

Special Locations – Part 7

Swimming pools, Garden Fountains



Special Locations 702: Swimming Pools

Scope: Man made designs

Swimming Pools,

Hot Tubs

Fountain basins

external shower areas

Check Equipment standards for further regulations

Not included: Utilized natural occurrences

Natural Waters

Gravel Pits

Lakes

Coastal Areas

Special Locations 702: Swimming Pools

Basic changes:

Zones A, B, C - now - 0, 1, 2

Expanded to include:

Paddling Pools

Hot Tubs

Garden Fountains

waterworks

Special Locations 702: Swimming pools

Swimming pool Zones

Dimensions in metres

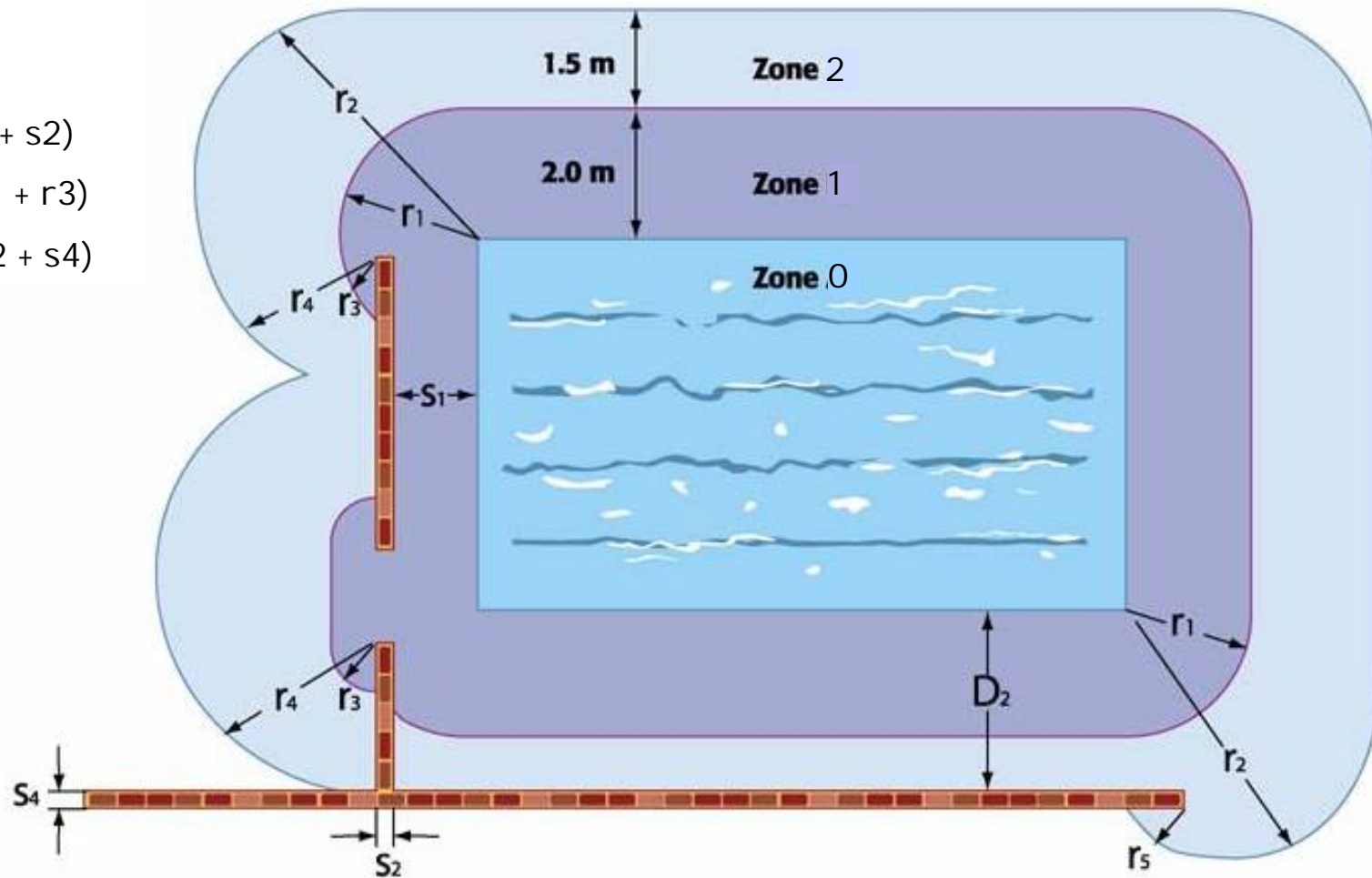
$$r1 = 2$$

$$r2 = 3.5$$

$$r3 = r1 - (s1 + s2)$$




$$r4 = r2 - (r1 + r3)$$

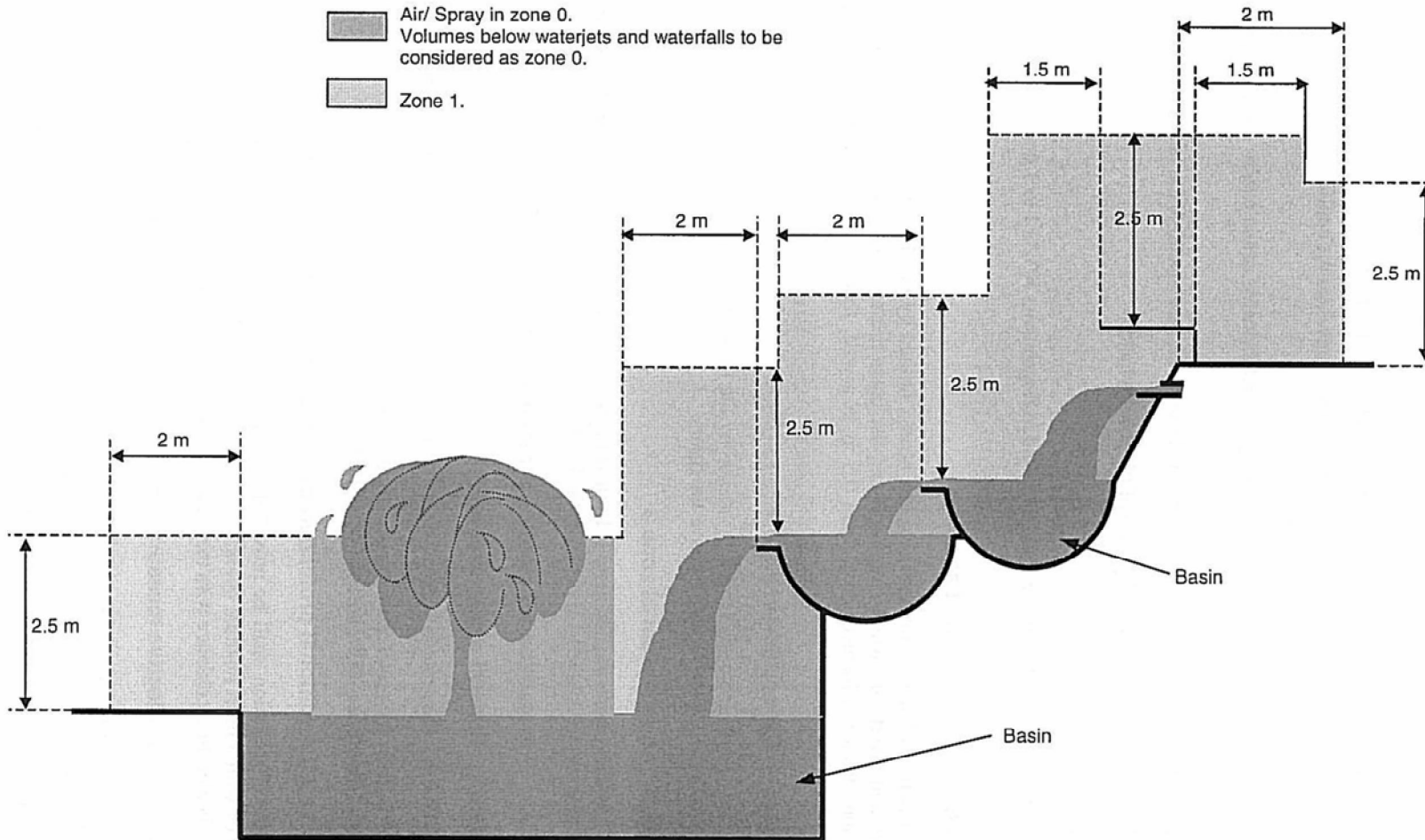
$$r5 = r2 - (D2 + s4)$$



Special Locations 702: Swimming pools

Swimming pool Zones

-  Water in zone 0.
Pool, basin, waterfall and fountain space.
-  Air/ Spray in zone 0.
Volumes below waterjets and waterfalls to be considered as zone 0.
-  Zone 1.



702 – Swimming Pools and Garden Fountains

Protection against electric shock

Swimming Pools: 702.410.3.4.1

Zone 0 = SELV \leq 12Vac

Zone 1 = SELV \leq 25Vac

The supply for the SELV must be installed outside the Zones

When people are not in Zone 0 - after usage

1. SELV
2. Automatic disconnection plus additional protection by RCD
3. Electrical Separation

Socket outlets and control supplying equipment requires a notice to warn persons not use the pool when equipment is in operation

Special Locations – Part 702

Protection against electric shock

Fountains: 702.410.3.4.2 and 702.410.3.4.3

Zones 0 and 1

SELV

Automatic Disconnection with RCD

Electrical Separation – supplying only 1 item of equipment

Zone 2

SELV

Automatic Disconnection of Supply with RCD ,

(Where PME is supplied then Use of Earth mat or electrode with resistance < 20 Ohms)

Electrical separation – supplying only 1 item of equipment

Special Locations – part 702

Additional Protection 702.411.3.3

Supplementary bonding to be applied to all extraneous conductive parts within zones 0, 1, 2

Extraneous to Exposed conductive parts

Proximity bonding is allowed (within local dist. Board or accessories)

Special Locations - 702

Swimming Pools:

Switchgear, control socket Outlets - 702.53

Zone 0 and 1 = none

Zone 2:

1. SELV (supply covered by RCD if installed within zone 2)
2. Automatic disconnection with RCD
3. Electrical Separation for one item of equipment

Socket Outlets or Switches **MAY** be installed within Zone 1 provided

1. 1.25 m from Zone 0
2. 0.3 m from FLL



Special Locations

Current using Equipment



702.55.1 Current-using equipment of swimming pools

In zones 0 or 1, it is only permitted to install fixed current-using equipment specifically designed for use in a swimming pool in accordance with the requirements of Regulations 702.55.2 and 702.55.4.

