THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCING WORKING DRAWINGS

NEW BMS CONTROL PANEL

NOTE: ALL CONTROL POINTS ARE LOCATED IN THE PLANT ROOM UNLESS NOTED OTHERWISE

HEATING PLANTROOM BMS CONTROL PANEL

001 — 4c 25mm² XLPE/SWA/LSF + 16mm CPC (Main Sub-mains Supply To BMS Panel Refer To Switchboard Schematic For Size)

- IF — 002 FIRE ALARM INTERFACE
- 003 ETHERNET COMMUNICATIONS TO LOCAL COMMS CABINET CAT 6A) – BACNET CONNECTION
- 004 MAIN DISTRIBUTION BOARD SURGE PROTECTION ALARM SIGNAL
- SPN 16A — 005 BOILER SUPPLY (B1)
  - 006 ENABLE / FAULT
- SPN 16A — 007 GAS FIRED WATER HEATER
  - 008 ENABLE / FAULT
- SPN 16A — 009 PRESSURIATION UNIT SUPPLY (PU1)
  - 010 HIGH / LOW LEVEL FAULT
- SPN 16A — 011 LPHW PUMP (P1) – PRIMARY CIRCUIT
  - 012 ENABLE / FAULT
- SPN 16A — 013 LPHW PUMP (P2) – CIRCUIT 1
  - 014 ENABLE / FAULT
- SPN 16A — 015 ZONE VALVE CIRCUIT 1
  - 016 ENABLE / FAULT
- SPN 16A — 017 ZONE VALVE CIRCUIT 2
  - 018 ENABLE / FAULT
- SPN 16A — 019 ZONE VALVE CIRCUIT 3
  - 020 ENABLE / FAULT
- SPN 16A — 021 HEAT PUMP PRIMARY (P3)
  - 022 ENABLE / FAULT
- SPN 16A — 023 DHW RETURN PUMP (P4)
  - 024 ENABLE / FAULT
- SPN 16A — 025 HEAT METER SUPPLY – BOILER
  - 026 HEAT METER PULSED SIGNAL
- SPN 16A — 027 HEAT METER SUPPLY – HEAT PUMP
  - 028 HEAT METER PULSED SIGNAL
- SPN 16A — 029 GAS DETECTION PANEL
  - 030 VALVE POSITION / STATUS
- SPN 16A — 031 DATA LOGGER POWER SUPPLY
  - 032 GATEWAY DATA LOGGER MODEM LINE
- 033 OUTDOOR AIR TEMP SENSOR (NORTH WALL)
- 034 ASHP PRIMARY FLOW IMMERSION TEMP SENSOR
- 035 ASHP PRIMARY RTN IMMERSION TEMP SENSOR
- 036 ASHP FLOW HIGH LIMIT STAT
- 037 BOILER HEADER FLOW TEMPERATURE SENSOR
- 038 BOILER HEADER RTN TEMPERATURE SENSOR
- 039 BOILER HEADER FLOW HIGH LIMIT STAT
- 040 LPHW HEATING CIRCUIT FLOW TEMP SENSOR (P1)
- 041 LPHW HEATING CIRCUIT RETURN TEMP SENSOR (P1)
- 042 LPHW BUFFER VESSEL TEMP SENSOR
- 043 LPHW BUFFER VESSEL OUTLET FLOW TEMP SENSOR
- 044 LPHW BUFFER VESSEL OUTLET RETURN TEMP SENSOR
- 045 DHWS FLOW TEMP SENSOR
- 046 DHWS RETURN TEMP SENSOR
- 047 DHWS HIGH LIMIT STAT
- 048 MAINS WATER INCOMING METER (PULSED SIGNAL)
- 049 LPG METER BOILER SUPPLY (PULSED SIGNAL) – OUTSIDE PLANT ROOM
- 050 RUN ON TIMER – CIRCUIT 1
- 051 RUN ON TIMER – CIRCUIT 2
- 052 RUN ON TIMER – CIRCUIT 3
- 053 RUN ON TIMER – CIRCUIT 4
- 054 MODBUS INTERFACE TO ASHP – AT EXTERNAL HEAT PUMP
- 055 ELECTRICAL SWITCHBOARD METERS (MODBUS)
  OVERALL SCHOOL METER AND HEAT PUMP METERS
  AT NEW INCOMING ESB METER SUPPLY
- 056 FUTURE – POWER & CONTROL CABLE TO TEMP STATS (MODBUS)
  - SEE DETAIL A
  - MAX 30no. CONTROLLERS ON ONE MODBUS LOOP
  - MAX 10no. CONTROLLERS ON ONE 24v POWER SUPPLY

30% SPARE CAPACITY

NOTES:

ALL CABLES DETAILED ⊸ MUST BE SCREENED.

