



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

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Replacing GB/T 50114-2001

Standard for heating, ventilation and air conditioning drawings

暖通空调制图标准(附条文说明)

(English Translation)

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1 General

1.0.1

This standard is formulated in order to unify the professional drawing rules of HVAC, ensure the quality of drawing, improve the efficiency of drawing, make the drawing clear and concise, meet the requirements of design, construction and archiving, and meet the needs of engineering construction.

1.0.2

This standard applies to drawings drawn by the following drawing methods.

- 1 manual drawing;
- 2 Computer graphics.

1.0.3

This standard is applicable to the following engineering drawings of HVAC.

- 1 Design drawings and as-built drawings of each stage of new construction, reconstruction and expansion projects;
- 2 The measured drawings of the original buildings and structures;

3 General design drawing, standard design drawing.

1.0.4

The professional drawing of HVAC shall not only conform to this standard, but also comply with the current relevant national standards.

2.1 Graph line

2.1.1

The basic width b and line width group of the drawing line shall be determined according to the proportion, category and usage method of the drawing.

2.1.2

The basic width b should be 0.18, 0.35, 0.5, 0.7, 1.0mm.

2.1.3

When only two line widths are used in the drawing, the line width group should be b and $0.25b$. The line width groups of the three line widths should be b , $0.5b$ and $0.25b$, and should meet the requirements in Table 2.1.3.

Note: It is not suitable to use a line width of 0.18 and thinner for drawings that require miniature

2.1.4

In the same drawing, the thin lines of different line width groups can uniformly use the thin lines of the smallest line width group.

2.1.5

The line types and their meanings used in HVAC professional drawing should comply with the provisions in Table 2.1.5.

2.1.6

Custom graphs and their meanings can also be used in the drawings, but they should be clearly stated, and their meanings should not conflict with this standard.

2.2 Scale

2.2.1

The general plan and the proportion of the plan should be consistent with the leading specialty of project design, and the rest can be selected according to Table 2.2.1.

3.1 Water and steam pipelines

3.1.1

Water and steam pipelines can be distinguished by line type or code. The codes of water

and steam pipelines should be adopted according to Table 3.1.1.

3.1.2

The self-defined codes of water and steam pipelines should not contradict the provisions of Article 3.1.1 of this standard, and should be explained on the corresponding drawings.

3.1.3

The legends of water and steam pipeline valves and accessories should be adopted according to Table 3.1.3.

3.2 Duct

3.2.1

The air duct code should be adopted according to Table 3.2.1.

3.2.2

The self-defined air duct code should not contradict the provisions of Table 3.2.1 of this standard, and should be explained on the corresponding drawings.

3.2.3

The legends of air ducts, valves and accessories should be adopted according to Table 3.2.3-1 and Table 3.2.3-2.

3.3 HVAC equipment

3.3.1

The legend of HVAC equipment should be adopted according to Table 3.3.1.

3.4 Control devices and instruments

3.4.1

The legends of control devices and instruments should be adopted according to Table 3.4.1.

4.1 General provisions

4.1.1

The design drawings of each project and each stage shall meet the corresponding design depth requirements.

4.1.2

The numbers of the professional design drawings should be independent.

4.1.3

In the same set of engineering design drawings, the drawing line width group, legend, symbols, etc. should be consistent.

4.3.3 The piping system diagram may not be drawn according to the axonometric projection method if it does not cause misunderstanding.

4.3.4 The basic elements of the piping system diagram should correspond to the plan and section diagram.

4.3.5 The system diagrams of water and steam pipelines and ventilation and air-conditioning pipelines can be drawn with single lines.

4.3.6 The overlapping and dense places of pipelines in the system diagram can be drawn by disconnection. Disconnections should be indicated by the same lowercase Latin letters, and thin dashed lines can also be used to connect them.

4.3.7 For the design of outdoor pipe network engineering, it is advisable to draw the general plan of the pipe network and the longitudinal section of the pipe network.

4.3.8 The schematic diagram may not be drawn according to the scale and projection rules.

4.3.9 The basic elements of the schematic diagram should correspond to the plan view, section view and piping system diagram.

4.4 System number

4.4.1

When there are two or more different systems such as heating, ventilation and air conditioning in one project design, the system numbers shall be carried out.

4.4.2

The HVAC system number and entrance number shall consist of system code and sequence number.

4.4.3

The system code is represented by uppercase Latin letters (see Table 4.4.3), and the sequence number is represented by Arabic numerals, as shown in Figure 4.4.3. When a system branches, the drawing method in Figure 4.4.3(b) can be used.

4.4.4

The system number should be marked on the system manager.

4.4.5

For the vertical piping system arranged vertically, the vertical pipe number shall be marked (Fig. 4.4.5). If it does not cause misunderstanding, only the serial number can be marked,