

2. Background information

2.1 Use of building, past and present

Church History

A few English Baptists met at Trinity Church in Aberavon-Cwmavon in 1865. The Glamorgan and Carmarthen English Baptist Association persuaded the Rev Thomas Richards to found Trinity English Baptist Church in 1871 as their numbers rose. They outgrew Trinity and met in Aberavon's Town Hall until building a new Church in Water Street in 1877.

1877: Water Street English Baptist Church built

1901: Church repaired and expanded, including a gallery

1974: Church demolished during town redevelopment.

1975: Riverside English Baptist Church opened in Port Talbot

Riverside Baptist Chapel was established in 1974 after Water Street Baptist Chapel was compulsorily purchased and demolished during Port Talbot town centre redevelopment. Port Talbot town council offered the congregation the choice of financial compensation or a replacement chapel. The congregation chose an alternative chapel after being promised the same seating capacity. The congregation was not involved on the town centre redevelopment plan by Port Talbot Town Council Architect J Morgan Harries. The building includes the chapel, big vestry/meeting room, kitchen and vestibule. The dark orange, brown brick building has a slate roof and spirelet.

The square main chapel has an eight-cruck laminated pine roof. One pulpit to the right of the central cruck and one to the left were on a raised dais at the west end of the interior; the right was removed in 2011. Riverside installed the Water Street chapel organ in 1974 to the left of the remaining organ. The pipes remain as a facade against the wall after the main organ was removed in 2011. Two rows of bench seats flank a centre aisle. In 2011, brickwork was added to the base of the chapel's right-hand wall to raise the large windows, which were previously floor-to-ceiling. The congregation opted for frosted glass to increase privacy. The congregation bought the chapel and discovered that the architect had not provided a baptism pool, which had to be placed into the raised dais.

Large vestry on south side of complex. This is separated from the main auditorium by four huge, framed openings, two of which contain stained and coloured glass from the Water Street Chapel. This space and the modest kitchen at its east end allow the chapel to serve community needs.

The proposed site where the steel museum is going to be constructed has had a church built on there in 1877, then it's been repaired and expanded in 1901, demolished in 1974 due to a town redevelopment scheme, then fully constructed into a Baptist church in 1975.

2.2 Current/Proposed occupancy

The current occupancy of this building is for church goers, and they also have a foodbank there available to the public. From viewing the church's website, it currently shows that they hold a Sunday service from 11am. On Tuesdays, a group called the 'Sisterhood' enjoys an afternoon of fellowship and prayer. On Wednesday evenings, another group called 'Contact' have use of the building.

The proposed occupancy is for Blueprint construction to construct a sustainable building which will be named as the National steel museum of Wales – Amgueddfa Dur Cymru on behalf of their client ACE capital projects ltd and the Welsh government.

As there is a continued service and other schemes still running from the Baptist church, we would propose to move current church users to relocate to a nearby church on forge road called St Agnes church. I can speak with The Reverend Canon M D Gable, Ministry Area Leader, 07561 313199 to arrange necessary requirements. If current church users of the baptist church don't wish to use that church then I can suggest that they use St Theodore on Talbot Road in Port Talbot, St Mary in Aberavon or St Michael in Cwmavon.

A Sunday market is held in the car park, relocation into the actual shopping centre is one suggestion, the other suggestion could be near the civic centre as there is an opening of space. Will not be applicable to the phase 1 works. The annual fair is held in the car park also so relocation to a car park nearby would be ideal and have the same sort of space that they require. The suggested space could be that of the nearby rugby ground.

As a good will gesture we should consider helping to move church equipment to new church location.

4. Site/Location

4.1 Location description

Located on Riverside Walk near the bank of the river Afan. It is adjacent to the camel chapel which is a part of the same organisation. To the north you have a small patch of green field which then leads onto a view of the Afan river. There are other places to see the view of the river so constructing there shouldn't be a problem, but I would suggest putting up hoarding and access for contractors should be of fingerprint technology and turnstiles so the public, especially children cannot gain unauthorised access. To the east are a few closed disused commercial properties as well as commercial properties which are occupied by a café and a tattoo studio.

