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| * **JOB IDENTIFICATION**

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| **Job Title:** | **Maintenance Technician (Multi-Skilled)** |
| **Responsible to:** | **Coordinating Supervisor** |
| **Department:** | **Estates** |
| **Directorate:** | **Property, Procurement, and Facilities Management** |
| **CAJE NO:** | **N1327REV** |

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| **2. JOB PURPOSE** |
| This postholder will provide Electrical/Electronic/Mechanical, Plumbing and Building Services to meet the needs of NHS GG&C Health Board, by operating an efficient and effective Estates Service within the Boards healthcare facilities to ensure the safe delivery of patient care. This will include:- * Delivering a planned maintenance, repair & installations service which represents quality and value for money at all times.
* Providing a safe maintenance service to all plant and equipment and service infrastructure within the Health Care Environment
* Assisting in the development of the Estates function into a customer focused range of services.
* Adopting a flexible, integrated working approach to the delivery of Estates Service
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| **3. ROLE OF DEPARTMENT** |
| The Estates Department facilitate the delivery of uninterrupted quality healthcare by providing a 24 hour, 7 day a week safe comfortable & statutory compliant built environment which supports the effective provision of high quality clinical care for our patients.This is achieved by maintaining and delivering an effective Planned Preventive Maintenance programme and reactive repair service as well as executing installation and commissioning works of critical plant and equipment to support the delivery of all clinical services.The Department also provide an integral contribution to the continual management & control of Health Associated Infection with respect to the built environment, in compliance with national HAI SCRIBE, Health Environment Inspectorate (HEI) & Healthcare Associated Infections Task Force audits and Facilities Management Tool (FMT).Along with providing technical support & expert guidance in the design and implementation of clinical service developments, including development support in the writing of specification & preparation of tender documents through to awarding contracts, planning & organising the projects. |
| **4. ORGANISATIONAL POSITION** |
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| **5. SCOPE AND RANGE** |
| The post holder is a maintenance technician employed by NHS GG&C, which comprises four sectors as detailed below, The post holder is based within one of these named sectors.1. South Sector
2. Clyde Sector
3. North, East and West Sector

The post holder is part of a multi-skilled team interacting across Electrical, Mechanical and Plumbing skills. They are responsible to the Supervisor on operational matters.There are no budgetary responsibilities although the post holder(s) duties will impact on the departmental budget. |
| **6. MAIN TASKS, DUTIES AND RESPONSIBILITIES** |
|  **General Duties*** Provide a safe and comfortable environment for the provision of clinical care
* Ascertain desired action using acquired skills and abilities to expedite best solution for desired outcome and assist putting solutions into practice
* In depth knowledge of Building Services infrastructure including the following services:
	+ Electrical distribution Systems
	+ Steam & Condensate distribution systems
	+ Domestic Hot & Cold water services
	+ Heating service (Wet systems)
	+ Heating, Ventilation & Air Conditioning (HVAC)
	+ Air Tube Transport System
	+ Fire Alarm Systems
	+ Nurse Call Systems
* In depth knowledge of Production services:
	+ Laundry
		- Steam Boilers
		- Industrial Tunnel Washer
		- Hydro washer extractors
		- Gas Dryers
		- Callander rolling press
		- Folding plant
		- Conveyor systems
		- Programmable Logic Controllers (PLC)
	+ Decontamination
		- Steam boilers
		- Clean steam generators
		- Steriliser process operation
		- Validation & Verification (Weekly, Quarterly)
		- Preparation for annual Validation & Verification
		- Programmable Logic Controllers (PLC)
		- Packing equipment
	+ Catering
		- Catering Production Unit (CPU)
		- Steam pans
		- Brat pans
		- Combi ovens (Steam/electric cooking)
		- Cold storage
		- Blast freezer (Cook/freeze)
		- Industrial washing plant
		- Conveyor belts
		- Slicing equipment
		- Food preparation equipment
* Install and commission machinery using installation manuals to ensure safety and in compliance with health and safety, and statuary regulations that benefits and provides a safe environment for the user and patient care
* Interpret detailed manufacturers installation manuals and specification, technical data and wiring diagrams and schematic drawings for building services, systems, plant and equipment.
* Complete Planned Preventative Maintenance in accordance with organisational and manufacturers recommendation, using appropriate tools, test equipment and recording details of work carried out, to prevent breakdowns and maintain optimal operational ability.
* Respond to breakdowns, evaluate situation and take corrective action to ensure minimal disruption and damage.
* In depth effective use of BMS (Building Management System) computer to set parameters and record data on a wide range of building services to provide correct environmental conditions throughout the hospital and provide an early warning of service faults ( Medical gas, heating, water, power etc. )
* Maintain repair & commission patient related equipment & services such as sterilisers, washer disinfectors, Operating lights and Tables, Dental Chairs, Medical gas, plant etc. to maintain and ensure there is a safe environment for staff and patients in these areas
* Carry out checks, repair, test and maintain specialised multi-faceted hospital equipment
	+ e.g. sterilisers, washer-disinfectors to the required standards as per SHTM 2030 Pt 3 Validation and verification Washer-disinfectors & SHTM 2010 Pt 3 Validation and verification Sterilisation
* Measure up jobs for new installations and alterations, check plan drawings & on site plans, work out best route to run supplies and services, measure up & advise Supervisor of materials required to complete work.
* Member of Fire Response Team, trained to operate as a member of a Fire Team to evacuate staff, patients and visitors in conjunction with Fire Officer and Fire Brigade in the event of a fire alert. (annual fire response team training)

