



ENERGY POLICY UNISI

UNIVERSITÀ
DI SIENA 1240

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1. INTRODUCTION

The University of Siena has started a process of improvement of its environmental and energy performance, recognizing the significance of its activities both on society and on the environment.

It is therefore considered a strategic objective to aim for an ever-greater energy efficiency:

- › Reducing energy consumption and climate-change emissions;
- › Ensuring continuous monitoring of energy performance;
- › Allocating resources and giving information to achieve the objectives;

Complying with legislative requirements and regulations in the energy field of:

- › air conditioning and air treatment;
- › domestic hot water (dhw) production
- › internal and external lighting
- › the management of office machinery to each and every laboratory.

2. AIR CONDITIONING AND AIR TREATMENT

Set point for air conditioning and air treatment

As published in the AMENDMENTS MADE DURING the CONVERSION TO DECREE-LAW no. 17 of 1 MARCH 2022, in order to reduce the thermal consumption of buildings and to obtain immediate annual energy savings, from 1 May 2022 to 31 March 2023 the weighted average of air temperatures, measured in the individual rooms of each real estate unit for winter and summer air conditioning of public buildings, with the exception of the buildings referred to in Article 3, paragraph 4, of the Regulation referred to in the Decree of the President of the Republic of 16 April 2013, no. 74, Legislative Decree no. 144/2022 containing "Further urgent measures in the field of national energy policy, business productivity, social policies and for the implementation of the National Recovery and Resilience Plan (PNRR), must not be higher, in winter, than 19 degrees centigrade, plus 2 degrees centigrade tolerance, nor

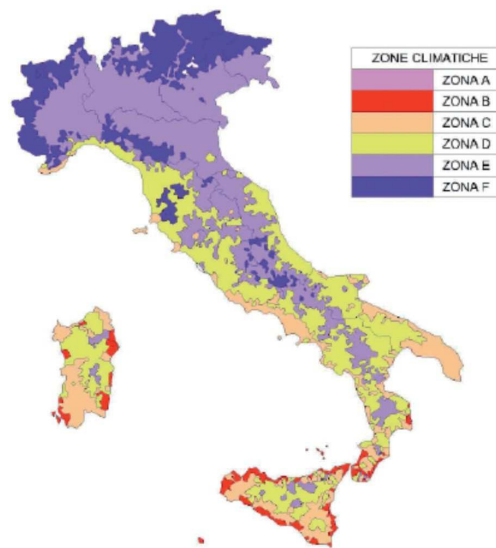
lower, in summer, from 27 degrees centigrade, minus 2 degrees centigrade tolerance.

Turn-on times for air conditioning and air treatment systems

To contain the energy consumption of buildings, the systems must be active only on working days, except those conducted to operate in continuous operation around the clock.

The turning on of heating systems for winter air conditioning required by law varies according to 6 climate zones, from the hottest to the coldest. Each of these areas is determined on the basis of the degrees per day measured in the Italian municipalities. The operating limits of the thermal systems, with respect to the provisions of paragraph 2 of article 4 of Presidential Decree no. 74/2013, are reduced by 15 days for the turning-on period (postponing the start date by 8 days and anticipating the end of the year by 7 days) and by 1 hour for the daily duration of turning on:

- **Zone A:**
5 hours per day from 8 December to 7 March;
- **Zone B:**
7 hours per day from 8 December to 23 March;
- **Zone C:**
9 hours per day from 22 November to 23 March;
- **Zone D:**
11 hours per day from 8 November to 7 April;
- **Zone E:**
13 hours per day from 22 October to 7 April;
- **Zone F:**
No limitations



In particular, the campuses of the University are in the Municipality of Siena, Grosseto, San Giovanni Valdarno that fall within the climatic zone D and in the municipality of Arezzo that falls within the zone E.

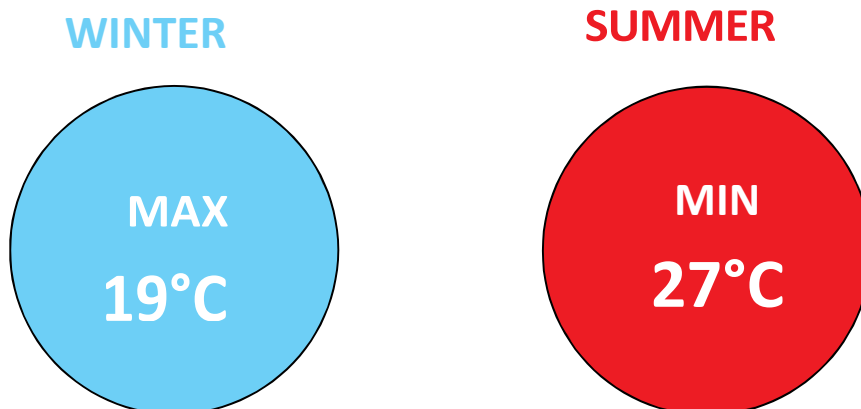
In order to optimize the switching on times of the air conditioning systems and to ensure optimal thermal well-being, there are pre-ignition and pre-shutoff periods of the systems with respect to the hours of occupancy.

