

BUILDING INFORMATION MODELLING (BIM) PROTOCOL REVIEW

NHSScotland

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Introduction

Working at Level 1 and Level 2 BIM maturity requires very little change to the fundamental building blocks of copyright law, contracts or insurance. The NHSScotland Protocol for Building Information Modelling (BIM) 2015, based upon the CIC BIM Protocol 2013, is a supplementary agreements that is incorporated into professional service appointments and construction contracts by way of a simple amendment.

The protocol allows BIM adoption to take place without the need to redraft contracts, by making the minimum changes necessary to the pre-existing contractual arrangements on construction projects. In essence it is a set of add-on contract clauses that promote the ethos of collaboration and sharing. The objective of the protocol is to enable the production of information models at defined stages of a project.

The NHSScotland BIM Protocol while follows much of the content of the CIC BIM Protocol 2013, does differ slightly in places. For example, the NHSScotland BIM Protocol makes specific reference to the PSCP and has only one clause relating to the use of the model (6.1) whereas the CIC BIM Protocol 2013 goes into more specific details in this regard (6.1-6.10)

The CIC BIM protocol was first published in 2013, predating the UK Government BIM Mandate and the publication of the supporting BIM Level 2 standards. During this time, current practices and BIM standards have developed to a point in which the protocol was due an update. Therefore the Protocol has been brought up-to-date, to align with standards such as PAS 1192:2 and PAS 1192:5.

The CIC BIM protocol 2013 was updated on the 10th April 2018 to closely align with PAS 1192:2 and PAS 1192:5.

This report outlines the changes to the protocol, their implications and makes recommendations as to what changes are needed to the NHS Baseline BIM Protocol.

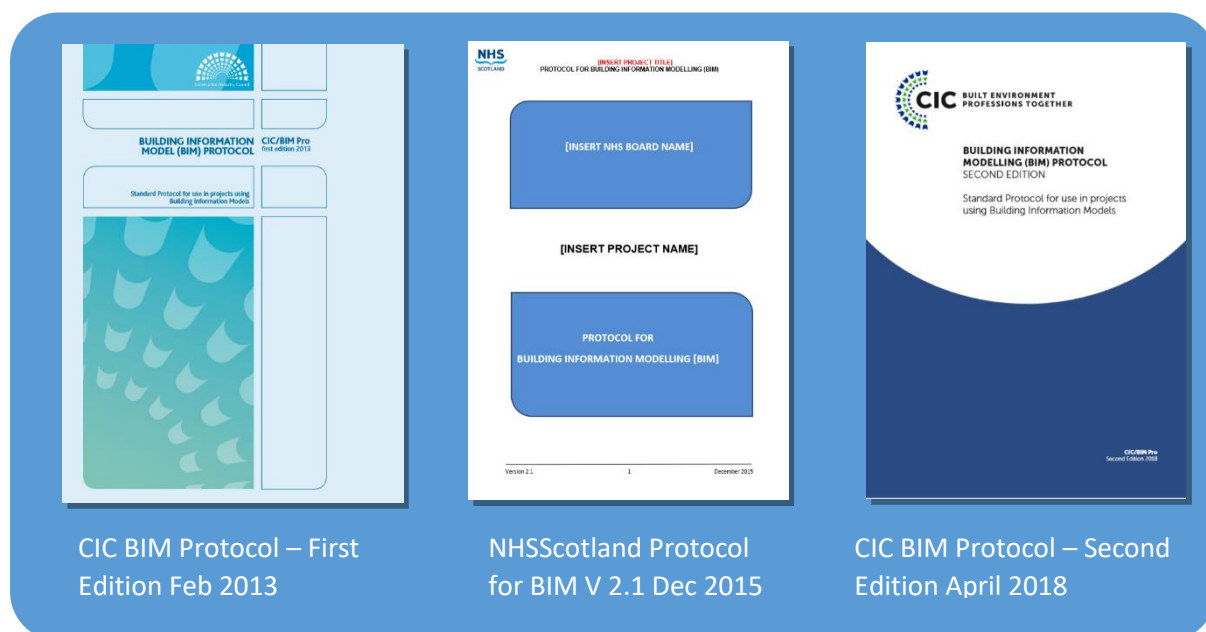





Table 0-1 shows the contents at a glance. Unlike the CIC BIM Protocol 1st edition where the appendixes were available as a separate download from the CIC website the Appendixes for the 2nd edition are integral to the document when downloaded.




(www.cic.org.uk/publications)

The new protocol broadly follows the structure of the first edition, however now contains three appendixes.