Equipment which is intended to be in operation only when people are outside zone 0 may be used in all zones provided that it is supplied by a circuit protected according to Regulation 702.410.3.4.

It is permitted to install an electric heating unit embedded in the floor, provided that it:

- (i) is protected by SELV or PELV (Section 414), the source of SELV or PELV being installed outside zones 0, 1 and 2. However, it is permitted to install the source of SELV or PELV in zone 2 if its supply circuit is protected by a residual current device with a rated residual operating current not exceeding 30 mA, or
- (ii) incorporates an earthed metallic sheath connected to the supplementary equipotential bonding specified in Regulation 702.411.3.3 and its supply circuit is additionally protected by a residual current device with a rated residual operating current not exceeding 30 mA, or
- (iii) is covered by an embedded earthed metallic grid connected to the supplementary equipotential bonding specified in Regulation 702.411.3.3 and its supply circuit is additionally protected by a residual current device with a rated residual operating current not exceeding 30 mA.



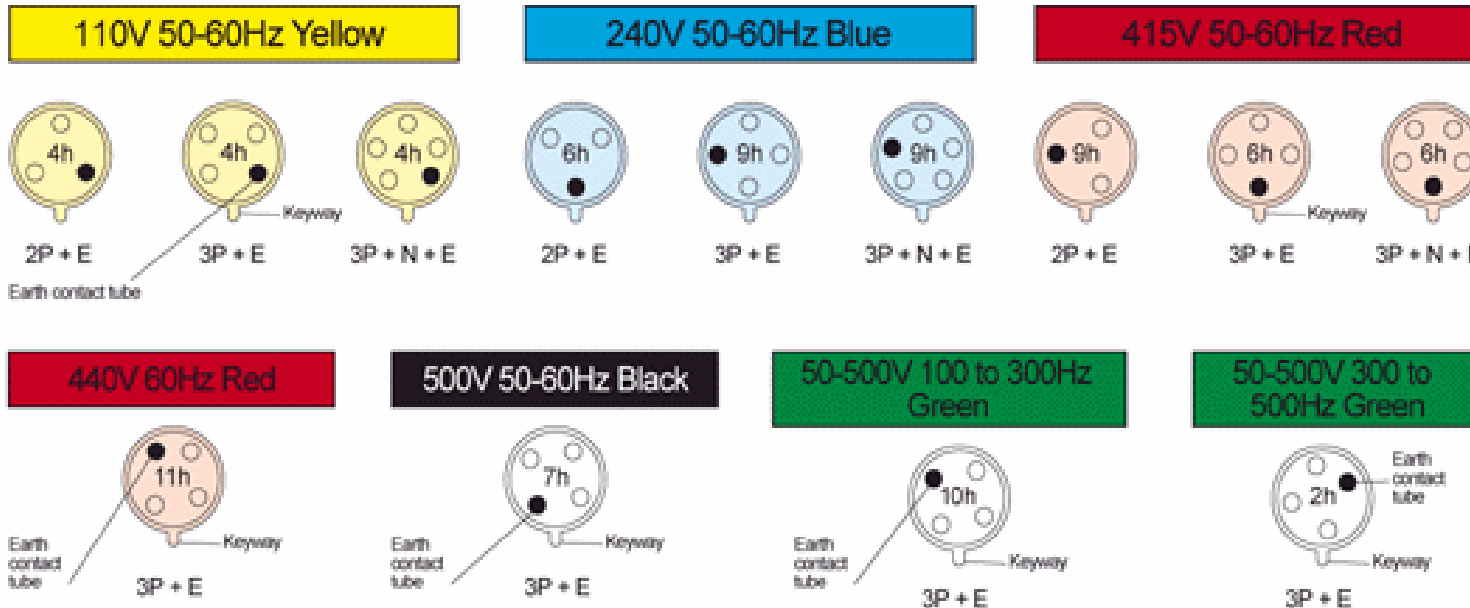
Special Locations - 702

702.55.4 – special requirements for equipment installed in Zone 1

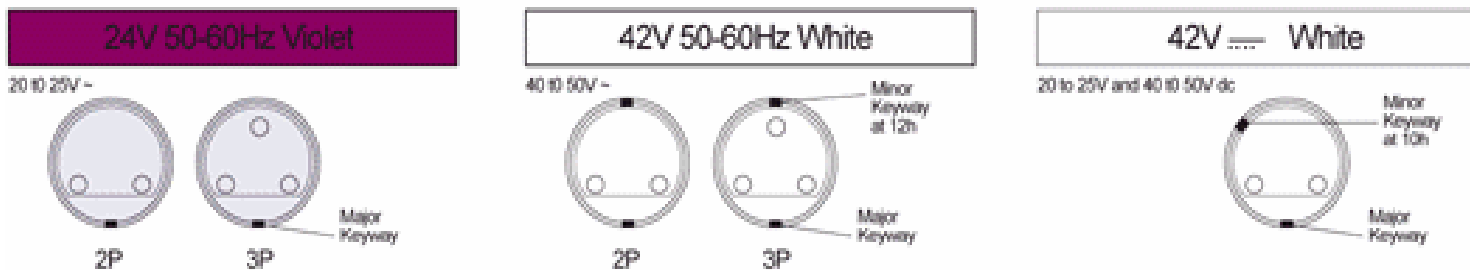
Equipment designed to operate in Zone 1 is allowed conditionally:

1. Shall be inside a Class II enclosure
2. Access via Hatch or door by the use of a key or tool
(Disconnection of all live conductors upon opening)
3. Supply via :
 - SELV < 25Vac
 - RCD
 - Electrical separation

BS EN 60309-2 plugs and Sockets



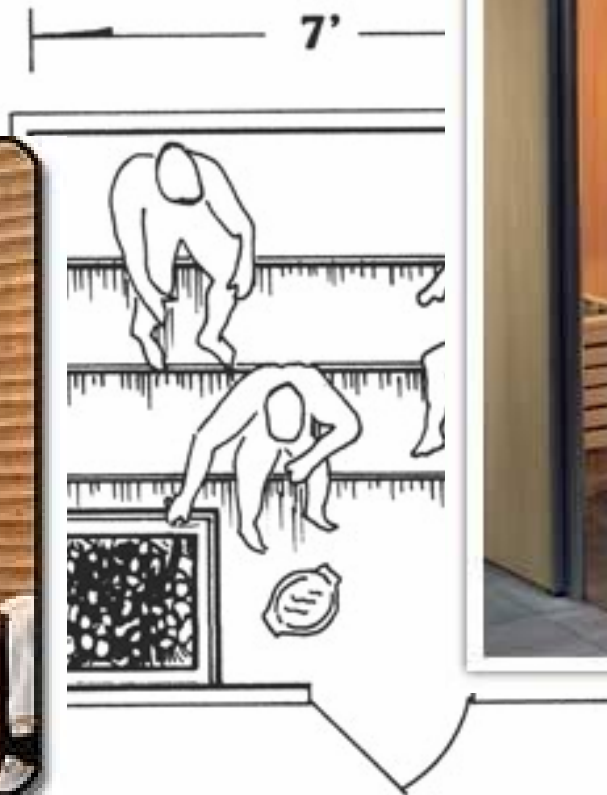
THE POSITION OF THE KEYWAY(S) ON ELV SOCKETS



