Doncaster and Bassetlaw Teaching Hospitals
NHS Foundation Trust

Heating and Ventilation Services Policy

Did you print this document yourself?

The Trust discourages the retention of hard copies of policies and can only guarantee that the policy on the Trust website is the most up-to-date version. **If, for exceptional reasons, you need to print a policy off, it is only valid for 24 hours.**

Executive Sponsor(s):	Alex Crickmar – Acting Director of Finance
Author/reviewer: (this version)	James Hutchinson – Acting Head of Estates
Date written/revised:	24 February 2022
Approved by:	Ventilation Safety Group
Date of approval:	15 March 2022
Date issued:	February 2023
Next review date:	24 February 2025
Target audience:	Trust-wide

Amendment Form

Please record brief details of the changes made alongside the next version number. If the procedural document has been reviewed **without change**, this information will still need to be recorded although the version number will remain the same.

Version	Date Issued	Brief Summary of Changes	Author
Version 1	February 2023	• This is a new procedural document, please read in full	James Hutchinson

Contents

Page No.

1 INTRODUCTION

Ventilation is used extensively in healthcare premises for both the comfort of occupants in buildings and to closely control the environment and air movement of the space that it serves to contain, control, and reduce hazards to patients and staff from airborne contaminants, dust, and harmful micro-organisms.

This Policy sets out the detailed requirements for the maintenance and safe operation of all ventilation, air conditioning and the ventilation plant. These will be maintained so that they do not present a risk to persons either in the vicinity of the plant or in areas served by the plant, or a statutory compliance risk to the Trust. Regular maintenance is also essential to ensure the efficiency of Estates and Facilities plant.

2 PURPOSE

The purpose of this Policy is to provide appropriate guidelines and procedures to ensure that the Trust complies with its statutory duties associated with the management of ventilation systems within its premises in line with the above Regulations and associated NHS guidelines.

The basis for compliance with this policy is to ensure that systems and procedures are established to both manage and maintain ventilation systems in accordance with the required standards by:

- Providing guidance to those responsible for the management of ventilation systems.
- Ensuring liaison between Infection Prevention and those with overall responsibility for maintaining ventilation systems.
- Ensuring ventilation systems operate at optimum levels of performance and within their intended design criteria.
- Contributing to the maintenance of a clean and appropriate environment which facilitates the prevention and control of Health Care Acquired Infection (HCAI) in a manner conducive to quality clinical care.
- That, as far as is reasonably practicable, the Ventilation systems of the Trust's buildings will maintain, and continue to maintain, satisfactory air quality in all such areas.
- Where this should not prove possible, the Policy identifies the Trust's Authorised Persons (Ventilation) who would assess and manage any identified issues, including a means to escalate as appropriate.

2.1 Content of the Policy

The Policy sets out relevant information in relation to provision of ventilation to the Trust premises and to ensure its fitness for purpose in accordance with Health Technical Memorandum (HTM) 03-01. This is achieved by audit and monitoring as described within the document. The Policy identifies Authorised Persons (Ventilation) for its implementation

and ongoing management together with training needs and the appointment of an independent Authorising Engineer for professional advice and guidance. Regular compliance checks and maintenance will also continue to ensure the efficiency of Estates and Facilities plant.

The Ventilation policy ensures that ventilation systems belonging to or maintained by Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust are constructed, operated, and maintained to the highest standards and comply at all times with current Statutory requirements, industry recognised guidance and standards as well as Health Technical Memorandum (HTM 03-01).

The energy used by the heating, ventilation and cooling systems which control the space temperature of workplaces in the Trust accounts for over 70% of the Trust's total energy consumption. Our aim is therefore to maintain a satisfactory working environment for patients and staff whilst at the same time controlling the consumption of energy and utilities to an acceptable level maintaining efficiency and reliability.

By achieving the balance between a suitable environment and energy consumption, will:

- Contribute to the protection of the environment
- Avoid unnecessary expenditure
- Comply with relevant legislation and HTM guidance

Heating systems (radiators) within our buildings are designed to compensate for building temperature losses.

