



NHS TRUST'S PACK

***A SHORT GUIDE ON ELECTRICAL SAFETY AND ENERGY SAVING OPTIONS
WITHIN HEALTHCARE BUILDINGS***

ABOUT US

- NICEIC is the UK's leading certification body in the electrical contracting industry. With over 900 registered members operating in Scotland, there is a wide choice of domestic, commercial and industrial electrical contractors available to facilities managers within local authorities.
- NICEIC has been assessing and approving electrical contractors for over sixty years since its establishment in 1956. Each year, NICEIC invests all of its surpluses back into the electrical industry in order to increase safety awareness and raise industry standards.

FACTS AND FIGURES



MANY OF SCOTLAND'S most important and iconic building projects are completed by NICEIC contractors



61% of all electrical installations in Scotland are completed by NICEIC contractors

THE TOP 50

electrical contractors in the UK are NICEIC registered (combined turnover of £4.6 Billion)



160,148 certificates issued annually in Scotland

16% growth per year on total number of certificates issued in Scotland

OVER 900

electrical contractors available in Scotland

OVER 87,000

electrical installations completed annually by NICEIC contractors in Scotland in 2015

OVER 2,200

individual electrical operatives employed by NICEIC registered contractors in Scotland



NICEIC is the most recognised brand and name of electricians amongst home owners in Scotland



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INTRODUCTION

AS AN NHS HOSPITAL TRUST OR PRIMARY CARE TRUST YOU ARE HIGHLY LIKELY TO APPOINT ELECTRICAL CONTRACTORS TO CARRY OUT WORK ON THE BUILDINGS IN YOUR SITE. THIS SHORT GUIDE IS INTENDED TO HELP PROVIDE FACILITIES, ESTATE MANAGERS AND GP PRACTICE MANAGERS WITH USEFUL AND UP-TO-DATE ADVICE ON ELECTRICAL SAFETY AND ENERGY SAVING TIPS IN MEDICAL AND HEALTHCARE SETTINGS.

This will give you and your organisation a valuable reference document and an enhanced understanding of what to look out for, when appointing an electrical contractor to undertake work on your property portfolio.

If you need to verify the registration of an existing contractor or need to find a new electrical contractor for your organisation, always visit the NICEIC website.



CURRENT LEGAL REQUIREMENTS

ELECTRICAL SAFETY REGULATIONS

Scotland

Electrical contractors carrying out electrical installation work in Scotland must comply with the building standards system. The Building (Scotland) Act 2003 permits the design or construction of building work to be certified by qualified, experienced, and reputable building professionals and tradespeople as complying with the building regulations without the need for detailed scrutiny of designs or inspections by local authorities.

Certification is an optional procedure for the implementation of building regulations in Scotland and is only relevant to work that requires a building warrant. Certification may only be undertaken by an approved 'certifier of design' or an approved 'certifier of construction', who is registered in an appropriate approved certification scheme and, where relevant, holds the appropriate designation(s) in such a scheme.

They must also be employed by a business or other body that has been approved as adopting suitably professional practice to provide a certification service, including quality assurance procedures to check compliance with building regulations and is registered in an appropriate approved certification scheme.

Approved certifiers are directly responsible for the work that is certified but may certify work by others if they take appropriate steps to ensure that the work conforms to the building regulations.

BS 7671 is cited in Scotland as the recommended means of satisfying building standards requirements.

Portable Appliance Testing (PAT)

The Electricity at Work Regulations 1989 require that any electrical equipment that has the potential to cause injury is maintained in a safe condition.

