



**ENHANCED COMMISSIONING**  
**FOR**  
**MECHANICAL & ELECTRICAL SERVICES INSTALLATIONS**  
**FOR**  
**STREAT MARKETS LTD**  
**LINK BUILDING, CENTRE POINT**  
**LONDON WC1A 1DD**



We could help  
lower your energy bills



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## **STREET MARKETS, CENTRE POINT**

In compliance with CIBSE Code 'M' the following commissioning management will be provided as a minimum to comply with Building Regulations Approved Document L2.

- Heating
- Mechanical Ventilation
- Cooling
- Gas Installation
- Fire alarm
- Smoke Clearance
- Emergency Lighting
- DDA toilet alarms
- DDA accessibility auto door
- Controls
- Water Systems

As an enhancement the commissioning management will also be involved with

- IT Cabling
- POS till systems
- Telephone installations
- General Power
- Intruder Alarm
- CCTV
- UPS
- Kitchen shutdown
- Audio / video
- Hand driers
- HDMI cabling
- External heating
- Access control

Other factors to be considered

- Detailed commissioning program
- External conditions during commissioning
- Internal conditions during commissioning
- Programming of commissioning
- Building Log Book
- Persons responsible for commissioning
- Maintainability
- Collate test data
- Reviewing of O+M Manuals & Building User Guide
- Organising Client Training
- Organise District Surveyor demonstration

## **Elements of Commissioning**

### **MECHANICAL**

#### **Plumbing**

Plumbing system to be pressure tested. Test results to be provided along with accompanying drawing.  
Flush installation.  
Sterilisation of system. Obtain before and after results of water samples.  
Commission blending valves for WHBs and provide record of temperature results to each WHB.  
Commission Infra-Red taps, Infra-Red WC flushes and Intra-Red Urinal flushes.  
Commission Water Isolation installation.  
Set-up BEMs out of range values on incoming MWS installation.  
Commission Cylinders. Provide controls to maintain 60oC water in cylinders for min 1 hour per 24 hours.  
Commission DHWR pumps  
Balance / regulate HWR pipework.  
Record water temperatures at cylinders via BEMs  
Commissioning of HydroMag  
Commissioning of Grease Trap and proving of alarms

#### **Gas**

Pressure test the gas network.  
Energise gas installation.  
Commission gas solenoid valve arrangement.  
Prove emergency stop operation closes solenoid valve.  
Prove air flow switch operation on AHU & Kitchen extract operate gas solenoid valve.

#### **Fire Suppression (by others)**

Commission fire suppression installation.  
Prove fire alarm interface with suppression panel signals alarm.

#### **Heating**

Pressure test installation. Test results to be provided with accompanying drawing.  
Flush installation. Provide results of bacteria build-up over the guidelines provided.  
Provide results to Landlord.  
Make plate heat exchanger operational.  
Commission the main heating pump set.  
Regulate water flows to each AHU LPHW heating coil. Confirm control of air flow temperatures on BEMs.  
Regulate water flows to each underfloor heating manifold  
Regulate water flows to radiators  
Regulate water flows to cylinders  
Commission the LPHW heating pumps serving radiators.  
Commission the LPHW heating pumps serving underfloor heating manifolds  
Commission water flow rates to each loop within underfloor heating installation.  
Monitor and record temperature settings on underfloor heating circuits.  
Prove operation of zone valves on various systems via BEMs.  
Prove main heating pumpset controls on system pressure.  
Monitor / record plate heat exchanger temperatures.  
Record Landlord commissioning of heat flow meter across plate heat exchanger.

