



PARTICULAR MECHANICAL SPECIFICATION

For

**Remodelling of Former Children's Home
into Homeless HMO Accommodation**

At

69 Dickenson Road

**Longsight
Manchester
M14 5AZ**

Project No: DXH 45618

Date: 21/11/2023

Prepared by: W. Gladstone

Status: Target Costs

Issuing Office: Capital Programmes &
Procurement.

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<u>Issue</u>	<u>Date</u>	<u>Revision</u>
TC	24-11-2023	T01

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PART A – STANDARD MECHANICAL SPECIFICATION

SECTIONS: Refer to attached file

PART B – PROJECT PARTICULARS**1 SCOPE**

The scope of works described within this document identifies the specific methods and installation requirements to be carried out by the Contractor in the procurement, delivery and installation of the mechanical engineering services associated with **Heating, Ventilation and Domestic Services Works at 69 Dickenson Road Manchester**

This document and the specification Part 'A' shall be used by the Contractor to undertake the mechanical engineering services installation in conjunction with the design drawings and equipment schedules.

The Contractor shall be responsible for the complete co-ordinated supply, installation, testing/commissioning and setting to work of all the services described within this specification.

This document is to be read in conjunction with the current asbestos register for the site, included within the tender documentation and with all other specifications and drawings relevant to this project listed below.

The works shall comprise the whole labour and materials necessary to form a complete working installation. All tests, adjustments, and commissioning of services, as prescribed in subsequent clauses, will be required to give an effective working installation to the satisfaction of the Client and/or the (MCC) Consulting Engineers.

The Contractor shall not omit any part of the works described in this specification without written consent.

2 CONSULTATION TEAM

Employer (Client): Capital Programmes and Procurement
Manchester City Council
PO Box 532 Town Hall
Manchester
M60 2LA

Architect: N/A

Detail Structural Engineer: N/A

Detail Building Services Consultant: N/A

3 SITE DETAILS

The site of the proposed works located:

69 Dickenson Road
Longsight
Manchester
M14 5AZ

PART B - PARTICULAR SPECIFICATION

SECTION 1 – DECOMMISSIONING

B.1.1.1 DRAINING AND DE-SLUDGING OF HEATING SYSTEM

~~The contractor shall allow for the introduction of Sentinel X400 desludging agent at a minimum of 1 week prior to the draining down of the system, the X400 shall be installed at a concentration of 1% of the system water volume are normally calculated an allowance of 15litres of water per Kw boiler output.~~

~~All circuits (Zones) external to the boiler house (plantroom) shall be fully drained and Isolated/disconnected prior to the flushing/cleaning of the existing boiler plant, before the installation of the new pipework etc. Circuits in the boiler house shall be independently pressure tested to 1½ time the operating pressure to ensure the full integrity of the whole system.~~

B.1.1.2 REMOVAL OF EXISTING EQUIPMENT

The contractor shall allow for the isolation, decommissioning, and safe removal from site of all existing items of radiators, pipework and associated plant as identified, within the existing building, to facilitate the installation of the new boilers, pipework, and radiators, as specified on mechanical drawing Nos 69D-MCC-B01-DR-M-0101 & M 0102 including 69D-MCC-ZZ-DR-M-0110. The decommissioning shall also include the removal of the boilers, pipework and radiators as indicated on the Existing Mech Services drawing, listed below. Pipework within service voids below the floor may be impractical for removal and with the consent of the lead engineer could remain, however all materials left shall be made safe. All pipework circuits (Zones) to have ID labels.

NOTE – THE BOILER AND PIPEWORK MAY CONTAIN ASBESTOS GASKETS OR JOINTING MATERIAL AND THE CONTRACTOR SHALL INCLUDE IN THE RISK ASSESSMENT AND METHOD STATEMENT FOR THEIR SAFE REMOVAL.

B.1.1.3 BOILER ROOM BUILDING AND LIGHTING WORKS

An allowance for the floor shall be made, made good to provide a level working area.

