

# Ecobright Northlights™ from Conport



## How the quality of light in school buildings affects teaching and learning

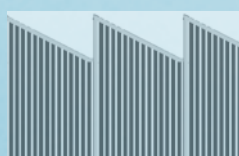
There is a general view that, by and large, buildings are buildings. Some of them are more comfortable than others but, in terms of teaching and learning at least, there's not too much to choose between one design and another.

While this idea has remained prevalent in the UK, it was overthrown in the USA following the publication in 1999 of the report, "Daylighting in Schools", by the Pacific Gas and Electricity Company. This report was commissioned by the Californian Board for Energy Efficiency to find out the best way to save energy in schools. However, to the surprise of those running the research, it was proved that certain types of school building design (i.e. those incorporating sky-lights) were not only more energy efficient, but also had a huge impact on learning success rates.

Since the publication of the "Daylighting in Schools" report, Conport Structures has worked to produce buildings that meet the best practice criteria discovered through that survey, offering schools and colleges a cost-effective way of replacing older buildings, while simultaneously improving energy efficiency and raising educational standards.



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## The Conport Solar Northlight™ studio

In 2007 the Department for Education and Skills announced that new school buildings will only receive government funding if they are designed to produce a zero carbon footprint.

Conport Northlights™ exceed these government requirements when solar panels are added to the south-facing pitched roof. The roof is pitched at an angle to receive maximum sunlight and optimum free solar energy.

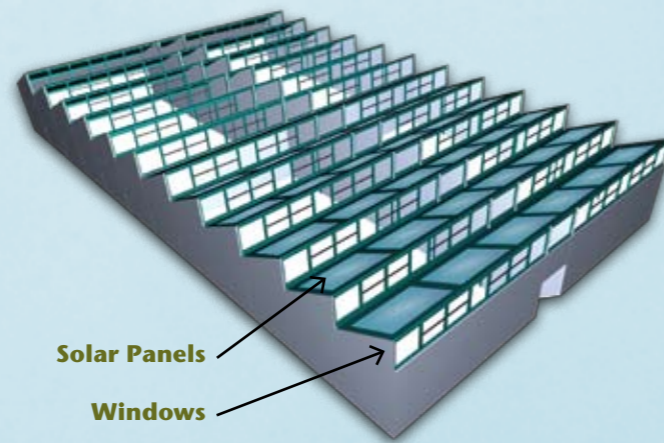
No other roof design offers this combination of maximum light from the north-facing windows plus free solar energy from solar panels on the south-facing roof.

Schools and colleges can now claim up to 50% of the cost of Solar PV systems from the government under the "Low Carbon Buildings Programme". £48 million is available to be used by the end of 2008, of which £19m is set aside for photovoltaic (PV) projects. Schools will also be able to sell their excess power (particularly that generated during the summer vacation) back to the national grid, adding a welcome bonus for school budgets.

So efficient is the Solar Northlight™ that, assuming that energy costs continue to rise in the future as they have over the past 15 years, a solar PV installation on a Northlight™ building will pay back its costs in less than 12 years.

The solar panels on a 9 x 18m Solar Northlight™ will generate enough power to run 36 computers at once, saving around £500 a year on electricity costs and over 100 tonnes of carbon dioxide over a lifetime of 25 years+

The PV panels on a Solar Northlight™ not only will reduce its carbon footprint and electrical lighting requirements but also will provide extra insulation, cooling the building more in the summer and keeping the heat inside in the winter.



## A complete school building in just 6 weeks

The promise of a new school building is often countered by worries about its construction and installation. Far too many schools have seen their classwork disrupted over a long period as part of the school is closed off and turned into a building site, during which time the school managers have to provide alternative accommodation and face all the health and safety issues that arise from having building equipment in close proximity to the pupils and students.

Ideally schools want their new buildings installed during the summer vacation and, with Conport's approach to building, this can now be achieved within a 6 week time frame.

We undertake a considerable amount of the work off-site, moving in as the school term finishes, and then completing the erection of the building on-site during the summer. We make use of the very latest construction techniques in order to accommodate the school's need for speed of delivery whilst producing a building that is as permanent as any other in the school.

## Security without cameras

Because of the nature of the design, Conport's Northlight™ Studios are among the most secure in the world of education.

Where vandalism, arson and theft occur in schools it is often because of ease of entry, and as a result many schools have felt the need to fix security cameras and other aids outside buildings that have windows on the ground floor.

However as Northlight Studios provide light via sky-lights, entry is restricted to the highly secure main door. Security is thus improved at a stroke without the need for any external aids.

## The many uses of a Northlight™ studio

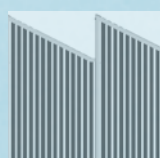
Because the light in a Northlight™ studio originates from sky-lights, cubicles and partitions can be added inside the building to create private working areas and increase exhibition wall space without reducing natural light. This flexibility makes Northlight™ studios ideally suited for subjects such as IT and Art, as well as for general classroom use.

Other users of Conport buildings for the past 40 years in over 40 countries include

- The Arts Institute at Bournemouth
- The University of the Arts (*both Chelsea College of Art & Design and Camberwell College of Art*)
- Tameside College
- Runshaw College
- Reigate College
- Knowsley College
- Bournemouth and Poole College
- Save the Children
- Oxfam
- UNICEF
- Crown Agents
- World Health Organisation
- World Food Programme
- MSF Holland



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## Example Technical Specifications

### Dimensions

Building span (variable if required)	9.3m
Building length module	3.0m
External ridge height	4.8m
Gutter height	3.4m
Standard door height	2.0m
Standard door width	1.5m

### Design

Designed in accordance with "European recommendations for the stressed skin design of steel buildings" and relevant British Standards.

### External Cladding

Cladding choices are available to suit client requirements. For economy we usually use HP200 Plastisol coated profiled steel external sheeting. Other options include semi flat sandwich panels and/or parapet walls to conceal the roof line. All cladding material is manufactured from "Galvatite", a hot dipped zinc coated steel. The substrate is of grade Fe E280G commercial quality mild steel with a minimum yield stress of 280 N/mm<sup>2</sup>. Galvanised coating is to a minimum thickness of 275 g/m<sup>2</sup> with a conventional spangle finish. The steel substrate fully complies with the provisions of British Standard BSEN 10147: 1992. All steel is profile rolled to comply with the provisions of BS 5427: 1976 in respect of materials, design, handling, working, performance and storage.

### Steelwork

Main Frame hot rolled steel sections.  
Secondary steel framework cold rolled sections.

### Steel work includes

- Hot rolled Veerendeel trusses and supporting stanchions @ 3m c/c.
- Cold formed sheeting rails.
- Holding down bolts and erection bolts.

### Protection

All hot rolled steel members shall be shot blasted to standard SA2.5 at works prior to fabrication. After fabrication one coat of good quality zinc phosphate primer shall be applied by airless spray to 75 microns nominal thickness.

All cold formed members shall be manufactured from pre galvanised strip.

### Bolts

Anchor bolts shall be black and be complete with anchor plates nuts and washers. Erection bolts shall be zinc plated.

### Doors

Steel insulated double hinged doors with all furniture.

### Insulation

Sound reducing insulating quilt to meet Building regulations. Rubber strip to eliminate cold bridging.

### Windows

Fixed light double-glazed windows with 4 top hung opening casements in each bay.



**To find out more about Conport's Northlight™ classrooms, please call 020 7730 9105 or email [sales@conport.com](mailto:sales@conport.com) or visit [www.conport.co.uk](http://www.conport.co.uk)**



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