR OF FIRE SERVICES. ANY INTENDED STORAGE OR USE DEFINED IN CHAPTER 295 OF THE LAWS OF HONG KONG SHOULD BE NOTIFIED TO THE DIRECTOR OF FIRE SERVICES.
- FIRE ALARM SYSTEM WAS PROVIDED TO THE ENTIRE BUILDING AND MODIFIED IN ACCORDANCE WITH BS 5839: PART 1:2002+ A2:2008 AND FIRE SERVICES DEPARTMENT (FSD) CIRCULAR LETTER NO. 1/2009. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE TO BE LOCATED AT EACH HOSE REEL POINT. THE ATUATION POINT SHOULD INCLUDE FACILITIES FOR FIRE PUMP START AND AUDIO / VISUAL WARNING DEVICE INITIATION.
- AN HOSE REEL SYSTEM WITH 2000 LITER CAPACITY F.S. WATER TANK WAS PROVIDED. THERE WERE SUFFICIENT HOSE REELS TO ENSURE THAT EVERY PART OF EACH BUILDING CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30M OF HOSE REEL TUBING FOR THE ENTIRE BUILDING.
- SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDING IN ACCORDANCE WITH BS 5266 : PART 1 AND BS EN 1838.
- SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266 : PART 1 AND FSD CIRCULAR LETTER NO. 5/2008.
- SECONDARY POWER SUPPLY CONNECTED IN FRONT OF THE MAIN SWITCH WAS PROVIDED AS THE EMERGENCY POWER SUPPLY FOR THE F.S. INSTALLATION FOR THE PREMISES.
- 5KG CO2 FIRE EXTINGUISHERS WERE PROVIDED NEAR F.S. PUMP ENCLOSURE AND IN SPRINKLER PUMP & CONTROL ROOM.
- AUTOMATIC SPRINKLER SYSTEM SUPPLIED BY A 90 000 LITRE SPRINKLER WATER TANK AND HAZARD CLASS 3 WAS PROVIDED TO THE TO THE ENTIRE BUILDING (EXCEPT RESIDENCE) IN ACCORDANCE WITH BS EN12845:2003 AND FSD CIRCULAR LETTER 3/2006, 4/2010 & 3/2012.
- ALL FIRE ALARM SIGNALS WERE COONNECTED TO F.S.C.C./CHUBB CENTRE THROUGH DIRECT TELEPHONE LINE.

B. D. REFERENCE :
 F. S. D. REFERENCE :
 FP 19 / 24422
 NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER.

PIPE COLOUR CODE

PIPE SIZES	COLOUR
ø32mm	RED
ø40mm	PURPLE
ø50mm	YELLOW
ø65mm	BLUE
ø80mm	GREEN
ø100mm	LIGHT BROWN
ø150mm	DEEP BROWN
ø200mm	DEEP Blue

LEGEND

SYMBOL	DESCRIPTION
	HOSE REEL W/30 M. LENGTH HOSE, STRIKER, LOCKABLE GLASS FRONT BOX, FIRE ALARM BELL & BREAK GLASS UNIT
	FIRE ALARM BELL (WEATHER PROOF FOR OUTDOOR)
	BREAK GLASS UNIT (WEATHER PROOF FOR OUTDOOR)
	GATE VALVE
	NON RETURN VALVE
	Y-STRAINER
	BALL FLOAT VALVE
	PRESSURE SWITCH
	FLOW SWITCH
	FLOW SWITCH ASSEMBLY
	PRESSURE GAUGE
	AUTOMATIC AIR VENT WITH COCK
	FIRE PUMP
	LEVEL SWITCH
	MONITORED GATE VALVE
	DIRECT READING FLOW METER
	68°C SPRINKLER HEAD
	VORTEX INHIBITOR
	EXIT SIGN BOX EQUIPPED WITH CHARGER AND BATTERY BACK-UP
	F.S. / SPRINKLER PIPE

