

# Electrical Safety at Events

## Bristol City Council

### Highway Electrical Asset Team



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## Introduction

The Highway Electrical Asset Team are a team of staff responsible for electrical compliance on street/off street on land managed or owned by Bristol City Council.

The team are the authorities overseeing electrical experts, ensuring electrical circuits, electrical infrastructure are safe and compliant with the relevant recommendations, standard and acts.

The Compliance and Delivery sections of the Highway Electrical Team will both be directly involved with electrical installation and will be responsible for overseeing the approval process, the installation process and energising of the power supplies.

Further details of the team and organogram can be found in **Appendix "A"**

The team will be responsible for providing previous electrical testing information, specific electric supply characteristics and details of existing power supplies and any limitations associated with the supplies.

The Highway Electrical Asset Team will be responsible for issuing permits to work and signing off any proposals.

## The Law

All employers have a legal duty to ensure that working environments are electrically safe (Electricity at Work Regulations 1989; 'EaWR'). They also have a duty to ensure that the equipment used in the workplace is electrically safe as well (Provision and Use of Work Equipment Regulations 1998, 'PUWER').

In essence, PUWER requires us to inspect work equipment regularly to make sure it is safe to use, and this is where the concept of 'portable appliance testing' (more colloquially known as 'PAT Testing') stems from.

The EaWR is concerned with the electrical system as a whole, which includes the distribution cables and boxes as well as the equipment connected to it. It requires the system to be designed and installed by competent people and for it to protect against the hazards that electricity can create

British Standard BS 7671 is the principle guide to electrical safety in the UK. It is better known as the IET Wiring Regulations, currently in its 18<sup>th</sup> edition amendment II (and often referred to as such). The Health and Safety Executive holds BS 7671 in high regard, to the extent that it has written an endorsement in the introduction which states that installations that comply with BS 7671 are likely to enable the requirements of the EaWR to be met.

BS 7671 does invoke the use of other standards which may have to be used alongside it. In this context the most relevant is BS 7909 which is a guide for temporary power systems at events. So to comply with the IET Wiring Regulations at an event, BS 7909 has to be complied with too. By inference both standards are therefore required to enable compliance with the EaWR. Both are also listed in the Memorandum of Guidance on the EaWR published by the HSE.

BS 7909 deals specifically with the setting up, management and some related technical issues for the temporary electrical systems used at events. Events usually include (but not exclusively) festivals, location filming, agricultural shows, TV OBs, theatre, sporting events, pageants and so on.

## Temporary Electrical Installation

Although BS 7671 is concerned with ‘electrical installations’ it calls any assembly of electrical equipment an ‘installation’, whether temporary or permanent. If it is temporary, it is designed for a particular purpose and will be removed when no longer required for that purpose. That purpose may be a one-off gig, a film shoot, a winter ice-rink or a summer festival. There is no defined period of how long *temporary* may be. It’s better to consider it as not being *permanent*.

Equally it is important to note that BS 7909 applies to systems of a ‘plug’n’play’ nature, where all the distribution equipment and cables are ready made and the whole system can (largely) be assembled without the use of tools. If it is being manufactured from scratch then BS 7671 only applies, but most event companies only use pre-assembled and tested stock distribution equipment so BS 7909 would more often than not apply. Also note that BS 7671 has particular requirements for fairgrounds and exhibitions which are not covered by BS 7909 specifically.

***So it doesn’t matter whether the power comes from a generator or a building, the event is indoors, outdoors or in a marquee. If the intention is to remove it at some point, it’s temporary.***

## BS7909

It is a recommendation that any engaged in electrical activities classed as “Temporary “ refer to the current IET publication “**Practitioners Guide to Temporary Power Supplies**”.



BS7909 essentially requires events to design their systems in accordance with the Wiring Regulations; i.e. to ensure systems work effectively and protect against the risks of shock and fire. A main focus is on management of the event and it tries to help contextualise the requirements of the Management of Health and Safety at Work Regulations 1999. It requires the event manager (which may be a promoter, event manager, producer, production manager etc) to appoint someone electrically competent to oversee the electrical system. Under BS 7909, this person is called the ‘Senior Person Responsible’ (SPR). Bristol City Council will require the event to provide details of the SPR and the SPR will require approval by Bristol City Council prior to any event being allowed temporary electrical power supply certification as defined in this document and appendices.

The standard also splits electrical distributions into two categories; ‘small/simple’ systems and ‘large/complex’. The guideline is that anything under 6kVA (typically the same as 6kW worth of power, equivalent to around three kettles) is classed in the small/simple category.

In **Appendix “B”** of this document are specific documents referring to each type of supply, please ensure and submission includes the level of information as per these Specification documents, depending on supply size.

The key to the application of the small/simple category is that it is simple and typically used within a building - the supply would usually be derived from the ordinary sockets on the wall. There won't be much equipment – examples may be small press conferences, indoor display stands or filmed interviews. It also allows for the SPR to be an instructed person who has been directed in the use of a simple plug-in tester, but who may not be electrically skilled. There are no requirements for completion documentation, but PAT records for equipment must be checked and the supply verified. This information must be approved by the Highway Electrical Asset Team prior to energising any supply. A licence will be granted by the Highway Electrical Asset Team if all the requirements are satisfied.

Anything else that doesn't fit into that classification is considered large/complex. That may include relatively small systems but which are run from a generator, or extension leads taken from a building to deliver power to an outdoor event. All of these situations require someone electrically skilled to assess the additional risks and put in suitable protection methods.

Large systems need a bit of planning and should be designed and tested. The testing need not be done on every circuit, the designer just needs to ensure that the protective measures will work effectively for the supplies used. Documents showing that the system has been designed and checked need to be completed (called 'completion certificates') and copies should be given to the person ordering the work as well as the property/venue owner if requested.