To the south is a car park for the church which has roughly 11 car parking spaces for the church and then another 11 for the Carmel chapel. To the west is a small path which leads to a road, then that road leads to a dead-end road which is used for deliveries to the stores in the shopping centre, but it also has a pavement on that road for pedestrians to use to get to the shopping centre and the nearby bus station.

Our suggestion would be to keep the road open and work with the stores in the shopping centre to come up with an agreement to use the road for deliveries. Alternatively, for a path to remain open for pedestrians to possibly access the bus station.

4.8 Access – Pedestrian & vehicular

Pedestrian paths are all around the proposed site which lead to shops in the nearby area or the car park which is nearby. A simple diversion of walking up station road to the shopping centre is the safest and easiest way to access the other side of the shopping centre and also the bus station.

Access to get to delivery areas, the nearby car park and the shopping centre would not be an issue as they are still accessible. As the nearby shopping centre uses HGV and LGVs for deliveries. Access to the site for deliveries of materials would not be a problem. As stated above the shops that use the road for deliveries. Heilbronn way is used mostly by buses and the public that drive vehicles.

There will be more traffic flow on this route but it this shouldn't be a problem.

From the M4 you can exit at junction 41 if you are coming from Swansea area, or junction 40 if you are travelling from Bridgend area.

Heilbronn way (A48)

Station road,

Follow the road round until you come to a roundabout,

Either take the third exit or fourth exit to access the site.

Please refer to Appendix D – Site Access Routes Drawing. These are routes I suggest contractors and suppliers use to get to site.

If you are coming the opposite direction from Bridgend or further afield then I suggest you come off at junction 38,

Follow the A48 then take a right onto A4241 Harbour way,
Go straight over the first four roundabouts,
On the fifth roundabout take the second exit which leads onto water street,
At the roundabout take the third exit onto Heilbronn way,
Take the first exit at the roundabout onto station road then follow the road until you arrive at site.

Please refer to Appendix D – Site Access Routes Drawing.

These are routes I suggest contractors and suppliers use to get to site.

Prescriptive Easements

If a property has enjoyed an unrestricted right of way over land in the ownership of others, then a right of way can be established by long usage. This right is granted by application to the Land Registry. However, it must have been continuous for a period of 20 years or more (although a break of one year is allowed for) and must have been obtained without force, without secrecy and without explicit consent.

The right can only attach to a Freeholder and must not be illegal. It is not possible to establish such a right over land owned by British Waterways, Railways land or Crown land.

4.11 Condition survey

You will require a condition survey to identify asbestos within this building.

An ecology survey would be required to establish if any birds/bats or wildlife are within or near this building. The ecologist will be required to survey this building twice – once in the winter for bats and once in the springtime for birds.

An ecology report will be required for the River Afon to establish if there are any restrictions to work on the riverbank. Works cannot be carried out between the middle of October to the middle of April.

As this building is going to be demolished and reconstructed on, having factors such as dry rot or asbestos onsite would not be a problem as they can be dealt with by hiring specialists to remove these hazardous materials before the building is dismantled and demolished, thus ensuring the project is running on schedule for future works. Asbestos within the building could be likely due to the time the building was reconstructed.

The wildlife and countryside act 1981 may be applicable, as well as the conservation of habitats and species regulations 2010, and protection of badger's act 1992, but this is pending as we are yet to wait on a specialist survey and ecology report. If any problems occur involving wildlife, then preparation is ready to provide bat boxes for bats and the re-settling of birds.

4.12 Visual survey

From a visual point of view, there are no issues with Japanese knotweed, protected trees and species/wildlife or any other issues that would delay this project.

Visual surveys traditionally consist of sets of photographs of buildings, streets, sidewalks, shopping centres, parks, and/or other examples of a region's built or natural environment.

4.15 Surrounding developments

Surrounding developments comprise of a currently used and functional chapel, A couple of disused commercial properties.

Footpaths and walkways are around the church which lead to the shopping centre, a couple of vacated commercial properties i.e the café or the car park, as well as the chapel.

