



Designed for *Life* : Building for *Wales*  
Cynllun *Oes* : Adeiladu Ar Gyfer *Cymru*



## DESIGN & CONSTRUCTION POST PROJECT EVALUATION OF THE YSBYTY GLAN CLWYD REDEVELOPMENT

**March 2021**



**GIG  
CYMRU  
NHS  
WALES**

Bwrdd Iechyd Prifysgol  
Betsi Cadwaladr  
University Health Board



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Shared Services  
Partnership  
Facilities Services

## Ysbyty Glan Clwyd Redevelopment



All Photographs within this publication courtesy of BCUHB, GLEEDS & LOR

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## EXECUTIVE SUMMARY

The Ysbyty Glan Clwyd (YGC) Redevelopment is a refurbishment project necessitated by Health and Safety Executive (HSE) Improvement Notices first received in February 2010. The project was initiated by the requirement to remove dangerous occurrences of asbestos contamination in compliance with the Control of Asbestos Regulations (2006). The opportunity was taken due to the necessity of refurbishing a large proportion of the hospital to remodel the building to better align with 21<sup>st</sup> Century healthcare delivery models of care.

The YGC project affected almost all of the hospital template, as the HSE issued a series of Improvement Notices to remove or make safe asbestos from specified areas linked to, and co-ordinated with, the projects programme of asbestos removal.

Due to the unique nature of this facility, Betsi Cadwaladr University Health Board undertook extensive dialogue with all stakeholders including the HSE who were kept on board at all stages of the project.

The YGC project was subject to a standard business case approval process by Welsh Government namely Strategic Outline Case, Outline Business Case and Full Business Case.

The urgency with which BCU were required to begin the construction work to ensure safety of patients, visitors and staff and meet the Health and Safety Executive's (HSE) requirements, as well as the nature of removing asbestos from a live working environment, resulted in costs which were unforeseen at the outset of the project and the initial FBC was overly-optimistic. The budget was re-set and a revised approved budget of £163.598m was agreed in 2016 (+ £7m discretionary support over the 7 years) with a construction value of £131.787m excl VAT.

The project was undertaken utilising the Designed for Life Building for Wales 1 framework with the following main parties appointed:-

Supply Chain Partner : Laing O'Rourke  
Project Manager : Gleeds  
Cost Adviser : Gleeds

The YGC project was ultimately successfully opened on time and to the required standard.

The key examples of best practice and lessons learnt are grouped according to the themes emerging from the PPE Questionnaires, and Workshop:-

- General

- Governance
- Design
- Construction
- Commissioning

The key examples of Best Practice and Lessons Learnt have been extracted from the above and are noted below:-

| <u>Best Practice</u>   | <u>Lessons Learnt</u>   |
|--|---|
| <b>General</b>   |   |
| Good communication and Engagement with the right people ensured 420 successful moves enabling construction to proceed without delays.  | BCUHB project staff resources were only just adequate at Glan Clwyd. Substantial funding is required for the management of complex projects   |
| Allowing architectural changes has ensured the hospital is better aligned to a 21st Century model of care and extended its life. It also now meets NHS Firecode.   | Poor record drawings led to issues with live services location and function and determination of the initial scope of works. Maintenance of accurate engineering system drawings (or BIM data) is essential for management of a modern hospital   |
| <b>Governance</b>  |   |
| Utilising the Designed for Life frameworks allowed a speedier response to the HSE notice than would non-framework procurement approaches.  | The complexity of the project and the financial risks were not fully understood at the outset. This was due to the limitations imposed by the presence of asbestos, the need to maintain operational services and the requirements of the HSE. In such circumstances consideration needs to be given to a tailored funding/ procurement strategy. |
| The subsequent phasing of the main contract funding allowed for finalisation of elements of the work that could not be fully planned in advance. On a complex refurbishment project of this nature this method of project funding may be found to be the best way forward. | Project Board membership to include representation from all the key project members enhances collaboration and reduces conflicts  |
| Dealing with large volume of contract administration (2000+ Compensation Events) required project rules to be established. These were agreed at Project Board Level and this could be replicated on future projects.   | NHS Wales to develop a standard Cost reporting template for all Capital funded projects.  |
|  | Consideration of engagement of duplicate specialist sub-contractors and splitting   |

|   |  |
|---|--|
|   | responsibilities on site such that if one critical sub-contractor fails, another can more easily take over their responsibilities.               |
| <b>Design</b>   |  |
| Evidence based design was critically important to informing user design decisions on more complex elements of design. This approach should be reinforced on future projects   | Flexible generic design solutions create opportunities for enhanced care solutions in in changed circumstances                                   |
| Improvements in privacy and dignity in implementing a mix of 4 bed bays and single rooms in the ward areas was evident post-handover. The use of a mix of single and multi-bed rooms was found to be very successful..              |  |
| <b>Construction</b>   |  |
| Utilising Local labour and embedding them in the project team had benefits in 'up-skilling' local suppliers. This has had a positive on-going impact on several local businesses in North Wales.                                    | Maximising off-site opportunities has multiple benefits in increased safety and quality and reduced time and costs                               |
| Embedding Laing O'Rourke's safety principles ( <i>everyone home safe every day</i> ) into the Health Board processes led to enhanced learning within the Health Board of processes for safe control of potentially dangerous works. |  |
| An exemplary attitude to site cleanliness led to multiple benefits on site in quality and safety. It should not be seen as an extra cost but be expected on every project.  |  |
| <b>Commissioning</b>  |  |
| A shared Site Project Office was seen as an essential component in team working and communications and assisted in resolving issues and problems as quickly as possible.  | Resolving who carries out the Supervisor role early in the project will have a follow on positive effect on project quality and ease of handover |
| A clear management structure for medical and operational client side teams was another essential component in project management in allowing for smooth handover and occupation of newly refurbished spaces.                        | Shared Services Engineering teams commissioning reports are standardised.  |
|   | Involvement of Information Technology (IT) teams at an early stage of the design and at commissioning  |

The evidence shows the YGC was a successful project; a challenging scheme delivered on time and to a high quality.