On completion of all works the boiler room shall have all holes filled, carefully cleaned and painted as follows: -

- Floor painted with proprietary grey floor paint, suitable for medium traffic
- Walls and ceiling painted with 2 coats of white emulsion.

The contractor shall allow for the upgrade of the existing lighting to the boiler room if required by installing 4No Dextra lighting Impervia LUX158 (1500 x 100) 1 x 58W, or equal and approved, in position of the existing lighting. Refer to Electrical Specifications.

The contractor shall allow for all mechanical, electrical or builder's works, associated with the boiler room decommissioning.

B.1.1.4 REMOVAL OF EXISTING EQUIPMENT INCLUDING INSULATION MATERIAL

The contractor shall allow for the safe isolation, draining down, degassing, and complete removal from site of the existing boilers and all associated pipework situated within the plant room.

The equipment shall have its contents professionally removed and disposed of in accordance with the "controlled waste regulations 2012" by a registered contractor with current and relevant certification to carry out the works.

The contractor shall provide a specific risk assessment and method statement from the specialist contractor, before commencement of any decommissioning works, and shall include any hot works, confined working or permit to work issues they deem necessary.

On completion of the equipment removal, the contractor shall provide a valid waste removal certificate for the removal its contents.

B.1.1.5 REMOVAL OF EXISTING PRESSURISATION UNIT & EXPANSION VESSELS

The contractor shall allow for the isolation, draining down, and safe removal from site of the existing equipment, and redundant overflow and expansion pipe work situated within the main plant room.

The contractor shall allow for the introduction of a full line size, adjustable, WRASS approved pressure-reducing valve with gauge to each supply and shall be complete with lever operated (ball type) isolation valves.

All pipework with plant room and void spaces to be insulated and bracketed on completion as detailed in the mechanical general specification.

SECTION 2 – HOT & COLD-WATER SUPPLY**B.2.1.1 INTERNAL PIPE-WORK**

All internal pipework is to be replaced, new installation pipework be copper tubing, fittings to be to capillary type with and integral solder ring or end feed. Fittings on potable water supply pipework, to be lead free integral solder ring. All fittings are to be as manufactured by Yorkshire Imperial Metals Ltd, or equal and approved and shall be non-dezincification material.

No self-cleaning fluxes to be used. Where pipework is exposed to view, it shall be chrome plated or polished stainless steel.

Terminations to appliances and/or equipment shall be fitted with full bore quarter turn ball valves, with drain cocks at low points.

B.2.1.2 EXTERNAL PIPE-WORK (MCWS)

At the time of preparing this document the capacity of the existing water supply is unknown, therefore an allowance shall be made within the ID Risk schedule for a new supply from the utility company (£10k).

B.2.1.3 COLD WATER STORAGE TANKS

The new Cold-water Tank and Booster set (complete) installation shall comply with BS806. All tanks and cold-water service pipework shall be disinfected and cleaned to the procedures laid out in standard mechanical specification. Storage capacity calculated at 5,000 litres, sectional tank construction, complete with all required vent, drain, waring and overflow connection points, plus high and low level controls for the booster set.

NOTE: If there is insufficient space within the plantroom as indicated, then cost shall be provided for an external GRP unit that contains both storage and booster pump facility.

B.2.1.4 HOT WATER STORAGE TANKS (CALORIFIER)

Existing Hot water storage cylinder shall be removed and replaced with individual HIU (Heat Interfaced Units), to each apartment and staff area, with the future facility of meter being installed, refer to drawing 69D-MCC-ZZ-DR-M-0110.

B.2.1.5 CONTINUATION OF SERVICES

N/A.

SECTION 3 – DOMESTIC HOT WATER HEATER REPLACEMENT**B.3.1.1 Specification text for HIUs based on 5 Series DS (IV) fully insulated Danfoss FlatStation (VMTD-IV)****Indirect DHW / Direct Heating**

HIUs shall include a plate heat exchanger for instantaneous DHW production.

HIUs shall include mechanical self-acting and power-independent thermostatic control of DHW enabling a constant pre-set DHW flow temperature regardless of heat network pressure and temperature variations.

HIU shall have instantaneous closure of the primary flow post a DHW tapping event.

