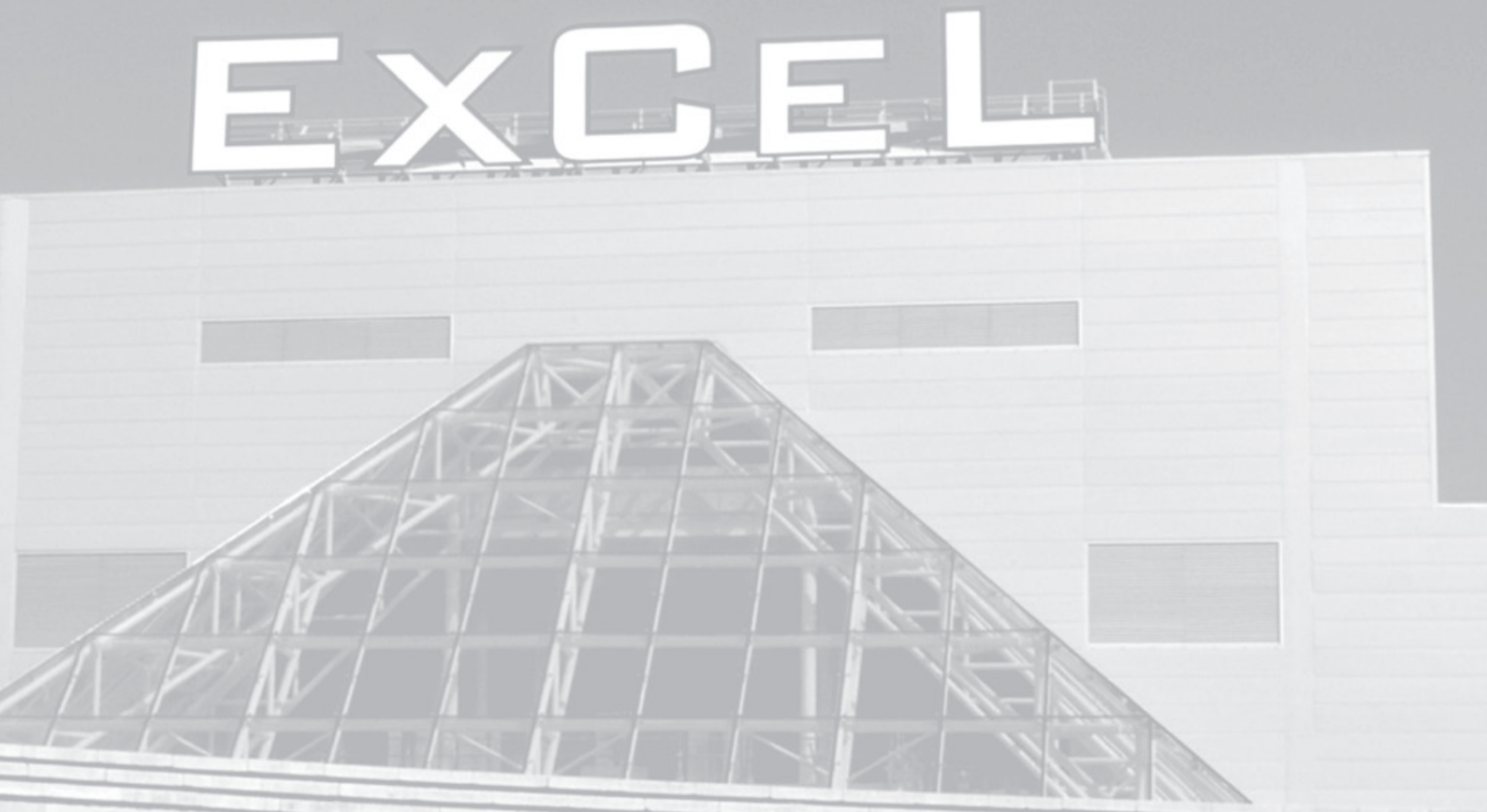
PLANNING, DESIGNING

&

CONSTRUCTING

YOUR EXHIBITION



TECHNICAL REGULATIONS

July 2009

EXCEL
LONDON
An ADNEC Group Company

Table of Contents

1 Compressed Air

The compressed air supply is through a flexible hose and can be terminated with either a 0.75" BSP Isolating valve, a 0.75" BSP Isolating valve with 0.5" reducer or a 1" BSP Isolating Valve.

The compressed air supply is usually maintained at a pressure between 5 and 6 bar (75-90 psi) subject to normal control fluctuation.

The maximum capacity of a supply is 6 litres per second (80 cubic feet per minute) of free air.

The compressed air supply is of industrial quality containing normal levels of contamination from oil, water and particulate matter. Users requiring pure compressed air shall supply their own filtering, drying and regulating equipment to obtain the quality of air required.

An adequately trained person must be designated responsible for the proper operation of all machinery and equipment powered by compressed air.

Exhibitors must ensure that only trained operators operate machinery and equipment powered by compressed air.

All machinery and equipment powered by compressed air must have the appropriate BS /CE label attached.

The use of rigid plastic pipe work shall not be permitted. Stand installations shall be made using metal pipe work or flexible plastic/nylon hose.

All pipe work used in the installations shall be suitable for the operating pressure of the mains service for which it is to be used.

2. Electrical Power Requirements & Regulations for Stand Installations

Conditions

Regulations

All electrical installations on stands, features, displays or exhibits shall comply with:

Health and Safety at Work
The Health and Safety at Work, etc., Act
The Electricity at Work Regulations
The Management of H&S at Work Regulations

Association of Event Venues & Association of Exhibition Contractors
The "Association of Event Venues & Event Supplier & Services Association "Regulations for Stand Electrical Installations" contained herein.