Current noises would come from:

- Passing trains as there is a railway line nearby
- The Afan river
- Vehicles making deliveries to the shopping centre
- Cars using the nearby car park

And noise can be heard from passing cars over Helibronn way

Noise from the proposed site would not be a problem as there are no residents living nearby and the public would only be coming into nearby shops for a short amount of time so it wouldn't affect their day but you can put noise protectors on such equipment like generators. The use of water for when using cutting machinery to stop the spread of dust.

A freedom of information request will be made to the website below regarding issues from above. It's an ordinance survey.

5. Development constraints

5.6 Uses of surrounding developments & site constraints

From the south side of the river Afon there are unused buildings that used to be occupied but are no longer occupied. There is another church adjacent to the building we are working on but that is going to be demolished also. The north of the river Afon you have a shopping complex, but we won't be intruding on that area. We are the first building to be constructed on this plot of land.

We suggest the businesses on the rear of Station Road should consider a walkway for the fire escapes at the back of their buildings.

5.7 Phasing arising from nature of works

Regarding the phasing of the proposed Cultural Quarter masterplan, we have presented two options regarding the Construction Phase Plan for your considering. Please refer to Appendix D.

All materials to be used are to be reclaimed from the local area and materials which are also recycled which is stated in the brief.

Feasibility

Contract terms – Employing of staff.

Ground investigation - Trial holes, look out for services.

Facilitating of works - Clearing site, demolition work.

Setting up site – Offices, materials, storage for plant, toilets, security, hoarding, sound barriers on hoarding to stop noise pollution, signage, lighting, get a generator to run compound, skips for different materials.

Substructure – Foundations, drainage, services, reinforce riverbank wall.

Superstructure – The frame and everything that comprises it and surrounding it.

Internal finishes – Lighting will need to be considered so the public can view the artifacts and history with all its glory.

Fittings, furnishing and equipment - Everything will have to be completed very carefully due to having old artifacts within the building.

Services – The head engineer has established there's quite a few things to sort out with services, but all should be rectified and simplified in due course.

Pre – fab and build units – I don't think this would be suitable as the brief describes how all materials used should be reclaimed locally and from locally recycled materials.

Work to existing buildings – Surrounding buildings are going to be demolished

External works – An aesthetic approach to use steel, masonry and concrete materials to keep in line with what was used in the industry back in the 1950s.

Larger vehicles might have to decant into smaller vehicles to access site.

Delivery lorries can take the routes we've suggest.

Possibly take out raised roundabout and paint a roundabout there for access for larger vehicles.

Phase 1 – demolition of church

Then we can start to put in utilities and substructure and work through the bold headings above.

Main point to consider after project is complete to consider a pedestrian/vehicle access for visitors to the building.

5.8 Contractors site compound & access thereto

For the start of work, it would be recommended to put the site compound in the top car park near the roundabout then move it down to the other smaller car park as work begins on other buildings.

Access would be through Station Road then onto site past Happy Home Furnishers. A traffic marshal would be required to allow access into and out of site.

6. Accommodation requirements

6.4 External works

Inspired by the successful and newly improved Port Talbot Transportation Hub, as part of the Council's initial Regeneration Programme, the new Cultural Quarter envisions the replication of its hard and soft landscaping design to create a cohesive and visually appealing environment that replicates the urban landscape.



Available: <https://www.bluetonltd.com/latest-projects/latest/port-talbot-transport-hub-wales/>

Drawing from the local durable materials and encouraging the use of steelwork to promote the history and narrative of steel within Port Talbot to champion the industry, we will strive to implement well-paved pedestrian walkways and open footfall areas, sturdy retaining walls where required and strategically placed green spaces. The seamless integration of the split-level boardwalk adorning the River Afan with integrated seating camouflages what will be a structurally resilient wall with aesthetic appeal. The incorporation of contemporary design principles ensures that the hard landscaping not only serves its practical purposes but also enhances the overall visual appeal, creating a welcoming and functional environment for both the local public and visitors alike.



