

Facilities Management from A to Z

Based on The FM Lexicon by Martin Pickard
published monthly in Facilities by Lexis Nexis between 2008 and 2016

X

Ray Scanners

X Ray inspection systems of the kind commonly used in airports to scan passenger baggage are increasingly being utilised by facility managers for a variety of purposes including access control, mailroom security and non- intrusive maintenance inspections. Two kinds of x-ray machines are most commonly used, cabinet machines and conveyor systems.

Cabinet machines are used in post rooms for screening individual suspect letters and packages while conveyor units are more suited to organisations dealing with bulk mail or for the screening of visitors baggage. Both units enable the operator to view the contents of the item on a screen and some systems are capable of identifying specific suspicious items or threats.

X-ray inspection systems accurately identify the contents of an envelope or package by firing electrons across a glass tube at a Tungsten target which is contained in a vacuum chamber. When the electrons hit the target, x-rays are generated which travel down into the chamber and penetrate anything in there. The number of x-rays that penetrate the item, without being absorbed by its contents, depends on the density and thickness of each individual object.

X-rays which are not absorbed carry on to a fluorescent screen which converts them into visible radiation. The quantity of x-rays which hit the screen produce a shadow image which builds a picture of the objects based on their density. Most systems are capable of differentiating between cardboard or fabrics, aluminium and porcelain, and steel and lead by comparing the number of x-rays which are absorbed).

Conveyor units begin to scan items after they pass through lead curtains at the beginning of the x-ray tube and break a light beam. The items pass under a strip of diodes which repeatedly scan along a thin line until an image of the contents of the baggage is built up. Just prior to exiting the tube, another light beam is broken and the x-rays are switched off.

The item then carries on through the exit lead curtains. One problem with using a conveyor system is that it requires two people to operate it effectively. One person is responsible for loading the items on and off the conveyor belt whilst the second person operates the controls and examines the onscreen x-ray images.

Modern x-ray systems are a useful security option that allows safe inspection of objects which may contain all manner of threats without taking the risk of opening them. Usage is covered by the Ionising Radiation Regulations 1999 (known as IRR99) which places requirements on the employer in terms of notification, training and management of the system.

Further information on IRR 99 is available at www.hse.gov.uk/radiation/ionising

The British Security Industry Association is the trade association covering all aspects of the professional security industry in the UK. For more information see www.bsia.co.uk, email info@bsia.co.uk or telephone 0845 389 3889.