The evaluation has confirmed the key objectives have been achieved:-

- removal of in excess of 300,000 tons of contaminated waste
- remodelling to provide fit for purpose, more modern and efficient facilities suitable for the provision of 21<sup>st</sup> century healthcare

Note: The modifications also had a beneficial effect in allowing the Health Board to better deal with the needs of providing care for Covid-19 patients.

## DESIGN & CONSTRUCTION POST PROJECT EVALUATION METHODOLOGY

This evaluation has been undertaken in an impartial, objective and blame free culture, which has involved the Health Board and other key stakeholders of the Project Delivery Team. A specially structured suite of Pro-forma & questionnaire was issued to all stakeholders to cover issues both good, and not so good, which occurred during the project journey. A workshop was then held with a select number of attendees representing Client, Supervisor, Project Manager, Cost Advisor and Supply Chain Partner, to further investigate the main themes and issues noted within the questionnaires to fully understand and highlight lessons learnt. The draft report was then circulated to all respondents for review to enable input into the final edited version, for sign off by the Health Board prior to publishing.

In the interest of continuous learning and to benefit future project design, planning, development and management; this Design and Construction Post-Project Evaluation will be shared with Welsh Government, all NHS bodies, Framework Members and the Service Post Project Evaluation Team Members.

The Service Post-Project Evaluation, completed in accordance with the Benefits Realisation timeframe, will be initiated by the Health Board (normally during Stage 6: Completion).





## PROJECT DETAILS

The YGC Redevelopment project affected almost all of the main hospital template.



Due to the unique nature of this project which affected almost all of the hospital, and the extensive works undertaken, Betsi Cadwaladr University Health Board had to undertake extensive dialogue with all stakeholders. This included the HSE who were kept on board at all stages of the project. Hence a key feature of this project was the intense level of dialogue required to achieve the necessary relocations (decants) of staff and equipment out of works areas, and back into completed phases. This allowed the progressive completion of the necessary asbestos removal without shutting down any services in the hospital at any time. Continuity of services was the goal of the project team and one that they were 100% successful in achieving.

The revised approved budget of the YGC redevelopment was £163.598m (+ £7m discretionary support over the 7 years) with a construction value of £131.787m ex VAT.

An overview of the main project parties and headline information is included below:-

| <b>Team Structure</b>  |  |                                       |                |
|--|--|---------------------------------------|----------------|
| <b>Client</b>  | Betsi Cadwaladr University Health Board      | <b>Supply Chain Partner</b>           | Laing O'Rourke |
| <b>SRO</b>   | Geoff Lang (from 2014)                       | <b>Architects</b>                     | Design Buro    |
| <b>Health Board Project Director</b>                                       | Neil Bradshaw (from 2014)                    | <b>Services Engineers</b>             | BDP            |
| <b>Project Manager</b>   | Gleeds                                       | <b>Civil and Structural Engineers</b> | RVW            |
| <b>Cost Advisor</b>  | Gleeds                                       | <b>Health Planner</b>                 | n/a            |
| <b>Supervisor</b>  | Betsi Cadwaladr University Health Board      |                                       |                |
| <b>Key Facts</b>   |  |                                       |                |
| <b>Gross Floor Area</b>  | 10,000m2 New Build<br>25,000m2 Refurbishment | <b>Construction Cost</b>              | £131.787m      |
| <b>Commencement on Site</b>  | February 2012                                | <b>Completion</b>                     | February 2019  |
| <b>Clinical Accommodation Opened to Patients in multiple phases</b>        | 90 phases                                    |                                       |                |
| <b>Length of pipework installed</b>  | 350 miles                                    |                                       |                |
| <b>Separate decants (ranging from a single room to a whole department)</b> | 420 decants                                  |                                       |                |

New services included:-

- refurbished state of the art operating theatres and departments
- a new emergency treatment quarter
- new wards
- refurbishment of existing hospital services
- new pathology department
- new critical care unit
- refurbished x ray
- refurbished outpatient facilities
- new communal areas
- new catering department

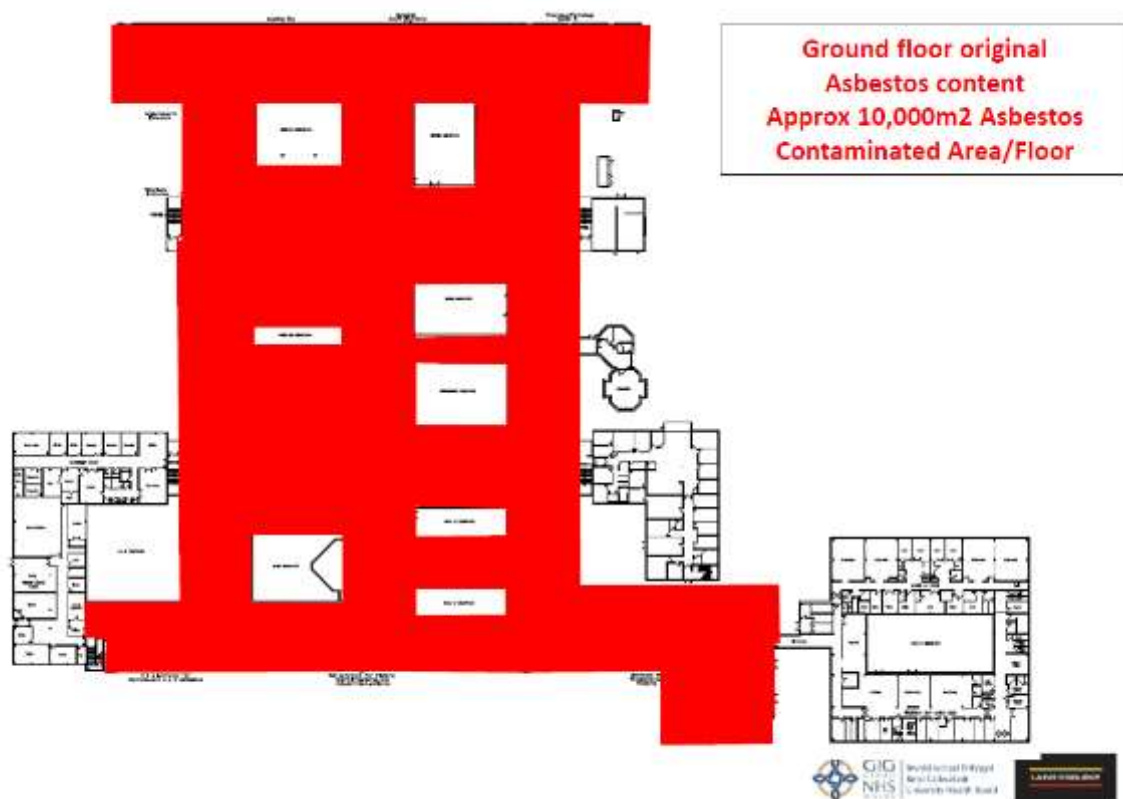
The project goals were to:

- i. Meet the Health Board's legislative obligations in relation to health and safety (in particular the Control of Asbestos Regulations (2006))
- ii. Fulfil the requirements of the Health and Safety Executive to develop and fully implement a plan for the removal of asbestos from the Glan Clwyd site.

Undertaking this work entailed stripping much of the building back to the steel frame, allowing BCUHB the unique opportunity to improve patient care and achieve greater efficiency via the reconfiguration of wards and departments.

There were long-standing issues at Ysbyty Glan Clwyd relating to asbestos and fire safety compliance, which were a direct result of the design and construction of the hospital in the 1970's and stem from the extensive use of asbestos sprayed coatings in the construction of the original building. Also, due to the necessity for intensive asbestos management control measures in place at Ysbyty Glan Clwyd, it became increasingly difficult to carry out essential maintenance works and meet BCUHB's statutory compliance obligations. Following receipt of HSE Improvement Notice BCUHB were required to develop a plan for the removal of asbestos from the original Ysbyty Glan Clwyd building.

See extent of works plan at ground floor level below:-



The developed project plan included a phased removal plan together with the management arrangements put in place by BCUHB to deliver the plan, including the necessary resources / arrangements for safe removal, and the emergency management arrangements. The plan detailed the removal of all asbestos containing materials: however, it should be noted that there is some remaining residual asbestos located at the rear of the structural steel framework which is inaccessible and these identified locations were encapsulated, sealed, recorded and managed in compliance with Control of Asbestos Regulations (2006).

The plan identified the key strategies that have determined the proposed phasing / decant strategy of the asbestos removal including ground and first floors and the existing ward areas.

A key objective for the project was to retain the existing operational services throughout all stages of the works, thus maintaining operational effectiveness whilst the asbestos removal takes place.

The strategic plan was influenced by a number of important factors including:

- i. Maintaining a safe environment for staff, patients, public and contractors
- ii. Minimizing the risk of releasing uncontrolled asbestos fibres
- iii. Minimizing the disruption to clinical service delivery whilst maintaining operational effectiveness
- iv. Removing asbestos containing materials within an acceptable timescale
- v. Full recognition of existing structural / supporting service constraints

The approach to asbestos removal demonstrated in the submitted plan significantly reduced the risks of releasing asbestos containing materials into operational areas either through leaks from above or from vibration. Formal approval of the submitted plan was received from HSE on the 4th of November 2011, and the HSE served further Improvement Notices on each of the asbestos removal phases to ensure completion of the overall plan by the target completion date.

Given that much of the hospital needed to be stripped back to the steel frame in order to remove the asbestos, the refurbishment provided a major opportunity to redesign and relocate a number of services and departments. The refurbishment directly affected the 12 acute wards in the original H-block and the departments on the ground and first floors of the original building. A substantial piece of work was undertaken on how the hospital should be redesigned to improve the quality of care and efficiency.

This involved extensive clinical and stakeholder engagement and resulted in the following key decisions about the hospital re-design:

- The partial separation of emergency and elective patients by creating an emergency quarter. This included the relocation of both the Emergency Department and the Assessment Unit at the rear of the hospital
- The creation of 24-bedded inpatient wards in the H-block with 8 single beds and 4 4-bedded bays
- The relocation of Stores, Medical Records, Pathology and some administrative functions to the rear of the site
- The relocation of therapy services (excluding inpatient support) to community locations
- The adoption of a “regeneration” catering philosophy

The project started on site in February 2012. The original programme indicated that the works were due to be completed in October 2018 and were actually completed February 2019.

The YGC project was successfully opened on time and within the approved revised programme and budget and to the required standard.

The YGC project achieved:-

- BREEAM Healthcare scores of 55.2 for Mortuary; 58.6 for Pathology and 55.2 for the A+E Extension. (All Very Good)
- Local labour (<50miles) of 343 personnel all of whom were Wales based
- Recycled demolition waste 99% (target 80%)
- 2.435m hours worked on site with only 4 accidents
- 112 defects recorded at handover of which 11 were cleared by target time
- Considerate Contractors Scheme – Gold award

The YGC Redevelopment project had a final construction value of £131m and has been delivered through the Designed for Life 1 Framework Agreement. The Hospital site has a variety of existing accommodation some of which dates back to the 1970’s and some of which has been built subsequently. The asbestos removal work related largely to the original 1970s building areas.

There were serious challenges to meet in delivering an asbestos removal project within the confines of a busy live hospital environment, with a complex refurbishment of the existing accommodation, and traffic management, all to be undertaken whilst ensuring the provision of Hospital Services continued uninterrupted.