Ventilation systems are important because they control air quality and energy efficiency and control odours, dilute gas (such as carbon dioxide, anaesthetic gas, etc.) and inhibit the spread of respiratory diseases. Ventilation is provided in healthcare premises for the comfort of the occupants of buildings. More specialised ventilation (acute areas) will also provide comfort, but its prime function will be to closely control the environment and air movement of the space that it serves to contain, control, and reduce hazards to patients and staff from air borne contaminants, dust, and harmful micro-organisms.

Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust recognises its obligations to take necessary measures in the provision of effective maintenance of engineering plant, systems, and services.

The main reasons for this policy are:

- Compliance with HTM 03-01, Specialised ventilation for healthcare buildings.
- Compliance with Heath and Social Care Act 2008/2015 and Standards for Better Health.
- Compliance with statutory requirements, Control of Substances Hazardous to Health (COSHH).
- To define the foundation for the management of heating & ventilation systems

3 DEFINITIONS

For the purposed of this document the following definitions apply.

3.1 Ventilation

Ventilation is a means of removing and replacing the air in a space. In its simplest form this may be achieved by simply opening windows and doors.
Mechanical ventilation systems basically consist of a fan and collection or distribution ductwork. More complex systems may include the ability to heat and filter the air passing through them. Ventilating equipment is generally used to remove smells, dilute contaminants, and ensure fresh air enters the space.

3.2 Air-Conditioning

Air-conditioning is the ability to heat, cool, dehumidify and filter air. For full air-conditioning, humidification may also be provided. Air-conditioning equipment may be required to provide close control or comfort conditions within the space. Owing to high capital and running costs, full air-conditioning should only be used in essential areas such as theatres, critical care units, manufacturing pharmacies and areas with particularly sensitive equipment. The use of air conditioning also includes the use of DX cassette units and temporary or portable air conditioning units (see operational procedures for detailed information).

3.3 Specialised Ventilation

In healthcare premises, certain activities will necessitate the provision of ventilation equipment with additional features to achieve and maintain specific conditions. These may be required to assist in the treatment of patients or to maintain the health and safety of staff.
Typical examples of areas requiring specialised ventilation are outlined in Health Technical Memorandum 03-01 ‘specialised ventilation for healthcare premises’

3.4 Local Exhaust Ventilation (LEV)

Local exhaust ventilation is a term used to describe systems installed to prevent hazardous substances from entering the general atmosphere of the room in which they are being used. Their primary function is to protect staff from the effects of their work activity, for example, laboratories, pharmaceutical manufacturing, mortuaries, or woodworking equipment etc.

3.5 Extract Ventilation

Extract ventilation is required in sanitary facilities, dirty utilities, and rooms where odorous but non-toxic fumes are likely to be present. A single fan is generally provided to meet that need.

3.6 Natural Ventilation

Natural ventilation is a term that generally refers to the natural movement of air through a building due to changes in air temperature and pressure between open doors and windows. Although it is difficult to maintain consistent air flow rates and ensure that minimum ventilation will be achieved at all times. This variability is normally acceptable in such areas as office accommodation, staff areas, seminar rooms and dining areas where open windows are available.

4 DUTIES AND RESPONSIBILITIES

Responsibility and, more specifically, the duty of care within the Trust are vested in the Chief-Executive, the Board of Directors, and its supporting structure. The designated staff responsibilities are detailed in this section.

4.1 Chief Executive

The Chief Executive as Accountable Officer carries ultimate responsibility for providing a well-maintained environment for patient care.

4.2 Director of Estates & Facilities - Designated Person (DP)

The Director of Estates & Facilities is responsible for the overall position of a compliant, effective, and efficient estates service. The position fulfils the Designated Person (DP) for the Trust and provides an informed position at board level.

4.3 Deputy Director of Estates and Facilities

The Deputy Director of Estates and Facilities is responsible for the maintenance and safe inspection and testing of Heating and Ventilation systems.

4.4 Authorising Engineer (AE)

Authorising Engineer acts as external assessor and is appointed with a brief to provide services in accordance with (HTM) 03-01 guidance. The AE will make recommendations for the appointment of Authorised Persons (AP), monitor the performance of the service, and provide an annual audit report.