HIU DHW controller shall have a valve authority of 1.

HIUs shall provide direct connection from the heat network to the space heating circuit.

HIUs shall include independent differential pressure control dedicated to the DHW controls and space heating controls, respectively.

HIU shall have the ability to adjust and limit the pressure differential across the space heating circuit, thereby limiting the maximum flowrate.

HIUs shall have a fully insulated backplate and cover of EPP material to minimise heat losses, as per the Heat Network Code of Practice (2020), minimum requirements.

HIUs shall include an actuator in the space heating pipework which will close by natural force if power to the HIU is cut, to minimise risk of unintended bypasses in the heat network.

HIU controls shall be capable of closing against 4.5 bar primary system differential pressure.

HIUs shall return heat network water below 25°C during DHW production at any load condition (full load and part load). The HIU supplier shall provide documentation this can be achieved at dynamic load conditions.

To maintain circulation of chemicals to the extremities of the heat network, as per BSRIA BG 50/2013, HIUs shall allow a flow of water through the HIU, even if there has been an extended period without DHW demand. Bypasses shall be temperature-controlled so that the bypass only operates when flow temperatures are below a minimum set point, as per the Heat Networks Code of Practice (2020) minimum requirements.

The HIU supplier shall include documentation of testing of the HIU's DHW and stand-by performance against an established standard, such as UK HIU Test Regime (2016) administered by the Building Engineering Services Association (BESA) or the Swedish Standard F:103-7e: Certification of District Heating Substations (Svensk Fjärrvärme, 2009).

HIUs shall include a Pressure Absorber in the incoming CWM pipework to protect against water hammer and thermal expansion.

~~HIUs shall include an EN 1434 (MID) class 2 approved heat meter.~~

~~The heat meter within the HIU shall be either mains powered or have a calculated battery lifetime of ≥ 13 years based on readings every 10 seconds.~~

~~The heat meter shall be mounted in a position where it is accessible to the end user.~~

A lockable flushing bypass arrangement which shall be installed to enable flushing of the system pipework without circulating water through the HIU. It shall be possible to unambiguously identify whether the flushing bypass is open or closed with a simple visual check.

Binder points shall be included in the heat network flow and return pipework to allow measurement of differential pressure across the HIU.

The pipework of the HIUs shall be made of stainless steel and no soldered pipework allowed downstream of the flushing bypass.

Serviceable strainers shall be included for all inlet connections to the HIU. This shall include a strainer in the space heating return pipework, in accordance with BS 7593:2019.

Isolation valves shall be included for all HIU connections.

The flushing bypass and all primary isolation valves, including CWM inlet and DHW outlet, shall be fitted in a fully insulated enclosure. This enclosure shall consist of the same EPP material as the HIU enclosure and have a similar visual appearance. The enclosure shall have an open bypass protection feature, so it cannot be fitted when the bypass valve is open.

The HIU enclosure shall fit within the following dimensions to optimise cupboard space;
Height: 710mm, Width: 530mm, Depth: 270mm

HIU shall be made available with space heating pipework fed from below or above the HIU to prevent offsetting or additional pipework.

~~HIUs shall include a brass body ultrasonic EN 1434 (MID) class 2 approved heat meter.~~

~~The heat meter within the HIU shall be either mains powered or have a calculated battery lifetime of ≥ 13 years based on readings every 10 seconds.~~

~~The dynamic range ($Q_i:Q_p$) of the meter installed in the HIU shall be suitable for recording the minimum and maximum design flow rates the HIU will produce.~~

~~The minimum cut-off flow rate of heat meters installed in HIUs shall be below the expected average keep warm flow rate to ensure the flow rate is captured for billing and analysis purposes.~~



~~The meter shall have replaceable communications modules to allow flexibility for future billing and data capture options.~~

~~The meter and HIU should be agnostics to the communication and billing package requested by the client.~~

The HIU shall be able to have the Secure liberty connect or Guru Hub 2 mounted and pre-wired onto the HIU enclosure. The M-bus connection between the energy meter (if required) and pre-payment device must be made. The connection between the PAYG valve and pre-payment device shall be made. The HIU shall include a 5 core flying lead (L,N,E,CL,SL).