Available: <https://www.bluetonltd.com/latest-projects/latest/port-talbot-transport-hub-wales/>

6.11 Phasing & decanting

Phasing would be to demolish church.

The decanting of church goes measures as discussed under 2.2

7. Design specifications

7.1 Existing construction composition, level of specification

On the existing building there, the current construction composition shouldn't matter as such as this building is going to be demolished. The level of specification again, doesn't really matter.

The level of specification for the steel museum is what we will be working towards and so far, there doesn't seem to be any problems currently.

7.3 External works & Solar shading

Solar shading can be applied to the east side of the building as the remaining sides might have a reflection coming off the sun that will affect road users but this will entirely depend on what level of tint is to be used, I would recommend level 1-2 on for the east side and also for rooms such as the break out space/learning zone mainly and then levels 4-5 on the remaining sides of the building - Tinted solar films reduce glare, although they do not eliminate it entirely. Tinted films are mostly used to lower the ambient light level. You may get any desired level of darkness with the wide variety of coloured films available. Additionally, solar shading will help with heat loss factors, retaining heat which lowers energy usage.

Window film manifestation should be a massive consideration rather than using signage and this can be applied to the west side of the building as motorists can see this sign. Below is a sample of window film manifestation:



Adding shutters on entry and escape routes would be recommended as the fractions of the public and party goers from station road might try to gain entry after the closing hours of this facility.

7.4 Provision for future expansion & alterations

We would have to take into consideration about the surrounding developments that are soon to be constructed firstly.

Consideration into the Cultural Quarter Lifecycle Analysis will be required as part of the developments second phase – ensuring compliance with the local building authority building and development plan.

7.5 Building regs

Use classes order 1987 was amended by The Business and Planning Act 2020 and introduced as Class F1 with an effective date of 1 September 2020. This category includes institutions that were previously classified as Class D1, such as educational institutions, museums, galleries (not for sale), libraries, halls, houses of worship, church halls, courts of law, and non-residential training and education centres.

Loading:

Dead and imposed loads BS 6399-1:1996 Loading for buildings. Code of practice for dead and imposed loads.

Possibly Wind loads BS 6399-2:1997 Loading for buildings. Code of practice for wind loads BRE digest 436 Parts 1, 2 and 3 (Brief guidance for using BS 6399-2:1996).

Imposed roof loads BS 6399-3:1998 Loading for buildings. Code of practice for imposed roof loads

Structural work of steel:

BS 5950-1:2000 Structural use of steelwork in building. Code of practice for design in simple and continuous construction: hot rolled and welded sections.

BS 5950-2:2001 Structural use of steelwork in building. Specification for materials, fabrication and erection, hot rolled sections.

BS 5950-3-1:1990 Structural use of steelwork in building. Design in composite construction. Code of practice for design of simple and continuous composite beams.

I am unsure regarding these BS 5950-4:1994 Structural use of steelwork in building. Code of practice for design of composite slabs with profiled steel sheeting.

BS 5950-5:1998 Code of practice for design of cold formed thin gauge sections.

BRE Digest 437 Industrial platform floors: mezzanine and raised storage.

Foundations:

BS 8004:1986 Code of practice for foundations.

Ground movement requirement for A2b -

<https://www.gov.wales/sites/default/files/publications/2019-04/170403building-regs-approved-document-a-structure-en.pdf>

The Workplace (Health, Safety and Welfare) Regulations 1992 apply to the common parts of flats and similar buildings if people such as cleaners, wardens and caretakers are employed to work in these common parts. Where the requirements of

the Building Regulations that are covered by this Part do not apply to dwellings, the provisions may still be required in

The Construction (Design and Management) Regulations 2006 When the construction work is being carried out on a building which, apart from the construction site part of the building, is occupied, the Fire and Rescue Authority is responsible for the enforcement of the 2006 Regulations in respect of fire. Where the building is unoccupied, the Health and Safety Executive is responsible for enforcement on the construction site.

