

LEGEND

- REFRIGERANT FLOW
- REFRIGERANT RETURN
- FCU — INDOOR FAN COIL UNIT
- OU — OUTDOOR UNITS
- SD — SUPPLY DIFFUSER
- ED — EXTRACT DIFFUSER
- PIPEWORK IN CEILING VOID
- PIPEWORK AT LOW LEVEL
- PIPEWORK IN FLOOR VOID
- DFA DROP FROM ABOVE
- DTB DROP TO BELOW
- RTA RISE TO ABOVE
- AH ACCESS HATCH

NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARATION OF SHOP DRAWINGS, FABRICATION OF PARTS, ORDERING MATERIALS OR COMMENCING WORKS
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS, SPECIFICATIONS AND SCHEDULES.
4. ANY PENETRATION THROUGH FLOOR, SEEK STRUCTURAL ENGINEERS APPROVAL BEFORE COMMENCEMENT.
5. ALL PLANT AND EQUIPMENT SHALL BE INSTALLED FULLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

REFRIGERATION INSTALLATION

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE VRF SYSTEMS IN ACCORDANCE WITH BS EN 378. THE SYSTEM SHOWN IS INDICATIVE TO DEMONSTRATE DESIGN INTENT ONLY, THE SYSTEM SIZES AND PIPEWORK ROUTES ARE SUBJECT TO THE CONTRACTORS DETAILED DESIGN.
2. MECHANICAL CONTRACTOR'S AIR CONDITIONING SPECIALIST TO SUPPLY, INSTALL, TEST AND COMMISSION ALL INTERCONNECTING REFRIGERATION PIPEWORK BETWEEN THE OUTDOOR AND INDOOR UNITS.
3. ALL PIPEWORK TO BE CARRIED OUT IN REFRIGERATION QUALITY SOFT/MEDIUM DRAWN COPPER TUBING TO BS2871 PART 2: 1972 COMPLETE WITH THE APPROPRIATE JOINT PIPES FOR TWIN AND TRIPLE SYSTEMS.
4. PIPEWORK SHOULD BE CARRIED OUT BY AN APPROVED (CERTIFICATE APPROVAL MUST BE SUBMITTED PRIOR TO INSTALLATION COMMENCEMENT) REFRIGERANT ENGINEER AND IN ACCORDANCE TO BS-EN 378 2000 SPECIFICATION. RATOA TOOLS REQUIRED FOR ALL PIPEWORK, TORQUE SPANNERS, FLARING BLOCKS ETC.
5. LONGEST POSSIBLE LENGTHS OF COPPER PIPE SHOULD BE UTILISED TO MINIMISE JOINTS ON SITE.
6. APPROPRIATE REFRIGERATION INSTALLATION TOOLS MUST BE UTILISED. DRY NITROGEN MUST BE UTILISED AT ALL TIMES IN THE SYSTEM DURING BRAZING.
7. ALL PIPEWORK (SUCTION AND LIQUID LINES) TO BE INSULATED WITH SLIP ON CLOSE CELL ELASTOMERIC PIPE INSULATION (AS MANUFACTURED BY ARMAFLEX OR EQUAL AND APPROVED) WITH A FIRE PERFORMANCE CLASS O OF THE 1985 BUILDING REGULATIONS, HAVING A WALL THICKNESS OF NOT LESS THAT 13mm.