## **Ventilation**

Pressure test air leakage within ductwork  
Run-up AHUs  
Commission air flow rates for each AHU.  
Commission air temperature control for each AHU and monitor on BEMs  
Check air ratio on AHU 1 & 2 for fresh air vs return air.  
Provide air flow rate readings in each section of ductwork and at each grille outlet.  
Commission air flow fail switch across AHU fans  
Commission kitchen extract fan  
Record reading at each canopy connection and regulate accordingly.  
Commission Dish wash extract system  
Record air flow rates at each grille and balance accordingly.  
Commission WC extract systems.  
Record air flow rates at each branch  
Record air flow rates at each grille  
Balance system to design.  
Clean all ductwork on completion of commissioning

## **Comfort Cooling**

Pressure test installation. Test results to be provided with accompanying drawing.  
Flush installation. Provide results of bacteria build-up over the guidelines provided.  
Provide results to Landlord.  
Make plate heat exchanger operational.  
Commission the main cooling pump set.  
Regulate water flows to each AHU CHW heating coil. Confirm control of air flow temperatures on BEMs.  
Commission the LPHW heating pumps  
Prove operation of zone valves on various systems via BEMs.  
Prove main cooling pumpset controls on system pressure.  
Monitor / record plate heat exchanger temperatures.  
Record Landlord commissioning of heat flow meter across plate heat exchanger.

## **BEMs**

Prove all cabling has connectivity  
Set up controls strategy  
Prove all controls are operational  
Lock controls and provide back-up disk

## **ELECTRICAL**

Smoke clearance  
Commission smoke clearance installation.

## **Lighting**

Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Confirm installation in compliance with manufacturer's recommendations  
Confirm compliance with proximity to flammable surfaces  
Confirm correct wattage of lamps  
Confirm colour temperature (CT) and colour rendering index (CRI) of lamps  
Prove dimming through entire range as applicable  
Confirm switching via manual switches / 2-way / intermediate  
Prove operation via PIR and lux level sensors as applicable  
Prove dimming zoning for dimmable systems

**Emergency Lighting**

Provide certificate to BS 7671

Provide certificate to BS 5266.

Prove earth continuity for earthed appliances

Prove discharge test

Prove minimum illumination levels

Confirm installation in compliance with manufacturer's recommendations

Confirm compliance with proximity to flammable surfaces

Confirm correct wattage of lamps

Confirm legends are matching / directional arrows correct

**Fire Alarm**

Provide certificate to BS 5839.

Confirm installation in compliance with manufacturer's recommendations

Prove interface connection operation:

- Gas
- Kitchen Panel
- Audio/video
- All other systems as applicable

**DDA Alarm / DDA door opening system**

Provide certificate to BS 8300 / Part M.

Confirm installation in compliance with manufacturer's recommendations

Confirm visual and tonal indicators and reset

Prove operation and safety devices

**IT Cabling**

Provide certificate to BS EN 50174.

Confirm installation in compliance with manufacturer's recommendations

Confirm compliance with proximity to power cabling

Prove data point legends

**General Power**

Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Confirm cable sizing suitable for protection rating  
Prove cable testing  
Confirm installation in compliance with manufacturer's recommendations  
Confirm compliance with proximity to flammable surfaces  
Confirm legends and circuit schedules are correct

**Intruder Alarm**

Provide certificate to NSI approval.  
Confirm installation in compliance with manufacturer's recommendations  
Prove panic button operation  
Disable walk-test indicators if agreed with client  
Prove Insurer's and Police Authority approval  
Confirm phone line is operational for emergency use

**CCTV**

Provide certificate to NSI approval.  
Confirm installation in compliance with manufacturer's recommendations  
Test against the operational requirements with the use of a Rotakin test target – applied to each camera  
Prove Insurer's and Police Authority approval

**UPS**

Provide specialist installer certification  
Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Confirm cable sizing suitable for protection rating  
Prove cable testing  
Confirm installation in compliance with manufacturer's recommendations  
Confirm legends and circuit schedules are correct  
Prove duration at full load

**POS till systems**

Provide specialist installer certification  
Confirm installation in compliance with manufacturer's recommendations  
Confirm legends are correct

**Telephone installations**

Provide specialist installer certification  
Confirm installation in compliance with manufacturer's recommendations  
Confirm legends are correct

**Kitchen shutdown**

Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Prove operation on shutdown  
Confirm legends are correct

**Audio / video**

Provide specialist installer certification  
Confirm installation in compliance with manufacturer's recommendations  
Confirm legends are correct  
Confirm shutdown on Fire alarm activation

**Hand driers**

Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Confirm cable sizing suitable for protection rating  
Confirm installation in compliance with manufacturer's recommendations  
Prove operation at repeated full load to manufacturer's specification