Environmental protection - Natural Resources Wales¹ provides guidance on the design and construction of buildings in Wales for the purpose of protecting the environment. This includes Pollution Prevention Guidelines (PPG18) on Managing Fire Water and Major Spillages, which seeks to minimise the effects of water run-off from firefighting. It is aimed at medium to large (and small, high-risk) commercial and industrial sites and sets out requirements for the construction of containment areas for contaminated water and such other measures. It should be noted that compliance with the Building Regulations does not depend upon compliance with other such guidance.

There are many other building regs to consider, however we will start with these firstly, but the suggested design will adhere to the existing Welsh building rules. Once a complete set of construction drawings is received, the project will require consent from the local building control authority.

7.12 Carbon emissions targets

Welsh government targets - A crucial way to mitigate the further impacts of climate change is to reduce carbon emissions. In March 2021, following advice from the Climate Change Committee¹ in December 2020, the Welsh Government set targets for a 63% carbon reduction by 2030, an 89% reduction by 2040, and a 100% reduction by 2050.

Focus on using green energy for building use.

2.Landmark building: Design aspects with sustainable solutions

2.04 Social Aspects

- **Community Impact:** this new Steel Museum will be 1 of many key landmark buildings that are to be constructed. The Steel Museum has much relevance to the port talbot area as the town is heart of the steel making process. The benefit to the local community would be a great insight as to how their family members and friends endure whilst working in such places like Tata Steel and the history of the steel making process in the south Wales region.
- **Job creation:** many new job opportunities will be created during the construction process onsite for locally qualified tradespeople, qualified security personnel and jobs will be created in the newly opened Steel museum which will help to put money back into the community as money made in one building in the community by staff will be spent in other businesses nearby by staff. This building will back a new sense of pride which was lost during the mid 1900's and especially with the loss of jobs which are set to come within the next few months from Tata steel.

More new companies will be created through the new office spaces that are created and retail spaces.

- **Increase of local housing:** housing prices in the area will start to rise as the area we are building on will become a tourist attraction and the footfall in the area will increase.
- **Inclusivity and Accessibility:** the design of this building has enabled all people from different backgrounds and abilities to access each part of this building through installation of ramps, elevators, widened doorways and electric powered doors and accessible restrooms.
- **Public Spaces and Amenities:** the whole concept of this building is to bring communities together through history. The different rooms/spaces within this museum will ensure social interaction and engagement from the public that visit here. As the building itself will have restaurant/cafe, offices, rooftop courtyard, play areas, cinema room, lecture theatre, exhibition rooms, retail shops and gallery's – all these elements from this building will bring communities together that are from/not from the area.
- **Mixed-Use Development:** integration of residential, commercial, and cultural spaces will create a diverse and dynamic neighbourhood that fosters social interaction and economic vitality.
- **Sustainability and Environmental Impact:** working alongside Welsh government targets will ensure that carbon emissions will be at its lowest. The use of concrete leads to thermal stability, steel is durable and recyclable. However, most materials used are to be reclaimed and recycled materials to limit the embodied carbon of the building which will benefit both current and future generations through less carbon footprint.
- **Cultural Preservation:** the historical and cultural significance of this building is through the community's involvement with Steel throughout past

