6th Meeting of the CAREC Working Group on Health

Addressing Climate Change and Health to Enhance Regional Health Security

7-9 April 2025 | Bishkek, Kyrgyz Republic

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The Draft Minimum Requirements for Climate-Resilient Health Facilities

Purpose & Scope of the Minimum Requirements

Purpose:

- To guide stakeholders in developing and maintaining **health facilities** that are **resilient to climate impacts** and capable of **delivering continuous** and **effective health services** in a changing climate.

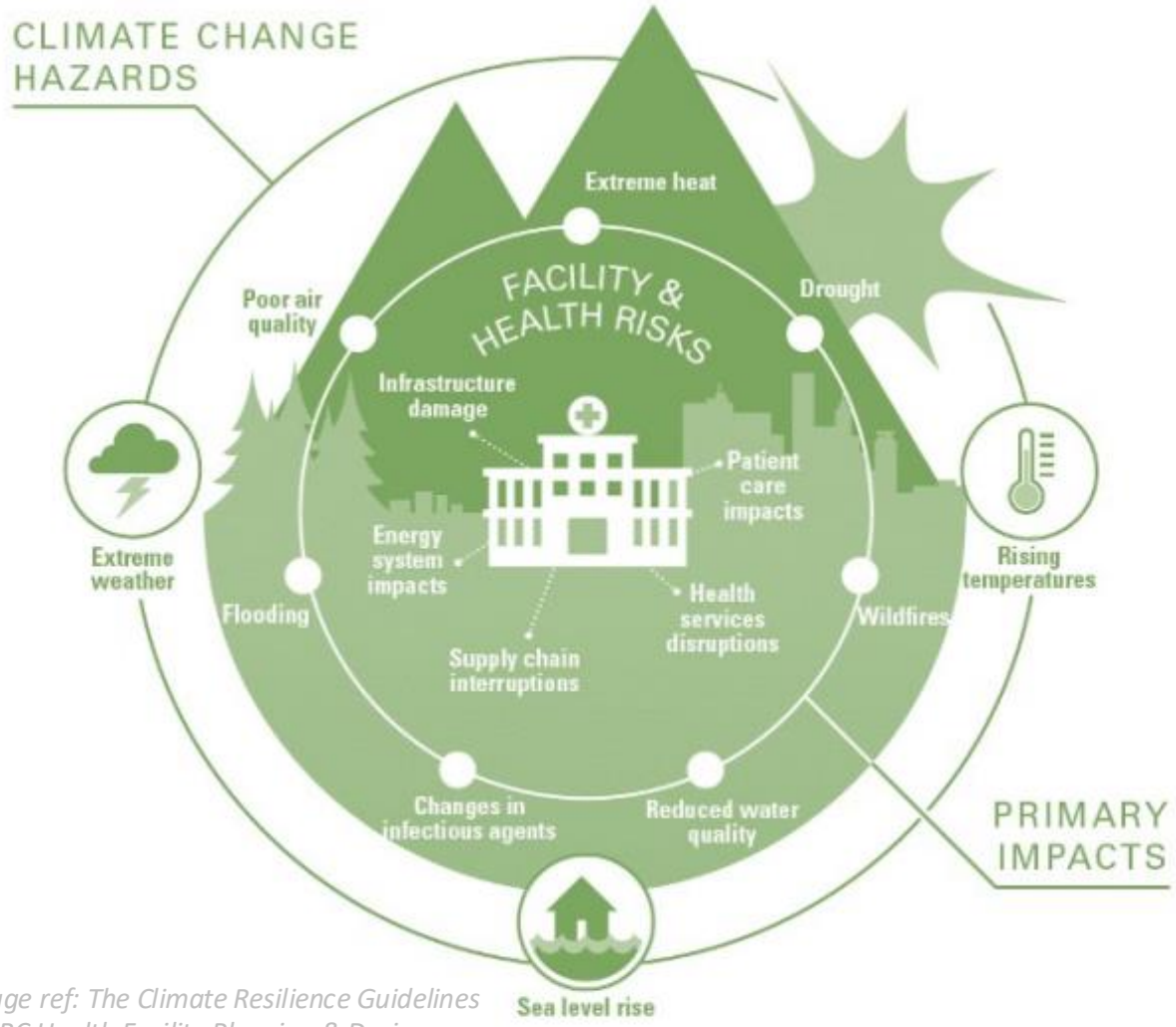


Image ref: The Climate Resilience Guidelines for BC Health Facility Planning & Design