UK Electrical Supplies

For non-standard voltage and frequencies, the client may be allowed to bring suitable voltage transformers and frequency converters if written permission is given by the venues approved person.

ExCeL will not supply electricity to any installation, which does not comply with these regulations or requirements.

3. Electrical Power Requirements

The majority of the electrical power requirements at ExCeL are taken from the service subways that are situated below the exhibition floor. The power is then run up into the floor duct and then distributed onto the exhibition floor.

Cable size

Power cables for supplies up to 63 amp three phase will normally be run in a round profile 30mm flexible cable, but in some circumstances where the cable is required to run across the floor of the stand with no other way of avoiding the tripping hazard, the round cable can be replaced with a flat profile cable 10mm x 40mm to run under the carpet. We only have limited supplies of flat cable and they will be shared proportionately between events that have simultaneous tenancy.

The licensors engineers or representatives will only energise each supply after the installation has undergone the Inspection and Testing procedure as laid down in the ExCeL Rules & Regulations.

Under normal circumstances the power supplies are energised at 08.00 each morning of the show open days until half an hour after the show closing time, unless otherwise agreed with the organiser.

4. Competency

Types	Can do	Specific information needed
Electrician	Installation, testing, labour control, fault finding	**Qualified to the standard of City and Guilds 2360 part 1 and part 2; City and Guilds 2330 part 1 and part 2 or equivalent**
Competent Person	Installation	**Qualified by training and experience having worked in the exhibition electrical industry for at least 5 years, and be able to prove this via provision of a reference from a ESSA/AEV Technical Committee member or AEV/ESSA Board Member, or, possession of professional card such as JIB card, or others as stipulated by ESSA/AEV Technical Committee**
Mates	Wirer, helper	Always under supervision, working with a competent person or electrician
Apprentice	Undergoing educational training	Never works unsupervised
Labourer	Can mechanically fix, no part of the wiring process	Never works unsupervised

5. Testing

5.1 Stand Installations

It is the responsibility of the person undertaking the electrical installation to carry out the appropriate inspection and testing to verify compliance with these regulations upon completion of the installation. The person undertaking the testing and inspection must be a competent person.

Upon satisfactory testing and inspection, the competent person must sign and submit a Connection and Energisation Form to the venue mains installer (Sample of the form is attached).

Once the Venue Mains Installer has received the signed form from the electrical installers competent person the venue mains installer will after a visual check energise the system.

Venue printed forms only to be submitted: a photocopy will not be accepted.

Where found to be satisfactory the supply will be connected to the electricity supply and energised. If the an installation is found to be unsatisfactory, the supply will not be connected and the Venue will advise the person responsible, who must rectify any faults and advise the venue when the installation is ready for re-inspecting by re-submission of the Connection and Energisation Form.

Re-Testing

Where stands are not complete and fail the test as a result of the installation not being finished, a charge will be made for re-testing.

Where stands fail the test, for whatever reason, more than twice, a charge will be made for re-testing.

ii. Modification or Addition to Stand Installations

If, after initial inspection and energising of mains supplies, modifications or additions are made to the stand installations, these must be recorded, tested and inspected by the competent person undertaking and notified to the venue.

iii. Appliances

It is the owner or user's responsibility to ensure that portable appliances are safe to be plugged into the electrical system. The event organising company must ensure that the product owner is aware that it is their responsibility to make certain their appliance is safe.

iv. Responsibility

The Venue will not accept responsibility for:

Delays

Delay in energising installations found unsatisfactory or where insufficient time has been allowed for testing.

Faults

Any faults discovered in installations after testing and energising by the Venues.

6. Floor Ducts and Service Tunnels under Hall Floors / Overhead Walkways

Exclusion

Ducts set into the floors of the Hall and the service tunnels under the floors of the Halls, where applicable, do not form part of the hired floor space. Access to and use of the floor ducts is limited to employees of the Venue, or contractors employed by the Venue, for the purpose of installing main supply cables and piped services.

ii. Limited Use

The Venue will consider limited use of the floor ducts, where applicable, for purposes other than those specified above, provided that the installation in the ducts is carried out by or under the supervision of the Venue's Mains Installer and that such use has been agreed in writing, prior to the commencement of the Licence Period.

iii. Access

No person shall enter the service tunnels, switch rooms or other service areas without permission in writing from the Venue's Mains Installer or his nominees.

7. Main Switchgear and Distribution

i. Block Mains

A single mains cable may be installed to supply a block of up to six adjoining stands. This approval will only be given where the electrical installation is on continuous walling on all stands within the block is the responsibility of a single contractor.

The crossing of gangways via fascia or floors with sub-mains shall be prohibited, unless where authorised by the Venue.

24 hour VENUE mains supplies shall NOT be used as Block Mains, unless authorised by the Venue.

Specialist exhibitions that necessitate 24 hour Block Mains will be considered for exemption from this ruling provided that suitable and sufficient risk assessments accompany the request which must be presented to the venue 4 weeks prior to the exhibition build up.

ii. Minimum Cable Size (Sub-Mains)

The minimum acceptable cable size (subject to 20A loading) for the wiring of block sub-main supplies shall be 2.5mm2.

iii. Isolation

Each mains supply shall have its own means of isolation.

Each of the stands on a block fed from a single supply shall have its own means of isolation situated in an accessible position on the stand.

iv. Location of Boards

Distribution boards and similar equipment shall be installed adjacent to the fused isolators provided by the Venue. The mounting board provided by the contractor for this equipment shall be of sufficient size to allow the fused isolator provided by the Venue to be fixed thereon. The distribution board shall be provided with suitable cable entry protection and tested prior to arrival on site.