**HDMI cabling**

Provide specialist installer certification  
Confirm installation in compliance with manufacturer's recommendations  
Confirm legends are correct

**External heating**

Provide certificate to BS 7671  
Prove earth continuity for earthed appliances  
Confirm cable sizing suitable for protection rating  
Confirm installation in compliance with manufacturer's recommendations  
Confirm compliance with proximity to flammable surfaces  
Confirm legends and circuit schedules are correct  
Prove duration at full load

**COMMISSIONING SCHEDULE AND FUTURE UPDATES AND ANNUAL REVIEWS**

**Schedule of Annual Reviews for Seasonal Commissioning**

<b>Review Date</b>	<b>Details of annual log book review and updates made – if any</b>	<b>Pages updated or added</b>	<b>Facilities Manager's signature</b>	<b>Date</b>



## **Key Documents for Normal Operation**

## **Key Documents of Commissioning Certificates**

### **Mechanical**

Gas safety Inspection Certificate for gas testing & purging (non-domestic)

Gas safety record Certificate

Main Plant performance Results

Air & Water (flow regulation) Results

AHU Air volume rates Test Sheet

Specialist Plant commissioning / test results

Pipework & ductwork pressure test results

Check sheets recording commissioning of BEMs systems and interface

Chlorination Certificate

COSHH records for refrigerant

O+M Manuals

AS FITTED Drawings

## **Electrical**

Fire Alarm Test Certificate

Emergency Lighting Test Certificate

Fixed Wiring Test Certificate

DDA WC Alarm Certificate

DDA accessibility auto door

Security / Panic Alarm Test Certificate

Audio Visual Test Certificate

CCTV Test Certificate

IT cabling test certification

POS till systems

UPS Test Certificate

HDMI cabling Test Certificate

Access Control Test Certificate

O+M Manuals

AS FITTED Drawings

**General**

Building Approved Inspector Certificate



## **GAS SHUT DOWN SYSTEM FOR CATERING KITCHENS - SAMPLE**

Project

Address

System Location            Ground Floor Gas Meter Room

System Description

The gas supply to the kitchen equipment is fitted with a gas solenoid valve that will open if the following criteria are satisfied.

- 1) The mechanical control panel fire alarm link is healthy
- 2) The kitchen fresh air AHU 3 and Kitchen Extract fan EF? is operational
- 3) The kitchen emergency knock off buttons are in the released position.

In the event of any of the above situations not being met, the gas valve will automatically shut and isolate the supply to the kitchens.

TEST RESULT

Date

Witnessed by

**Duct / System Volume Test Sheet - SAMPLE**

Test Point Location	Design Volume (m3/s)	Duct Size (m)	% Free Area	Duct Area (m2)	Velocity (m/s)

Velocity Profile

1	2	3	4	5	6	7	8
							A
							B
							C
							D
							E
							F
							G
							H

Number of readings

Total of Readings

Average Velocity (m/s)	Test Volume (m3/s)	% Design	Static Pressure (Pa)

Remarks – Fan set at \_\_\_\_ Hz

Engineer

Date

Witnessed By



**METERING MONITORING AND TARGETING STRATEGY**

**Total Power Consumption (kWh)**

Year		Main incoming electricity meter	
Date	Time	Meter reading	Consumption

**Lift Power Consumption (kWh)**

Year		Core 2 Lift electricity meter		Core 4 Lift electricity meter	
Date	Time	Meter reading	Consumption	Meter reading	Consumption

**Comms Room Power Consumption (kWh)**

Year		Comms Room electricity meter		Bicycle Lift electricity meter	
Date	Time	Meter reading	Consumption	Meter reading	Consumption



**Total Gas Consumption (kWh)**

Year		Boiler Room Gas Meter	
Date	Time	Meter reading	Consumption

**Main Building Water Consumption (m<sup>3</sup>)**

Year		Main Incoming Water Meter	
Date	Time	Meter reading	Consumption

**Plate Heat Exchanger Energy Consumption (kWh)**

Year		Plate Heat Exchanger Energy Meter	
Date	Time	Meter reading	Consumption