The frequency of inspection and testing depends upon the type of equipment and the environment it is used in. For example, a power tool used on a construction site should be examined more frequently than a lamp in a hotel bedroom

The person doing testing work needs to be competent to do it. In many low-risk environments, a sensible (competent) member of staff can undertake visual inspections if they have enough knowledge and training. However, when undertaking combined inspection and testing, a greater level of knowledge and experience is needed, and the person will need:

- The right equipment to do the tests
- The ability to use this test equipment properly
- The ability to properly understand the test results



FUTURE REGULATIONS

2018

- Publication of the 18th Edition of the IET Wiring Regulations (BS 7671) anticipated

2020

- SMART gas and electricity meters in every home
- Commitment for 15% of UK total energy to come from renewable energy
- Commitment for UK CO₂ emissions to be reduced by 34%
- 1.4 million lofts to have topped up insulation

2050

- Commitment for UK CO₂ emissions to be reduced to 80% below 1990 levels



KEY INDUSTRY DEVELOPMENTS

THE FOLLOWING DEVELOPMENTS WILL HAVE A BEARING ON THE ELECTRICAL SECTOR AND ENERGY INDUSTRY FOR DOMESTIC AND NON-DOMESTIC BUILDINGS:

SMART Meters

These are the next generation of energy meter, which will record the level of electricity and gas consumption in a building and communicate it back to the energy supplier automatically.

This enables the energy supplier to obtain a regular and accurate reading for billing purposes and also allows the occupant to monitor and reduce their energy usage. It will also allow for the level of demand for electricity to be managed and for loads to be balanced.

The national roll-out of SMART meters started in 2014. Every home in Scotland is expected to have a smart meter installed by 2019.

Energy Efficiency

The UK spends more per head on heating its buildings than Sweden, despite the fact that Sweden experiences much longer and harsher winters. This is largely due to the UK having some of the oldest building stock and poorest insulation in Europe.

In 2014 UK households spent a total of £13.5b on electricity and £14.7b on gas and liquid fuels. Total expenditure on these fuels was £28.2 billion up from below £15b in 2003, a 47% increase. Electrical contractors can advise occupants on some of the energy-saving measures available to reduce their electricity bills and environmental impacts, such as through the installation of low energy lighting.

Renewable Energy

Renewable energy comes from natural resources such as sunlight, wind, rain, tides and geothermal heat, all of which can be naturally replenished. The long-term adoption of renewable energy in UK buildings will increase steadily over the next decade enabling occupants to generate all or some of their own energy (electricity and/or heating).

Electricity-generating renewable technologies include solar photovoltaic (PV), micro wind turbines and micro hydro water power. Heat-generating technologies include solar thermal hot water, biomass boilers and heat pumps.

There is a commitment from the Scottish Government to generate the equivalent of 100% of Scotland's gross annual electricity consumption from renewable sources and generate 500 megawatts of community and locally-owned renewable energy by 2020.

Energy Storage

Energy Storage (ES) offers great potential for supporting renewable energy. Storage technology is able to absorb and release energy when required and provide ancillary power services which help to benefit the power system.

There are a range of technology options and energy storage can deliver significant benefits to the UK in terms of energy.

Work to develop technical standards and spread awareness of the benefits continues.

Smart Buildings

Smart buildings are structures that use automated processes to automatically control the buildings operations including heating, ventilation, air conditioning, lighting and security by using sensors, actuators and microchips. This helps owners and facility managers improve reliability and performance, which reduces energy use and minimizes the environmental impact of the building.

There are already a number of well advertised products in this growing market.



ELECTRICAL SAFETY

THE THREE MAJOR HAZARDS FROM ELECTRICITY IN PROPERTIES ARE:

 **Electric shock**  **Electrical fire**  **Electrical burns**

These may result from:

- the electrical installation and equipment deteriorating over time
- damage to switches, sockets and other equipment
- misuse of the installation and equipment
- poor or lack of maintenance of the installation and equipment

Facilities staff and GP practice managers responsible for non-domestic buildings (clinics, surgeries, operating theatres, wards, waiting areas, canteens, staff accommodation blocks and administrative offices) should carry out regular visual inspections of the electrical installations across the property estate.

If there is any doubt whether the electrics are safe for patients, employees or visitors, you should consult an electrician listed on niceic.com.