The air treatment systems will generally be activated for each property during the actual hours of occupation.

Provisions

In relation to what is indicated above, for each real estate property, the times to turn on the air conditioning systems must never exceed the daily hours established by law and in the actual time of occupation, the systems will be set in such a way that the average temperatures in the individual environments must be equal to:

- › 19°C for winter air conditioning;
- › 27°C for air conditioning summer.



Best Practices

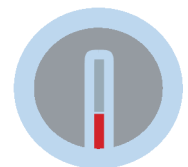
› It is important to know that each additional degree results in an increase in fuel consumption ranging from 5 to 10% a year, and that the temperature rises by 1-2°C after a person remains inside a room for about half an hour. Therefore, it is enough to adjust the ambient temperature to around 18°C to obtain a more than adequate temperature within our offices.

We are installing, where possible, thermostatic heads on the radiators, and replacing the fancoil control panels, to adjust the temperature more precisely. All with tamper-proof accessories.

To achieve the best thermal comfort and reduce consumption, some conscious measures are necessary:

- › Do not heat or cool rooms that remain empty: doing so only where and when it is really necessary allows considerable savings of energy and money;
- › If you use meeting rooms occasionally, remember to turn off the heating at the end of the meeting;
- › If it is too hot, do not open the windows and do not undress, but ask for the room temperature to be lowered;
- › The same rule applies in the summer. Keep the windows closed when the system is switched on and if it is cold, raise the set temperature;
- › Remember to keep your office or laboratory door closed so that only the environment where you work is air-conditioned;
- › Do not cover the radiators with "radiator covers" or curtains;
- › If the system is not centralized or is located in the on/off control , it is recommended to turn off the air at least half an hour before leaving the office, as , in addition to containing energy consumption, you get the advantage of not undergoing temperature changes harmful to health, adapting better to the external temperature.
- › The hours of the heating systems will be attenuated from 17:00 until 06:45 from Monday to Thursday, on Fridays from 16:00 until the restart of the following Monday, the only exception being the buildings where university courses or masters are scheduled on those days.

3. DOMESTIC HOT WATER (DHW) PRODUCTION



Adjustment of the production temperature of domestic hot water

The production of domestic hot water will be guaranteed only in LABORATORIES (where there is a real need for use) and in TOILETS FOR DISABLED PEOPLE and the set temperature will be the minimum required by law.

Best Practices

› Use, when possible, only cold water and where there is a need, concentrate as many glassware or other items as possible to be washed at once: in a short period of use, in fact, hot water may not reach the dispenser, thus leading to an unnecessary waste of energy (every minute you use upto 10 liters of water);



4. LIGHTING

About 30% of an office's energy consumption is related to the use of artificial light. This consumption can be greatly reduced, even by more than 50%, with structural interventions, which aim to make the most of the natural light coming from the windows, which include the installation of low energy lamps, such as modern LEDs, the installation of artificial light flow control systems, and presence detectors, which automatically turn the light on and off when needed.

The correct positioning of the light points is also especially important. The rule to follow is "the right light where it is needed". Workplaces must be well lit, so as to avoid areas of shade or, conversely, glare and reflections

Best Practices

To save electricity, it is necessary to make the most of natural light: it is particularly important to position desks and PCs well with respect to the windows. Let's not put screens on the windows. **Always turn off lights when leaving the office, laboratory, and common areas, such as bathrooms, corridors, stairs, meeting rooms, etc.**

If they are not already present, ask to install presence detectors or automation systems that allow to turn off the lights when there is no one in the room.

It is important to calibrate the lighting according to the real needs: it is often enough to use 50% of the available lights, especially on sunny days.

Prefer a table lamp for desk lighting.

5. USE OF LIFTS

The average energy consumption of an elevator represents about 5% of the total electricity consumption of an office building. The highest energy consumption of an elevator occurs during the stand-by phase, i.e., when it is not active but ready to go into operation. At this stage it absorbs about 70% of the total electricity it requires.



