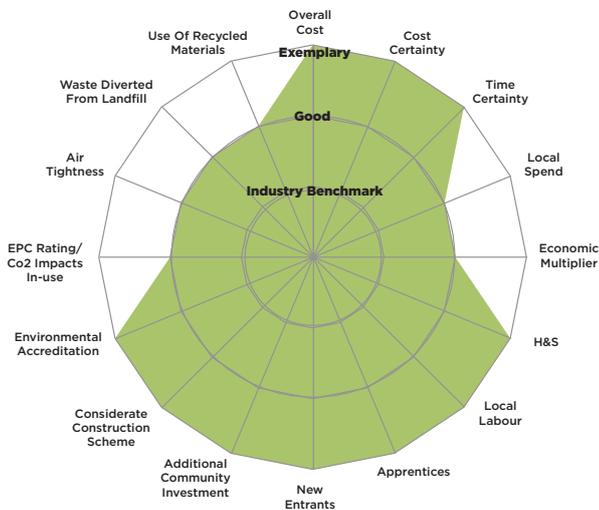




**Ysgol Gymraeg Nant Talwg, Barry**



**The Vale of Glamorgan Council faces, like many other LEAs, challenges to deliver new schools fit for the 21st century against a backdrop of ever diminishing capital and revenue budgets**

Ysgol Gymraeg Nant Talwg represents the development of a cost-effective primary school based on a template design derived from previous projects and refined over a number of years.

The “Agilis” model school, jointly developed by the contractor and architect, features an efficiency of design, a lean building process, speedy construction and cost effectiveness compared to a more traditional bespoke option. It offers flexibility through removable internal walls and the ability for the client to customise the external appearance as well as the internal positioning of certain elements such as toilet blocks.

This case study sets out the process from preconstruction through construction and the value of maintaining an integrated team throughout the delivery of a number of projects to continually refine and improve the final product. The case study refers to other associated projects at Ysgol Dewi Sant Primary and Oak Field Primary school, to demonstrate the value of continuity between projects and the potential for further improvements against an established model.

**PROJECT DETAILS**

<b>Client</b>	Vale of Glamorgan Council
<b>Architect</b>	Stride Treglown
<b>Contractor</b>	ISG plc
<b>M&amp;E</b>	McCann & Partners
<b>Value</b>	£2.7 million
<b>Project size</b>	1400m <sup>2</sup>
<b>Contract</b>	NEC Option A
<b>Procurement Strategy</b>	Single stage design and build with employers requirements

**KEY CONTACT**

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## What is an Exemplar project?

An Exemplar is defined as **'something worthy of being copied'**. The Exemplar programme has been developed to help identify the reasons why certain projects are successful in a standardised, quantifiable way, and to share with the industry what enabled these successes.

An Exemplar considers all aspects of sustainability, including economic, social and environmental. Projects must demonstrate that they have been innovative in one or more of these aspects in a way that exceeds normal industry practices, while achieving at least minimum standards in all other areas of the project.

This is to demonstrate that the scheme is well rounded and has not sacrificed one aspect to be successful in another, while also incorporating best practice measures that can advance the state of the industry. An Exemplar project therefore reflects the ideal industry goal of achieving a scheme's primary function aims in a sustainable way, at acceptable costs.

### Case studies are prepared at 3 Key Stages Post - Design / Post - Construction Post - Occupation

This ensures that lessons learnt can be demonstrated throughout the development of the project.

## What has made the project successful

- Clear direction by the client and the appointment and development of an integrated team approach from an early stage to ensure certainty in terms of cost, time and quality
- A procurement strategy based on collaboration and early contractor involvement to ensure that expertise from all parties is utilised from the outset
- The development of a template design based on lessons learnt over a period of time from other projects to continually improve a standardised product
- Involvement of the end-user at key stages in the project to maintain engagement, ownership and influence over element of the project
- Careful management of local supply chains to maximise investment in the local economy and ensure upscaling of the local workforce
- The application of the council's own approach to community benefits to maximise opportunities for local businesses, young people and socially and economically disadvantaged groups.