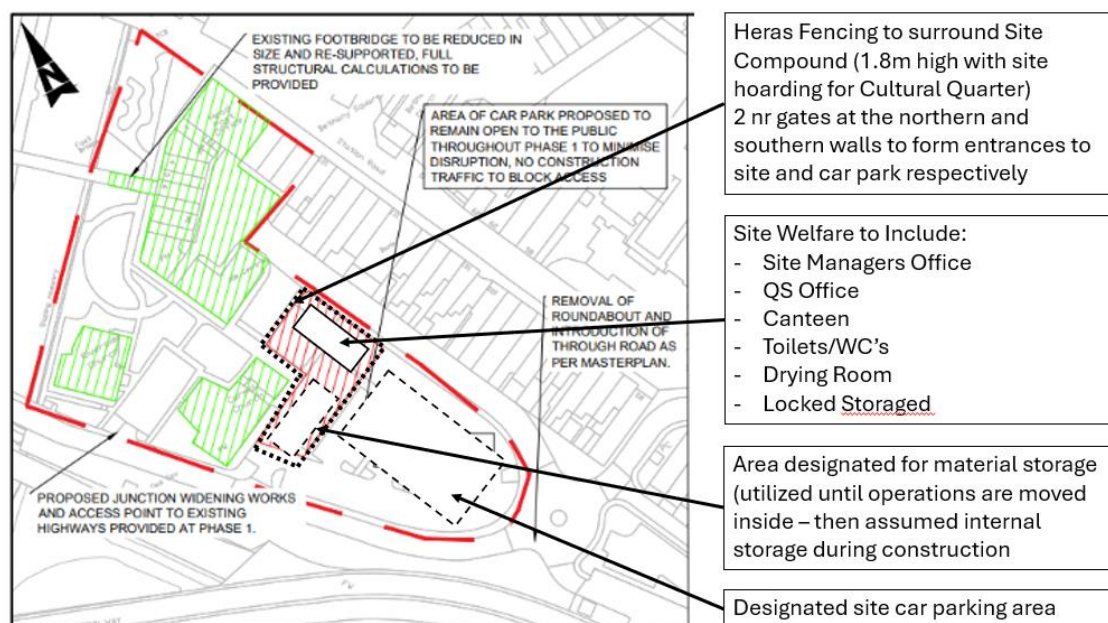
history. The inclusion of local artifacts, historical photos and equipment will bolster the relevance for this building.

- **Community Engagement and Participation:** the regeneration of the town centre is what was needed and through incorporating this building it is not only good for the local economy, but also for educational purposes – which will have the general onside to champion this project furthermore. Working with the local churches were a top priority to house the previous occupiers of Riverside Baptist church.

2.09/2.10 Full schedule of works/Distribution of labour and resources (Materials & Equipment) along time, with specific milestones

I worked with Somma Howard to put together a schedule of works with what is entailed at the different stages of work. I then put together a resource name list and applied it to a Gant chart that Somma worked on to include the timescales needed for each task.

2.12 Site Layout at Different Stages of Works



Fencing

Steel perimeter fencing with security gates at critical entry points is part of the site plan. Manually controlled gates prohibit authorised/unauthorised entry and ensure safety.

Site offices

Located near the main entrance so that it is easy for workers and guests to get to. It has room for meetings, storage, and running the business side of things.

Toilets

There are accessible bathrooms on the site, with both traditional and gender-neutral choices. Accessible rooms, sinks and toilets can be found in every bathroom.

Canteen

A main dining area, a kitchen within it, storage space, and facilities for managing waste. There are also clear entrances and exits, seating arrangements, and emergency exits for safety.

Material Storage

The site plan shows where the storage areas will be, so the building materials are put away in an organised way. It has safety barriers, clear paths for easy entry, and labelled areas to make keeping track of inventory easier.

Security

Cameras will be erected to cover all points of the site to ensure nothing untoward is going on. A security guard will be present to circulate perimeters to ensure no thefts occur and no unauthorised entries occur.

2.13 Technical & non-technical specifications

Building a steel museum is a complex project that involves a wide range of technical and non-technical considerations. Here's a comprehensive list of factors to consider when planning and constructing a steel museum:

Technical Considerations

1. **Structural Design:**

- The frames of the 4 main museum space will tie together to create rigidity in the structure.
- The glass atrium which houses the Bessemer converter will be a separate structure which will only connect back to the main structure via the upper-level walkways.
- Externally, the fire escapes will be constructed in traditional masonry, with steel creating the structure for the escape walkways at the upper levels.
- The central core in which the main circulation stairs and lift are located will also offer additional structural support to the main public space.

2. **Materials and Construction Methods:**

- Re-inforced concrete poured in situ using eco-pact concrete, which is manufactured creating 90% less CO² than traditional concrete.
- Argon filled triple glazed window units (1.2W/m²K)
- 40mm Eco screed thermal on top of concrete deck.
- Finished floor tile with locally sourced Welsh slate floor tiles.

