

Friars Point, Barry Island, South Wales

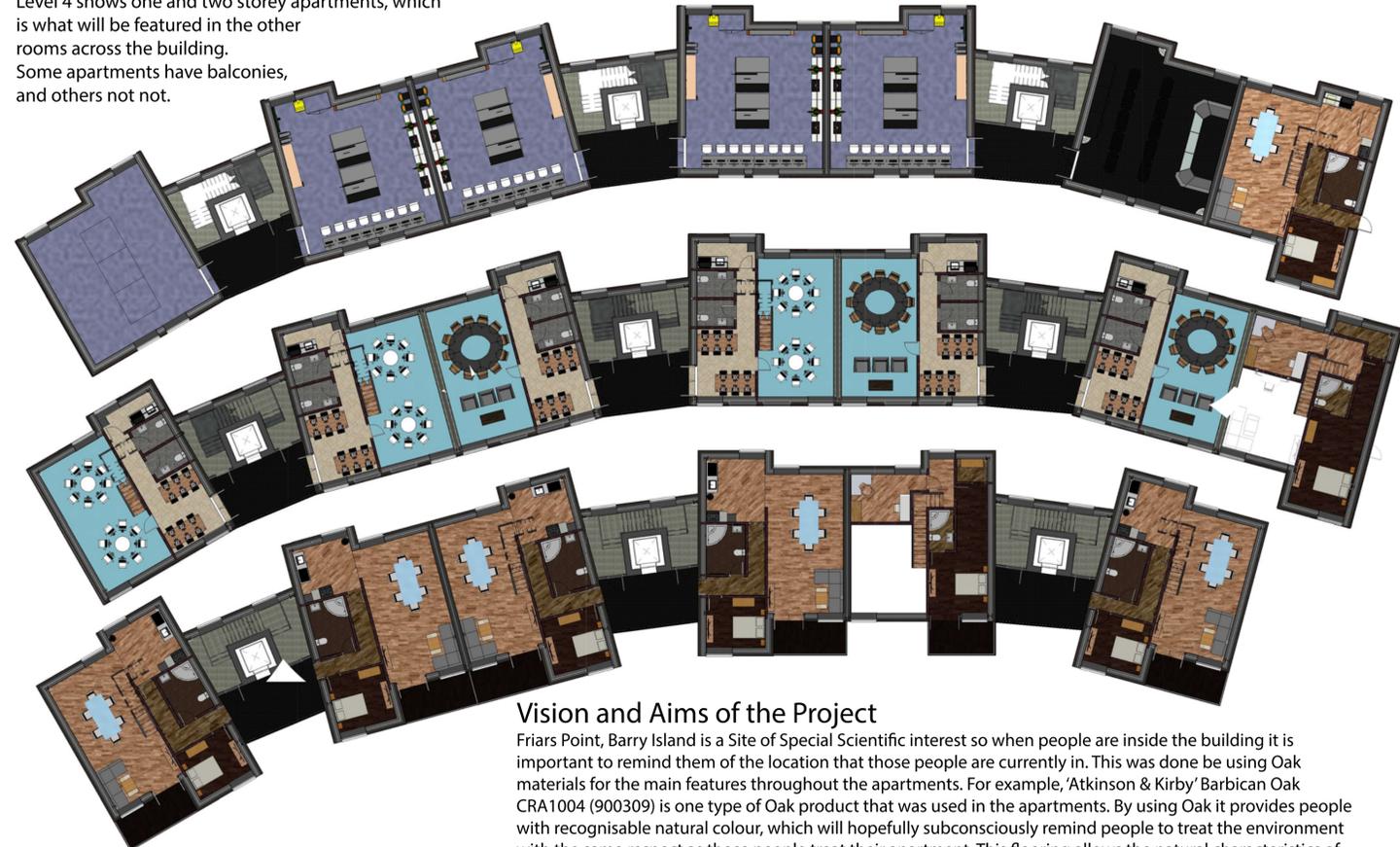
The aim of this project was to develop a mixed-use multi-storey building, containing both one and two bedroom apartments along with double and single storey work units, located in Friars Point, Barry Island. The building mass is divided into blocks between 4 and 7 storeys, linked with glazed circulation shafts. The articulation of the units and the position on site is intended to be both sympathetic to the site and maximise the spectacular coastal views. An outlined sketch plan was provided to start the development, but the overall materials and products that were used was done by researching to see which ones would best suit the environment of the site location. There were key issues that had to be solved in order to meet the requirements of the brief. For example the proposal that was created had to: show integration of the building with the landscape, demonstrate high levels of technical competence, demonstrate best practice in sustainable and ecological design, plus many more.

Floor Levels Featured on Presentation Sheet

On this presentation sheet, levels 0, 1 and 4 are displayed in that order. Level 0 of circulation blocks is where the main entrances will be located. This level has a gallery, boiler room, workshops and a two storey apartment. Located in the circulation blocks is fire escape stairs that start on this level and go up to level 6. These fire escape stairs are Milbank precast concrete, which last more than 60 minutes in fires, meeting Part B.

Level 1 has a mixture of one and two storey work units, as well as the second floor of the apartment, which started on level 0. The idea of the work areas on both Levels 0 and 1, encourage workers feel peaceful while those people are at work. This is achieved by using light blue flooring colours, which is associated with trustworthiness, reliability and tranquility, and these are important qualities to have while working.

