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Requirements and recommendations for the construction of emergency medical facilities

Exigences et recommandations relatives à la construction d'installations médicales d'urgence

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Introduction

Over the past few decades, natural disasters, industrial accidents and severe epidemics have frequently occurred and caused great losses of human life and properties. In order to deal with these emergency issues, the construction of emergency medical facilities is very important and has practical significance.

In China, the Beijing Xiaotangshan Hospital (612 beds) was constructed in 7 days when SARS broke out in 2003. In 2020, the Wuhan Huoshenshan Hospital (1 000 beds) and the Wuhan Leishenshan Hospital (1 600 beds) were constructed in 10 days. These emergency medical facilities played an important role in fighting COVID-19.

This document summarizes the successful experiences accumulated from the construction of several emergency medical facilities including the projects mentioned above, studies the new problems revealed in different types of emergencies in the past, and develops a set of technical guidelines for the design of emergency medical facilities.

This document is intended to provide technical support for the safe, appropriate and rapid construction of emergency medical facilities. In the design of an emergency medical facility, its function and scale are determined by the type, characteristics, rescue plans and actual needs of the emergency. The site plan is set in a scientific and reasonable way. The various traffic flows in the facility are organized efficiently, and it should have a degree of flexibility, so as to meet the uncertainty in emergencies.

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Requirements and recommendations for the construction of emergency medical facilities

1 Scope

This document provides requirements and recommendations for the rapid construction of emergency medical facilities, including various categories of public health emergencies, for handling large numbers of casualties and patients. The functional composition of emergency medical facilities is determined by the characteristics of the emergencies.

This document is applicable to new projects built on new sites or within existing medical institutions, where emergency medical facilities are constructed rapidly from steel-frames and prefabricated standard plates or box structures.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16890-1, *Air filters for general ventilation — Part 1: Technical specifications, requirements and classification system based upon particulate matter efficiency (ePM)*

ISO 29463-1, *High efficiency filters and filter media for removing particles from air — Part 1: Classification, performance, testing and marking*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
emergency medical facility
medical facility which is built rapidly and completed in limited time in response to public health issues

3.2
reception area
area where patients and the injured are received for preliminary assessment, screening, triaging and filling in related forms

3.3
clean area
area where medical staff rest and live

Note 1 to entry: Respiratory infectious disease facilities are divided into different zones based on different sanitation and safety levels.

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3.4
semi-contaminated area
working area for medical staff, which is accessible via the *hygienic pass-through area* (3.8)

EXAMPLE Offices, meeting rooms, treatment preparation rooms.

3.5
contaminated area
area where medical staff wearing personal protective equipment treat patients, including where patients enter or stay

EXAMPLE Consultation rooms, exam rooms, wards, waste storage.

3.6
negative pressure ward
separated ward equipped with a ventilation system which controls the air flow direction to ensure that its indoor static pressure is always lower than that of surrounding areas

3.7
buffer room
isolated small room where air flow in adjacent spaces is directed to form a sanitation and safety barrier

3.8
hygienic pass-through area
passage space set up at the entrance of *contaminated areas* (3.5), connecting areas of different sanitation and safety levels, where medical staff change shoes, put on/remove gowns, wash hands, shower, put on/remove personal protective equipment, etc.

3.9
medical quarantine area
buildings and facilities that are suitable for individual quarantine and medical observation in accordance with relevant regulations and requirements for epidemic prevention and control

4 Abbreviated terms

CT Computerized Tomography

5 Basic principles

5.1 Sustainability

With case-specific considerations on local resources and actual needs for medical treatment, emergency medical facilities shall respond to local conditions, make the best use of local materials, collaborate and share resources with local health systems, and operate efficiently.

5.2 Programme and circulation

In emergency medical facilities, spaces for rapid screening, triaging and treatment shall be strengthened. Access to imaging tests such as computerized tomography (CT) scan and surgical operation shall be unobstructed and efficient. For respiratory infectious disease facilities, negative pressure wards, negative pressure intensive care units and negative pressure operating rooms shall be set up when necessary.

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