Isolation valves shall be included for all HIU connections.

A facility to flush the heat network without flushing through the HIU shall be provided by the contractor. The contractor shall also ensure a strainer is installed upstream of the primary pipework of the HIU to protect the plate heat exchanger from potential dirt and debris.

The pipework of the HIUs shall be made of stainless steel and no soldered pipework allowed downstream of the flushing bypass.

SECTION 5 – HEATING PLANT REPLACEMENT**B.5.1.1 TEMPORARY HEAT GENERATION PLANT TO EXISTING HEATING**

Not applicable

B.5.1.2 INSTALLATION OF NEW BOILER PLANT

The new boilers are to be as indicated on drawing 69D-MCC-ZZ-DR-M-0110, installed in a cascade format and in accordance with manufactures instructions.

The preferred boilers are the ATAG-XL 150W with dual (two) stainless steel heat exchanger, for built in redundancy, with integrated intelligent pump.

B.5.1.3 HEATING PRESURISATION AND EXPANSION

The existing pressurisation system is to be replaced with a new system including the installation of a quick fill point (Ø28mm), including fitting anti-gravity loop.

Allowance shall be made for the supply, fitting, and commissioning of a system pressurisation unit (Arrow Valve free standing auto fill & dosing unit or equal and approved).

The unit shall connect to the heating return as per manufactures recommendations and be complete with pressure gauge. The new expansion vessel should have a minimum capacity of 250 litre and suitable for the working temperatures and pressures of the system. Vessel size to be verified to ensure existing capacities are as stated

High and low level pressure switches shall protect the system with a fault signal relayed back to the heating control panel.

Allowance shall be made for all interconnecting power and control wiring from the unit back to the MCP.

B.5.1.4 HEATING CIRCULATION PUMPS AND MIXING VALVE

The contractor shall allow for the supply, fitting and commissioning of inverter controlled twin headed heating circulation pumps as per manufacturer **Groudfos** pump reference **Magna3 (D) 80-180F** [Twin Head Pump rated 5.873 l/s @ 180 kPa] (or equal and approved). Pumps installed as per manufacturer's instructions.

The contractor shall allow for the installation (if required) individual local electrical isolation adjacent to the pump heads and be wired back to the heating control panel.

The contractor shall allow for installation of motor control units to the new 3port mixing/diverting valves (motors supplied by controls contractor); the valve operation checked to ensure they operate in-line with the control system requirement.

PICV/DPCV (Pressure Independent Control Valves/Differential Pressure Control Valves) are to be set to provide a minimum flow rate required by the pump manufacturers to prevent pumps from stalling when TRV close throughout the system.

B.5.1.5 SYSTEM WATER TREATMENT

During the final filling of the heating system, the contractor shall allow for the introduction of Sentinel X100 corrosion inhibitor at a concentration of 1% of the system volume (taken as 15 litres / Kw boiler input).

A Side Stream Filtration unit (X-Pot) to be installed to provide continuous system cleaning facility, sized for the system connected to. The manufacturers option shall be installed, these are the sight flow indicator with pressure gauges to the flow and return pipework to the unit.

B.5.1.6 ADDITIONAL WORK OUTSIDE OF PLANT ROOM

The majority of the works proposed external to the plant room, all pipework installation works to be in line with the General Mechanical Specification (Part A) and as indicated on the tender drawings.

All pipework shall be Stainless Steel G304m High Level Pipework in all remaining areas that will provide beneficial heat to the spaces do not require lagging. However, all low level pipework including drops from high level to have boxing for protection to the occupancies.

Identification & Directional (ID) flow indication to the pipework throughout the system.

