

SAINSBURYS RELOCATION, VICTORIA SQUARE WOKING

MEP ENGINEERING SYSTEMS

C20 ALTERATIONS AND DEMOLITIONS

Audit sheet

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100 PERFORMANCE OBJECTIVES

The intention is to clear the existing designated rooms of all redundant services and leave the identified systems in a safe condition and the defined area(s) clear and ready for the next phase of works. Reference shall be made to the associated Hoare Lea and design team demolition and strip out drawings.

Maintain the existing fire alarm system and dry riser systems operational throughout the demolition / strip-out works; with exception of any changeover for relocated/new plant.

The Wood Group IT server room adjacent to the demolition/strip out space is in constant operation; services feeding or being supplied from this room shall not be removed or damaged. The Contractor shall carry out an intrusive survey to confirm whether any service associated with the Woods Group IT room pass through the demolition / strip-out areas, and these shall be protected from damage. The contractor shall confirm whether there are any services to the Contract Administrator

200 DESIGN PARAMETERS

This specification is written based on legislation, standards and guidance in force in the UK generally, and within England by default. For projects in Scotland, Wales, Northern Ireland, the Channel Islands and the Isle of Man, give appropriate consideration to any locally applicable legislation, standards and guidance that deviates from or is additional to those in force within England. Similarly, for projects outside the UK comply with the corresponding national legislation, standards and guidance.

Comply fully with the edition (including amendments, replacements and associated normative references) of each of the following, current at the time of tender:

Environmental Protection Act

Health and Safety at Work etc Act

Pollution Prevention and Control Act

The Building Regulations

The Construction (Design and Management) Regulations

The Construction (Health, Safety and Welfare) Regulations

The Control of Asbestos Regulations

The Control of Substances Hazardous to Health (COSHH) Regulations

The Electricity at Work Regulations

The Fluorinated Greenhouse Gases (F-Gas) Regulations

The Hazardous Waste Regulations

The Gas Safety (Installation and Use) Regulations

The Management of Health and Safety at Work Regulations

The Manual Handling Operations Regulations

The Ozone-Depleting Substances Regulations

The Personal Protective Equipment Regulations

The Provision and Use of Work Equipment Regulations

The Site Waste Management Plans Regulations

The Water Supply (Water Fittings) Regulations

The Waste Electrical and Electronic Equipment (WEEE) Regulations

BS 1710 Specification for identification of pipelines and services

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BS 4363	Specification for distribution assemblies for reduced low voltage electricity supplies for construction and building sites
BS 5228	Code of practice for noise and vibration control on construction and open sites
BS 6187	Code of practice for full and partial demolition
BS 7375	Distribution of electricity on construction and demolition sites. Code of practice
BS 7671	Requirements for Electrical Installations. IET Wiring Regulations
BS 8000	Workmanship on construction sites
CIBSE Guides	
BSRIA Guides	

The following systems will need to be recommissioned, to confirm they have been completed sufficiently.

- ~ Fire Alarm System. Where this is altered during the strip out works the system will need commissioned. Note the system the main system should remain live during the course of the works, while some elements may be isolated and / or removed.
- ~ Dry Riser System. The dry riser shall be commissioned after the existing pipework has been diverted.
- ~ Electrical Distribution. All electrical distribution boards shall be tested once circuits have been altered or removed.

300 SYSTEM DESCRIPTION

310 General

The strip-out and alteration works proposed to the B1 level, first and roof levels of the Export House building and Sainsbury demises at the Victoria Square Project, Woking. The works are to be carried out in several elements as follows

Element 1 – Existing unused first floor landlords' space in Export House

Element 2 - Existing first floor server room & access in Sainsbury demise

Element 3 - Existing Sainsbury's first floor staff room & office within Sainsbury demise

Element 4 - Existing first floor Sainsbury storeroom

Element 5 - Existing and redundant plant on Export House roof level

The description of the engineering systems within this document is provided for guidance only. Determine the actual level of service removal required based on a detailed survey during the tender period.

