

Where do electrical standards come from?



STANDARDS AND THEIR DEVELOPMENT

Concerns are often expressed within the electrical industry about the apparent constant changing of standards, and in particular the wiring standard *BS 7671*. This standard is doubly entitled; *BS 7671: 2018 Requirements for Electrical Installations*, and *IET Wiring Regulations 18th Edition*. The industry typically calls *BS 7671*, 'the Regs'.

This paper discusses in general where standards come from and how and why they are constantly evolving.

BS 0 – THE STANDARD FOR STANDARDS

It may seem strange to have a Standard for standards, yet it is critically important that all standards have a common way of looking, a common way of being created and a common understanding of terms used. *BS 0: 2021 A Standard for standards – Principles of standardization sets out the principles of standardisation* used by British Standards Institution (BSI) as the UK national standards body.

[BSI BS0 Standard for Standards UK \(PDF\)](#)



It is within *BS 0* that normative references are made to the following organisations:

- International Organization for Standardization (ISO)
- European Committee for Standardization (CEN)
- European Committee for Electrotechnical Standardization (CENELEC)
- British Standards Institution (BSI)

NOTE: A *normative* reference is one that is essential for the application of the Standard.

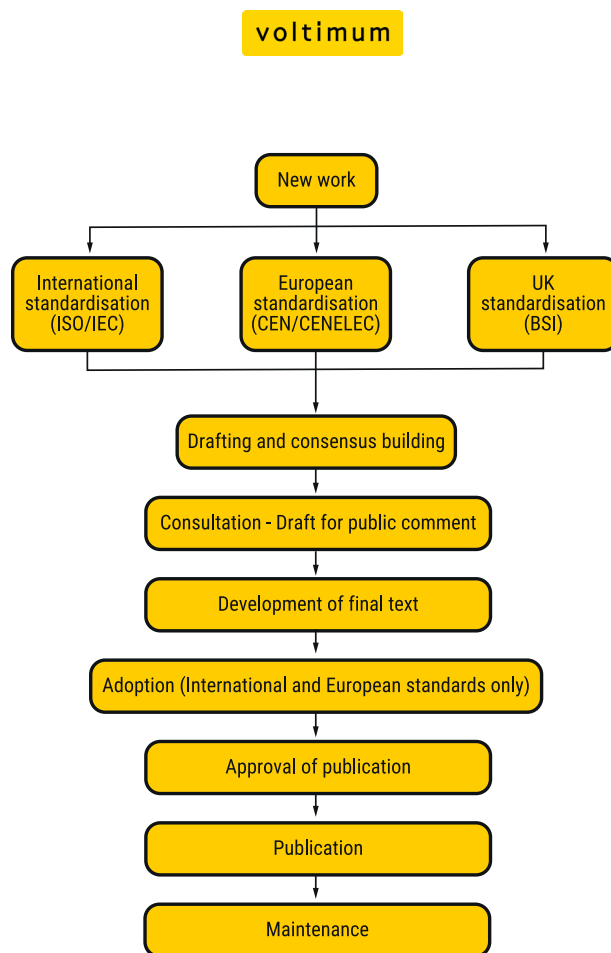


Figure 1 - Stages of standards development

It is *BS 0* that gives details on how the various committees are to be structured and managed and how the decision-making process should be undertaken. Without an understanding of the workings of *BS 0* it is difficult to grasp why UK committees act in the way they do.

All British Standards have the same defining characteristic detailed within *BS 0*:

- Representing good practice.
- Being developed and maintained by balanced and broadly representative standing committees that retain responsibility for them indefinitely and that reach agreement by consensus.
- Subject to open consultation.
- Subject to systematic periodic review as to their ongoing validity.

The various committees, therefore, must consist of those people and bodies that will provide that 'broad and balanced' approach to the development of any standard. In the case of *BS 7671* the people, and the organisations they represent, are detailed at the front of the Standard. A brief reading will show representatives from various certification bodies (Certsure, NAPIT etc), manufacturers (BEA-MA), cable manufacturers (BCA), exam bodies (C&G, EAL), designers (CIBSE), Trade Associations (ECA, SELECT) as well as individuals who have particular expertise necessary to the functioning of the committee(s).

Each committee can also request the attendance on an ad-hoc basis experts in a narrower sense, for example the Fire and Rescue Service when dealing with particular aspects of fire.