## Bristol City Council Power Supplies

Bristol has a variety of power supplies available, some of which are suitable for events electrical power supplies. However, not all power supplies on street can be used for event power and any event must first liaise with the Highway Electrical Asset Team in relation to the potential use of power supplies already on site.

There are a large number of 16A and 32A Commando sockets installed on lighting columns and buildings around the city. These power supplies are for festive decorations only and cannot be used to power any event unless permission has been given and a licence issued specifically stating these power supplies can be used.

Although the sockets are rated at 16A and 32A the actual power available at the sockets will be much less, in most cases 6-10A maximum.

Lighting column power supplies are predominantly fed via a National Grid owned un metered power supply and therefore power consumption cannot be determined when using non predicted electrical usage, such as events. Un metered power supplies cannot be used to power events unless the event organiser has permission from National Grid and has a way of recording and paying for the power consumed at the agreed KWH rate.

Information relating to specific event power supplies can be found in **Appendix “C”** of this specification and any designs submitted by the event must include specific power requirements.

## Private Power Supplies

Certain events will utilise power supplies from privately owned building and not in the ownership of Bristol City Council. If the power supplies are overhanging, trailing across the adoptable highway or electrically powering equipment interacting in the public domain, then the event organiser will be required to ensure these power supplies are included in the submission and subject to this Specification, licence agreement and provide the information requested as per this Specification.

## Permit to Work

Bristol City Council operates a permit to work for all electrical connections made to power supplies owned and or maintained by Bristol City Council. The permit will act as an official document, which, along with the licence will enable the permit holder access to the Bristol City Council Power Supplies. The permit will only be granted to the SPR (Senior Responsible Person) and only when a licence has been granted and only when the Highway Electrical Asset Team are satisfied the installation and those working on the installation are compliant.

## Event Access

The event organisers must allow The Highway Electrical Asset Team access to the event, specifically areas where there are electrical supplies or infrastructure relating to the electrical network. There will be no limitations to access and access will be required at various stage of the event.

- a. Initial construction phase
- b. Pre event switch on
- c. Event live
- d. Decommissioning and switch off

Emergency Access to Bristol City Councils Term Electrical Contractors must be facilitated by the event, should there be a need for their presence onsite.

Access is required to monitor the event, carry out 3<sup>rd</sup> party site inspections, carry out random visual inspections of the installation at any stage of the event.

## Resilience Planning

Power supplies and distribution systems will usually be required to perform some level in any reliance plan. When the operator is designing the electrical scheme the following should be considered and details included with the submission package as detailed in section???

- a. separate circuits for emergency lighting;
- b. redundant or back up power supplies for public address (PA) systems and video screens;
- c. UPS for critical loads such as radio communication base station or weather monitoring equipment;
- d. Back-up supplies and equipment following a lightning strike
- e. The risk of supply failure (for example through generator fire)

## Third Parties

There are scenarios where third parties are connecting into the event power supplies, such as, but not limited to food vendors or street traders. Any third parties will be subject to this specification and any electrical equipment being used must have the necessary certification. It is the responsibility of the SPR to ensure all of documentation and testing information for the third party is in date and valid. This information wherever practicable must be included with the submission. Where it is not practicable at submission stage, the SPR must provide the information before the 3<sup>rd</sup> Party connects to any power supplies.

## Structures

Any electrical equipment classed as a structure be it minor or major, must be submitted to the structures team for approval. The Highway Electrical Asset Team can direct applicants to the structures team and then the event organiser can liaise direct with the team.

## Licence Application

All events requiring electrical power supplies must be licenced by Bristol City Council and must comply with this Specification.

The licence is to ensure all the requirements of

### A brief summary

1. Details of the nominated SPR, supporting competencies and qualifications relating to the person(s).
2. Details of the contractor engaged in the electrical work, copies of competencies, insurances, RAMS.
3. Event Brief- location Plan/duration of event/electrical supply requirements/back-up generators etc.
4. Electrical Loads/Power per connection point.
5. Event electrical designs as per BS7909.
6. Event specific electrical plan and equipment details.
7. Electrical risk assessments and method statements, factoring in safety of Bristol City Council Staff and property.
8. PAT tests (if applicable).
9. Event electrical completion certificate (prior to public access and before the event can be energised for the public).
10. Third Party information (food vendors etc).

**Note: While Bristol City Council will endeavour to facilitate events, If the competent officer is not on possession of all the information No licence will be granted and connections or the energisation of any electrical supplies will not be permitted until the required information is received and approved.**

## Licence Application Timings

Events are encouraged to consult with the Highway Electrical Asset Team as soon as possible in order to reduce any delays. It is very difficult to estimate the lead times required to evaluate applications, as the complexity of the application will dictate the time.

Please be aware the Highway Electrical Team has a high volume of work and the current minimum lead time from receipt of application to approval stage is currently 4-6 weeks. However, the application process is dependent on the size, complexity of the event and the quality of the information that has been submitted with the application.

## Pre Start Meeting

On granting the licence the Highway Electrical Asset Team will require a pre start meeting with the nominated SPR and any electrical contractor or persons engaged in the event electrical works. The meeting will be a chance for the various parties discuss the event electrical requirements in specific detail and arrange any inspection regimes, site access etc. This meeting may also give the opportunity for both parties to inspect the BCC onsite supplies (if not already done pre application) and determine connection into the supplies and how the connections are managed, maintained and monitored.



## Appendices

## Appendix A (Highway Electrical Asset Team)

## Appendix B (Temporary Electrical Specifications)

## Appendix C (Bristol City Council Power Supplies)