

# Llanwern High School



This case study provides a post occupation update of an earlier Exemplar case study of Llanwern High School. It set out the achievements of the project in terms of delivering reduced running costs via higher energy efficiency levels, higher school satisfaction levels, improved educational outcomes and improved community utilisation and engagement. All achieved through a collaborative and integrated team approach.

Lessons learnt from the project are being used to inform the delivery of other schools within Newport City Council's long term programme to improve its educational building stock.

## project details

client:	Newport City Council
architect:	HLM Architects
contractor:	Leadbitter
value:	£29.1 million
project size:	12,680m <sup>2</sup>
contract:	NEC option C
procurement and: contract strategy	2-stage tender, NEC Target Cost contract
project outcomes:	Reduced energy costs, higher school satisfaction, improved educational attainment, ongoing community utilisation

## economic considerations

### Actual energy costs are substantially less than those predicted

The following table compares predicted energy consumption against actual in 2013. Both electricity and gas usage are less than predicted which means that running costs for the school will be considerably lower than expected. Electricity consumption is almost 9% below that predicted. The reduction in natural gas usage of almost 23% against that predicted is most likely a result of the difficulty in predicting domestic hot water (DHW) demands. Further work is underway to assess gas usage for space heating and for DHW via the Building Management System (BMS).

	Electricity (kWh/year)	Gas (kWh/year)
Predicted	564,596	911,570
Actual (April 2013 – March 2014)	514,788	705,188
Difference	-8.8%	-22.6%
Benchmark (TM46)	513,968	1,927,380
Difference	+0.1%	-63.4%

Furthermore the actual building performance against benchmarks from CIBSE TM46 is comparable for electricity usage and substantially improved for gas which is largely due to the improved energy efficiency of the well-insulated building. This is the same benchmarking criteria used to create DEC grades. Electrical performance is as benchmarked which reflects the increased efficiency of equipment offsetting the increase in technological demands, largely IT.



## social considerations

The school is maintaining and developing its community focus.

An important objective for the project was to create an environment which met school aspirations for community outreach work, and community aspirations for education and social provision. Early engagement with the community ensured that the scheme met their needs and resulted in the building becoming a focal part of the area and beyond.

Since opening in April 2012 the school has become a nucleus for community provision and is available as a community venue from 7.00am until 10.00pm Monday to Friday and 9.00am-5.00pm on weekends. Facilities such as the dance studio, fitness suite, 3G pitch, conference room, lecture theatre, main atrium, and grass sports pitches are hired out on a regular basis.

The school has good relationships with agencies who work to support educational provision such as Social Services and the Police Clubs and organisations using the facilities include Newport Rugby, Newport Netball, Gwent Basketball Academy as well as many local clubs such as dance and fitness groups, sports organisations and community associations.

The Education Achievement Service are based in the school delivering teacher training whilst Newport County Football Club run their soccer schools from the venue. The football club are also giving serious consideration to using the facilities available at the school as a permanent training base for their senior football league team.

The school already hosts prestigious fixtures such as Welsh Schools Football, Gwent Schools Football and various District Cup finals. They have also recently hosted the women's home nations Lacrosse championships involving teams from Wales, Scotland, England and Northern Ireland.

Approximately 1,000 visitors to the school participate in community activities on a weekly basis.

Post occupation reviews are highlighting high satisfaction levels which are translating into higher achievement levels.

The creation of Llanwern High School allowed the east side of Newport to have a modern 21st century school that caters not just for students from some of the most economically deprived areas in Wales, but also for residents from right across the city of Newport.

In driving a culture of continuous improvement the client conducts post-occupation reviews at the end of each project. Copies of the review for this school can be obtained via this link <http://www.cewales.org.uk/cew/wp-content/uploads/Llanwern-POE-Report.pdf>

The review reflects high satisfaction levels amongst pupils and staff but also pinpoints areas where improvements are required particularly with respect to toilet areas and storage space. However, one of the most important lessons has been the timing of decanting and transitional arrangements with a definite preference to summer holiday transitions.

The success of the new school for students has been immediate. Feedback on their new environment has been extremely positive and this has been captured in the one consistent phrase used by the students: 'the awesome effect'. This effect has translated into higher performance. Attendance is at its highest ever level and the external examination results of the students in Llanwern, in its first complete year of operation, significantly exceeded anything ever achieved at the previous school. The most recent results have seen the school classified as 'the most improved in Wales and England' with the successes featured across the UK media.

## environmental considerations

The building is performing far better than predicted in terms of carbon emissions.

Carbon emission calculations suggest a DEC grade of **64 (C rating)** for the last financial year 2013/14 which is significantly improved over the benchmark of 100 which is on the D/E borderline of DEC grading. By comparison the DEC grade for Newport High School (the previously built school) for the first year was **89 (D rating)** which offers another demonstration of the continuous improvement benefits of long term collaboration through integrated teams.