Purpose & Scope of the Minimum Requirements

Scope: Requirements to enhance resilience:

OF:

- Healthcare **facilities** (not the whole health system)

TO:

- be able to be prepared for, respond to, recover from, and adapt to **climate-related shocks and stresses.** (e.g. flooding, extreme heat, extreme cold, tropical cyclones).

*Many other features which contribute to **high quality design of healthcare facilities** which should be considered alongside these requirements.*

Requirements are structured against **five** health facility **asset types**

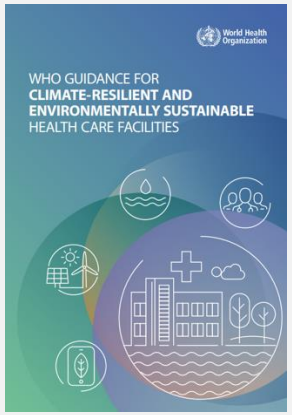
- Buildings Infrastructure
- Equipment & Products
- WASH & Waste
- Energy
- Systems and Processes

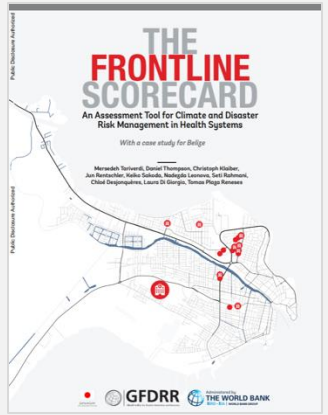
Methodology for development of the Minimum Requirements

1. Create long list of documents through literature review process
2. Select reference documents prioritised based on relevance to scope
3. Set framework for organisation of requirements (e.g. by climate hazard or asset type)
4. Extract and organise requirements under each framework element
5. Categorise draft requirements

Selected Reference Documents

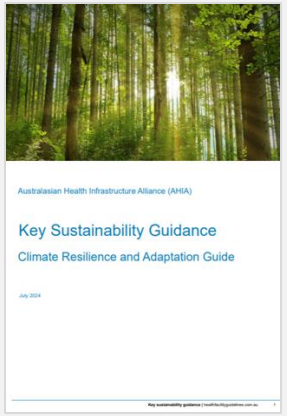
International Guidelines

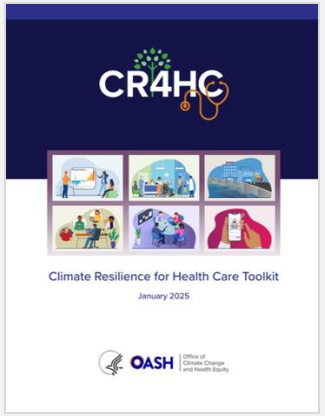


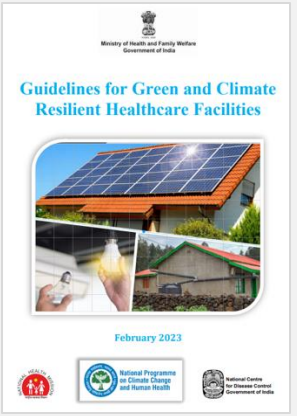


Academia

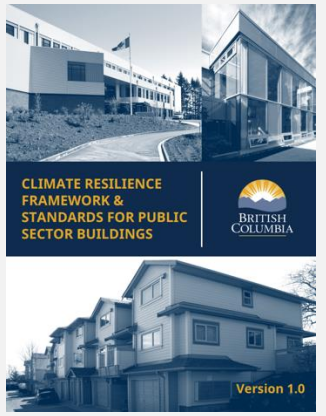
Country-Specific Standards: Australia, USA, India







