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General technical requirements for modular isolation units for emergency medical use

应急医用模块化隔离单元通用技术要求

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1 Scope

China's national general technical requirements for modular isolation units used in emergency medicine. It specifies the terms and definitions, the requirements, and the inspection and testing. A modular isolation unit is a prefabricated negative pressure room or ward that can be transported and assembled where it is needed - beside an existing hospital, in an exhibition hall, at a border crossing - to create isolation capacity that the permanent estate does not have. The engineering is that of a negative pressure ward compressed into something that can be built off site and connected quickly: the pressure cascade between anteroom and room, the filtered extract, the sealed envelope, the interlocked doors and the monitoring. What the standard adds to the fixed-installation requirements is everything to do with being modular - the joints between units, the speed and verifiability of commissioning, and the fact that it will be assembled by people who did not design it, under pressure.

This Standard specifies the requirements, inspection and testing, marking, packaging, transportation and storage of modular isolation units for emergency medical use. This Standard is applicable to modular isolation units for emergency medical use, and is not applicable to medical isolation warehouses for the isolation and transfer of infectious

patients.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document. GB/T 5338 Series

1 Freight Containers - Specification and Testing - Part 1: General Cargo Containers for General Purposes

GB 5749 Sanitary Standard for Drinking Water

GB/T 7106 Graduation and Test Method for Wind Resistance Performance of Windows

GB 18466 Discharge Standard of Water Pollutants for Medical Organization

GB 18582 Limit of Harmful Substances of Architectural Wall Coatings

GB/T 20145 Photobiological Safety of Lamps and Lamp Systems

GB/T 29468 Cleanroom and Associated Controlled Environments - Guidelines of Partition Sandwich Panel Application Technology

GB/T 35248-2017 Consumer Product Safety - Guidelines for Suppliers

GB/T 36372-2018 Cleanrooms and Associated Controlled Environments - General Technical Requirements of Combined Envelope Structure

GB 50009 Load Code for the Design of Building Structures

GB 50057 Design Code for Protection of Structures against Lightning

GB 50068 Unified Standard Reliability Design of Building Structures

GB 50242 Code for Acceptance of Construction Quality of Water Supply Drainage and Heating Works

3 Terms and Definitions

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

3.1 Isolation area Modular space that is used to block the transmission route of patients or suspected patients who are and may be infectious through the air. Ventilation is adopted to make the static air pressure lower than the atmospheric pressure and that of the adjacent and connecting areas, and to effectively control the exhaust gas and prevent the virus from spreading out.

4.2.2 Isolation channel

4.2.2.1 The clear width shall be no less than 1.4m.

4.2.2.2 There shall be conditions for medical staff to wear and take off protective clothing in accordance with the prescribed medical procedures.

4.2.2.3 Pressure display devices, non-manual faucet sinks, lighting facilities and storage cabinets for medical supplies shall be provided for easy observation.

4.2.2.4 In application, the unit door and the isolation area door shall be interlocked; and the unit door may only be opened after the isolation area door is closed for 1 min.

4.2.2.5 Reliable measures shall be taken to prevent unauthorized personnel from entering.

4.2.3 Pass-through box

4.2.3.1 The size shall meet the requirements of relevant standards and meet the transmission requirements.

4.2.3.2 Double-sided windows and doors shall be airtight and interlocked, and equipped with safe and reliable disinfection devices.

4.2.4 Isolation area

4.2.4.1 The indoor height shall be no less than 2.4m; and the plane size shall be no less than 3.0mx2.8m.

4.2.4.2 The isolation area door shall be a side-hung door, which shall open to the isolation channel. There shall be an observation window on the door, and the door shall be equipped with a door closer and an emergency unlocking switch. The door width shall be no less than 1.1m.

4.2.4.3 Medical equipment belts shall be equipped, and the installation height shall be 1.35m~1.45m above the ground.

4.2.4.4 Hospital beds, lockers, network interfaces, power sockets, lighting equipment, etc. shall be equipped.

4.2.4.5 The windows of the isolation area shall conform to above Level-6 (including Level-6) sealing windows specified in the standard of GB/T 7106; and shall be at least double-glass. The glass shall be impact-resistant and shatter-resistant. A curtain is arranged between the two layers of glass, which is controlled by the patient or medical staff to open.

4.2.4.6 The height of the built-in bathroom shall be no less than

2.1 m, the width of the heat insulation, sound insulation, vibration resistance, impact resistance, insect resistance, corrosion resistance, fire prevention and airtightness.

Materials with few joints and tight joints should be selected.

4.4.2 External envelop door and window materials should meet the requirements of

4.3.5 in GB 50686-2011, with the following features such as long life, corrosion resistance, non-shedding, easy maintenance, light weight, high strength, non-fading, and good sealing performance. Closed windows rather than the wooden doors and windows should be used; and the glass shall be resistant to impact and breakage.

4.4.3 Unit doors and equipment room doors shall meet the requirements of impact resistance, corrosion resistance, waterproof, fireproof and airtightness.

4.5 Envelop structure

4.5.1 Sealing measures shall be adopted for all types of wall-piercing pipelines. In addition, there shall be no cracks, holes, openings, etc. penetrating the structure.

4.5.2 Non-combustible materials of at least Class-B1 shall be selected for interior trim panels, which shall conform to the relevant provisions of GB/T 29468. The surface shall be resistant to weak acid and alkali corrosion, able to withstand the cleaning agents and disinfectants recommended by the manufacturer, and have certain impact resistance and weather resistance.

4.5.3 The ceiling, floor, and wall shall be easy to clean or wash, and the yin and yang angles shall be circular and reliably sealed. Skirting boards and wall skirts shall be level with the wall. The ground shall be leak-proof, seamless, smooth and non-slip.

4.5.4 The partition wall should reach the top, and the gap of the floor shall be filled and sealed.

4.5.5 There must be no hazardous substances in the materials, and they shall conform to the relevant provisions of GB 50325 and GB 18582.

4.6 Electrical and intelligent systems

4.6.1 It shall be designed, installed and used in accordance with GB 51039-2014 and GB 50849-2014.

4.6.2 The lighting design shall use high energy efficiency, high color rendering light source. The lighting fixture shall adopt diffuse reflection type. When using LED lamps, the photobiological safety (no blue light hazard and ultraviolet light hazard) shall be tested according to the requirements of GB/T 20145, and reach the "non-hazardous" standard.

4.6.3 A network interface shall be provided in the unit, and a wireless network shall be

b) Ordinary fan coil units shall not be used. NOTE: When it is difficult to use a fresh air system due to the limit of the external environment, it should use the partial circulating air after the user has a clear understanding of the operating principle and proposes a safe and