## Notable Achievements

- Improved certainty of delivery in terms of time, cost and quality through the continuous improvement of a standardised design
- Refining the design and improving its cost effectiveness over a number of projects through integrated teamwork and end user engagement
- Ensuring as much of the investment into the project is retained locally
- Reducing construction waste through refinement of the design and build process over a number of projects
- Minimising energy consumption of the building through careful attention to design detail to ensure that future revenue and carbon implications for the end user are reduced
- Achieving BREAAAM excellence in a "standardised" product through continuous improvement and continuity of the delivery team
- Achieving high levels of targeted recruitment and training (TR&T) through a comprehensive community benefits strategy led by the client
- Improving safety performance through the continuous improvement of a standardised product.

## Economic Considerations

### Improved certainty of delivery in terms of time, cost and quality through the continuous improvement of a standardised design

Throughout the five year span of the Agilis school model, the team has been able to develop and improve the model originally used in the South West of England (St Martins Primary School, Devon), to deliver an optimal solution which can be adapted for primary school builds for 1, 2 and 3 form entries as single and double storey options.

The collaborative team approach has resulted in an offering that is continuously improving:

- Innovative design efficiencies by a proven design team
- Programme efficiencies utilising lessons learnt and best practice
- Improved cost accuracy
- Reduced risks
- Proven local supply chain
- Improved product to the customer.

Progress in developing and improving the approach has been enhanced and documented using a continuous improvement model (below) with the full engagement and participation of the whole team together with building users and the results of Post Occupancy Evaluations (POEs).

The additional learning gained from previous school projects including Ysgol Nant Talwg have been applied and optimised to the latest project at Ysgol Dewi Sant Primary School.

### Ensuring as much of the investment into the project is retained locally

The delivery team have been able to establish a trusted supply chain with emphasis being placed on local sub-contractors and suppliers. From the outset, the team were determined to find a supply chain that would demonstrate capability and loyalty and continuity of employment has been maintained for many suppliers as they have transferred from one project to the next. Examples of these are:

- Overdale Steel
- FP Hurley Mechanical
- Highadmit Electrical
- Vellacine Windows

All of these are local contractors based within a 20 mile radius of the project locations.

A series of 'meet the buyer' events were held specifically for the Vale of Glamorgan Agilis school projects and others will be planned for future projects. In these events, awareness of the projects and availability of opportunities to become part of the supply chain is raised, as is the whole ethos of working with the team. Suppliers are continually asked for their feedback in terms of the lessons learned.

## Design Lessons Learned



### Refining the design and improving its cost effectiveness through integrated teamwork and end user engagement

The team started their third Agilis School for the same customer, Vale of Glamorgan Council. A consistent design and build team has been maintained throughout the 3 schemes. The value of an integrated team featured heavily in decision making and in improving the product.

Examples of this are:

- Smaller profile to the eaves detail – more visually pleasing
- Removal of dual pitch to roof profile – ease of construction and smoother visual impact
- Removal of wasteful duplication of efforts – e.g. only one party to pursue and deal with utility quotes and orders
- Removal of solar hot water as school has a low hot water demand and increase PV to maximise pay back via FiT (Feed in Tariff) in summer holidays
- Early engagement of the end user to determine FF&E locations and colour scheme
- Removal of wind catchers to hall roof replaced with robust weather tight louvre linked to Building Management Systems (BMS)
- Incorporating teacher feedback, entrance door positions have been moved to a central location to maximise ‘teaching corners’
- Storage maximised through integrated FF&E and dedicated store
- Window configuration changed to early years classes to avoid projections and to maximise play area.

Further collaboration across the design team, including the client, continues to be a strong feature in the on-going development of the Agilis model.

