

Newport High School



project details

client:	Newport City Council
architect:	HLM Architects
contractor:	Leadbitter
value:	£25 million
project size:	10,500m ²
contract method:	2-stage tender, collaborative contract
project outcomes:	Reduced energy costs, improved educational attainment, ongoing community engagement

This case study provides a post occupation update of an earlier Exemplar pilot case study of Newport High School. The aim of this study is to set out the achievements of the project in terms of its aims to deliver reduced running costs, improved educational outcomes, improved community engagement and high BREEAM standards.

Lessons learnt from the project have also been used to inform the design and construction of Llanwern High School delivered subsequently as part of Newport City Council's long term programme to improve its educational building stock.

economic considerations

Running costs for the new building are much reduced compared to the previous school although the Local Authority is continuing to investigate opportunities for further optimisation.

The gas bills for heating the new school building are considerably less than for the old school. Although the electricity bills are similar to what they were, this is to be expected given that the new school supports far more IT equipment and has an increased level of cooling services as a consequence.

Research has been conducted in order to compare the energy consumption of the new building, the forecast from the EPC and industry benchmark data from BSRIA. The EPC estimate does not include any operational loads, so would be expected to underestimate usage. Actual gas consumption is higher by approximately 40% and electricity usage approximately twice the baseline EPC estimate. However, gas usage is in line with the BSRIA best practice levels and electricity in line with the BSRIA typical practice levels.

The difference in performance between the initial forecasts and in-use consumption is believed to be due to the CHP unit not being operated as originally intended and, instead, the school is utilising gas fired top up boilers more frequently. If the full potential of the CHP could be realised by capitalising on the feed in tariff for excess electricity fed back to the grid, the overall energy usage could be reduced. This is now being investigated further by the school and the Local Authority. Additionally the school is still "bedding in" and the control strategies refined.

The head teacher has also set up a working group with key staff, including the heads of Estates and the IT department, to continually monitor the school's energy usage and investigate potential improvements in order that the new building can be operated more efficiently and to maintain low running costs. This will inevitably help to reduce CO₂ emissions in the longer term if this initiative is maintained. Further information is available at: <http://www.cewales.org.uk/publications/>

social considerations

Attainment statistics continue to improve, including increased intake and improved pupil grades, with additional benefits to the surrounding community.

Attendance levels (of both students and staff) have continued to improve and pupil intake levels are the highest that the school has had in over 10 years, bringing catchment areas previously lost to other schools back to the school. The school has also risen to second place in Newport for student attainment with 80% of students now achieving A-C grades at GCSE (previously 7th or 8th out of the 8 schools in the area). The school also has a much lower turnover of staff.

The school's performance also appears to have had a beneficial effect on local housing sales as properties at an adjacent new housing scheme have sold out very quickly.

Continued engagement ensures that facilities within the school are well used by the community.

Use of the new facilities has seen a phenomenal increase compared to the equivalent facilities that were available in the old school. In the 2008/09 school year 39,384 people used the old facilities over the year, while in 2010/11 the new facilities attracted 180,443 people. This is expected to further increase during subsequent years. This also brings the benefit of raising additional revenue for the Local Authority. A business development representative has been employed to manage the promotion of the community facilities, generate sponsorship for the school, develop other revenue generating initiatives and ensure that the facilities are well used by the community and people are aware of what is on offer.

The school has become a focal point for the community and has helped to foster a community spirit. The facilities in the school that have been opened up for community use have had a beneficial knock on effect of bringing further initiatives to the area. For example, many local organisations for sports and recreational activities have made their base at the school's sports centre. In particular, Newport Gwent Dragons' professional rugby team use it as their base for community initiatives such as their academy sessions.

Other parts of the school are used for adult education classes for the community. The facilities are available for community use well beyond the normal school hours so that all members of the community can benefit.

The project team have continued to engage with the school and pupils after completion of the project.

The main contractor sponsors and provides equipment for school plays/ productions, including the scaffolding for sets. They have also maintained an educational link with the school via their 'construction ambassadors' who give periodic talks to students and offer careers advice on the construction industry.

environmental considerations

The ongoing handover process and occupancy review highlighted that additional training for the building users would be valuable, as well as earlier involvement of the maintenance teams.

Post occupancy studies were carried out at six months and after two years to capture both short term and longer term feedback on the new building. Feedback from the first phase review indicated very high levels of satisfaction from all user groups (senior staff, teachers and pupils) and statistics for pupil attendance, achievement and grades and the use of the school facilities, particularly sports facilities, were massively improved over the previous school.

As part of the post occupancy evaluation, the client and design team met with the supply chain members and building users for a 'lessons learned' workshop. The workshop covered all aspects of design, construction and operation of the building. Over 100 'lessons' were identified from the project, which were disseminated throughout the design team. This led to a range of improvements being incorporated into the design for the new school, plus a number of retrospective changes to Newport High School, such as re-commissioning the heating system to improve comfort levels and addressing comments about lighting levels. The outputs of the post-occupancy study can be viewed at: <http://www.cewales.org.uk/publications/>

Further training and awareness raising of building users has been undertaken to improve their understanding of the building systems. Key specialists, who were most familiar with the equipment and its operation, returned to train and educate users so that they fully understood how to best optimise building performance.

Local Authority maintenance teams were provided with extra support to better understand the new systems within the school. Inclusion in the project team for the new Llanwern High School gave them early involvement which helped to improve the overall delivery of the subsequent project particularly in terms of whole life costs.