

## Construction Portfolio- Draft Letter and BEP



Image URL -  
<https://www.elogictech.com/blog/bim-execution-plan-how-to-design-a-successful-bep-model>

Jake Bevan

Assignment Brief;

Draft a letter to the client that highlights your understanding of the requirements of BIM maturity for this project giving details on how information will be shared, coordinated and managed through the appropriate international standards. Appended to your letter, prepare an outline BIM Execution plan which should include and the following 5 sections;

- Project Information
- Management
- Planning and Documentation
- Standards, Methods, and Procedures
- IT Solutions

Digital Submission:

Letter to the client with appended BEP.

Appropriate naming conventions should be applied for the BEP.

Assumptions:

Project Number: 5010

Project Title: Ysgol Bae Abertawe

Description: 1 form entry infant school for 90 pupils, with 48 PT Nursery provision.

Site location plan attached

## **Assignment Introduction**

In the above named assignment, I will be drafting a letter to the client (Swansea Council) for the projected works at “Ysgol Bae Abertawe”. The letter will be in regards to how BIM level 2 can improve the above named project, the ways in which it can improve the project include the ease of production with 3D models of all required aspects of work, ease of storing all required information which is very handy when putting together the O&M manual at the handover of the project, and lastly being able to manage information with all appropriate parties being kept informed. The last element of this assignment I will prepare an outline BIM Execution plan, this will also include Project Information, Management, Planning and Documentation, Standards, Methods, and Procedures, IT Solutions.

## Letter to the Client

From:

J-Bevan Design Consultants  
Betws Industrial Park  
Foundry Rd  
Ammanford  
SA18 2LS

To:

Swansea Council (Building Control)  
Civic Centre  
Oystermouth Road  
Swansea  
SA1 3SN

### Ysgol Bae Abertawe - Project Number: 5010

Dear Client,

My name is Jake and I am one of the main consultants for your project named “Ysgol Bae Abertawe”. I am writing to yourself to give you a better understanding of why BIM level 2 will be used. The above named project Ysgol bae Abertawe will be fully financed from the Welsh government because of this it is crucial that the governments rules and procedures are executed during the project, one of these procedures including BIM level 2 as it is now required to be used in every single construction projects in public within the government. One of the largest benefits of using BIM level 2 in my opinion is the collaboration aspect, collaboration within BIM level 2 is when all associated parties involved in the project have access to all required information possible, this creates an equal and fair opportunity for everyone to communicate with the appropriate information to back it up. One of the most important aspects of the construction industry in general is communication and any opportunity to improve this should be seized for the benefit of all previously mentioned parties.

A common misconception related to BIM is that it is some sort of software, this couldn't be more incorrect, BIM is a process. With technology advancing in the construction industry it is very common for members with a large amount of experience within construction to be submissive or stubborn with new techniques and technologies. The above mentioned misconception is one of the biggest reasons why a company may shy away from using BIM within their frameworks. The construction industry can be a very stressful atmosphere as projects have a programme of works to work towards, any compensation events during works can affect said programme causing possible problems in terms of completion of works on time. BIM level 2 can help avoid big variations to occur during a project as the more information that is shared the less likely it is for any unforeseen changes to occur, also using BIM level 2 takes the pressure off the client in terms of the design element of works, especially if the selected contractor for the works is a design and build contractor.

Within Ysgol Bae Abertawe to store all important and required data across the project, we will CDE, CDE is online and is a place where the entirety of storage of information will be uploaded to. If all parties are to use this storage system it will create an easy access gateway to information for the project. Information that will be uploaded to said CDE will string from all related drawings to the project so architectural, structural, mechanical and electrical drawings. A great feature that is on CDE is the feature where any changes made to the drawings are instantly updated and uploaded so everyone is up to date on all requirements of work, drawings also get superseded automatically. This online storage area under BIM level 2 can be seen as a great benefit, if all parties have access to all the most updated drawings this lowers the chances of any mistakes or miscommunications which then decreases the chances of any financial implications with changes.

In terms of possible financial benefits with using BIM level 2, the speed of which the projects drawings will be issued and shared this creates a much easier situation for example a quantity surveyor working on the project, for example if the first construction issue drawings are issued and the contractor makes their orders in line with these drawings with sub contractors, any changes on future submitted construction issue drawings could cause delay as the changed works would have to be re-costed and agreed with yourselves the client, but with BIM level 2 the speed in which the contractors quantity surveyor will get the drawings it

creates less delay in updated costs which benefits both yourself and all other parties involved financially.

