

Ysgol Y Twyn

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Caerphilly County Council

Subject: BIM Strategy and Execution Approach – Caerphilly Infant School and Community Facilities ‘Ysgol Y Twyn’

Dear Caerphilly County Council,

Thank you for appointing Young Bros as Lead Consultant for the proposed Infant School, Nursery and Community Hall development. This letter sets out our BIM approach in a clear, practical and proportionate way, ensuring it supports design, construction and long-term management rather than becoming an overly technical exercise. Throughout the project our aim is simple: make BIM genuinely useful, avoid unnecessary complexity, and ensure that the information we produce can be confidently used by your teams.

The project itself is ambitious in its combination of uses. Bringing together a 90-pupil infant school, a 48-place nursery, a community hall and the Caerphilly Story Gallery offers significant community value but also introduces day-to-day operational challenges. During our early site visits and discussions with officers, several issues became clear.

Conflicting access patterns

The school requires tight safeguarding arrangements, yet the hall and gallery will often operate at times when the school is closed. We will test access routes, controlled circulation zones and door-locking arrangements in the model to ensure the building remains secure without restricting community use.

Topographical and drainage considerations

The site falls towards an existing drainage path. To avoid surprises later, we will commission a scan-to-BIM survey and integrate the terrain model early so we can coordinate levels and drainage accurately.

Facilities Management resource limitations (FM)

Your FM team uses a streamlined CAFM system which benefits from clear, concise data. This means our information delivery must be targeted and manageable. We will not overload your teams with unnecessary detail.

These practical points underline why BIM must remain flexible. Rather than following a rigid playbook, it must adapt to real-world conditions such as the people, the site, and your operational capacity.

Core Information Documents and Workflow

To give a fuller picture of how these documents shape day-to-day delivery, it's worth setting out how they influence the practical running of the project. The EIR, for example, will not just specify what information you want at the end it guides how the design team works from the start. On a project with mixed public and education uses, the EIR helps prevent misunderstandings around safeguarding, access control, room adjacencies and asset requirements. It also ensures that the information produced is something your FM team can realistically maintain.

For the BEP, our aim is to make it a working document rather than a formality. It will include clear expectations for when disciplines need to share models, how clashes are resolved, and what constitutes an acceptable level of completeness at each design stage. We also intend to include a simple visual map of the information flow so that every member of the project team regardless of digital background understands how and when their work contributes to the federated model.

The AIR becomes increasingly important as the project progresses. Instead of collecting asset information late in the job, we will identify at RIBA Stage 3 which assets will require maintenance over the building's life and what level of information is needed about each. For example, boilers may require commissioning data, serial numbers and maintenance intervals, while simpler fixtures may only require a location and warranty period. Taking this approach avoids the last-minute rush that often happens on public projects, where FM teams are handed large volumes of unorganised data.

BIM Maturity Requirements

Although the former "BIM Level 2" label is no longer formally used, its underlying principles are still the basis of most public-sector work. For this scheme, our approach will follow the ISO 19650 structure: federated models, defined responsibilities, structured data formats and clear approval gateways. We are also realistic about the maturity of the local supply chain. Some subcontractors will work confidently in 3D,

while others will need support. The BEP will include simple templates, user-friendly instructions and early onboarding sessions.

The three core documents shaping our approach are:

- **Employer's Information Requirements (EIR)** : Clarifies what data is needed, when, and for what purpose.
- **BIM Execution Plan (BEP)** : Describes how we will deliver the required information, including responsibilities, formats and workflows.
- **Asset Information Requirements (AIR)** : Identifies which assets must be documented for FM.

We recommend an EIR clarification workshop early on. This collaborative session helps to iron out uncertainties, agree naming conventions, prioritise asset data and confirm expectations for COBie deliverables.

All information will flow through Autodesk BIM 360. Files will move through Work in Progress, Shared, Published and Archived stages, each backed by appropriate review steps so that information entering the shared space is reliable and usable.

Level of Information Need (LOIN)

We will apply BS EN 17412-1:2020 to manage the level of geometric detail and data throughout the design stages. Our aim is to produce just enough information to support decisions without modelling unnecessary components.

Stage	Example LOD	Example LOI	Purpose
RIBA 2	LOD 200	Basic room sizes, adjacencies	Early feasibility checks
RIBA 3	LOD 300	Fire, acoustic, thermal data	Regulatory compliance
RIBA 5	LOD 400	Manufacturer details	Procurement and installation
RIBA 6	LOD 500	Verified as-built information	CAFM integration

From experience, capturing the right information is more important than capturing everything.

