SETTING UP EMERGENCY SYSTEMS

HAZARD

RAINFALL AND FLOODS

COASTAL DYNAMICS

HEAT

WILDFIRES

STORMS AND STRONG WINDS

IMPLEMENTATION STEP

CONSTRUCTION

RENOVATION

BUILDING IN OPERATION

AREA OF ACTION

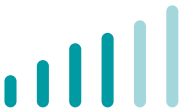
USES

COST

€ € €

low medium high

LEVEL OF SKILL



medium

In response to climate change, adaptation solutions can be implemented to make buildings and their occupants more resilient to climate hazards. However, these adaptation solutions may not be enough to prevent material and human damage during extreme weather events. It is therefore essential to provide emergency facilities to shelter users and essential building equipment, by facilitating evacuation of the building or by installing temporary refuge areas.

IMPACTS

Putting in place emergency systems **protects the building's occupants** during climate events, such as floods, coastal flooding, heat waves, fires and storms, and thus limits the human consequences (injuries and deaths). Emergency systems can also be used to **preserve expensive and essential property or equipment** located in the building.

INSTALLATION GUIDE

Existing emergency measures include both **technical solutions**, such as refuge areas and emergency exits, and **organisational solutions**, such as a crisis management plan, server migration procedures, or the designation of an evacuation manager within each team. To ensure the safety of the building's occupants and equipment, it's advisable to combine technical and organisational emergency measures.

When setting up technical and organisational emergency systems, it is essential to:

1. Identify the climate risks to which the building and its occupants are exposed.
2. Take into account the territorial and topographical characteristics of the site which could constitute risk or resilience factors in the safety strategy for users and equipment.
3. Draw up an **emergency plan**, accessible to all building occupants, which includes clear procedures for evacuating and managing crisis situations.
4. Clearly **identify the types of individuals** occupying the building (reduced mobility, elderly people, families, language spoken, etc.) and the assets to be protected, in order to propose appropriate emergency measures.
5. Put in place **clear signage** to indicate what to do in the event of a major climate event.
6. **Regularly maintain** critical installations and equipment, such as emergency generators, to ensure that they are operational in the event of an emergency.
7. **Train occupants and raise their awareness** of emergency procedures and measures to be taken in the event of an extreme weather event.
8. Set up **emergency communication systems** to quickly inform occupants in the event of danger.

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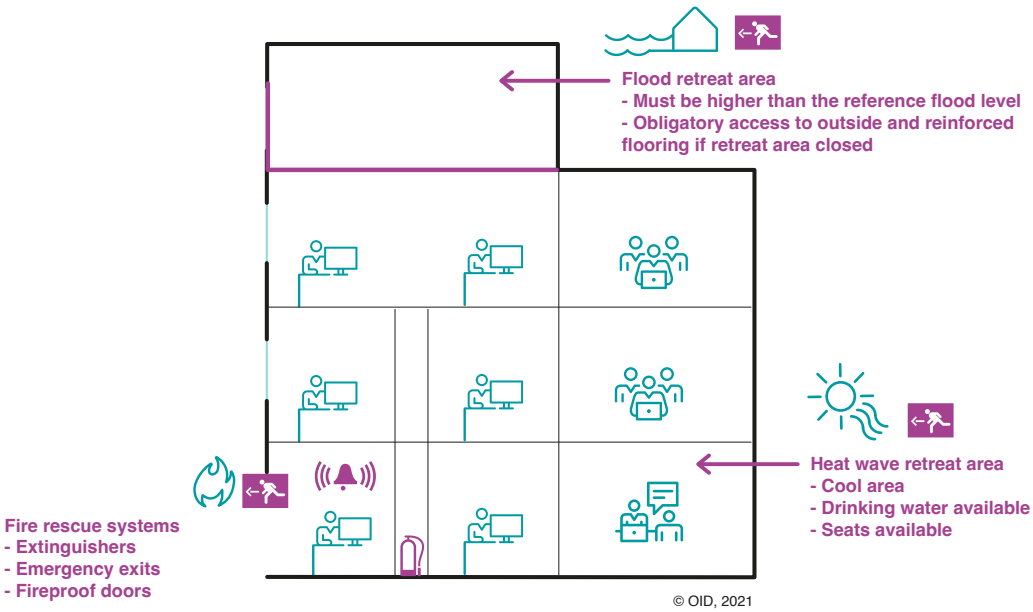
DIFFERENT EMERGENCY SYSTEMS TO PREPARE FOR CLIMATIC HAZARDS



WEAK POINTS AND STRONG POINTS

⊖ Simply setting up an emergency system doesn't guarantee its effectiveness. The impact of systems **depends largely on the degree of awareness** and preparation of the building's occupants and managers.