Table 0-1 BIM Protocol contents at a glance

	 CIC BIM Protocol 1st Edition	 NHSScotland BIM Protocol 2015	 CIC BIM Protocol 2nd Edition
1	Definitions	Definitions	Definitions
2	Priority of contract documents	Priority of contract documents	Coordination and Resolution of Conflicts
3	Obligations of the Employer	Obligations of the Employer	Obligations of the Employer
4	Obligations of the Project team member	Obligations of the Project team member	Obligations of the Project Team Member
5	Electronic Data Exchange	Electronic Data Exchange	Electronic Data Exchange
6	Use of Models	Use of Models	Use of Information
7	Liability in Respect of a Model	Liability in Respect of a Model	Liability in Respect of Proprietary Material
8	Termination	Termination	Remedies – Security
9			Termination
10			Defined Terms

Appendices

	 CIC BIM Protocol 1st Edition	 NHSScotland BIM Protocol 2015	 CIC BIM Protocol 2nd Edition
1	Levels of Detail and the MPDT	Sample Production and Delivery Table	Responsibility Matrix
2	Information Requirements	Additional Information	Information Particulars
3			Security Requirements

1 Main Changes to CIC Protocol

The main changes to the CIC BIM Protocol 2nd edition, that NHSScotland should know are summarized below:

1.1 Not Model Centric

A fundamental change to the Protocol is that it is no longer model centric. The alignment of the document now makes a distinction between ‘Information’ and ‘Models’ with the definition of the word ‘Model’ removed from the 2018 edition. Instead the term ‘Specified Information’ is used as this applies to all types of information and not just graphical models.

10.30 Specified Information means the information, including, without limitation any Information Models, which the Project Team Member is to produce, share and/or publish as specified in the Responsibility Matrix and the Information Particulars.

Figure 1-1 Extract from CIC BIM Protocol 2nd Edition 'Defined Terms' Clause 10.30

Consideration

Update references to Model with the term ‘Specified Information’. This includes clause 3.6 Definition of the Models covered by the Protocol and Appendix 1

1.2 Alignment and terminology updated

The protocol has been aligned with other documents, such as PAS 1192:2 resulting in updated terminology. For example, the term **Model Delivery Table (MPDT)** has been renamed **Responsibility Matrix**. The responsibility matrix (Appendix 1) now also defines responsibility for information and model production rather than just describing information by LOD (Level of Detail).

Accordingly the Protocol now embraces **Level of Definition** concept as set out in PAS 1192:2, where LOD is the collective term for Level of Detail (Graphical Detail) and LOI (Level of Information – non graphical).

Consideration

It is important to note that the term Responsibility Matrix is only very briefly defined in PAS 1192:2. It is defined as setting out *‘the relationship between disciplines and production of information or models’* and also in the context of an initial responsibility matrix *‘setting out any discipline responsibilities for model or information production in line with the defined project stages.’* The intension was that the term would be further defined in a revision to PAS 1192:2. However given the proximity to the release of ISO 19560-1 & 2 (which used PAS 1192:2 as a baseline) it was decided by BSI not to release the revision. As such there are no specimen examples as to what the Responsibility Matrix looks like, however it is similar to the commonly accepted form of an MPDT however includes Level of Definition.

The term **Permitted Purpose** is now aligned with the definitions of Level of Definition and also the status code and the “functional state” (WIP, Shared, Published or Archived) of the Common Data Environment (CDE).

Consideration

It is worth noting that the term **‘Permitted Purpose’** means a ‘purpose related to the Project (and/or construction, refurbishment, extension, operation, management and/or maintenance of the project.

It is therefore important to explicitly state if NHSScotland require the use of materials for the purposes of property portfolio management, such as Big Data mining. This allows for information, lessons learnt and feedback from different projects across the NHS estate to help inform future and unrelated projects.

Appendix 2 **‘Information Particulars’** roughly aligns with the previous Information Requirements Appendix in that they both include the Employers Information Requirements (EIR) and the Project Procedures. However the term ‘Information Particulars’ now also refers to the BIM Execution Plan (BEP).

1.3 Obligations

It is worth noting that there is now more emphasis on the obligations for both Employers and the Project Team members. On the Employer’s side for example there are references to the Standards Methods and Procedures.

There is also an obligation on the employer to allow for the provision of and access to the Common Data Environment. Clause 3 now obliges the employer to allow Project Team Members access to Project Information shared through the CDE process for the purpose of retaining a ‘record copy’ of project information at the end of the project or following any earlier termination of the agreement.

Consideration

Project Team members could potentially use this information for a purpose that is not actually related to the project itself. The protocol sets out the employers own licence which extends to the granting of sub-licences for the permitted purpose. It could be argued however that retaining a ‘record copy’ isn’t a purpose that relates to the project.

Other obligations require the employer to review and update security requirements and to appoint a Built Asset Security Manager until the end of the project.

The new protocol also places obligations on the Project Team Member. For example, there is now a requirements (subject to an extensions of time under the primary contract) to produce product information in accordance with the times stated within the Responsibility Matrix. The previous version of the protocol only placed an obligation to use reasonable endeavours.

Project Team Members are now also obliged to attend coordination meetings with the information manager (as stipulated in the information particulars), corporate with the built asset security manager and also comply with security requirements.