Switch and fuse gear, motor controls, starters, etc., shall be readily accessible, suitably connected and out of reach of public gangways.

The electrical contractor responsible for the stand installation shall supply suitable cabling to connect his installation to the fused isolators on the main supply cables supplied by the Venue.

v. External Supplies

Supplies external to Halls shall generally be limited to a maximum rating of 100 amps 3 phase Neutral and Earth or 100 amps single phase Neutral and Earth.

Where circumstances dictate supplies exceeding 100 amps as absolutely essential, these will only be provided following full consultation with the Venue.

Earth leakage (RCD) protection of not more than 30 mA rating shall be provided (by the contractors) for all wiring beyond the termination point of the Venue's supply.

8. Earthing

i. Regulations and Codes of Practice

Metal conduit, metal casing of apparatus, frames of motors, etc., shall be efficiently bonded to earth using the earthing system provided within the Venue's permanent electrical distribution system. This Regulation shall apply to all matters covered by the British Standard 7671 (IEC 364) referred to in clause 1. Where separate special regulations and codes of practice have been prepared and approved by the Authorities (i.e., electrical installations in caravans, electro-medical equipment, "all insulated apparatus", and appliances which conform to the standards of double insulation) the current edition of these special regulations shall take precedence.

ii. Lighting Fittings

At every lighting point an earth terminal shall be provided and connected to the earth continuity conductor of the final sub-circuit.

iii. Metal Framework, etc.

Where the electrical bonding to earth of metal framed stands, metal water pipes, sinks and other items is necessary, this shall be to an earth conductor which terminates at the Venue's electrical supply. The bonding conductor shall have a minimum cross section area of $6mm^2$. Under no circumstances shall any of these items be used as the sole means of earthing an electrical installation.

Where block mains are employed on metal framed stands, the stand framework shall be bonded at the incoming main position and also at the termination point of every sub-main. The bonding conductor shall have a minimum cross section area of 6mm^2.

iv. Insulation Sleeving

Every earth continuity conductor shall, wherever exposed, including within all termination enclosures, be totally insulated using green and yellow PVC sleeving.

v. Use of Residual Current Devices (RCD's)

Final circuits rated up to 32A shall be provided with additional protection to reduce/control the risk of electric shock from direct contact by the fitting of an RCD with an operating current not exceeding 30mA and a tripping time not exceeding 40mS at 5IAN.

RCD's are considered as supplementary protective devices and should be installed in addition to an approved rated fuse or other excess current devices. RCD's shall be performance tested immediately before or at each show but not exceeded annually.

9. Electrical Wiring

Material Specification

Stand wiring may be Thermoplastic, elastomeric or other plastic sheathed cable, not less than 1.5mm^2 and cross sectional area and 300/500 volt grade, complying with the relevant and current British Standard and with a current density not exceeding that recommended in the relevant and current British Standard.

Flexible cables used for circuit wiring in approved manufactured systems, must also have a current density not exceeding that recommended in the relevant and current British Standard.

ii. Identification

Identification of all wiring shall be in accordance with the colour or numbering systems recommended by BS7671 (IEC364).

iii. Joints

Joints shall not be made in cables except where necessary as a connection to equipment/accessories. In such cases insulated screwed connection shall be used, and shall be enclosed in totally insulated enclosures.

iv. Metal Sheathed Cable

Location

Mineral insulated metal sheathed cable may be used in approved conditions and where it is not liable to mechanical damage.

Current Capacity

Current capacities must be in accordance with the "exposed to touch" conditions of BS7671 (IEC364). All joints, connections, terminations and fixings, etc., must be made using accessories, which are specifically designed for use with the type of cable installed.

v. Excess Current Protection

All circuits must be separately protected for excess current with fuses or other means of close excess current protection.

10. Lighting Circuits

i. Maximum Capacity

Lighting circuits, serving more than one fitting, shall not carry more than 1200 VA and all sections of the wiring system shall be capable of carrying its circuit full load current. Where discharge lighting is connected the appropriate reduction shall be made (normally to 800 VA). All apparatus over 1000 VA shall be individually fused.

ii. Mains Load

Where the lighting load to any stand or feature is in excess of 14000 VA, the circuit shall be arranged to be suitable for connection to a 3 phase supply with neutral and phase conductors being of equal size.

iii. Flexible Cords

Limitations

Flexible cords or cables used in approved manufactured systems for circuit wiring shall have a cross sectional area of not less than 1.5mm ² and comply with the relevant and current British Standard.

Construction

Flexible cords shall be of circular section, fully insulated and sheathed, and the only form of jointing shall be purpose made non-reversible flex connectors, being shrouded and having an earth terminal.

Length

For static appliances, flexible cords shall not exceed 2 metres in length and for mobile appliances (e.g., vacuum cleaners) the length shall be kept to a minimum.)

iv. Lampholders

Lampholders of lighting systems must have screw clamp or screw terminal connections between the conductors and the plungers of the lampholders. Lampholders using spikes for connections shall not be used.

v. Suspended Lighting Fittings

Suspended lighting fittings (other than single lamp pendants) shall be provided with adequate means of suspension independent of the electrical conductors. Heavy lighting fittings shall be provided with a secondary means of suspension.

