



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

**GB 50116-2013**

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**Code for design of automatic fire alarm system  
(English Translation)**

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| 1 General Provisions                                                                              |  |
| 1.0.1 This code is formulated with view to rational design of automatic fire alarm system,        |  |

## 1 General Provisions

### **1.0.1**

This code is formulated with view to rational design of automatic fire alarm system, prevention and reduction of fire hazards and protection of the personal and property safety.

### **1.0.2**

This code is applicable to design of automatic fire alarm system located in the constructed, renovated and extended building and structure but not applicable to that located at the places for production and storage of gunpowder, explosive, ammunition and explosive device.

### **1.0.3 Aimed at the features of the protected objects, the design of automatic fire alarm**

system shall comply with the relevant national guideline and policy and realize the safety and reliability, advanced technology and economic feasibility.

1.0.4 The design of automatic fire alarm system shall not only comply with this code but those in the current relevant standards of the nation.

## **2.0.1 Automatic fire alarm system**

The fire system in use for exploration of early fire feature, sending the fire alarm signal and provision of control and indication for personnel evacuation and prevention of fire spreading and start of self-extinguishing device.

### **2.0.2 Alarm zone**

Unit of warning limit of automatic fire alarm system divided according to fire zone or storey, etc.

### **2.0.3 Detection zone**

Unit of alarm zone divided according to position of detected fire.

### **2.0.4 Monitoring area**

Area of a fire detector where it can detect effectively.

### **2.0.5 Installation spacing**

Horizontal distance between two centers of adjacent fire detectors.

### **2.0.8 Feedback signal from automatic equipment**

Signal indicating the controlled fire equipment (facilities) will send the operation state information to the automatic controller for fire protection.

### **3.1 General Requirements**

#### **3.1.1**

The automatic fire alarm system may be used at the places where the persons live or stay frequently and those where the valuable supplies are stored or the serious pollution will be alarmed timely after the burning.

#### **3.1.6**

The short circuit isolator shall be arranged at the system bus and the total amount of the fire equipment protected by the isolator, like fire detector, manual fire alarm call point and module shall not exceed 32 points; the short circuit isolator shall be arranged at the place where the bus goes through the fire zone where necessary.

#### **3.1.7**

In the 100m or over long buildings, the fire detector, manual alarm button, module, etc. which are controlled by each controller shall not cross over the refuge storey other than the controller located in the Fire control center.

#### **3.1.8 Variable frequency startup mode shall not be adopted for the electric fire control unit**

like pump control cabinet and fan control cabinet.

3.1.9 The automatic fire alarm system located at the subway trains shall send the fire position information to the trains via wireless network, etc.

### **3.2 Choice and Design of System**

#### **3.2.4**

The design of the control center warning system shall meet the following requirements.

### **3.3 Division of the Alarm Zone and Detection Zone**

3.4.9 The display and control of fire control center shall meet the relevant requirements of the current standard GB 25506 "General Technical Requirements for Fire Control Center".

3.4.10 The information record and information transmission at fire control center shall meet the relevant requirements of the current standard GB 25506 "General Technical Requirements for Fire Control Center".

### **4.1 General Requirements**

#### **4.1.1**

The automatic controller for fire protection shall send the control signal to start & stop an automatic equipment to each relevant controlled equipment according to the preset control logics and receive the feedback signal from automatic equipment of the relevant equipment.

#### **4.1.5**

Fire equipment with larger starting current should be started up at different time.

#### **4.1.6**

As for the fire equipment requiring automatic control of automatic fire alarm system, the signal for logical program shall adopt " and " logical combination of alarm signal of two independent alarm trigger gears.

### **4.2 Automatic Control Design of the Automatic Sprinkler System**

#### **4.2.1**

Automatic control design of wet pipe system and dry pipe system shall meet the following requirements.

#### **4.2.2**

Automatic control design of precaution system shall meet the following requirements.

#### **4.2.3**

Automatic control design of deluge system shall meet the following requirements.

#### **4.2.4**

Automatic control design of self-controlled water curtain system shall meet the following requirements.

### **4.3 Automatic Control Design of Fire Hydrant System**

#### **4.3.1**

In the automatic control, the signal for low voltage pressure switch located on main outlet pipe of fire hydrant system and the flow switch or alarm valve located on outlet pipe of elevated water tanks shall be used as the trigger signal to directly control the opening of fire hydrant pump; the automatic control shall not be affected by the automatic or manual state of automatic controller for fire protection.

### **4.4 Automatic Control Design of Gases (Bubble) Fire-extinguishing System**

#### **4.4.1**

The gases (bubble) fire extinguishing system shall be controlled by the specialized gas fire extinguishing controller and bubble fire extinguishing controller respectively.