 AFTER INSTALLATION OF PIPEWORK, AND PRIOR TO SEALING OF INSULATION JOINTS AND STARTING OF EQUIPMENT, PIPEWORK SHOULD BE PRESSURE STRENGTH TESTED TO 42 BAR, CHECKED FOR DEFORMATION, AND THEN LEAK TESTED AT 33 BAR AND HOLD FOR 24 HOURS AND CHECKED FOR LEAKS. THEN VACUUMED/DEHYDRATED TO (-752MM HG) 2 TORR, AND HELD AT THAT SETTING FOR 12 HOURS (MINIMUM). HSE DOCUMENT G5A SHOULD BE FOLLOWED DURING PRESSURE TESTING PERIOD.
8. REFRIGERANT (R32) CHARGE WEIGHT MUST BE CALCULATED, TO THE ACTUAL INSTALLED LENGTH OF PIPEWORK IN ACCORDANCE TO MANUFACTURERS RECOMMENDATIONS.
9. THE CHARGING SHOULD BE CARRIED OUT WITH AN APPROPRIATE CHARGING STATION.
10. PIPEWORK TO BE PROPERLY FIXED AND SUPPORTED AT A MINIMUM OF 1.5 METRE CENTRES AND WHERE REQUIRED SHOULD BE RUN ON GALVANISED TRAYS. ALL PIPEWORK TO BE LABELLED WITH ID NUMBER (CONDENSING UNITS REF.) AT 3 METRE INTERVALS.
11. JOINTS IN COPPER PIPE SHALL BE BRAZED. BRAZING SHALL BE CARRIED OUT TO THE REQUIREMENTS OF THE HVCA CODE OF PRACTICE – BRAZING AND BRONZE WELDING OF COPPER PIPE AND SHEET.
12. WHERE VRF AND VENTILATION PLANT IS INSTALLED ABOVE SOLID CEILINGS I.E. PLASTERBOARD SUITABLY SIZED ACCESS HATCHES ARE TO BE INSTALLED TO ALLOW ACCESS FOR INSTALLATION, COMMISSIONING, MAINTENANCE, CLEANING AND REMOVAL.
13. DUCTED VRF UNITS SHALL BE SUPPLIED WITH AN EXTENDED RETURN AIR TEMPERATURE SENSOR WHICH SHALL EXTEND FROM THE UNIT TO PROTRUDE SLIGHTLY FROM THE FACE OF THE ROOM RETURN AIR GRILLE.
14. A CONDENSATE LINE SHALL BE INSTALLED TO EACH FAN COIL UNIT. THIS SHALL BE INSTALLED AND INSULATED ALL AS PER THE STANDARD SPECIFICATION. MINIMUM SIZE OF CONDENSATE PIPES TO BE 25mm COPPER OR PLASTIC, INSULATED AND PUMPED OR BY GRAVITY FROM EACH FAN COIL / CASSETTE, DRAINS TO RUN 1:80 MIN FALLS.
15. CONDENSATE PIPEWORK FROM VRF UNITS SHALL RUN WITHIN THE CEILING VOID TO THE NEAREST BELOW GROUND DRAINAGE POINT AND SHALL BE COMPLETE WITH IN LINE SELF SEALING TRAP.
16. THE MECHANICAL CONTRACTOR'S AIR CONDITIONING SPECIALIST SHALL BE RESPONSIBLE FOR THE INTERCONNECTING CONTROL WIRING BETWEEN THE INDOOR AND OUTDOOR UNITS AND CONTROL WIRING BETWEEN REMOTE CONTROLLER AND RELEVANT COMPONENTS. THIS WORK SHALL BE CO-ORDINATED WITH THE ELECTRICAL SUB CONTRACTOR FOR THE ROOTING AND TRUNKING OF THE CABLES.
17. CONTROL WIRING SHALL NOT BE RUN NEXT TO POWER WIRING. A MINIMUM SPACE OF 150mm BETWEEN BOTH CONTROL AND POWER CABLES SHALL APPLY.

FOR COMMENT NOT FOR SITE USE

Date	Description	Rev	Drn	Chd
11.04.22	TENDER ISSUE	T4	LM	RG
07.02.22	TENDER ISSUE	T3	LM	AF
02.06.21	TENDER ISSUE	T2	GT	RG
21.05.21	TENDER ISSUE	T1	GT	RG

Revision Description

CONSOLUX

CONSOLUX M&E CONSULTING LTD.

MECHANICAL & ELECTRICAL CONSULTING ENGINEERS

London Office
35 Piccadilly
London W1J 0DH
Tel: +44 (0)207 734 3030
Fax: +44 (0)207 617 7385

Liverpool Office
The Corinx Exchange
Liverpool L3 9JR
Tel: +44 (0)151 708 9469
Fax: +44 (0)151 709 7196

mail@consolux.co.uk www.consolux.co.uk

Project
LONDON ROAD FIRE STATION
FIRE STATION, LONDON ROAD,
MANCHESTER, M1

Drawing Title:
MECHANICAL SERVICES
ROOF
COMFORT COOLING LAYOUT

Date:	Design By:	Drawn By	Scale:
MAR 2021	GT	KDC	1:100

Issue Status:
TENDER

Drawing Number: 647-M-(55)-RF-01 Rev: T4

XREF Updated on: 04.11.21

DRAWING TO BE READ WITH CONSOLUX SPECIFICATION

NOTE: This drawing is the copyright of Consolux M&E Consulting Limited and may not be used without its prior written consent
Written dimensions to be taken in preference to scaled dimensions. Do not scale these drawings.