ELECTRICAL SAFETY CHECKLIST DO'S AND DON'TS

HERE ARE 12 SIMPLE SAFETY TIPS TO HELP KEEP YOUR PATIENTS, EMPLOYEES, VISITORS AND YOUR BUILDINGS SAFER:

- **DO** get a full electrical inspection and test every 5 years or at change of occupancy
- **DO** carry out a regular visual check of the electrics every 6 months
- **DO** use an NICEIC electrician to carry out electrical work
- **DO** check for worn or frayed wires and cables
- **DO** check for signs of blackness or scorching around a socket, which could indicate overloading
- **DO** check for broken electrical accessories, such as sockets and light switches
- **DO** check regularly for a smell of hot plastic or burning near a socket
- **DO** check for signs of sparks or smoke coming from a plug or appliance
- **DO** use an RCD (Residual Current Device) for added protection against electric shock
- **DO** test that the RCD is working every 3 months
- **DO** test the smoke alarms every week
- **DON'T** overload plug sockets



ENERGY SAVING TIPS

THIS SECTION OUTLINES A FEW SIMPLE, BUT EFFECTIVE STEPS WHICH YOUR ORGANISATION CAN ADOPT IN MOST NON-DOMESTIC PROPERTIES TO REDUCE THE LEVELS OF ENERGY USAGE AND ENERGY COSTS:

1. Low energy lighting

Replacing traditional incandescent, tungsten or filament light bulbs with low-energy alternatives will allow a householder or business to make significant savings on their electricity bill. Low energy lighting comes in a variety of shapes, sizes and fittings and includes compact fluorescent lights (CFLs) and LEDs.

2. Lighting controls

These allow lights to be operated or programmed from a console. This helps to reduce energy by using lighting only when it is needed. Wireless lighting control systems are a relatively cheap and flexible means of controlling lighting.

3. Turn off lights

Switching off lights when they're not being used will save electricity and reduce bills even if only for a few minutes.

4. Turn off electrical appliances

Turning off electrical appliances, such as TVs and PCs, instead of leaving them on standby will save electricity and reduce bills.

5. Turn the thermostat down

Simply turning a room thermostat down by one degree can lead to significant savings on your client's heating bill. Lowering heating temperatures by only one degree can save 8% on fuel consumption.

6. Insulation of the heating system

Insulating the hot water cylinder and hot water pipe work will reduce the heating costs of any building.

7. Insulation of the roof space

In an un-insulated building, as much as 25% of all the heat produced is lost through the roof. Having insulation material in a roof space reduces this heat loss.

8. Heating controls

Usually includes a boiler thermostat, programmer, a room thermostat, thermostatic radiator valves and cylinder thermostats. Heating controls will keep a building at a comfortable temperature without wasting heat. This is because an occupant can programme the heating and hot water to come on and off when required. Another option is to only heat rooms being used regularly, thereby reducing energy bills and lowering carbon dioxide emissions.

IMPORTANT FACTS AND FIGURES

ELECTRICAL SAFETY IN THE UK



21,000 accidental house fires every year from electrical fires

OVER 6,000

properties damaged every year from electrical accidents



2.5 MILLION adults have experienced an electric shock at home

350,000

serious injuries every year from electrical accidents



of electrical fires caused by electrical products and their misuse

70 DEATHS every year from electrical accidents



ENERGY CONSUMPTION IN THE UK



88% increase in energy prices since 2004

£598 average household electricity bill in 2015



6 tonne increase in CO₂ per average household



55% INCREASE

in average monthly spend on household energy since 2002

£1,604 was the average electricity bill for a 3 bedroom house in 2014

1 in 5

small businesses spent more than 10% of annual turnover on energy bills in 2014



£752 average household gas bill in 2014



44% of all energy used in the UK is to heat buildings



Cost of monthly energy bills predicted to exceed monthly mortgage payments by 2025

27% of carbon dioxide in the UK due to housing



ELECTRICAL JARGONBUSTER

TO HELP YOU UNDERSTAND SOME OF THE TERMINOLOGY USED, HERE IS AN A TO Z LIST OF BASIC ELECTRICAL TERMS:

British Standard (BS 7671)	The UK national safety standard for electrical installation work. Also known as the IET Wiring Regulations (Institution of Engineering and Technology). This details the requirements for electrical installations and is the standard against which NICEIC electricians are assessed.
Building Regulations	In Scotland, The Building (Scotland) Act 2003 is the primary legislation under which the Building Standards system operates. This is supported by secondary legislation including building regulations.
Certificate	A safety certificate issued by an electrician when they complete any new electrical installation work, or make changes to existing electrics, such as altering, extending or adapting an existing circuit. The certificate confirms that the work has been designed, built, inspected and tested to the UK national standard BS 7671.
Circuit	An assembly of electrical equipment (socket outlets, lighting points and switches) supplied from the same origin and protected against overcurrent by the same protective device(s).
Circuit-breaker	An automatically operated device designed to protect an electrical circuit from damage caused by overload or short circuit. It detects faults and interrupts current flow. Unlike a fuse, which operates once and then must be replaced, a circuit breaker can be reset to resume normal operation.
Competent person	A person who possesses sufficient technical knowledge, relevant practical skills and experience for the nature of the electrical work undertaken and is able at all times to prevent danger and, where appropriate, injury to him/herself and others.
Consumer unit	Commonly referred to as a fuse box. It is used to control and distribute electricity around the home. It usually contains a main switch, fuses or circuit breakers and one or more residual current devices.



Distribution board	An assembly containing switching or protective devices (e.g. fuses, circuit-breakers, residual current operated devices) associated with one or more outgoing circuits fed from one or more incoming circuits, together with terminals for the neutral and protective circuit conductors. It may also include signalling and other control devices. Means of isolation may be included in the board or may be provided separately.
EICR	Stands for 'Electrical Installation Condition Report'. This is a report to establish the overall condition and safety of all the electrics in a building, stating whether it is satisfactory for continued use and detailing any work that might need to be done. This was formerly known as a Periodic Inspection Report (PIR).
Electrical burns	A burn that results from electricity passing through the body and causing rapid injury. In minor cases, they cause damage to the surface area of the body, but can also damage tissues deeper underneath the skin. In serious cases, electricity can cause damage to internal organs, such as the brain and heart.
Electrical fires	Electrical fires are fires involving potentially energised electrical equipment. This type of fire may be caused by short-circuiting machinery or overloaded electrical cables.
Electrical installation	Comprises all the fixed electrical equipment that is supplied through the electricity supply. It includes the cables that are usually hidden in the walls and ceilings, accessories (such as sockets, switches and light fittings), and the consumer unit (fuse box) that contains all the fuses, circuit-breakers and residual current devices (RCDs).
Electric shock	When contact is made between a body part (skin, muscles or hair) with a source of electricity of sufficient current it can cause injury. Very small currents can be imperceptible. Larger current passing through the body may make it impossible for a shock victim to let go of an energised object and can create damage to tissues and even cause the heart to stop.
Electrocution	Death caused by an electric shock is called electrocution.
Feed-In-Tariff (FiT)	Introduced by the government on 1st April 2010, the FiT scheme pays householders for all the electricity that they generate from a renewable source. They receive a tariff for every unit of energy they generate, regardless of whether they use the energy or sell it back to the National Grid. Electricity generating renewable technologies include solar PV, micro wind and micro hydro.