Best Practices

With our behavior we can reduce the energy consumption of the elevator by a share between 20 and 75%. Every time we do not use the elevator, we save about 0.05 kWh.

Walking up and down the stairs will reduce the energy consumption of our buildings, but above all it will be an opportunity to improve your health. This improves the muscle tone, cardiovascular system, respiratory functions and burns extra calories. If you walk under strain, such as when climbing stairs, you get to consume even 5 kcal/minute.

6. COMMON AREAS

Electric towels

Electric towels (with hot air jet) are undoubtedly comfortable devices and allow better operational management but, as all electrical appliances they consume energy. We can consider that a drying session (for a 1000 W power appliance that delivers for 10 seconds) consumes about 2.7 Wh which means that 100 dryings are 270 Wh and 1000 dryings are 2.7 kWh which (ISPRA 2019 data) correspond to about 1.8 kg of CO₂ emitted into the atmosphere.

Best Practices

In order to reduce energy consumption, existing ones will be deactivated, and paper towel dispensers will be introduced where they do not already exist.

Fresh food vending machines and chilled water.

Refrigerated vending machines are turned on around the clock to keep food fresh. This means that an average machine consumes about 3-4 kWh per day. Since they are never switched off (including weekends), consumption exceeds 1000 kWh per year.

Best Practices

The administration undertakes to revise the contracts with the vending machines supply operator and requests the use of efficient machines, or to use only non-refrigerated distributors with non-perishable food. In winter water does not need to be cold.

7. OFFICES AND LABORATORIES

The data available tell us that the buildings used as offices and/or laboratories, represent about 10% of the entire Italian real estate market. Approximately 16% of their energy consumption is due to the use of equipment, such as computers, printers, fax machines, photocopiers, and scanners.

Best Practices

Computers

- › Enable "power-saving" features that put your computer on standby or shut down after a short period of inactivity.
- › Turn off the "screensaver", that animated or static image that turns your PC into a picture. It is certainly pleasant to look at, but it consumes a lot of energy and often does not activate the "suspend" function.
- › If you don't use your PC for a long time, turn it off
- › Remember to turn it off at the end of the working day and unplug your computer: the PC is one of those appliances that absorbs 3W to 6W even when off.

Printers and copy machines.

- › Turn off the printer at the end of working hours or during periods of inactivity, disconnecting it completely from the power supply, because the printer continues to consume power even if it is turned off.

- Activate the "energy saving" functions. These are especially important in terms of reducing consumption, as they put the copier in "sleep" or "hibernate" mode after a short period of inactivity. Always make sure that the multifunction printer cover/power supply is closed, to enable stand-by activation.
- Print all the documents in a single session, as this choice guarantees that the printer reaches only once the right temperature for printing ;
- Try to minimize the use of the printer. Print only if necessary.

8. STUDY ROOMS OF THE UNIVERSITY

Currently, two study rooms are available to students enrolled at the University, open on Saturdays and Sundays, at the Presidio di San Francesco and the Sala Rosa, for a total of 180 seats.

Best Practices

To reduce energy consumption, the opening of the Sala Rosa will be temporarily suspended on Saturdays and Sundays and the entire consultation room of the Biblioteca de Economia (School of Economics Library) will be kept open.

With the opening of the consultation room, the University is committed to guaranteeing a capacity of over 220 study places at the Library of Economics on Saturdays and Sundays.

If necessary, additional spaces could be added by using the Aula Cripta within the same Presidio San Francesco.

9. MATRIX OF RESPONSIBILITIES

ACTIONS	POLICY CHAPTER	RESPONSIBILITY	
		PLANT MANAGER	UNISI COMMUNITY
Setting the on and off times of the centralized air conditioning and air treatment systems	2	●	
Management of the switching on and off of the air conditioning and lighting equipment inside the offices/laboratories and checking them (for possible reports)	2 -4		●
Adjustment of the production temperature of domestic hot water	3	●	
Management of the switching on and off of internal and external lighting (via remote control or not)	4	●	
Office/laboratory/common space management	6		●

10. SAVINGS DECALOGUE

We are all members of the university community and each of us must contribute to **not polluting and not wasting resources and energy**

Let us be spokesperson for the good practices described and be responsible for implementing this policy in every part and in every structure of the University of Siena.

Let us try to observe what and who surrounds us. If we observe anomalies or behaviours that are not too polite, let us not ignore them but kindly report them immediately to those in charge who will set in motion actions to solve the problem as quickly as possible.

This policy of the University of Siena is a document that invites everyone to be actors and protagonists in the search for the containment of energy resources, therefore, any suggestions or ideas can be sent to: serviziosostenibilita@unisi.it