

Application of Article 547 in Agricultural Buildings

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Code reference: 2023 Oregon Electrical Specialty Code (OESC)—Article 547
Date: Issued—April 1, 2019
Last updated—Oct. 1, 2023
Subject: Application of OESC Article 547 in agricultural buildings as classified by the state building code

Question:

1. Is the installation of an equipotential plane, as stated in Section 547.10 of the OESC, required in all buildings that house or confine livestock?
2. In what specific areas of an agricultural building do the requirements of Section 547.10 of the OESC apply for the installation of an equipotential plane?

Answer:

1. The installation of an equipotential plane is not a matter that is enforced under the state building code. The purpose of the state building code is to ensure that residents are provided with reasonable safeguards in buildings. While livestock safety can be an important concern, it is the responsibility of building owners to determine the most appropriate way to provide adequate safety for their livestock.
2. If an owner or designer determines that an equipotential plane is to be installed, only those areas that the owner or designer has designated to be confinement areas are considered when applying Section 547.10 of the OESC. When applicable, an equipotential plane is only required to connect to metallic equipment that may become energized and is accessible to livestock. Equipment is defined in Article 100 of the OESC as “a general term, including fittings, devices, appliances, luminaires, apparatus, machinery, and the like used as a part of, or in connection with, an electrical installation.”

Analysis:

The stated purpose of the state building code as provided in Oregon Revised Statute (ORS) 455.020 is to:

“... establish uniform performance standards providing reasonable safeguards for health, safety, welfare, comfort and security of the residents of this state who are occupants and users of buildings, and will provide for the use of modern methods, devices, materials, techniques and practicable maximum energy conservation.”

As stated above, the purpose of the state building code is to ensure that residents are provided with reasonable safeguards when occupying or using buildings. While livestock safety can be an important concern, it is the responsibility of the building owner, not the building official, to determine the most appropriate way to construct their agricultural facilities to provide adequate safety for their livestock.

ORS 455.315 exempts certain agricultural buildings from the OSSC provisions in conjunction with specific land use determinations. The structural exemption is specific to the OSSC. Electrical permits are required unless otherwise exempted. Under ORS 455.315(2), agricultural building means a structure located on a farm or forest operation and used for storage, maintenance or repair of farm or forestry machinery and equipment; the raising, harvesting and selling of crops or forest products; the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees; dairying and the sale of dairy products; or any other agricultural, forestry or horticultural use or animal husbandry, or any combination thereof, including the preparation and storage of the produce raised on the farm for human use and animal use, the preparation and storage of forest products and the disposal, by marketing or otherwise, of farm produce or forest products.

Generally, agricultural buildings are exempt from regulation under the OSSC. In the instance that an agricultural building is regulated under the OSSC, it broadly classifies agricultural buildings as Group U occupancies. Conversely, Group U buildings which are accessory and incidental to one- or two-family dwellings are regulated under the ORSC. Notwithstanding determinations made regarding the applicability of the exemptions listed in ORS 455.315, the use and occupancy of all buildings, including agricultural buildings, is established in accordance with the OSSC or ORSC, as applicable.

Sections 547.1(A) and (B), specify that the regulations of Article 547 shall only be applicable for agricultural buildings or parts of agricultural buildings that have specific environmental conditions. These conditions include excessive dust, dust with water, and corrosive atmospheres. In order for Article 547 to apply, the conditions must be excessive in nature and not minimal or simply present.

For example, a large-scale commercial milking barn may be subject to the requirements of Article 547 based on site specific conditions. In contrast, accessory barns or stables constructed for personal residential use would likely not constitute an agricultural building contemplated by the OESC, and therefore may not be subject to the requirements of Article 547.

The likelihood is minimal that an accessory barn or stable constructed for personal use would have those specific environmental conditions stated in Article 547, these structures, regardless of whether constructed on residential, farm or forest land, would generally not be subject to the requirements of Article 547.

In all instances, an owner or designer shall determine, at their discretion, what areas are considered confinement areas and subject to the requirements of Section 547.10. When the owner designates a confinement area and installs an equipotential plane, the installation and bonding of the equipotential plane shall comply with Sections 547.10(A) and (B). We encourage local building departments to assist their customers in providing all necessary information regarding their construction projects.

Contact: Visit the division website to [contact a building code specialist](#).