



BS EN ISO 19560 GUIDANCE

NHSScotland

Abstract

This year saw the publication of two new standards at International (ISO), European (CEN) and UK Level. This guide explores BS EN ISO 19650 Parts One and Two and what this means for NHS Boards.

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Introduction

This year saw the publication of two new standards at International (ISO), European (CEN) and UK Level. This guide explains what they are, why they were created, and what you need to do.

What is ISO 19650?

BS EN ISO 19650 Parts One and Two define the collaborative processes for the effective management of information throughout the delivery and operational phase of assets when building information modelling (BIM) is being used.

- **BS EN ISO 19650-1** Organization of information about construction works – Information management using building information modelling – Part 1: Concepts and principles; and
- **BS EN ISO 19650-2** Organization of information about construction works – Information management using building information modelling – Part 2: Delivery phase of assets.

Further standards are currently being drafted and are set for publication in 2020. These are:

- **ISO/CD 19650-3** Organization of information about construction works -- Information management using building information modelling -- Part 3: Operational phase of assets; and
- **ISO/CD 19650-5** Organization of information about construction works -- Information management using building information modelling -- Part 5: Specification for security-minded building information modelling, digital built environments and smart asset management.

The move to an international standardisation has always been an end goal. The Report for the Government Construction Client Group BIM Strategy Paper published in 2011 highlighted the opportunity for developing an international BIM policy and for the UK to take a leading role in shaping this.

What is ISO?

ISO or the International Organization for Standardization is an independent, non-governmental international organisation. It aims to deliver international standards that support innovation and provide solutions to global challenges. In essence it is about facilitating free and fair global trade.

It is made up of 163 national standards bodies, including the UK standards body, BSI (British Standards Institute). A new work item within ISO was triggered by BSI through the Vienna Agreement at European level within the European Committee for Standardization (CEN). The Vienna Agreement aims to prevent duplication of effort and reduce the time when preparing standards by various parties working together.

What is CEN?

The European Committee for Standardization (CEN) brings together the national standard bodies of 34 European countries. It has an agreement for the technical co-operation with ISO. This means that CEN and ISO jointly plan the development of new standards, and where an ISO meets European legislation and market requirements, the ISO standard will be adopted, replacing any corresponding CEN standard. The reason being, you cannot have two competing standards.

Figure 1 illustrates the organisations relationships.



Figure 1 Standards organisations relationships

UK 1192 documents

The UK BIM strategy has a focus on end deliverables (and who is responsible for these deliverables via specific contractual requirements). This led to the UK BIM Task Group on behalf of the UK Government's Department for Business, Energy & Industrial Strategy (BEIS) funding the development of a series of standards, Processes and tools to help clients become more effective in communicating their information requirements and to remove barriers to BIM adoption. It is important that all participants are working from the same consistent set of standards and processes to fully reap the rewards of a BIM approach.

These standards sometimes referred to as the UK 1192 Series, define BIM Level 2 in the UK. The UK Level 2 suite of documents has been favourably received not only in the UK but also further afield by international asset owners and clients that began to adopt the management processes defined within. This meant that many international organisations deemed it unfair to be asked to work in accordance with UK standards, leading to pressure for the UK 1192 series to be made into an international standard. This helps organisations that work in a global environment to work towards a simplified and common approach to information management. It allows organisations to compete on a level playing field despite where they are located in the world.

The new ISO 19650 series are therefore based upon the UK 1192 series with the aim to help teams from around the world to minimize wasteful activities and increase predictability around cost and time, through a common approach. This has many positives and opportunities for the UK construction industry that are familiar with and aligned their business processes to the UK 1192 series.

A 'BS EN' in front of the title signifies that it is the British adoption of a European (EN) standard.

Whats the difference between the UK 1192 series and ISO 19560?

As the principles of BS EN ISO 19560-1 and 2 are based upon the UK 1192 standards, the concepts and approach will already be familiar, taking the collaborative production of information defined within BS 1192, and the management of information during the delivery phase defined in PAS 1192-2 and operational phase of assets defined within PAS 1192-3.

(This is also the case with the future ISOs with PAS 1192-3 and PAS 1192-5 becoming the baseline for ISO 19560-3 and ISO 19650-5 respectively.)