 **Mechanical Duties*** Survey plant and equipment for, safety, soundness and establish maintenance to be undertaken
* Work on and maintain safety of pressurised systems such as steam, compressed air and hydraulic systems etc in compliance with statutory Pressure Systems Regulation 1998.
* Verify integrity and monitor heating and ventilation systems utilising calibrated test equipment to maintain a safe working environment within hospital sites
* Working with external competent inspection agency to prepare for and support the statutory inspection and re-validation of:-
	+ **Pressure Equipment Regulations 1999 & Pressure Systems Safety Regulation 2000**: covering Steam/MTHW boiler & sterilisation plant, compressed air plant, pressurised storage vessels & safety valves i.e. Boilers, Calorifiers, heat exchangers for the provision of heating, hot water and compressed gas services to hospital properties.
	+ **Lifting Operations & Lifting Equipment Regulations 1998 (LOLER):** Passenger lifts, Patient lifting equipment & Industrial lifting equipment.
* Work as a highly skilled competent person to maintain Medical Gas Piped Systems & associated gas supply plant & equipment in compliance with Scottish Health Technical Memoranda (SHTM 02-01) Pt B: Operational Management to ensure a safe supply for patient use. Following completion of one week’s formal training and certification and appointed in writing by the MGPS authorised person (One week Refresher Training and revalidation required every three years)
* Carry out checks of medical gas plant including main liquid oxygen tanks, nitrous oxide and medical air manifolds, vacuum and medical air compressors and obtain the necessary formal qualifications named above to provide safe delivery of medical gases to all patients
* Carry out checks and repairs of oxygen and vacuum wall points and regulators in all wards including intensive care and high dependency units, theatres etc. Liaise with ward sisters & ward staff and re-assure patients as work carried out at bed-head units. Understand permit to work systems & interact with authorised persons & ward sister to make sure there is minimum disruption to patients & staff. Make sure all work is carried out to the standards required in hospital technical memorandums & pharmacy quality control.
* Check and maintain laminar flow and safety cabinets in TB and HIV labs using specialised measuring equipment to ensure safety of operators