Door section detail

- SFS framing system attached to I-beam. Box sections below create a frame to take the capping Corten piece on the exterior. Fire rated plaster board on the interior.
- Internal floor is constructed of 200mm concrete layer, above which is laid 150mm of rigid rockwool RWA45 insulation. 75mm of screed is poured on

top before locally sourced reclaimed Welsh slate floor tiles are laid in standard brick bond formation with min 10mm spacer gap.

- Piled foundation with 300mm re-inforced concrete pile cap. Block wall formation up to FFL, with concrete cap finish.

Wall detail

- Pre-lacquered Corten sheet panels, rear mounted and fixed to the main structural frame of the building using bespoke hanging fixings. Sheets will also form an internal wall finish and are installed in the same manner.
- 457x157x7.6mm steel I-beam to structural engineers' requirements, powder coated RAL7024 graphite grey.
- Rear mounted Corten jointing plate to connect the sheets. Weatherproof silicone bead applied to joints.
- Stainless steel fixing plate to take bracket from the Corten sheet. Welded and bolted to main steel frame structure.
- SFS framing system, located at 600mm centres, tied back to the main structural frame.
- 450mm Rockwool RW3 acoustic insulation board (0.034 W/mK) installed in cavity created by the SFS frame.
- 600x300mm reclaimed locally sourced Welsh slate floor tiles laid in standard brick bond formation with 10mm spacing. Grout with BAL Micromax 3 Eco Gun Metal.
- 25mm floor screed.
- 50mm Rockwool RWA45 insulation (0.035 W/mK)
- Reinforced concrete floor deck system using Earth Friendly Concrete (EFC) cement free concrete which saves between 75% and 87% of embodied carbon compared to standard concrete mixes.
- 25mm Hicern fibre cement board attached to external and internal SFS framing system.
- Traditional cavity wall construction using wood fibre insulation locally sourced.



Roof section detail (external)

- EPDM lining fixed to internal section. Joints to be taped and filled with black all-weather silicone.
- Bespoke pressed galvanised gutter, screw fixed into concrete wall panel with stainless concrete screws. Screws to be over taped before applying the EPDM layer
- 50mm Rockwool RWA45 insulation.
- 250mm Rockwool RWA45 insulation between SFS framing system.
- Stainless steel socket bedded into masonry and concrete. The socket will take the 'skylight' windows which will be inserted into the socket with a silicone bead.

Roof section detail (internal)

- 457x157x7.6 steel I-beam to structural engineer's requirements. Powder coated RAL7024 graphite grey.
- Cavity tray to allow water to egress from the cavity to siphonic drainage.
- 235mm Rockwool RWA45 insulation.
- Reclaimed sourced Welsh brick laid in a Flemish bond with natural colour lime mortar joints (HMT0002.1) min 10mm.
- DPC vapour barrier.
- Stainless steel socket to hold glass balustrade. Socket screw fixed to masonry wall using stainless steel screws. Glass clamped and seated with silicone bead.
- Siphonic drainage system with outlet at the rear of the building. Water will be collected from the plant room to the basement for storage and use in toilet systems.

Top to bottom detail of a section

- Solar PV array installed on the roof of the Corten clad structure, facing South. The energy will be harvested and stored in batteries located in the plant room of the building to be used throughout the museum when needed.
- Pre-lacquered Corten sheet panels, rear mounted and fixed to the main structural frame of the building using bespoke hanging fixings. Sheets will also form an internal wall finish and are installed in the same manner.
- Double glazed argon filled glazed units (1.2W/m²K).
- Bespoke press formed Corten sill and head sections.
- 25mm Hicem fibre cement board attached to external and internal SFS framing system.
- SFS framing system, located at 600mm centres, tied back to the main structural frame.
- 450mm Rockwool RW3 acoustic insulation board (0.034 W/mK) installed in cavity created by the SFS frame.
- 600x300mm reclaimed locally sourced Welsh slate floor tiles laid in standard brick bond formation with 10mm spacing. Grout with BAL Micromax 3 Eco Gun Metal.
- Reinforced concrete floor deck system using Earth Friendly Concrete (EFC) cement free concrete which saves between 75% and 87% of embodied carbon compared to standard concrete mixes. 50x50 timber battens fixed at 400mm centres to the underside of the deck to fix 12.5mm fire rated plaster board. 3 coats of Lime plaster finish. Painted with 2 coats of emulsion RAL7030 Stone Grey.

