



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Heating engineering project specification

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1 General

1.0.1 In order to promote the sustainable development of high-quality urban and rural heating sites, ensure personal, property and public safety, achieve stable heating, save energy, and protect the environment, this specification is formulated.

1.0.2 Heating projects in cities, towns, and rural areas must implement this specification. This specification does not apply to the following engineering projects.

1 T-process projects in thermal power plants, biomass heating plants, nuclear energy heating plants, solar heating plants, etc.;

2 Heating, cavity and domestic hot water supply projects in buildings for heat users, and heat engineering projects for production.

1.0.3 The heat supply process should aim at achieving safe production, stable heat supply, energy saving and high efficiency, and environmental protection, and should follow the following principles.

1 Comply with national policies on energy, ecological environment, land use and emergency management;

2 Guarantee personal, property and public safety;

3 Adopt modern information technology and encourage engineering technology innovation;

4 Guarantee the quality of project construction and improve the level of operation and maintenance.

1.0.4 Whether the technical methods and measures adopted in the project construction

meet the requirements of this specification shall be judged by the relevant responsible parties. Among them, innovative technical methods and measures should be demonstrated and meet the performance requirements in this specification.

2.1 Scale and layout

2.1.1 The scale of heating projects should be determined based on conditions such as urban and rural development, energy supply, climate environment, and heat demand, after market investigation, scientific demonstration, and comprehensive analysis of heat load development.

2.1.2 The layout of the heating project should be coordinated with the urban and rural functional structure, meet the needs of urban and rural construction and the development of the heating industry, ensure public safety, and arrange according to the principles of safe and reliable heating and energy consumption reduction.

2.1.3 The selection of heating energy should be based on local conditions, the energy supply should be stable, reliable, and economically feasible, and the energy utilization should be energy-saving and environmentally friendly, and should meet the following requirements.

- 1 Priority should be given to the use of various industrial waste heat and waste heat resources, and full use of clean and renewable energy such as geothermal energy, solar energy, and biomass energy;
- 2 When conditions for combined heat and power generation are met, the heat supply mode dominated by combined heat and power generation should be adopted;
- 3 In the area covered by the heating pipe network, no new decentralized coal-fired boilers shall be built for heating;
- 4 It is forbidden to use electric energy produced by fossil energy, and use direct heating as the main heat source for heating.

2.1.4 The selection of heating medium should meet the needs of users for heating parameters. Hot water should be used as the heating medium for the heating system mainly based on building heating, ventilation, air conditioning and domestic hot water heat load.

2.2 Construction requirements

2.2.1 The heat supply project shall be equipped with heat source plant, heat supply pipe network and necessary facilities for operation and maintenance. Process parameters such as operating pressure, temperature and flow shall ensure the safety of the heat supply system and the quality of heat supply, and shall comply with the following regulations.

- 1 It should have the monitoring, alarm, interlocking and adjustment of operating process parameters and heating quality

2 control function;

2 Equipment and pipelines should meet the requirements of strength, sealing and pipeline thermal compensation under the design pressure and temperature;

3 It should have the ability to cut off in time under accident conditions, reduce the scope of influence, and prevent water hammer and frost damage.

2.2.2 The heating project should set up an automatic control and information management system that meets the national information security requirements to improve the level of operation management.

2.2.3 The heating project should be equipped with a water replenishment system, and should be equipped with water quality testing equipment and water treatment devices. The supply water quality of the heating system with hot water as the medium shall meet the requirements in Table 2.2.3.

2.2.4 The design working life of the main buildings (structures) of the heating project shall not be less than 50 years, and the safety level shall not be lower than the second grade.

2.2.5 The materials and equipment used in the heating project shall meet the requirements of design conditions such as system function, medium characteristics and external environment. The pressure bearing capacity of equipment, piping and accessories shall not be less than the system design pressure.

2.2.6 Insulation materials for heating equipment, pipes and pipe fittings in the station room and in the traffic pipe trench shall be made of non-combustible or flame-retardant materials.

2.2.7 Within the design working period, the construction, operation and maintenance of the heating project shall be safe and reliable. When the design working life is reached or damaged due to accidents or disasters, if the facilities continue to be used, the safety and performance evaluation of the facilities should be carried out.

2.2.8 Reasonable anti-seismic and flood control measures should be taken for heating projects, and accidents should be effectively prevented.

2.2.9 The construction sites of heating projects and important heating facilities should have standardized and obvious safety warning signs. Lighting, warning lights and bodhisattva signs with reflective functions should be set up at night on the construction site.

2.2.10 The following energy-saving and environmental protection measures should be taken in the construction of heating projects.

1 Energy-saving and environment-friendly equipment and materials shall be used;

2 The heat source plant and heat power station should be equipped with automatic control and adjustment devices and heat metering devices;

3 Plants and stations should calculate various energy consumption batches, and power

consumption and lighting consumption should be measured separately, and should meet the requirements of energy-saving assessment;

4 Gas boilers should be equipped with flue gas waste heat recovery and utilization devices;

5 When using geothermal energy for heating, groundwater resources and the environment should not be damaged, and the discharge temperature of geothermal tail water should not exceed 20°C;

6 Effective measures should be taken to discharge pollutants and noise up to the standard.

2.2.11 Dispatch center and factory station should have measures to prevent irrelevant personnel from entering, and should have video surveillance system, and video surveillance and alarm signals should be uploaded to the monitoring room in real time.

3.1 Factory area

3.1.1 The site selection of the heat source plant shall be comprehensively determined based on conditions such as heat load distribution, surrounding environment, hydrogeology, transportation, fuel supply, water supply and drainage, power supply and communication, and shall avoid areas affected by bad geology and flooding.

3.1.2 The fire separation distance and passage between the buildings (structures) in the heat source plant and the buildings (structures) outside the plant should meet the fire protection requirements.

3.1.3 The outer wall, floor or roof of the boiler room and combustion equipment room should have corresponding explosion-proof measures.

3.1.4 The setting of the entrance and exit of the boiler room and combustion equipment room should meet the following requirements.

1 Independently installed heat source, when the total length of the aisle in front of the host equipment is greater than or equal to 12m or the total building area is greater than or equal to 200 square meters, there should be no less than 2 entrances and exits;

2 For non-independent heat sources, there should be no less than two entrances and exits;

3 For multi-layer layout, there should be no less than 2 entrances and exits on each floor;

4 When there are 2 or more entrances and exits, they should be set up in a dispersed manner;

5 There should be at least one entrance and exit on each floor that leads directly to the outdoor or evacuation stairs, and the evacuation stairs should directly lead to the outdoor ground.

3.1.5 The fuel oil or gas boiler room and the combustion equipment room with combined cooling, heating and power supply installed in other buildings shall be equipped with an