The urgency with which BCU were required to begin the construction work to ensure safety of patients, visitors and staff and meet the Health and Safety Executive’s (HSE)

requirements, as well as the nature of removing asbestos from a live working environment, resulted in costs which were unforeseen at the outset of the project. Due to the presence of asbestos BCU were unable to undertake the normal intrusive surveys to pre-determine the full extent of the works (these would have required the decanting of all areas and the disruption to clinical services was considered to present an unacceptable risk to patients). The initial design therefore relied upon record information and a number of assumptions some of which proved to be inaccurate.

In 2014 the contract strategy was reviewed and a series of funding phases agreed, linked to the SCP programme and HSE requirements, to allow the progressive removal of asbestos and facilitate the subsequent design and establishment of an agreed target cost for each phase.

This approach overcame the combined challenges of: 1 - inability to accurately determine the scope of the works before removal of the asbestos; 2 - maintaining operational services and safety of patients, staff and visitors; and 3 - meeting the HSE requirement to remove, or safely encapsulate, the asbestos within a timely period; whilst 4 - mitigating the financial risk to the Health Board.

## BEST PRACTICE & LESSONS LEARNT

### 1.0 GENERAL

1.1 HSE Timetable. The lack of time due to the urgent nature of works required created an accelerated process for the project. This lack of time for the usual SOC/OBC/FBC timetable for project of this scale resulted in initial scoping problems and the need for the subsequent development of a revised funding and contract strategy.

1.2 Good communication and Engagement with the right people ensured 420 successful moves enabling construction to proceed without delays.

1.3 Removal of asbestos in live hospital environment - Successful removal of 300,000 tons of contaminated waste ensuring removal of HSE notices in line with agreed timetable.

1.4 Poor record drawings led to issues with live services location and function. Maintenance of up-to-date records are essential for running a modern hospital.

1.5 Allowing for architectural changes has ensured the hospital is better aligned to a 21st Century model of care and extended its life.

1.6 Opportunities were grasped to ensure the hospital complied with the Wales NHS Firecode.

1.7 The use of larger or more substantial decant accommodation was discussed at design stage but had initially been ruled out on costs grounds at the time. The permanent relocation of services from the hospital (Therapies department) was a positive benefit in enabling the scheme to be delivered more efficiently.

1.8 Lessons Learnt from stage-to-stage of the project were embraced by the project and the works become progressively easier as solutions to common problems were found.

## 2.0 GOVERNANCE

- 2.1. The complexity of the project exposed weaknesses in the initial governance, funding and contract arrangements. However, in 2014 the governance structure was reviewed and refreshed, a revised funding and contract strategy adopted and the budget was subsequently reset.
- 2.2. Utilising the Designed for Life frameworks allowed a speedier response to the HSE notice than would non-framework procurement approaches.
- 2.3. Project resources were only just adequate at Glan Clwyd. Funding the necessary resources on the client side needs to be recognised as an essential element for a project's success.
- 2.4. Enhanced levels of engagement led to enhanced levels of success. The number and detailed level of project team/client engagements were in excess of what may have been expected on a 'normal' project. The architectural success of the project changes were worth the extra time and effort that these extensive brief development engagements took.
- 2.5. Dealing with large volume of contract administration (2000+ Compensation Events) required project rules to be established. These were agreed by the Project Board and supported by BCUs Finance and Performance Committee and this could be replicated on future projects.
- 2.6. Develop a standard Cost reporting template for all Capital funded projects.
- 2.7. Critical Sub contractors. The repercussions of the original project Fire specialist sub-contractor going into administration created delays and extra costs. Future projects should give thought to employing duplicate specialist sub-contractors and splitting responsibilities on site such that if one critical sub-contractor fails, another can more easily take over their responsibilities.
- 2.8. The phasing of the main contract funding allowed for finalisation of elements of the work that could not be fully planned in advance. On a complex refurbishment project of this nature this method of project funding may be found to be the best way forward.
- 2.9 Key to the project's success was the Project Board membership which, from 2014, was drawn from all members of the project team and critical operational/clinical staff. This was challenging but ultimately successful in enabling a collaborative way forward. Also from 2014 the SRO was fully engaged in this project which simplified management decision making.



2.9. The Supervisor role was not clarified until late in this project. Resolving who carries out the Supervisor role early in the project at OBC/FBC stage will have a follow on positive effect on the quality and ease of handover.

### 3.0 DESIGN

3.1 Evidence based design was critically important to informing user design decisions on more complex elements of design. This approach should be reinforced on future projects.

3.2 Implementing flexible generic design solutions were invaluable in providing opportunities for enhanced care solutions in the 2020 Covid 19 pandemic.

3.3 Improvements in privacy and dignity in implementing a mix of 4 bed bays and single rooms in the ward areas was evident post-handover. The use of a mix of single and multi-bed rooms was found very successful at Glan Clwyd.

## 4.0 CONSTRUCTION

4.1 Maximising off-site opportunities was a positive benefit in this project and had multiple benefits in increased safety and quality and reduced time and costs.

4.2 Utilising Local labour and embedding them in the project team had benefits in 'up-skilling' local suppliers. This has had a positive on-going impact on several local businesses in North Wales.

4.3 Embedding Laing O'Rourke's safety principles (*everyone home safe every day*) into the Health Board processes led to enhanced learning within the Health Board of processes for safe control of potentially dangerous works.

4.4 An exemplary attitude to site cleanliness led to multiple benefits on site in quality and safety. It should not be seen as an extra cost but be expected on every project.

4.5 Multiple critical sub-contractors (See 2.6 Governance)

4.6 Soft Landings: The detailed handover process led to a smooth client occupation and the planning for this begins in design stages.

## 5.0 COMMISSIONING

5.1 A Shared Project Office, with all parties co-located in a single open plan office, was an essential component in ensuring good communication and teamwork and assisted in resolving issues and problems early.