Window detail

- Pre-lacquered Corten panel
- 450mm Rockwool RW3 acoustic insulation board (0.034 W/mK) installed in cavity created by the SFS frame.
- Vapour barrier
- Stainless steel fixing plate to take bracket from the Corten sheet. Welded and bolted to main steel frame structure.
- Breather membrane.
- SFS framing system, located at 600mm centres, tied back to the main structural frame.
- Bespoke Corten head detail.
- Insulated window frame.
- Double glazed glass unit, argon filled (1.2 W/m²K).

Steel frame

- Corten steel has a yield strength of 68-78 KSI, which is higher than the 45-64 KSI of galvanised steel sheet. As a result, Corten steel is more resistant to buckling or breaking under greater forces. The natural protective oxidised layer shields Corten from corrosion in the majority of conditions. It's also durable and easy to maintain and environmentally friendly.

3. Building Codes and Regulations:

The detailed requirements of the Building Regulations in Wales are scheduled within 18 separate headings, each designated by a letter (Part A to Part R). The following sections of the Building Regulations will apply to a new build museum:

- Part A: Structural safety
- Part B: Fire safety
- Part M: Access to and use of buildings (covering disability access)
- Part L: Conservation of fuel and power (energy efficiency)
- Part K: Protection from falling, collision and impact (designing staircases, ladders, ramps)
- Part P: Electrical safety

These are to name a few but there are more that will be addressed, however, early consultation with local planning authorities will help this project establish criteria to ensure full compliance.

4. Environmental Impact:

- The materials used in this construction process are in line with being eco-friendly. There will be a waste sorting process involved to separate any non-usable materials.
- Solar panels are being used to generate and store energy.
- Energy efficient lighting and HVAC systems are being used and installed to reduce energy consumption.
- Sustainable materials are being used that are locally resourced and recyclable.
- Natural lighting will be used due to the size of windows installed with shading.
- Biodiversity will come into play through landscaping and green spaces.

5. Accessibility:

- People with non-disabilities have easy access entrances and exits to all floors. Disabled access is Designed for disabled access which is compliant with Equality Act 2010 and Part M of Building Regulations. This includes ramps, lifts, accessible bathrooms, signage, and other inclusion features. There is also a lift which is accessible on all floors.

6. Security and Safety:

- This steel museum needs strong security to preserve exhibits and keep visitors safe. This may include alarm, surveillance, and structural security regulations. Emergency escape routes are added to these plans with an emergency action plan that will be put into place during the construction of this building and after this has been fully built.

Non Technical Consideration

To create a cultural hwb building as part of the wider proposed cultural quarter development on the site of Bethany square car park, Port Talbot. The proposed building will be the focal point of the cultural quarter and will act as a destination building within the wider context. It primarily houses a museum and library space. The building will create a destination venue which will help to bring tourism money into the centre of Port Talbot.

The materiality of the building will be in keeping with the town's industrial heritage. There will be a link back to the steel industry which is at the heart of the town. It will be visible from the surrounding area in a way that it becomes a marker building of the town. The main exhibition space will have the feel of being in an industrial steel manufacturing environment. Exhibits will be lit from track lighting above. The library space will feel lighter and more tactile, with bright colours and interactive spaces which will help to energise and create a positive learning zone.

There are multiple stakeholders for this proposal. The lead stakeholder is Amgueddfa Cymru, who will be the principal user upon completion. Funding will come from both the private and public sector, with Welsh government, the national lottery community fund and Tata steel, all contributing to the project. Post occupancy running costs will be offset by income generated from ticket sales and revenue from the various outlets in operation throughout the building. Short falls will be covered by Amgueddfa Cymru.