While the UK Maturity wedge describes four levels of maturity from Level 0 to Level 3, ISO describes three ‘stages’, 1, 2 and 3. Essentially, ISO Stage 2, defined as ‘BIM according to ISO 19560’ supports a container based collaborative working approach and is equivalent to the UK definition and understanding of BIM Level 2.

Working within a committee to find an international consensus can be challenging. Not just in terms of approach but also in what things are called. It is inevitable that countries may have ways of working specific to that region and therefore many of the UK terms have been changed for an international audience. To resolve this, regional specific requirements are contained within a National Annex.(Figure 2) While ISO 19650 defines the requirements, the National Annex defines standards that have to be used within a particular region. Although it could be argued that the introduction of a Country specific National Annex is a failure of the standard to agree on a common way of working, it does facilitate all countries to participate.

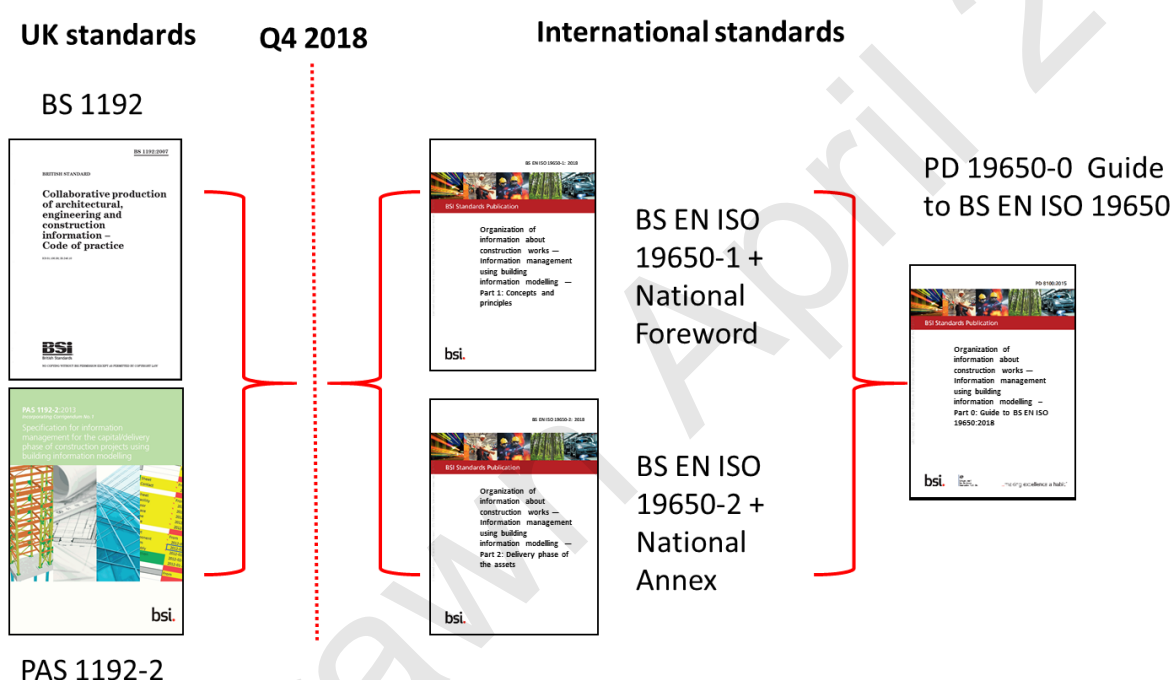


Figure 2 UK 1192 series to BS EN ISO 19650

What are the main changes to terminology that I need to know?

Employers Information Requirements vs Exchange Information Requirements

Terms such as the EIR are well established and understood within UK BIM Level 2. However the ISO uses a subtle name change to describe these as ‘**Exchange Information Requirements**’. The change of term now describes information exchanges from all parties and not just those coming from the client of the project.

Unlike PAS 1192-2:2013 which provides a minimum contents list for an EIR, the ISO doesn’t proscribe any minimum contents. Instead BS EN ISO 1950-2 (5.2.1) lists out the activities that are required to establish the EIR. The EIR is still the main way to communicate to the supply chain, who is doing what, when and how. This is articulated by the ‘**Responsibility matrix**’, however within the ISO this is broken down into two parts.

Part 1 The responsibility Matrix: This covers information management activities such as what information is to be produced when information is to be exchanged and who is responsible for its production.