An open team forum has been created to capture the positives and negatives to continually raise standards.

A good example of this has been the adaption of the Agilis model to a 2 storey model to accommodate a restricted site and the constraints presented at a future project at Oak Field Primary School.

### Environmental Considerations

#### Reducing construction waste through refinement of the design and build process over a number of projects

Whilst a high proportion of waste generated was diverted from landfill (90%), the main feature was the reduction in waste generated.

This was achieved through the ongoing refinement of a model design and included details such as the roof profile and eaves detailing.

Post-construction feedback forum held by the delivery team allow further reduction in waste generation to be tested.

#### Minimising energy consumption of the building through careful attention to design detail to ensure that future revenue and carbon implications for the end user are reduced

An EPC rating of A and BREEAM Excellent accreditation were targeted. The following aspects were considered in achieving these standards.

- Simple design and robust construction
- Extensive lessons learnt and feedback giving benchmark data
- Post-occupancy evaluation carried out with educationalists and users
- High performing envelope (40% improvement on building control minimum u-values)
- Photovoltaics (PV's)
- Efficient M&E provisions controlled by BMS
- Domestic type boilers
- Natural single sided ventilation
- Simple extract ventilation
- Maximise natural daylight
- Underfloor heating (operates at a lower temperature than traditional heating systems)



## Environmental Considerations (cont.)

**Achieving BREEAM excellence in a “standardised” product through continuous improvement and continuity of the delivery team.**

In the development of the design solution and specification a target of BREEAM Excellent was prioritised with all stakeholders from the initial stages on each project. A design manager took the lead in each case and an Excellent rating was achieved at Ysgol Gymraeg Nant Talwg. In taking an integrated team approach, actions and responsibilities were set out and continually reviewed at key stages. All parties involved in the project had the ability to add and subtract from the BREEAM rating. By using tried and tested supply chain partners and ensuring all involved were briefed and challenged to optimise their effect on the target ensured potential credits were achieved whilst also creating a ‘buffer’ to accommodate any ‘lost’ credits.

Lessons learnt will be taken to future projects.

## Social Considerations

**The achievement of high levels of targeted recruitment and training (TR&T) through a comprehensive community benefits strategy led by the client.**

A robust community benefits and Targeted Recruitment & Training (TR&T) plan was developed with the client to meet their contractual requirement to achieve a prescribed provision of person weeks of training. The plan was set up with a variety of categories to meet the social and localism agendas including:

- Employment of local resident as gateman/labourer
- Use of ‘Y Prentis’ shared apprenticeship scheme
- Engagement with a local college to provide all essential first year work experience
- “Meet the buyer” events
- Work experience placements
- Construction workshops, lectures and development coaching for GCSE construction courses and Cardiff & Vale College placements
- Create ‘bug hotels’ at Vale of Glamorgan Schools
- Support to train over twenty apprentices, trainees and graduates
- Over 200 weeks site based training
- Four apprentices found full time positions with the supply chain
- 16 community events and initiatives
- Over 35,000 person hours on site to construct the school
- Work with a local artist who held workshops with pupils to design the glazing to the “heart space” windows

The contractor appointed a Head of Supply Chain to develop a managed approach to all categories of supply. The supply chain team supports all projects with procurement conducted locally by the delivery teams.

**All targets were achieved.**

## Improving safety performance through the continuous improvement of a standardised product.

A Health and Safety Behavioural Change sub-contractors’ event was held at the start of the project. Feedback received at that session led to positive changes on the site including:

- ‘You said/We did’ boards displayed
- Health and Safety Tunnels ahead of entrance to project workface
- Regular sub-contractor health and safety forums on sites

A health and safety KPI dashboard displayed at all sites provides sub-contractors with health and safety data/statistics showing how best practices can be shared across all sites.

Continual refinements of the model school allow safety issues to be continually reviewed and improved.

An accident Incidence Ratio (AIR) of zero was achieved on this project.

