

Fire Safety During the Colder Months

Fire safety is important all year round, and an Ontario winter presents additional challenges when it comes to staying fire safe. Water sources and plumbing can freeze, heaters place higher demands on electrical systems and lights are switched on for long periods of time.

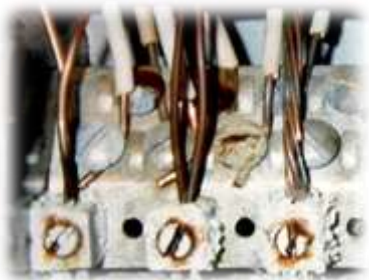
On Equine Guelph's "Top 10 Checklist" for barn fire safety considerations, "Electrical" is at the top of the list and "Lighting" places # 2. Is your barn's electrical system up to the task? Here are some points to consider:

Electricity moves through the wiring in your barn in a manner very similar to how water in a plumbing system flows through pipes and hoses. If the pipes and hoses become partly blocked due to rust or lime buildup, resistance to water flow is created causing the plumbing system to have to "work harder" and become less efficient.

In an electrical system, corrosion of the wiring connections on components such as electrical panels, plugs, receptacles, light fixtures, and switches causes resistance which restricts the flow of electricity. When the flow of electricity is restricted, heat is produced. This heat causes the wire to heat up which then damages outlets, cords, and electrical appliances, and could potentially cause an electrical fire.

Barns are a harsh environment for an electrical system:

- Moisture resulting from high humidity levels and condensation causes wiring connections in a barn to corrode much faster than they would in the more stable, temperature and humidity controlled environment found in your home. Moisture also causes rusting of electrical panel boxes:



Corroded wiring connections



Rusted electrical panel box

- Dust build up on wiring connections can trap heat. Hay dust is also flammable. Missing covers on receptacles and junction boxes contribute to dust build up:



- Rodents cause wiring damage because they chew on items to control the length of their always-growing incisor teeth – and electrical wiring insulation is a favourite choice of theirs:

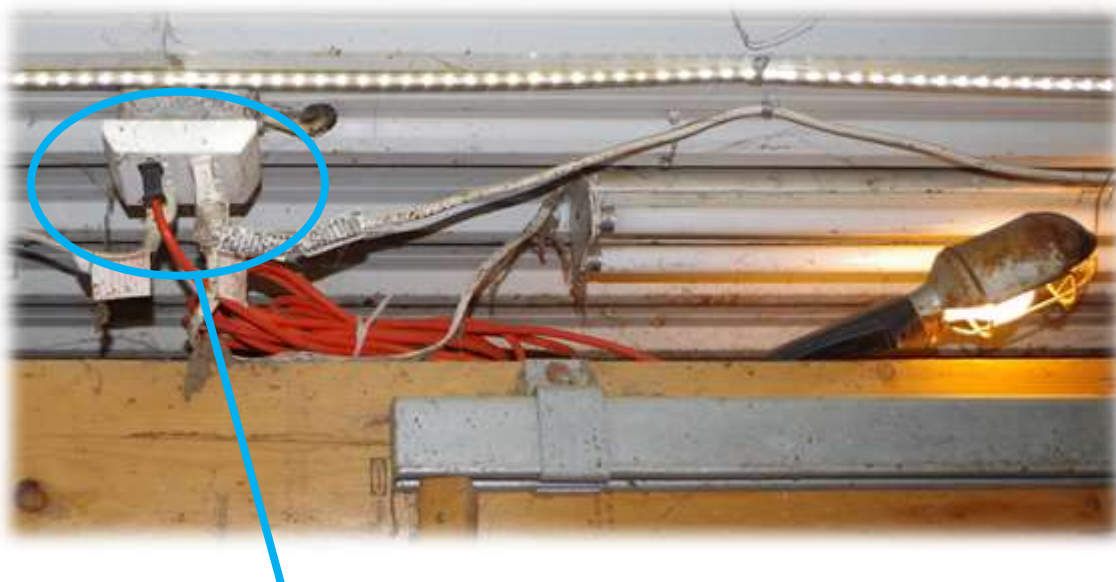


Examples of electrical hazards often seen in barns include:

- Exposed wiring – vulnerable not only to rodents, but also other forms of damage including curious horses:



- Use of extension cords and portable lights as permanent wiring:



Multi outlet adapters overload circuits – another electrical safety concern

- Exposed light bulbs. Incandescent bulbs like the one pictured become very hot, and can be easily reached by horses if the barn has a low ceiling:



Also note cobwebs touching surface of bulb

- Damaged cords:



While damage such as that pictured above is quite obvious, a cord that has been run over by equipment (or stepped on by a horse!) may appear intact but have some broken wire strands inside which are not visible.