5.2 A clear management structure for medical and operational client side teams was another essential component in project management in allowing for smooth handover and occupation of newly refurbished spaces. Not underestimating the resources needed (see Governance 2.2) is a requirement on all larger projects.

5.3 Handover processes were excellent on this project but could have been further improved if the input of Shared Services Engineering teams were standardised.

5.4 Involvement of Information Technology (IT) teams at an early stage of the design and at commissioning is necessary for complex IT elements of projects due to the increasing complexity of hospital IT systems.

## 6.0 PROJECT TESTIMONIALS/QUOTATIONS

**Gary Martin, HM Inspector of Health and Safety**, commented by email 21 September 2018:

“I think end of October [regarding completion] can still be thought of as a resounding success for all of the people who have been involved in this project over the years. Even for me, it feels like one of the highlights of my career as a regulator and I have only played a minor (but hopefully useful) part.”

Earlier in the project he noted:

“To date the project management team, including the main contractor have consistently delivered the asbestos removal safely and on time and I have witnessed the hard work and dedication of key individuals who have ensured that the standard of health and safety on site during removal and refurbishment was excellent”

**Neil Bradshaw, Project Director** said in feedback with Laing O’Rourke: “It’s been a pretty remarkable project; it’s lasted a long time and we’ve effectively turned the hospital inside out while keeping it going.”

And: “Very good and technically competent team in terms of delivering complexity and a real test of collaboration”

In relation to health & safety: “The whole process right from the start on site has been best in class”

In relation to relationships: “Excellent teamwork, collaborative approach and robust relationships”

In relation to quality of communication: “Communicating with adjacent departments and hospital staff was good and was reflected in the tolerance of a disruptive process – people were prepared for it”

**Elliot Wilson Patient representative** on the Project Board noted in the Project CEW submission : “As a Patient representative, member of the public, and local resident I am happy and honoured to provide a few words in support of the submission.

The YGC Redevelopment is on the verge of delivering an amazing feat of engineering and construction that will provide a fabulous modern, safe and integral health hub for the people of North Wales. The project has been focused on the best interests of patients and staff and kept them at the heart of all the changes that are taking place. The removal of the BCUHB Ysbyty Glan Clwyd Redevelopment 21

asbestos alone is an amazing achievement and the fact that it has been delivered with no significant incidents is a feat in itself. The refurbished public areas, wards and operating theatres are bright and comfortable and all achieved by amazing and complex logistics. The tolerance and commitment of the staff, patients and visitors is a tribute to the projects delivery. I am staggered to think that all this is going on while YGC is still coping with the pressures of providing excellent service to patients under all the pressures that NHS facilities throughout the UK are currently wrestling with.

The fact LOR, Gleeds, BCUHB and YGC are all working together and addressing the challenges of this massive redevelopment in an open and honest manner involving the stakeholders at all stages. Resolving disputes, setbacks and other difficulties. Listening to the concerns of all and responding to them, maintaining exceptional standards throughout.

The public will soon see the full benefits of the project and will be in awe of the new facilities and YGC will be a model for the delivery of secondary health care for the 21st century.

It is a privilege to have contributed a tiny amount to this magnificent building and the future of the NHS. “

**Pam Thomas- Senior Mortuary Technician** noted: “Working with Gleeds and the rest of the project team from day one has been a fantastic experience and I am really proud now to come work and walk through the doors of our new site every day.”



For Further Information contact:

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Shared Services  
Partnership  
Facilities Services

## Appendices





## A Project Pro-Formas

PF2 Cost

PF 3 BREEAM

PF5A Local Labour

PF5B Subcontractors

PF6B Demolition Waste

PF7 Safety



**Design & Construction Post Project Evaluation  
 Pro forma no.2 - Cost**

Jan 2021

To: Cost Advisor

DfL Project No. P00x

|  |                                  |                            |                  |   |                  |                             |                |
|--|----------------------------------|----------------------------|------------------|---|------------------|-----------------------------|----------------|
| <b>Client:</b>   | Betsi Cadwaladr LHB              |                            |                  |   |                  |                             |                |
| <b>Project:</b>  | Ysbytty Glan Clwyd Redevelopment |                            |                  |   |                  |                             |                |
| <u>Requirements/Target:</u>  |                                  |                            |                  |   |                  |                             |                |
| Final Account figure to be within +0% and -5% of Target Cost at FBC  |                                  |                            |                  |   |                  |                             |                |
| Please provide an electronic copy of the last project & cost report following handover as a separate document.   |                                  |                            |                  |   |                  |                             |                |
| Please further provide an electronic copy of the full list of priced Compensation Events as a separate document.   |                                  |                            |                  |   |                  |                             |                |
| <u>Achieved Capital Cost</u>   |                                  |                            |                  |   |                  |                             |                |
| Please provide details of the capital cost for the project:  |                                  |                            |                  |   |                  |                             |                |
| <table border="1"> <tr> <td>Agreed target cost at FBC*</td> <td>£ 123,290,000.00</td> </tr> <tr> <td>Projected Final Account excl preliminary gain share</td> <td>£ 133,156,547.96</td> </tr> <tr> <td>Preliminary Pain/Gain Share</td> <td>£ 3,429,782.00</td> </tr> </table> |                                  | Agreed target cost at FBC* | £ 123,290,000.00 | Projected Final Account excl preliminary gain share | £ 133,156,547.96 | Preliminary Pain/Gain Share | £ 3,429,782.00 |
| Agreed target cost at FBC*   | £ 123,290,000.00                 |                            |                  |   |                  |                             |                |
| Projected Final Account excl preliminary gain share  | £ 133,156,547.96                 |                            |                  |   |                  |                             |                |
| Preliminary Pain/Gain Share  | £ 3,429,782.00                   |                            |                  |   |                  |                             |                |
| * Target cost is the approved budget 4a together with CEs 1-5  |                                  |                            |                  |   |                  |                             |                |
| <u>Revenue Cost</u>  |                                  |                            |                  |   |                  |                             |                |
| Please provide an electronic copy of the Energy Performance Certificate for the project as a separate document.  |                                  |                            |                  |   |                  |                             |                |
| <i>N.B. A Copy of the Display Energy Certificate is required to be submitted as a separate document 12 months after handover and beneficial occupation, or at the Service Post Project Evaluation, whichever is later.</i>   |                                  |                            |                  |   |                  |                             |                |

