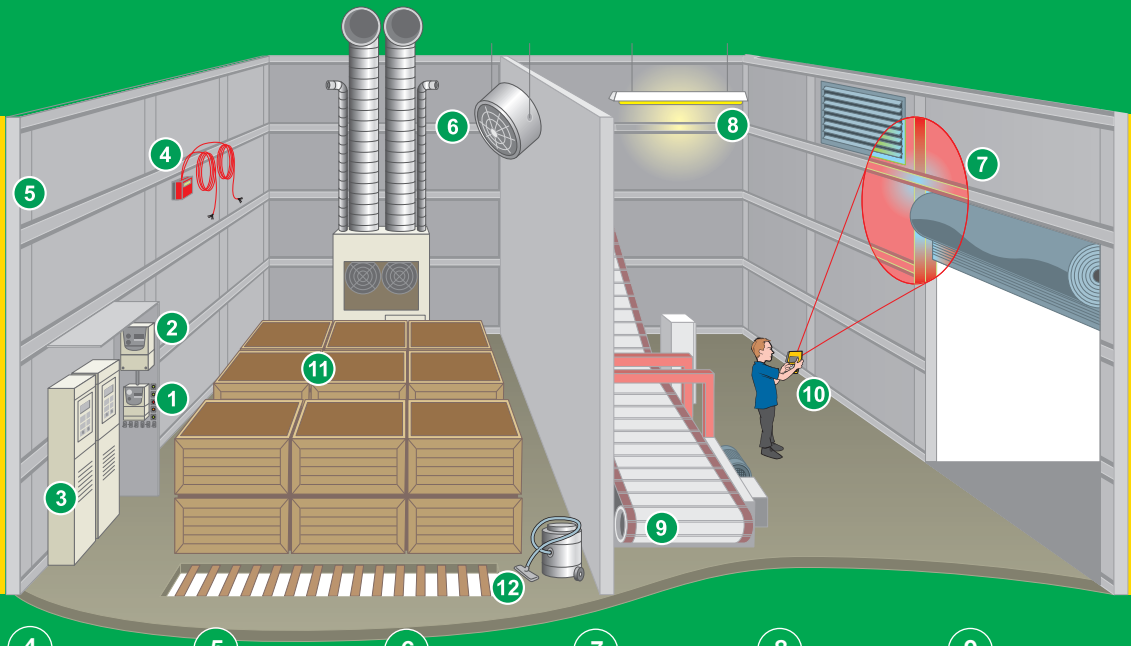
12 steps to energy efficient storage

BRITISH POTATO COUNCIL



1 Meters and sub-meters

Meters and sub-meters on stores or individual pieces of equipment, to monitor energy use, can show times of heavy consumption and help spot where problems might be occurring.

2 Control systems

Store control features, such as tariff control, can specify running of refrigeration equipment to coincide with cheaper energy rates.

3 Inverters/VFDs

Potato stores are high consumers of energy. Inverters (also known as variable frequency drives or VFDs) can improve the energy efficiency of fans and fridge components, such as condensers and compressors, by matching their performance to the store's needs.

4 Calibration

Temperature probes calibrated annually and verified regularly with a hand-held thermometer are more likely to give accurate readings. Accurate temperature monitoring contributes to efficient use of refrigeration and ventilation.

5 Insulation

If insulation is damaged, degraded or of insufficient thickness, it has limited ability to prevent the external temperature affecting the store. To improve insulation properties, large gaps can be sealed using board or foam from a canister. Where insulation is below 50mm in cold stores, consider increasing its thickness.

6 Fans and ducts

Fans can consume their own capital cost in energy each year. Inlet and outlet ducting configuration significantly affects energy usage. When replacing fans and ducts ask your dealer about new aerodynamically-efficient designs of equipment.

7 Doors, louvres and joints

Air leaks increase running costs. Doors, louvres and joints in the building structure are key areas where gaps are found. When standing inside a dark store, gaps can easily be identified by light filtering in. These can be sealed using brush seals, rubber flaps, spray foam or silicone filler.

8 Lighting

New generation lighting equipment, using gas discharge tubes and electronic ballast, economically produces good quality light. When replacing current systems, consider the energy cost savings offered by new lighting technology.

9 Motors

Modern motor designs are more energy efficient than older types. Replacing old or heavily-used motors, such as on graders and conveyors, with new energy-efficient models may offer cost savings.

10 Energy audit

An energy audit will show where energy savings can be made. A number of service providers (e.g. ADAS, SAC & FEC Services) offer an energy-auditing service. Some use thermal imaging, which helps show problem areas.

11 Box layout

Correct box layout is crucial for uniform airflow. Even distribution of air reduces temperature differences within the store, making most efficient use of fridges and ventilation, and keeps the crop in better condition too!

12 Hygiene

As part of good hygiene practice, all soil and debris should be cleared from ducts. Blockages will cause poor airflow, resulting in hot spots and over use of ventilation.

Storage Advice Line freephone 0800 02 82 111