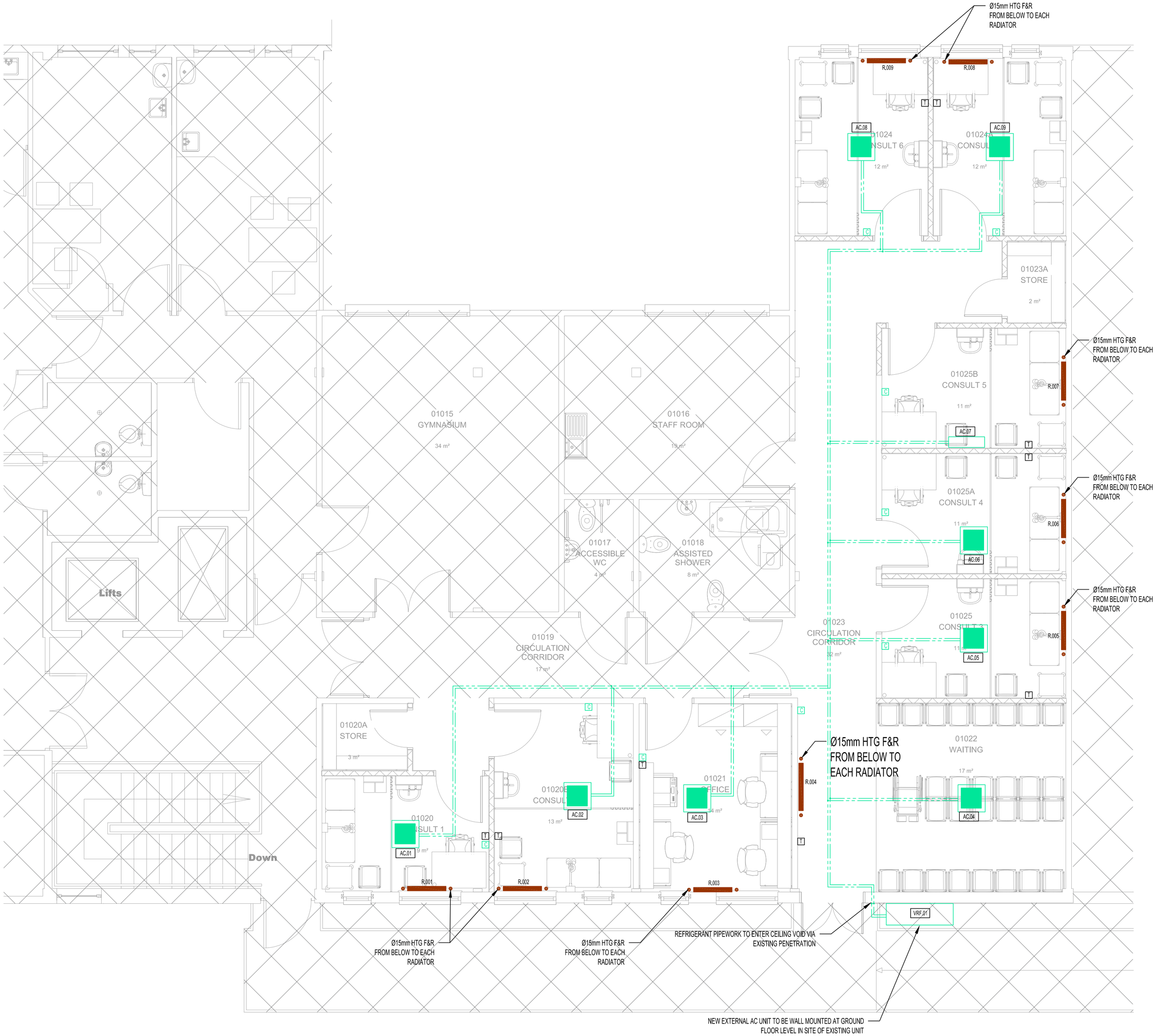


HEATING SCOPE OF WORKS:

- MECHANICAL CONTRACTOR TO CONNECT ONTO EXISTING LTHW NETWORK
- EXISTING FLOW AND RETURN TEMPERATURE OF THE SYSTEM IS ASSUMED AT 82°C / 71°C
- NEW LTHW PIPEWORK TO CONNECT TO NEW RADIATORS FROM BELOW AS PER EXISTING INSTALLATION.
- PIPEWORK TO BE MILD CARBON STEEL HEAVY GRADE TO BS EN 10255 & BS EN 10220
- PIPEWORK TO BE THERMALLY INSULATED IN 20MM PHENOLIC FOAM
- ALL VALVES TO BE MANUFACTURED BY CRANE OR HATTERSLEY

THE CONTRACTOR MUST ALLOW FOR:

- ALL NECESSARY FLUSHING, FILLING AND VENTING OF ALL SERVICES
- ALL NECESSARY COMMISSIONING STATIONS FOR SYSTEM BALANCING
- ALL TESTING, WITNESSING HYDRAULIC PRESSURE TESTS, BALANCING, VENTING AND COMMISSIONING.
- ALL PRIMARY AND SECONDARY SUPPORT SYSTEMS TO INSTALL THE SERVICES

- THE SELECTION AND INSTALLATION OF ALL MEASURES TO ALLOW FOR EXPANSION AND CONTRACTION SHALL BE INCLUDED FOR THIS PROJECT. THIS SHALL BE IN THE FORM OF LOOPS, BELLOWS, ANCHORS, GUIDES, OFFSETS, ROLLERS/CHAIRS AND COLD DRAW.
- THE SYSTEM SHALL BE CHEMICALLY DOSED WITH CORROSION INHIBITOR AND SEALING TREATMENT; ALL WATER TESTING NECESSARY TO DETERMINE WHAT LEVEL OF TREATMENT IS TO BE PROVIDED SHALL BE INCLUDED WITHIN THE COSTS

LST RADIATORS SHALL BE INSTALLED TO AREAS DETAILED ON DRAWINGS AND APPENDED SCHEDULE.

ALL RADIATORS SHALL BE:

- SELECTED TO HAVE A LOW SURFACE TEMPERATURE (I.E. 43°C) WHEN SUPPLIED WITH LTHW STATED FLOW AND RETURN TEMPERATURES.
- SUPPLIED WITH MATCHED TOP AND SIDE GRILLES.
- SUPPLIED WITH MANUFACTURERS MATCHED STANDARD FIXING BRACKETS.
- COMPLETE WITH ANY SECONDARY SUPPORTS NECESSARY.
- FIXED USING RAWLBOLT FIXINGS, PLASTIC OR FIBRE PLUGS SHALL NOT BE USED.
- PROVIDED WITH A THERMOSTATIC RADIATOR VALVE ON THE FLOW CONNECTION WITH REMOTE TRV SENSOR HEAD POSITIONED TO ACCURATELY DETECT ACTUAL ROOM TEMPERATURE.
- PROVIDED WITH A LOCKSHIELD VALVE ON THE RETURN.
- INSTALLED LEVEL AND PLUMB. A COMMON HEIGHT TO THE TOP OF ALL RADIATORS SHALL BE MAINTAINED WHEN MORE THAN ONE RADIATOR IS FIXED WITHIN A SINGLE ROOM / SPACE.
- TAKEN DOWN AND REINSTATED UP TO TWO TIMES FOR DECORATION PURPOSES.
- PRESSURE TESTED TO SYSTEM REQUIREMENTS.
- PROVIDED WITH A RECESSED AIR VENT SHALL BE PROVIDED AT THE HIGH POINT ON THE RADIATOR, ACCESSIBLE EXTERNALLY TO THE RADIATOR.
- RADIATOR CONNECTIONS SHALL BE AT LEAST 15MM IN SIZE UNLESS INDICATED OTHERWISE.
- PROVIDED WITH A MAXIMUM OF THREE TOP BRACKETS AND TWO BOTTOM BRACKETS TO EACH RADIATOR.
- EXTENDED CASING TO FLOOR LEVEL TO COVER PIPEWORK ETC.
- EXTERNAL COVERS/GRILLE SHALL BE TO RAL COLOUR DETAILED BY ARCHITECT.
- HAVE FRONT FACING OUTLET GRILLES.
- PROVIDE AN EARTHING BOND ON THE TUBE AND CASING OF EACH HEATER CABINET, CONNECTED BY MEANS OF COPPER TAPE.
- PROTECT EACH OF THE HEATERS AFTER INSTALLATION BY MEANS OF MANUFACTURERS PACKING OR POLYTHENE SHEETS, MAINTAINED THROUGHOUT THE INSTALLATION PERIOD, THIS SHALL ONLY BE REMOVED WHEN THE DECORATIONS HAVE BEEN COMPLETED.

TESTING & COMMISSIONING:

- THE CONTRACTOR SHALL ENSURE THAT ACCURATE RECORDS ARE TAKEN FOR ALL CHECKS AND MEASUREMENTS UNDERTAKEN WITHIN THE COMMISSIONING SCOPE OF WORKS.
- THE CONTRACTOR SHALL UNDERTAKE HYDRAULIC PRESSURE TESTING OF PIPEWORK IN ACCORDANCE WITH BSRIA GUIDES.

