Thermal Comfort Policy

POLICY COVERSHEET

Key Details

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Version Control

VERSION	***DATE***	***REASON FOR CHANGE***
A	*11 October 2024*	*First version for HR review*
B	*30 October 2024*	*Updated for UEG consideration of principals*
C	*20 November 2024*	*Updated following comments from UEG and Environment and Sustainability committee*

2.0	*30 November 2024*	*Updated following comments from Policy Review Group and Unions, for approval by Academic Board.*
3.0	*May 2025*	*Updated to include reference to SDG's, missing policies and strategies and change of name contact*

Contents

1 Introduction

1.1 Purpose

Cardiff Metropolitan University (CMU) is committed to transforming our estate to be Net Zero Carbon by 2030. Our commitment supports the Welsh Government's Heat Strategy for Wales and the specific decarbonisation goals for Welsh Public Buildings. An important part of any route map to reaching Net Zero is achieving good control over our energy use. We aim to transition away from gas as quickly as possible within available resources. Currently, most of the gas the University uses heats our buildings. Heating and cooling systems are also a significant driver of electrical consumption - powering the associated chillers, pumps, fans and control systems. In a broader context, the built environment is responsible for approximately 40% of emissions in the UK, through the construction and refurbishment of buildings and their operation. At CMU, approximately 27% of our emissions come from the operation of our estate.

Many buildings use far more energy than envisaged when designed (the performance gap). Often, spaces are heated based on time clocks rather than occupancy. Many of our spaces at CMU have been found to be operating outside of recommended thermal parameters, resulting in a suboptimal environment within our buildings, increased costs and excess emissions. Over the course of the academic year 2023/24, the monitoring of our internal teaching rooms revealed that the average internal temperature of 29% of our teaching spaces exceeded 21^{o}C when in use, and 7% of teaching rooms were cooler than 19^{o}C, including two rooms (in different buildings) that averaged 23.9 ^{o}C when in use across the year.

The reasons for the overheating and cooling are multiple, and in the majority of instances, resolution requires both further investigation and investment. At present, our building management systems that control the temperature and other internal environmental parameters are either inadequate, or inadequately configured. Meanwhile, the estates team are frequently contacted to make adjustments to meet personal preference rather than need, distracting from the task of addressing the system level challenges needed to improve the overall performance of our building.

In addition, across the built environment, the majority of heating systems are configured to heat spaces, whether or not they are occupied. This results in significant wasted energy and associated costs and carbon emissions.
We are taking action to optimise our heating and cooling systems, to replace gas-using boilers, and eliminate energy waste. Achieving Net Zero in our estate also requires support and action from the users of our buildings.

The purpose of the policy is to set out our intentions for the internal environment of our buildings so that resources can be focussed on addressing the system challenges faced on a priority basis, evidenced by the data from environmental monitoring, in order to meet the needs of all users who are currently impacted when using spaces that are outside of our intended thermal parameters.
Our Thermal Comfort Policy sets out how we aim to heat and cool our buildings, and our expectations of staff and students to take active responsibility for helping eliminate energy waste and improve both the internal and external environment.

1.2 Scope

We must balance the competing needs of occupants, the activities being undertaken, the need to achieve net zero, and the resources we have. We recognise that individuals across our community all have different perceptions and preferences for thermal comfort. This policy sets out how we intend to operate our buildings for the benefit of staff, students and building users during booked events. The policy defines the University's heating season, the internal temperature range we will aim to achieve, and hours buildings will be heated subject to the practical constraints of our systems. The focus of our estates resource needs to be on managing and improving our building fabric and systems for the benefit of all occupants, responding to individual needs by exception based on defined need, rather than to requests based on personal preferences.

Heating and cooling are not the only considerations in maintaining indoor air quality. The Environment and Estates team shall ultimately be responsible for determining the control settings for individual spaces to also control CO_2 levels and humidity. Where automatic control systems are not present, building users are expected to comply with room-specific guidance and/or reasonable requests from the estate team to manage the internal environment of their space.

1.3 Sustainable Development Goals

This Policy supports Sustainable Development Goal numbers 3,5,12 and 13. The Sustainable Development Goals (SDGs) are a set of 17 goals that were established in 2015 by the United Nations (UN). The goals are intended to create a more sustainable and equitable world by addressing global challenges.

2 Heating season

The heating season is from 1 October to 31 March. Should internal space temperatures drop outside of the heating season, Environment and Estates will actively monitor weather conditions and internal temperatures (via Building Management Systems) and be considerate to occupier needs in determining whether the heating systems should be turned on. The decision-making process will balance

factors including internal temperatures, availability of heating systems (which are subject to offline maintenance outside of the heating season and are not always available), the short, medium and long-term weather forecast, and cost/environmental impacts. Should the weather be unusually warm then the start of the heating season may be delayed, or the end of the heating season may be earlier than stated.