Part 2 The Assignment Matrix: This covers information delivery, by assigning the information management activities against the different types of parties. For example assigning an appointing party responsible for establishing the CDE, or those responsible for compiling the invitation to tender information. Annex A of ISO 19560-2 includes a useful Information Management responsibility matrix template.

Information Standard

Within PAS 1192:2, Standards, Methods and Procedures (SMP) is used to provide clarity on information formats and naming conventions and guidance on how to supply information. The ISO breaks this concept into two by using the terms 'Information Standard', and Information production method and procedure'.

Project Information Requirements vs Plain Language Questions

Other terminology changes relating to information requirements includes the term '**Project Information Requirements**' (PIR) in place of Plain Language Questions (PLQ). The PLQ is used by Boards as a way to describe to the supply chain what high level information they need in order to make an informed decision. The PIR is broader than a PLQ in that it also includes non-technical requirements.

Level of Definition vs Level of Information Need

LOD is an acronym within BIM that has long caused confusion, with many different meanings globally. In the UK, LOD or Level of Definition is used as the collective term for describing graphical information such as geometry (Level of Detail) and non-graphical information such as attributes and specifications (Level of Information). The ISO uses the term 'Level of Information Need', which as well as describing graphical and non-graphical can also describe spatial positioning and relationships.

The important thing to remember however, is regardless of the term used, the amount of information should be driven by its purpose. This means providing information in the right quantity and quality, to prevent waste.

Appointing Party/appointed party vs Employer

NHSScotland are a 'client' in that they are responsible for initiating a project and approving the brief.

Two new terms are within the ISO replacing the term 'Employer'. Firstly, '**appointing party**' which means the provider of information, goods or services, such as a consultant and **secondly 'appointed party'** which means the receiver of information, goods and services. The appointing party shall establish their information requirements by way of OIRs, AIRs and PIRs, Level of Information need, acceptance criteria, supporting information such as existing asset information and key dates and decision points.

Appointed parties are still required to respond to the EIR by way of a BIM Execution Plan. ISO 19560-1 uses '**Information Delivery Plan**' as a generic term to describe any plan that supports information delivery. The more specific term '**BIM execution plan**' is referred to in ISO 19560-2. The important thing to note however that regardless of any name change, the document is still the main vehicle for appointed parties to demonstrate to NHS Boards how they intend to deliver the information boards require.

It is also worth noting that the ISO uses the term “Appointment” in place of Contract. It is deemed that the term appointment is more generic and can therefore be used for both external contracts and internal work instructions.

Test Supply Chain Capability & Capacity

The general principles of supply selection remain the same. In summary, appointed parties (suppliers) are assessed for their capability and capacity to manage and produce information and also the on their IT systems and solutions.

Are they free?

Unlike the UK PAS 1192 suite which were funded by the Government, the ISO documents are chargeable. They are available in PDF or hardcopy format and at time of writing cost the following:

- BS EN ISO 19650-1 = £108 (£54 for BSI Members)
- BS EN 19560 2:2018 = £93 (46.50 for BSI Members)
- PD 19650-0: 2019 = £50 (reduced to £25 for BSI Members)

How do I use them?

The principles of both BS EN ISO 19650-1 and 2 are founded on the UK’s standards for information Management using BIM and will be identifiable to those that are already using BS 1192 and PAS 1192-2. BS EN ISO 19650 is fundamentally an internationalisation of the UK’s BIM L2 approach and contains all the same principles and high-level requirements with specific UK content contained in our National Annex.

Therefore BS EN ISO 19650-2 should be used in conjunction with the UK National Annex. For example ISO 19650-2 requires that information is classified using a classification systems in accordance with ISO 12006-2. Within the UK National Annex, Uniclass 2015 (the UK implementation of ISO 12006-2) is required.

While ISO 19650-2 requires that each information container has a unique ID, the UK National Annex states how this should be defined. For those already using BS 1192, the conventions will already be familiar. For example:

Project – Originator – Volume/System – Level/Location – Type-Role-Number

ISO 19650 refers to “stages of maturity of analogue and digital information management” with the current ISO supporting a container based collaborative working approach. In the UK we will still reference BIM Level 2 as our equivalent. Figure 3 illustrates the International Standards, supporting guide and UK standards.