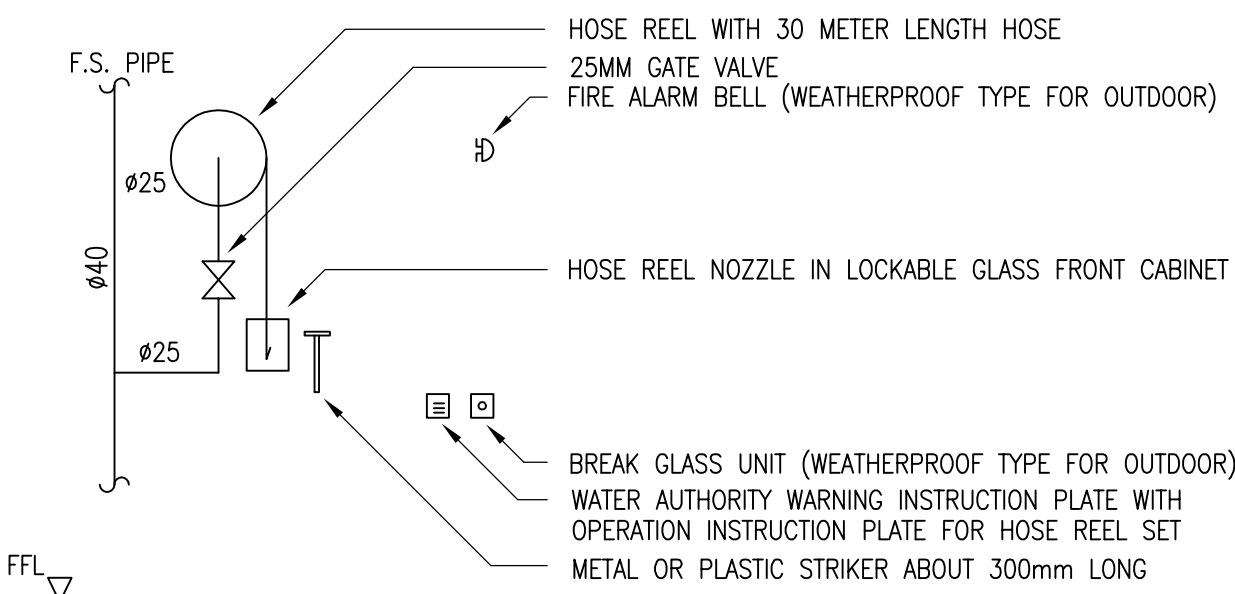
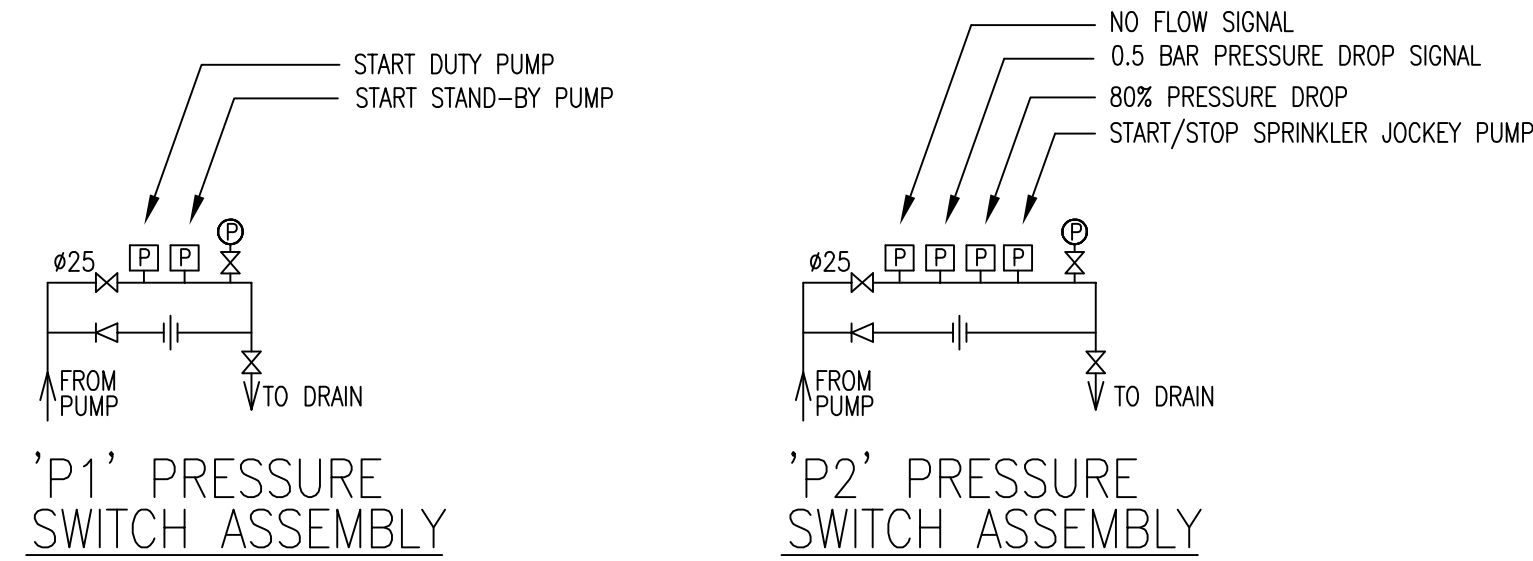
CALCULATION OF SPRINKLER PIPE PRESSURE LOSS

RUN OF DISTRIBUTION PIPE FROM CONTROL VALVE TO DESIGN POINT	PIPE SIZE (mm)	PIPE LENGTH (m)	FITTINGS	NOS.	EQU. LENGTH OF FITTINGS (m)	TOTAL EQU. LENGTH OF FITTINGS (m)	TOTAL EQU. PIPE LENGTH L (m)	CALCULATED BY HAZEN-WILLIAMS FORMULA P =
A	100	45	GATE VALVE	2	0.81	1.62	55.62	0.244 BAR (LESS THAN 0.5 BAR)
			90° ELBOW	3	3	9		
B	100	14	GATE VALVE	2	0.81	1.62	24.62	0.108 BAR
			90° ELBOW	3	3	9		
	80	20	90 ELBOW	0	2.4	0	20	0.32 BAR
TOTAL							0.428 BAR (LESS THAN 0.5 BAR)	