THE PERMUTATION OF ALL ABOVE WILL ENSURE THAT PLUGS ARE ONLY USED WITH CORRECTLY ASSOCIATED SOCKET OUTLETS

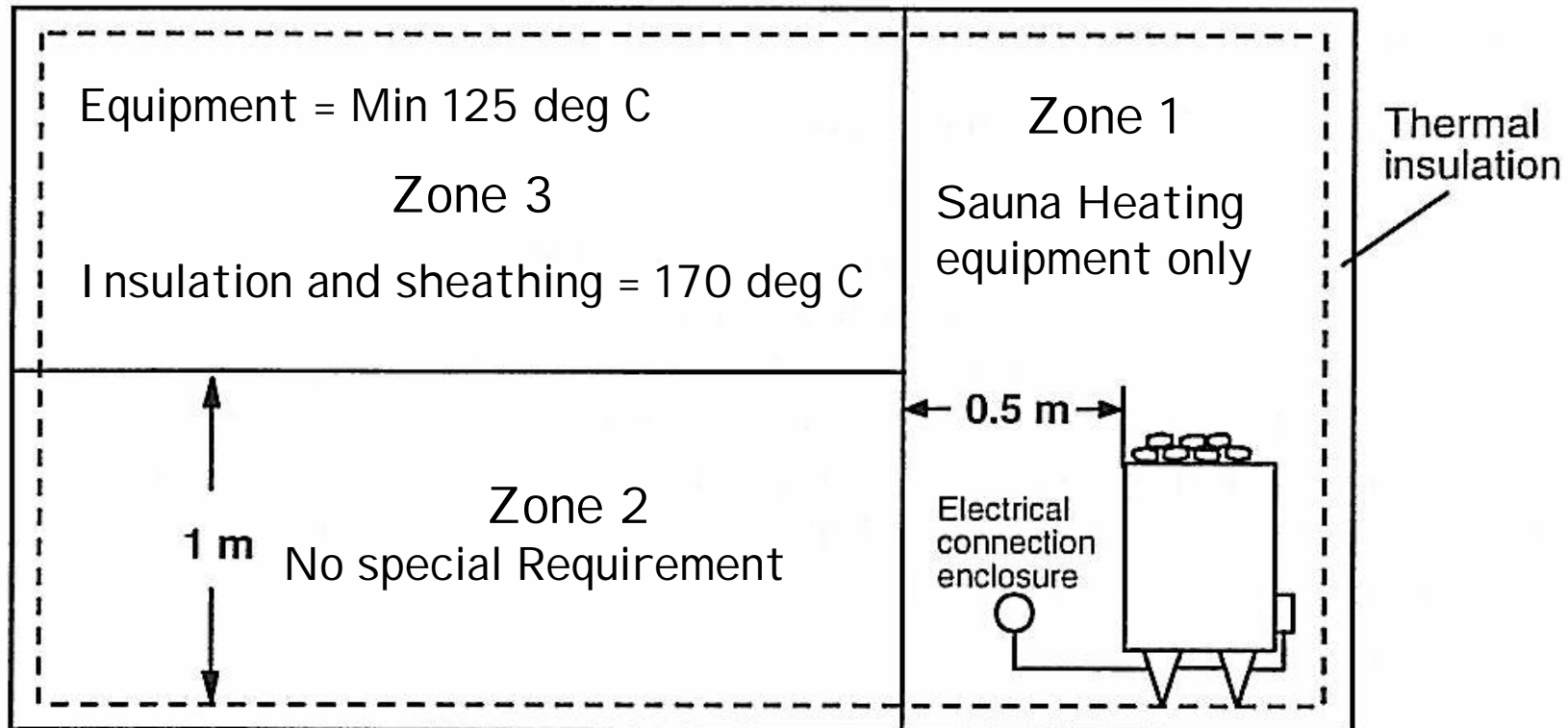
Special Locations Part 7

703 Saunas



Special Locations 703

Rooms with Saunas



Additional protection shall be provided for all circuits 415.1.1, Sauna heater may not be unless specified by manufacturer

Special Locations 703

Rooms with Saunas - External Influences

703.512.2 All equipment requires => IPX4 degree of protection

IPX5 where water jets are expected

703.52 Wiring systems installed on cold side of thermal insulation (outside)

703.53 Switch gear and controls not specifically designed for Sauna must be installed outside of zones

Special Locations – Part 7

Construction and Demolition Sites



Special Locations 704

Construction and demolition Sites

Scope:

1. Construction work of New Buildings
 2. Repair, alteration, demolition of existing buildings
 3. Engineering works
 4. Earthworks (Trenches, Foundations, Subsidence support)
- Work of similar nature (Road Works, Storm Water Drainage Works, Sanitary Works, Water Works, Electrical Works, Telephone Utilities, Irrigation Works)

Not included: included in general applications 411 etc.

1. Surface Mining and Quarries BS EN60621
2. Offices,
3. cloakrooms,
4. meeting rooms,
5. canteens, restaurants,
6. dormitories, toilets

Special Locations 704

Construction and demolition Sites Protection against Electric Shock

Socket outlets =< 32A

1. RLV 411.8
 2. ADS (411) and 415.1.1
 3. Electrical Separation (413)
 4. SELV or PELV (414)
- RLV preferred for
 1. Hand lamps
 2. portable hand tools < 2kW
 3. Local Lighting
 - SELV is preferred for portable hand lamps in confined or damp locations



Special Locations 704

Construction and demolition Sites

704.411.3.2.1 Automatic Disconnection in case of a fault
Circuit/s supplying Socket Outlets and Equipment > 32A

Protection by \leq 500 mA RCD

Disconnection times as table 41.1 (411.3.2)

411.3.3 TN-S (5 secs)

411.3.4 TT (1 sec)

TN-C-S (PME) systems prohibited 704.411.3.1

Special Locations

Agricultural and Horticultural sites



Special Locations 705

Agricultural and Horticultural installations

Scope:

Fixed indoor, outdoor Installations

Agricultural

Horticultural

Farm Shops

Barns, sheds, enclosures, outside lighting

Not included:

Domestic households

Electric Fences

Special Locations 705

Agricultural and Horticultural installations

Methods of Protection Automatic Disconnection

705.411.1 Earthing Arrangements are included for:

1. Final circuits - socket outlets < 32A = 30mA RCD
2. Final Circuits - socket outlets > 32A = 100mA RCD
3. All other circuits = 300mA RCD

705.411.4 TN-C-S systems not to be used

705.415.2.1 Additional protection by Supplementary equipotential bonding to be applied to areas where livestock are housed

Special Locations 705

Agricultural and Horticultural installations

705.422.7 Fire protection using < 300mA RCD

Where continuity of service is required

Use 'S' type RCD (Delayed)

Condition: must not include socket outlets

705.414.4.5 Protection by SELV or PELV IP2X or IPXXB

705.422.8 Protection from fire IP4X or IPXXD

705.512.2 Protection from external influences > IP44

Special Locations 705

Agricultural and Horticultural installations

705.522 Buried cables where machinery operates

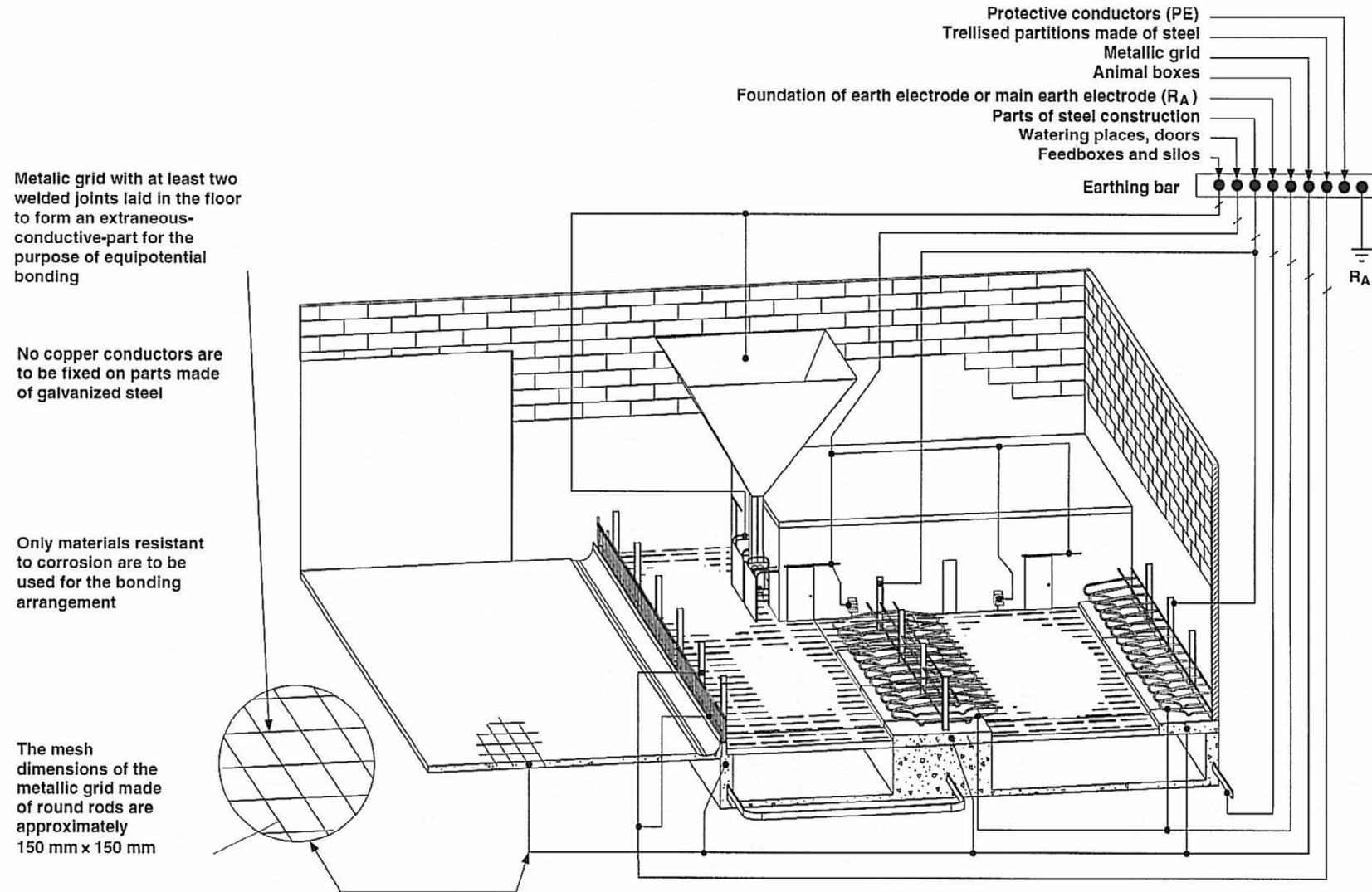
1. Cables buried to $> 0.6\text{m}$ with added mechanical protection
2. Buried cables in cultivated ground $> 1.0\text{m}$
3. Self-supporting suspension cables $> 6.0\text{m}$

705.53 Isolation,

1. each building to have separate isolation operated by a single switch
2. All live conductors
3. Clearly marked
4. no contact with livestock

Special Locations 705

Agricultural and Horticultural installations



Special Locations - 706

Conducting Locations with Restrictive Movement.



Special Locations 706

Conducting Locations with Restrictive Movement

706.1 Scope:

1. Fixed equipment installed and limited movement of personnel
2. Supplies for mobile equipment for use in the location

Examples might be:

- Metallic Access tunnels or chutes such as drains, sewers, large cabling conduits,
- metallic pressure vessels, ventilation shafts
- Gantry's accessed by metal laddering and safety fencing on steel masts and towers
 - Use of Arc Welding equipment in restricted locations see IEC/TS 62081

Special Locations - 706

706.410.3.10 Protection against Electric Shock

(i) for the supply to a hand-held tool or an item of portable equipment:

- a) electrical separation (Section 413), subject to only one item of equipment being connected to a secondary winding of the transformer, or

NOTE transformer may have several secondary windings.

- b) SELV (Section 414).

(ii) for the supply to handlamps:

- a) SELV (Section 414). It is permissible for the SELV circuit to supply a fluorescent luminaire with a built-in step-up transformer with electrically separated windings.

