



# Project Fact Sheet

Holywell ETNS, Swords, Co. Dublin



PROJECT: Holywell ETNS, Swords, Co. Dublin

<b>Projects</b>	Holywell ETNS, Swords, Co. Dublin
<b>Value</b>	€5.92 million
<b>Client</b>	Department of Education & Science
<b>Stage</b>	Complete
<b>Completion Date</b>	August 2012
<b>Description</b>	Design & Build of a new 24 classroom primary school with 2 class base SNU facility and a Shared Community Facility / GP Hall & ancillary accommodation.

## FACTFILE

The design and build consortium planned a fast-track on-site construction duration of 32 weeks. This project consisted of three storey new build primary school with SNU facility and enhanced GP Hall / Shared Community Facility. This was one of two school new-build contracts awarded to ABM by the Department of Education and Science under the Rapid Build Schools Programme.

### Schools in rapidly developing areas

In August 2011, the Department of Education and Science (DoES) issued an ITT for contractors to submit design & build tenders for the construction of Rapid Delivery Design & Build Schools. The Department of Education and Science prioritised funding to facilitate the construction of schools in rapidly developing areas such as Swords through a public rapid build schools tender. The programme was tendered on a design and build basis with contracts awarded to the successful candidates under the GCCC for Works Designed by The Contractor. It was intended that the new schools were operational for commencement of school term in September 2012. ABM's Design & Build proposals were successful and they were awarded the project in December 2011.

The project consisted of the construction of a 24 classroom primary school including SNU classbases and a Shared Community Facility / enhanced GP Hall. The existing site was a greenfield site bounded on all sides by residential units. The community facility included a 600sq m GP Hall with changing rooms with Skyfold door, a dance studio, childrens activity room, meeting rooms and ancillary spaces. Also included were general ancillary accommodation including library, office space and staff room. External works included the provision of 3 nr ballcourts, car parking and SNU sensory garden, additional play areas and landscaping to the site.





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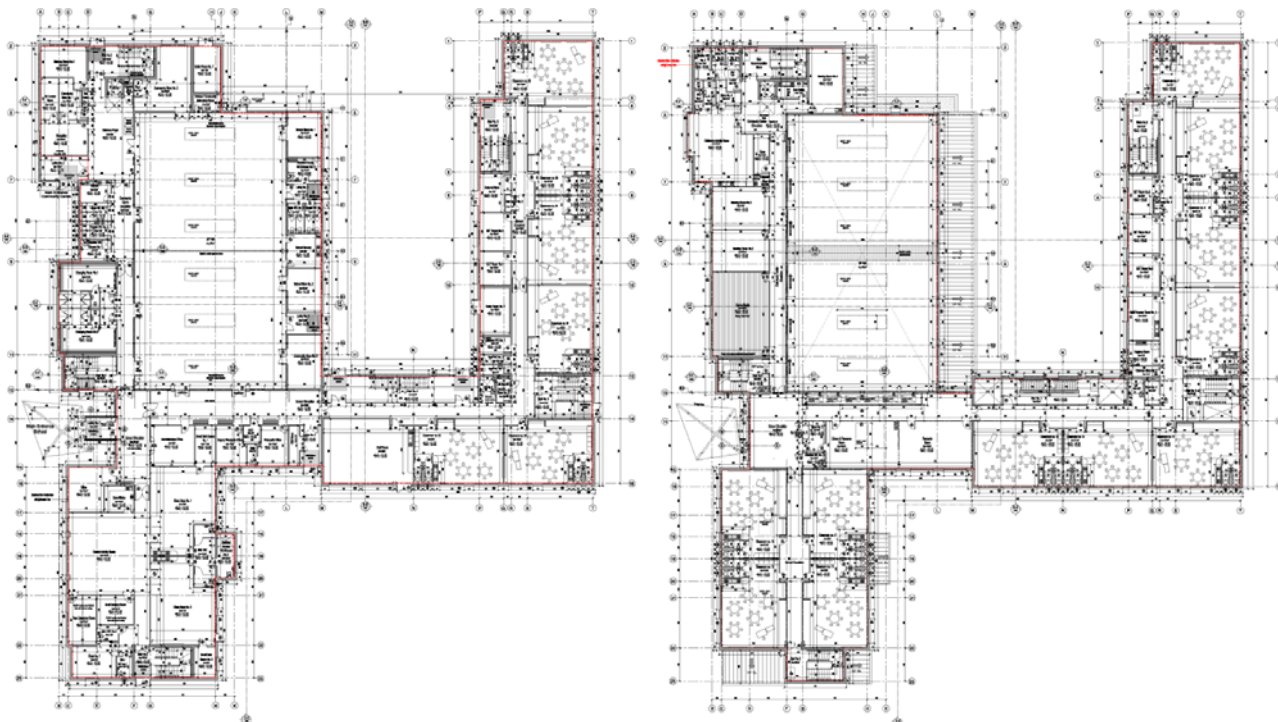
The project was broken down into several parts, namely piling & ground beams giving the poor nature of the ground conditions, the building itself, decant of existing school from site, car parking and ballcourts. The overall programme for the full Works, i.e. the Contract Period, was 32 weeks. ABM Design & Build were required to complete the works whilst protecting the existing boundaries of the neighbouring residential properties and placed restrictions on delivery times etc so as to avoid disruption during school drop off and pick up times.