2 CORE CABLE AS PER CONTROL SPECIALISTS/MANUFACTURERS REQUIREMENTS
4 CORE CABLE AS PER CONTROL SPECIALISTS/MANUFACTURERS REQUIREMENTS
MODBUS CABLE AS PER CONTROL SPECIALISTS/MANUFACTURERS REQUIREMENTS

\\\\ DENOTES NUMBER OF CORES

EARTHING CABLES NOT INDICATED FOR CLARITY

FINAL CONNECTIONS TO BE COMPLETED BY ELECTRICAL CONTRACTOR

NOTE: THE CABLE TYPES LISTED ON THIS DRAWING ARE INDICATIVE AND TO CONVEY DESIGN INTENT. FINAL AND EXACT CABLE TYPES SHALL BE ADVISED BY THE BMS PANEL MANUFACTURER AND ALL ASSOCIATED ALLOWANCES MADE AT TENDER STAGE.

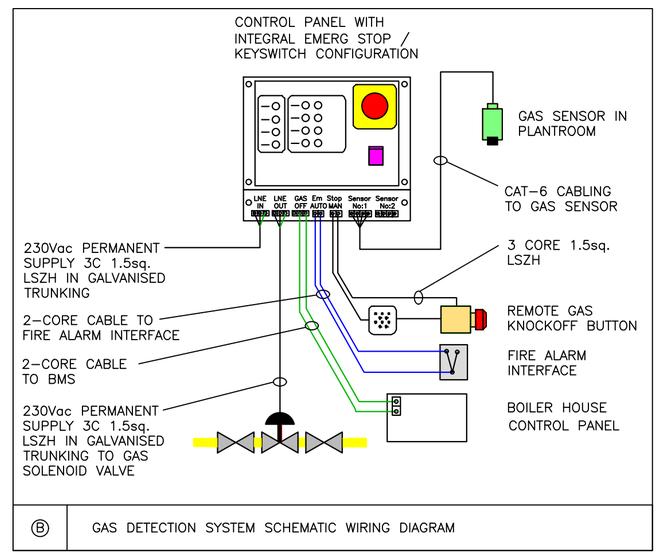
GENERAL NOTES:

1. THE ELECTRICAL SUB-CONTRACTOR SHALL WIRE TO THE SCHEDULE OF WIRING DETAILS AS SUBMITTED BY THE SPECIALIST CONTRACTOR PROVIDING THE MECHANICAL CONTROL PANEL.
2. CONTRACTOR SHALL ALSO ALLOW FOR THE FOLLOWING:
3. ALL CIRCUITS/CONTROL CABLING TO BE INSTALLED IN GALVANISED CONDUIT/TRUNKING. MINIMUM SIZE OF CABLE SHALL BE 2.5MM UNLESS OTHERWISE INDICATED.
4. FINAL CONNECTIONS TO BE CARRIED OUT USING FLEXIBLE METALLIC CONNECTIONS AS PER KOPEX TO IP65. FLEXIBLE CONNECTIONS SHALL NOT EXCEED 1 METRE.
5. FLEXIBLE CONNECTIONS SHALL BE OF SUFFICIENT LENGTH TO PERMIT THEIR DISCONNECTION TO FACILITATE COMMISSIONING OF STATS ETC BY THE SPECIALIST CONTRACTOR.
6. ALL ISOLATORS EXTERNALLY LOCATED OR WITHIN THE BOILER plantroom SHALL BE OF THE ROTARY TYPE AS PER CRAIG AND DERRICOTT TO IP65 LOCKABLE AND SHALL BE RATED AT 20A.
7. THE ELECTRICAL SUB-CONTRACTOR SHALL DETERMINE THE EXACT NO. OF POLES REQUIRED PRIOR TO SUPPLY. ISOLATORS SHALL BE 20A UNLESS OTHERWISE INDICATED.
8. WHERE A CAT6A CABLE OUT IS DENOTED, THE ELECTRICAL SUB-CONTRACTOR SHALL PROVIDE A DATA POINT, CABLED BACK TO LOCAL HUB.

