

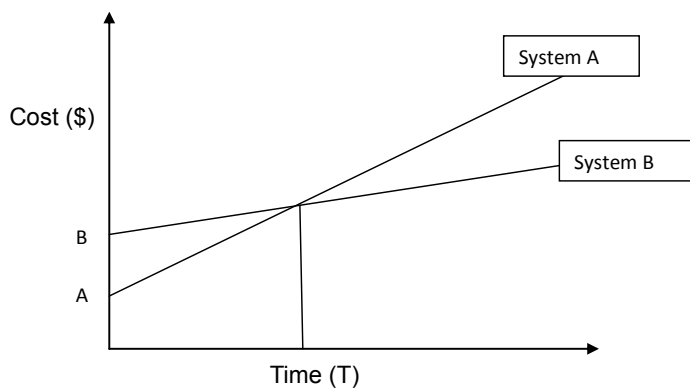
## COMMERCIAL LIGHTING PROGRAM

# Lighting systems maintenance and safety for agricultural customers

Installing an efficient and effective lighting system requires careful attention to detail and a thorough evaluation of the environment in which lighting will be installed.

Lower initial costs may lead to higher expenses in the long-term life of your lighting system (see Figure 1).

**Figure 1**



System A has a lower initial cost, but higher ongoing costs (for example, energy, parts, and labour). In time (T), system A becomes more expensive. System B has a higher initial cost, but costs less over the long term.

### Long-term benefits

When designing lights for long-term illumination, be sure to not only consider the initial budget, but also the ongoing costs beyond the day the system is installed.

Selecting the right lighting system may decrease operational costs, as well as increase the safety and efficiency of your production processes. Contact your local electrical inspection authority to ensure the equipment selected conforms to the electrical code.

### Temperature

When the building's temperature increases, the life of the lighting components decreases. For example, a temperature increase of 10 C may cause the life of electronic components within a lighting fixture to decrease by 50 per cent.

Lighting should not be operated at temperatures above the manufacturer-specified temperature rating.

When installing lights, it is good practice to lower (suspend) luminaires from the ceiling to create space for ventilation and to improve cooling.

## Ingress Protection (IP) rating

Ingress Protection (IP) is the degree to which a luminaire is protected and sealed against dust particles, as well as moisture. Barn environments have elevated levels of dust and moisture, therefore customers are urged to pay close attention to IP rating when purchasing fixtures.

On a fixture, you'll notice the letters "IP" followed by two numbers that define the degree of protection. The first digit indicates the fixture's foreign bodies protection level against dust particles. The second digit indicates the fixture's protection level against water ingress.

There are several IP ratings available on lighting technologies. Table 1 illustrates the ratings that are most commonly used in an agricultural setting.

**Table 1 – Ingress protection ratings**

Ingress protection level	Protection against solid particles	Protection against moisture/water
IP44	Protected against a solid object greater than 1 mm (for example, a piece of wire cable).	Protected against water splashing from all directions.
IP65	Dust-tight; protected against any size of dust particle entering the fixture.	Protected against water projected by jet spray valves.
IP66	Dust-tight; protected against any size of dust particle entering the fixture.	Protected against rough bodies of water and/or from water projected by jet spray valves.
IP67	Dust-tight; protected against any size of dust particle entering the fixture.	Protected against water immersion up to 1 m for a maximum of 30 minutes.

## Corrosion resistance

The corrosive environment within barns can break down not only metal parts, but also the electronic components inside light fixtures. Due to the presence of ammonia, barns tend to have higher-than-normal rates of corrosion. When purchasing lighting systems, customers are encouraged to confirm that the fixture/lamp is rated for the corrosive environment in barns (see Table 1 for ingress protection ratings).

## Compatibility with existing controls

There are several types of controls that operate lighting. These controls range from very basic, to very sophisticated. When purchasing lighting fixtures/lamps, customers should ensure the lamp and built-in driver/ballast are compatible with the existing control. Check the minimum load rating of the controller, as new lighting may be below its threshold. For proper operation, it is recommended to upgrade the controller instead of increasing the load.

## Lamp rating for fixture

Lamps in barn environments are usually installed in enclosed fixtures. When a lamp is enclosed in a fixture, it has restricted airflow, which may lead to the lamp overheating and compromise safety. This may result in damage or premature failure of the lighting system. Always confirm that lamps are rated for enclosed or open fixtures prior to purchasing.

## Warranty coverage for intended use

Warranties may have exclusions and conditions. Be sure to check with your supplier or distributor that your warranty applies to your intended lighting use/application. Also, keep your invoices and warranty documents in a safe place, so they are available if a warranty claim is necessary.

For more information, contact your Manitoba Hydro representative or:

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September 2018

Available in accessible formats upon request.