4.5 Authorised Person (AP)

The Estates Officers are allocated defined roles as Authorised Person for engineering services. This position of AP fulfils the role for specialist engineering services and ensures that all services are safe and available for their intended use and that the Trust complies with its statutory obligations.

4.6 Estates Officer

The Estates Officer is the Authorised Officer for all operational maintenance work. This position fulfils the role delegation of maintenance persons and ensures that maintenance work is prioritised and completed effectively.

4.7 Competent Person

Maintenance craftsperson's or specialist contractors with sufficient technical knowledge, training, and experience to carry out their defined duties and to understand the dangers involved and will be directed, appointed, or authorised to work (if a contractor), by the Estates officer or AP dependant on the work involved.

4.8 Infection Control

It is the responsibility of the Infection Prevention Control Team (IPCT) to provide input for all matters relating to the hospital environment, maintenance of hospital buildings and engineering systems and to work with the Estates & Facilities team including:

- Provide education for maintenance staff and management on infection prevention and control and reduction in Healthcare Acquired Infections (HCAIs).
- Provide guidance and support when advice on controlling the environment is required.
- Provide advice on risk assessments for controlling the environment decisions.
- Identify priorities for action.

4.9 User

The user is the person responsible for the management of the department in which the heating/ventilation system is installed.

4.10 Ventilation Safety Group (VSG)

A Ventilation Safety Group is in place to provide a means for the joint review of issues relating to the effective management and review / co-ordination of aspects of the

performance of the sites ventilation systems including the development of strategies and approaches to manage risks associated with those ventilation systems.

To accept ownership of and to be accountable for Ventilation Risk Management in accordance with all current legislation and guidance documentation.

Develop a Ventilation Action Plan (VAP) which provides a risk-management approach to the safe operation of ventilation systems

Monitor and advise on ventilation across the site in line with the VAP and assist with understanding and mitigating risks associated with ventilation systems.

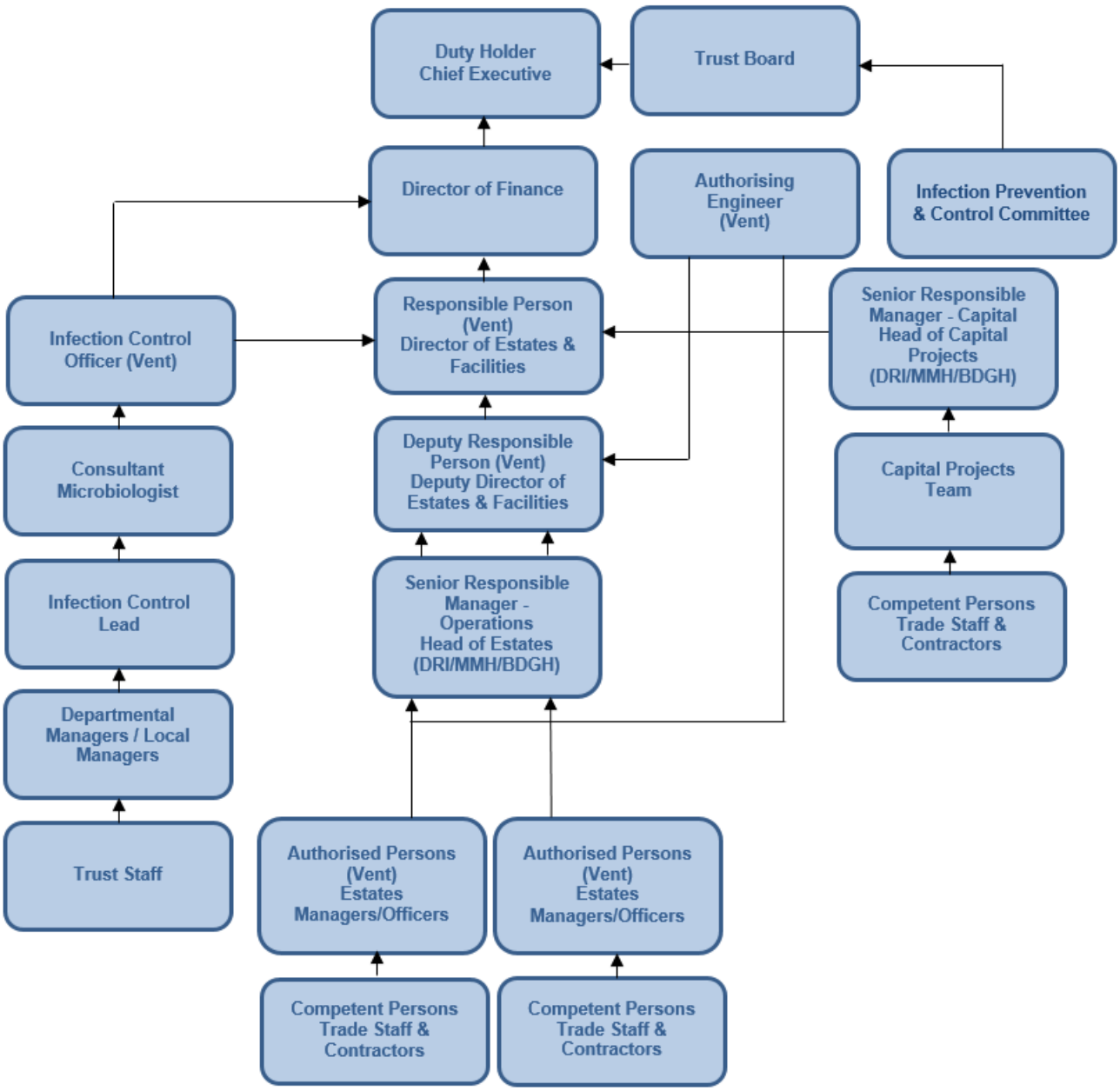
To provide a forum for joint strategic discussion, considering actual and anticipated changes to the service provision.