**Electrical Duties*** Carry out Electrical maintenance within healthcare facilities in statutory compliance of the Electricity at Work regulations (1989) and the Current BS7671, 17th Edition IEE wiring regulations, while working to the operational procedures set out in the NHS Scotland Electrical Safety Code of Practice Low Voltage Systems, Scottish Health Technical Memorandum (SHTM) 06-02, to ensure a safe environment and to maintain good quality and safe electrical systems for patient treatment. (Revalidation training required every three years).
* Fault finding and analysis within complex control systems and equipment in a safe, effective manner using fine tools and calibrated measuring equipment as required in order to minimise future breakdowns and keep hospital running efficiently
* Inspection, testing and verification of fixed wiring systems contained within healthcare facilities, in statutory compliance of the Electricity at Work Regulations (1989) and compliance of the current Guidance note 3-BS 7671 17th Edition Wiring Regulations", utilising calibrated test equipment to maintain safe working environment within hospital sites
* Run, test and maintain emergency back-up generators to ensure continuity of clinical services for patients and staff in event of an electrical mains failure both Off- Load and On-Load and be competent in all aspects of emergency procedures in the event of loss of Electrical Mains
* Mandatory first Aid duties for working with electricity; to level of competence and training to meet requirements of safe code of practice for working with electricity

  **Plumbing Duties** * Participate in the development and delivery of water management regime to maintain, control, monitor & record that all plant, distribution system and stored product are within safe operating limits to ensure a high quality of potable water for use within a clinical environment.
	+ - In compliance with
		- HSE Approved Code of Practice (ACOP) L8, mandatory guidance;

“The control of Legionella Bacteria in Water Systems” and * + - “Scottish Health Technical Memorandum (SHTM) 04-01: Water safety for healthcare premises; Pt B: “Operational Management”
* Carry our routine mandatory water quality monitoring and inspection duties as detailed in the above guidance documents.
* Ensure that only approved water fittings and materials are installed in NHS GG&C potable water systems; as approved by the Water Regulations Advisory Scheme (WRAS) under the “Water Fittings and Materials Directory”
* Monitor & record water meter readings to identify usage patterns, which will enable proactive identification and repair of leaks or resolution of high consumption
* Provide service as competent person for natural gas installations, Gas Safe 2 week’s full time training, certification and 1 year on the job consolidation training & development required. (refresher training every 5 years)