The ground floor construction consisted of a selected colour Polyfloor floor finish on Liquid DPM on 100mm Powerfloated concrete screed on 100mm thick Polyisocyanurate rigid insulation on Radon Barrier DPM on precast block & plank flooring

The external walls consisted of three coats internal matt finish paint on high impact plasterboard with super Insulated Fusion Building Systems prefabricated wall panels with 140mm insulation with 40mm cavity. Externally, the facades comprised of 100mm block & brick work & a sand cement painted render system. This system has BBA certification. The first floor construction consisted of a selected colour Polyfloor floor finish on Liquid DPM on a cast in situ concrete floor on a galvanized comflor deck.

All civil works were carried out in accordance with The National Roads Authorities guidelines and parameters.

The roof envelope on the school extension was installed in five weeks and consisted of a pre-fabricated Kingspan 120mm RW system. The windows were also installed simultaneously allowing the building to be 'watertight' which in turn made way for the internal finishes to begin. Wherever possible, off-site fabrication of the internal components were used such as pre-hung door sets, internal wall partitions, kitchens, cubicles, and heating pipe work runs.







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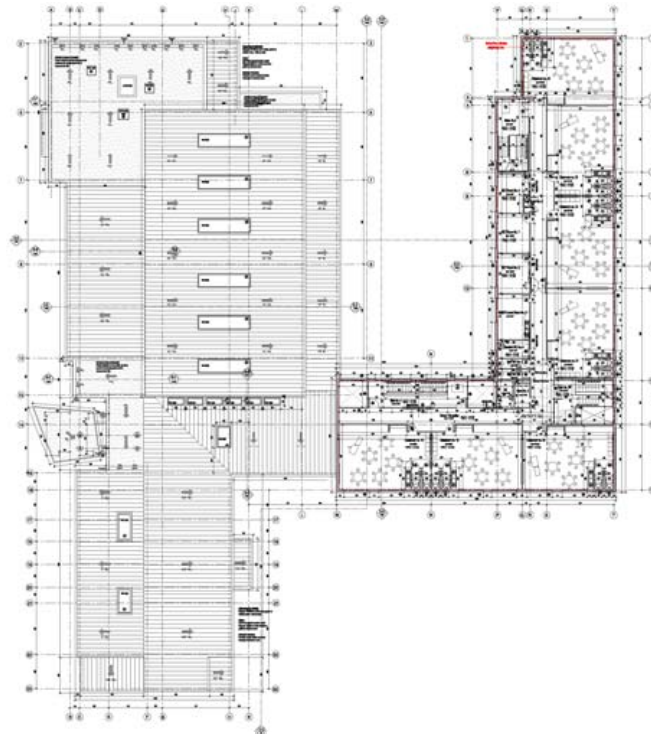


