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How to plan the safe installation of ICT in schools

Why do I need to consider safety issues?

Ergonomics, or design and planning that follows health and safety guidelines, is crucial. Current information and communications technology (ICT) safety regulations focus on display screen equipment and relate to workplaces.

Although they do not contain specific guidance for schools, these regulations apply to teachers and other staff, who often use the same computers as children around the school.

What safety issues do I need to consider when planning a new installation?

Cabling

The Electricity at Work Regulations 1989 require all electrical systems and equipment to be constructed and maintained in a safe condition.

It is not uncommon for schools to discover they need some rewiring and other building work which may disturb the fabric of the school building, such as asbestos.
Local education authorities (LEAs) should have ensured that all schools have been surveyed for asbestos. Power cables must be carried in trunking that separates them from voice and data cables. As cable types may need to be upgraded, sufficient space in main trunking routes should be designed to accommodate future needs. Power cables should be secured and covered, and should never trail. Suitably qualified staff should undertake electrical work, Computer workstations typically have a minimum requirement for two power sockets: however, the recommendation is that there should be a minimum of four sockets per workstation, to include speakers and other multimedia peripherals or control kits.

Lighting

Levels of lighting in ICT areas should be slightly lower than lighting recommendations for standard classrooms, so there is appropriate contrast between screen and background environment. The recommended level is 300-500 lux, measured horizontally at work surface height. 'Category 2' lighting is the standard recommended for ICT suites.

Semi-translucent blinds stop glare from the sun but let in some light. Vertical shades are best for reducing low-angle sunshine, particularly in east- and west-facing rooms, and can be easier than horizontal blinds for gaining access to open and shut windows.

Temperature and humidity

Ideally, the temperature of an ICT suite should be 18° - 24°, with humidity between 40 per cent and 60 per cent.

Flooring

Flooring or carpet should be non-slip and anti-static. Cleaning and noise reductions are other important factors when selecting a floor covering.

What factors need to be considered for workstations?

Space between workstations

There needs to be a minimum of 1,000mm between workstations for one pupil, but 1,500mm enables two pupils to work comfortably together.

There should be at least 850mm of clear space in front of the computer table for a chair and circulation space. If the tables are arranged back to back, there should be 1,200 mm of aisle space between them. This will allow wheelchair users to pass.

It is important to ensure that workstations are designed to meet the specific needs of pupils with physical disabilities or other special educational needs

Desk or work surface height

Desks must be the appropriate height for the user.

Suggested table heights	
Age range	Table height (mm)
Nursery	460
Infant	540
Junior	610
Secondary	610-680
Sixth form/adult	730

NB: These are guidelines only, as pupil heights vary widely.

Seating

Chairs need to complement the desk height.

Suggested chair heights	
Age range	Table height (mm)
Nursery	270
Infant	320
Junior	370
Secondary	370-420
Sixth form/adult	450>

NB: These are guidelines only, as pupil heights vary widely.

What other factors need to be considered?

Projectors and interactive whiteboards

Projectors should, wherever possible, be placed out of reach of the pupils. A ceiling-mounted projector is the ideal solution. Fixed equipment, however, is not always possible, and there may be a requirement for the equipment to be mobile around the school. In these cases, it is important to ensure that the unit is anchored firmly when in use, and that trailing power cables are covered and secured.

It is advisable to position whiteboards at a comfortable height for use by pupils. There will often need to be a compromise between pupils being able to see the screen from across the classroom and being able to interact with the screen.

Portable computers

Many schools offer laptop computers to pupils for use within and outside school. The advantages of portability can be compromised if children find the equipment heavy to carry.

Although there are no national regulations regarding guidance that specifically relates to the ideal weight of laptops for children, it is advisable to check if your

LEA offers advice.

Research commissioned by the Health and Safety Executive (HSE) lists the following ergonomic factors to consider when selecting portable computers:

- **lighter weights - for example, 3kg or under**
- **a large and clear screen - for example, 14-inch diagonal or more**
- **the longest battery life possible, or extra transformer/cable sets, so that the user has a set in each location and does not have to carry these around**
- **a touch-pad, roller ball or external mouse to suit the user**
- **a lightweight carry case with handle and shoulder straps**
- **adjustable tilt keyboard**
- **the facility for attaching an external mouse and numeric keypad**
- **friction pads underneath to prevent the computer from slipping when in use**
- **sufficient memory and speed for applications that are used.**

Wireless networks

Wireless technology is developing rapidly and presents an alternative for some schools, although there are concerns about health risks in relation to radiation. While there are some similarities between the technologies used in mobile phones and wireless networking, the key difference is in the power output. The output from wireless networking devices is significantly less than mobile phone handsets and transmitters.

The National Radiological Protection Board (NRPB) is responsible for guidance in the UK.

It is important to have wireless networks installed by specialists according to industry standards for network cabling. They should also configure the system to ensure correct performance. The current standard is Untwisted pair cable UTP 5E. Backbone cables between servers and radio nodes are likely to be fibre optic to enable high-speed data transfer.

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