Note: the figures above include costs allocated to enabling works for SuRNICC that were subject to separate funding

PF 3 BREEAM



**Design & Construction Post Project Evaluation  
Pro forma no.3 - BREEAM Healthcare**

Jan 2021

To: Local Health Board  
Supply Chain Partner

DfL Project No. P00x

|   |   |      |
|---|---|------|
| <b>Client:</b>  | Betsi Cadwaladr UHB                       |      |
| <b>Project:</b>   | Ysbytty Glan Clwyd Hospital Redevelopment |      |
| <b>Requirements/Targets</b>   |   |      |
| BREEAM criteria are comprised of various available defined credits.<br>Minimum overall target scores are:<br>New Build - 70% (Excellent)<br>Refurbishment - 55% (Very Good) |   |      |
| <b>Achieved</b>   |   |      |
| YGC - Mortuary  |   |      |
| Please provide the BREEAM score achieved at the following stages (or insert N/A):   |   |      |
|   | Prior to FBC Submission                   | N/A  |
|   | At PPE                                    | 55.2 |
| Please provide a summary of the BREEAM category scores at each of the stages as a separate document or inserted below   |   |      |
|   | FBC                                       | PPE  |
| Management  | N/A                                       | 72   |
| Health & Wellbeing  | N/A                                       | 60   |
| Energy  | N/A                                       | 50   |
| Transport   | N/A                                       | 29   |
| Water   | N/A                                       | 43   |
| Materials   | N/A                                       | 73   |
| Waste   | N/A                                       | 33   |
| Land use/Ecology  | N/A                                       | 50   |
| Pollution   | N/A                                       | 46   |
| Innovation  | N/A                                       | 20   |
| Please attach copy of final BREEAM certificate as a separate document.  |   |      |

\*All assessments went straight to PCR stage and did not submit a design stage assessment

Achieved

YGC - Pathology

Please provide the BREEAM score achieved at the following stages (or insert N/A):

|                         |      |
|-------------------------|------|
| Prior to FBC Submission | N/A  |
| At PPE                  | 58.6 |

Please provide a summary of the BREEAM category scores at each of the stages as a separate document or inserted below

|                    | FBC | PPE |
|--------------------|-----|-----|
| Management         | N/A | 75  |
| Health & Wellbeing | N/A | 53  |
| Energy             | N/A | 43  |
| Transport          | N/A | 50  |
| Water              | N/A | 63  |
| Materials          | N/A | 80  |
| Waste              | N/A | 33  |
| Land use/Ecology   | N/A | 50  |
| Pollution          | N/A | 62  |
| Innovation         | N/A | 20  |

Please attach copy of final BREEAM certificate as a separate document.

Achieved

YGC - A&E Extension

Please provide the BREEAM score achieved at the following stages (or insert N/A):

|                         |      |
|-------------------------|------|
| Prior to FBC Submission | N/A  |
| At PPE                  | 55.2 |

Please provide a summary of the BREEAM category scores at each of the stages as a separate document or inserted below

|                    | FBC | PPE |
|--------------------|-----|-----|
| Management         | N/A | 72  |
| Health & Wellbeing | N/A | 60  |
| Energy             | N/A | 50  |
| Transport          | N/A | 29  |
| Water              | N/A | 43  |
| Materials          | N/A | 73  |
| Waste              | N/A | 33  |
| Land use/Ecology   | N/A | 50  |
| Pollution          | N/A | 46  |
| Innovation         | N/A | 20  |

Please attach copy of final BREEAM certificate as a separate document.



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**Design & Construction Post Project Evaluation**  
**Pro forma no.5A - Local Labour**

Date: Jan 2021  
 DfL Project No. P00x

To: Supply Chain Partner

|   |   |             |
|---|---|-------------|
| <b>Client:</b>  | Betsi Cadwalladr UHB                      |             |
| <b>Project:</b>   | Ysbytty Glan Clwyd Hospital Redevelopment |             |
| <u>Requirements/Targets</u>   |   |             |
| SCP to use best endeavours to use Welsh based supply chain and the employment of local labour.  |   |             |
| <u>Achieved</u>   |   |             |
| Please provide a summary of the distance travelled from site to normal place of residence for all local labour employed on project                    |   |             |
|   | Employee<br>Nos.                          | Performance |
| 0-20 miles  | 113                                       | 20%         |
| 21-50 miles   | 230                                       | 41%         |
| 50+ miles (but within Wales)  | 18  | 3%          |
| Other   | 201                                       | 36%         |
| <b>Total employees</b>  | <b>562</b>                                | <b>100%</b> |
| <u>Comments</u>   |   |             |
| Please provide a brief statement with regards to your goods & services procurement strategy for the project as a separate document or inserted below: |   |             |



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## Design & Construction Post Project Evaluation Pro forma no.5B - Sub-Contractor Expenditure