Image 3 - Second Floor Plan



Image 5 – East Elevation

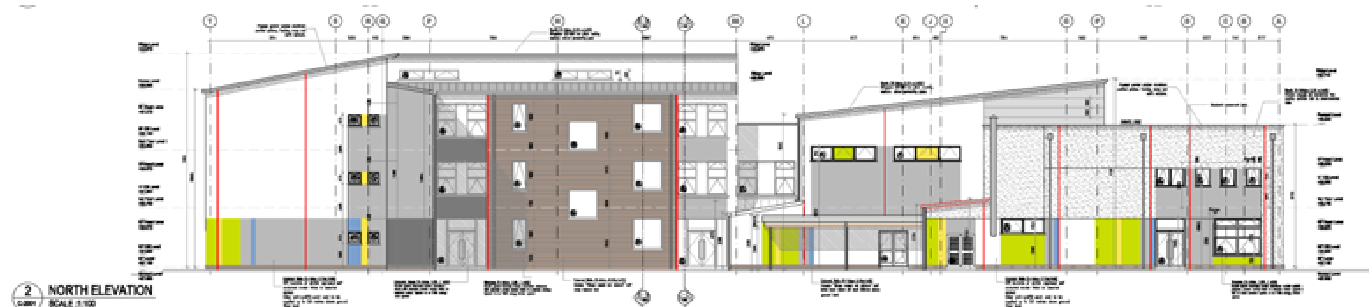


Image 6 – North Elevation



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Image 7 – West Elevation



Image 8 – South Elevation

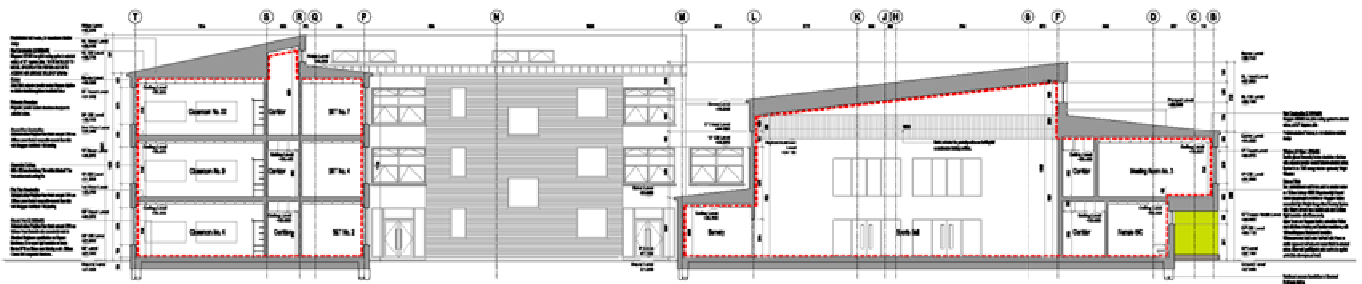


Image 9 – Typical Section

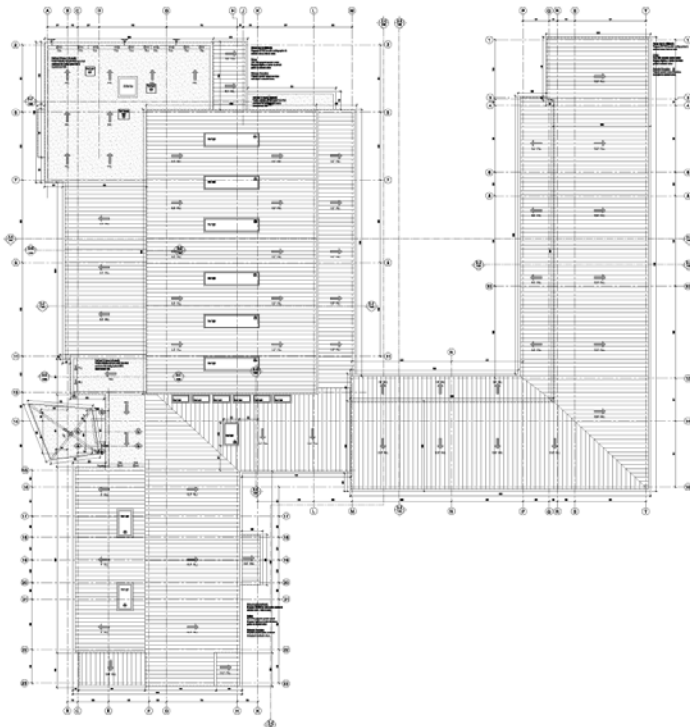
## Sustainability

In accordance with the Department of Education and Science school specification, the buildings were constructed to facilitate a passive environment entailing light sensitive light fittings, excellent natural daylight, natural ventilation, air infiltration and water efficiency. The building elements were specified with a high emphasis on sustainability & efficiency. See below building elemental u-values which have been excelled with the construction of Lusk Community College.

Building Element	TGD Part L 2008 required u-value U value w/m <sup>2</sup> k	As built U value w/m <sup>2</sup> k	ABM Surpassed TGD Part L Requirements by U value w/m <sup>2</sup> k
Ground floor	0.25	0.12	0.13
Walls	0.27	0.16	0.11
Windows	1.8	1.5	0.3
Doors	1.8	1.5	0.3
Roof	0.16	0.14	0.02