LOIN also helps set clear expectations for what detail is needed at each stage. At RIBA 2, broad room sizes and general plant allowances are usually enough. By contrast, at RIBA 4 the model needs to contain specific plant dimensions, access zones and manufacturer data so that the contractor can price, procure and install accurately.

LOIN also protects the Council from being overwhelmed with unnecessary information at handover. A well-defined LOIN means the FM team receives structured, reliable

details about the assets they actually maintain, rather than large volumes of data that add no real value. This approach keeps the process efficient for everyone and ensures the final AIM supports day-to-day operations rather than becoming a burden. Fire doors, boilers, ventilation equipment, dampers, pumps and emergency systems will be prioritised. Hinges, screws and decorative elements will not.

Coordination and Collaboration

Coordination is often where a project either runs smoothly (McAuley et al., 2022) or becomes difficult, so our approach is built around clear communication and regular model checking rather than relying solely on technology. While the software helps, it is the day-to-day habits of the team, sharing information on time, discussing issues early and keeping each other informed that make the biggest difference. We aim to create an environment where designers, subcontractors and the Council feel comfortable raising questions without worrying about hierarchy or formality.

In practical terms, our model coordination routine will be consistent and predictable. Architectural, structural and MEP models will be brought together on a weekly basis, with particular attention to areas that often cause problems: risers, plantrooms, drainage runs and ceiling voids. Any issues we find will be logged in BIMcollab with screenshots, comments and clear ownership so that everyone understands what needs to be done and by when. This avoids the slow build-up of unresolved issues that can cause major redesigns later.

Local subcontractors bring valuable on-site experience, but some will be less familiar with BIM 360. To support them, we will provide simple upload instructions, naming examples and short calls to walk them through the process. Rather than expecting perfection, we focus on making it easy for them to participate. This helps prevent common problems such as outdated drawings, missing links or files saved in the wrong place.

Consultation with school staff, gallery representatives and community groups will be supported through VR walkthroughs and simple visuals to help them understand the design. This is particularly useful when discussing safeguarding routes, storage requirements, buggy parking, hall access during evenings and the relationship between teaching spaces and shared community areas.

Construction sequencing is another area where coordination has a direct impact on daily life in the community. Through 4D modelling, we can map out how deliveries, temporary access, scaffolding and phased works will interact with school drop-off times and local traffic. By visualising these scenarios early, we can adjust plans before they become site problems, reducing disruption for pupils, families and hall users.

Sustainability and Digital Integration

Sustainability sits at the heart of this project (CIBSE, 2022), not only because of policy expectations but because the building will be used daily by young children, staff and the wider community. For us, the role of BIM here is not to generate impressive graphs or complex digital dashboards it is to give the design team and the Council clearer, earlier and more practical insight into how design choices will perform in real life.

Thermal, ventilation and daylight modelling allow us to understand how spaces will feel in real use and adjust designs before construction.

From a carbon perspective, BIM allows us to compare materials and assemblies in a straightforward, visual way. Instead of presenting long technical reports, we can show the design team and the Council simple model-based comparisons of embodied carbon, helping everyone understand the trade-offs between cost, durability and environmental impact. This approach is particularly useful when choosing between different wall build-ups, floor structures or insulation products.

The integration of PV panels is another area where digital tools make life easier. By studying the roof geometry and predicted sunlight paths, we can determine the most efficient locations and panel counts without guesswork. This ensures the system is designed with realistic expectations and avoids problems such as overshadowing from roof plant or parapets.

For FM teams, well-structured asset data will make equipment easier to locate and maintain.

Overall, the sustainability and digital integration approach aims to keep things simple and helpful. We want to give you confidence in the building's long-term energy performance and comfort levels without overwhelming you with technical jargon or excessive data.

Information Governance and Quality Assurance

Good information management is what keeps a project organised (BSI, 2021), and it becomes especially important on a scheme like this where several teams, subcontractors and end-users are involved. Our approach is not just about meeting the ISO 19650 requirements on paper but making the process easy to follow so that information remains reliable from start to finish.

A key part of this is keeping the Common Data Environment (CDE) tidy and predictable. By using simple, clearly structured folders and consistent file naming, everyone can find

what they need without digging through unnecessary versions. This is particularly helpful for subcontractors who may not work in a CDE every day. We will set up a straightforward permissions structure so that only approved information moves into the Shared and Published spaces. This prevents confusion and avoids the risk of someone working from the wrong file.