11. Special Lighting Systems

i Track Lighting Systems

These may be used provided the track and all the accessories are of the same make, and also provided the loading on the system is compatible with the rating of the sub-circuit wiring and

fuse, and complies with the requirements of paragraph 6. Earthing and paragraph 11.1. Protection of Wiring.

ii Other Lighting Systems

Only systems designed and manufactured to suit their intended use shall be permitted and these must comply with paragraph 11.1. and all other aspects of the Regulations.

Where a system is wired in flexible cords and cables wholly or in part, an RCD of maximum rating of 30mA tripping current shall be installed at the source of the installation and fitted in an accessible position for switching, testing and resetting purposes. Suitable overcurrent protection must be provided as required under regulation 8.

iii Client's Own Equipment

Where "client's own" equipment is used this must comply with all regulations and is subject to testing and spot checks.

12. Separated extra low voltage lighting systems previously known as Safety Extra Low Voltage Lighting System

i Transformers

Multiple connection Separated Extra Low Voltage (SELV) Transformers shall be of Class II safety isolating type conforming to the relevant and current British Standard, or providing an equivalent degree of safety, having a fused primary connection. Every secondary connection shall be individually fused to its appropriate rating or shall be fitted with a manual re-set protective device approved by the Venues Engineer.

Transformers shall be clearly labelled indicating the precise details of any integral secondary circuit protective device: that they are manual re-set and shall include the rated transformer power output in VA.

ii Positioning

Particular care shall be taken when installing SELV transformers, which shall be fixed at high level, allowing adequate ventilation and access for testing/fuse replacement.

iii Cable Sizing

Selection of cabling for SELV circuits shall take into consideration both volt drop and current carrying restraints subject to a maximum volt drop on 12v supplies of 0.6 volts.

Cabling from SELV transformers supplying Extra Low Voltage track shall be of sufficient size for the full current rating of the transformer.

iv SELV Fitting

Shall comply fully with IEC598 and the relevant British Standard.

v Catenary/Uninsulated Pole Low Voltage Systems

The use of uninsulated catenary or uninsulated pole separated extra low voltage systems is prohibited.

vi Earthing of SELV Equipment

Secondary windings of SELV transformers, fittings and lighting track connected to same shall not be earthed.

vii Power Circuits

Circuits feeding 13 amp socket outlets shall be radials. Where there is more than one socket per circuit, maximum rating of over-current protective device shall be 16A amps. Total load shall not exceed 3000 watts and not more than 3 sockets shall be permitted on that circuit. A 30mA RCD protective device shall be fitted.

viii Coils/Reels of Flexible Cord/Cable

Coils of flexible cord or cable loose or on reels and forming part of the circuit shall not be permitted.

13. Protection of Wiring

i. Final Stand Wiring

All electrical wiring, where liable to mechanical damage or interference, shall be tough overall sheathed or armoured or enclosed in protective conduit, trunking or cladding. Conductive materials including flooring used to provide mechanical protection shall be efficiently continuously bonded to earth. Where tough overall sheathed cables are used without further protection, i.e., without armour or protective conduit trunking or cladding, such cables shall have stranded conductors and shall have a degree of flexibility.

A 30mA RCD must be fitted to final stand wiring circuits up to 32A.

ii. Temporary Supplies

The wiring of temporary supplies shall be subject to the requirements above. In circumstances where full mechanical protection is impracticable the supply may be provided if 30 mA RCD protection is installed.

14. Local Switches and Socket Outlets

i. Local Switches

Local switches shall be fixed out of reach of the public and shall be mounted and protected in a similar way to distribution fuse boards (Clause 04.c.).

ii. Socket Outlets

Construction

Socket outlets shall be of the switched type to BS 1363 (198A) of metal clad industrial type or suitable equivalent to BS 1363 (1995) for mechanical protection and be provided with suitable cable entry protection.

Location

Socket outlet enclosures shall be securely fixed to walls, partitioning or floors in such way that they shall not be subject to mechanical damage and shall be located not less than 2 metres (measured horizontally) from any sink unit. Suitable consideration must be given to the ingress of moisture. Wall sockets shall be a minimum of 300mm above floor or work surface level.

iii. Water Heaters

Water heaters shall be connected via fused spur outlets - NOT SOCKET OUTLETS.

iv. Floor Sockets

Where a floor mounted socket outlet is essential, it shall be adequately protected from the accidental ingress of water, and shall be of surface mounted pattern.

v. Plugs

Multiple Connections

Not more than one flexible cord shall be connected to one plug.

Fuses

The rating of fuses in fused plugs shall be appropriate for both the equipment and flexible cord connected thereto.

Non flexible cords shall not be connected into plugs

vi. Adaptors

Restrictions

Multi-way plug-in type and bayonet adaptors shall not be used.

Limitations on Use

The use of Trailing/Block type 4 way fused sockets shall be restricted to the following:

One 4 way unit per fixed socket outlet, subject to a maximum loading of 500 watts total and its plug shall be fused accordingly.

A maximum flexible cord length of 2 metres from plug to Trailing Block Unit.

15. Electric Motors

i. Isolators

Every motor shall be provided with an effective means of isolation on all poles and such isolators shall be adjacent to the motor which they control.

ii. Starting

Motors in excess of 7.5 kw (10 hp) shall be fitted with current limiting devices for starting, i.e., shall not be started “direct-on-line”. Where, however, the “direct-on- line” starting of a motor is essential to the satisfactory operation of the machine, details of such requirements shall be submitted in advance to the Venue for dispensation.

iii. Overload and No Volt Release

Every motor in excess of 0.375 kw (½ hp) shall be fitted with a starter having an overload release in each phase line.

Every motor shall be provided with a suitable means to prevent automatic restarting after a stoppage, due to a drop in voltage or a failure of the supply, where unexpected re-starting of the motor might cause danger.