The requirements set out in the Department's TGD documents for air-tightness required an air loss of 3m<sup>3</sup>/h/m<sup>2</sup> at a test pressure of 50Pa. The actual results from the tests were: 2.91 m<sup>3</sup>.h<sup>-1</sup>.m<sup>-2</sup> @ 50 Pa which surpassed TGD requirements. This resulted from the quality of installation and construction of all building elements. A breather membrane was installed throughout giving the building excellent air-tightness. Energy conservation was conveyed through thermal performance & air tightness requirements which when constructed surpassed part L requirements. See below actual air tightness characteristics which have been extracted from air tightness certificates:

Image10 – Roof plan showing air pressure results.



**Air Permeability,  $AP_{50}$ :** 2.91 m<sup>3</sup>.h<sup>-1</sup>.m<sup>-2</sup> @ 50 Pa  
**Effective Leakage Area:** 1.3 m<sup>2</sup> @ 50 Pa  
**Correlation of results,  $r^2$ :** 0.9961  
**Slope,  $n$ : Air Flow Coefficient,  $C_{env}$ :** 0.69 1,809.9 m<sup>3</sup>.h<sup>-1</sup>.Pa-n  
**Intercept,  $C_i$ :** 1,804.2 m<sup>3</sup>.h<sup>-1</sup>.Pa-n



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Virtual Environment v6.1.1 (SBEM v3.5.b.0)

