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PEOPLE'S REPUBLIC OF CHINA**

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Technical standard for photovoltaic system on building

建筑光伏系统应用技术标准

(English Translation)

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Table of Contents

- 1 General
- 2 Terms
- 3 Basic Regulations
- 4 Basic conditions
- 5 Equipment and materials
 - 5.1 General provisions
 - 5.2 Photovoltaic modules
 - 5.6 Combiner box
 - 5.7 AC/DC distribution cabinet
 - 5.8 Inverter
 - 5.9 Energy Storage System
 - 5.10 Lightning protection and grounding
- 6 Designs
 - 6.1 General provisions
 - 6.2 Architectural Design
 - 6.3 Photovoltaic module design
 - 6.4 Construction requirements

1 General

1.0.1

This standard is formulated to promote building energy conservation and emission reduction, promote the application of photovoltaic systems in buildings, and standardize the design, construction, acceptance and operation and maintenance of building photovoltaic systems.

1.0.2

This standard applies to the design, construction, acceptance and operation and maintenance of new construction, expansion and reconstruction of building photovoltaic systems.

1.0.3

The design, construction, acceptance and operation and maintenance of building photovoltaic systems shall not only comply with this standard, but also comply with the

current relevant national standards.

2.0.1 Building mounted photovoltaic (PV) system

Installed on a building, a power generation system that uses the photovoltaic effect of solar cells to directly convert solar radiation energy into electrical energy.

2.0.2 Photovoltaic (PV) module

It is the smallest indivisible photovoltaic battery combination device with packaging and internal connection, which can provide direct current output alone.

2.0.3 Photovoltaic module component

Photovoltaic modules with the function of building components.

2.0.4 Combiner box

In the photovoltaic power generation system, several photovoltaic modules are connected in series and parallel and then connected.

2.0.5 Grid-connected inverter

A device that converts DC power from photovoltaic arrays or photovoltaic modules into AC power that meets grid requirements and feeds it into the grid.

2.0.6 Building integrated photovoltaic (BIPV)

Photovoltaic power generation equipment is used as building materials or components in the form of building applications, also known as photovoltaic building integration.

2.0.7 Building attached photovoltaic (BAPV)

Photovoltaic power generation equipment is not used as building materials or components, and is installed on existing buildings.

2.0.8 Stand-alone photovoltaic system

Photovoltaic systems that are not connected to the public grid are also called off-grid photovoltaic systems.

3 Basic Regulations

3.0.1

The power generation scale and form of the building photovoltaic system should be determined in consideration of factors such as solar energy resources, building conditions,

installation and transportation conditions, and load characteristics, and should meet the requirements of safety, reliability, economy and applicability, environmental protection and beauty, and ease of installation and maintenance.

3.0.2

The construction of building photovoltaic systems should be coordinated with the overall planning and power planning of the area.

3.0.3

The design of building photovoltaic systems should analyze the local solar radiation resources, and the influence of the surrounding environment on solar radiation and system operation should be analyzed.

3.0.4

The application of building photovoltaic system can adopt building integrated photovoltaic power generation system and building additional photovoltaic power generation system, and the architectural design should reserve the construction conditions of building photovoltaic system.

3.0.5

The construction of photovoltaic systems on new buildings should be designed, constructed and checked simultaneously with the main building.

3.0.6

The building photovoltaic system should be included in the load calculation of the building's main structure and envelope.

3.0.7

When building photovoltaic systems are added to existing buildings, the structural safety, durability and electrical safety of the existing buildings should be reviewed.

4 Basic conditions

4.0.1

The following environmental data of the location of the construction project should be obtained before designing the building photovoltaic system.

- 1 Solar resource data and resource analysis report;
2. Seismic fortification requirements for the location of the construction project;
- 3 The basic wind pressure and basic snow pressure of the project construction site;
- 4 Corrosion of salt spray and acid rain in the construction site;
- 5 The average annual number of sandstorms, lightning strikes on buildings, air pollution and

visibility in the past 10 years;

6 Control requirements of surrounding building users on noise and light pollution.

4.0.2

The following information should be obtained before the design of the building photovoltaic system connected to the grid.

- 1 Building photovoltaic system installed capacity, power generation, annual utilization hours, commissioning time and operating cycle;
- 2 Connected to the grid voltage level, main transformer capacity, main transformer reserved capacity, outgoing line interval reservation and expansion conditions;
- 3 Cable laying method, model, length and path;
- 4 The type and access capacity of other power sources of the access point;
- 5 Types of electricity loads such as industrial electricity, commercial electricity, and residential electricity;
- 6 Building electricity load and regional electricity load;
- 7 Power quality requirements in the power load area;
- 8 Remote scheduling requirements;
- 9 Measuring points and methods of on-grid electricity and on-grid electricity consumption;
- 10 Ways of consumption.

4.0.3

The following building materials should be obtained before designing the building photovoltaic system.

- 1 Building scale and main functions;
- 2 Building types such as industrial buildings and civil buildings;
- 3 Building storeys and height, building height control requirements;
- 4 Requirements for building control lines;
- 5 architectural modeling and appearance design requirements;
- 6 The design service life of the building;
- 7 The thermal performance requirements of the building envelope for the building climate zone;
- 8 Building roof waterproof grade and basic structure;
- 9 Requirements for various building physical performance indicators, in-plane deformation