3 Heating in buildings other than accommodation

Our target internal temperature range for occupied rooms is 18°C to 20°C during core operational hours of 09:00 to 17:00, or to 19:00 hours where teaching is timetabled, Monday to Friday. The library's 24-hour areas for study will be heated as warm spaces on a 24-hour basis.

Our target temperature range is above the HSE recommended minimum of 16°C.

Certain buildings with operational hours that differ from these core hours will have extended heating hours when required. Where no teaching is timetabled, hours of operation of the heating and cooling systems in teaching spaces may be reduced. Any requirement for the operation of heating systems outside of core hours are to be agreed in advance between estates and the relevant organising department (Timetabling, Conference services, Residences, etc.). Heating systems will generally be set back on Bank Holidays. We will monitor demand and where deemed appropriate by the estates team in consultation with student services, additional study spaces will also be heated outside the hours of 9 am to 7 pm, Monday to Friday, or weekends.

Systems will be set so that spaces should be at the target temperature at the start and end of occupancy times. This may result in the radiators becoming cool before the end of occupancy, provided the space's temperature is maintained within the range specified above. Similarly, on days that are expected to be warm, heating may not come on where it is assessed that temperatures will rise quickly to the target levels during the working day. This reduces heating consumption and the risk of overheating the building later in the day.

We will be investing further in our control systems, with additional functionality and to integrate timetabling and heating data so that we only heat spaces when occupied. We will also be further investing in alternative forms of heating solutions, focusing on occupancy, in order that we use our energy intelligently to heat the person and not the room.

We request building users support us by providing active feedback where conditions are sub-optimal, and to refrain from adjusting controls. Too often we find radiators have been locally adjusted to maximum, overheating our spaces. Other users have subsequently opened windows without adjusting the radiators resulting in the building systems working in overdrive, inadvertently and unnecessarily heating the external environment, increasing cost and carbon emissions.

4 Heating in University residential accommodation

Our daytime target internal temperature range for occupied rooms is 18°C to 20°C. Achieving the target temperature range is not guaranteed due to the number of variables.

All heating will be switched off overnight between the hours of 2200 and 0700, but the aim is to keep a minimum temperature within each room of 16°. Where extended cold weather periods are forecast, these hours may be varied in order to maintain the minimum temperatures.

The radiators may only be warm to the touch and could go off completely should the internal temperature reach 21°C. The estate team will work in conjunction with the accommodation team to agree day-time settings during term time that will be subject to variation based on the external environment. The heating will be switched off in the summer months.

Occupants are asked to notify the estates team via the hall wardens if accommodation is consistently too hot or cold so that adjustments can be made.

5 Health and Safety Legislation

The Workplace (Health Safety and Welfare) Regulations 1992 Approved Code of Practice states that temperature in workrooms should provide reasonable comfort and goes on to specify that this should normally be at least 16°C for sedentary work and 13°C for manual work.

6 Mechanical Ventilation and Air Conditioning

Mechanical ventilation, for example, the provision of conditioned air and blown air ventilation within lecture theatres, labs and classrooms will only be provided during core operational hours of 09:00 to 17:00 hours, Monday to Friday, or by separate arrangement for activities outside these hours.

In general, full air conditioning or local cooling is *not* the standard throughout the University Estate where it is solely installed for the general comfort and wellbeing of individuals or any group of individuals during the ‘summer’ period. Air conditioning or local cooling may only be installed if:

• It is required by regulation or enforceable code of practice (e.g. for Scientific procedures/purposes), or

• There is a specific identifiable academic need (such as chemical deterioration at elevated temperatures), or

• Excessively high internal space temperatures are likely to be experienced and there is no other practicable means of reducing heat gains. (In this context “practicable” will include natural ventilation, local ventilation, or passive solar measures such as shading).

Where comfort cooling is provided, it will be subject to control by the Estates and Environment Department in the same way as the centralised heating systems. If this is not technically feasible, then occupying departments will need to ensure that

cooling systems are not used excessively, with protocols agreed for implementation by building users to avoid using such systems when spaces are unoccupied.

Current national design guidelines (CIBSE Guide A: Environmental Design) suggest that the acceptable operative temperature in summer for comfort cooling should be designed and operated to be around 23°C to 25°C. Temperature set-points for cooling systems where present shall be set to 23.5°C unless otherwise agreed based on activities and processes being undertaken within specific spaces.

