

Swansea Council Educational Services,
Civic Centre,
Oystermouth Road,
Swansea.
SA1 3SN.

29th April 2021.

Dear Sir/Madam,

Project 5010 – Ysgol Bae Abertawe

Following the UK government's 2011 Construction Strategy defining the 4 levels of BIM. A building strategy meeting BIM level 2 maturity will be developed for the design, construction and management of your new school facility.

Scottish future trusts states *'Level 2 BIM is distinguished by collaborative working, and requires "an information exchange process which is specific to that project and coordinated between various systems and project participants"'* (McPartland, 2014) (NBS, 2016)

As the Lead Appointed Party I will be responsible for co-ordinating information between the delivery team and you the Client (Appointing Party). Information will be exchanged in accordance with ISO 19650-2 clause 5 standards.

BIM Level 2 will involve developing the building information in a collaborative 3D environment with the data attached. Ysgol Bae Abertawe Project will be created in separate disciplines through a Common Data Environment (CDE) to meet the ISO 19650 standards and your Exchange Information Requirements (EIR). Through a common agreement, the multiple disciplines will manage information and follow the relevant standards and procedures set out in ISO 19650.

The International Organisation for Standardisation (ISO) have published the first two international standards for Building Information Modelling (BIM) noted below with their UK references codes:

BS EN ISO 19650–1 Organisation of information about construction works – Information management using building information modelling – Part 1: concepts and principles, *and*

BS EN ISO 19650-2 Organisation of information about construction works – Information management using building information modelling – Part 2: Delivery phase of assets.

These two ISO 19650 standards supersede BS1192:2007 + A2:2016 (principles) and PAS1192 part 2 (capital/delivery phase) previously used.

For Level 2 BIM, the standard deliverables we would be expected to produce include: (NBS, 2016)

- Compliance with Exchange Information Requirements (EIR)
- BIM Execution Plan (BEP)
- Common Data Environment (CDE)
- ISO19650 Standards
- Digital Plan of Work (describing Level of Detail – LoD / CIC Work Stages)
- Intelligent 3D libraries
- Intelligent 3D models
- 3D based collaboration
- 3D digital survey
- Asset performance optimisation
- COBie

You as the Client will be required to provide an EIR in line with ISO19650-2 Clause 5.3 defining the minimum contents of the Exchange Information Requirements.

The EIR will define what you the Client will want from the project information model at the end of each stage. This document will also assist with decision making through the project.

As the lead appointed party I will be required to produce a BIM Execution Plan (BEP), establishing an outline of the processes for successful delivery and information management. The BEP is a detailed plan that defines how the project will be executed, monitored and organised with regard to BIM.

The intent of the BIM Execution Plan is to provide an outline that will ensure all parties involved are clearly aware of the opportunities and responsibilities associated with projects that implement BIM. The plan defines why we are using BIM on the project by setting goals, objectives, team members responsibilities and outlines how the process will be executed through the project's life cycle.

The BEP should be considered a living document and can be developed and refined throughout the project's life cycle to ensure the project remains on schedule and meets briefed requirements. Within the Plan it will set out the Level of Definition (LOD) required from the BIM documentation. The LOD is aligned with the RIBA Plan of Works to inform all parties of how much information they are expected to provide. (McPartland, 2014)

(Hall, 2017)A successful project will be achieved through an efficient collaborative approach from all team members for the duration of the project, achieved through a Common Data Environment (CDE).

The CDE is an online platform for collecting, managing and sharing information between the whole team working on the project. ISO 19650-2 describes the four distinct phases of a CDE, which are Work in Progress (WIP); Shared; Published Documentation; and Archive. It also gives details on naming, numbering and identification of all data that is held in the CDE. The platform used for the scheme will be a cloud based system which will be sub-divided

into the separate disciplines. This facility will be utilised to create and build an accurate and well-structured Project Information Model.

The CDE will be owned by the Client and will be useful to base future decisions and learn from that will benefit future projects.

Modelling tools such as Autodesk AutoCAD and Autodesk Revit will be used to create 2D and 3D models of the facility. Models will be produced by all the separate disciplines then entered into the CDE using various collaborative software tools set out in the BEP. This will allow all stakeholders to co-ordinate efficiently through the project and have additional benefits such as Clash Detection. Clash Detection is the technique of identifying if -- and where or how -- two parts of the building (e.g., plumbing, walls, etc) are interfering with one another. Autodesk states *'With BIM, you have the opportunity to plan it right before you build onsite. You can avoid last-minute changes and unforeseen issues by enabling easy reviewing and commenting across multiple disciplines.'* (Hall, 2017)

Through the lifecycle of the scheme and collection of all information and data, as a project outcome a Computer Aided Facilities Management (CAFM) will be integrated into the scheme to allow you as a Client to manage the repair and maintenance of the school from a web based dashboard.

Also, mostly Non-Geographical data can be securely stored, shared and updated throughout the construction project by utilising Construction-Operations Building Information exchange (COBie). This information can be passed onto the Client to support the operations and management (O&M) of the building, and can also be used to verify that your data meets the requirements of the project. COBie satisfies ISO19650 Clause 5.5. At the end of a project, the CDE can also be used to create further COBie outputs from data collected through the job and linked O&M manual.

Bibliography

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