Cooling Energy Efficiency Checklist for Health Care Facilities

Version 3. July 2021

The objective of the checklist, designed especially for members of the Global Green and Healthy Hospitals network, is to have a quick and easy-to-use tool to assess engagement in cooling efficiency, and implement energy and environmental improvements. The data obtained will be useful for developing indicators, making a diagnosis and, in many cases, sufficient for setting specific goals and deadlines to achieve them.

Part 1 - General information

Name of the institution:			
Contact person:		Mail	

Address		Postal code	
City		Province	

Covered area		Total area	
Full time employees		Total employees	
Number of beds		Annual patients	

Part 2 - Technical capacity and baseline information on water and energy

Question / Answer	No	In progress / partially	Yes	Do not know
Management				
There is an appointed person for environmental management				
There is a appointed person for energy management				
There is an interdisciplinary team responsible for environmental management or similar duties				
Available information				
There are electricity consumption records from the last 3 years				
There are natural gas consumption records from the last 3 years				
There are diesel consumption records from the last 3 years				
There are consumption records of other energy sources from the last 3 years				
There are water consumption records from the last 3 years				
There is documentation about the architectural characteristics and technical details of the building, walls, windows, doors, etc				

Part 3 - Energy management, thermomechanical installations and air quality

Electricity supplier		
Gas Supplier		
Do you use renewable energy?	Yes / No	Which ones?
If you use renewable energy, is it onsite generated or a purchase contract?	Onsite	Purchase contract
Other energy resources used		

Question / Answer	**No**	**In progress / partially**	**Yes**	**Do not know**
Energy Management				
Work is done under energy efficiency guidelines				
There are energy monitoring systems				
There are sub-metering systems for different buildings, services, etc				
There are energy efficiency plans or goals				
Annual energy audits are performed				
There are awareness campaigns and trainings in energy and cooling efficiency				
Thermomechanical installations				
There is an appointed person for managing thermomechanical installations				
The thermomechanical facilities were designed according to current ASHRAE* standards or equivalent standards				
Thermomechanical systems operate according to current ASHRAE* standards or equivalent standards				
There is a plan of predictive maintenance of thermomechanical equipment				
There is a plan of predictive maintenance for changing filters				
There is a predictive maintenance plan for duct cleaning				
The condition of the ducts and their insulation is controlled at least 3 times per year				
Air quality				
Annual monitoring of indoor air quality is carried out				
Annual monitoring of outdoor air quality is carried out				

Part 4 – Cooling

Question / Answer	No	In progress / partially	Yes	Do not know
Cooling				
There is information about the percentage of total energy used for cooling				
There is monitoring of A/C use				
There are space temperature standards to avoid excessive cooling				
There is an updated inventory of air conditioning equipment				
Cooling equipment is energy-efficient				
Cooling equipment has less than five years use				
The old or broken A/C and other cooling equipment are replaced by energy-efficient units				
When cooling equipment is removed, the refrigerants are recovered and/or recycled				
The opening of doors and windows are controlled by institution staff exclusively				
There is centralized A/C				
The facility´s A/C units use only approved refrigerants				
The increase in cooling power is carried out within a global plan and under ASHRAE* standards				
The A/C installations have independent electrical panels				
Refrigeration				
Refrigerators and freezers are energy-efficient				
The facility´s refrigerators and freezers use approved refrigerants				
Refrigerators and freezers have less than five years use				
The old or broken refrigerators and freezers are replaced by energy-efficient units				
When refrigeration equipment is removed, the refrigerants are recovered and/or recycled				
Temperature of freezers and refrigerators is monitored / data logging				
Freezers and refrigerators are defrosted according to their user manual or when the ice layer reaches 10mm				
Cold storage rooms are controlled and monitored according to their user manual				
There is an alert system for temperatures outside set parameters				

There are emergency response procedures				
Vaccines				
There is an appointed person responsible for the vaccines´ cold-chain infrastructure				
There are plans for improving energy efficiency in vaccine-related cold-chain infrastructure				
Vaccines´ cold chain was steady throughout the year (no failures)				
Food				
There is an appointed person responsible for the food´s cold-chain infrastructure				
There are plans for improving energy efficiency in food-related cold-chain infrastructure				
Food cold chain was steady throughout the year (no failures)				
Medication				
There is an appointed person responsible for medication´s cold-chain infrastructure				
There are plans for improving energy efficiency in medication-related cold-chain infrastructure				
Medication cold chain was steady throughout the year (no failures)				

Part 5 - Buildings

Question / Answer	**No**	**In progress / partially**	**Yes**	**Do not know**
There are sunshade measures (louvers, canopy, curtains, etc)				
Measures have been taken to reduce heat load around the buildings: open soil, plants and grass, etc)				
The designs of renovation works and new constructions consider cooling energy efficiency (sun orientation, thermal insulation, high performance windows, doors, etc)				
The circulation areas and waiting rooms have natural ventilation				

Part 6 - Climate Change: mitigation and resilience

Question / Answer	**No**	**In progress / partially**	**Yes**	**Do not know**
Mitigation				
The facility´s carbon footprint is known and calculated				
The hospital´s carbon footprint includes emissions related to cooling and refrigerants				

There are formal objectives on climate change mitigation				
The formal objectives include the substitution of refrigerants with high GWP**				
There are strategies of sustainable procurement which include energy efficiency and climate change mitigation criteria				
There are strategies of sustainable procurement which include prioritizing cooling and refrigeration equipment that uses refrigerant with low GWP** and ozone depletion potential				
Renewable energy is used or there are formal projects for its implementation				
There are solar water heaters				
Resilience				
There has been a multi-hazard risk assessment				
There is emergency backup energy in case of energy supply interruption				
Emergency generators are serviced according to their user manual				
Emergency electrical devices can meet energy demands in critical areas				
There is a plan for self-sufficiency with renewable energy in case of supply interruption				
Renewable energy can meet energy demands in critical areas				
Emergency backup equipment (emergency generators, solar energy installations, etc) is able to resist extreme weather events.				

Comments:

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* American Society of Heating, Refrigerating and Air-Conditioning Engineers
** Global warming potential

More information:

- Kigali Cooling Efficiency Program (2018). Global Climate Impact from Hospital Cooling
- World Health Organization (2020). WHO Guidance for climate-resilient and environmentally sustainable health care facilities
- World Health Organization (2021). Checklists to Assess vulnerabilities in Health Care Facilities in the Context of Climate Change