 **Health & Safety Duties*** Training in & continual development of Health and Safety requirements relating to the provision of Estates services, to ensure personal safety and maintain a safe environment for staff and patients
	+ Asbestos awareness (GG&C safe system of work Policy & Procedures)
	+ Confined spaces (GG&C safe system of work Policy & Procedures)
	+ First aid training required for all staff working with electricity (Mandatory SHTM 06-02)
	+ Working at heights (GG&C safe system of work Policy & Procedures)
* Work to all Board H&S policies & procedures
* Carry out risk assessments to ensure own safety and safety of others
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| **7a. EQUIPMENT AND MACHINERY** |
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| *Please describe any machinery and/or equipment used in the job:*1. A complete range of hand tools, including fine calibration & commissioning tools.
2. Test Electrical test equipment
3. Industrial Battery Maintenance
4. Power Tools
5. Welding and metal burning equipment.
6. Gauges, callipers, rule, laser markers etc
7. Workbench and engineer’s vice.
8. Mechanical hacksaw.
9. Pedestal Drill.
10. Bench Grinder.
11. Block and Tackle units.
12. Engine hoist.
13. Pallet Lifters.
14. Communication devices (Radio Pager, Telephones, two way radio & portable electronic devices)
15. Steam & High Pressure Hot Water (HPHW) & Low temperature Hot Water (LTHW) Boilers & Associated Plant
16. Domestic Hot Water Generation, Storage & Distribution Plant.
17. Cold Water Distribution Plant.
18. Supply & Extract Ventilation Plant & Distribution Systems
19. Air Compressors, Air Receivers & Distribution Systems.
20. Standby Diesel Electricity Generators.
21. Internal Transport Vehicles
22. Lifts & Hoists
23. Medical Gases Plant.
24. BMS Controls to component level, actuators, sensors controllers etc.
25. Laundry Equipment
26. Catering Equipment
27. Beds & Other Wheeled Furniture
28. Operating Theatre Tables & Equipment
29. Patient lifting Equipment
30. Housing stock
31. Fire Alarm system
 | *Give brief description of use of each item used:*1. Screwdrivers, micrometers, vernier gauges, pliers, Spanners,
2. Multi-meter, Insulation resistance tester, earth loop impedance tester, Residual Current Circuit Breaker (RCCD) tester
3. Test & service Battery systems for tractions & UPS systems. Discharge test, Specific Gravity test.
4. Drilling machine, grinders etc
5. Joining and separating metal sections.
6. Disassembling, measuring, marking out, assembling and calibrating plant & equipment.
7. Holding stabilising work pieces.
8. Cutting materials.
9. Drilling, reaming and threading jobs.
10. Sharpening drills and tools.
11. Industrial moving & handling: - Lifting, lowering and positioning plant & equipment.
12. Industrial moving & handling: - Lifting, lowering and positioning large plant & equipment.
13. Industrial moving & handling:- Transporting & large plant/equipment & stores
14. Effective communication, Emergency job response, data and record management.
15. Maintain service, test, calibrate & prepare for statutory inspection.
16. Maintain service, test, calibrate & prepare for statutory inspection.
17. Maintain service, test, calibrate & prepare for statutory inspection.
18. Maintain service, test, calibrate & prepare for Mandatory inspection
19. Maintain service, test, calibrate & prepare for statutory inspection.
20. Operate, test & monitor to ensure operating parameters are in line with manufacturer’s specification.
21. Service & Maintain to Manufacturers specification
22. Undertake trapped passenger evacuation from lifts.
23. Maintain service, test, calibrate & prepare for statutory inspection to ensure safe delivery at point of use for patient connection.
24. Maintain, service, repair, test & calibrate
25. Maintain service, repair, test, programme & calibrate.
26. Maintain, service, repair, test & calibrate
27. Maintain, service, repair, and test. Maintain, service, repair, test & calibrate
28. Patient trolleys, wheelchairs etc – Maintenance