Radiator schedule as indicated on drawing 69D-MCC-ZZ-DR-M-0110 are selected on a Delta T of 45°C, (emitter temperature and space temperature). Selection is based on "Jag-Strata Range", contractor to have these selection verified by the manufacturer prior to orders being placed. Any error or omission recorded and reported to the lead engineer, for review and any adjustments needed to the radiator schedule. Thermostatic Rad Valves (TRV) fixed on the flow inlet with Lock Shield (regulating) Valves LSV fitted on the return outlet. Preferred manufacturer for the TRV & LSV are Danfos (SAV Pt40/SC-AmVm-S)

High Level pipe coils used as heat emitters shall have eccentric reducers fitted for draining and venting facilities, manual air release vents shall be fitted to each coil at the high point. Thermostatic Rad Valves (TRV) fixed on the flow inlet with Lock Shield (regulating) Valves LSV fitted on the return outlet. The TRV is to have remote sensor, locate at the required height above finished floor level (FFL) normally 1500 FFL. Final location to be agreed on site with client and lead engineer.

B.5.1.6 BOILER FLUES

The new combined boiler flue shall follow the route of the existing redundant flue, where the flue penetrates (passes through) the roof then the existing flue can act as a sleeve. A weather cravat to be provided between the existing sleeve and the new flue.

SECTION 6 – VENTILATION REQUIREMENTS**B.6.1.1 PROVISIONS FOR COMBUSTION AIR**

The contractor shall allow for the overhaul and/or replace the existing high and low level louvres within the boiler room wall and/or door, the louvers will require the vermin protection, if not present, to be checked and replace where required.

High and low level louvers currently installed to supply combustion air for the boilers may require attention, to ensure they can provide sufficient air to the operational level required for the existing boilers, these might need to be enlarged.

B.6.2.1 SUPPLY AIR

N/A

B.6.3.1 CLEAN EXTRACT AIR

All bathroom, toilets, cleaner's rooms, and kitchen areas are to be fitted with mechanical ventilation, it is proposed to have the units fitted to the ceiling with ductwork run to roof tile vents and/or wall louvers. The preferred manufacturer and units are Vent-Axia Model Lo-Carbon Revive 7/SELV 7, with tile front cover for discreet installation. Units shall have adjustable trickle speed between 6 – 13 l/s. and boost speed of 15, 30 and 60 l/s. Run-on timer adjustable between 1 and 30 minutes. Control will be via the light switch, boost facility activated by humidity sensor and/or remote button.

B.6.4.1 DIRTY EXTRACT AIR

N/A

SECTION 7 – CONTROLS

B.7.1.1 The contractor shall allow for the supply, fitting and commissioning of the required controls upgrade to the building energy management system. All the upgrade design and installation works shall be by DDE or Smart Controls (or equal and approved).

The current BMS panel has no visible Trend IQ controller and will require one to be installed, including boiler-sequencing protocols needs attention, these must operation on the lead/lag principle alternating within specific times. Link to MCC – EMU to be made available.

The controls shall provide the building with zonal, timing and temperature control such that each area maintains the required temperature only during the period when occupied. Generally, the controls shall conform with the guidance detailed in: -

- a) MCC - Guidance. Buildings Services Automatic Controls
- b) The Building Regulations, Part L2 A & B
- c) CIBSE Energy Efficiency in Buildings (Aug 2016)
- d) CIBSE Guide H Building Control Systems (2009)
- e) Standard Specification for Heating and Hot Water Controls

B.7.1.2 Control operations: Unless advised by the Supervising Officer to the contrary, the Specialist Controls Contractor shall set the controller to the parameters as detailed below: -

Space (room) day temperature [Timed]	+ 19°C
Hot water temperature [Timed]	+ 60°C
Hold-off (heating) outside temperature above	+ 20°C
Boiler Flow temperature (existing circuits)	+ 80°C
Boiler Flow temperature (new circuits)	+ 70°C
Boiler Return temperature (existing circuits)	+ 65°C
Boiler Return temperature (new circuits)	+ 50°C
Frost Protection:	
Over-ride (on) internal temperature below	+ 10°C
Over-ride (off) internal temperature above	+ 12°C
Over-ride (on) heating water temperature below	+ 20°C
Over-ride (off) heating water temperature above	+ 30°C
Over-ride (on) outside temperature below	+ 2°C
Over-ride (off) outside temperature above	+ 4°C

For operational requirements of the Frost Protection Stages, (3 levels) refer to clause 2.2B in Standard Controls Specification.