Cross-Check Document



Intended Users of Minimum Requirements

- Stakeholders involved in planning, design, construction, and operation of health facilities. Including:

Development Partners

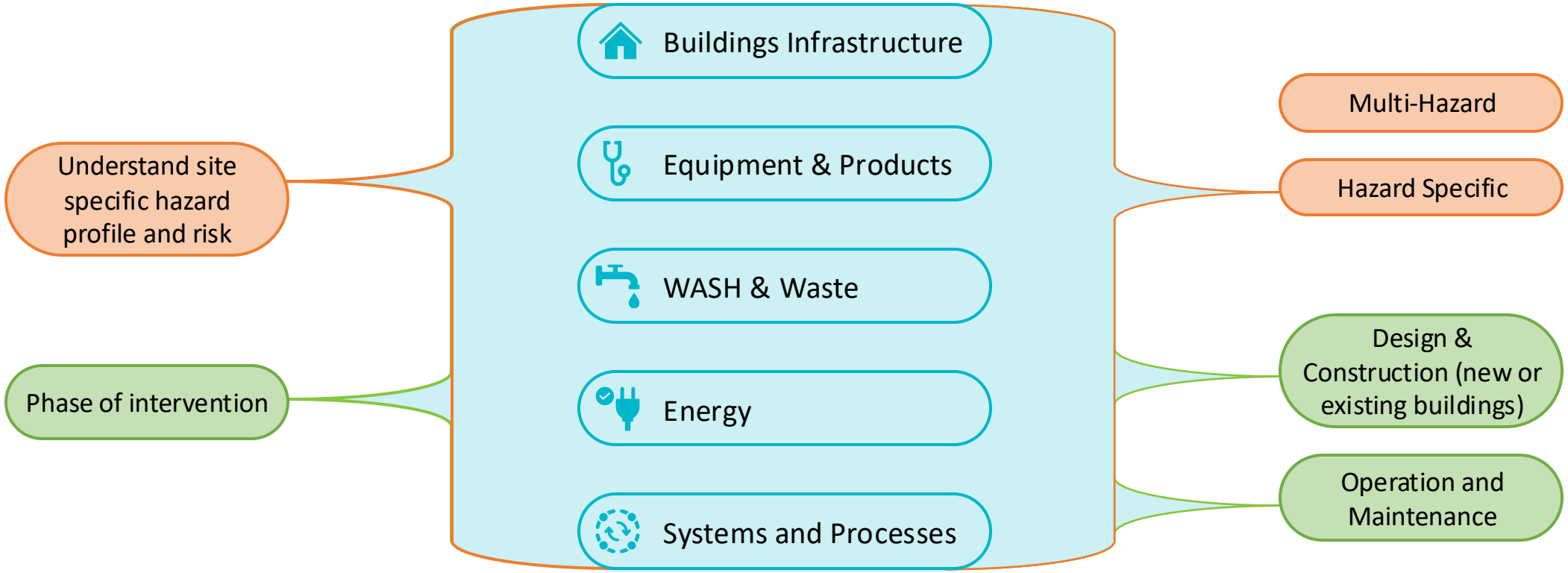
Government health departments, policymakers, and regulatory bodies

Architects, engineers, and construction firms

Health facility managers and administrators

Structure of the Requirements & How to Use

User to determine parameters of intervention → Review which asset types are within scope → Filter relevant requirements in line with defined parameters



Structure of the Minimum Requirements Document

Document is set out as follows:

1. Introduction
2. Background and Rationale
3. Methodology
4. How to use this document
5. Minimum Requirements
6. Monitoring and Evaluation

Example Extract from Requirements Section

Multi-Hazard (Energy Example)