(iii) for the supply to fixed equipment:

- a) automatic disconnection of the supply (Section 411) with supplementary protective equipotential bonding (Regulation 415.2). The supplementary bonding shall connect exposed-conductive-parts of fixed equipment and the conductive parts of the location, or
- b) by use of Class II equipment or equipment having equivalent insulation (Section 412), provided the supply circuits have additional protection by the use of residual current devices (Regulation 415.1) with a rated residual operating current not exceeding 30 mA, or
- c) electrical separation (Section 413), subject to only one item of equipment being connected to a secondary winding of the isolating transformer, or
- d) SELV (Section 414), or
- e) PELV (Section 414), where equipotential bonding is provided between all exposed-conductive-parts, all extraneous-conductive-parts inside the conducting location with restrictive movement, and the connection of the PELV system to earth.

Special Locations - 708

Caravan / Camping Parks



Special Locations : Caravan Parks -708

Scope:

Camping parks

Caravan Parks

Not included:

Caravans

Mobile homes

Special Locations : Caravan Parks -708

708.4 Protection against Electric Shock

708.411.4 Automatic Disconnection of Supply

TT and TNS systems only

PME may be used to supply fixed buildings

Special Locations : Caravan Parks -708

Selection and Erection -External Influences

708.512.2 minimum protection for equipment and enclosures

1. Presence of water = IPX4 (AD4)
2. Small objects and dust = IP3X (AE2)
3. Mechanical stress = IK08 (AG3)

Special Locations : Caravan Parks -708

708.521.1 Selection and Erection – supply and distribution

Underground

Overhead cables

Buried cables >0.6m and outside areas where tent pegs or anchors are situated

Cables overhead installed > 6.0M where vehicles have access and > 3.5m at other places

708.530.3 Pitch sockets

- Adjacent to pitch
- Max distance = 20m
- Max number of grouped sockets = 4 per location

Special Locations : Caravan Parks -708

708.553.1 Socket Outlets

- IP44 rating , BS EN 60309-2
- Placement = 0.5m to 1.5m
- Rating => 16A
- Number of Socket outlets per pitch => 1
- Each caravan inlet must be protected by an RCD
(Old rules allowed up to three 'hook-ups')
- Individual Overcurrent protection

708.553.1.14 PME systems

where a pme system is already in place the PEN conductor must not be connected to an earthing arrangement of the caravan supply, but the supply earth separated by an electrode for each socket outlet supply

Special Locations - 709

Marinas or similar locations



February 08

Legh Richardson ©

Special Locations: Marinas - 709

Scope:

1. Pleasure Craft
2. Houseboats
3. Boat Yards and moorings
4. LV electrical Installations in House boats + the general requirements

Not Included:

1. Internal Wiring of Pleasure Craft

General conditions:

Very similar to that which supplies Caravans

Slight variations to height and depth of supply cables

Special Locations Marinas - 709

709.512.2 External Influences

Includes:

- corrosive elements
- Movement of structures
- Mechanical damage
- Presence of flammable fuel

Increased risk of shock due to:

- Presence of water
- Low body resistance
- Contact of body with earth potential

Special Locations: Marinas - 709

Fig 709.1 & 2 – Examples of methods of obtaining supply in marinas

Fig 709.1 – Connection to a mains supply with residual current device

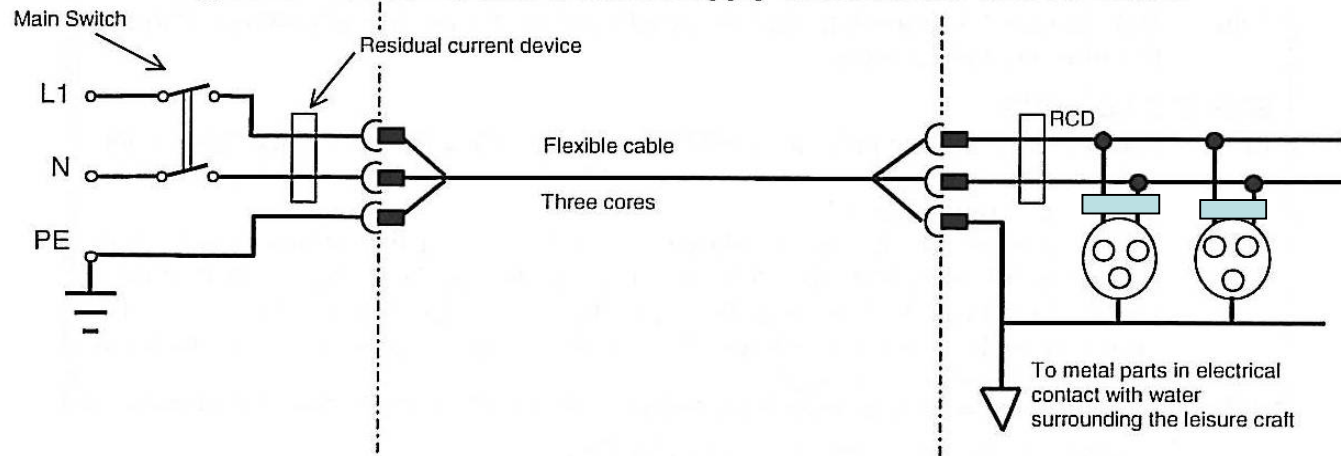
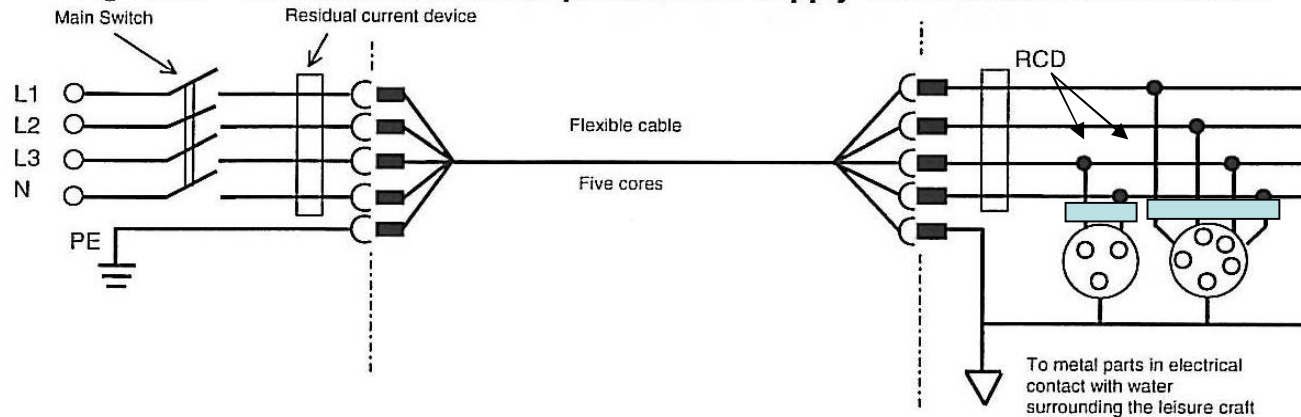


Fig 709.2 – Connection to a three-phase mains supply with residual current device



Special Locations - 710

Medical Locations



Medical Locations - 710

- Introduction
- 1988 work first started on the development from IEC 60264-7-710, the current and first edition being 2002.
- Dangers to the person from
- Probes in contact with Broken skin and internal body parts
- Use of electrical/electronic equipment

Medical Locations - 710

- **Scope 710.1.1**
- Operating Theatres
- Doctors Surgeries
- Diagnostics rooms – MRI , CT, XRay
- Dentists
- Vets
- Consultation rooms
- Laboratories

Medical Locations

- **Zones - 710.1.2**
- **Group 0:**
 - Medical location where no applied parts are intended to be used and where discontinuity (failure) of the supply cannot cause danger to life. Examples of group 0 include consultant examination rooms or massage rooms.
- **Group 1:**
 - Medical location where discontinuity of the electrical supply does not represent a threat to the safety of the patient and applied parts are intended to be used externally or invasively to any part of the body except where group 2 applies.
- **Group 2:**
 - Medical location where applied parts are intended to be used, where discontinuity (failure) of the supply can cause danger to life, in applications such as intra-cardiac procedures or vital treatments and operations.

Medical Locations - 710

'Applied Parts' within Zones 1 and 2

- Part of medical electrical equipment that in normal use necessarily comes into physical contact with the patient to enable ME equipment or an ME system to perform its function.

