

Domestic Electrical Supplies To Hot Tubs

As Chief Electrical Engineer and Secretary of JPEL 64, the National Wiring Regulations Committee, **Geoff Cronshaw** looks at electrical supplies to hot tubs and considers the requirements of Part P of the Building Regulations for domestic electrical work carried out in England

In this article, which originally appeared in The Institution of Engineering and Technology (IET) magazine 'Wiring Matters', Geoff Cronshaw takes a brief look at the requirements for electrical supplies to hot tubs in England under Part P of the Building Regulations for domestic electrical work. (Contact information on the requirements of the Building Regulations for Scotland, Wales and Northern Ireland are provided at the end of this article.)

GENERAL

All electrical work should comply with BS 7671. There are no specific requirements for electrical installations associated with hot tubs in BS 7671. However, where a hot tub is located outdoors in the open air, for example, a garden, IET Guidance Note 7 Special Locations recommends that the requirements of Section 702 (swimming pools and other basins) should be applied. The requirements for swimming pools are given in Section 702 of BS 7671:2008+A3:2015. IET Guidance Note 7 also sets out the risks. Persons involved in the design of the electrical installation for a hot tub should consult the product standard BS EN 60335-2-60: Specification for Safety of household and similar appliances: Particular requirements for whirlpool baths and whirlpool spas.

SUPPLY

The supply to the hot tub should be protected by a 30 mA RCD. The cable must also be suitably protected along its route. Regulation 522.8.10 sets out the requirements for buried cables. Cables should be protected against foreseeable damage, either by armouring or by suitable enclosure. Unprotected cables should not be buried directly in the ground, nor should they be clipped to wooden fences, etc., as such an arrangement may provide inadequate support and protection.

Problems arise when ground levels are either lowered so that cables have insufficient cover, or raised so that cables that were not intended to be buried and are not suitable for burial become buried. Such problems can arise during the course of a project, and the intended ground level should be formally ascertained before the cables are installed. It must be remembered that the layout of a garden can be changed totally within a few seasons and great care must be taken to

route cables where they are not likely to be disturbed or damaged, for example, around the edge of the plot and at sufficient depth.

Buried cable routes should be identified by local route markers and recorded on drawings. Cables should be buried at least 500 mm below the lowest local ground level, and a route marker tape laid along the cable route about 150 mm below the surface (NOTE: BS EN 61386-24 is the standard for underground conduits).

ADDITIONS AND ALTERATIONS TO AN EXISTING INSTALLATION

Where work is being carried out to an existing installation, Regulation 132.16 requires that the rating and condition of existing equipment, including that of the distributor, should be adequate for the additional load and that the existing earthing and bonding arrangements are also adequate.

INSPECTION, TESTING AND CERTIFICATION

Inspection and testing must be performed to confirm the adequacy of the relevant parts of the existing installation that will support the changed requirements, the upgrading of the existing installation necessary to support the addition or alteration, and the addition or alteration itself. The requirements for initial verification are contained in Part 6 of BS 7671 and further information on the requirements for inspection and testing is given in Guidance Note 3: Inspection & Testing.

Compliance with BS 7671 must be verified for every addition or alteration. Requirements for certification and reporting in respect of electrical installations are also given in Part 6. An Electrical Installation Certificate must be provided to the person ordering the work and should give the details of the extent of the installation covered by the certificate, together with a record of the inspection and the results of the testing.

PART P OF THE BUILDING REGULATIONS

Anyone carrying out domestic electrical installation work in England must carry it out in line with Part P of the Building Regulations. Where work is notifiable (new circuits, the replacement of a consumer unit, and any addition or alteration to an existing circuit in a special location) it must be

certificated by:

- a member of a competent person self-certification scheme; or
- (before work begins) an installer who is not a registered competent person may appoint a registered third party certifier to inspect and test the work; or
- (before work begins) the work must be notified to the local authority, which will then be responsible for inspecting and testing it for electrical safety.

The building control body will determine the extent of inspection and testing needed for it to be established that the work is safe, based on the type of work and competence of the installer. This may affect the fee payable to building control.

Where notifiable work is certificated by an installer who is member of a competent person self-certification scheme, the installer or the installer's registration body must give a copy of the Building Regulations compliance certificate to the occupier and the certificate or a copy of the information on the certificate to the building control body.

Where certification is by a registered third party (subject to inspection and testing being satisfactory), the third party certifier should then issue a condition report to the person ordering the work. The registration body of the third party certifier must give a copy of the Building Regulations compliance certificate to the occupier and the certificate or a copy of the information on the certificate to the building control body.

Where an installer is not a registered competent person and has not appointed a registered third party certifier (before work begins), the installer must notify a building control body.

All work, whether it is notifiable or non-notifiable, should be designed, installed, inspected, tested and certified in accordance with BS 7671. **SPN**

PLEASE NOTE: This article is only a brief overview of the topic. For more information please refer to BS 7671:2008+A3:2015 and the manufacturer of the hot tub. It is important to consult the Building Regulations in the UK when designing electrical installations. Article reproduced with permission from Wiring Matters magazine (electrical.theiet.org/wiring-matters) which publishes a wide range of articles about BS 7671 and other news.