



## Project Fact Sheet

St. Catherine's National School, Rush



### PROJECT: St. Catherine's NS

**Project:** St. Catherine's National School, Rush

**Value:** €4m

**Client:** Department of Education & Skills

**Stage:** Completed

**Completion Date:** March 2016

**Description:** Design & Build new 2 storey school consisting 16 classrooms, GP Hall, Library/Resource room and ancillary accommodation. The build also included special needs units and office accommodation and was programmed to be delivered within 32 weeks of start date.

### DESCRIPTION

The construction of a proposed new two storey 16 classroom school with a GP Hall, Library/Resource room, ancillary accommodation and associated site works. This required the demolition of the existing school buildings and removal of the existing prefabricated buildings under a phased programme along with the provision of temporary accommodation for part duration of the construction works.

## PROJECT DETAILS



Image 1 – Composite Site Plan

The ground works commenced simultaneously with the off-site fabrication of the Nordman steel frame system. After week four, the ground works and off-site fabrication period was complete. The steel frame system which is highly efficient in terms of transport utilisation was delivered to site from Co. Clare and craned into position just after installation of the precast concrete stairs.

Externally, the façade comprised of concrete block work outer leaf with coloured cement sand render finish.

Once the windows and roof system were complete, the building was ‘watertight’ allowing internal finishes to begin at week 10. 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.