Whilst this specification defines particular requirements in relation to the building services systems, include any works required to comply with all statutory regulations applicable to the scope of works, whether or not these are explicitly described herein.

If in doubt about the scope of works or about the effect an element of work may have on other areas of the building / site, consult with the Contract Administrator.

Safely isolate, disconnect and remove the electrical, mechanical and public health services from the area / building to be strip-out, as indicated on the Architect's drawings and within this specification.

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Make safe, decommission, strip-out and safely dispose of all existing building services systems, to allow for the installation of new services to be completed.

Remove, adapt, relocate and modify the existing mechanical, electrical and public health engineering systems as indicated on the drawings and within this specification.

Ensure that any existing services to the adjacent areas / floors are maintained and any alterations required to the services are carried out to achieve this.

Before stripping any services out, identify them, to ensure any possible impact on parts of the building outside the work area are noted and the required action agreed. Ensure that any alterations to the services associated with the adjacent areas / floors prior to decommissioning/removal are completed in such a manner as to constitute a safe and permanent arrangement.

During the removal of services, take great care not to damage the building structure. Repair damage caused to any element of the building at no additional cost to the contract.

Make-good any existing services penetrations through the structure where they are not able to be re-used.

Execute all works without causing a nuisance to other building occupiers, due to noise or other issues. Undertake movement of materials, equipment and tools in a sensitive and non-disruptive manner. Carry out any noisy works 'out of hours' as agreed with the landlord.

320 Temporary site supplies

Provide all temporary low voltage supplies, water connections and drainage to any required site offices and welfare facilities; and low voltage (not exceeding 110V) power supplies to the work areas for both power and lighting.

330 Making safe and decommissioning

Provide a qualified and competent engineer based permanently on site to be responsible for:

- ~ the isolation and making safe of systems
- ~ implementing and operating a permit-to-work system
- ~ implementing a safety 'lock-off and tag-off' system logging and recording the decommissioning, including the production of a status document at the end of the contract covering all systems

Carry out the decommissioning of all engineering services systems identified in the tender documents. Employ, on a sub-contract basis, any specialists required to ensure that the equipment is properly decommissioned and made safe. Carry out decommissioning to a sufficient extent to render all systems into an inert state, to allow them to be stripped-out by unskilled personnel.

The scope of the decommissioning works includes but is not limited to:

- ~ isolate incoming low voltage, telecommunications, gas and water services at the service entry point of each individual system, outside of the demolition / strip out
- ~ divert the dry riser pipework to an alternative location as shown on the drawings.
- ~ drain down fluid systems in a sequenced manner to ensure that there are no isolated legs remaining and water leakage is kept to an absolute minimum
- ~ make all necessary provisions for venting and draining of water systems, including determining the location of system air vents and drain points, to allow systems to be adequately drained prior to removal, and to avoid potential damage to components due to partial vacuum

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- ~ where existing drain points are not sufficient for the complete safe draining of a water system, make the necessary alterations to allow the system to be drained
- ~ capture, store, remove from site and dispose of all fluids drained from engineering systems
- ~ obtain the written agreement of the landlord and the Water Authority prior to discharging chemically treated water into the foul drainage system
- ~ safely remove from site and dispose of all other fluids, and chemically treated water that cannot be discharged into a foul drainage system
- ~ safely remove all hazardous materials associated with the engineering systems, such as lamps, fire alarm detectors, etc
- ~ isolate and disconnect any remote signalling equipment associated with fire alarm systems, lifts, etc
- ~ authorise and issue a decommissioning certificate

340 Strip out

As part of the strip-out works, remove all redundant plant inside the demolition / strip out areas. Refer to associated demolition / strip-out drawings.

As part of the strip-out works, remove all bracketry, supports, bases etc.

350 Mechanical engineering systems

351 Domestic hot and cold water systems

Take water samples from each pipework system on each floor and in the risers, to establish the water quality prior to any works taking place. Submit these results to the Contract Administrator for comment.

Verify that existing means of isolation are effective and able to close successfully against the prevailing system pressure without leakage. Provide additional means of isolation if required to facilitate the strip-out works. Ensure isolation valves installed on branches are no more than two-pipe diameters away from the connection point.