The Group provides assurance to the board of directors that appropriate expertise and relevant personnel are available so that policies and actions agreed by the Group are being fully implemented. This will also require assurance to the Group from designers, installers, maintainers, and Authorising Engineers with regard to the operation of the ventilation infrastructure.

It is important that decisions affecting the resilience, safety and integrity of the ventilation systems and associated equipment do not go ahead without being agreed by the VSG. In that regard, the VSG should ensure that sufficient, appropriate expertise and competence is available when making such decisions.
The VSG may typically comprise:

- Estates (operations and projects) staff.
- An Authorising Engineer/independent adviser for ventilation.
- The Authorised Person(s) for ventilation services.
- Clinicians and specialist departments (for example, theatres, ICU, Aseptic Pharmacies).
- Infection control, medical microbiology, & nursing.
- Designers who are conversant with the design principles and the requirements of Critical Ventilation systems in healthcare settings.
- Personnel from the finance department with accountability for capital and revenue evaluation.
- Other stakeholders as appropriate.

4.11 Communication organigram



5 PROCEDURE

4.1 Control of Heating and Ventilation Systems

The majority of the heating and ventilation systems within this Trust are controlled via a computerised Building Management System (BMS).

Local air ventilation (LAV) systems (single room cooling units for isolation cubicles, split air conditioning unit, etc.) are independent items and are controlled via their own sensor within

the actual space. Air conditioning use in ventilation systems shall be considered and implemented only following the completion of a Risk Assessment to suit Health and Safety, Statutory and /or Health Technical Memorandum (HTM) recommendations.

4.2 Building Temperatures

The Trust aims to control the general space temperature within the buildings to 18-25 degrees Celsius, dependant on ambient outside temperatures and extreme weather events. Some acute areas may vary due to patient requirements.

4.3 Maintenance of Heating Systems

Heating systems (radiators) including pumps and controls are maintained utilising the trusts Planned Preventative Maintenance (PPM) system.

The surface temperature on all space heating devices (e.g., radiators) and associate pipework which are located within public areas must be suitably guarded or insulated or have been designed not to exceed 43 degrees C.