MECHANICAL CONTROLS WIRING INSTALLATION NOTES:

1. ALL POWER CABLING TO BE WIRED IN 4 CORE 2.5mm SQ LSZH AND SINGLE CORE 2.5mm SQ CPC, UNLESS OTHERWISE STATED. ALL WIRING TO BE INSTALLED IN GALVANISED STEEL CONDUIT/TRUNKING THROUGHOUT ENTIRE ROUTE.
2. ALL CONTROL WIRING AND SENSORS TO BE COMPLETED IN BELDON 0.75mm SQ (MIN) SQ SCREENED CABLE.
3. ALL CONTROL VALVE ACTUATORS, CONTROLLERS, TO BE COMPLETED IN BELDON 1.5mm SQ (MIN) SCREENED CABLE.
4. ALL WIRING TO EXTRACT FANS SHALL BE COMPLETED IN 1.5mm SQ LSZH.
5. MCC CONTROL PANEL AND ALL BEMS MECHANICAL FIELD EQUIPMENT INCLUDING BUT NOT LIMITED TO CONTROL VALVES, SENSORS, VALVES ACTUATORS, FANS, MHRV UNITS, CONTROLLERS, METERS ETC SHALL BE PROVIDED & INSTALLED BY THE MECHANICAL SERVICES CONTRACTOR BUT WIRED AND TERMINATED BY THE ELECTRICAL CONTRACTOR.
6. ALL CONTROL & POWER WIRING SHALL BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
7. ALL BEMS POWER & CONTROL WIRING TERMINATIONS AT THE MCC CONTROL PANEL SHALL BE CARRIED OUT BY THE ELECTRICAL CONTRACTOR.
8. ALL VENTILATION WORKS INDICATED (UNLESS OTHERWISE STATED) SHALL BE WIRED OFF LOCAL LIGHTING CIRCUIT VIA A FUSED NEON INDICATING CONNECTION UNIT (NOT INDICATED).
9. ALL MECHANICAL PLANT ITEMS SHALL BE LOCATED AND FIXED BY THE MECHANICAL SUB-CONTRACTOR PRIOR TO THE ELECTRICAL SUB-CONTRACTOR WIRING SAME.
10. ANY ITEMS NOT REFERRED TO AS FREE ISSUE ARE TO BE SUPPLIED BY THE ELECTRICAL SUB-CONTRACTOR.
11. FINAL LOCATION AND HEIGHTS OF ALL SENSORS AND THERMOSTATS, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH TGD PART M AND TO BE AGREED ONSITE WITH ENGINEER AND SPECIALIST SUB-CONTRACTOR PRIOR TO INSTALLATION.
12. THE ELECTRICAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SUPPLY & INSTALL OF THE CONTROL CABLING BETWEEN DIRECT ACTING EQUIPMENT i.e. EXTRACT FANS TO PIR/LIGHTSWITCH/SPEED CONTROLLERS, HEATING CONTROL VALVES TO WALL TEMPERATURE SENSORS, MHRV UNITS TO DEMAND CONTROLLERS AND SENSORS ETC.

MECHANICAL/ELECTRICAL SYMBOLS	
SPN 20A	SINGLE PHASE & N ISOLATOR (RATING AS INDICATED) SUPPLIED AND FITTED BY ELECTRICAL SUB-CONTRACTOR
TPN 20A	3 PHASE & N ISOLATOR (RATING AS INDICATED) SUPPLIED AND FITTED BY ELECTRICAL SUB-CONTRACTOR
	SWITCHED FUSED-CONNECTION OUTLET WITH NEON (SUPPLIED AND FITTED BY ELECTRICAL SUB-CONTRACTOR)
FAN 3P	3-POLE FAN ISOLATING SWITCH SUPPLIED AND FITTED BY ELECTRICAL CONTRACTOR
'REF'	MAIN-SWITCH BOARD
'REF'	SUB-DISTRIBUTION BOARD
IF	INTERFACE UNIT & POWER SUPPLY
	DUAL DATA OUTLET – RJ45
Ts	TEMP STAT / SENSOR
	2-PORT CONTROL VALVE
	3-PORT CONTROL VALVE
M	BEMS METER
HM	BEMS HEAT METER
	GAS DETECTION PANEL
	GAS SOLENOID VALVE
S	LPG GAS SENSOR MOUNTED AT LOW LEVEL
	PUMP
	EXTRACT FAN
PIR	PRESENCE DETECTOR
	WALL MOUNTED CO2 SENSOR
SC	FAN SPEED CONTROLLER
DC	MHRV UNIT DEMAND CONTROLLER
	COLD WATER BOOSTER PUMP



Ⓑ GAS DETECTION SYSTEM SCHEMATIC WIRING DIAGRAM

REV	DESCRIPTION	DRN	CKD	DATE
T01	TENDER ISSUE	CM	SF	20-04-2026
P01	TA ISSUE	CM	SF	14-04-2026

ISSUE: TENDER STAGE

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PROJECT TITLE
SCHOOLS ENERGY PATHFINDER - 8.6 Ughtyneil NS

DRAWING TITLE
BEMS & MECHANICAL WIRING
CONTROL PANEL & WIRING DETAILS

DRAWING REFERENCE	DRN	SCALE
3232-SMK-8.6-ZZ-DR-ME-5801 (Project - Originator - Volume - Level - Type - Role - Number)	CM	A1 NTS