Ensure no dead-legs remain during or following the works. Fully drain down all redundant pipework.

352 Low temperature hot water and chilled water systems

Take water samples from each pipework system on each floor and in the risers to establish the water quality prior to any works taking place. Submit these results to the Contract Administrator for comment.

Measure the flow rate, pressure and temperatures (flow and return), on each system, on each floor, and compare against the commissioned figures, prior to any works taking place. Submit these results to the Contract Administrator for comment, along with a drawing identifying where each measurement was taken, the pipe size and pipe material.

Agree a suitable location for disconnection, close to the entry point of services into the strip out spaces. Verify that existing means of isolation are effective and able to close successfully against the prevailing system pressure without leakage. Install new isolation valves, in a suitable location, if none exist. Note that this may require a pipe freeze, as a drain-down of the entire system may not be feasible.

Powerflush all retained LTHW/CHW systems.

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353 Refrigerant Cooling Systems

Carefully decommission refrigerant systems (eg chillers, condensers, VRF and other systems). Safely remove and dispose of refrigerants in accordance with current regulations, including The F-Gas Regulations and The Ozone-Depleting Substances Regulations, and other relevant documents. Do not vent any refrigerant. Use a responsible licensed waste disposal company when disposing of used refrigerant. Incorporate the method of disposal within the method statement. Provide a certificate of disposal from a licensed waste disposal facility.

Contractor to confirm with Contract Administrator on retention of any existing indoor units in the strip out work within the Sainsbury demise.

Remove the outdoor units and all connecting pipework between the indoor units and outdoor units as identified on the drawings on both Hoare Lea or the architect's drawings.

Safely remove any redundant refrigerant pipework back to the point of connection to the condenser.

354 Ventilation systems

Measure the main fresh air supply and extract flow rates serving each floor, and compare against the commissioned figures, prior to any works taking place. Submit these results to the Contract Administrator for comment, along with a drawing to indicate where each measurement was taken and the duct size.

Blank off any branch connection to the main duct in the access corridor that are left open as a result of the strip-out.

355 Smoke extract

Ensure smoke vents are kept clear and operational during construction / demolition works.

360 Electrical systems

361 Low voltage electrical systems

Disconnect and strip out all electrical services, including the main LV switchboard.

Test switchgear and distribution boards, to ensure that they are isolated, ensuring that all incoming supplies are isolated and locked in the isolated position before they are stripped out. Post warning notices at the locked isolator positions.

Do not remove cabling unless both ends of the service are visible and confirmed redundant by a suitably qualified electrical engineer. If in doubt, leave all cabling in place until such confirmation is obtained.

Strip out and remove all existing distribution boards.

Strip out and remove all existing motor control panels serving mechanical plant.

Strip out and remove all cables, cable clamps, cleats, etc.

Strip out and remove containment, including conduit, trunking, cable tray and basket.

Strip out and remove bus-bar trunking systems.

Check that all outgoing sub-distribution cables are not live. Lock-off panels or boards so fuses cannot be reinstated at a later stage.

Prior to removal, re-check that supplies to all cabling, distribution boards/panels, etc are not live.

362 Lighting and small power

Isolate, and remove from site, all equipment, distribution cabling, associated cable containment systems, control wiring and luminaires.

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Remove all equipment from the building and dispose of it in a correct and safe manner, giving particular attention to the disposal of lamps and emergency luminaire battery packs, due to the hazardous nature of their content.

Ensure that all lamps containing mercury, such as fluorescent lamps, are disposed of in special landfill sites, which are supervised by the local authority. Use only sealed lamp crushers or other safe means and ensure adequate ventilation during disposal.

Safely dispose of all equipment containing printed circuit boards (PCBs) in accordance with the relevant regulations and the local authority's requirements.

Isolate power supplies as required to allow the full strip-out of the small power supplies, including but not limited to: underfloor bus-bar, kitchen supplies, communications equipment and socket outlets. Also strip out any power supplies that supply any items of stripped-out mechanical plant and equipment.