16. Guarding Equipment

i. Electrical Equipment and Exhibits

Electrical equipment and exhibits shall be guarded as necessary to prevent accidental contact with live metal, moving parts, live terminals, etc., and accidental short circuiting.

ii. Conditions of Operation

Proper consideration shall be given to the conditions under which the equipment is being demonstrated, which may well differ from the conditions under which it is normally installed and for which the normal safeguards will no longer be appropriate.

iii. Lighting Fittings

Lighting fittings mounted below 2 metres from floor level or otherwise accessible to accidental contact shall be firmly and adequately fixed and so sited or guarded as to prevent risk of injury to persons or materials.

iv. Heat Generation

Incandescent lamps and other apparatus or appliances with high temperature surfaces shall, in addition to being suitably guarded, be arranged well away from combustible exhibits and in such a manner as would prevent contact therewith. Stands containing a concentration of electrical apparatus, lighting fittings or lamps liable to generate abnormal heat shall have well ventilated ceilings, which shall be made of incombustible materials.

17. Transformers and Frequency Converters

i. Step-up Transformers

Step-up transformers shall not be installed without the written permission of the Venue's Engineer. Where such permission is requested, drawings and full details shall be submitted at the time of application. Where, however, step-up transformers are used as an integral part of any electronic or similar apparatus, appliance or equipment, and providing the use of such step-up transformers conforms with the customary practice within a particular industry, or where the installation of the transformer conforms with the conditions of paragraph 18 below, no such permission will be required.

ii. Step-Down Transformers

Step-down transformers shall have separately wound primary and secondary windings. The iron core and frame shall be connected to earth. In addition to the normal fuse protection on the phase line(s) of the primary circuit, the secondary circuit shall be fitted with fuse protection in the phase line(s) and with three phase transformers, the neutral connected to earth.

iii. Auto-Transformers

Auto-transformers shall not be used, except as an integral part of motor starters, unless the written permission of the Venue has been obtained.

iv. Location

Transformers shall be placed in positions out of reach of the public and must be adequately ventilated.

v. Oil-Filled Transformers

Oil-filled transformers containing more than 20 litres of oil shall be mounted in a suitable catch-pit or tray capable of containing the entire quantity of oil plus a margin of 10%.

vi. Frequency Converters

The Venue shall be notified in advance of the intention to provide apparatus to convert the frequency of the electrical supply to any machine or exhibit.

18. Space for Working

Electrical apparatus (other than exhibits and portable equipment) shall be fixed in position with adequate space for operation and maintenance.

19. Chokes and Capacitors

i. Location

Choke and capacitor equipment for fluorescent lighting shall be fixed in accessible and well-ventilated positions away from combustible material and shall be spaced at least 10mm there from by an air gap or by non-combustible material.

ii. Connecting Wiring

Where choke and capacitor equipment for fluorescent lighting is not contained within the lighting fitting, any connecting wiring exceeding 1.0 metre in length shall be of PVC sheathed, PVC insulated flexible construction, placed well away from readily flammable articles and shall not be installed under flooring or in spaces enclosed by stand construction.

20. Lighting of Cages

Any artificial lighting of cages or enclosures for livestock shall be arranged outside the cages or enclosures and any heating shall be to the satisfaction of the relevant Authorities.

21. Lighting of Signs

Fixing

Electrically operated or illuminated signs shall not be fixed on woodwork or cloth unless effectively protected by non-combustible material.

ii. Construction and Wiring

Internally illuminated signs shall be constructed of approved materials and wired in approved type cables (not flexible cords), which are related to the expected internal ambient temperature and adequately ventilated.

iii. Location

Illuminated signs which in any way resemble exit notices and similar mandatory signs shall not be positioned in such a way as to cause confusion to the public.

22. Lighting of Showcases

i. Externally

Unless the exhibits are of an incombustible nature, showcases shall be illuminated from the outside only. A valid PAT test is required and the label clearly visible.

ii. Internally

Internally illuminated showcases shall be constructed of suitably approved materials and wired in approved type cables (not flexible cords) and adequately ventilated. The minimum c.s.a of the cable shall be 1.5mm^2. The units shall be fused at the correct current rating to protect cable and equipment.

23. Electrical Discharge Lamp Installations

Discharge tube signs or lamp installations used as illuminated units on stands, or as part of an exhibit, whether of high or low voltage operations, shall be regarded as high voltage for the purpose of these Regulations, and conform to the following conditions:

i. Location

The sign or lamp exhibit shall be installed out of reach of or shall be adequately protected from the public.

ii. Installation

Signs

The fascia or stand fitting material behind luminous signs of this nature shall be incombustible material and protected as required by BS7671 (IEC364).

High Voltage Gear

High voltage gear shall be mounted on incombustible material and protected as required by BS7671 (IEC364).

iii. Fireman's Switch

A separate electric circuit must be used to supply such signs or lamp exhibits, and shall be controlled by an approved pattern "Fireman's emergency switch" located in an accessible and visible position and labelled "Fireman's Switch" in a visible and fully accessible position in accordance with the Authority's requirements.

iv. Approval

The Venue shall be advised by persons responsible for installing this type of apparatus of their proposals prior to installation on site. No installation of this type will be permitted unless approved by the Venue's Engineer in writing.