B.7.2 GENERAL

- B.7.2.1** The Contractor shall supply and install the complete system for upgrade of automatic controls and the interconnecting wiring as specified in Standard Controls Specification and indicated on schematic drawing M-0100.

The existing BMS controls system is totally redundant and to be replaced with new system.

- B.7.2.2** The Contractor shall supply and install the complete system for upgrade of automatic controls to facilitate the use of hot water HIU (Heat Interface Units) to generate hot water requirements in location, indicated on the drawings throughout the building. The heating load for this requirement is greater than the load for the space heating, hence the hot water generation shall take priority during the peak demand load for the hot water.

- B.7.2.3** The Contractor shall supply and install room sensors/time clock for each apartment and staff zones. These shall be adjustable type control and adjustment shall be via the individual controllers.

- B.7.2.4** The Contractor shall allow for the Trend IQ5 controller with the IQView4 fascia panel and a 5-year warranty. The IQ5 unit has a provision for linking to MCC-EMU.

PART C - DRAWINGS AND EQUIPMENT SCHEDULES**C.1 DRAWINGS**

69D-MCC-B01-GF-DR-M-0101-S3 Ground Floor Mechanical Service Layout

69D-MCC-B01-01-DR-M-0102-S3 First Floor Mechanical Service Layout

69D-MCC-B01-ZZ-DR-M-0110-S3 Schematic and Schedules

69D-MCC-B01-GF-DR-PH-0410-S3 Ground Floor Drainage Layout

69D-MCC-B01-01-DR-PH-0411-S3 First Floor Drainage Layout

C.2 SCHEDULE OF PREFERRED EQUIPMENT AND MANUFACTURERS

The schedule of equipment detailed on drawing 69D-MCC-B01-ZZ-DR-M-0110-S3, lists the manufacturers upon which the system has been design. Where an alternative is proposed this is to be equal to the specified unit and approved before its use

Material and Manufacturers (models):

- Pipework and Fittings: Heating – Stainless Steel 316/316L; Domestic Water – copper Tube table X with press fit joints (manufacturer to be submitted for approval.
- Gas Boilers: ATAG (Commercial): ATAG XL 150 W Cascade system.
- Circulating Pumps: Grundfos MAGNA 3 twin head unit.
- Radiators (Heat Emitters): Jaga Strada units with Danfoss (SAV) Pt40 TRV pack
- Hot Water Interface Units: SAV Flat Station series 5 DS.

PART D -MECHANICAL PRICING SCHEDULE

D.1 PRICE SUMMARY

Itemised below is a pricing schedule for the mechanical services installations. The contractor may include further details for clarification.

Mechanical Contractor shall be required to complete this pricing schedule and return accordingly: -

<u>Item</u>	<u>Description</u>	<u>Cost</u>
1	Preliminaries	£
2	Site set-up and decommissioning site compound	£
3	All Builders work (boxing in pipework, plantroom painting etc.) and stripping out including making good throughout.	£
4	Removal and disposal of redundant material	£
5	Installation of LTHW heating Boilers and pipework in plantroom	£
6	Installation of new zone Pipework system including Valves	£
7	Installation of new zone pump (inverter motors)	£
8	Installation of new pressurisation auto dosing unit, expansion vessels (if required), valves and gauges etc. in plant room	£
9	Controls Installation; including new drive motors, controllers, sensors, external wiring, and BMS panel	£
10	Insulation to new pipework, including external to plantroom	£
11	Testing, Flushing, and inserting new chemical treatment into heating system in total	£
12	Commissioning and setting to work the heating system	£
13	Production and submission of new O & M Documentation	£
	ID Risk (unforeseen mechanical engineering works). - Renew external louvres - £3,000.00 - Additional cleaning and Painting - £3,000.00 - Additional mechanical items - £5,000.00	£ 11,000.00
	GRAND TOTAL (Mechanical)	£



Company Details

Date:

Name:

.....