Do not remove cabling unless both ends of the service are visible and confirmed redundant by a suitably qualified electrical engineer. If in doubt, leave all cabling in place until such confirmation is obtained.

Strip out and remove all existing small power outlets, cables and secondary containment systems, including any routed through conduits within the concrete slab.

Remove all redundant circuits, including all cabling from the distribution board to the final circuit termination. Remove all redundant protective devices from distribution boards and fit with spare way blanking plates. Redundant protective devices are to be retained for reuse on the project.

Where electrical accessories are removed from retained circuits, reconnect / rewire the circuit to allow the safe operation of the retained equipment.

Remove any surface-mounted conduits, trunking systems and wooden box panelling, housing electrical cabling.

Where existing lighting and small power circuits are to be modified to suit the new layouts, re-route the existing circuit cabling accordingly. Where this is not practicable, rewire the entire circuit with new cabling. Do not joint cables. Wire new radial power circuits serving equipment, using new circuit cabling connected to the existing distribution boards.

363 Fire detection and alarm system

Safely isolate, disconnect and remove the fire detection and alarm components, including all field devices (sounders, detectors, manual call points, etc), wiring, containment etc from the strip out area.

Provide temporary fire alarm system coverage throughout the strip-out area.

Do not remove cabling unless both ends of the service are visible and confirmed redundant by a suitably qualified electrical engineer. If in doubt, leave all cabling in place until such confirmation is obtained.

Re-programme / re-identify fire alarm addresses to suit the revised layout and locations.

364 Security systems

Safely isolate, disconnect and remove all distribution and control equipment, field devices, wiring and containment associated with: CCTV systems, access control systems, intruder alarm and detection systems. (Field devices include break-glasses, door contacts, PIRs, etc.)

Strip out all power and data cabling associated with the security systems.

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Do not remove cabling unless both ends of the service are visible and confirmed redundant by a suitably qualified electrical engineer. If in doubt, leave all cabling in place until such confirmation is obtained.

Ensure that the site is secure during the strip-out phase and after the strip-out is complete. Submit proposals for site security at the time of tender.

365 IT / Communications

Disconnect and strip-out all redundant Comms & data cabling

Manage and coordinate all telecommunications service disconnections.

Take on the responsibility for liaising with the providers, to obtain approval of the proposed disconnections/abandonments and asset protection, before commencing any removal works.

Take all reasonable steps to ensure that the service disconnections and asset protection works are completed and operational prior to commencing the works.

Ensure that communications cabling is not removed unless both ends of the services are visible and confirmed redundant by a suitably qualified electrical engineer. If in doubt, leave all communications cabling in place until such confirmation has been obtained.

366 Containment

Where the removal of redundant circuits results in any containment or conduit 'dead-legs', remove these in their entirety back to the main containment system.

Ensure that any electrical bonding rings that are required to be removed during the process, are replaced afterwards to maintain electrical continuity.

370 Public health engineering systems

Strip out all drainage systems from on-floor sanitary appliances back to the vertical stack.

Cap all open ends promptly after disconnection, noting that vertical stacks will remain in use from tenants on the floors above.

Ensure the pipework route of any drainage dropping from the floors above is retained to its existing point of discharge. Under no circumstance affect the drainage of other tenants.

Provide a drawing of all stacks identified during the strip-out works, showing:

- ~ stack height (whether it is a connection from above), or stub stack serving lower ground floor only
- ~ diameter of pipe
- ~ high and low level offsets
- ~ pipe material
- ~ presence of fire collars

Retain all below-ground drainage systems and protect them from damage and ingress of debris.

400 SYSTEM DESCRIPTION (CONTINUED)

410 Removal and disposal of waste

Remove all waste materials from the site in a clean and tidy manner. Identify in the method statements the route by which all stripped-out items are to be taken out of the building. Agree the waste removal strategy with the Employer before works commence. Protect floors, ceilings, walls, doors, joinery items and other building fabric items, as required, during the removal. Take care to

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ensure that the adjacent fabric of the building is undamaged. Repair damage caused to any element of the adjacent building fabric at no additional cost to the contract.