COOLING SCOPE OF WORKS:

- PROVISION OF A VARIABLE REFRIDGERANT FLOW (VRF) SYSTEM TO SATISFY BUILDING COOLING LOADS DURING PEAK SUMMER. THE SYSTEM COMPROMISES ALL PLANT, REFRIDGERATION DISTRIBUTION AND CONTROL AS DETAILED ON THE DESIGN DRAWINGS AND FOLLOWING CLAUSES.

THE SYSTEM SHALL BE CAPABLE OF PROVIDING HEATING / COOLING TO EACH ROOM AS DETAILED ON THE TENDER DRAWINGS AND TO MEET THE FOLLOWING CRITERIA:

- EACH ROOM SHALL BE PROVIDED WITH ONE OR MORE INTERNAL UNITS TO MEET THE ROOM ENVIRONMENTAL REQUIREMENTS. THESE SHALL HAVE AN ELECTRONIC VALVE TO CONTROL REFRIGERANT FLOW RATE IN RESPONSE TO THE LOAD VARIATION IN THE CONDITIONED SPACE. THE EXPANSION VALVE SHALL BE CONTROLLED BY AN INTEGRAL COMPUTERIZED PID CONTROL SYSTEM TO MAINTAIN DESIGN PARAMETERS.
- USE REFRIGERANT R32.
- THE SYSTEM SHALL BE DESIGNED AND CERTIFIED TO HAVE AN EER COMPLIANT WITH THE NON-DOMESTIC BUILDING SERVICES COMPLIANCE GUIDE OR TO SATISFY EPC REQUIREMENTS.
- WALL MOUNTED LCD REMOTE CONTROLLER AND CENTRAL CONTROL SYSTEM.
- INTEGRAL CONDENSATE PUMP, ONE PER INDOOR UNIT. IF THIS PUMP SHOULD FAIL FOR ANY REASON, THE ASSOCIATED UNIT SHALL SHUT DOWN TO PREVENT FLOODING.
- LOWEST EVAPORATING TEMPERATURE = MINUS 5°C.
- CONDENSER SELECTION AMBIENT TEMPERATURE = 35°C DRY BULB.
- REFRIGERANT LINES AND POWER/CONTROL CABLING DISTRIBUTION SHALL BE INSTALLED UPON GALVANISED CABLE TRAY. ELECTRICAL CABLING STANDARDS SHALL BE AS DETAILED IN THE CONTROLS SECTION OF THIS SPECIFICATION.
- LCD SET POINT CONTROLLER (WALL MOUNTED @ FFL + 1500 - ONE PER SYSTEM) ENABLING INTERROGATION OF THE EQUIPMENT FOR SERVICING PROCEDURES.
- SELECTED TO ACHIEVE AN ENERGY RATING OF 'A' FOR EACH SYSTEM.

THE CONTRACTOR MUST ALLOW FOR:

- ALL NECESSARY FLUSHING, FILLING AND VENTING OF ALL SERVICES
- ALL TESTING, WITNESSING HYDRAULIC PRESSURE TESTS, BALANCING, VENTING AND COMMISSIONING.
- ALL PRIMARY AND SECONDARY SUPPORT SYSTEMS TO INSTALL THE SERVICES

- THE SELECTION AND INSTALLATION OF ALL MEASURES TO ALLOW FOR EXPANSION AND CONTRACTION SHALL BE INCLUDED FOR THIS PROJECT. THIS SHALL BE IN THE FORM OF LOOPS, BELLOWS, ANCHORS, GUIDES, OFFSETS, ROLLERS/CHAIRS AND COLD DRAW.
- THE SYSTEM SHALL BE CHEMICALLY DOSED WITH CORROSION INHIBITOR AND SEALING TREATMENT; ALL WATER TESTING NECESSARY TO DETERMINE WHAT LEVEL OF TREATMENT IS TO BE PROVIDED SHALL BE INCLUDED WITHIN THE COSTS

TESTING & COMMISSIONING:

TESTING AND COMMISSIONING IS TO BE CARRIED OUT BY THE COMMISSIONING SPECIALIST ALONGSIDE THE MANUFACTURERS COMMISSIONING THEIR OWN PLANT.

NOTES:

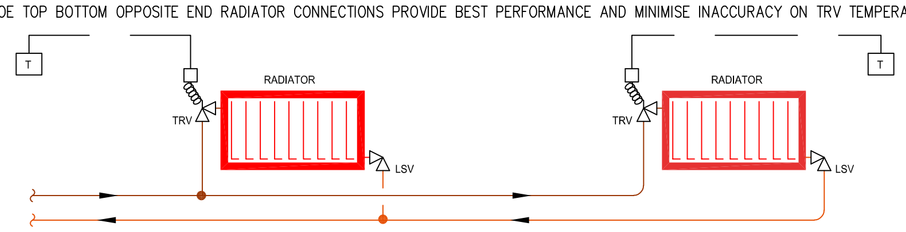
- DO NOT SCALE FROM THIS DRAWING. IF IN DOUBT-ASK.
- THIS DRAWING SHOWS DESIGN INTENT ONLY, IT DOES NOT SHOW ALL BENDS, TEES & SETS NECESSARY TO LOCATE SERVICES CORRECTLY TO AVOID CLASHES & ENSURE GOOD MAINTENANCE ACCESS. THE CONTRACTOR SHALL INCLUDE FOR THIS WITHIN THEIR COSTS.