The CIBSE Guide A suggests 25°C as an acceptable summer indoor design operative temperature for non-air-conditioned office buildings providing the expected occurrence of operative temperatures above 28ºC is limited to 1% of the annual occupied period. It is recognised that between 25ºC and 28ºC, increasing numbers of people may feel hot, uncomfortable and show lower productivity. Indoor operative temperatures that stay at or over 28ºC for long periods of the day will, except during prolonged hot spells, result in dissatisfaction for many occupants.

Good practice ways to reduce discomfort for occupants of office buildings in hot summer conditions when indoor operative temperatures rise above 25ºC include:

• relocating to alternate spaces such as those with reduced thermal gain or active cooling, where available and resources permit

• relaxation of formal office dress to encourage individual adaptation to conditions

• individual control over the thermal environment, where practicable, such as by opening windows, the use of blinds, or moving out of sunny areas

• flexible working so people can work at more comfortable times

• availability of hot or cold drinks

• increased air movement, e.g. the cooling effect of local fans can be equivalent to reducing the operative temperature by around 2ºC

• controlling, shutting down or eliminating appliances that contribute to heat gains within the indoor environment, such as drying ovens, steam baths, display screens and IT equipment.

Academic staff and Professional Services Managers are expected to encourage staff and students to follow these principles when relevant.

As with thermal comfort during the heating season, it is recognised that building design and room layout, for example the relationship between desk and heat source locations or windows, can play a role. Such considerations should be borne in mind when plans are being made to change the layout of a building or the rooms within it. This is particularly true if such changes involve the construction or removal of walls, partitions or other physical aspects which can affect the flow of air within and around the building.

7 Requests for Heating, Hot Water, or Mechanical Ventilation outside of core hours

The majority of our heating, hot water and ventilation systems are monitored and controlled via a centralised Building Management System (BMS) which is administered by the Environment and Estates Department.

Most areas of our buildings have centralised heating systems, and we are generally not able to heat and cool specific areas within our buildings in isolation. As a result, at the present time, we have to heat large areas or even whole buildings in order to heat a single room for teaching out of hours. Wherever possible, teaching, meetings and events should be held in adjoining areas. It will generally not be deemed appropriate to heat a large building to accommodate a single room booking out of hours. When booking rooms, timetabling staff or those booking rooms should, where possible, seek to cluster activities to adjoining rooms or areas so that the areas to be serviced are limited so far as practicable. The Estates Department will be happy to help and provide advice on this.

If a chosen room booking cannot be avoided due to the need for specialist equipment or space, a provision of temporary electric heaters may be deployed by Environment and Estates/Security staff as an alternative to heating large areas.

If heating, hot water, or mechanical ventilation is required outside of core operational hours this can be requested as follows:

1. The Environment and Estates team will review the timetabled teaching schedules to accommodate scheduled teaching activities in the evenings at the beginning of the preceding week, in order to adjust time clocks where appropriate.
2. Any other bookings outside of the core hours must be notified to the Environment and Estates department mailbox Estates@cardiffmet.ac.uk. A minimum notice period of **five working days** is required when booking unless there are exceptional circumstances.
3. For other requests or longer-term changes, for example when a whole department's operating hours are outside the standard working day, please contact the Estates department mailbox and state the area/s and times of occupation required. Requests should be endorsed by the requestor's Head of Department or School. It is expected that consideration will be given, by the Head of the Department or School or their nominees, on how best to manage the use of buildings out of core hours to minimise the need for additional heating, for example, by concentrating out of hours use in one building.

8 Expectations on Users of University Buildings

It is expected that occupants of buildings will take reasonable measures to adapt to the environment by wearing suitable clothing and showing due tolerance and

understanding, especially if they are in buildings that were not constructed to modern standards.

We recognise that some of our buildings do not perform as well as we would like, and that it will not always be possible to meet our target thermal parameters, and that where requests for changes are made, these will be prioritised within the resources available. We ask for the understanding of users as we do so. Issues with the policy or performance of buildings should be highlighted through the existing Building User Group Meetings.

Within the heating season, it is expected that individuals will:

1. Keep heat in our buildings by closing doors and windows as appropriate, and or turning off radiators if windows are opened.
2. Ensure radiators and convectors are not blocked with furniture, clothing, towels, etc.
3. Report areas of over/under heating to the Estates@cardiffmet.ac.uk, main receptions or residence offices.
4. Understand that outside of core operational hours, it may be unrealistic to expect a whole building to be heated/mechanically ventilated if there are only a small number of occupants who wish to be in the building. Many of our buildings have systems that are either on or off for the whole building and cannot be controlled to room level.
5. Accept that their view of an acceptable temperature may not be the same as other users of the building.
6. Refrain from unduly adjusting radiator controls. All radiators have thermostatic valves fitted that can assist with regulating the heating requirement in each area. Please report any valves in your area that are faulty/missing to Estates.
7. Contact your HR Advisor if specific thermal arrangements are required in your area for medical reasons.