In conclusion to what I have stated above, I believe that using BIM level protocol on this project “Ysgol Bae Abertawe” will be highly beneficial for everyone involved in said project. The ease of access of information across the board will result in a higher quality build, a less cost effective build and also a less time consuming build that will be more likely to work hand in hand with the issued programme of works. Hopefully the success of this project will open more eyes around the construction industry about how beneficial BIM is in any and all construction projects. The objective of this letter was to display to yourself the process of BIM and how beneficial it will be to this state of the art school, hopefully I have succeeded in that, in addition to what I have wrote above I have also included below a BIM Execution Plan (BEP) specifically for Ysgol Bae Abertawe, this will go into greater depths about the process of BIM to give you an even better understanding of it all.

I hope you have a wonderful day, if you have any questions or queries I have put my contact details and works address below.

Kindest Regards,

**Jake Bevan**

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# J-Bevan Design Consultants

BIM Level 2  
BIM Execution Plan - Ysgol Bae Abertawe  
Jake Bevan

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## 1.0 BIM Project Execution Plan Overview

The Overarching BIM Objective is to provide to Swansea Council a delivery to fulfil the Welsh Assembly's mandate that "BIM is to be used on all projects by 2016."

BIM means 'Building Information Modelling' which is commonly defined using the Construction Project Information Committee.

To successfully implement BIM on the project, the consultant team has developed this Pre-Contract BIM execution plan (BEP). The BEP defines uses for BIM on the project (e.g. design authoring, design co-ordination etc.), along with a detailed design of the process for executing BIM throughout the entire time of the construction project.

The purpose of this BEP is primarily to outline the implementation of BIM uses which are of interest to Swansea Council such as:-

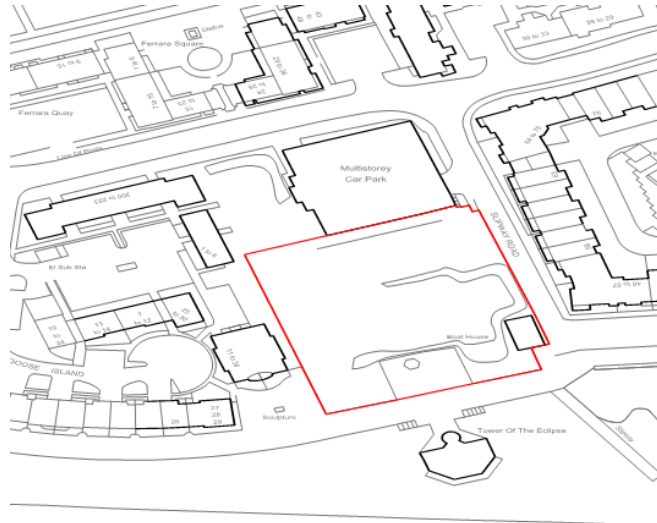
- Project Information
- Management
- Planning and Documentation
- Standards, Methods, and Procedures
- IT Solutions

## 2.0 Project Information

Project Owner - Swansea Council (Building Control)

Project Name/Number - Ysgol Bae Abertawe - 5010

Project Location & Address - Opposite Multi-Storey Carpark, Swansea SA1 1UW (Please find below site location Plan).



Brief Project Description - Design and consultation of a new replacement State of the art 1 form entry infant school to cater for 90 pupils, with 48 PT Nursery provision.

Key dates:-

Project timescale – 52 Weeks

Construction contract commencement – April 2022

Occupation of new build – End of December 2022

Contract completion – End of April 2023

Designers will be appointed in Jan/Feb and the concept design will be taken through design development and technical design to reach construction stage by April 2022.

Planning Consent is hoped to be achieved by January 2021, with a Building Regulation Application to be submitted and a conditional approval issued in November 2021.

Technical design will include incorporating information from suppliers and subcontractors to enable a BIM to be handed to the Client for Operating and Maintenance purposes

