



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

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**Code for construction and acceptance of industrial furnaces
building**

工业炉砌筑工程施工与验收规范

(English Translation)

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1 General provisions

1.0.1

This Code is formulated to standardize the construction and acceptance of industrial furnace building projects and ensure the quality of the project.

1.0.2

This Code applies to the construction and acceptance of industrial furnace building projects, including the common provisions of industrial furnace building and the special requirements of the listed professional furnace building.

1.0.3 In addition to complying with this Code, the construction and acceptance of

industrial furnace building projects shall also comply with the provisions of the relevant national standards in force.

2.0.1 Industrial furnace building

It refers to the construction of industrial furnaces and their accessory equipment building, mainly including the construction of refractory materials such as shaped, unshaped, refractory ceramic fibers.

2.0.2 Brickwork

A solid masonry made of refractory materials such as shaped, unshaped, refractory ceramic fibers.

2.0.3 Refractory mortar

A mixture composed of powdered refractory materials and binders used for bonding or filling gaps.

2.0.4 Wet masonry, wet building

A masonry method that uses refractory mortar to bond and fill brick joints.

2.0.5 Dry masonry, dry building

A masonry method that uses dry refractory powder (or gasket) to fill the brick joints, or directly uses refractory bricks (or blocks) to build the masonry.

The process of drying and heating the furnace body or brickwork according to the specified temperature curve before the industrial furnace is put into production.

3.1 Acceptance, storage and transportation of materials

3.1.1

All materials transported to the construction site shall have a quality certificate.

3.1.2

Unshaped refractories shall have product instructions. The validity period of time- limited materials shall be indicated.

3.1.3

The designation, brick number, grade of refractory materials shall be checked according to the documents before construction; the appearance quality shall be checked. If necessary, the laboratory shall conduct physical and chemical index inspection.

3.1.4

Materials that may deteriorate can only be used after the physical and chemical indexes meet the design requirements. When using refractory bricks recovered from furnace dismantling, the refractory mortar and slag shall be removed. After passing the inspection, they can be built in the secondary parts of the industrial furnace.

3.1.5

Refractory warehouses and transportation roads shall be built before the refractory materials enter the site.

3.1.6

Refractory materials shall be placed according to designation, brick number, grade, building order; meanwhile it shall be marked.

3.1.7

Unshaped refractories, binders, refractory ceramic fibers, products shall be kept in warehouses and must not be damp or mixed. Antifreeze measures shall be taken for materials with antifreeze requirements.

3.1.8 Silica bricks, corundum bricks, magnesia products, carbon products, carbon-

containing products, insulation products, high-alumina bricks, clay refractory bricks used in important parts shall be stored in warehouses.

3.1.9 Protective measures shall be taken for refractory materials that are easily deteriorated by moisture.

3.1.10 Refractory materials should be transported in containers and shall not be exposed to moisture. Refractory products shall be handled with care during transportation and loading

and unloading.

3.2.10 During the construction process until it is put into production, the refractory masonry and thermal insulation masonry shall be prevented from getting wet.

3.2.11 Masonry shall be laid with staggered joints.

3.2.12 The refractory mortar in the brick joints of wet masonry shall be full; its surface shall be grouted and filled and compacted.

3.2.13 When laying refractory bricks, a wooden hammer or a rubber hammer shall be used for alignment; an iron hammer shall not be used. The refractory bricks shall not be directly cut on the masonry. The masonry shall not be hammered after the refractory mortar dries.

3.2.14 When the brickwork is interrupted or the bricks are removed for rework, the joints shall be made into stepped inclined joints.

3.2.15 The processed surface and defective surface of the refractory bricks should not face the working surface.

3.2.16 The geometric dimensions of various holes, passages, expansion joints, and

insulation layers in the masonry shall be checked in time during the construction process and the debris shall be cleaned.

3.2.17 The size and distribution position of the masonry expansion joints shall be reserved according to the design requirements. When the design does not specify the size of the expansion joint, the average size of the expansion joint per meter of masonry can be the following data:

- 1 Clay brick masonry is 5 mm ~ 6 mm;
- 2 High alumina brick masonry is 7 mm ~ 8 mm;
- 3 Corundum brick masonry is 9 mm ~ 10 mm;
- 4 Magnesium aluminum brick masonry is 10 mm ~ 11 mm;
- 5 Silica brick masonry is 12 mm ~ 13 mm;
- 6 Magnesium brick masonry is 10 mm ~ 14 mm.

3.2.18 The location of the expansion joint shall avoid the stress-bearing parts and holes in the masonry.

3.2.19 The expansion joints of the inner and outer layers of the masonry shall not penetrate each other; the upper and lower layers should be staggered from each other.