The intent of this article is to explain the industry requirement for a clearer understanding of the codes used while carrying out periodic inspection and testing of electrical installations for the Electrical Installation Condition Report, the reasoning for the change to a new coding system and the intended uses of these codes.
The introduction of a new coding system (see figure 1) for the Electrical Installation Condition Report has been warmly welcomed by all areas of the contracting industry. The previous observation codes (see figure 2) Code 1, Code 2, Code 3 and Code 4 had the capacity to be misunderstood, be confusing and ambiguous and open to abuse. It was for these reasons that the National Committee, JPEL/64, concluded that there was a good opportunity for change at the amendment 1 stage of BS 7671:2008.

**Observation Code 1**
The previous observation Code 1 was always intended to be used to give an overall unsatisfactory assessment result with the discovery of an immediate risk of injury during an inspection but it was ambiguous as to what could considered to be an immediate risk. Although the previous observation Code 1 and the new code C1 have the same outlook and intention, the meaning of a new code C1 has been clarified.

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![Figure 1: The new codes for Electrical Installation Condition Reports as they appear in BS 7671:2008 2011).](image)

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![Figure 2: The previous observation codes for Periodic Inspection Reports, now known as the Electrical Installation Condition Report, as they appear in BS 7671:2008.](image)
Whilst the previous observation code 1 stated:

“Requires urgent attention”

The new C1 now states:

“Danger present. Risk of injury. Immediate remedial action required”

This new definition of a situation, which would incur a code C1, will help inspectors ensure it is used to report that a risk of injury exists, which could incorporate, for example, accessible live conductors due to damage, poorly modified enclosures or removed maintenance panels. It should be noted that incorrect polarity would also attract a code C1 as it may allow conductive parts, not normally expected to be live, to become live.

The presence of a code C1 would warrant immediate action to be taken which would be to inform the duty holder or responsible person for the installation immediately, both verbally and in writing, of the risk of injury that exists. A detailed explanation of this risk
should be recorded on the report, together with details of any verbal and written warnings of dangerous situations that exist. If possible, immediately dangerous situations should be made safe or rectified before further work or inspections are carried out.

**Observation Code 2**
The previous observation Code 2 was designed to give the recipient of the report an indication of the possible improvements to an installation which would increase safety. However, this was open to confusion and misinterpretation within the industry.

The previous Code 2 could either be used to give an unsatisfactory overall report or a satisfactory report, hence, the huge opportunity for confusion and constant debates on where the severity of a Code 2 rendered the overall report unsatisfactory and when a Code 2 would not be considered severe enough and a satisfactory report would be issued.

This also spurred the popular argument that if enough low threat Code 2s, that would normally attract a satisfactory assessment, were present then an unsatisfactory report should be issued based on a ‘tot up’ basis. Totting up was ambiguous, as at what point was the tot up figure of C2s to be set at and why should an installation receive an unsatisfactory report based on tot up if the individual C2s would normally attract a satisfactory assessment?

The previous Code 2 states: “Requires improvement”

The new code C2 states: “Potentially dangerous-urgent remedial action required”

The phrase “potentially dangerous”, in the new code is designed to point towards a risk of injury from contact with live parts after a sequence of events. A sequence of events could mean that an individual would need to move, open or gain access to live parts through a day to day task that would not be expected to give access to live parts, for example:

If an isolator in a locked cupboard had a damaged casing, leaving exposed live parts that could not be accessed without the use of access equipment, such as a specialist tool or key this would be considered a code C2. An individual would need to gain access to the cupboard before coming into contact with live parts and the potential for risk of injury is high.

The lack of an adequate earthing arrangement for an installation, the use of utility pipes as the means of earthing or an undersized earthing conductor (established by use of the adiabatic equation in Regulation 543.1,3) will also warrant a code C2 observation because a primary fault would be needed in order for these scenarios to become potentially dangerous.

It should be noted that with the new code C2, there is no leeway for unsatisfactory versus satisfactory, as a code C2 can now only be given an unsatisfactory overall result.

With this new classification system there is very little area for confusion as both codes C1 and C2 attract only unsatisfactory report findings.

**Observation Code 3**
The new code C3 states: “Improvement recommended”

Whereas the previous observation Code 3 states: “Requires further investigation”

The new code C3 removes the ambiguity of requiring further investigation, as the previous code 3 implies there are unknown variables or findings that are not compliant with the current version of BS 7671, these findings may require improvement but this can only be a recommendation. The new code C3 should imply to the client that the installation is not necessarily dangerous but it may not comply with the current version of the regulations or for example, may have damaged fittings that do not have exposed live parts.

A code C3, in itself, should not warrant an overall unsatisfactory report.

Observation Code 4 (removed from the observation codes)

The removal of observation code 4 was required as it stated: “Does not comply with BS7671.2008. This does not mean that the electrical installation is unsafe”

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This philosophy has been incorporated into the new code C3, in order to remove the need to note on a report findings, that although not compliant with the current regulations, are not unsafe and do not necessarily require upgrading. It was determined that if an instance such as this was included in a report, it gave the impression that something was unsafe or required upgrading, when this was not the intention.

A portion of the findings from the previous observation Code 4 may now be classified as a new code C3 and some of the previous observation Code 4s will not incur a code and may not even be referred to in the report. If an inspector feels that these types of non-classifiable findings should be put into a report, it should be made clear to the client that findings of this nature do not detract from the installation’s safety and it should be made clear in the report that they are only observations.

For further information on the new coding system and examples of what constitutes a code C1, C2 or C3, the Electrical Safety Council’s Best Practice Guide 4, which has been compiled with input from the industry and is available from their website as a free download.