Protection against Electric Shock: - 710.411.1

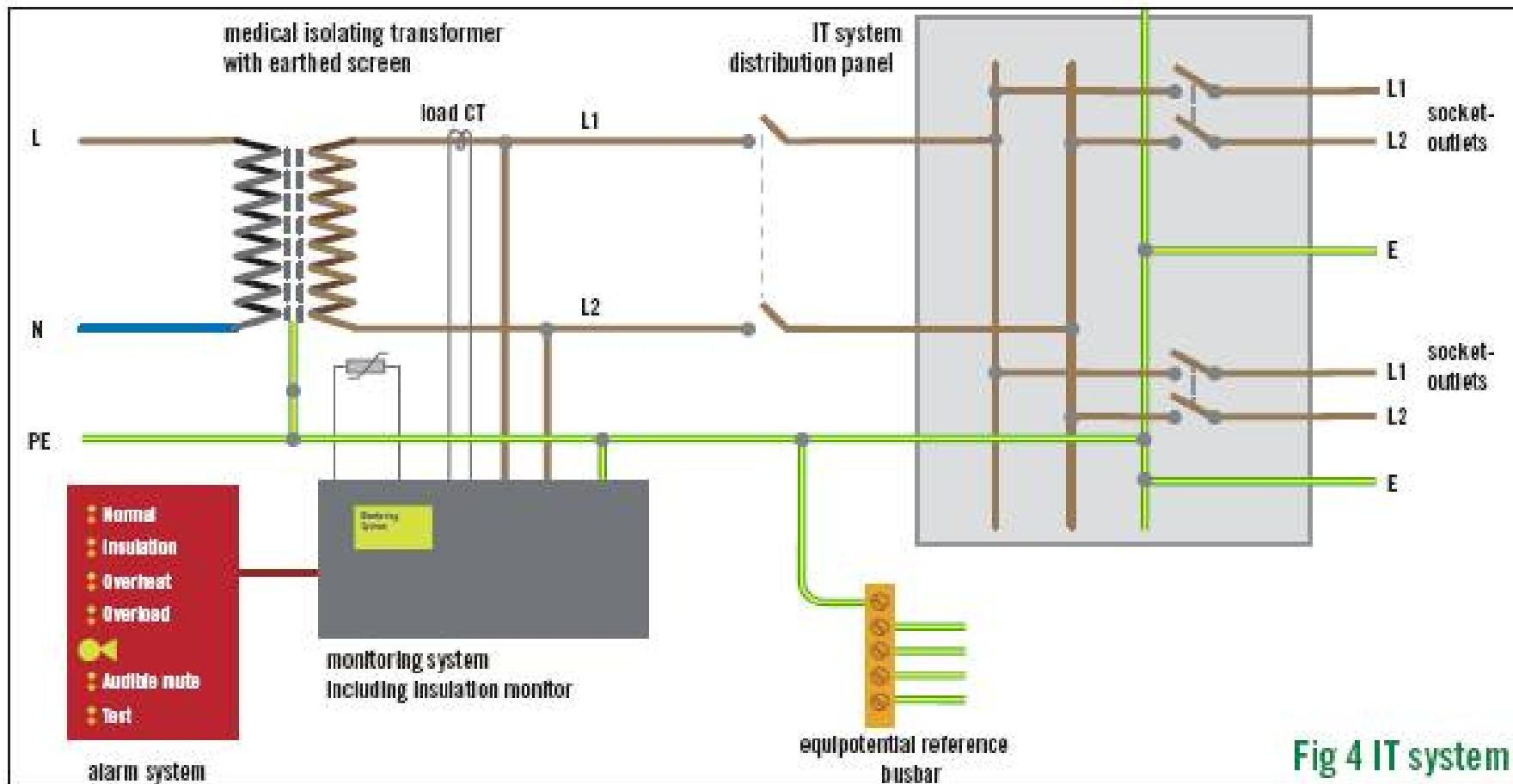
- Reduced Disconnection times <25V between Exposed and Extraneous parts (similar to 604 and 605 of 16th ed)
- Zone 0 follows normal electrical conditions, Zones 1 and 2 requires additional protection as well as when disconnection times cannot be met.

Additional Protection

- IT systems
- Supplementary Bonding

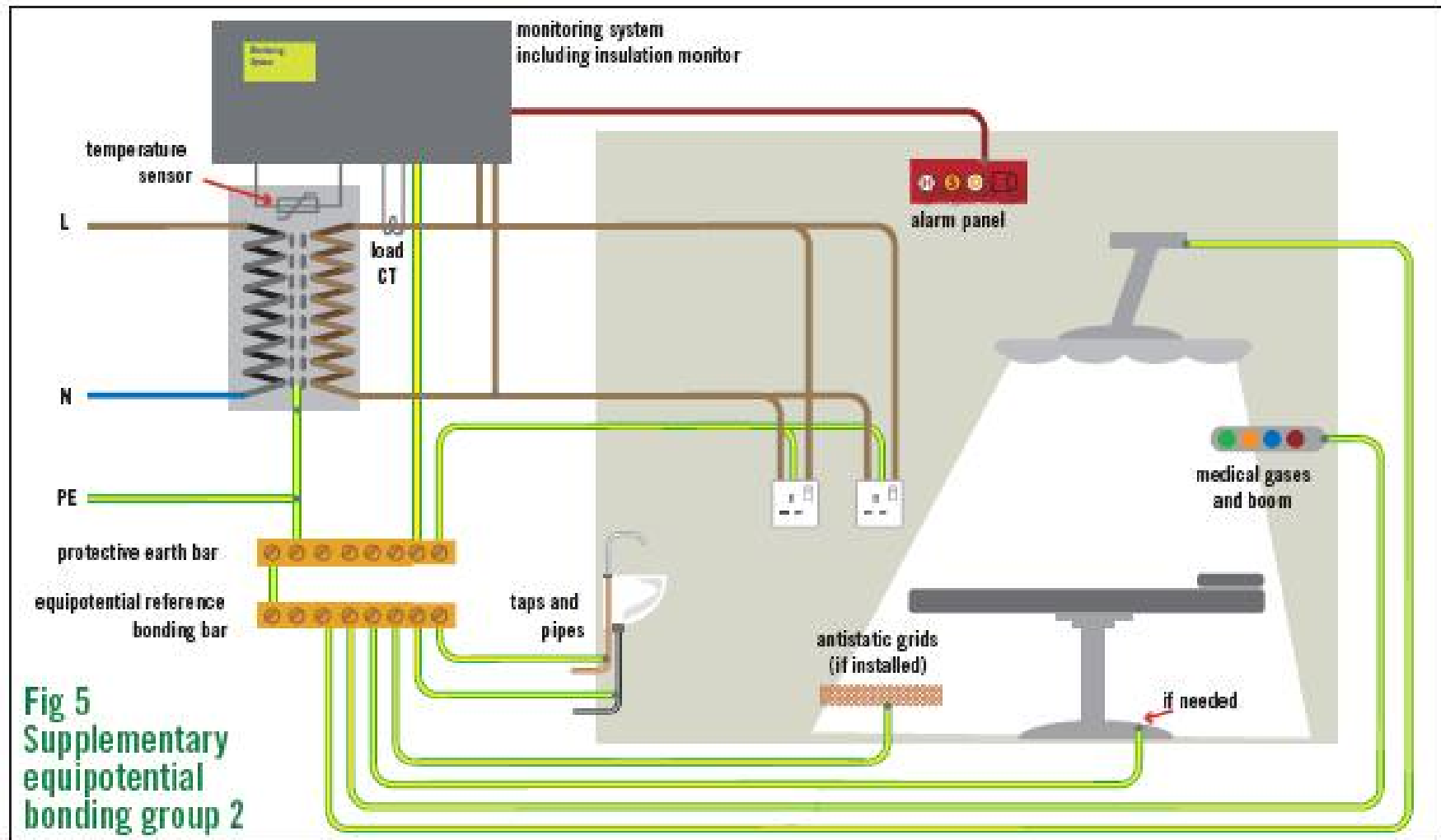
Medical Locations - 710

- IT system and monitoring for 1st and 2nd fault conditions



Medical Locations - 710

Supplementary Bonding



Medical Locations - 710

- **Safety lighting**
 - It is likely that each emergency luminaire will incorporate its own battery to provide power when the electrical supply has failed. In addition to the requirements given in any lighting code, the necessary minimum illuminance shall be provided for the following:
 - group 1 - in each such room at least one luminaire shall be supplied from the power supply source for safety services
 - group 2 - minimum of 90% of the lighting shall be supplied from the power source for safety services.
 -
- The luminaires of the escape routes shall be arranged in alternate circuits.

Special Locations - 711

Exhibitions, Shows and Stands



Special Locations shows and stands - 711

Scope:

Exhibition Stands

Tents

Not included:

Fixed installations used for supply

Theatre and entertainment structures (BS 7909)

Mobile units

Special Locations Shows and Stands - 711

711.410.3.4 Protection for supply cable – 300mA RCD delayed 'S' type RCD to provide discrimination with RCD protected final circuits 711.411.3.3

711.411.4 PME systems not to be used

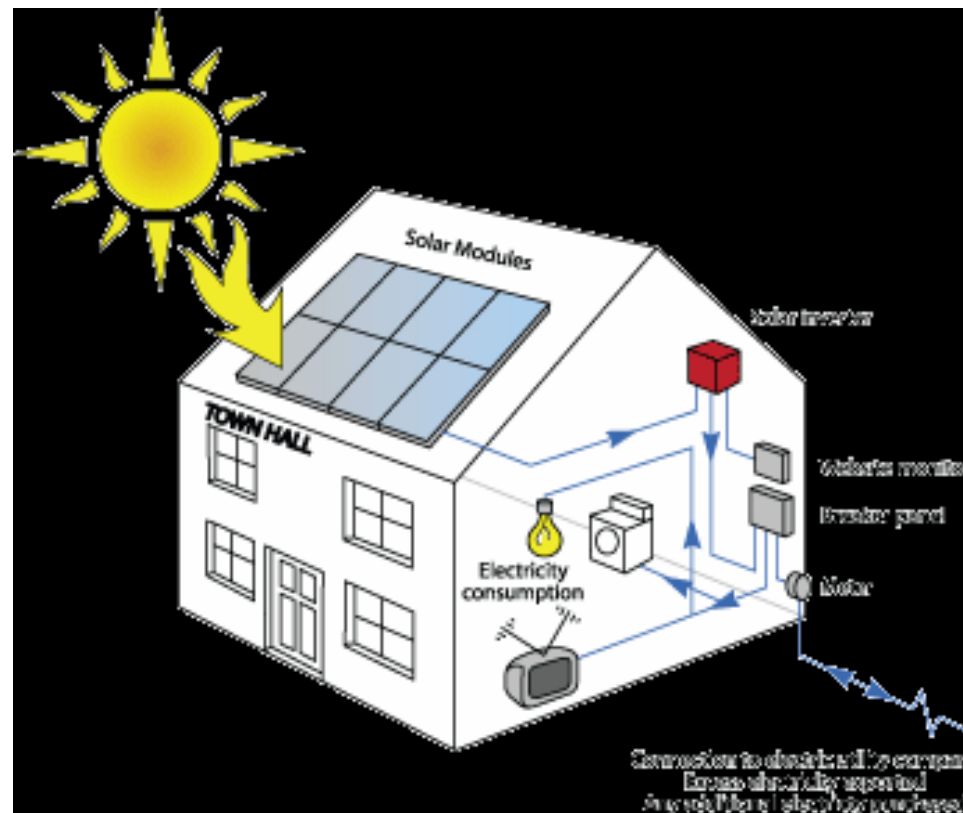
711.52 Minimum cable conductor size > 1.5mm²