Date: Jan 2021 To: Supply Chain Partner  
 DfL Project No. P00x

|   |   |  |
|---|---|--|
| <b>Client:</b>  | Betsi Cadwalladr UHB                      |  |
| <b>Project:</b>   | Ysbytty Glan Clwyd Hospital Redevelopment |  |
| <u>Requirements</u>   |   |  |
| Provide figures for sub-contractor expenditure on the project by utilising the Welsh Community Benefits Measurements Tool |   |  |
| <u>Achieved</u>   |   |  |
| Insert the value of the contract that relates to goods, services and overheads.   | £   | - <i>This figure should include costs associated not only with suppliers and sub-contractors but also overheads associated with the project or contract, such as operational costs, for example, Finance, Insurance or IT.</i>   |
| From the value above, how much was spent with businesses based in Wales providing goods, services, or overheads?          | £   | - <i>Please consider businesses based in Wales to be businesses that deliver goods or services from a location in Wales. Postcodes starting with the following letters qualify as Wales: CF, CH, HR, LD, LL, NP, SA, and SY.</i> |
| Percentage spent on businesses based in Wales   | #DIV/0!                                   | - <i>Where the % is not 100%, please provide a brief summary of how you create opportunities for businesses based in Wales below.</i>  |
| <u>Comments</u>   |   |  |
| * This was not a requirement on the project at the time and so no data was captured.                                      |   |  |

# PF6B Demolition Waste



## Design & Construction Post Project Evaluation Pro forma no.6B - Recycling of Demolition Waste

Date: Jan 2021 To: Supply Chain Partner  
DIL Project No. P00x

| <b>Client:</b>   | Betsi Cadwaladr UHB                      |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
|--|--|---------------------|--------------|---------|---------------------|--|------|--|---------------|--------------|--|---|----------|-------|-------|------|---|-------|---|---|---------|---|-------|---|---|---------|---|--------|---|---|---------|---|-------|---|---|---------|---|------------|---|---|---------|---|-------------------------------|---|---|---------|---|------------------------|-------|--------|-----|--------|--|-------|--------|--|
| <b>Project:</b>  | Ysbyty Glan Clwyd Hospital Redevelopment |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| <b>Requirements/Targets</b>  |  |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| Estimate volumes recycled and express as percentages of total generated<br>The target amount is 85% minimum of materials to be recycled (exc. asbestos and contaminated materials).  |  |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| <b>Achieved</b>  |  |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| Please provide percentages of the recycled content for the following items on the project  |  |                     |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| <table border="1"> <thead> <tr> <th colspan="3">Volume (m3)</th> <th colspan="2">Score</th> </tr> <tr> <th></th> <th></th> <th>Vol generated</th> <th>Vol recycled</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Concrete</td> <td>147.4</td> <td>147.4</td> <td>100%</td> </tr> <tr> <td>2</td> <td>Brick</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>3</td> <td>Glass</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>4</td> <td>Timber</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>5</td> <td>Slate</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>6</td> <td>All metals</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>7</td> <td>Intact Architectural features</td> <td>0</td> <td>0</td> <td>#DIV/0!</td> </tr> <tr> <td>8</td> <td>Mixed Demolition Waste</td> <td>109.2</td> <td>108.12</td> <td>99%</td> </tr> <tr> <td colspan="2">Totals</td> <td>256.6</td> <td>255.52</td> <td></td> </tr> </tbody> </table> |  | Volume (m3)         |              |         | Score               |  |      |  | Vol generated | Vol recycled |  | 1 | Concrete | 147.4 | 147.4 | 100% | 2 | Brick | 0 | 0 | #DIV/0! | 3 | Glass | 0 | 0 | #DIV/0! | 4 | Timber | 0 | 0 | #DIV/0! | 5 | Slate | 0 | 0 | #DIV/0! | 6 | All metals | 0 | 0 | #DIV/0! | 7 | Intact Architectural features | 0 | 0 | #DIV/0! | 8 | Mixed Demolition Waste | 109.2 | 108.12 | 99% | Totals |  | 256.6 | 255.52 |  |
| Volume (m3)  |  |                     | Score        |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
|  |  | Vol generated       | Vol recycled |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 1  | Concrete                                 | 147.4               | 147.4        | 100%    |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 2  | Brick                                    | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 3  | Glass                                    | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 4  | Timber                                   | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 5  | Slate                                    | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 6  | All metals                               | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 7  | Intact Architectural features            | 0                   | 0            | #DIV/0! |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| 8  | Mixed Demolition Waste                   | 109.2               | 108.12       | 99%     |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| Totals   |  | 256.6               | 255.52       |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| <table border="1"> <thead> <tr> <th colspan="2">Performance summary</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>Overall Performance</td> <td></td> <td>100%</td> </tr> </tbody> </table>   |  | Performance summary |              | Score   | Overall Performance |  | 100% |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| Performance summary  |  | Score               |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |
| Overall Performance  |  | 100%                |              |         |                     |  |      |  |               |              |  |   |          |       |       |      |   |       |   |   |         |   |       |   |   |         |   |        |   |   |         |   |       |   |   |         |   |            |   |   |         |   |                               |   |   |         |   |                        |       |        |     |        |  |       |        |  |

*N.B. Conditional formatting set at: ≥85% = green, <85% = red*

### Construction Waste

| Volume (m3) |                          |           | Score    |         |
|-------------|--------------------------|-----------|----------|---------|
|             |                          | generated | recycled |         |
| 1           | Timber                   | 15.2      | 11.1     | 73%     |
| 2           | Mixed Metals             | 63.5      | 52.43    | 100%    |
| 3           | Plasterboard             | 710.5     | 711.22   | 99%     |
| 4           | Mixed Construction Waste | 9702.1    | 9502.87  | 98%     |
|             |                          |           |          | #DIV/0! |
|             |                          |           |          | #DIV/0! |
|             |                          |           |          | #DIV/0! |
|             |                          |           |          | #DIV/0! |
| Totals      |                          | 10499.3   | 10378.43 |         |

| Performance summary |  | Score |
|---------------------|--|-------|
| Overall Performance |  | 99%   |



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## Design & Construction Post Project Evaluation Pro forma no.7 - Health & Safety