⊕ Therefore, as well as setting up emergency systems, it's important to inform the building's occupants and managers of the natural risks involved and the existing emergency systems, and to carry out the necessary simulation exercises.

⊕ Implementing measures aimed at promoting social cohesion can also help to improve the effectiveness of emergency services by **fostering greater solidarity** between building users.

⊕ The installation of specific emergency equipment **may be made compulsory** by various national regulations (e.g. Construction and Housing Code) and local regulations (e.g. Risk Prevention Plans (PRR)).

⊕ In the event of a prolonged crisis leading to the unavailability or inaccessibility of the building or area, in addition to the measures mentioned above, a temporary retreat strategy for the part of the building designated as 'foldable' or the area to be considered as 'to be abandoned' may be put in place.

MALADAPTATION

Maladaptation can result from the following:

Inadequacy of measures to adapt to climate change

When the design and planning of emergency facilities fails to take into account climate change projections and their associated uncertainties, facilities may be undersized to cope with climate events that turn out to be more severe and frequent than anticipated. This can lead to the inefficiency of emergency systems and increased vulnerability to climate hazards.

Excessive complexity

When technical and organisational emergency systems are too complex, this can make it difficult for staff and occupants to understand them, preventing them from reacting quickly and reducing the effectiveness of the response in the event of a crisis.

Inappropriate communication

Inadequate or over-communication about climate risks can trigger anxiety or even panic rather than contributing to preparedness and safety. In addition, overuse of alarm systems or simulations can lead to what is known as 'alarm fatigue', where occupants no longer react adequately. This can lead to dangerous complacency, where individuals ignore legitimate warnings because they have been exposed to too many false alarms.

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MONITORING INDICATORS

ESSENTIAL RECOMMENDATIONS WORTH THINKING ABOUT

- IDENTIFY THE CLIMATE RISKS TO WHICH THE BUILDING IS EXPOSED
- TAKE INTO ACCOUNT THE TOPOGRAPHICAL FEATURES OF THE LAND
- IDENTIFY THE OCCUPANTS OF THE BUILDING (ELDERLY PEOPLE, FAMILIES, ETC.)
- DRAW UP A CRISIS MANAGEMENT PLAN
- DRAW UP SAFETY PROCEDURES FOR USERS AND EQUIPMENT

MONITOR MY ACTIONS FOR CLIMATE CHANGE ADAPTATION

+/− : Quantitative indicator ★ : Qualitative indicator

INDICATORS OF MEANS	INTERPRETATION
+/− Number of refuge areas in relation to the number of users	To be maximised
+/− Number of evacuation managers compared to the number of users	To be maximised
+/− Number of signs indicating what to do in the event of a climate change-related disaster compared with the number of users	To be maximised
+/− Percentage of essential recommendations followed (%)	The maximum number of recommendations must be implemented
+/− Percentage of occupants aware of the climate hazards to which the building is exposed (%)	To be maximised
+/− Number of simulated evacuations and/or management of climate hazards to which the building is exposed	To be maximised

INDICATORS OF RESULTS	INTERPRETATION
+/− Time elapsed between the detection of an emergency and the start of the response (hours)	To be minimised
+/− Comparison between the duration of business interruptions before and after the introduction of emergency measures compared with a control situation* (hours)	Minimise the duration of business interruptions as far as possible
+/− Comparison of the time required to fully restore normal activities compared with a control situation* (hours)	Minimise as far as possible the time needed for activities to get back to normal
+/− Financial, material and/or human damage suffered by building users during climate change-related disasters	To be minimised
+/− Damage to buildings and/or equipment caused by climate change-related disasters	To be minimised
+/− Percentage of occupants complying with emergency procedures during simulated evacuations and/or management of climate hazards (%)	To be maximised

** 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.).*

FIND OUT MORE

Ministry of Territorial Equality and Housing & Ministry of Ecology, Sustainable Development, and Energy (2012), *Aménagement d'une zone refuge dans l'habitat individuel existant.*

Ministry of Solidarity and Health (2021), *Guide ORSEC départemental S6 - Disposition spécifique : Gestion sanitaire des vagues de chaleur*

General Secretariat for Defense and National Security (SGDSN) (2013), *Guide pour réaliser un plan de continuité d'activité*

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