Consideration

The protocol now obliges that the Project Team Members attend meetings in connection with the co-ordination of Project Information. It is therefore important that NHSScotland make sure that tenderers have allowed for the attendance of these meetings as part of their tender.

The project team member's right to claim a variation in respect of any update to the Responsibility Matrix and security requirements, and for any instruction in relation to the security requirements, is also expressly preserved. This is a further aspect where the interaction with existing contract terms requires to be considered.

1.4 Security requirements

The provision of security is now considered within a new appendix (Appendix 3 – Security Requirements). Security requirement now align with PAS1192-5 (Specification for security-minded building information modelling, digital built environments and smart asset management) to ensure that that if a BIM Level 2 project is required, those expectations need to be met. For example, references have now been updated to reflect the roles included in PAS 1192-5 along with processes to control them.

2. Project Specific Security Requirements

2.1 The Built Asset Security Information Requirements applicable to the Project Team Member are as follows:

[Refer to the Built Asset Security Information Requirements included in the EIRs. See paragraph 10 PAS 1192.5]

2.2 The Employer's Baseline Security Requirements are:

[See PAS 1192-5 (5.6). The contractual obligations under the Agreement in relation to security should be considered carefully (see paragraph 11.4 of PAS 1192:5) and referred to here if necessary]

Figure 1-2 Extract from CIC BIM Protocol 2nd Edition 'Appendix 3 - Security Requirements

Consideration

Update baseline document to include additional Security appendix and terminology.

1.5 Precedence of protocol

To address previous industry criticism of the 2013 protocol around the original wording that made the Protocol take precedence over other agreements, the 2018 edition has been reworded so that the Protocol only takes precedence should there be a discrepancy. It should be noted however that this would also require the relevant consultancy agreements or building contracts to be amended. Ideally any discrepancies should be resolved in clause 2.2.

The protocol contains guidance on how it should be incorporated into the construction contract (either as a contract document or as part of the Works information if using NEC4), and has been

structured to cover a larger range of procurement methods including traditional procurement and alliancing. However it doesn't offer any specific advice with regards to incorporation within other contracts such as JTC or how it is used aside Professional Service agreements, but the procedure is expected to be similar.

It is worth noting that with regard to information precedence, the clause relating to models taking precedence over drawings is removed. This provides for more flexibility. For example an output from the model can be used as a reference to further enhanced detailing work. This also allows for drawings to be further developed instead of an instance of the model.

The clause (2.2) now makes a provision that should either party find any ambiguity, conflict or inconsistencies within the EIR or BEP then that party shall notify the other to agree how this is to be resolved. While in practices this should be taking place, this additional clause now formally requires it to be resolved.

1.6 Copyright & Liability

The wording around Copyright has been updated. There is now a more relaxed approach which aims to offer more flexibility. The 2013 of the protocol stated that the ownership shall remain with the project team. However the 2018 edition now includes a clause that applies if there are no provisions with regard to copyright in the Agreement. This means that the Protocol can be used unamended where ownership will transfer to the employer, subject to any 'background intellectual property' ownership being asserted.

It is worth also noting that the second edition still does not address the ownership of the federated information model, an area that was also missing from the first edition.

Clause 6.4.1 protects the employer by excluding rights for the project information to be used for any extension of the project. While this is usually a commercial issue and consideration rather than a legal one, it is worth noting that access to and a lack of rights to use existing project information and models could impact any future developments of the built asset.

- 6.4 Any licence and/or sub-licence granted in clause 6.3 shall not include the right to:
- 6.4.1 amend or modify the Material without the Project Team Member's written consent (not to be unreasonably withheld), save where such amendment or modification is:
 - (a) provided for in the Information Particulars; or
 - (b) made for the Permitted Purpose following the termination of the Project Team Member's employment under the Agreement; or
 - 6.4.2 reproduce any designs contained in the Material for any extension of the Project.

Figure 1-3 Extract from CIC BIM Protocol 2nd Edition 'Use of Information' clause 6.4

Consideration

NHSScotland should carefully consider the definition of Permitted Purpose under clause 10.20

With regards to Liability, the exclusion of liability for onward modification, amendment, transmission, copying or use of information remains. It is worth noting however that the exclusion as to the “integrity” of data has been removed in the place of an exclusion as to interoperability (i.e. whether data formats and software will be compatible).

2 Key Recommendations

The new protocol addresses a number of shortcomings within the 1st addition. It has been updated to reflect changing practice and standards over the last 5 years, the largest addition to the protocol being around security, with the addition of a new appendix (appendix 3).

Some terminology referred to in the protocol (such as Responsibility Matrix) was to be further developed within a revision to PAS 1192:2, however this was never published. Therefore there is a lack of specimen examples and further definitions.

A key decision for NHSScotland is to consider if they want to maintain a BIM protocol, or to start to hardwire these concepts into the contract.