711.55.7 Floor mounted socket outlets must have a minimum degree of protection from water ingress

711.6 Full Inspection and testing to take place after each new erection of stand and/or assembly

Special Locations - 712

Solar Photovoltaic (PV) Power Supply Systems



Special Locations PV systems - 712

Photovoltaic Generation

Solar Panels used to generate small amounts of DC electricity combined together in series to form PV strings; blocks of parallel strings form PV arrays; which may be paralleled up to provide more energy

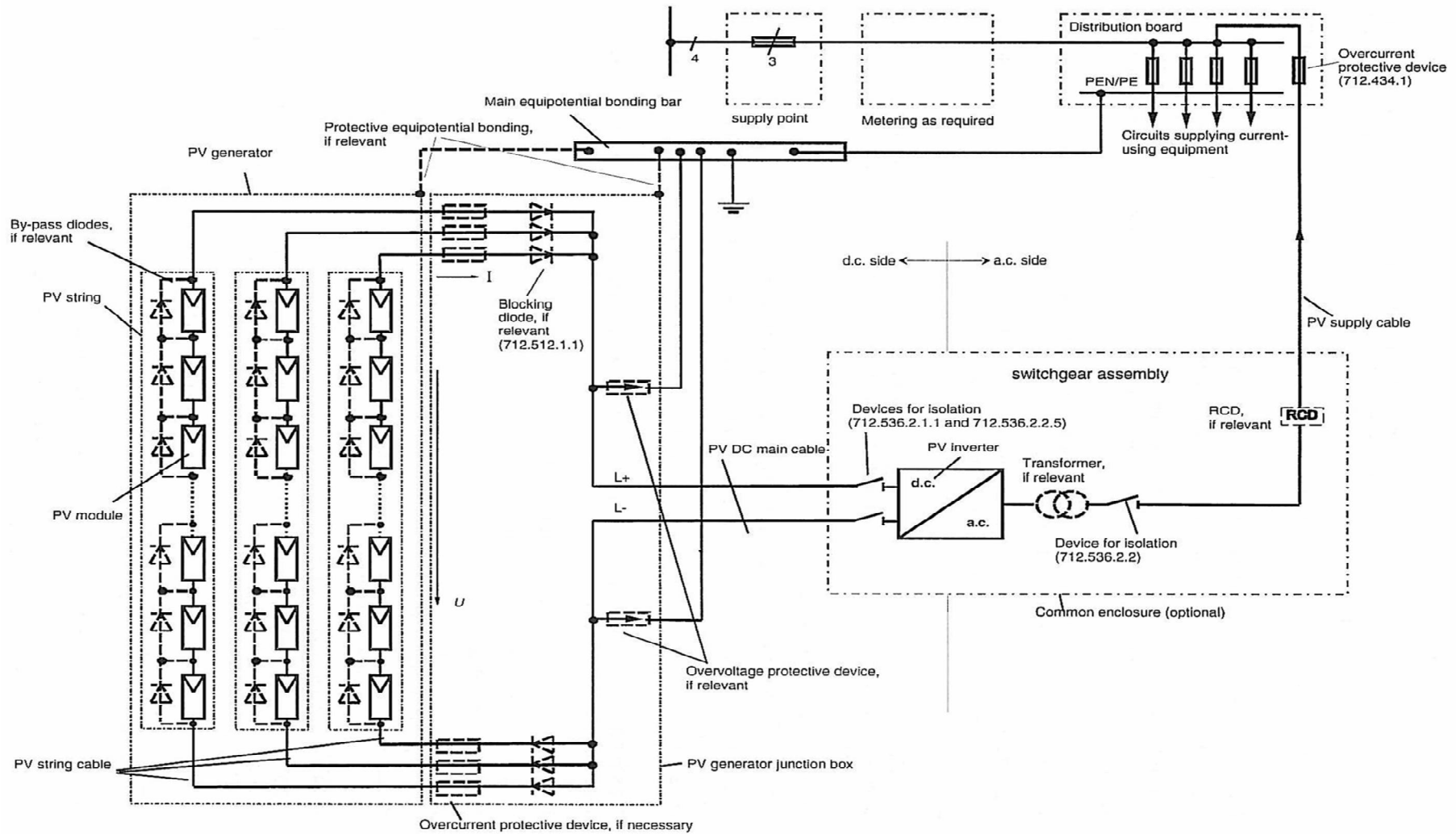
An inverter converts DC to AC suitable for commercial and domestic use

Note: the terminals of the DC side of a PV array are live even when disconnected



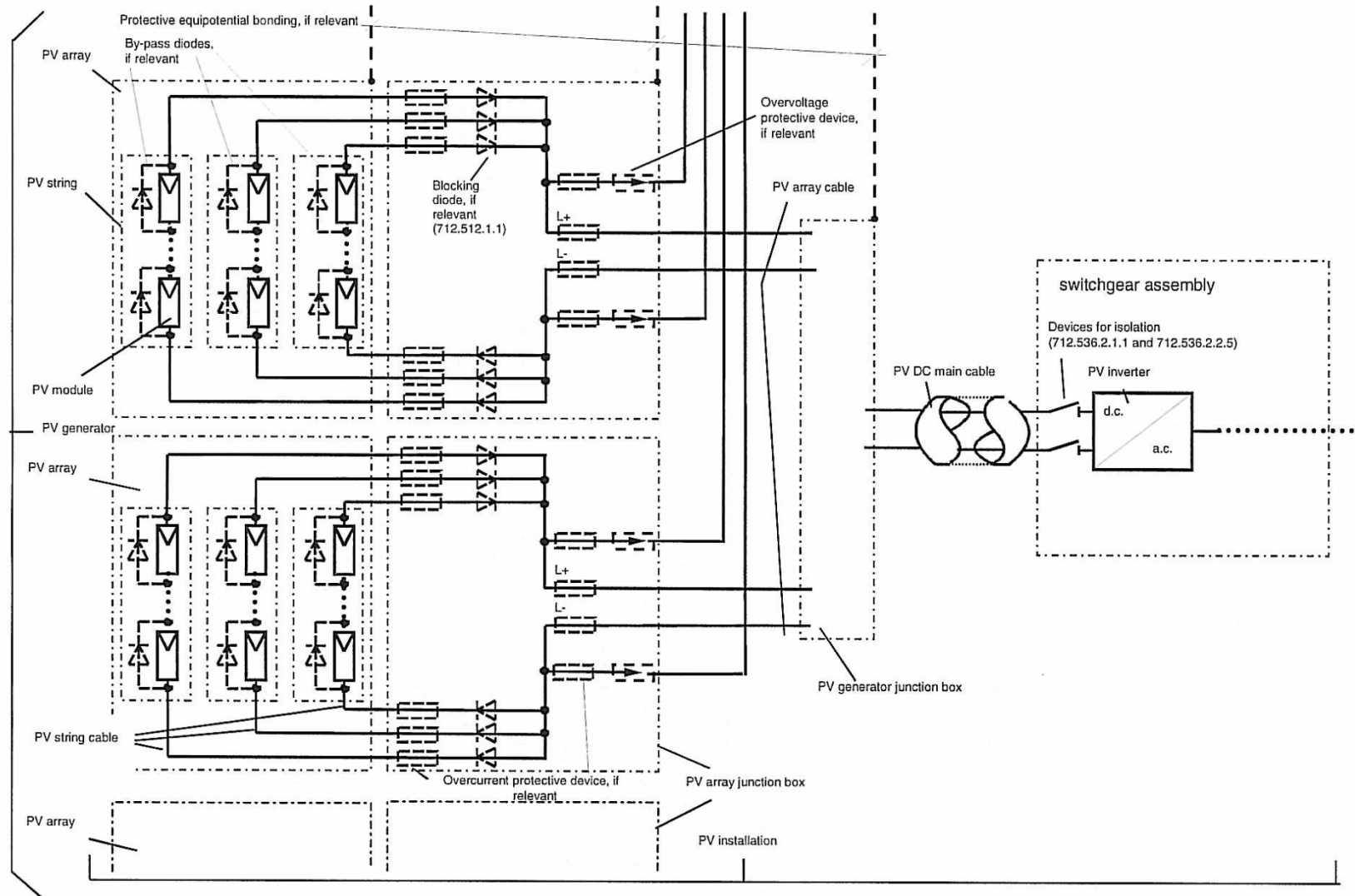
Special Locations PV systems - 712

Single Array PV generator system



Special Locations PV systems - 712

Photovoltaic Generation, multi Array



Special Locations PV systems - 712

712.411 Automatic Disconnection

Overcurrent protective devices supplied on AC side are connected correctly

712.412 Class II protection required on DC side

712.433 Overload protection on DC side may be achieved by rating the main cable conductors 1.25 times the maximum design current

712.537 DC side requires Switch Disconnecter between PV output cable and the DC/AC converter

712.54 Bonding cables associated with the PV system are to be installed with the other PV cabling and accessories

See 551 low voltage generating sets

Special Locations: -714

Outside Lighting



Outside Lighting Installations - 714

Scope 714.1

Moved from section 559

Includes:

- (1) Lights for Roads, Parks, car parks, gardens, open public spaces, sporting areas building illuminations, floodlighting
- (11) Telephone kiosks, bus shelters, advertising panels, town plans
- (111) Road signs

Exclusions

- (1) temporary festoon lights,
- (11) lights attached to buildings supplied internally,
- (111) Road traffic signal systems

Outside Lighting Installations - 714

714.410.3.6 non-conducting locations Earth free equipotential
Bonding zones not appropriate

714.411 Automatic disconnection

- 201 (i) Protection by insulation, barriers or enclosures (exception being the access door !)
- 202 Disconnection times <5sec
- 203 PME conditions 6mm² min for 10mm² neutral conductors otherwise apply table 54.8

714.411.2.201 Basic Protection

- (i) Access to live parts by a key or tool (exception being skilled persons)
- (ii) Access door less than 2.5m is only accessible by use of a Key or tool and must have a degree of protection of < IP2X or IPXXB
- (iii) Access to lamps < 2.8m from ground level should be protected by a barrier and accessible by key or too