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

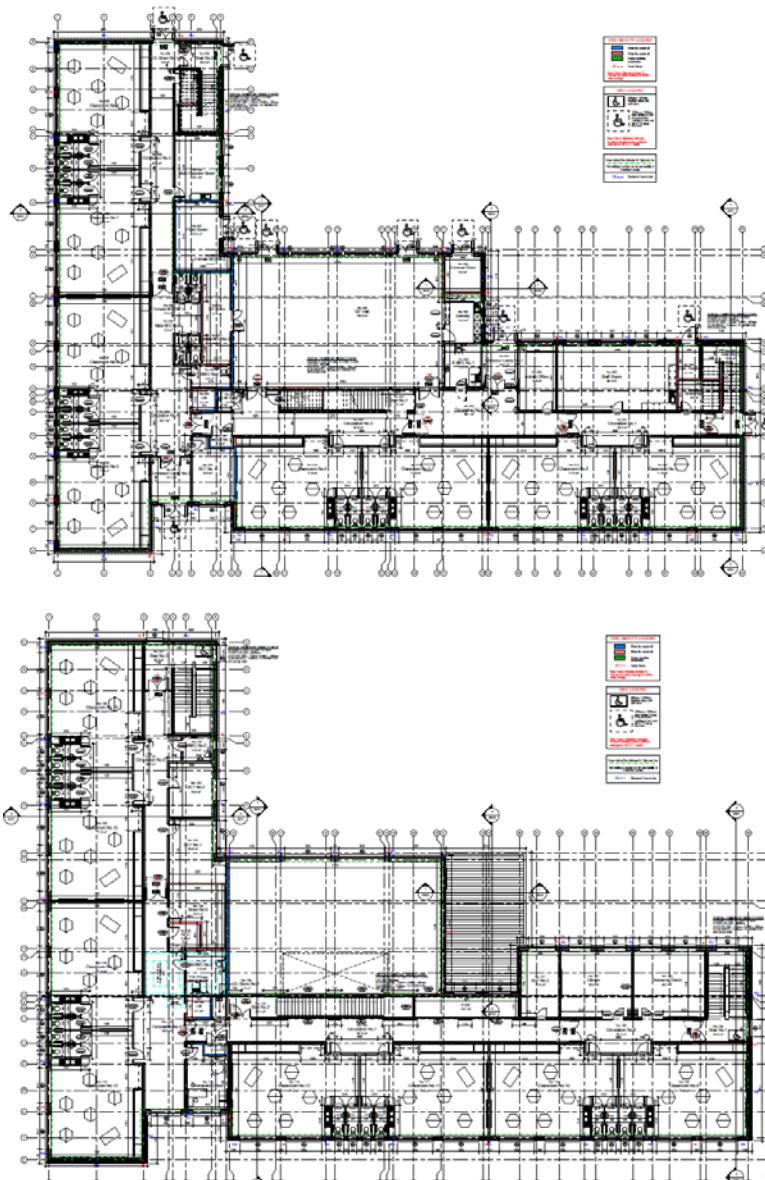


Image 2 & 3 – Ground Floor 7 First Floor Plans

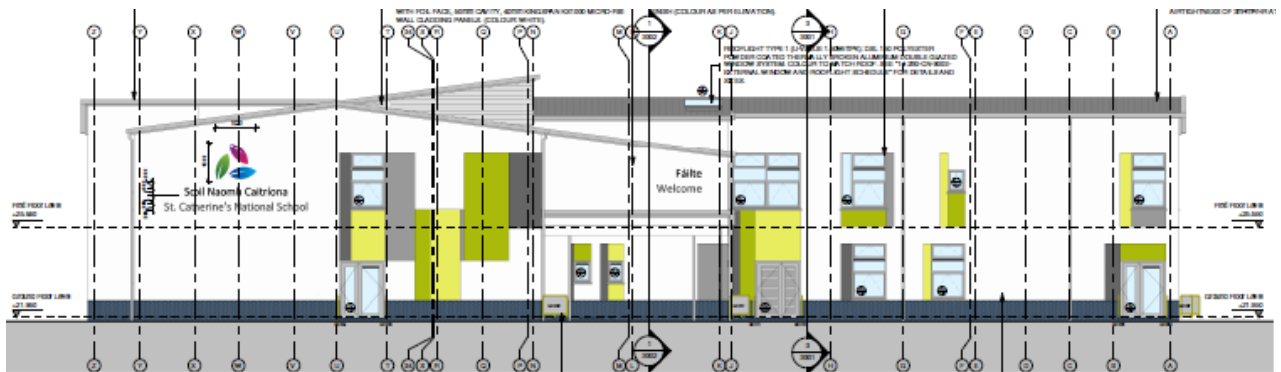


Image 4 – North Elevation

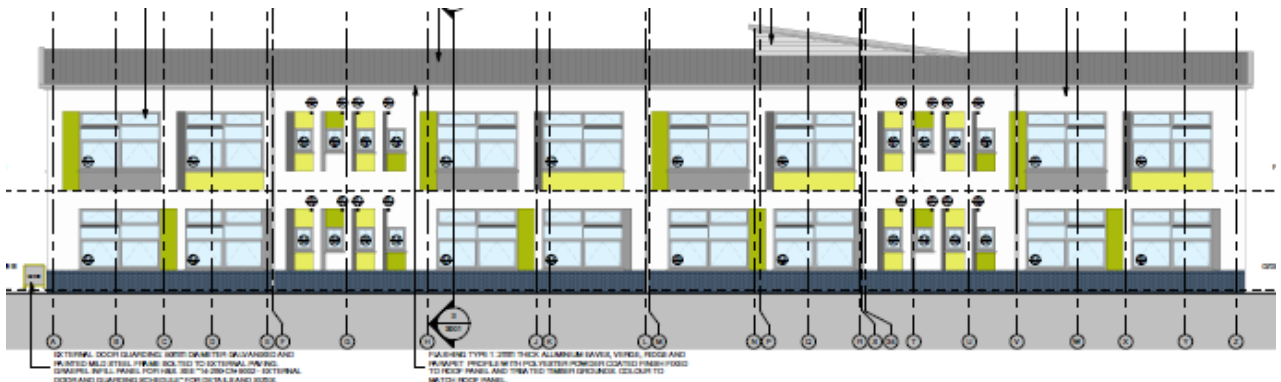


Image 5 – South Elevation

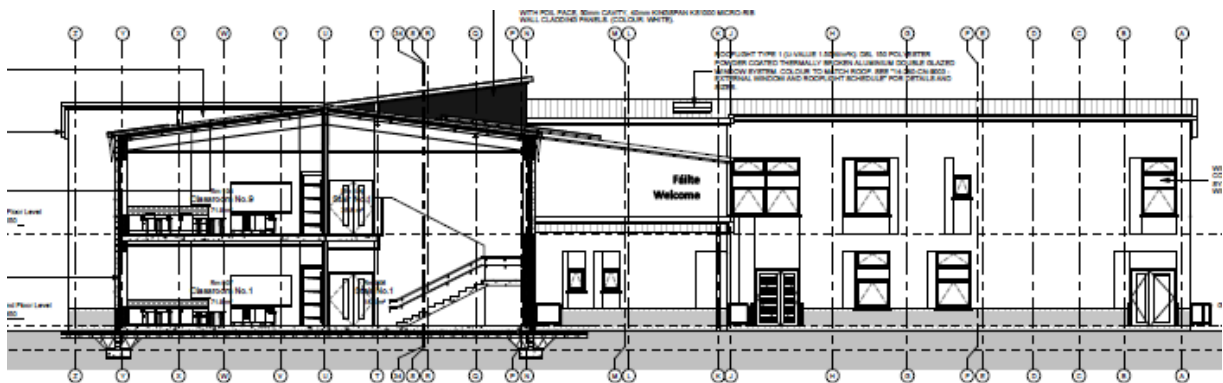


Image 6 - Sections

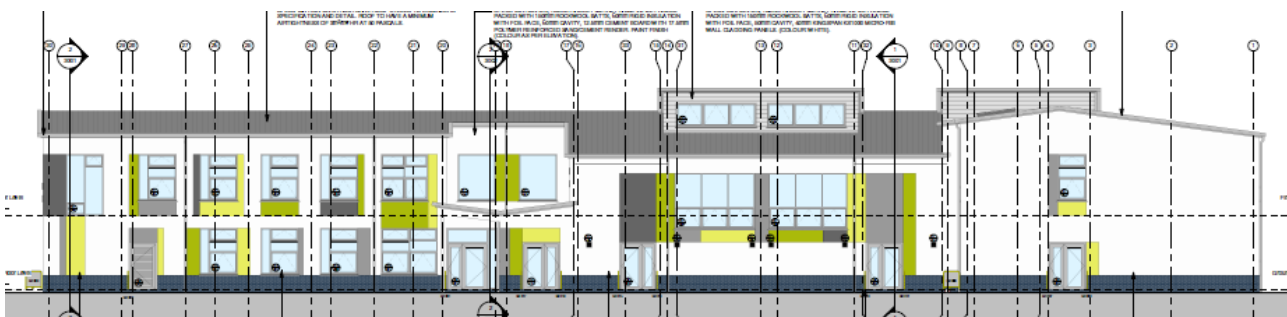


Image 7 – West Elevation



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Image 9 - Side Elevation



Image 10 - Rear Elevation



Image 11 - Multi Purpose



Image 12 - Entrance Gates



Image 13 - Classroom



Image 14 - GP Hall



Image 15 - Rear Elevation

## Sustainability

In accordance with the Department of Education and Skills school specification, the building was constructed to facilitate a passive environment entailing light sensitive light fittings, excellent natural daylight, natural ventilation, air infiltration and water efficiency.

Building Element	TGD Part L 2008 required U-Value	As Built U-Value W/m2k	ABM Surpassed TGD Part L Requirements by U-Value w/m2k
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	1.8	0.14	0.02

The requirements set out in the Department’s TGD documents for air-tightness required an air loss of 3 m<sup>3</sup>/h/m<sup>2</sup> at a test pressure of 50Pa. The actual results from the test at surpassed the minimum requirements. This was down to the quality of installation and construction of all building elements. A Tyvek breather membrane was installed throughout to give the building excellent air-tightness. Energy conservation was conveyed through thermal performance & air tightness requirements which when constructed surpassed part L requirements.