9 Expectations on Environment and Estates Department

To maintain levels of thermal comfort, the Environment and Estates Department will:

1. Be responsible for maintaining and operating plant and equipment to meet the internal environment of our buildings as set out in this policy.
2. Investigate complaints of over and underheating promptly and provide feedback. Contact your respective hall warden, campus reception desk, or Estates on Estates@cardiffmet.ac.uk who will place a digital thermometer in the space to monitor and record the temperature. Estates will then take reasonable measures to adjust temperatures if required in accordance with the policy.

3. In instances where the parameters set out in the policy are met, and thermal discomfort is still perceived, it is expected that occupants will take reasonable measures to adapt to their environment. Where discomfort is caused by other factors (e.g. draughts), Environment and Estates will examine and, where reasonably practicable within the available resources, make improvements to the area. However, options may be limited, especially in older buildings, where physical and financial limitations may prevent their adoption. Recommended measures will be discussed with the users.

10 Portable Heaters

The use of portable electrical heaters can result in the conventional heating within the building shutting down. Such heaters can also pose safety risks as well as incurring significant costs and CO2 emissions. Individuals are not permitted to bring in their own portable heaters. Portable heaters not provided by or authorised by the Environment and Estates Department will be removed without notice during routine health and safety inspections.

If, following an investigation into reported under temperature conditions, it is found that the use of portable heaters is appropriate, or supplementary heat is required based on Occupational Health requirements, they will be provided by the Environment and Estates Department; and such heaters will be Portable Appliance Tested thermostatically controlled oil-filled radiators or 2Kw fan heaters.

11 Additional Carbon-Cost Saving Measures

The University is continuing to implement other initiatives to reduce costs and carbon emissions such as LED lighting, Solar PV installations and building fabric upgrades.

By focusing on these cost-saving measures and energy efficiency improvements, Cardiff Metropolitan University and all its users can make a significant progress towards its Net Zero Carbon goal while also reducing operational expenses.

12 Equality, Diversity and Inclusion

The intention of the policy is to set the principles for the majority of our spaces to accommodate the needs of all students, staff and visitors, balanced with the impacts of cost and carbon from the operation of our heating and cooling systems.

It is recognised that there will be a need to take account of key EDI considerations. It is our intention to support reasonable adaptions in line with our EDI Policy.

12.1 Reasonable adaptions

Individuals who require reasonable adaptions that cannot be accommodated through clothing choice, should contact HR (staff) or student services (students), who, subject to occupational health review where appropriate, will liaise with estates on their behalf. Personal arrangements will be made where possible, following the principles of heating the person rather than the building.

Where reasonably requested, the university will identify and designate suitable areas where different localised thermal parameters are agreed appropriate for a group of users with similar needs.

Example EDI Considerations and our approach are set out below:

12.2 Temperature Sensitivity and Health Needs

Some individuals, such as those with certain medical conditions (e.g. arthritis, anaemia, thyroid disorders, or reduced mobility), may have heightened sensitivity to temperature or greater difficulty self-regulating. Where this is the case, Environment and Estates will work with relevant users to identify options to support the individual with localised arrangements to suit the need.

It is recognised that it may be desirable for some members of our community to work within areas that operate at a lower temperature. We will work with schools and departments to identify such areas upon request.

12.3 Cultural and Climate

We recognise that people from different cultural backgrounds or climates have varying expectations and comfort levels for indoor temperature. We provide warm spaces on each campus that are heated 24/7, so that where students may wish to study overnight, they are able to do so in a safe and comfortable environment. Individuals are asked to support our net zero ambitions, by adjusting their attire rather than seeking adjustments to building settings, where their personal preferences are outside of our target parameters.

Our designated warm spaces are the main libraries in Llandaff and Cyncoed.

12.4 Gender Considerations

Research indicates that men and women often have different comfort preferences. The proposed temperature range is intended to meet a balance based on industry guidance. Those with menopause symptoms may request to work within an area with a reduced temperature, or other reasonable adjustment which will be accommodated where possible in line with the Menopause policy.

13 Feedback

We encourage feedback from students and staff regarding thermal comfort issues, both in terms of content, our rational and approach to accommodating reasonable adaptions, and in identifying areas that are currently over-heated or over-cooled.

For students in halls with queries about heating in their rooms, your first point of contact is with the hall wardens.

Please provide your feedback on the policy, and or issues with the thermal performance of our buildings, via the Building User Group Forums.

Where more immediate adjustments are required due to spaces being significantly outside the thermal parameters of the policy, please contact estates@cardiffmet.ac.uk