



*The City of Bismarck allows solar energy production facilities, such as photovoltaic panels, anywhere in the city or its extraterritorial areas as an accessory use. This guide is intended to help any homeowner or business interested in solar energy understand the permitting process.*

*Most of the requirements for a solar energy system may be found in Section 14-03-06(4) of the City Ordinances. This guide only covers the local ordinance and does not address requirements of the National Electrical Code.*

## Types of Solar Energy Systems

From a zoning perspective, solar energy systems are classified into three types:

1. Building-Integrated Solar Systems are designed and built as a component of the building, such as the shingles or awnings. No permit beyond the building permit for the structure is required.
2. Building-Mounted Solar Systems are typically panels or thermal devices mounted directly onto the roof of an existing building. A building permit is required, and additional rules apply.
3. Freestanding Solar Energy Systems are not attached to a structure, but are typically mounted to posts at ground level. Additional requirements apply.

## Solar Energy Systems as an Accessory Use

In most zoning districts, a solar energy system is only permitted as an accessory use. This means that the primary purpose of the property cannot be to generate energy for commercial sale. A household or business may enter into an agreement with the energy provider and sell power back to the grid, but the size limitations are intended to limit commercial viability.

## Building-Mounted Solar System Requirements



Panels may be mounted to either the primary building or accessory buildings on the property.

Size: There are no size limitations for building-mounted systems, as long as panels do not extend beyond the edge of the roof or façade of a wall.

Height: Panels cannot extend more than two feet above a residential roof or twelve feet above a commercial roof. Additionally, each zoning district has a height limitation on buildings. For example, in the single-family R5 – Residential zoning district, the primary residence must be 40 feet or less and accessory structures must be 25 feet or less in height. The panels cannot make the residence exceed these limits.

## Requirements for Freestanding Solar Systems



A freestanding system may be installed on a residential or commercial property, subject to some additional rules.

**Size:** In most residential areas within the city, a freestanding solar energy system may not exceed 800 square feet in area per dwelling. In rural residential areas, an additional 200 square feet is allowed per acre of property. In commercial parcels, the freestanding system may not exceed half the footprint of the primary building (unless panels are mounted above parking lots).

Additionally, freestanding systems count toward lot coverage requirements. For example, in the R5 – Residential zoning district, no more than 30% of a lot may be covered by buildings and a freestanding system combined.

**Height:** Freestanding systems may not exceed twelve feet in height.

**Setbacks:** Freestanding systems must be setback from adjoining properties. They are treated the same way that any accessory structure is. For example, in the R5 – Residential zoning district, a freestanding system must be at least three feet from rear and side property lines, and is not allowed in a front yard. The solar panels must be at least ten feet away from the primary structure. The freestanding system cannot be installed over any recorded easements for such things as utilities or drainage.

### **Additional Appearance Requirements**

If the solar energy system is visible from a public roadway, there are some additional requirements:

- Any electrical or plumbing lines from a freestanding system must be buried.
- Wiring, batteries, and other features on a roof must be either screened or painted to match the roof.
- If the back of a freestanding system is visible, it must be screened with vegetation and/or fencing.

### **Installation Requirements**

All Solar Energy Systems must be installed by a licensed master electrician. The installer is not required to hold any specialized certification related to solar panels. If the system is connected to the electrical grid, the utility company may have additional requirements.

## **How to Apply**

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### **1. Gather Information and Make a Plan**

The size and type of solar installation will depend on your energy needs, budget, location, and many other factors. You may wish to consult with a solar panel installer to select a system that meets your needs. For any freestanding system, the City will require a scaled and dimensioned site plan showing the location of the system and other relevant information. You may also be required to provide the manufacturer's specifications for the product. You are encouraged to review any neighborhood covenants for potential restrictions.

### **2. Interconnection Agreement**

In most cases, a household or business will elect to connect the solar energy system to the power grid to enable the energy to flow in both directions and offset utility bills. In such cases, the first step is to contact your energy provider and ask about an interconnection agreement. The provider may impose their own requirements.

### **3. Apply for a Building Permit**

A building permit for a solar energy system may be obtained from the Bismarck Building Inspections Division. See the address below for the location and contact information. An electrical permit will also be required in conjunction with the building permit.

## **Other Resources**

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- The City does not guarantee solar access. For example, a neighbor may build a structure and block sun to your yard. Under North Dakota law, a solar access easement may be acquired from neighbors if this is a concern.
- The federal Department of Energy offers guidance to households considering installation:  
[www.energy.gov/energysaver/planning-home-solar-electric-system](http://www.energy.gov/energysaver/planning-home-solar-electric-system)

*For additional information, contact the City of Bismarck Planning Division at 355-1840 or the Building Inspections Division at 355-1465 or visit the City-County Office Building 221 N. 5th Street during standard office hours.*