Lighting controls	Lighting controls allow a lighting system to be operated through a touch screen console. They allow any light or group of lights to be operated or programmed from a single user interface.
Low energy lighting	Low energy lighting is an energy efficient alternative to traditional incandescent, tungsten, or filament light bulbs. There are a number of different kinds of low energy light bulbs available including compact fluorescent lights (CFLs) and LEDs.
Microgeneration	Microgeneration is the production of zero or low carbon electricity or heating. This essentially means the production of power on a micro, rather than industrial, scale to a domestic property by means of a renewable energy source.
Overcurrent	Electrical current (in amps) that exceeds the maximum limit of a circuit. May result in a risk of fire or shock from insulation damaged from heat generated by an overcurrent condition.
Partial re-wire	A situation where it is not possible or necessary to fully re-wire all of the electrics in a home. This option may be desirable when existing cabling is still suitable for continued use (as it will minimise the degree of damage and disruption). Or can arise where only a part of the electrics has suffered damage from a burst water pipe or similar. If an electrician offers this as an option, it is important that the householder agrees and understands exactly what is, and is not, being done before the work starts.
PAT - Portable Appliance Testing	Inspection and testing of electrical equipment, including portable appliances, moveable equipment, hand held appliances, fixed equipment/appliances, IT equipment and extension leads.
PIR - Periodic Inspection Report	Now called an Electrical Installation Condition Report. See 'EICR'.
PLI - Public Liability Insurance	Householders should check that their electrician has public liability insurance, which covers them if someone is accidentally injured by or if they damage your property whilst working. The cover should include any legal fees and expenses which result from any claim by the householder. Householders looking to employ electricians to undertake electrical work on their homes should ensure that the electrician has suitable cover - minimum recommendation is £2 million.
Portable equipment	Electrical equipment which is less than 18 kg in mass and is intended to be moved while in operation or which can easily be moved from one place to another, such as a toaster, food mixer, vacuum cleaner or fan heater.



RCD - Residual Current Device	An RCD is a life-saving device which is designed to prevent householders from getting a fatal electric shock if they touch something live, such as a bare wire. It is a sensitive switching device that trips a circuit when an earth fault is detected. RCD protection is particularly important for socket circuits that may be used to supply portable equipment for use outdoors and provides a level of protection that ordinary fuses or circuit breakers cannot.
Registered electrician	An electrician who is registered with a government-approved electrical scheme or who is working directly under the supervision of an organisation registered with a government approved electrical scheme (such as NICEIC).
Renewable energy	Renewable energy comes from natural resources such as sunlight, wind, rain, tides and geothermal heat, all of which can be naturally replenished. Electricity-generating renewable technologies include solar photovoltaic (PV), micro wind turbines and micro hydro water power. Heat-generating technologies include solar thermal hot water, biomass boilers and heat pumps.
Re-wire	A situation where all parts of the electrics - cables, circuits and accessories - are installed as new. However, some items such as switches and light fittings may be re-used and the electrician may wish to re-use a part of the wiring that is electrically sound, in order to avoid damage or disruption to the property. It is important that the householder agrees and understands exactly what is, and is not, being done before the work starts.
Scottish Building Standards	Local Authorities administer the Building Standards system in Scotland and are responsible for granting permission for work to be done (Building Warrant) and for a completed building to be occupied (Completion Certificate).
Volt	A unit for electric potential (voltage), electric potential difference and electromotive force. The volt is named after the Italian physicist Alessandro Volta, who invented the first chemical battery.
Watt	A unit of power (one joule per second), named after the Scottish engineer James Watt, which measures the rate of energy transfer. A typical household incandescent light bulb has a power rating of 25 to 100 watts.



FREQUENTLY ASKED QUESTIONS

Q1: How can healthcare organisations ensure that the electrics in their buildings are safe?

A1: Every electrical installation deteriorates with use and age. Your organisation may be putting tenants, employees or the public at risk if the electrical installation is not in a safe and serviceable condition.

An Electrical Installation Condition Report (EICR) is like an 'MOT of the electrics' in a property. An electrician will check the condition of an existing electrical installation against BS 7671, the UK Standard for the safety of electrical installations and then issue the property owner with an EICR.

An EICR should identify:

- electrical circuits or equipment which are overloaded
- potential electric shock risks and fire hazards
- any lack of earthing or bonding
- any defective electrical work

Tests are also carried out on the installation to check that it is safe.

Q2: Who can healthcare organisations contact to get an EICR carried out?

A2: Only NICEIC Approved Contractors have been assessed under scheme rules to carry out EICR's and a list of Approved Contractors can be found on our website niceic.com.

Q3: How often should an EICR be carried out?

A3: The frequency of an electrical inspection and test really depends on factors such as the type of installation and how it is used and maintained. For domestic properties, it is recommended that one is carried out by an NICEIC electrician every 5 years or at change of occupancy.