24. Electrical Cookers, Kettles, Irons, Radiators, etc.

i. General

The use of radiators or heaters with exposed elements is not permitted. Any apparatus, which has a hot surface, and all electrical appliances such as electric kettles, radiators, irons, etc., shall be guarded where necessary and stood or mounted on incombustible material. All appliances under this heading which are liable to exceed a surface temperature of 70°C shall be supplied from a socket outlet having a pilot lamp indicating whether the appliance is switched on or not. Kettles, irons, radiators and similar appliances shall not be connected to the lighting circuit; they shall be separately connected to the electrical supply, or in accordance with paragraph 506k. Electric cookers shall be wired on an independently fused final sub-circuit complete with 30mA RCD protection. All equipment shall be PAT tested and labelled.

ii. Electric Kettles

Electric kettles shall be fitted with an automatic safety device whereby in the event of boiling dry the kettle will be automatically disconnected.

iii. Adjacent Construction

Walls adjacent to all electrical cookers, irons, kettles, hotplates, etc., shall be protected with non-combustible material. Shelves are not allowed immediately above any of the appliances, and adequate ventilation shall be provided.

25. Batteries

i. General

Charged batteries may only be exhibited as part of electric lighting, ignition or starting for motor vehicles, boat engines, small demonstration house lighting plants or other small working devices. No stand lighting shall be connected thereto. The use of approved purpose made self-contained secondary lighting fittings both of a maintained and non-maintained pattern will be permitted provided that they are connected to a 24 hour supply.

ii. Terminals

All terminals of charged batteries, whether in use or not, shall be fitted with a cover of non conducting incombustible material.

iii. Switches and Fuses

A double pole metal clad switch with suitable fuses shall be fitted and shall control all connections serving such appliances.

iv. Charging

Current Regulations
The battery charging unit shall be fitted with an automatic current regulator which cuts off the mains supply to the rectifier when the battery is fully charged, and is otherwise of an approved type.

Times for Charging
The battery shall not be charged on the stand except at times when the public is not in the Hall.

Charger Isolation
The circuit to the charger unit shall be directly connected to the Venue's supply with its own isolator, separate from all other circuits, to permit the isolation of these other circuits without affecting the charging circuit.

Enclosure
The vehicles or equipment and its charger must stand in a free and enclosed space, the battery box cover shall be removed and the gas vents of the cells shall be cleared and inspected daily.

No Smoking Signs
"No Smoking" signs shall be displayed in the vicinity of the charging operation.

v. Batteries Not in Use
Charged batteries not in use on exhibit vehicles or other exhibits shall be disconnected at both terminals.

26. Harmonic Distortion

The Venue's mains normally provide an acceptably "clean supply". No protection is incorporated in the mains to counteract interference produced by other exhibitor's equipment connected to the same source of supply. All sensitive/vulnerable equipment should be protected by filters etc.

Electrical equipment which produces harmonic distortion can cause problems for the local area supply board, the Venue, and other clients in the Hall. This equipment may only be used if adequate precautions and harmonic filters are used.

The customer's equipment shall not under any circumstances emit into the supply any currents in excess of the following:

Third harmonics in excess of 48A RMS and /or in excess of 15% of load current;
Fifth harmonics in excess of 28A RMS and no harmonic current emissions in excess of the recommendations given in the Electricity Association's Engineering Recommendations G5/4.

The VENUE reserves the right to:

Refuse to connect any suspect equipment and disconnect any known problem equipment.

Connect only via a physically separate supply (i.e. a generator)

Impose additional charges to cover the costs of remedial works, depending on the exact nature of the harmonics being produced by the load.

Recover any costs to repair damage to the VENUE's supply equipment or to others equipment.

27. Electro Magnetic Compatibility

Any electrical equipment radiating a magnetic field could cause problems for the Venue and other clients in the hall. This equipment may only be used if adequate precautions and suitable screening is provided.

Any extra costs involved to overcome the magnetic problems will be the responsibility of the installer.

Liability for any costs/damage to Venue's supply equipment or others equipment lies with the installer.

The Venue reserves the right to refuse to connect up any suspect equipment and disconnect any known problem equipment.

28. Mains Supply

i. Right of Supply
All current for consumption on the Premises, howsoever generated, shall be supplied by the Company.

ii. Standard Supplies
These comply with the EU Harmonized Voltage Band of + 10% and – 6%

Single phase 230v 50hz (216v to 253v)
Three phase 415v 50hz (376v to 440v)

All electrical appliances used by exhibitors must be compatible with standard UK voltage provided by the Venue, as to ensure safety in use.

iii. Separate Lighting and Machinery Mains
Separate mains shall be supplied by the Company for machinery and for lighting and small power.

iv. 24 Hour Supplies
24 hour supplies are available for any standard supplies during the open period and by arrangement for breakdown of an exhibition.

24 hour supplies cannot be guaranteed during build up.

v. "Clean" Supplies

The Company's mains normally provide an acceptably "clean" supply. No protection is incorporated in mains to counteract interference produced by other exhibitors' equipment connected to the same source of supply. All sensitive/vulnerable equipment should be protected by filters, etc.

vi. Non-Standard Supplies

Alternating current supplies which are non-standard in voltage, current or frequency and direct current supplies may be arranged on application to the Company.

vii. Load Limitation

The Company, at its own discretion, will limit the power rating of a supply or supplies where, in the Company's opinion, the load or combination of loads requested may have an adverse effect on the supplies to other exhibitors. Where it is proposed by the Organiser to group exhibitors demonstrating heavy current consuming machines in such a way as to cause an abnormal demand (i.e., in excess of 100 watts per square metre) in a particular section of the exhibition, the Organiser should discuss this arrangement with the Company prior to the final allocation of stand space to exhibitors and should endeavour to conform to any rearrangement required by the Company.

viii. Power Factor

The Company aims to achieve a minimum .9pf on site but is required by the Electricity Supply Authority to maintain a Power Factor of not less than 0.92 lagging. Where electrical machines or equipment at an exhibition are such that in the opinion of the Company the Power Factor is likely to fall below 0.92, Power Factor correction apparatus shall be supplied and installed by the person responsible for the electrical installation.

viiii. Correction Apparatus

Correction apparatus shall be connected on the "load" side of the main switches controlling the supply to the stand or individual piece of equipment. The scale of provision shall be that agreed by the Company.

ix. Notification

The Company will notify Organisers, within a reasonable time after it becomes apparent, of the likelihood of correction apparatus being required at the exhibition.

