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Code for design of machinery building architecture

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1 General

1.0.1 This specification is formulated in order to make the architectural design of mechanical industrial workshops and their auxiliary buildings safe and applicable, advanced in technology, environmentally friendly and energy-saving, economical and reasonable, easy in construction and easy in maintenance.

1.0.2 This specification applies to the following scopes.

1. Architectural design of newly-built, expanded and rebuilt machinery industrial plants and their auxiliary buildings;

2 architectural design of ionizing radiation chambers in mechanical engineering plants;

3 The electromagnetic shielding room in the machinery industry factory, the shielding frequency is 0.15MHz ~ 30MHz The architectural design of adding a shielding layer to the building.

1.0.3 The architectural design of machinery industrial workshops and their auxiliary buildings shall not only conform to this code, but also comply with the current relevant national standards.

2.0.1 united workshop

A factory building composed of multiple craft workshops.

2.0.2 attachment building

Office, scientific research and technology, living and sanitation facilities, warehouses and

other supporting buildings arranged adjacently for the production and service of machinery industrial plants, or independently set up in the plant area.

2.0.3 Electromagnetic shielding room

Prevent electrostatic or electromagnetic mutual induction facilities.

2.0.4 Crane beam slidewalk

Along the length of one side of the beam surface of the workshop crane, a board for the staff to walk is arranged.

2.0.5 crane work grade crane work grade

Cranes are classified according to load status and utilization level.

3 basic rules

3.0.1 Machinery industrial plant and its ancillary buildings shall be designed according to the conditions of production, functional properties, process requirements, land and energy saving, environmental protection and sanitation, local meteorology, hydrology, geology, material supply, construction and development and expansion.

3.0.2 When the height difference of a multi-span factory building is less than 1.2m, it is not appropriate to set a height difference; when the non-heating multi-span factory building has only one low span on the high-span side, and the height difference is less than 1.8m, it is not suitable to set a height difference.

3.0.3 The ground elevation of buildings and structures shall be determined according to the following provisions.

1 The indoor ground elevation of the building should be higher than the outdoor ground elevation, and the value should not be less than 0.15m;

2. The ground elevation of the open-air warehouses or storage yards equipped with bridge type and gantry cranes shall be 0.15m higher than the surrounding site, and a drainage slope of 0.3% to 0.5% shall be set;

3 The elevation difference between indoor and outdoor ground of buildings in collapsible loess areas shall be determined according to the type and level of subsidence of the foundation, and its value should be 0.2m to 0.3m;

4 The indoor ground elevation of flammable and combustible liquid storage shall be 0.15m lower than the elevation of the warehouse entrance;

5 The indoor ground elevation of calcium carbide storage shall be higher than the outdoor ground, and its value shall not be less than 0.25m;

6 The elevation of the railway track top in the building shall be the same as the elevation of the building ground.

3.0.4 When there are girder cranes or bridge cranes in the workshop, the net distance between the outer edge of the crane bridge frame and the inner edge of the upper column shall not be less than 100mm; Meet the following requirements.

1 It shall meet the requirements of the minimum outline size of the crane and the limit size and safety clearance of the crane;

2 The space requirements for crane maintenance shall be met;

3 It shall meet the requirements when the foundation of the powerhouse is embedded on soft soil, collapsible loess, expansive soil foundation, and the settlement difference of adjacent columns occurs due to the surcharge of the ground of the powerhouse;

4 It shall meet the requirements when the roof truss or the bottom surface of the roof beam is suspended with a sloped horizontal pipe or the lower chord of the roof truss is directly installed with lighting fixtures.

3.0.5 Combined factory buildings shall meet the following requirements.

1 The architectural form of the factory building should be adapted to local conditions;

2 It is not suitable to build adjacent auxiliary buildings around the factory building;

3. Along the vertical and horizontal directions of the factory building, and in combination with the internal transportation passages of the factory building, ventilation doors or ventilation aisles should be set; skylights, exhaust caps or ventilation roofs should be used on the roof;

4. The sections that emit heat, smoke and corrosive media should be arranged on the outer wall of the factory building; for the local sections that are seriously affected, mechanical ventilation and exhaust should be adopted with smoke exhaust hoods;

5 Measures should be taken to reduce the mutual influence of workshops with different production properties.

3.0.6 Class A and B production sites and warehouses with explosion hazards should be located near the outer wall of a single-story factory building or on the top floor of a multi-storey factory building near the outer wall. The relevant provisions of the standard "Code for Fire Protection Design of Buildings" GB 50016. The pressure relief facilities on the roof shall take measures to prevent the accumulation of ice and snow.

3.0.7 Anti-cracking and anti-leakage measures should be taken for the external walls of the workshop and its ancillary buildings.

3.0.8 Anti-corrosion and moisture-proof measures should be taken for doors, windows and hardware accessories of doors and windows in coastal areas or workshops with corrosive

gases and high humidity.

3.0.9 The roof waterproof grade and the reasonable service life of the waterproof layer of the factory building and its auxiliary buildings shall meet the following regulations.

1. The roof waterproof grade of large and important single, multiple and high-rise factory buildings and combined factory buildings shall be Class II, and the reasonable service life of the waterproof layer shall be 15 years;

2 The roof waterproof grade of single-storey and general factory building and its auxiliary buildings shall be Grade III, and the reasonable service life of the waterproof layer shall be 10 years;

3 For non-permanent buildings, the waterproof grade of the roof shall be Class IV, and the reasonable service life of the waterproof layer shall be 5 years.

3.0.10 When coiled material or coating film waterproof layer is used, its thickness shall be determined according to the roof waterproof grade, the number of fortification channels and the selected waterproof material.

3.0.11 When the single-layer roof waterproof system is used, in addition to the construction requirements of the selected waterproof material single-layer roof system, it shall also meet the requirements for the reasonable service life of the waterproof layer specified in Article 3.0.9 of this code.

3.0.12 When the single slope span of the roof is greater than 9m, structural slope finding should be done, and the slope should not be less than 3%.

4.1 Roof structure

4.1.1 The roof structure shall be determined according to the structural characteristics of the roof, high and low spans, temperature difference deformation, drying shrinkage deformation, roof slope, vibration and other factors, and shall meet the following requirements.

1 The measures of flexible sealing, combination of anti-drainage, combination of material waterproof and structural waterproof shall be adopted;

2 It is advisable to adopt the secondary fortification that complements and uses coiled material, waterproof coating film, sealing material, rigid waterproof material, etc.;

3 The roofs in earthquake fortified areas or areas with strong winds and typhoons should be fixed and strengthened;

4 The base treatment agent, adhesive, sealing strip, caulking ointment and colorant should be compatible with the selected waterproof material;

5 Except for the single-layer roof waterproof system, a protective layer shall be provided on