

Bulletin 22-3-7
Electrical equipment in farm buildings housing livestock
Rules 22-002, 22-102 to 22-108, 22-202 and 22-800 to 22-808

Issued May 2022
Supersedes Bulletin 22-3-6

Scope

- 1) Background
- 2) Classification of Farm buildings housing livestock
- 3) Luminaires in Farm Buildings housing livestock
- 4) General requirements for maintenance and operation

1) Background

A new subsection was added into the 28th Edition 2021 of the Ontario Electrical Safety Code (OESC) and clarifies that all farm buildings housing livestock shall be classified as Category 1 and Category 2 locations as per Rule 22-804.

“Category 1” is defined as a location which moisture in the form of vapour or liquid is present caused by condensation, the dripping of liquid or otherwise.

“Category 2” is defined as a location which corrosive liquids or vapours are present.

Since these areas contain a high percentage of humidity and corrosive vapors, previous Rules did not adequately address the nature and use of these buildings.

In response to several high-profile barn fires, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) formed the Reducing the Risk of Barn Fires Advisory Panel, which first met in November 2016. This panel was formed to consider the next steps for government, agencies and farm owners to help reduce the risk of barn fires and the loss of animals. In addition, the Electrical Safety Authority (ESA) recently published the guideline A FARMER’S GUIDE TO Basic Troubleshooting of On Farm Stray Voltage

[https://esasafe.com/assets/files/esasafe/pdf/Electrical_Safety_Products/Guidelines/ESA - Farm Brochure - Final tagged FINAL-ua 80136.pdf](https://esasafe.com/assets/files/esasafe/pdf/Electrical_Safety_Products/Guidelines/ESA_-_Farm_Brochure_-_Final_tagged_FINAL-ua_80136.pdf)

Members of the Advisory Panel identified that a high percentage of failures and fires were the result of corrosion and humidity in the electrical systems. Inconsistent interpretation and application of the OESC had led to many installations being wired with methods and equipment not suitable for the environment. As an example, previous Rule 22-204 3) gave the impression that adequate ventilation in buildings housing livestock prevents corrosion and moisture damage to the electrical installation. However, a review of installations identified by the owner/ constructor as having adequate ventilation all exhibited signs of being Category 1 and Category 2 locations.

2) Classification of Farm buildings housing livestock

The following is the Appendix B note for Rule 22-800:

A building housing livestock is typically a farm building (as defined by the National Building Code of Canada (NBCC)) or part thereof, which provides shelter for livestock and is not a residential occupancy. In some cases, a building that is not a farm building may house livestock as well.

The following definition is taken from the NBCC:

Farm Building means a building or part thereof that does not contain a residential occupancy and that is associated with and located on land devoted to the practice of farming, and used essentially for the housing of equipment or livestock, or the production, storage or processing of agricultural and horticultural produce or feeds.

Based on Rule 22-804 1) requirements, farm buildings housing livestock shall be classified as Category 1 and Category 2 locations, unless a deviation is allowed in accordance with Rule 2-030.

Farm buildings housing livestock shall be considered as a dry location when the building is suitably cut off from Category 1 or Category 2 locations as per Rule 22-804 2).

3) Luminaires in Farm buildings housing livestock

Background

Pigtails, are certified end products that are built to CSA C22.2 No. 43 Lampholders. However, these are not considered 'luminaires' or "pendant lampholders" for the purpose of Rules 22-104 and 22-106. Pigtails are approved as "lampholders for temporary use" or "weather proof lampholders" neither of which are permitted by Section 22 to be installed in buildings housing livestock. This has led to inconsistency regarding acceptance for this type of application.

Question 1

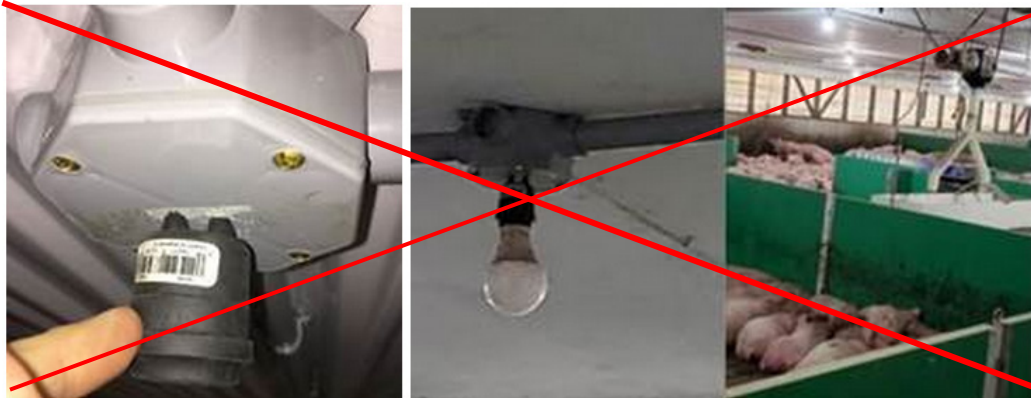
Are "pigtail" type and pendant lampholders permitted to be installed in buildings housing livestock?

Answer 1

No. Only luminaires approved for Category 1 and Category 2 locations are accepted in farm buildings housing livestock. Pendant lampholders are not permitted as per Rule 22-806 5). Pigtail lamp holders are not considered luminaires.

Note: When pig-tail type lamp holders are damaged and require replacement, it shall be replaced by an approved luminaire for the location

Photo B1-Pigtail lamp holders



4) General requirements for maintenance and operation

Rule 2-300 requires all electrical equipment be kept in safe and proper working condition.

ESA recommends the following for these types of installations:

1. Electrical equipment in this environment should be checked regularly for deterioration and tightness of connections.
2. Enclosure covers should be secured properly to ensure gaskets provided with the enclosures minimize the influx of corrosive atmosphere and moisture within the enclosure. Damaged and deteriorated gaskets should be replaced.

Photo B2 - Thermo graphic images that demonstrate overheating of terminations at a receptacle and a panel board that are located in a large confinement barn