Because some strands are still intact the cord will conduct electricity and appear to work properly, but will have additional resistance which restricts the flow of electricity, causing heating and further deterioration of the cord. Inspect cords along their entire length by feeling for flattened or soft areas that provide a clue indicating internal damage.

- Improvised repairs to wiring, cords and plugs:



Also note cobwebs and exposed wiring

- Older electrical systems, often seen in barns that were built prior to rural electrification and later retrofitted with electric service. These installations, adequate at the time of retrofit decades ago, are limited in the amount of electric current they can supply and potentially very dangerous due to corrosion resulting from decades of exposure to moisture and dust:



When it comes to fire safety, the well known expression “An ounce of prevention is worth a pound of cure” is very true. (Fire service trivia: This expression is often attributed to Benjamin Franklin who, in 1736, co-founded the Union Fire Company in Philadelphia which was the first formally organized all volunteer fire company in what is now the United States, and used that expression when writing about the importance of properly handling coals from the stoves and fireplaces then used for home heating.)

Some “Ounce of Prevention” fire safety measures you can put into place include:

- Protective covers for light fixtures:



- Wiring in conduit and covers on all switches, receptacles, and junction boxes. Also have 10 pound ABC fire extinguishers mounted at each exit and ensure that everyone at the barn knows how to use a fire extinguisher:



- Removal of dust and pesky cobwebs. Cobwebs are not only annoying, they catch fire very easily and, once burning, can fall from walls and ceilings and then ignite materials like shavings, hay and chaff in stalls. Cobwebs can be compared to the kindling used to start a campfire.
- Use of extension cords which are the proper size and rating for farm service. When it comes to extension cords, “size” refers to the diameter of the wire, not the length of the cord.

Wire diameter is measured in gauge which is expressed as a number that indicates diameter of the wire. The lower the number, the larger the diameter of the wire. A 0 gauge wire is about 5/16” in diameter, and wire of this size is used for some battery cables.

A good size for extension cords is 12 gauge, and any cord used for farm service in Ontario should be rated “heavy duty” and suitable for use at low temperatures:



- A simple outbuilding can provide shelter from the elements for machinery and vehicles, while keeping them a safe distance from the barn:



- Block heaters are a necessity for some equipment to be able to start in cold weather. Park equipment a safe distance from the barn (50 feet minimum) and remember to use an extension cord of the proper size and rating:



- If use of an electric portable heater is necessary, it is important to be sure your barn's electrical system can handle the high demand that an electric heater will place on it. Electric heaters use an element which restricts the flow of electricity to create heat. This same resistance also causes heat buildup in the wiring and cord supplying electricity to the heater.

A household space heater is not suitable for use in a barn. Construction heaters such as the examples pictured below are suitable but require 240 volt power (stove plug) which your barn may not be wired for.



If it is necessary to use a portable heater, make sure that it is made with a tip-over switch which will immediately turn the unit off if it does get knocked over.

Route the power cord carefully so that it does not become a tripping hazard or get stepped on by horses.

Keep any combustible items a minimum of 3 feet from the heater, farther away if at all possible.

Ensure that dust, hay, shavings or other combustible items do not build up on the heater.

As important and effective as prevention is, it is also important to be prepared if the worst should happen. Driveways, lanes, and gates can be a challenge to keep clear in the winter but are essential for the access of fire trucks if a response to your property is necessary.

In rural firefighting, we have to haul our own water to the fire. Several tankers are used to supply the pumper(s) working at the fire scene. One of Severn Township's tankers is pictured below – is your gate and laneway cleared sufficiently for us reach your barn?



This article is intended to highlight some key fire safety considerations and offer preventive measures you can put into place. Thank you for taking the time to read this, our goal is to provide you with fire safety information on an ongoing basis as the seasons change and we move forward into spring, summer and fall.

For a wealth of year-round fire safety information and resources, visit Equine Guelph's Fire Prevention Resources page at:

https://www.equineguelph.ca/Tools/fire_resources.php