Outside Lighting Installations - 714

714.512.2.105 minimum IP33 enclosures

714.537.2.1 Isolation

Every circuit shall be individually isolated,
exception 537.1.2

201 -barriers , obstacles use of overcurrent
devices can be used for on-load isolation by
skilled persons

- 202 approval be the DNO required for above

ELV Lighting Installations - 715

Extra Low Voltage Lighting



ELV Lighting Installations - 715

- 715 - Protective measures
- 715.41 **Shock**
- 715.414 25Vac max where no provision of CPC
- Paralleling Transformers only when in both primary and secondary

- 715.422 **Thermal**
- 715.422.107.1-2 Automatic disconnection in 0.3s and power limiting to 60W
- 715.430.104 Self resetting protective devices only permitted with transformers $\leq 50\text{VA}$

ELV Lighting Installations - 715

715.521.1 Wiring Systems

1. Trunking and conduit

2. Flexible cables

3. Track systems

4. Bare conductors

- Bare conductors $\leq 25V$ ac
- Designed and installed to reduce fire and s/c
- Conductor size in accordance with 715.524
- Conductors not placed on combustible material

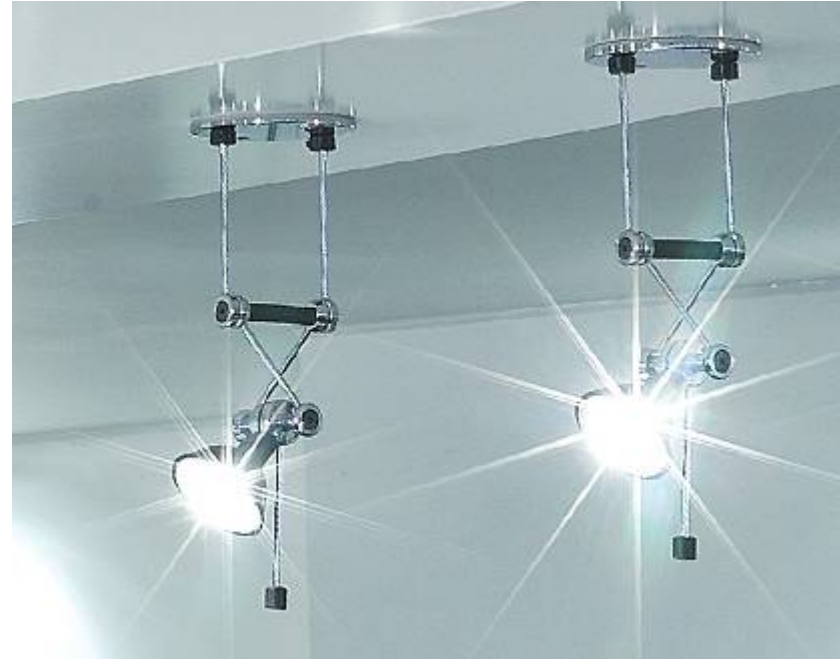
ELV Lighting Installations - 715

Bare conductors

Suspended systems

Suspension design
and materials to cope
with 5 times capacity

mass of luminaires with a minimum loading ability
of 5kg



Special Locations - 717

Mobile or Transportable Units



Special Locations Mobile units - 717

717.1 Scope:

Self propelled Vehicles

Towed Transportable units

Used in:

Entertainment Industry, Broadcasting, Advertising

Medical Services, Fire fighting units

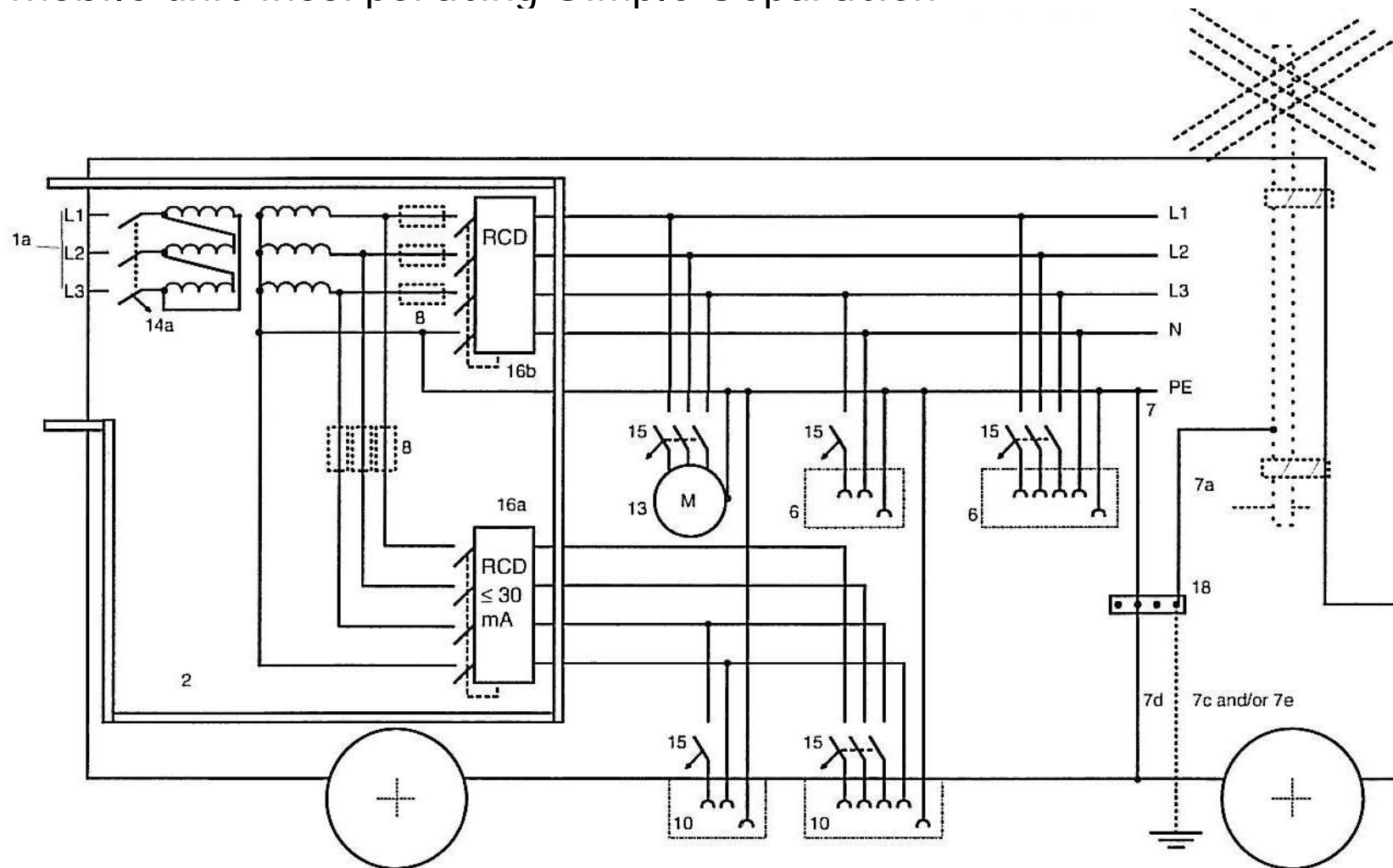
Workshops, Catering units and offices

Not included:

1. Generating sets
2. Marinas and Pleasure craft section 711
3. Mobile machinery covered by BS EN 60204-1
4. Caravans section 721
5. Traction equipment of electric vehicles
6. ELV Vehicle electrics

Special Locations Mobile Units - 717

Mobile unit incorporating Simple Separation



Special Locations Mobile Units - 717

Key to mobile sample drawing

- 1a** Connection of the unit to a supply through a transformer with simple separation
- 1b** Connection of the unit to a supply in which the protective measures are effective
- 1c** Connection to a LV generator set in accordance with Section 551
- 2** Class II or equivalent enclosure up to the first protective device providing automatic disconnection of supply
- 6** Socket-outlets for use exclusively within the unit
- 7** Main equipotential bonding in accordance with Regulation 717.411.3.1.2
 - 7a** to an antenna pole, if any
 - 7c** to a functional earth electrode (in case of need)
 - 7d** to the conductive enclosure of the unit
 - 7e** to an earth electrode for protective purposes, if needed
- 8** Protective devices, if required, for overcurrent and/or for protection by disconnection of supply in case of a second fault
- 10** Socket-outlets for current-using equipment for use outside the unit
- 13** Current-using equipment for use exclusively within the unit
- 14** Overcurrent protective device, if required
- 14a** Overcurrent protective device, if required
- 15** Overcurrent protective device (e.g. one phase or phase and neutral circuit-breaker)
- 16a** Residual current device rated with a rated residual operating current not exceeding 30 mA for protection by automatic disconnection of supply for circuits of equipment for use outside the unit
- 16b** Residual current device for protection by automatic disconnection of supply for circuits of equipment for use inside the unit
- 18** Main earthing terminal or bar

Special Locations Mobile Units - 717

717.411.1 Automatic disconnection by RCD

717.411.3.1.2 Equipotential Bonding to exposed and extraneous conductive parts (Chassis) to MET within the vehicle

717.411.4 PME systems not generally used unless installed and supervised by skilled personnel

717.514 Labeling – durable and fixed adjacent to inlet

1. Type of supply required
2. Voltage rating of unit
3. Number of phases
4. On-board earthing arrangements
5. Maximum power requirements of the unit

717.55.1 – Plugs and Sockets to BS EN 60309-2

1. Plug enclosures use insulating material
2. Minimum IP44 rating
3. Associated Appliance inlets with a minimum of IP44
4. The plug part of the inlet shall be fixed to the unit

Special Locations - 721

Caravans and Mobile Homes



Special Locations: 721 Caravans and Motor Caravans

Scope:

1. Habitation purposes only (not the motor vehicle electrics)
2. Voltages ranges < 400V/230v ac and
3. 12, 24 and < 48v DC

Not include:

1. BS EN 1648 ELV for Leisure Vehicles (see annex A – direct replacement)
2. Automotive electrics
3. Mobile Homes
4. Residential Park homes
5. Transportable units

