

# Supplementary bonding in bat

*Bill Allan* responds to your concerns voiced at our 17th Edition Wiring Regs updates and on the NAPIT Technical Helpline

One of the changes in the 17th Edition Wiring Regulations which has been warmly welcomed is contained in Regulation 701.415.2. This removes the requirement for supplementary equipotential bonding in locations containing a bath or shower.

Yet judging from the number of questions on this received on NAPIT's nationwide 17th Edition update courses and also on the NAPIT Technical Helpline, there appears to be some uncertainty over this important issue. This article will attempt to clarify this.

## Regulation 701.415.2

The first half of Regulation 701.415.2 concerns the practice of supplementary equipotential bonding. It is unchanged in Regulation 601-04-01 of the previous edition of BS 7671, apart from editorial changes. The second half of Regulation 701.415.2 states that where the location containing a bath or a shower is in a building in which main protective bonding has been carried out in accordance with Regulation 411.3.1.2, supplementary bonding may be omitted where all three of the following conditions are met. With Regard to locations containing a bath or a shower, my comments follow each one.

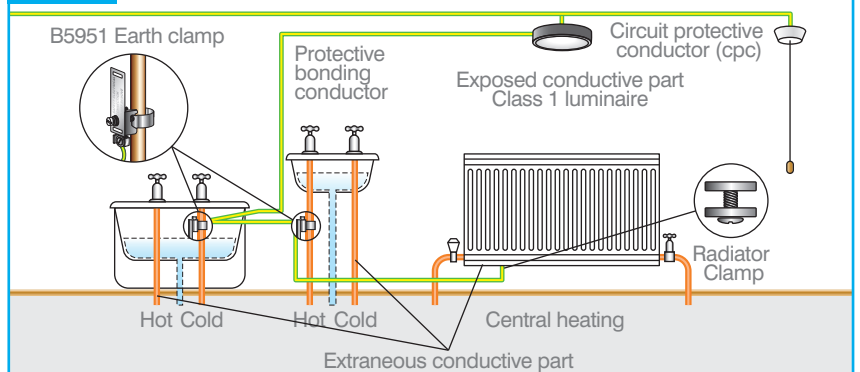
- 1 All final circuits must comply with the requirements for automatic disconnection according to Regulation 411.3.2. *Bill Allan: all final circuits must comply with this requirement in any case whether or not they are in a bathroom or shower room.*
- 2 All final circuits must be provided with additional protection by means of a 30 mA RCD. *Bill Allan:*

*this is a requirement of Regulation 701.411.3.3.*

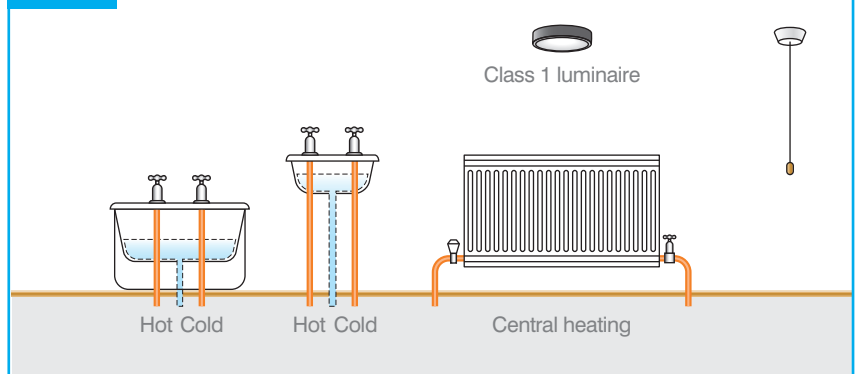
- 3 All extraneous-conductive-parts, must be connected to the main bonding in accordance with Regulation 411.3.1.2. *Bill Allan: it will be noted from the preceding sentences that supplementary bonding can only be omitted in a building which has main bonding.*

The requirement for main protective bonding contained in Regulation 411.3.1.2 is unchanged from

**Fig 1 A bathroom with bonding**



**Fig 2 A bathroom without bonding**



## Bathroom without supplementary bonding

*Supplementary equipotential bonding has been omitted because the following have been complied with:*

- *the premises have protective equipotential bonding (Regulation 411.3.1.2)*
- *the disconnection times have been complied with (Regulation 411.3.1.2)*
- *all circuits in the location have been provided with 30mA RCD protection (Regulation 701.411.3.3)*
- *all extraneous conductive parts of the location are effectively connected to the protective equipotential bonding (Regulation 411.3.1.2).*

*If the three conditions of Regulation 701.415.2 are met – supplementary bonding is not required in locations containing a bath and shower".*



# Bathrooms and shower rooms

the requirement for main equipotential bonding in Regulation 413-02-02 of the 16th Edition of BS 7671, apart from minor editorial or terminology changes.

An extraneous-conductive-part is defined in Part 2 Definitions as: “a conductive part liable to introduce a potential, generally Earth potential, and not forming part of the electrical installation.”

If an item of metalwork within a location containing a bath or shower does not come within the definition of an extraneous-conductive-part due, for example, to plastic inserts, then the metalwork does not need to be supplementary bonded. It is effectively isolated metalwork. Such metalwork did not require supplementary bonding in the previous edition of BS 7671 and that is still the case.

If an item of metalwork within a location containing a bath or shower does come within the definition of an extraneous-conductive-part, it does not need to be supplementary bonded – as long as main protective bonding has been carried out.

## Adding a new circuit

When adding a new circuit in a location containing a bath or a shower, such as a circuit for a shower, the location must be assessed with regard to the three conditions required by Regulation 701.415.2. It must be borne in mind that it is only if all three conditions are complied with that supplementary bonding can be omitted.

If supplementary bonding has not been carried out, there are two options:

- supplementary bond the location in the normal way (see the first paragraph of Regulation 701.415.2) including the new shower circuit
- or provide all circuits within the location with additional protection by means of one or more 30 mA RCDs. If this option is selected, and assuming that the other two conditions have been complied with, then supplementary bonding is unnecessary.

If supplementary bonding has been carried out, and assuming that the other circuits within the location have not been provided with additional 30 mA RCD protection, then it is necessary to supplementary bond the shower circuit to the existing supplementary bonding.

*Even with the most funky concealed showers, if the three conditions of Regulation 701.415.2 are met – supplementary bonding is not required.*  
Picture courtesy of Bathroom Manufacturers' Association member Pegler Yorkshire.

## Conclusion

In new installations all three of the conditions in Regulation 701.415.2 for the omission of supplementary bonding must be met and supplementary bonding is not required in locations containing a bath or shower. When carrying out additions or alterations however, then supplementary bonding will have to be considered as indicated in this article