 1. Repair, test to manufacturer’s specification.
2. General repairs and maintenance
3. Carry out routine functional testing, monitoring and recording of alarm activity and works operations carried out.
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| **7b. SYSTEMS** |
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| *Please describe any systems used in the job:*1. Building Management System
2. Computer aided facilities management (Cafm) system
3. Statutory records system
4. Permit to work Systems
5. Fire Alarm System Network Graphical user interface, and local sub panel user interface.
6. Emergency generators Programmable Logic Controller (PLC)
7. Medical Gas Pipeline Systems (MGPS)
 | *Give brief description of use of each item used:*1. Monitor site services and plant conditions and adjust controls to maintain continuity of service.
2. Record and report on planned maintenance tasks/repair actions taken & materials used via hand held electronic interface devices (tablets etc)
3. Record statutory works and inspections to access, input and update of compliance registers.
* Fire Alarm Systems
* Generator Equipment.
* Boiler/ pressure vessels.
* Sterilisers/washer disinfectors.
* Building Maintenance Systems.
* Water Treatment
* Water Temperature (i.e. Legionella).
* Electrical Distribution Systems for critical and non critical areas for patients and non patient care
* Medical Gas systems
* Portable Appliance Testing
1. Follow formal Safety policy & procedure while working on higher risk systems, by application of defined safe systems of work and associated safety documentation.
2. To manage the fire detection system during fire alert conditions (emergency) and to manage the system operation on a daily bases with respect to system statutory testing & potential site operations/works impacting on the integrity of the system. Maintain system log of all activations and operations on the system.
3. Operate menu driven PLC to monitor generator operating conditions during both test and emergency loss of power conditions. Maintain system log of all activations and operations on the system.
4. Maintain system log of all works carried out on life critical MGPS generating plant.
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| **8. DECISIONS AND JUDGEMENTS** |
| The Post holder Works unsupervised and is responsible for daily decision making on priority of workload, and during emergencies Co-ordinates with clinical staff to ensure that patient care is uncompromised in the event of a loss of electrical, mechanical or plumbing services during essential fault finding and analysis.The Post holder works without supervision and during emergencies is required to make critical decisions on technical solutions which impact on clinical services by carrying out assessment and condition appraisal of utility services, plant and equipment and makes decisions whether equipment is safe for use by patients and staff? Implements defined contingency plans/arrangements to ensure continuity of clinical service in such circumstances. Effectively communicates technical and safety issues resulting from such decisions with nursing and medical staff to support effective continuity of clinical service.Regularly makes technical and safety decisions, including independently when on call, on methods of repairing and maintaining plant and equipment.Required to work both independently and as part of an effective team.Test, maintain, diagnose faults and repair a variety of complex, multi-faceted equipment such as :e.g. Building Management Systems, Sterilizers, nurse call, medical gas, laminar flow/safety cabinets and operating theatre equipment.Responsible for undertaking Periodic Inspection and Testing, compiling and issuing reports and certificates.Typical judgements, technical option appraisal and feasibility. Makes decision on economic value of repair or replace at components level.Undertake self risk assessments, identifies risks and plans work safely around these.Technical reference to Estates Officer on specialist topics as required to deliver an effective service Liaise with Theatres, Wards and Departmental Staff for access to clinically sensitive areas review and agree working arrangements.The post holder proposes changes to working practices through consultation with management and implements agreed changes. Examines and inspects faults in plant and machinery, establishes and recommends how faults may be repaired and discusses with managers /heads of departments if it is financially viable or if new equipment is needed and if any other considerations are required e.g. effect on wards/theatres/patient etc. |
| **9. COMMUNICATIONS AND RELATIONSHIPS** |
| Ability to interpret and communicate complex information to technical and non technical staff. To provide training, technical advice & support to trainee’s, maintenance assistants, fellow colleagues & specialised contractors, clinical staff and managers.1. Communicates and relates with all levels of staff and patients, relating to investigation of reported failures & planned maintenance tasks and the direct impact these may have on service continuity

Overcome barriers to understanding when explaining the technical tasks that are to take place and how they impact on the ward/patients.1. Consult with clinical staff to establish working restrictions in relation to the control of risk of infection.
2. Communicates with internal Estates management, peers & external specialist contractors:

To support a wider team approach to resolving complex estates service issues to minimise adverse impact on clinical service provision.1. Delivery drivers, and suppliers: To ensure that the materials and equipment are directed to the correct destination for installation and commissioning in a timely manner to minimise adverse impact on clinical service delivery.
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| **10. PHYSICAL, MENTAL, EMOTIONAL AND ENVIRONMENTAL DEMANDS OF THE JOB** |
| **Physical skills:*** Use of fine hand tools and test equipment, manual dexterity, workshop machinery skills, keyboard skills

**Physical effort:*** Manual handling for periods greater than 20 minutes on a frequent basis.
* Occasional movement of Heavy Plant & Equipment, with or without the aid of lifting equipment for long periods within awkward locations.
* Ongoing requirement to exert moderate physical effort, i.e.: carrying heavy tool bags for periods greater than 20 minutes.
* Climbing stairs and ladders.
* Crawling, stooping and lifting objects
* Driving Estates transport between various sites

**Mental demands:*** Immediate technical assessment required.
* Frequent Concentration required in stressful situations and can be occasionally prolonged.
* Stress of being on call and being randomly disturbed during these periods where frequent concentration is needed and work pattern is unpredictable due to the range of plant and possible breakdowns which can occur.
* Working under pressure during Emergency Response to critical service failures