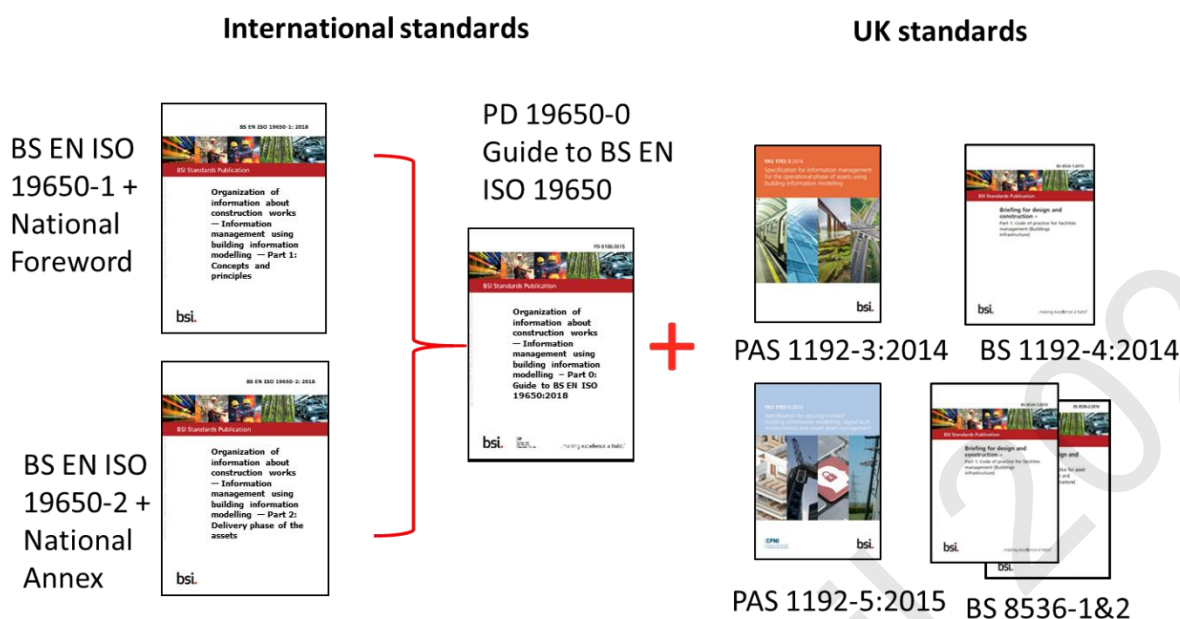


Figure 3 International and UK standards

ISO 19650-5 is currently under development to supersede PAS 1192-5:2015. Until such time that this is published, you should still take the principles and a security-minded approach as outlined in PAS 1192:5

When should NHSScotland use them?

The key message is that is business as usual. As ISO 19650 holds the same principles of BIM Level 2, there is no proposed change to the Scottish Government's BIM Policy at this stage.

The NHSScotland BIM guidance documents, EIR and supporting templates refer to the UK 1192 series and the terms contained within. This doesn't mean that NHS have to now change their documentation rather they should demonstrate that they can map the existing terms to the terms within ISO 19650 to help collaboration when working with others using the ISO.

While there is no legal requirement for clients to shift to the ISO, using the latest standards is always best practice. The European standards body, CEN will adopt the ISO 19650 series, meaning that they will become the preferred method of procuring publicly funded projects across Europe. At present there is no date by which a Scottish Public Sector procurer must adopt them. However the BIM Delivery Group from 1st April 2019 will be recommending the following phased approach to adoption:

- For projects that have commenced procurement of consultants, designers or contractors prior to 1st April 2019, the project should maintain the existing BIM standards that have already been specified and not seek to retrospectively apply ISO 19650 Part 1 & 2.
- For projects that have yet to commence procurement of the consultants, designers or contractors after the 1st April 2019, the procurer would be encouraged to adopt ISO 19650 Parts 1 & 2 in a proportionate manner.

Now that BS EN ISO 19650-1 and BS EN ISO 19650-2 are published, BS 1192:2007 and PAS 1192:2 will be withdrawn by BSI. This is because you cannot have two competing standards. They will still be

available for the near future to act as a reference point, but will lose their status as a standard. It is therefore important that the NHSScotland EIR makes it clear which standards are being used.

To help the transition, BSI have produced a guidance document (PD 19560-0). This guide is aimed at those that are already using the UK 1192 series and highlights the changes and how Level 2 can be achieved using the ISO 19650 framework.

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