We also place a lot of value on traceability. Every drawing, model and document should tell a clear story about where it came from, who approved it and when it was issued. Our internal Author-Checker-Approver workflow ensures that each file has been reviewed with care before it is shared more widely. This protects the design team, the Council and the contractor from misunderstandings later on. It also means you can rely on the information you receive, especially as the project moves towards construction and then into handover.

Laser scanning plays an important role in quality assurance. Rather than waiting until the end of the build, we plan to carry out scans at key milestones. This allows us to compare the model with the actual conditions on site and correct issues early. It reduces the amount of rework later and leads to a far more accurate as-built record for your FM team.

Finally, we aim to keep governance practical. While standards and workflows provide structure, the real value lies in making the process feel manageable for everyone involved. By keeping communication open, simplifying the steps contractors need to follow and ensuring that information is checked before it moves forward, we can deliver a clean, dependable dataset that supports both construction and long-term operation.

We will manage information using the ISO 19650 framework, supported by internal quality procedures aligned with ISO 9001. A clear Author-Checker-Approver workflow ensures accountability. BIMcollab will provide transparent tracking of issues.

As-built accuracy is often a challenge on public projects. To address this, we will carry out staged laser-scan surveys during construction rather than waiting for the end. These will be compared against the federated model to produce a verified as-built dataset for FM.

Project-Specific Risks and Responses

Digital Maturity

Skill levels vary across the supply chain. To avoid delays or errors, we will apply practical training, simple templates and structured upload routines. Regular checks will help ensure that information is compliant and coordinated.

Mixed-Use Complexity

Safeguarding and community access must work hand in hand. We will model access zones carefully and review them with school staff.

Budget Considerations

BIM adds value when it is proportionate. By focusing modelling effort on the areas that matter most, we prevent unnecessary expenditure.

CAFM Capacity

Your CAFM system benefits from focused data, not exhaustive datasets. Our approach ensures the information you receive is appropriate and manageable.

Issue	Why It Matters	Young Bros Strategy
Mixed use building	Safeguarding concerns	Model secure zones and review with staff
Incomplete EIR	Misaligned expectations	Early workshop to agree requirements
BIM skills gap	Upload errors, delays	Simple templates + training
Budget constraints	Avoid over-modelling	Focus on essential information only
Carbon data inconsistency	Different tools cause confusion	Use one shared methodology
As-built accuracy	Drawings not matching site	Laser-scan verification
Limited CAFM capacity	Overly complex data isn't usable	Provide COBie-Lite and training

BIM Execution Plan Highlights

To give a clearer sense of how the BEP will actually support day-to-day delivery, it is helpful to explain what it means for the people involved rather than viewing it only as a formal document. The BEP is essentially the project's agreed way of working: it sets the tone for communication, defines expectations and prevents uncertainty. On a project with mixed community and education uses, this consistency becomes even more important.

The BEP sets out when models are shared, how information must be structured and what standards everyone follows, helping maintain consistency. We will also include a short "common issues guide" so team members can quickly recognise and correct typical upload errors.

One of the more helpful elements for the Council will be the way the BEP defines the path from design models to the final asset information model. By mapping out when asset data is gathered, checked and validated, the BEP reduces the risk of a last-minute scramble at handover. The document makes clear who is responsible for collecting what information and at which stage, ensuring that the FM team receives a tidy, complete and easy-to-use dataset.

The BEP also outlines how disagreements or design conflicts will be handled. Rather than letting issues sit unresolved, the plan sets out a simple, fair escalation route. Designers know who to speak to, what information they should bring to the discussion and how quickly a decision is expected. This avoids lengthy delays and helps maintain a positive working atmosphere.

The BEP will be updated as the project progresses to reflect new information and lessons learned.

Expected Benefits and Performance Indicators

A well-managed BIM process helps reduce clashes, improve cost certainty and streamline maintenance. Industry benchmarks suggest RFIs can be reduced by around a third when coordination is carried out proactively.

At the same time, we remain realistic. CAFM capacity, supply-chain maturity and the operational independence of the building's functions all place natural limits on how complex the digital strategy should be. Our intention is to strike a balance between ambition and practicality.

Summary of Analytical Findings

In summary, our BIM approach for Ysgol Y Twyn is designed to be collaborative, practical and focused on long-term value. It supports better decisions in design and construction while giving the Council a manageable, useful dataset for ongoing FM. We aim to deliver a process that is clear, efficient and genuinely helpful to everyone involved.

Regards,

Osian Phillips

Young Bros Ltd

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