

THE HIGHS AND LOWS OF ACCESSORY MOUNTING

Determining the appropriate mounting height for accessories requires an informed and pragmatic approach to the building regulations

By Richard Foster



WHAT'S THE right height for fixing socket outlets, switches and controls? It's a simple question; unfortunately there isn't a simple answer. It all depends on what sort of building you are working on and if it's new or existing.

New dwellings

In the case of new dwellings, refer to the Building Regulations Approved Document M (ADM) Section 8 or the IET On-Site Guide Appendix H6. Both sources stipulate that socket outlets, switches and controls should be installed at a height between 450mm and 1200mm above the finished floor level. Generally, this means it is a minimum of 450mm to the underside of an outlet and a maximum of 1200mm to the top of a switch or a control. Outlets and controls above a worktop can align with switches with a minimum 100mm gap between the worktop and the underside of the outlet.

In the case of consumer units, Building Regulations Approved Document P (ADP) states that they should be installed so that circuit-protective devices (CPDs) are between 1350mm and 1450mm above finished floor level. This contradicts BS8300:2009+A1:2010 Design of Buildings and their

approaches to meet the needs of disabled people – Code of practice, which states that the maximum height of simple push-button controls – including isolator switches and circuit breakers that require limited dexterity – should be 1200mm. However, the Building Regulations take precedence, and in dwellings where it's highly likely children will be present it's best to locate a consumer unit as high as the Building Regulations allow.

Existing dwellings

In existing dwellings, switches and controls are generally higher and outlets lower than the mounting heights required by Building Regulations. An extension, or an alteration to an existing dwelling, means new or replacement switches, and outlets and controls can be installed (for aesthetic reasons) to match existing mounting heights.

However, the location of a replacement consumer unit could be moved to make it more accessible (for example, not under the stairs or high up near the ceiling), and a complete rewire would be an opportunity to install accessories in line with Building Regulations (provided the client agrees of course).

Buildings other than dwellings

Refer to the Building Regulations ADM and BS 8300. Outlets can be installed between 400mm and 1000mm above the floor. Switches for fixed equipment can be installed between 400mm and 1200mm above the floor (but can be higher if needed). Switches and controls that require precise hand movements can be installed between 750mm and 1200mm above the floor.

Simple push-button controls that require no more than limited dexterity should not be more than 1200mm above the floor. Controls apt for close vision can be installed between 1200mm and 1400mm above the floor. Light switches for use by the general public need large push pad and should be aligned horizontally with door handles within 900mm to 1100mm above the floor.

Dado trunking

If outlets are to be mounted within the trunking, it needs to be positioned in the range 400mm to 1000mm above the floor. This raises a potential issue in offices, as the trunking could be lower than desk height, and, possibly, inaccessible when the desk is in place. Clearly, within the constraint of a 1000mm mounting height, the trunking >

profile, desk height, and wall openings need to be coordinated to ensure trunking outlets are accessible. A mounting height above the desk means the trunking, outlets, and cables will be in view. This might be an issue for the architect or client, and needs to be discussed before design or installation.

Skirting trunking, power poles and floor box outlets

Floor box outlets are an exception to the Building Regulations height requirements and are a standard fitting in open-plan offices where a high density of outlets is normal. The decline in the use of skirting trunking and power poles means more limited design options and architects can be against the use of dado trunking preferring a recessed installation, even though it is less flexible.

TP&N distribution boards

There used to be a regulation in BS 7671 that recommended a mounting height not exceeding 2250mm to the top and not less than 1400mm to the underside of a distribution board. Obviously, distribution board sizes vary greatly; so generally fix at 1800mm or 2000mm to the top, taking into account local conditions and requirements.

Accessibility and security are equally important at distribution boards. In all buildings there should be measures to prevent unauthorised access.

Meters

BS 8300 recommends that meters should be fixed in the range 1200mm to 1400mm above the floor so they can be read by a person standing or sitting. My local Distribution Network Operator (DNO) requires a domestic meter cabinet to be installed in the range 750mm to 1250mm from ground level to the underside of the cabinet. The median of this range is about right when you add on the distance from the bottom of the cabinet to the meter (the meter is usually fixed in upper part of cabinet). However, for blocks of flats and commercial installations there might be issues at common metering positions and sometimes just finding space at the appropriate height in an overcrowded plant room can be a real problem.

Fire-alarm manual call-points

BS 5839-1:2013 Fire detection and fire-alarm systems for buildings states that manual call-points should be fixed at 1400mm above the floor. However, a lower mounting height of 1200mm is allowed to align with light-switches for aesthetic reasons.



A mounting height outside this range may be considered a variation and recorded on the system certificate.

Sleeping accommodation

Sleeping accommodation comprises hotels, motels, and student accommodation, and is treated as buildings other than dwellings. In the case of hotel room consumer units, the location should be discussed with the architect and/or client.

Mixed-use development

Where part of a non-domestic building is used as a dwelling (public house, shop with first-floor flat) the Building Regulations requirements for buildings other than dwellings apply in common parts.

Local authority

Local authorities can have their own electrical specification with mounting heights provided for equipment and accessories. Obviously, if any do not agree with Building Regulations, consult the contract administrator.

Agricultural and horticultural premises

Agricultural and horticultural premises should be treated as buildings other than dwellings, but refer to BS 7671 Section 705 and IET Guidance Note 7 Chapter 5. Socket-outlets shall be installed in a position where they are unlikely to come into contact with combustible material. Also, electrical equipment generally should be inaccessible to livestock.

Schools

In schools, access control request-to-exit switches are likely to be fixed at a higher level than the range 1000mm and 1200mm recommended in BS 8300 – to prevent children exiting the building unaccompanied. Alternatively, instead of the manual release, a reader could

Fire-alarm manual call-point aligned with light switch. Note, for reasons unknown, the emergency lighting test key switch has been installed much higher

be used (read-in and read-out). Only teaching staff will have reader tokens, allowing the reader to be lower.

Historic buildings

When it comes to historic buildings, the basic rule is to seek specialist advice and do not remove or replace existing electrical equipment without consent. Existing wiring accessories can have historic and or aesthetic value. Accessories can be retained in-situ even if they are no longer in service.

Special locations

Agricultural and horticultural premises have already been mentioned, and for other special locations refer to BS 7671 and IET Guidance Note 7. Mounting heights are provided for socket-outlets serving caravan pitches and marina berths.

Published guidance

After reiterating the Building Regulations' height requirements for switches and socket outlets in the dwelling, the Electrician's Guide to the Building Regulations goes on to say that if a dwelling is rewired there is no requirement to provide the measures described provided that, upon completion, the building is no worse in terms of the level of compliance with the other parts of Schedule 1 to the Buildings Regulations. Similar qualifying advice is provided in IET Guidance Note 1: Selection & Erection when it says that BS 8300 is not mandatory unless directly referred to in the specification, or the specification contains a general requirement to the effect that the electrical installation shall comply with all relevant standards and codes.

While such qualifications can be helpful, it could be argued that a better approach would be for designers and installers to follow Building Regulations and the recommendations in BS 8300, subject to the client's agreement and aesthetic considerations, such as required by the special case of historic buildings. Also, perhaps there's a case for the mounting height of outlets (450mm in a new dwelling and 400mm in other buildings) to be the same regardless of the type of building.

Ultimately, it's a case of striking the right balance – between regulations and guidance and the needs of specific locations. ❄

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