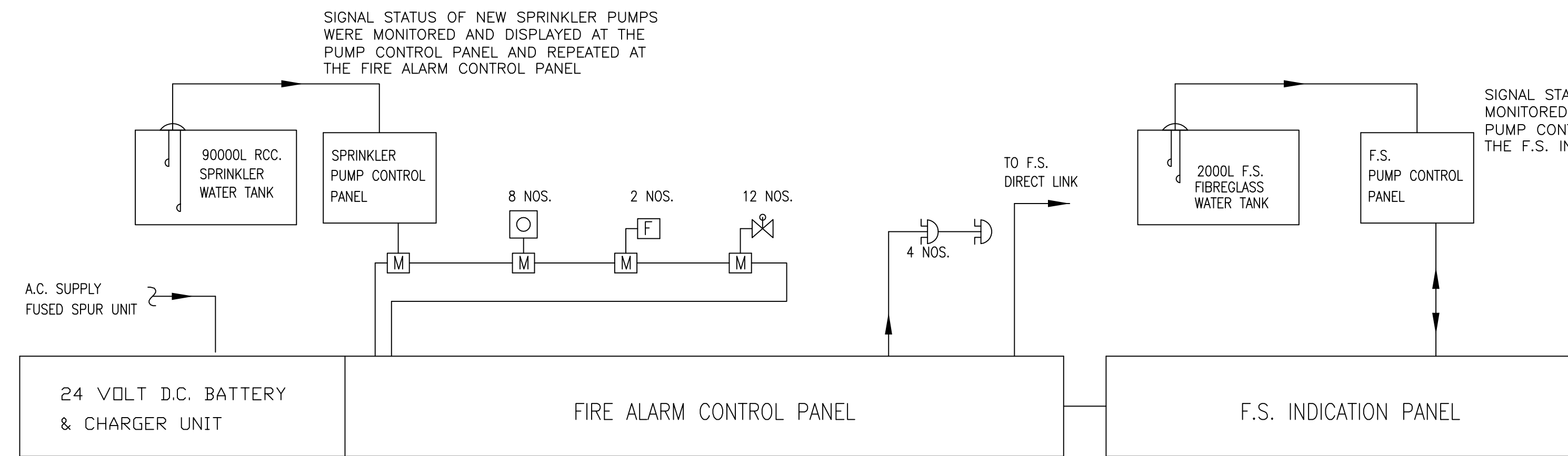
REFER CLAUSE 13.3 OF BS EN 12845:2003 USING HAZEN-WILLIAMS FORMULA AND PRE-CALCULATED SYSTEM:

$$P = \frac{6.05 \times 10^{-5}}{C^{1.85} \times d^{4.87}} \times L \times Q^{1.85}$$

P IS THE PRESSURE LOSS IN THE PIPE, IN BAR;
 Q IS THE FLOW THROUGH THE PIPE, IN LITRES PER MINUTE = 1000
 d IS THE MEAN INTERNAL DIAMETER OF THE PIPE, IN mm = 104.97 & 80.51
 C IS A CONSTANT FOR THE TYPE AND CONDITION OF PIPE = 120
 L IS THE EQUIVALENT LENGTH OF PIPE AND FITTINGS, IN METRES

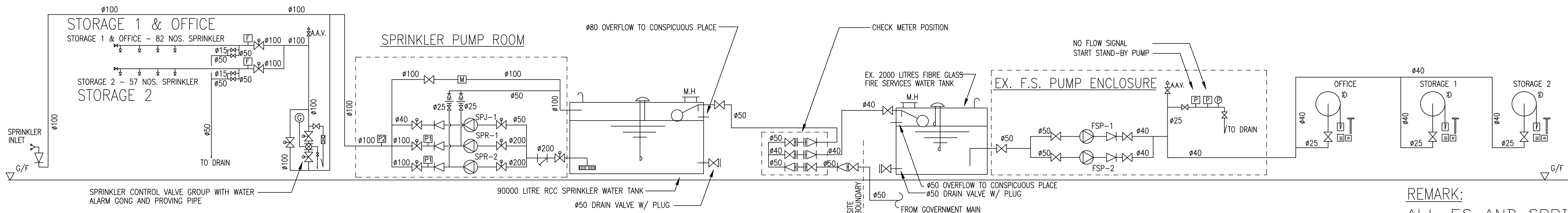


TYPICAL ARRANGEMENT OF HOSE REEL



SCHEMATIC DIAGRAM FOR FIRE ALARM CONTROL SYSTEM

SCHEMATIC DIAGRAM FOR F.S. INDICATION SYSTEM



SCHEMATIC PIPING DIAGRAM FOR SPRINKLER SYSTEM

SCHEMATIC PIPING DIAGRAM FOR HOSE REEL SYSTEM

REMARK:
 ALL FS AND SPRINKLER INSTALLATION ARE EXISTING INSTALLATION.