

CHOOSING EQUIPMENT THAT EMITS LOW HEAT

HAZARD



HEAT

IMPLEMENTATION STEP



BUILDING IN OPERATION

AREA OF ACTION



COOLING



USES

COST



low medium high

LEVEL OF SKILL



With temperatures rising and heatwaves multiplying and intensifying, keeping buildings cool in summer is becoming a priority for users and players in the property sector. Effective adaptation action involves choosing energy-efficient computer equipment, household appliances and lighting that generates low heat and consumes little electricity, in combination with other actions such as implementing an awareness-raising strategy to adapt behaviour.

IMPACTS

The equipment in a building produces heat when it operates. This heat participates in warming the building's interior spaces. Selecting efficient equipment can **limit the rise in temperature** inside the building, thereby **preserving the thermal comfort** of the building's occupants during the summer months. The energy savings achieved by selecting efficient equipment can also reduce the building's energy bill.

The selection of more efficient equipment must be accompanied by a **change in behaviour** to avoid diminishing or even cancelling out the impact of this adaptation action through a **"rebound effect"**. This occurs when, despite the adoption of more energy-efficient equipment, over-consumption persists due to the multiplication of building equipment or the prolonged use of equipment. To avoid this rebound effect and promote sustainable practices, a **"low tech"** approach should be implemented. This involves favouring simple, less energy-intensive solutions, even when more advanced technologies are available, which can help to reduce **over-consumption**.

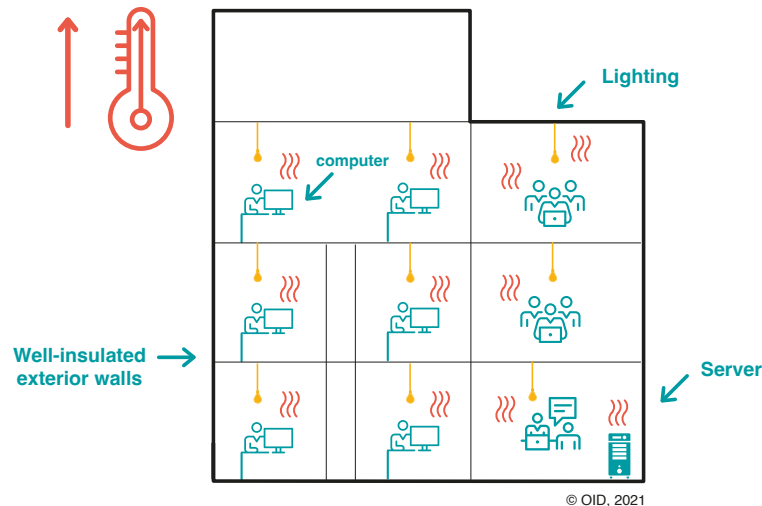
INSTALLATION GUIDE

To reduce the amount of heat generated by equipment, we recommend that you:

- **Quantify the thermal contribution of** equipment and consider the real needs of the building's occupants in order to adjust the sizing of appliances if necessary.
- Choose **low heat**, low-consumption equipment by referring to energy labels and other labels (e.g. Topten).
- **Relocate** computer equipment to specialised locations (e.g. the cloud).
- **Regulate and optimise the time that equipment is used** to avoid unnecessary consumption: putting appliances on standby, installing presence detectors, etc.
- **Implement a strategy to raise awareness among building occupants** (posters, meetings, information booklets, etc.). This should help to change behaviour so as to avoid the rebound effect and further reduce warming of the building by adopting simple gestures (e.g. unplugging appliances when they are not in use). These awareness-raising initiatives can be combined with a strategy to inform occupants about the climate risks facing the building and the emergency systems available.
- **Adjust electrical installations** to take account of the growing number of digital and home automation devices, even if they are more energy-efficient. The aim of this adjustment is to manage power demand efficiently, while minimising electrical load losses to prevent any rise in temperature in electrical systems.



ILLUSTRATION OF THE THERMOS EFFECT



WEAK POINTS AND STRONG POINTS

- ⊕ **As buildings become better insulated, they retain the heat** emitted by interior equipment, which makes selecting efficient appliances all the more important.
- ⊕ At city level, adapting our behaviour and choosing efficient appliances helps to **avoid overloading the urban power grid**, as was the case in New York in July 2006, for example.
- ⊕ When selecting new building equipment, other ESG criteria can be taken into account: energy consumption, user comfort, local production, etc. Since 1 March 2021, **energy labels** in France have been updated to take account of technological advances and clarify and encourage the purchase of more energy-efficient equipment.

! MALADAPTATION

The development of higher-performing technologies has **significant environmental consequences**. The manufacture of these technologies can lead to an **increase in greenhouse gas emissions** and **higher energy demand**. At the same time, the extraction and processing of natural resources, particularly rare metals, puts **considerable pressure on local ecosystems**, contributing to major environmental challenges such as deforestation, loss of biodiversity and soil and water contamination. The increasing complexity of equipment in the manufacturing process tends to produce greater volumes of more polluting waste matter and release air pollutants and harmful chemical substances, contributing to air, water and soil pollution. In addition, the complexity of recycling rare earths complicates waste management and the reuse of these materials.

MONITORING INDICATORS



ESSENTIAL RECOMMENDATIONS WORTH THINKING ABOUT



QUANTIFY THE REAL NEEDS OF BUILDING OCCUPANTS



SIZE EQUIPMENT TO MATCH REQUIREMENTS



MONITOR MY ACTIONS FOR CLIMATE CHANGE ADAPTATION

+/- : Quantitative indicator

★ : Qualitative indicator

INDICATORS OF MEANS	INTERPRETATION
+/- Percentage of equipment optimising uptime (%)	▶ To be maximised
+/- Percentage of low-energy and high-efficiency equipment (%)	▶ To be maximised
+/- Percentage of users aware of the need to optimise the use of equipment (%)	▶ To be maximised
+/- Percentage of essential recommendations followed (%)	▶ The maximum number of recommendations must be implemented
INDICATORS OF RESULTS	INTERPRETATION
+/- Comparison between the temperature of the room with low-heat-emission equipment and that of a control situation* (°C)	▶ Room temperature with low-heat-emission equipment < control situation

* The control situation is defined by the parameters established to isolate the influence of the adaptation action (similar conditions: weather, time of measurement, space, etc.).



CONCEPT / DEFINITION

- A **user** is considered to be **aware** when he or she has been trained in the understanding and practical application of educational content.
- **Energy-saving and energy-efficient equipment** requires less energy to operate, which in turn reduces energy losses in the form of heat generated by the Joule effect.

FIND OUT MORE

ADEME (2014), [Bien choisir son éclairage](#)

Centre d'analyse stratégique (2013), [Comment limiter l'effet rebond des politiques d'efficacité énergétique dans le logement?](#)

EnergiePlus, (2007), [Charges thermiques internes pour les bureaux](#)

Guide bâtiment durable (2020), [Limiter les gains internes](#)



CLICK HERE TO CONSULT THE GUIDE TO ACTION FOR CLIMATE CHANGE ADAPTATION