Special Locations: 721 Caravans and Motor Caravans

721.411 Protection against Shock – ADS = RCD

721.411.1 Wiring system to include CPCs connected to:

1. Protective contact of inlet
2. Exposed conductive parts of electrical equipment
3. Protective contacts of socket outlets

721.411.2.1.2 Equipotential bonding applied to internally accessible steel parts of caravan

721.55.1.2 The caravan inlet shall be:

1. < 1.8m from ground level
2. Accessible position
3. = >IP44 rating
4. Minimum protrusion from outer shell of caravan

721.55.2.6 Caravan supply via

1. Plug / socket extension to BS EN 60309-2
2. Flexible cable = 25m (+/- 2m)
3. Minimum csa of 2.5mm²
4. A CPC

Special Locations: 721 Caravans and Motor Caravans

Minimum csa of flexible cords for caravan connection

| Rated current A | Minimum cross-sectional area mm ² |
|--------------------|---|
| 16 | 2.5 |
| 25 | 4 |
| 32 | 6 |
| 63 | 16 |
| 100 | 35 |

721.514.1 Instructions

1. Description of installation
2. Function of RCDs and the use of test buttons
3. Function of main isolating switch
4. The text of instructions as laid out in figure 721

Special Locations - 722



Electric Vehicle charging stations

Special Locations -722

- Electric Vehicle charging stations -722
- Design
- Dedicated final circuit for each charging point
- Diversity maybe applied to distribution circuits supplying several charging points
- TN systems final circuits not to include a PEN conductor



Special Locations -722

Electric Vehicle charging stations -722

722.411 Protection from shock.

No PME supplies

TT earth electrode advised

70V max voltage under fault conditions

IP44 minimum environmental protection



Electric Vehicle charging stations -722

- 722.531 – 7 Switching and Isolation.

Each charging outlet is protected by an RCD to 415.1.1 disconnecting all live conductors including the neutral

Type A RCD (BS EN 61008, or 61009 ac)

Type B RCD (BS EN 62423 ac-dc with $\geq 6\text{mA}$ dc content)

722.537..4 Isolation and emergency switching – break full load current



Electric Vehicle charging stations -722

- **722.55.201 Other equipment.**
- 722.55.201.1 Socket charging connector points
- Standard 3-pin BS1363-2 plugs and sockets
- BS EN 60309-2 industrial plug and sockets
- BS EN 60309-4 Interlocking self contained panel socket
- 722.55.201.2 standard distribution boards with fixed mounted socket outlets BS EN 61439
- 722.55.101.4 Disconnection first from the supply before unplugging

Special Locations -729

Maintenance and operating Gangways



Maintenance and operating Gangways -729

- Introduction -729
- EAWR 1989 regs. 14 and 15
- Provide access, light and movement
- Shock and fire protection as BS7671
- Specific requirement for access
- section 729, which applies to restricted areas. These are areas such as switch rooms with switchgear and control gear assemblies with a need for operating or maintenance gangways for authorized persons.

Maintenance and operating Gangways

- Chapter 13. Regulation 132.12 states: Electrical equipment shall be arranged so as to afford as may be necessary:
 - (i) sufficient space for the initial installation and later replacement of individual items of electrical equipment
 - (ii) accessibility for operation, inspection, testing, fault detection, maintenance and repair.
- 729.513.2 requires that the width of gangways and access areas shall be adequate for work, operational access, emergency access, emergency evacuation and for the movement of equipment In restricted access areas where basic protection is provided by barriers or enclosures Regulation

Maintenance and operating Gangways

729.513.2.1 gives the following minimum distances:

- i. Gangway width of 700mm between: barriers or enclosures and switch handles or circuit-breakers
- ii. ii. Gangway width of 700mm between barriers or enclosures or other barriers or enclosures and the wall
- iii. iii. Height of gangway to barrier or enclosure above floor (minimum dimension 2000mm)
 - iv. Live parts placed out of reach, see Regulation 417.3 (minimum dimension 2500mm)

Maintenance and operating Gangways

729.513.2.2 gives the following minimum distances:

Gangway width of 700mm between: obstacles and switch handles or circuit-breakers in the most onerous position,

Gangway width of 700mm between obstacles or other obstacles and the wall

iii. Height of gangway to obstacles, barrier or enclosure above Floor (minimum dimension 2000mm) Live parts placed out of reach, see Regulation

417.3 (minimum dimension 2500mm)

Regulation 729.513.3 For closed restricted access areas with a length exceeding 6m, access from both ends, 10+m access from both ends

Special Locations -740

Temporary Electrical Installations



February 08

Legh Richardson ©

Special Locations Temporary structures-740

Scope:

1. Temporary structures that are repeatedly put-up and struck
2. Associated machinery
3. Fairground rides
4. Amusement parks
5. Circuses

Not include:

1. Internal machinery wiring
2. Permanent electrical installations

Special Locations Temporary structures-740

740.410.3 Protection against shock

'S' type RCD = < 300mA to provide discrimination for final circuits covered by 'G' type 30mA RCD

740.512.2 All electrical accessories => IP44 rating

740.526 No joints in cables

740.55.1 Luminaires < 2.5m to be permanently fixed and enclosed or guarded by a barrier (removal of such to get access to the lamp by a tool)

Special Locations - 753

Floor and Ceiling Heating Systems



Special Locations Floor and ceiling heating - 753

753.1 Scope:

Installations of floor, Ceiling and roof heating

Not included:

Wall heating

Outdoor heating

753.411.3.2 RCDs with a rating of 30mA used for Automatic Disconnection

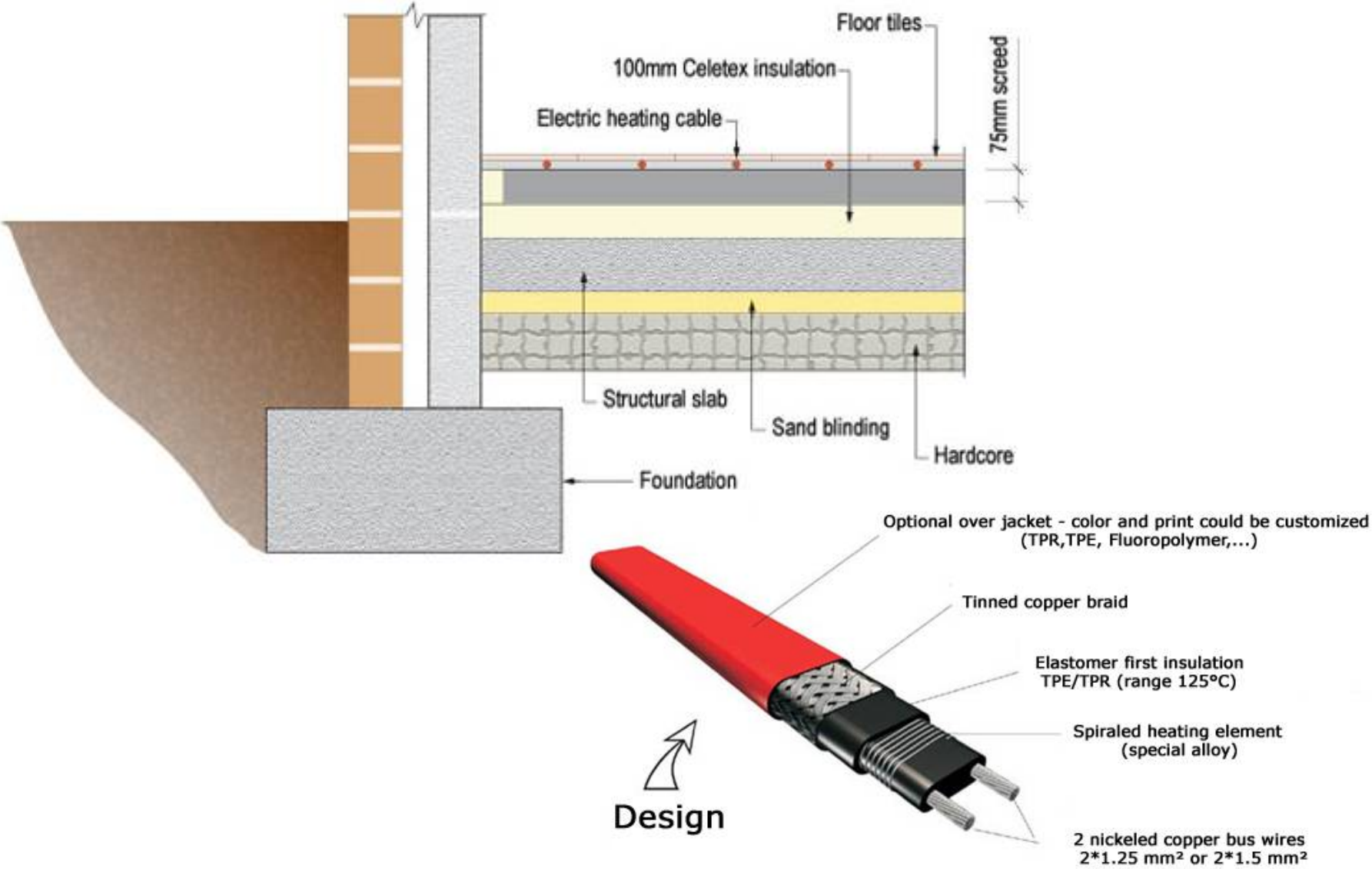
Earth bonded mesh laid over Class II heating elements

Mesh with \leq 30mm spacing

Capacitance earth leakage limits the size of heater to 7.5kW /230V and 13kW at 400V

Electric underfloor heating (heat mat)

Special Locations - 753



Special Locations Floor and ceiling Heating - 753

753.512.2.5 External Influences

IPX1 for ceiling heating

IPX7 for floor heating

753.515.4 heating units not to cross expansion joints of building or structure

753.514 Identification and Notices

A design and plan of heating system must be made available including all of the specified details:

(some are reproduced here)

- Manufacturer
- Number of heater units
- Area of units
- Rated power
- Insulation resistance
- Leakage capacitance