Carry out all necessary builder's work, both temporary and permanent, to permit the removal of equipment and to carry out reinstatement of the building fabric, after the removal of equipment.

Take all reasonable measures to ensure that existing items are disassembled into manageable modules for safe removal and that existing building openings are utilised to facilitate removal of items from the building. If new openings within the existing building fabric are necessary to facilitate safe removal of items, identify the location and size of such openings and obtain approval from the Employer and the local authority before forming such openings.

Comply with the Site Waste Management Plan.

Recycle reclaimed materials and divert from landfill wherever possible.

Undertake disposal of waste materials in accordance with an authorised and environmentally-sensitive procedure; and provide waste disposal certification where appropriate.

Be responsible for the complete disposal of all fluids, refrigerants, gases, fuel and other chemicals, etc from services, systems and equipment. Comply in full with all statutory regulations, health and safety guidance, codes of practice and British Standards.

Remove and dispose of all items of plant that have elements that are within the scope of COSHH (Control of Substances Hazardous to Health) or WEEE (Waste Electrical and Electronic Equipment) Regulations, as set out in these Regulations.

Remove ductwork, pipework, valves etc from site and report the scrap value of the reclaimed materials to the project manager.

Only claim the value of the scrap materials following approval by the project manager.

500 SCOPE OF WORKS

510 Responsibilities

The Main contractor is to be responsible for all processes and trades / specialists required for the works.

The incumbent Fire Alarm specialist is to be responsible for all works associated with the Fire alarm system

520 Site survey

Where quantities are stated in the tender documents, take these as indicative only. Ascertain final quantities prior to the commencement of any works.

Undertake detailed surveys of each system to be stripped out, to enhance the information provided within the tender documentation, and become fully acquainted with system arrangements, including circuit configurations and switching arrangements.

Provide suitable task lighting for the survey work required within the development and provide method statements and risk assessments prior to undertaking these works.

530 Programme of works

Submit and agree a detailed programme with the Contract Administrator prior to commencement of the works. Ensure the programme is specific to the task in hand, indicating the intended works, the affected areas, the affected systems, circuits and components, and the total duration of the works.

In programming and undertaking the works, take account of requirements to keep specified systems / areas of the building operational throughout. Identify on the programme any periods when services to occupied areas of the building / site will be interrupted.

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Obtain all the necessary permits and approvals to carry out the specific works to all areas prior to any commencement of works.

540 Detail coordination

Agree all proposed methods of fixing the system(s) to structure, roof, cladding, chimneys, equipment, etc with the Contract Administrator.

Agree the colours and finishes of all exposed materials of the system(s) with the Contract Administrator.

550 Health and safety

Follow all health and safety standards, guidelines and recommendations including HSE guidance and CDM Regulations when undertaking any works, ensuring maximum safety for both the occupiers and contractors at all times.

Where plant and equipment are to be removed, identify any remaining potential hazards and take precautions to reduce or limit the risks, including but not limited to:

- ~ provide sharp metal edges with protection
- ~ label and padlock off live terminations, such as switchgear and valves
- ~ provide yellow-and-black warning tape to trip hazards, such as plant supports

Ensure that safe working practices are employed at all times. Provide adequate protection for the duration of the strip-out / demolition works, to systems and buildings that are to be retained.

Provide relevant risk assessments, and respective method statements, prior to commencement of any works. Give particular attention to the risks associated with live electrical equipment, handling of harmful and corrosive substances (COSHH) and restricted access.

Employ all protective measures deemed appropriate by risk assessment, including signage, PPE etc as applicable.

Do not access any area of the development until a risk assessment has been undertaken, and method statement produced, to identify the potential hazards and control measures deemed necessary to reduce the risk to a safe level.

Before commencing any strip-out works, identify and display warning notices at the positions of all isolated supplies, including, but not limited to, incoming supplies, electrical meters, electrical cut-outs, distribution boards and switchgear.

551 Asbestos

Contractor to obtain the asbestos survey report from the Contract Administrator and review before work commence.