4.4 Maintenance of Ventilation Systems

All ventilation systems which include plant, ductwork and control systems shall be included in the planned preventative maintenance (PPM) system.

PPM results should be recorded on the trusts computer aided facilities management (CAFM) systems Planet FM Planet.

Inspections and maintenance shall be carried out utilising guidance from the following:

- Heating and ventilation systems HTM 03-01: Specialised Ventilation for Healthcare Premises Part A & B.
- Health and Safety Commission's Approved Code of Practice and guidance document 'Legionnaires' disease: the control of Legionella bacteria in water systems (L8).
- HTM 04-01: 'The control of Legionella, hygiene, 'safe' hot water, cold water and drinking water systems'.
- HTM 01-05: Decontamination in primary care dental practices.

The general frequency of inspection and verification for ventilation systems shall consist of:

- **All** ventilation systems to be subject to inspection and maintenance on a periodic basis in line with best known practice specifically suited for the equipment use.
- Ultra clean ventilation systems shall be inspected and verified once every 6 months by an independent authorised company.
- Local Exhaust Ventilation (LEV) systems to be examined and tested annually by an independent authorising company.

- Annual tests to be carried out in order to demonstrate the continuing efficiency of the fire detection and containment systems.

All instrumentation used for verification must be calibrated & certified **annually.**

A permit to work system must be operational for all work carried out on ventilation systems that supply acute areas.

- Operating Theatre
- Intensive Therapy Unit (ITU)/ICU
- Isolation rooms
- Clean rooms
- Invasive treatment rooms
- Local Extract Ventilation (LEV)
- Special Procedure Rooms
- Catheterisation Rooms
- Any other system as directed by the AP

All ventilation systems are subject to, at least, a simple visual inspection annually.

This inspection includes as a minimum: -

- General condition of AHU
- Internal cleanliness of AHU and associated ductwork
- Condition of fire containment
- Operation of fire dampers
- Condition of thermal insulation

If any faulty item is identified which may affect the provision of the mechanical ventilation services, this should be reported to the AP (V) and suitable repair organised.

Critical Ventilation Systems are subject to additional inspection and validation. The simple visual inspection (as detailed above) is undertaken every 3 months, with an additional performance validation to ensure that the ventilation system continues to provide appropriate performance against the original design criteria or most recent guidance.

Local Exhaust Ventilation systems (including fume and safety cupboards) are subject to similar inspection and validation as critical ventilation systems under the HSE guidance “The Maintenance, Examination, and Testing of LEV’s”.

Methodology for annual testing is laid down in the Particulate Testing of General Theatres Procedure document. This procedure shall only be adopted as required by the Director of Infection Prevention Control to provide evidence of accumulated particulate matter as required.

Emergency procedures:

- In the event of heating/ventilation failure, contact the Estates help desk (643555) or out of normal working hours, switch board who will in turn contact the on-call engineer.
- In the event of electrical supply failure only acute ventilation systems can be supplied by an emergency generator.

6 TRAINING/SUPPORT

Please note: The Standard Training Needs Analysis (TNA) – The training requirements of staff will be identified through a training needs analysis. Role specific education will be delivered by the service lead.

All staff (estates or sub-contractors) will be adequately trained and assessed for their level of competence before working on any aspect of the sites mechanical ventilation system. The assessment and approval of the competence and training for those working under the control of the estates department at the Hospital will be provided by the AP (V) and supported by the AE(V) where appropriate.

Sub-contractors will be expected to demonstrate that their Competent Persons are sufficiently trained and experienced prior to attending site.

A record of those trained by (inc. Sub-contractors) is kept in the estates offices and managed by the AP(V).

6.1 Monitoring Compliance and Effectiveness

Audits shall be conducted on an annual basis in accordance with designated staff functions, Authorised Persons, and the Authorising Engineer.