29. Main Supply Cables

i. Supply and Installation

All main supply cables from the Company's electrical distribution system to the point of supply, which may be either an exhibit, stand or group of stands, shall be supplied and installed by the Company.

ii. Termination

Each cable will be terminated with a fused isolator or circuit breaker supplied by the Company.

iii. Separate Lighting and Machinery Mains

Separate mains will be supplied for machinery from those used for the provision of lighting and small power. A machine is defined as a single item of plant or equipment, which could not be connected using a 13-amp socket or spur unit.

iv. Connection of Machinery to Lighting Mains

Connection of machinery to lighting mains will be permitted.

v. Connection of Lighting or Small Power to Machinery Mains

Connection of lighting or small power to machinery mains is prohibited. If any such connections are made, then the party responsible for placing the order for electrical supplies to that stand will be required to order and have installed an appropriate lighting main. Where this is not practical the stand will be subject to a surcharge equivalent to the late order cost of the lighting main which would otherwise have been installed.

vi. Proliferation of Mains Cables

Where installation of a number of small supplies would, in the opinion of the Company, lead to an unacceptable proliferation of mains cables, the Company may, at its discretion, either itself install a large main cable and provide the mains ordered by sub distribution within the block, or instruct the nominated electrical contractor that only a single main will be installed to the group of stands.

vii. Access for Installation

The main supply cables to stands or exhibits will be installed before or immediately after the starting date of the Licence Period, provided that the supply has been ordered from the Company by the agreed date (see paragraph 29.1 below). Before occupying the stand site, exhibitors and their contractors must check with the Company that the supply cables have been installed and, if not, shall only occupy areas of the stand site permitted by the Company until such time as the supply cables are installed.

30. Gas

Gas supplies are taken from the service subways that are situated below the exhibition floor. The gas pipe is then run up into the floor duct and then distributed onto the exhibition floor from the duct exit. The gas supply is through a flexible hose and terminated with a 1" BSP Isolating valve female.

Natural gas is supplied at a pressure of 22mm Hg or 12" Wg with a flow rate of 2.5 L/s or 300 c.f.h.

Any person carrying out work involving the installation, maintenance or checking of gas appliances (or associated fittings) must be competent under the Gas Safety (Installation and Use) Regulations 1998 (S.I 1998, No. 2451), reg.3. At the present time this requires Gas safe – registration.

31. Rigging

a. All Primary rigging at ExCeL when attaching to the permanent roof structure must be undertaken solely by the Company's appointed contractor.

b. Rigging orders will only be processed when the following information is provided with the order:

i. A fully dimensioned drawing.

ii. Weights.

iii. The dimensions of structure or banner to be hung.

iv. Orientation

c. All rigging and materials should be in accordance with ExCeLs Rigging Code of Practice.

d. Any required rigging will be subject to sufficient time being available to carry out such operations.

e. Rigging orders must be placed no less than 14 days prior to the tenancy.

f. Banners should be delivered to ExCeL Event Services no less than 3 days prior to the tenancy.

g. Rigging of banners etc above individual stands or secondary rigging of stand structures from the hall primary rigging points will be permitted, at the Licensee's discretion.

h. Perimeter wall sites and suspended sites will be available for promotional media opportunities, which can be booked through ExCeL Invision.

i. Licensees will be permitted to suspend feature banners or directional signage, subject to agreement with the Company.

j. Banners will only be de-rigged from the halls at the end of the tenancy period due to Health & Safety reasons.

k. Banners will be held by Melville Rigging for 10 working days for collection, after this time any remaining banners will be disposed of.

l. Roof Truss Loadings

Drawings are available on request; they indicate typical loading arrangements for the roof trusses. The drawings are accompanied by a schedule of allowable roof loadings.

These drawings are provided for indication only and any specific rigging requirements should be directed to Melville Rigging Dept.

32. Water and Waste

a. Water & waste supplies are taken from the service subways that are situated below the exhibition floor ducts. The water & waste pipes are then run up into the floor duct and then distributed onto the exhibition floor from the duct exit.

b. Domestic mains water is supplied through a 20mm pipe at a pressure of approximately 6 bar (90 psi) and can be terminated with either a 0.5" or 1" water cock. The maximum capacity from this supply is 0.3 litres per second (4 gallons per minute). Larger supplies are available by quotation.

c. Drainage is removed through a 2" hose with adequate capacity to accept the discharge from a standard water supply. Larger drains are available by quotation.

d. No mains water service will be connected to a stand, etc, unless a drainage system is installed on the same stand for the purpose of removing the water used.

e. Pipework used on water installations must be made of copper, approved plastic, polypropylene or rubber. Steel or galvanised pipework shall not be used.

f. Direct connections from the water mains service to a machine shall not be permitted unless a double check valve is fitted at the inlet to the machine. If requested, the Company will quote for the installation of the appropriate vacuum breaker.

g. All exhibits and ancillary equipment containing water shall be carefully drained down at the end of an exhibition, in such a way that water is not discharged onto the floor of the Halls. Any costs involved in dealing with water discharge onto the floors of the Halls, or into the service ducts, or any damage caused to mains services in the service ducts or tunnels under the Halls by the discharge of water, will be charged to the Licensee.

h. All pipework used in the installations shall be suitable for the operating pressure of the mains service for which it is to be used.

i. No paint, oils, fats, waste food, spirits, chemicals or other noxious substances shall be discharged into the drainage system. These materials shall be discharged into closed containers manufactured of material suitable for this purpose. Full details of wastes of these types are to be submitted to the Company who will make arrangements for their disposal at the cost of the exhibitor.

j. The cost of clearing or repairing the drainage system or making good any other damage caused by the stand effluent shall be the responsibility of the Licensee.