However, regular visual checks should be carried out every 6 months for signs that the electrics are still safe. The visual check should include ensuring that there are no burnt, broken or missing switches or sockets, no accessible live parts and no signs of scorching or burning on electrical equipment.

Q4: Who should carry out new electrical work in a non-domestic property?

A4: It is important that any electrical installation work is carried out by a competent person. That means people who have the knowledge, skills and experience needed to avoid dangers to themselves and others that electricity can create.

Our recommendation is that an NICEIC registered contractor is appointed to carry out the electrical work.

Q5: Why should healthcare organisations use an NICEIC Approved Contractor?

A5: The niceic.com website is a one-stop shop to search for a local registered electrician. Over 900 contractors registered with NICEIC are listed and all have been assessed against rigorous technical standards.

We look at a representative sample of the contractor's work, their premises, documentation, equipment and the competence of their key supervisory staff. Once contractors are listed with us, they are re-assessed on an annual basis to ensure high standards.

Registration is voluntary, but electrical contractors who are conscientious about the service they offer would consider it a priority to register. We also operate an independent complaints procedure. If the electrical work of a registered contractor is found to be below the accepted technical standard, we require the contractor to correct the work.

As part of the NICEIC complaints process, we offer a Platinum Promise that protects householders and organisations should installation work undertaken by a NICEIC registered company fail to meet the required building regulations or installation standards.

NICEIC will support the complainant through the resolution process to ensure that the installation is right. If the NICEIC registered company is no longer able to rectify work that is unsafe, or does not meet the required regulations, NICEIC will commission remedial work to make the work compliant using an alternative contractor up to the maximum value of £25,000.



OUR AIM IS TO PROTECT EVERYONE WHO USES ELECTRICITY FROM UNSAFE ELECTRICAL INSTALLATIONS. TO ACHIEVE THIS, WE MAINTAIN A REGISTER OF COMPETENT ELECTRICAL CONTRACTORS, ASSESSED BY NICEIC.

IN ADDITION TO OUR CERTIFICATION SERVICES, EACH YEAR WE ALSO:



SUPPORT OVER 480,000 CONSUMERS IN FINDING A CONTRACTOR



COVER OVER 10,000 BUSINESSES WITH TAILORED INSURANCE POLICIES



TRAIN OVER 4,000 CONTRACTORS



PROVIDE OVER 20,000 COPIES OF THE WIRING REGULATIONS



ISSUE OVER 1,000,000 CERTIFICATES



ASSIST WITH OVER 60,000 TECHNICAL QUERIES THROUGH OUR HELPLINE



WELCOME 2,000 CONTRACTORS TO EVENTS

Visit niceicotland.com to find a local registered electrical contractor in Scotland. There are over 900 electrical contracting businesses to choose from. All are assessed against rigorous technical standards on an annual basis.



NICEIC IN SCOTLAND

NICEIC REGISTERED CONTRACTORS ARE TRUSTED AND SPECIFIED BY THE ESTATE AND FACILITIES MANAGERS OF HUNDREDS OF SCOTLAND'S MOST IMPORTANT BUSINESSES AND INSTITUTIONS. AS SUCH, MANY OF SCOTLAND'S MOST ICONIC BUILDINGS HAVE BEEN INSTALLED AND MAINTAINED BY NICEIC REGISTERED ELECTRICAL CONTRACTORS.



NORTH SEA OIL RIGS



THE FALKIRK WHEEL



SCOTTISH PARLIAMENT BUILDING



HAMPDEN PARK



GLASGOW 2014 COMMONWEALTH GAMES



FIND AN NICEIC ELECTRICIAN

ALWAYS USE ELECTRICAL CONTRACTORS THAT ARE REGISTERED WITH NICEIC.



To find an electrical contractor in your client's region visit
NICEICSCOTLAND.COM

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All parties must rely on their own skill and judgement when making use of it.

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THE POWER BEHIND YOUR BUSINESS