Address:

.....

.....

Tel No.

.....

Fax No.

.....

Quote Ref.

.....

Signature

.....

Print Name

.....

Position

.....

PART E - MECHANICAL HANDOVER DOCUMENTATION

E.1 HANDOVER PLAN

 MANCHESTER CITY COUNCIL			
M&E HANDOVER PLAN			
Project Number:		Project Title:	
Project Manager:		Location:	
Activity	Action to/from/by	Due Date	Actual Date
Staff Training Carried Out	Contractor		
Witnessing of Commissioning	Contractor		
Demonstrations of plant, equipment and systems	Contractor		
Presentation of draft O&M manuals	Contractor		
Presentation of draft As-Installed drawings	Contractor		
Presentation of draft H&S File	Contractor		
Draft O&M manuals returned with comments	Designers/ Maintenance		
Draft As-Installed drawings returned with comments	Designers		
Draft H&S File returned with comments	Designers/ Maintenance		
Final O&M manuals issued	Contractor		
Final As-Installed drawings issued	Contractor		
Final H&S File issued	Contractor		
Works Inspection schedules issued	Designers		
List of required Commissioning and Inspection Certificates issued	Contractor		

PRACTICAL COMPLETION DATE:		**/**/**	**/**/**
Issue Practical Completion Certificate & distribute	Contract Administrator		
Distribute O&M manuals, As-Installed drawings, H&S File, Certificates etc.	Contract Administrator		
Staff Training Carried Out	Contractor		
Demonstrations of additional and/or specialist equipment and systems	Contractor		
List of required Commissioning and Inspection Certificates issued	Contractor		

E.2 HANDOVER MECHANICAL

PROJECT CONTROL

Pre-Handover Procedure

(Mechanical)

CHECK LIST

Project No:

Title:

Location:

Mechanical Services

1 Heating Installation

a Work Completed	Yes	N/A
i heat source and pipework systems installed	☐	☐
ii equipment and accessories fitted (including labels)	☐	☐
iii schematic layouts and valve charts fitted	☐	☐
iv systems tested	☐	☐
v inspection and test certificates	☐	☐
vi keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b Tests/Inspection	Yes	N/A
i random test of systems to verify test results	☐	☐
ii check services isolation points	☐	☐
iii random check of equipment and fittings	☐	☐
iv random check of systems performance relative to design criteria	☐	☐
v received keys and specialist tools	☐	☐

Comments: -

Signed: Contract Administrator
(M&E Representative)

Date:

Mechanical Services

2 Ventilation Installations

a	Work Completed	Yes	N/A
i	fans and ductwork systems installed	☐	☐
ii	equipment and accessories fitted (including labels)	☐	☐
iii	schematic layouts/and as-fitted drawings completed	☐	☐
iv	systems balanced and tested	☐	☐
v	inspection and test certificates	☐	☐
vi	keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b	Tests/Inspection	Yes	N/A
i	random test of systems to verify test results	☐	☐
ii	check supply and extract terminations	☐	☐
iii	random check of equipment and fittings	☐	☐
iv	random check of systems performance relative to design criteria	☐	☐
v	received keys and specialist tools	☐	☐

Comments: -

Signed: Contract Administrator
(M&E Representative)

Date:

Mechanical Services
3 Air Conditioning, Refrigeration and Cooling Systems

a	Work Completed	Yes	N/A
i	refrigerant, pipework and ductwork systems installed	☐	☐
ii	equipment, controls and accessories fitted (including labels and insulation)	☐	☐
iii	schematic layouts and valve charts fitted	☐	☐
iv	systems tested	☐	☐
v	inspection and test certificated	☐	☐
vi	keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b	Tests/Inspection	Yes	N/A
i	random test of systems to verify test results	☐	☐
ii	check approved refrigerant type	☐	☐
iii	random check of equipment and fittings	☐	☐
iv	random check of systems performance relative to design criteria	☐	☐
v	received keys and specialist tools	☐	☐

Comments: -

Signed: Contract Administrator
(M&E Representative)

Date:

Mechanical Services
4 Fume Cupboard Installation

a	Work Completed	Yes	N/A
i	All fume cupboards installed	☐	☐
ii	equipment and accessories fitted (including labels)	☐	☐
iii	schematic layouts and valve labels and charts completed	☐	☐
iv	fume cupboard services tested	☐	☐
v	inspection and COSHH test certificates	☐	☐
vi	keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b	Tests/Inspection	Yes	N/A
i	random test of systems to verify test results	☐	☐
ii	check effective services operation/installation	☐	☐
iii	random check of equipment, fittings and labels	☐	☐
iv	random check of systems performance relative to design criteria	☐	☐
v	check COSHH test certificate	☐	☐
vi	received keys and specialist tools	☐	☐

Comments: -

**Signed: Contract Administrator
(M&E Representative)**

Date:

Mechanical Services

5 Specialist & Compressed Gases Installation

a	Work Completed	Yes	N/A
i	source and pipework systems installed	☐	☐
ii	equipment and accessories fitted (including labels)	☐	☐
iii	schematic layouts and valve charts fitted	☐	☐
iv	systems tested	☐	☐
v	inspection and test certificates	☐	☐
vi	keys and specialist tools available	☐	☐

Signed Contractor..... **Date**.....
(M&E Representative)

b	Tests/Inspection	Yes	N/A
i	random test of systems to verify test results	☐	☐
ii	check gas services isolation points	☐	☐
iii	random check of equipment and fittings	☐	☐
iv	random check of systems performance relative to design criteria	☐	☐
v	receive keys and specialist tools	☐	☐

Comments: -

Signed: **Contract Administrator**
(M&E Representative)

Date:

Mechanical Services

6 Domestic Hot and Cold Water Services

a	Work Completed	Yes	N/A
i	heat source and pipework distribution systems installed	☐	☐
ii	equipment and accessories fitted (including labels)	☐	☐
iii	schematic layouts and valve charts fitted	☐	☐
iv	systems tested and chlorinated	☐	☐
v	inspection and test certificates	☐	☐
vi	keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b	Tests/Inspection	Yes	N/A
i	random test of systems to verify test results	☐	☐
ii	check water services isolation points	☐	☐
iii	random check of equipment and fittings	☐	☐
iv	random check of systems performance relative to design criteria	☐	☐
v	receive keys and specialist tools	☐	☐

Comments: -

Signed: Contract Administrator
(M&E Representative)

Date:

Mechanical Services

7 Waste Pipe, Soil and Vent Pipe and Drainage Installations

a Work Completed	Yes	N/A
i pipework/drainage systems installed	☐	☐
ii equipment and accessories fitted (including traps and access points)	☐	☐
iii schematic layouts (indicating pipework, gulley's etc.)	☐	☐
iv systems tested (leaks and effective operation)	☐	☐
v inspection and test certificates	☐	☐
vi keys and specialist tools available	☐	☐

Signed Contractor..... Date.....
(M&E Representative)

b Tests/Inspection	Yes	N/A
i random test of systems to verify test results	☐	☐
ii check for leaks	☐	☐
iii random check of equipment and fittings	☐	☐
iv random check of systems performance relative to design criteria	☐	☐
v received keys and specialist tools	☐	☐

Comments: -

**Signed: Contract Administrator
(M&E Representative)**

Date:

E.3 RECORD OF HANDOVER

MANCHESTER
 CITY COUNCIL

RECORD OF HANDOVER

Project Number:	Project Title:
Project Lead:	Location:

Sign Off Stage: (more than one may be chosen)	Practical Completion ☐	Handover to Maintenance ☐	
	Post Occupation Review ☐	Project Completion (End of Liability) ☐	

Client: **Date:**

Comments.....

Building User: **Date:**
 (if different from above)

Comments.....

Contractor: **Date:**

Comments.....

Project Lead: **Date:**

Comments.....

Name: **Date:**

Comments.....

Name: **Date:**

Comments.....

Confirmation of Training on Use of Building

Name Position: Date:

NB: Photographic record of condition of building to be attached.