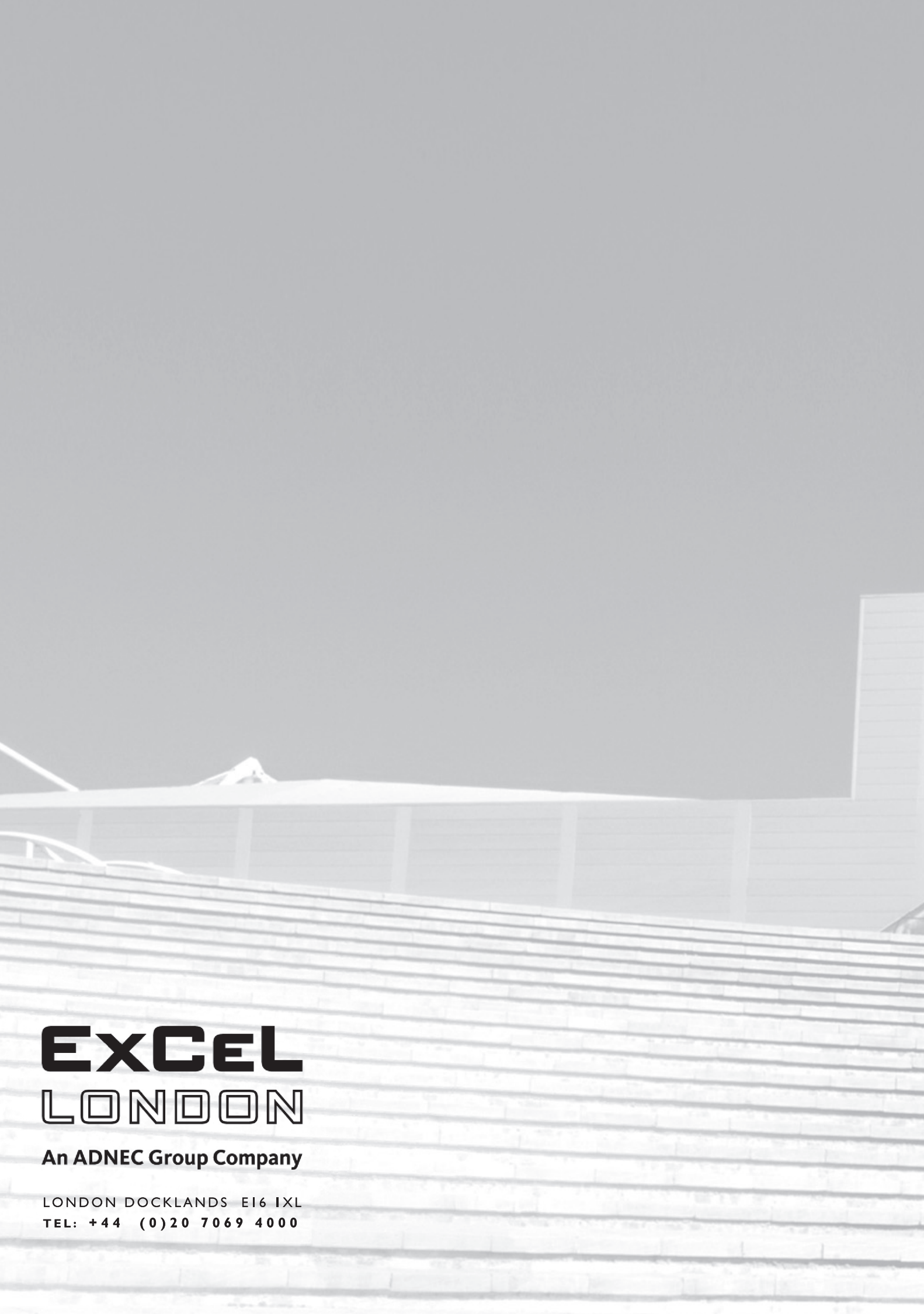
33. Bathing Pools, Ponds and other Large Vessels

a. Full details of all vessels containing 250 litres or more of water or other liquids are to be submitted to the Company for approval at least six weeks before the first day of the Licence Period.

b. All vessels of this type containing water are to be fitted with either a connection in the base to a waste pipe ordered from the Company or a suitable connection incorporating a pump connected to a waste pipe ordered from the Company. This is to ensure that means are always available to easily drain down the vessel in case of emergency and at the end of the exhibition.

c. The Company will undertake to fill and empty vessels by means other than piped water supply and drain where the construction of the vessels will not permit the fitting of pipework. The cost of such work will be charged to the Exhibitor.

d. Enquiries regarding the supply of water and draining down of vessels of any type must be made to the Company's at least six weeks before the start of the Licence Period. The Company will charge the applicant for the provision of this service, who will be advised of the cost before the work is put in hand.



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