Design and Construction

Install and optimize hybrid energy systems - this includes renewable energy sources, batteries, and backup generators, ensuring they are optimized for on-site use.
Develop a comprehensive plan to address intermittent energy supplies or system failures. The plan should include provisions for an adequate backup energy source, to maintain continuity if the primary energy source fails during extreme weather events. For supplies which require uninterrupted supply (such as oxygen concentrators), install charger-inverters with automated transfer switches.
Power health care facilities with decentralized, renewable energy sources (e.g., solar photovoltaic cells with batteries) with sufficient capacity for essential installations such lighting, life-preserving equipment and provision of uninterrupted cold chain.
Install solar water heaters for provision of hot water for health care facilities
Design features that maximize natural ventilation such as high ceilings, large windows and skylights (without compromising the structural integrity of the building)
Assess the location of energy backup or renewable energy infrastructure for exposure to extreme weather events (such as strong winds, hail, floods).
Ensure mechanisms are in place to filter indoor and ambient air pollutants
Install voltage stabilizers to protect equipment from electrical damage that may be caused by voltage frequency fluctuations (when using a generator), or voltage surges (such as due to power transmission problems in the grid)

Operation and Maintenance

Assess all heating, ventilation and air conditioning ductwork pipes, ensuring they are in good condition and supported adequately by the facility building structure at least once annually.
Perform regular audit processes for energy and loads.
Use devices to measure the heat and humidity for monitoring all the electrical equipment; and the results are documented and integrated into planning of maintenance.

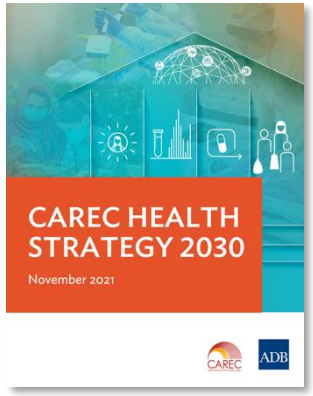
Hazard Specific (Building Infrastructure Example)

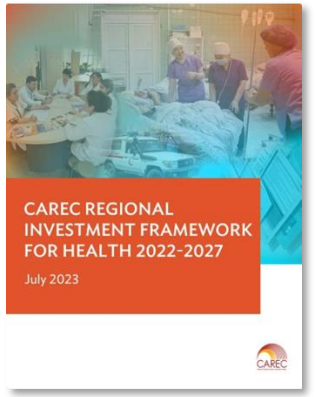
Changes in temperature including extreme heat	Relocate HVAC systems into optimal spaces for efficiency (for example, well-ventilated shaded areas or within buildings).
	Introduce internal electrical load shedding capability in the building management system to turn off non-essential equipment when needed to ration power to critical equipment.
	Use building design strategies, like insulation and shading devices, to maintain safe temperatures inside the healthcare facility during extreme heat and cold events.
	Install reflective white roofs to reduce heat impact.
Wildfire	Orient buildings to minimise exposure to prevailing winds and potential fire spread
	Install native, drought- and wildfire-resistant landscaping at an appropriate distance from the building to reduce the production of fuel before a wildfire and the risk of erosion afterward
	Incorporate underground services where possible including power and communications and gas supply lines.
Flooding	Incorporate water-sensitive urban design infrastructure including porous paving/surface, rainwater tanks, desalination basins and swales
	Raise (essential) external services including sewage pumping stations and associated electricity supply to levels above future flood levels, accounting for climate change amplification over the life of the service (100 years +). This may require liaison with the utility supplier if outside the ownership of the facility.
	If locating in flood-prone areas is unavoidable, elevate new buildings, infrastructure and equipment above future flood levels to minimise the risk of inundation. If not possible to elevate the entire building, consider the level of key services and arrange layouts to minimise impact of water ingress into lower levels.
	Relocate and raise external switchboards. Location should ensure safe access during intense rainfall events
	Elevate internal power sockets on the ground level

Survey on the status of health facilities and on capacity development and investment needs for climate-resilient healthcare infrastructure

- Short online survey to inform knowledge of capacity and investment needs
- 28 questions, including multiple choice and free text
  - Design and Operation of Health Facilities
  - Climate Data and Design
  - Institutional Environment
  - Feedback and Suggestions
- One response required per country – may require meeting(s) of relevant stakeholders to collate responses.
- Please share responses ASAP to Anna Tuddenham and Rukhshona Kurbonova

Thank you





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