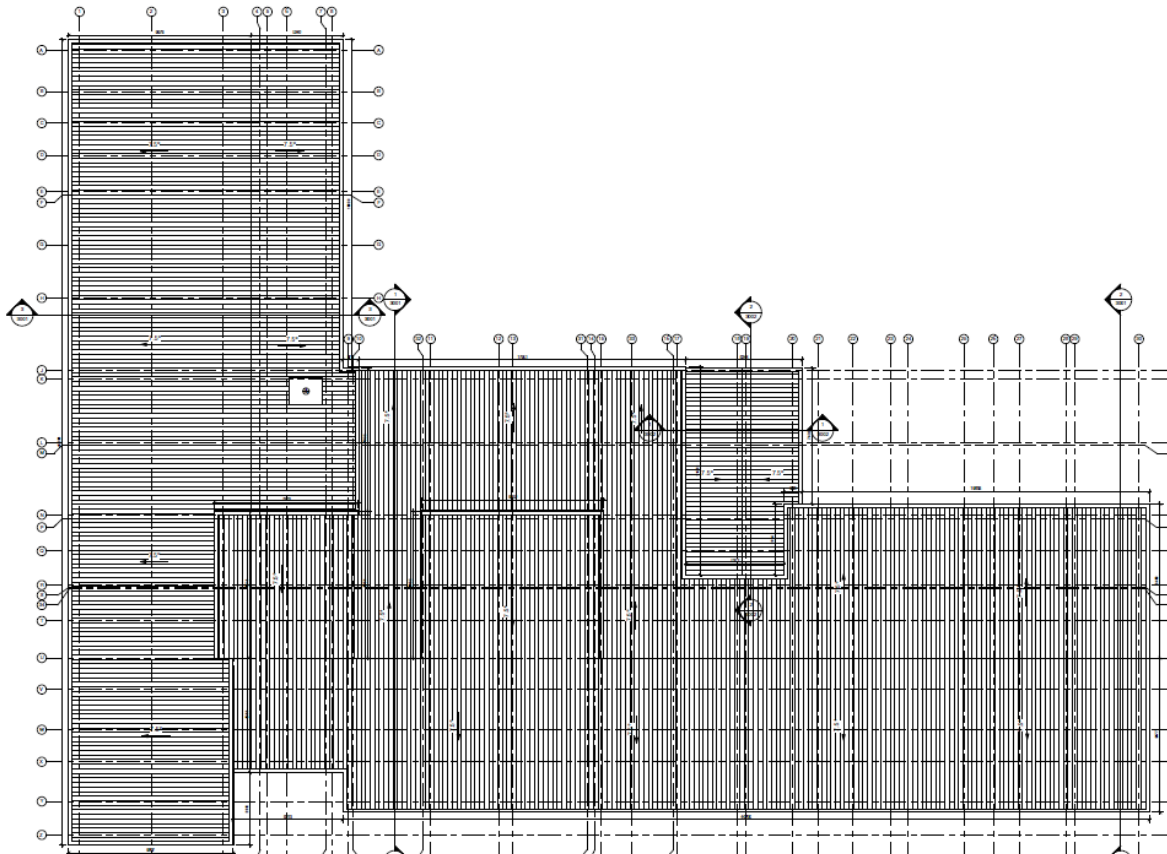


Image 8 – Roof Plan



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## Air Pressure Results

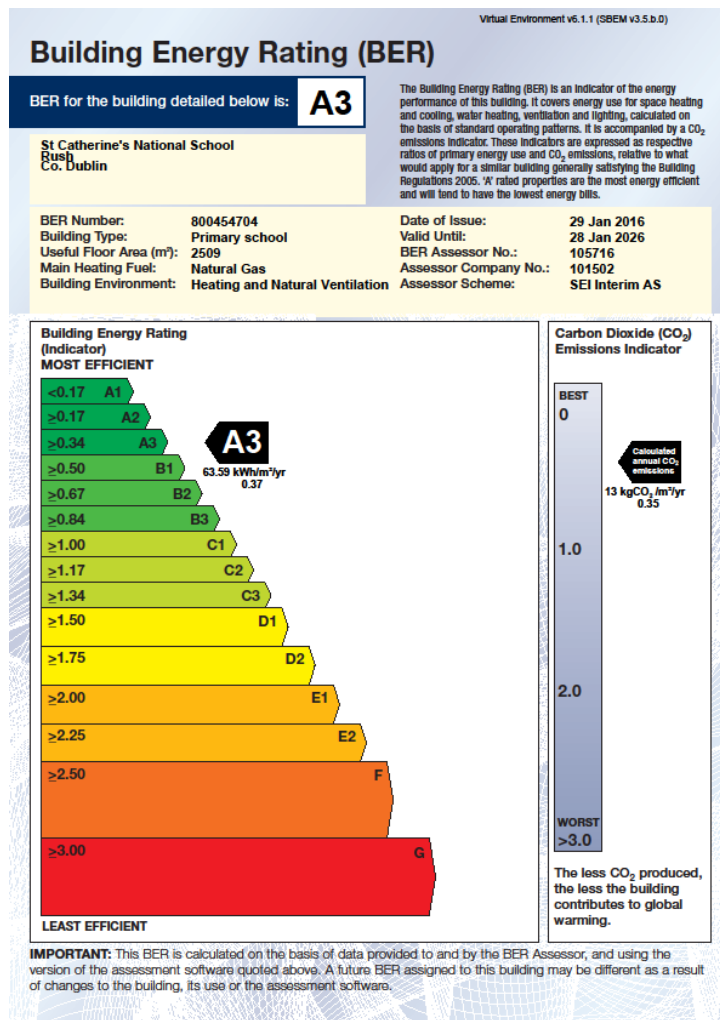
Air Permeability @  $\_P$  50 Pa 2.85  
 Air Leakage Coefficient CL (m<sup>3</sup>/hr/Pan) 1334.5246  
 Correlation Coefficient (r<sub>2</sub>) 99.90  
 Air Volume Flow @ 50 Pa m<sup>3</sup>/hr 12347.37  
 Air Flow Coefficient C (m<sup>3</sup>/hr/Pan) 1319.5104  
 The test measured an air permeability of **2.85 (m<sup>3</sup>/hr)/m<sup>2</sup> at 50 Pa** building pressure

## BER Results

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 January 2016 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 63.59kWh/m<sup>2</sup>/yr and the annual estimated CO<sub>2</sub> consumption is estimated to be 13 kgCO<sub>2</sub>/m<sup>2</sup>/yr.





## Project Fact Sheet

St. Catherine's NS Completed March 2016



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