Date: Jan 2021  
DfL Project No. P00x

To: Supply Chain Partner

| <b>Client:</b>   | Betsi Cadwalladr UHB                     |                    |  |
|--|--|--------------------|--|
| <b>Project:</b>  | Ysbyty Glan Clwyd Hospital Redevelopment |                    |  |
| <u>Requirements/Targets</u>  |  |                    |  |
| Target AFR & AIR to be 20% less than national average figures.<br>National av AFR 0.58 at 2006.  |  |                    |  |
| <u>Achieved</u>  |  |                    |  |
| Please provide the RIDDOR reportable accidents, hours worked and average numbers of employees on the project (including those to sub-contractors) as measured at Handover. |  |                    |  |
| <b>Performance Data</b>  |  | <b>Performance</b> |  |
| No RIDDOR accidents  | 4  |                    |  |
| No hours worked (own labour)   | 1,099,838                                |                    |  |
| No hours worked (sub)  | 1,336,097                                |                    |  |
| Average No. of employees   | N/A                                      |                    |  |
| Average No. of employees (subs)  | N/A                                      |                    |  |
| AFR  | 0.16                                     |                    | 0.2                                    |
| AIR  |  |                    | #VALUE!                                |
| <u>Comments</u>  |  |                    |  |
| Please provide details of other undertakings by company with regards to Health & Safety (i.e Considerate Constructor Scheme) as a separate document or inserted below:     |  |                    |  |
| Title  | Business                                 | Type               | Members<br>hip /<br>Certificate<br>No. |
| British Safety Council (BSC)   | Laing O'Rourke Group                     | Members hip        | S0389115                               |



## B BREEAM Certificates

A: Mortuary Building 55.2% - Very Good

B: Pathology 58.6% - Very Good

C: A+E Extension 55.2% - Very Good

A: Mortuary Building

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www.breem.org

**Final Certificate**  
This is to certify that:

**Mortuary Building**  
**Ysbyty Glan Clwyd**  
**Bodelwyddan**  
**Denbighshire**  
**LL18 5UJ**

has been assessed to:

**BREEAM 2008: Bespoke**  
**(Fully Fitted)**

by a licensed assessor for:  
**Bwrdd Iechyd Prifysgol Betsi Cadwaladr**  
and has achieved a score of **55.2%**

**Very Good** ★★☆☆☆

Certificate Number: **BREEAM-0045-7358** Issue: **01**

Building CO2 Index: 40  
Ene 1 Reduction of CO2 emissions credits achieved: 6

|  |  |
|--|--|
| <u>05 August 2016</u><br>Date of Issue   | <u>AECOM Ltd</u><br>Assessor Company                                   |
| <br>Signed on behalf of BRE Global Ltd. | <u>Jonathan Hawley</u><br>Licensed Assessor                            |
| <u>Gavin Dunn</u><br>Director, BREEAM  | <u>JH58</u><br>Assessor Number   |
| <u>Laing O'Rourke</u><br>Developer / Main Contractor   | <u>The Design Buro</u><br>Architect                                    |
| <u>MTX Contracts Ltd</u><br>Main Contractor  | <u>Gleeds Management Services Ltd</u><br>Project Management for Client |
| <u>DSSR Consulting</u><br>Mechanical and Electrical Consultant   | <u>RWW Consulting</u><br>Civil Engineering                             |
| <u>MTX Contracts Ltd</u><br>Specialist Supplier of Modular Buildings   |  |

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## Final Certificate

This is to certify that:

**Pathology Building**  
**Ysbyty Glan Clwyd**  
**Bodelwyddan**  
**Denbighshire**  
**LL18 5UJ**

has been assessed to:

**BREEAM 2008: Bespoke**  
**(Fully Fitted)**

by a licensed assessor for:

**Bwrdd Iechyd Prifysgol Betsi Cadwaladr**  
and has achieved a score of **58.6%**

**Very Good**



Certificate Number: **BREEAM-0045-7366**

Issue: **01**

Building CO2 Index: 40  
Ene 1 Reduction of CO2 emissions credits achieved: 6

**19 August 2016**

Date of Issue:

Signed on behalf of BRE Global Ltd.

**Gavin Dunn**

Director, BREEAM

**Laing O'Rourke**

Developer / Main Contractor

**Gleeds Management Services Ltd**

Project Manager for Client

**RVW Consulting**

Civil Engineering

**AECOM**

Assessor Company

**Jonathan Hawley**

Licensed Assessor

**JH58**

Assessor Number

**The Design Buro**

Architect

**BDP**

Mechanical and Electrical Consultants



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## Final Certificate

This is to certify that:

**Ysbyty Glan Clwyd - A&E Extension**  
**Bodelwyddan**  
**Denbighshire**  
**LL18 5UJ**

has been assessed to:

**BREEAM 2008: Healthcare**  
**(Fully Fitted)**

by a licensed assessor for:

**Bwrdd Iechyd Prifysgol Betsi Cadwaladr**  
and has achieved a score of **55.2%**

**Very Good**



Certificate Number: **BREEAM-0047-6531**

Issue: **01**

Building CO2 Index: 40  
Ene 1 Reduction of CO2 emissions credits achieved: 7

**28 July 2016**

Date of Issue

Signed on behalf of BRE Global Ltd.

**Gavin Dunn**

Director, BREEAM

**Gleeds Management Services Ltd**

Project Manager for Client

**RWW Consulting**

Civil Engineering

**The Design Buro**

Architect

**AECOM Ltd**

Assessor Company

**Jonathan Hawley**

Licensed Assessor

**JH58**

Assessor Number

**DSSR Consulting**

Mechanical and Electrical Consultant

**Laing O'Rourke**

Developer / Main Contractor

**MTX Contracts Ltd**

Main Contractor / Specialist Supplier Of Modular Buildings



BF1227 Rev 1.2

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To check the authenticity of this certificate visit [www.greentoolkit.com/track](http://www.greentoolkit.com/track), scan the QR Tag or contact us E: [enquiries@bre.co.uk](mailto:enquiries@bre.co.uk) T: 0333 321 88 11

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