Level 4 shows one and two storey apartments, which is what will be featured in the other rooms across the building. Some apartments have balconies, and others not.



Site Key

- General Road.
- Road for disabled and Rubbish Vans.
- Pavement.
- Grass/Vegetation.
- General Public Parking.
- Disabled Parking.
- One-way road system.
- Disabled and Rubbish Truck vehicles only.
- Exit.
- No Entry.

The site is a one way road system so that rubbish trucks, disabled vehicles and general cars are able to manoeuvre easily around the site. This is done by general cars using the car parking spaces furthest from the building, that has a road that resembles a figure of 8. The reason for the road for these parking spaces are this shape is so that, those vehicles can simply get in and out of the spaces. Rubbish trucks and disabled vehicles will follow the blue arrows, that will bring them to a sharp left turn. The sharp left turn will direct disabled vehicles to disabled parking spaces. While, rubbish trucks will head straight on to the turning head which, which is where rubbish bins will be located. The road width of the turning head is 6 metres, so that larger rubbish trucks can turn around with no issues. There are 5 disabled parking spaces and that have a width of 3.6 metres and a length of 5 metres. There are 60 car parking spaces that have a width of 2.5 metres and a length of 5 metres.

Main Materials of The Building

The main materials of the building are shown in these 3D Details. As you can see the structural frame of the building is Steel. To be precise Framed LTD steel frames with a coating of NullFire steel fire protection layer. This steel frames with Framed LTD meets Part B of the Building Regulations because it is specific for solutions for fire resistance, sound insulation, resistance to moisture and has a great thermal performance. In the event of a fire, Framed LTD steel frames would be able to keep its position and stay standing for longer than 60 minutes, preventing it from collapsing. To give the steel column extra protection, there is a layer of NullFire on top of it. This layer of coating over the steel delays collapsing of the structure through insulating the structural elements that support the building, helping to achieve a higher level of fire resistance.

Additionally the exterior of the building is made out of precast concrete. To be exact the overall build up of the walls, as shown in the 3D Details are 150mm JP Prestressed precast concrete wall panel, followed by 120mm Kingspan XPS Insulation, which then had a 50mm air gap, then another layer of 150mm Kingspan XPS Insulation and finally 15mm of British Gypsum Plasterboard. Precast concrete external was felt like the better option for the environment that the building is in. Precast concrete walls are strong, durable, robust and fire-resistant, which means that the precast concrete panels will be able to stay up for longer than 60 minutes in the event of a fire. Also, so, since precast concrete walls are so heavy and dense, precast concrete walls have a high thermal mass, meaning heat will find it hard to leave through the walls of the building.

Vision and Aims of the Project

Friars Point, Barry Island is a Site of Special Scientific interest so when people are inside the building it is important to remind them of the location that those people are currently in. This was done by using Oak materials for the main features throughout the apartments. For example, 'Atkinson & Kirby' Barbian Oak CRA1004 (900309) is one type of Oak product that was used in the apartments. By using Oak it provides people with recognisable natural colour, which will hopefully subconsciously remind people to treat the environment with the same respect as those people treat their apartment. This flooring allows the natural characteristics of oak shine, while the stunning oak colour is highlighted with Natural Oil Protect and brushed finishes to add texture. The combination of Knots and slight variations in colour between boards show the beauty of nature perfectly.

Also, there are amazing views that surround the building and it would be a shame if these views were not by the people in the building. To ensure that the people in the apartments and in the work units can witness the remarkable views that are around the building, Western Window Systems Series 7610 Single - Hung Window Floor to Ceiling Windows were implanted to achieve this goal. An important factor is whether windows have natural ventilation and allow fresh air from the outside to enter inside and improve the air quality of the rooms in the building. There are not many floors to ceiling windows can provide natural ventilation, which is why Western Window Systems was the perfect choice. Their floor to ceiling windows features a top sash that is fixed and a bottom sash that moves up to open and let fresh air in.



Environmental Strategies - Rainwater Harvesting

Several strategies were used to combine the elements of the site location with the building. For example, the site location of the building experiences a lot of wet weather all year round and there are 4 garden terraces on the building. The wet weather is going to benefit the building by using the rainwater that the environment provides and use that water for different things in the building. Instead of placing a gutter around the garden for the water to runoff into the drains, as an alternative the rainwater will be directed into a tank, where the rainwater will be filtered and cleaned and stored for non-drinking purposes.



Environmental Strategies - Vandersanden ECO-Friendly Brick Slips

Using materials that were not harmful to the environment during the manufacturing process and to the environment of the site location once the building has been created was an important factor. Many environmentally friendly materials were used during this project. For example, on levels 0 and 1 Vandersanden ECO-friendly Brick Slips were used around the whole of the building. These brick slips are formed in special moulds and fired as slips, resulting in even less wastage of raw materials and energy. Since the brick slips are manufactured this way, there are benefits that normal bricks are unlikely to have. Firstly, there is 70% less raw material being used and for every 1kg of raw material, that equals 1kg of brick slips. This means that there is waste free production process because everything will be used. Secondly, there is 50% less energy consumption, which means that less energy is used when creating product, so compared to other brick slips, 50% less energy is wasted in the manufacturing process. Lastly, these ECO-friendly brick slips have a reduced water absorption, which will prolong the aesthetics. This is important because the location of the site experiences a lot of rain so these bricks will be able to withstand the weather conditions much longer than normal ones.