## 3.0 Management

### 3.1 Project Stakeholders

| Role                                                            | Name                     | Organisation               |
|-----------------------------------------------------------------|--------------------------|----------------------------|
| Client                                                          | Mark Davies              | Swansea Council            |
| Client Representative and Principal Designer (Pre RIBA Stage 4) | Andrew Tidy              | Swansea Council            |
| Project Manager                                                 | Chris Jones              | Swansea Council            |
| Education Liaison Officer                                       | Martin Thomas            | Swansea Council            |
| Cost Control QS                                                 | Bethan Griffiths         | Swansea Council            |
| Property Risk Officer                                           | Adrian Jones             | Swansea Council            |
| Project Director                                                | Jake Bevan               | J-Bevan Design Consultants |
| Health, Safety & Environmental Officer                          | Chris Jones              | J-Bevan Design Consultants |
| Project Planner                                                 | John Davies              | J-Bevan Design Consultants |
| Pre-Construction Manager                                        | Simon Knowles            | J-Bevan Design Consultants |
| BRE Site Sustainability Manager                                 | Richard Bevan            | J-Bevan Design Consultants |
| Principal Designer, Architect and Landscape Architect           | Linda Richards           | Designer Specialists       |
| Fire Engineer                                                   | Will South               | Fire Group Ltd             |
| Project Manager                                                 | Gareth Jones             | J-Bevan Design Consultants |
| Assistant Quantity Surveyor                                     | Amy King                 | J-Bevan Design Consultants |
| Site Manager                                                    | Gary May                 | J-Bevan Design Consultants |
| Site Engineer                                                   | Leighton Barnett         | J-Bevan Design Consultants |
| Design / BIM Manager                                            | Brad Mills               | J-Bevan Design Consultants |
| BIM Technologist                                                | Nathan Rees              | J-Bevan Design Consultants |
| Structural / Civil Engineer                                     | Roger Jones              | Structural Ltd             |
| Services Consultant                                             | Phil Mead / Wayne Curtis | J-Bevan Design Consultants |
| Energy Consultant                                               | Jamie Best               | Energy Ltd                 |
| Acoustic Consultant                                             | Paul McGrath             | Acoustic Wales Ltd         |

### 3.2 BIM Personnel

| Company                    | Personnel                         | Email address                                                                      | Telephone    |
|----------------------------|-----------------------------------|------------------------------------------------------------------------------------|--------------|
| Client                     | Mark Davies                       | <a href="mailto:mdavies@swanseacouncil.gov.uk">mdavies@swanseacouncil.gov.uk</a>   | 01267 228278 |
| End User                   | TBC                               |                                                                                    |              |
| J-Bevan Design Consultants | Jake Bevan - Design & BIM Manager | <a href="mailto:jake.bevan@dconsultants.co.uk">jake.bevan@dconsultants.co.uk</a>   | 01269 591114 |
| J-Bevan Design Consultants | Nathan Rees – BIM Technologist    | <a href="mailto:nathan.rees@dconsultants.co.uk">nathan.rees@dconsultants.co.uk</a> | 01269 591107 |
| Architectural              | Linda Richards                    | <a href="mailto:linda@acanthus-holden.co.uk">linda@acanthus-holden.co.uk</a>       | 01646 685490 |
| Gray & Associates          | Darren Mills                      | <a href="mailto:darren.mills@gray.co.uk">darren.mills@gray.co.uk</a>               | 01269 591198 |
|                            |                                   |                                                                                    |              |

### 3.3 BIM Goals & Objectives

| PRIORITY (High / Medium / Low) | DESCRIPTION                                        | BIM USES                                                                      |
|--------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------|
| Medium                         | Increased Site Productivity                        | Design & Buildability Reviews / 3D Coordination                               |
| High                           | Early Clash Detection between disciplines          | 3D design coordination                                                        |
| High                           | Incorporate data for future facilities             | Record Modelling / Digital Fabrication                                        |
| Low                            | Assessment of sustainable energy options           | Energy analysis                                                               |
| High                           | Access strategy for future maintenance             | Design & Buildability Reviews / 3D Coordination / Record Modelling (SiteDesk) |
| High                           | Health & Safety – Identification and recording     | Design & Buildability Reviews / 3D Coordination                               |
| High                           | Assessment of Design Performance                   | Design Reviews / 3D Modelling                                                 |
| High                           | Accurate 3D Record Model for Facilities Management | Record Model (SiteDesk) / 3D Modelling                                        |
| Med                            | Reduction in overall maintenance costs             | Record Model (SiteDesk)                                                       |

## 4.0 Planning and Documentation

### 4.1 Meetings & Communication

The following meetings will be scheduled:-

| Meeting type                   | Project Stage | Frequency   | Participants                                              | Location |
|--------------------------------|---------------|-------------|-----------------------------------------------------------|----------|
| BIM requirements kick-off      | Commencement  | Once        | Client; Design Team, J-Bevan Design Consultants           | Swansea  |
| BIM Execution Plan             | First month   | Fortnightly | Client; Design Team, J-Bevan Design Consultants           | Swansea  |
| Design Co-ordination           | First month   | Fortnightly | Client; End User, Design Team, J-Bevan Design Consultants | Swansea  |
| Progress reviews; KPI's        | Monthly       |             | Client; End User, Design Team, J-Bevan Design Consultants | Swansea  |
| Meetings with multiple parties | As required   |             | As required                                               | Swansea  |
| Executive review               | Monthly       |             | Client; Design Team, J-Bevan Design Consultants           | Swansea  |

## 4.2 Information Exchange

The list of Information Exchange Worksheet is attached in Appendix 1 of this document.