STANDARD MAKING

Amendments made to any standard are not made on a whim and are not made to increase the income of the various participating bodies or persons. A British Standard can be reviewed at any time; however, all standards are subjected to a review at least every five years (clause 6.2.1). As part of the review process the responsible committee may decide to confirm the standard for continued use, withdraw the standard or update the standard. The four ways of updating a standard are:

- Revision
- New edition
- Amendment
- Corrigendum

BS 7671 has been subjected to each of these means of updating.

DECISION MAKING

All decisions made by a committee are by means of **consensus**. Consensus is not simply a majority vote, and no represented organisation has a dominant position within a committee to be able to enforce their views.

Consensus is rooted in the desire to achieve general acceptance and application within a standard's particular field. To achieve consensus requires all views to be considered and that individual concerns are fairly balanced against the wider public interest (clause 7.5.3). Consensus can be thought of as being achieved when there is no non-trivial objection, and any such objection has not been sustained over a period of time.

It is the responsibility of all members of the committee to make reasonable compromises to achieve the wider goal of an updated standard. Generally, the committee system works well to achieve consensus and it is the role of the Chair of the Committee to fairly ensure that consensus is achieved. To this end a committee chair should be impartial and fair in his / her dealings.

There will be times when there are profound objections to a particular part of a standard and a member of the committee might make an objection. If the objection is based on sound principles and reasonably argued and then sustained over a prolonged period of time then, and only then, has consensus failed to be achieved.

BS 7671

BS 7671 can be considered to be a 'hybrid' standard in that both the IET and BSI have the responsibility for ensuring it aligns with both BSI and IET requirements. Technical authority for *BS 7671* resides in a joint BSI/IET committee, JPEL64.

JPEL64 has created four sub-committees to carry out the technical work of the main committee. These sub-committees are labelled A, B, C and D. Each sub-committee has a certain aspect of *BS 7671* for which they are responsible; for example, sub-committee B is responsible for thermal effects,

lighting and heating. The JPEL sub-committees operate under the principles detailed in BS 0.

BS 7671 tends to be reviewed continually and a new standard or amendment brought out approximately every four years without it undergoing a formal 'review' process. The ongoing nature of the review process is a reflection of the need to work with international standards bodies, such as the IEC and CENELEC.

Most amendments to BS 7671 come about from work that is carried out at international committees (IEC and CENELEC). BSI hold that it is preferable for standards to be developed initially at an international level. It is recognised that working at an international level will be most effective in developing standards to, amongst other things, facilitate trade, reduce barriers, support public policy objectives, increase efficiencies, and enhance consumer protection (clause 4.1.2).

For the UK, BSI engages actively with international standards-making bodies. Both the IEC and CENELEC have technical committees which 'farm out' their work to sub-committees (also called 'working groups'). It is the working groups where the majority of the technical work is done.

Once a technical committee of the IEC/CENELEC has come to some form of decision that a document is ready for comment by National Committees, a Committee Draft (CD) is issued.

A CD is passed to one of the four sub-committees to make comments before JPEL64 then sends it back to the international body/ies to consider the comments made by the national committee.

There may be instances where a national committee brings to the attention of the international organisations (IEC / CENELEC) a matter of national legislation or practice that makes certain agreed alterations within the CD unacceptable. When this happens, the national committee may request a special national consideration (SNC). This allows the national committee not to apply a certain regulation when the final standard is sent for publication. The SNC will be detailed in an Annex within the standard.

After a CD has been amended a committee document for voting (CDV) is sent back to the national committees. This is the last time that a national committee has the opportunity to seek changes, or to check that agreed amends have been made. The national committee will decide on whether to vote positively or negatively to the CDV at this time. Should the necessary number of positive votes be made at the international committee then the CDV will be turned into an agreed standard / amendment.

Should the international work of the IEC and CENELEC operate in parallel then a Harmonised Document (HD) is published. It is this HD that must be incorporated into BS 7671 at its next amendment stage. The national committee is required to remove any conflicting regulations and ensure that the existing standard aligns with the changes made. The committee is permitted to make certain textual changes to provide greater clarity, however the 'technical intent' must be met.

CONCLUSION

It is important that all those who are required to use standards are aware of the many factors that not only impact on the structure of the standard but also on its content. The structure and content of *BS 7671* primarily depend upon IEC and CENELEC (International) documents, and the UK has representatives on these international bodies.

UK standards committees all work to *BS 0* and all member organisations work to ensure that consensus is achieved in all areas. Whilst *BS 7671* is something of a hybrid standard in that both BSI and the IET have responsibility for it; its creation / amendment works to the general recommendations of *BS 0*.

voltimum

www.voltimum.co.uk