**Emotional demands:** * Frequently working in Wards, Theatres & Intensive care with very ill and distressed patients

**Working conditions:*** Daily freezing conditions from both outside and internal chiller plant to very high ambient temperatures in the boiler house and other heating plant located within confined spaces.
* Frequent exposure to Hazardous materials and body fluids during routine maintenance & repairs
* Daily working in highly unpleasant conditions i.e.: noise, smell, noxious fumes, body fluids, cramped and confined spaces.
* Some exposure to hazards i.e. Accident and Emergency Dept, Mental Health Wards

Working in confined spaces for long periods of time |
| **11. MOST CHALLENGING/DIFFICULT PARTS OF THE JOB** |
| * Ensuring all legislation, policies and procedures are adhered to when carrying out post duties
* Dealing with conflicting demands and priorities, often in time sensitive situations
* Potential frequent exposure to hazardous materials and body fluids during the course of duties.
* Physical demands of the post
* Dealing with all staff and patients in a respectful and tactful manner either directly or by telephone
* Responding to possible verbal and physical abuse when carrying out fire

 response duties / freeing patients, staff and visitors from lifts and other areas that they  Have accidentally locked themselves in etc.* Working in mortuaries
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| **12, KNOWLEDGE, TRAINING AND EXPERIENCE REQUIRED TO DO THE JOB** |
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| * Served a recognised apprenticeship in Electrical, Mechanical Engineering or Plumbing. Equivalent to SVQ Level 4 Higher National Diploma, Modern Apprenticeship - Level 4, Professional Development Awards (SCQF - 8-9)
* Knowledge of procedures for mechanical and gas maintenance and repair of electrical equipment; BTEC/ HNC Level or City and Guilds plus relevant post apprenticeship training or equivalent experience
* Attend training courses as required by Estates Managements and NHS policies, procedures The post holder must undergo specialised training in systems and equipment to gain the in depth theoretical knowledge required to comply with numerous laws, national guidelines and standards. In order to fulfil these requirements within a health care environment, the post holder requires training and regular re-certification in order to maintain Continuing Professional Development (CPD) of their competency and expertise on revised regulations. e.g.
	+ Low Voltage SHTM 06-02 (One week training and certification and appointed in writing by AP, revalidation training and certification every three years) plus BS 7671 IEE wiring regulations
	+ Mandatory first Aid duties for working with electricity; to level of competence and training to meet requirements of safe code of practice for working with electricity
	+ Level 3 C&G 2391 Award in the Inspection, testing and verification of fixed wiring systems.
	+ Level 3 Awards in the In-Service Inspection and Testing of Electrical Equipment (PAT) G&C 2377 Pt 1 and the Management Requirements for the Maintenance of Electrical Equipment G&C 2377 Pt 2.
	+ Medical Gas Piped Systems (MGPS) SHTM 02-01 Pt b, training (One week training and certification and appointed in writing by AP, revalidation training and certification every three years)
	+ Natural Gas installations (Gas Safe Registration) (Two week training and certification, refresher every five years)
	+ Pressure System regulations 1998. etc;
	+ Decontamination
		- SHTM 2030 Pt 3 Validation and verification Washer-disinfectors
		- SHTM 2010 Pt 3 Validation and verification Sterilisation.
* Have successfully completed a recognised course of Multi skilling training to enable full flexible working across all 3 disciplines
* Working Knowledge of National NHS Scotland Technical Standards, “Scottish Health Technical Memorandums (SHTMs)” operational & management procedures.
* Ability to work unsupervised
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| **14. JOB DESCRIPTION AGREEMENT** |
| A separate job description will need to be signed off by each jobholder to whom the job description applies. Job Holder’s Signature: Date: Head of Department Signature: Date: | : |
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