The common software to be used in this project is listed below:-

- AutoDesk Revit 2022 (Architecture / MEP / Structure modelling)
- SiteDesk (Digital O&Ms)

| Information Exchange  | Originator                 | Frequency     | Model Software | Native File Type | File Exchange Type   |
|-----------------------|----------------------------|---------------|----------------|------------------|----------------------|
| Architectural Design  | J-Bevan Design Consultants | Fortnightly   | Revit 2022     | .rvt<br>.pdf     | .rvt<br>.ifc<br>.pdf |
| Structural Design     | J-Bevan Design Consultants | Fortnightly   | Revit 2022     | .rvt<br>.pdf     | .rvt<br>.ifc<br>.pdf |
| 3D Coordination Model | J-Bevan Design Consultants | Monthly       | Revit 2022     | .nwd<br>.rvt     | .nwd<br>.ifc<br>.rvt |
| Digital O&M           | Contractor                 | On Completion | SiteDesk       | -                | .ifc                 |

## 5.0 Standards, Methods, and Procedures

## 5.1 Collaborative Strategy

In order to ensure a fully collaborative and coordinated team the design and development process will occur through meetings every two weeks which need to be attended by representatives of each design team.

In the interim, all design and coordination queries or questions are to be shared around via email, distributed via the Design and BIM Manager.

A single combined read-only draft review model will be kept by the Contractor. The model will contain important information and should also contain mostly realistic properties. The model will be interrogated using free or low-cost viewing interfaces with features that enable the viewer to virtually walk through the building with the possible use of VR, this can be achieved with a virtual reality headset. The above mentioned model will provide co-ordination of the building geometry between design disciplines.

“Collaboration is essential to BIM-enabled construction projects (BECs). To facilitate collaboration, various strategies have been proposed. Usually, project team adopts single collaboration strategy for convenience. However, BIM-based collaboration is rather dynamic and exposed to a lot of barriers and risks, which easily changes collaboration conditions among partners” - Guangchong Chen’s Article on Emerald dated 23<sup>rd</sup> of June 2021 (<https://www.emerald.com/insight/content/doi/10.1108/ECAM-01-2021-0004/full/html>)

## 5.2 Naming conventions

Naming conventions are to be used on all drawings, it is a basic procedure with many benefits in terms of understanding revisions of drawings etc. Conventions will be in accordance with the BS 1992 whereas the naming of objects will be in accordance with the BS 8541-1.

PR1-XYZ-V1-01-M3-A-0001

Image Reference - <https://www.viewpoint.com/blog/bs1192-naming-convention>

Acronym Definitions ;

PR1 – this is the unique code for the project, this code will be used across all drawings on the project, this will be used by all parties associated in any design elements of the project.

XYZ – this is also a unique code for the organisation creating the design.

V1 – these relate to the volume or system.

01 – this relates to levels and locations

M3 – this is to display the type of data that is being provided.

A – this displays the role of the individual creating the model, for example “A” would stand for architect and “E” would stand for electrical engineer.

0001 – this shows what the drawing number for the project is, this is extremely important for any construction issue changes across the duration of an construction project.

## 6.0 IT Solutions

Software that will be used to design and correctly display Ysgol Bae Abertawe will be Portable Document Format and Autodesk Revit 2022. It is crucial that all parties working on Ysgol Bae Abertawe are all using the same version of Autodesk Revit 2022 and Portable Document Format this is to ensure all required information seen and used properly.

Revit 2022 – “Revit 2022 is touted to improve interoperability, boosted efficiency and accuracy in document production, and more new architectural modelling features” -

<https://www.virtualbuildingstudio.com/a-complete-guide-to-new-revit-2022-what-are-the-new-highlights/#:~:text=For%20the%20BIM%20community%20too,iterative%20ways%20to%20work%20together>

PDF – “Essentially, the format is used when you need to save files that cannot be modified but still need to be easily shared and printed. Today almost everyone has a version of Adobe Reader or other program on their computer that can read a PDF file” -

<https://nwtc.libanswers.com/faq/212721>

## 7.0 Reference Page

<https://www.virtualbuildingstudio.com/a-complete-guide-to-new-revit-2022-what-are-the-new-highlights/#:~:text=For%20the%20BIM%20community%20too,iterative%20ways%20to%20work%20together>

<https://nwtc.libanswers.com/faq/212721>

<https://www.gsa.gov/real-estate/design-construction/3d4d-building-information-modeling/guidelines-for-bim-software/document-guides/bim-execution-plan#:~:text=The%20intent%20of%20the%20BIM,contrasted%20with%20optimizing%20siloed%20interests.>

<https://www.planbim.io/blog/2020/04/20/what-is-a-bep/>

<https://assemblesystems.com/blog/benefits-of-bim-execution-plan/>

<https://www.emerald.com/insight/content/doi/10.1108/ECAM-01-2021-0004/full/html>