Give notice immediately of suspected asbestos-containing materials when discovered during decommissioning / demolition work and avoid disturbing such materials. Cease work, vacate the area(s) and arrange for immediate inspection by a competent surveyor to undertake, as necessary, tests of the suspect material. If found to contain asbestos, submit statutory risk assessments and details of proposed methods for its safe removal.

552 Unforeseen hazards

Give notice immediately when unforeseen hazards are discovered during decommissioning / demolition. Submit details of proposed methods for the removal of the hazard.

Carry out a concealed services CAT (cable avoidance tool) scan, prior to commencing any builder's work. Establish if any detected wiring or pipework is still operational or is redundant. Should the

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services be still operational, carry out diversion(s) as appropriate. Should the services be redundant, strip the redundant services back to the point of supply.

Treat all services as live, until they have been certified as isolated and safe to work on.

600 EQUIPMENT

610 Storage and reuse of existing electrical equipment for future use

Disconnect and store all existing equipment that is specified to be re-installed and reused as part of the refurbishment works or offered to the centre for their reuse / spares. In general, the existing equipment to be reused / retained comprises:

Distribution board circuit protective devices, luminaires; electrical accessories, socket outlets, switches, IT outlets etc, fire alarm equipment, panels, detectors, sounders, break-glass, units etc

700 TESTING AND COMMISSIONING

710 Compliance

Comply with specification sections Y51 and Y81.

720 Visual examination

Visually examine the installation, including checking for the following:

- ~ the services are supported adequately
- ~ electrical bonding is complete

Fully test and commission all systems remaining in operation following the completion of the works. Rectify any faults and retest accordingly prior to the building being handed over to the Employer / landlord.

800 SCHEDULE OF INSTALLER'S SUBMISSIONS

Submit the following for the Contract Administrator's comment:

- ~ programme of works
- ~ drawing production schedule
- ~ detailed site survey and verification of the extent of services in the relevant areas
- ~ strip-out drawings
- ~ full technical method statements for the strip-out works
- ~ approved plumber's certification
- ~ Gas Safe registration certificates
- ~ manufacturer's details of isolation valves and any additional pipework ancillaries
- ~ certificate of soundness
- ~ purging certificate
- ~ testing and commissioning certificates
- ~ safety record

Provide technical method statements for the following aspects of the work:

- ~ detailed survey to identify the full extent of systems to be decommissioned and current status of decommissioning
- ~ decommissioning of systems

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- ~ removal and disposal of hazardous materials such as treated water, refrigerants and gases, fuel and other chemicals
- ~ removal of debris/materials and equipment from site
- ~ health and safety considerations arising from the proposed works and method of execution
- ~ permit-to-work system
- ~ safety lock-off and tag-off system

810 Handover documentation

At Handover, provide a full set of documentation clearly defining the status of each existing system and each remaining system and in particular those items or systems which remain 'live', including but not limited to:

- ~ live water supplies
- ~ live drainage connections
- ~ live gas supplies
- ~ live electrical supplies
- ~ live IT / comms supplies

Where retained services exist within and adjacent to the site boundary, ensure these are accurately recorded on drawings and marked up on site with identifying posts as appropriate, including but not limited to:

- ~ capped off or isolated / redundant gas supplies
- ~ capped off or isolated / redundant water supplies
- ~ capped off or isolated / redundant drainage connections
- ~ isolated or redundant electrical supplies
- ~ isolated or redundant IT / comms supplies

820 Record drawings

Submit record drawings for all altered or diverted services, including the new items of equipment and systems installed under the contract.

Identify the extent of any redundant services left concealed or buried following the works. Define the location of such systems and their respective means of safe isolation and include a system-by-system description.

Modify existing record drawings to reflect those existing items of equipment and systems that are impacted by these decommissioning / demolition works.

830 Operating and maintenance instruction manuals

Submit operating and maintenance instructions manuals for the new items of equipment and systems installed under the contract.

Modify existing operating and maintenance instructions manuals to reflect those existing items of equipment and systems that are impacted by these decommissioning / demolition works.

END OF SECTION C20