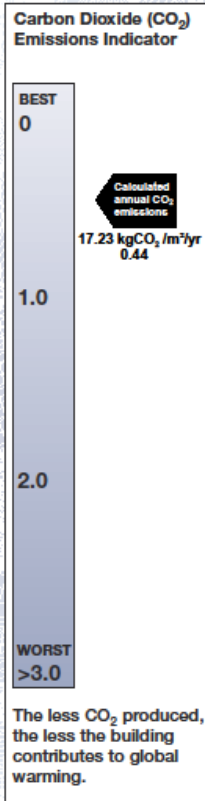
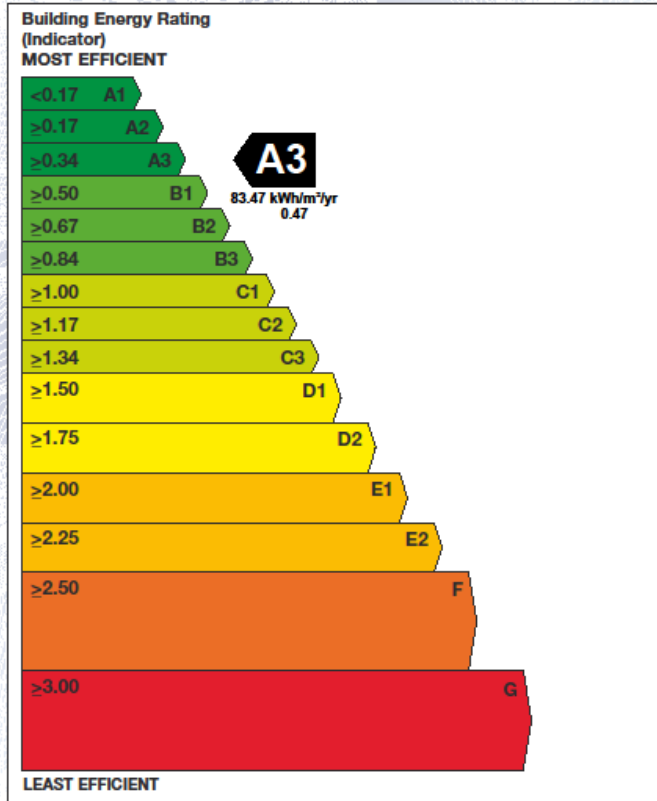
## Building Energy Rating (BER)

BER for the building detailed below is: **A3**

Holywell Educate Together  
Holywell Road,  
Swords  
Co. Dublin  
Co. Dublin

The Building Energy Rating (BER) is an indicator of the energy performance of this building. It covers energy use for space heating and cooling, water heating, ventilation and lighting, calculated on the basis of standard operating patterns. It is accompanied by a CO<sub>2</sub> emissions indicator. These indicators are expressed as respective ratios of primary energy use and CO<sub>2</sub> emissions, relative to what would apply for a similar building generally satisfying the Building Regulations 2005. 'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

BER Number:	800119158	Date of Issue:	20 Aug 2012
Building Type:	Primary school	Valid Until:	19 Aug 2022
Useful Floor Area (m <sup>2</sup> ):	4079	BER Assessor No.:	104999
Main Heating Fuel:	Natural Gas	Assessor Company No.:	104998
Building Environment:	Heating and Mechanical Vent.	Assessor Scheme:	SEI Interim AS



**IMPORTANT:** This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this building may be different as a result of changes to the building, its use or the assessment software.

A building energy rating certificate and advisory report formed part of the original TGD documents. The BER is an indicator of energy performance covering energy use for space heating and cooling, water heating, ventilation and lighting, calculated on the basis of standard operating patterns. It is accompanied by a CO<sub>2</sub> emissions indicator. The Building energy rating survey was carried out in August 2012 which resulted in the building receiving a highly sustainable building energy rating band of A3. The estimated annual energy consumption is a highly efficient value of 83.47kWh/m<sup>2</sup>/yr and the annual estimated CO<sub>2</sub> consumption is estimated to be 17.23 kgCO<sub>2</sub> /m<sup>2</sup>/yr. Other sustainable technology incorporated into the design was a rainwater water harvesting system. Installed to collect rainwater at roof level, the water is then fed by gravity, through a dedicated system of underground medium density polyethylene (MDPE) pipe work to a leaf filter. Leaves and other debris are passed through the storm water system and the “filtered” rainwater is passed by gravity to an underground glass rainwater holding tank. This grey water is then re-used throughout the building.

Image 11 – BER Certificate for Holywell ETNS



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