INSTALLATION CONDITIONS OF SOLAR HOT WATER SUPPLY SYSTEMS

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ABSTRACT

In order to increase the efficiency of the water heater, the installation conditions are very important. This article describes the installation conditions in detail.

Keywords: Solar hot, Collectors, hot water supply.

Solar hot water supply construction norms and regulations are applied to the design of new and reconstructed solar hot water supply devices, flat and tubular solar collectors for utility buildings and utility rooms of enterprises. According to the type and function of the construction of solar hot water supply facilities, camping sites, motels, summer showers, boiler houses for heating, residential houses, local boiler houses (Automotive companies, small production and agricultural facilities, etc.) auxiliary buildings and rooms. Solar hot water supply systems, autonomous (independent) devices without a doubler and additional heating (temperature stabilizer) on a seasonal basis. Type of solar collector Plastic and flat collectors. Seasonal boarding houses, summer houses for schoolchildren Camps, campsites, vacation homes, utility rooms of small enterprises and firms. Installations with seasonal double boilers and additional heaters designed to cover hot water consumption for technological needs. Collectors for flat and tubular vacuum extension.

Hospitals, hotels, sanatoriums, kindergartens, laundries and public catering facilities. Seasonal equipment with doubler or additional 100% insurance. Flat and tubular vacuum U-shaped pipes and collectors equipped with heat pipes. Continuous heat Buildings connected to continuous heat supply systems. Seasonal devices and devices that use an energy source as additional heating throughout the year. Collectors with flat and tubular vacuum U-shaped pipes. It is important to choose the main scheme of the hot water supply system and it should be adjusted depending on the type and function of the installation, the type of collectors, the season of use of the device, the type of solar collectors, the season of operation, the method of protecting the solar collectors from freezing in the winter and overheating in the stagnant mode in the summer. Solar hot water should be used in autonomous (independent) devices. High-capacity year-round solar thermal with a single-circuit self-draining circuit with a

pumped circuit, a total area of more than 30 m2, a heat sink circuit and flat solar panels to protect the collectors from freezing and overheating should be used from water supply devices. Two- and three-circuit self-draining schemes with pump circulation, usually equipped with flat and tubular vacuum solar collectors, in the stagnation state of the heat-receiving circuit, during the year, non-freezing liquid (antifreeze) is used to protect against excessive summer overheating. solar hot water supply devices should be used. Natural circulation solar hot water supply systems should be used when the area of solar collectors is 30 m2 per module with a separate tank-accumulator. In the heat receiving circuit of the double-circuit system, usually deaerated water or non-toxic and non-flammable water is used as a heat exchanger. it is necessary to use antifreeze. It is allowed to use antifreeze based on diethylene glycol. In this case, tanks-accumulators with two independent heat exchangers or three circuit breakers should be used. In summer showers, the free distance in front of the shower mixers should be at least 1.5 m. condition, it is not allowed to present the cold water with a collector. Every solar hot water supply device must have a device for exhausting air from it. The thermal resistance of the heat insulation of pipes and equipment must not exceed 5% of the heat loss. The spatial location of solar collectors should be determined taking into account the possibilities of the construction site, landscape and climatic conditions, and the construction of buildings. Solar collectors placed on the roof of buildings must be placed on supports. The optimal orientation of the solar collectors is the possible south, up to 200 to the east, up to 300 to the west. The angle of inclination of the solar collectors to the horizon should be equal to the local latitude for year-round devices, adding 150 to the local latitude in the summer period, and applying these requirements increases the possibility of increasing the beneficial effect.

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