Maintenance performance summary reports for specialised ventilation systems and Local Extract Ventilation systems shall be formally reported at the following:

- Ventilation Safety Group (Quarterly)

In order that ventilation systems can be correctly operated and maintained it is essential that as-fitted drawings, operating manuals, maintenance instructions and commissioning manuals are available both on hard copy and in digital format on MiCAD. It is essential that sufficient time is allowed by the users for maintenance to be carried out in line with the periodic maintenance requirements.

What is being Monitored	Who will carry out the Monitoring	How often	How Reviewed/ Where reported to
General (Extract)	Estates Staff	6 months	KPI report to VWG
General Theatres	Theatre and Estates Staff	3 months	Report to VSG
Ultra Clean Ventilation Systems	External Contractor	6 months	Report to VSG
Isolation Room Ventilation Systems	External Contractor	12 months	Report to VSG
Air Handling Systems	Estates Staff	6 months	KPI report to VWG
Local Air Cooling/Refrigeration Units	External Contractor	12 months	Report to VSG
Local Exhaust Ventilation (LEV)	External Contractor	12 months	Report to VSG
Catheterisation Room	External Contractor	12 months	Report to VSG
Special Procedure Room	External Contractor	12 months	Report to VSG

7 EQUALITY IMPACT ASSESSMENT

The Trust aims to design and implement services, policies and measures that meet the diverse needs of our service, population, and workforce, ensuring that none are disadvantaged over others. Our objectives and responsibilities relating to equality and diversity are outlined within our equality schemes. When considering the needs and assessing the impact of a procedural document any discriminatory factors must be identified.

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment for All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible, remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation, or religious belief. No detriment was identified. (See Appendix 1)

8 DATA PROTECTION

Any personal data processing associated with this policy will be carried out under 'Current data protection legislation' as in the Data Protection Act 2018 and the General Data Protection Regulation (GDPR) 2016).

For further information on data processing carried out by the trust, please refer to our Privacy Notices and other information which you can find on the trust website: https://www.dbth.nhs.uk/about-us/our-publications/uk-data-protection-legislation-eu-general-data-protection-regulation-gdpr/

9 REFERENCES

Department of Constitutional Affairs
Mental Capacity Act (2005): Code of Practice, 2007 www.dca.gov.uk
HTM 03-01 Specialised ventilation for healthcare Buildings.

APPENDIX 1 - EQUALITY IMPACT ASSESSMENT PART 1 INITIAL SCREENING

~~Service/Function~~/Policy/~~Project/Strategy~~	Division	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
Heating And Ventilation Services Policy	Estates and Facilities	James Hutchinson	New Policy	24 February 2022

1) Who is responsible for this policy? Name of Division/Directorate: Estates & Facilities

2) Describe the purpose of the service / function / policy / project/ strategy? Who is it intended to benefit? What are the intended outcomes? Trust-Wide – to provide appropriate guidelines and procedures to ensure that the Trust complies with its statutory duties associated with the management of ventilation & heating systems

3) Are there any associated objectives? Legislation, targets national expectation, standards: Compliance with HTM 03-01, Specialised ventilation for healthcare building

4) What factors contribute or detract from achieving intended outcomes? – Awareness of Procedures and Management and Maintenance of Systems.

5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy, and religion/belief? Details: [see Equality Impact Assessment Guidance] - No

- **If yes, please describe current or planned activities to address the impact** [e.g. Monitoring, consultation] – N/A

6) Is there any scope for new measures which would promote equality? [any actions to be taken] – N/A

7) Are any of the following groups adversely affected by the policy? – No

Protected Characteristics	Affected?	Impact
a) Age	No	
b) Disability	No	
c) Gender	No	
d) Gender Reassignment	No	
e) Marriage/Civil Partnership	No	
f) Maternity/Pregnancy	No	
g) Race	No	
h) Religion/Belief	No	
i) Sexual Orientation	No	

8) Provide the Equality Rating of the service / function /policy / project / strategy – tick (✓) outcome box

Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4

If you have rated the policy as having an outcome of 2, 3 or 4, it is necessary to carry out a detailed assessment and complete a* **Detailed Equality Analysis form – see CORP/EMP 27.

Date for next review: 24 February 2025

Checked by: Mathew Gleadall **Date:** 24 February 2022