HEATING LEGEND

- REFRIGERANT PIPEWORK
- C — A/C WALL CONTROLLER
- T — ANTI-TAMPER THERMOSTAT
- RADIATOR

NOTES

- EACH RADIATOR SHALL BE PROVIDED WITH A REMOTE CAPILLARY TRV IN FLOW PIPE AND LOCK SHIELD VALVE IN RETURN PIPE. THE TRV SHALL BE CONNECTED TO REMOTE SETPOINT ADJUSTER VIA CAPILLARY TUBE. THE SET POINT ADJUSTER SHALL BE ROOM MOUNTED. CAPILLARY TUBE TO BE RUN IN THE WALL VIA CONDUIT.
- TBOE TOP BOTTOM OPPOSITE END RADIATOR CONNECTIONS PROVIDE BEST PERFORMANCE AND MINIMISE INACCURACY ON TRV TEMPERATURE DETECTION



DETAIL: TYPICAL PIPEWORK ARRANGEMENT FOR RADIATORS

RADIATOR SCHEDULE

REF	MODEL	LENGTH (mm)	HEIGHT (mm)	ROOM TEMP (°C)
R.001	245225 - K2	850	500	21
R.002	245225 - K2	850	500	21
R.003	245225 - K2	850	500	21
R.004	245226 -K2	1050	500	21
R.005	245201 - K1	850	500	21
R.006	245201 - K1	850	500	21
R.007	245201 - K1	850	500	21
R.008	245225 - K2	850	500	21
R.009	245255 - K1	850	500	21

ALL RADIATORS TO BE STELRAD, THEIR LST i PLUS DECO RANGE OR EQUAL AND APPROVED

VRF SCHEDULE

INDOOR UNITS

REF	TYPE	MODEL	SPEED	SENSIBLE COOLING (kW)	TOTAL COOLING (kW)
AC-01	CASSETTE	PLFY-P20VFM-E	HIGH	1.6	2.0
AC-02	CASSETTE	PLFY-P25VFM-E	HIGH	2.0	2.5
AC-03	CASSETTE	PLFY-P20VFM-E	HIGH	1.6	2.0
AC-04	CASSETTE	PLFY-P50VFM-E	HIGH	3.6	5.0
AC-05	CASSETTE	PLFY-P20VFM-E	HIGH	1.6	2.0
AC-06	CASSETTE	PLFY-P20VFM-E	HIGH	1.6	2.0
AC-07	WALL MOUNTED	PKFY-P20VLM-E	HIGH	1.4	2.0
AC-08	CASSETTE	PLFY-P25VFM-E	HIGH	2.0	2.5
AC-09	CASSETTE	PLFY-P25VFM-E	HIGH	2.0	2.5

VRF SYSTEM TO BE PROVIDED AS MITUBISHI ELECTRIC, THEIR CITY MULTI R410a RANGE OR EQUAL AND APPROVED

OUTDOOR UNIT

REF	MODEL	CAPACITY (kW)
VRF.01	PUMY-P250YBM	21.6

VRF SYSTEM TO BE PROVIDED AS MITUBISHI ELECTRIC, THEIR CITY MULTI R410a RANGE OR EQUAL AND APPROVED

REV	DATE	DESCRIPTION	BY	VE
T01	FEB'21	TENDER ISSUE	NL	PT

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STAGE 4

Status

TENDER ISSUE

Client

NHS Bedfordshire Hospitals NHS Foundation Trust

Project

PROPOSED CONSULTATION ROOMS WITHIN EXISTING CHAUL END COMMUNITY CENTRE (FIRST FLOOR)

Drawing Title

PROPOSED HEATING & COOLING LAYOUT

Scale (A1)	Date	By	Ve
1:50	NOV'21	NL	PT

Proj ID	Originator	Volume	Level	Type	Role	Number	Suitability	Revision
210581	CPW	XX	01	DR	M	12101	D2	T01

210581-CPW-XX-01-DR-M-12101 D2 T01

CPW Project No. 210581

Linked Files

1272-DESM-00-ZZ-M3-A-0001 -Sheet -1272-DESM-01-ZZ-M3-A-401