

Llanwern High School

“The Proof of the Pudding!”

Newport

Wednesday, June 4th, 2014

**ADEILADU
ARBENIGRWYDD
YNG NGHYMRU**



**CONSTRUCTING
EXCELLENCE
IN WALES**

Welcome

Ed Evans

Director of Exemplar Programme

Constructing Excellence in Wales

Haydn Ames – Newport City Council Project Background

"You must be the change you wish to see in the world."
Mahatma Gandhi



Ysgol Uwchradd
Llanwern
High School

Leadbitter
A Bouygues UK company



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Project Overview

Curriculum

- Enable provision of a broad balanced and innovative curriculum catering for the needs and aspirations of all pupils.
- Provide accommodation to facilitate high quality learning experiences.
- Aspirations and expectations will improve. An integrated ICT structure and, where appropriate, build process supports curriculum and education opportunities.

Design

- Sustainability measures incorporated into the design and construction process.
- Low running costs.
- Raise the profile of the school and surrounding area.
- Promote a positive and welcoming image.
- Staff and pupils have a sense of pride in their school and are involved in the various stages of design.
- Ensure a safe, secure and orderly environment in which pupils can enjoy learning.
- Accessible.
- Planned capacities are achieved.

Project Costs

- Project must be completed within costs agreed by the Council and WG.
- Project to have due regard to whole life costs.
- Community benefits from construction.
- Local labour and local supply is maximised.
- Minimise negative impact of project on local environment.

Project Overview

Community Integration

- Provide facilities to support agency working and relationships e.g. Social Services.
- Community groups able to access appropriate facilities.
- Degree to which the new school is integrated within the community.

Environmental Impact

- Managing waste in the construction process.
- Reducing carbon emissions related to building operation.
- Consideration of the transport implications of the project during both construction and operation.

Lessons Learnt

- Use of epoxy resin flooring, improving the lifecycle costs.
- Introducing a syphonic rainwater drainage system on the roof to limit the extent of underground storm water drainage pipe work. This meant that the whole of the roof area is served by 3 downpipes, run internally, which negated the need for numerous external downpipes and the potential vandalism and maintenance issues associated with a conventional gravity system.
- Induction type ovens and hobs in the main kitchen reduces the air volumes required for ventilation and, as a result, the size of the air handling unit serving the area.
- Reviewing the original 2008 emergency lighting system and updating the specification to the latest LED type fittings, which provide increased reliability and capability when used in combination with the building management system.

Wayne Ganderton – Aecom Procurement Strategy

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Procurement Strategy

- Second of two school replacement projects
- Initial briefing commenced in Summer 2007
- Leadbitter appointed early using NEC3 PSC
- M&E suppliers also appointed early
- Additional period of engagement delivered many benefits
- Works commenced Spring 2010 using NEC3 Option C contract
- Incorporated lessons learnt from Newport High School

Peter Jenkins – Headteacher Attainment

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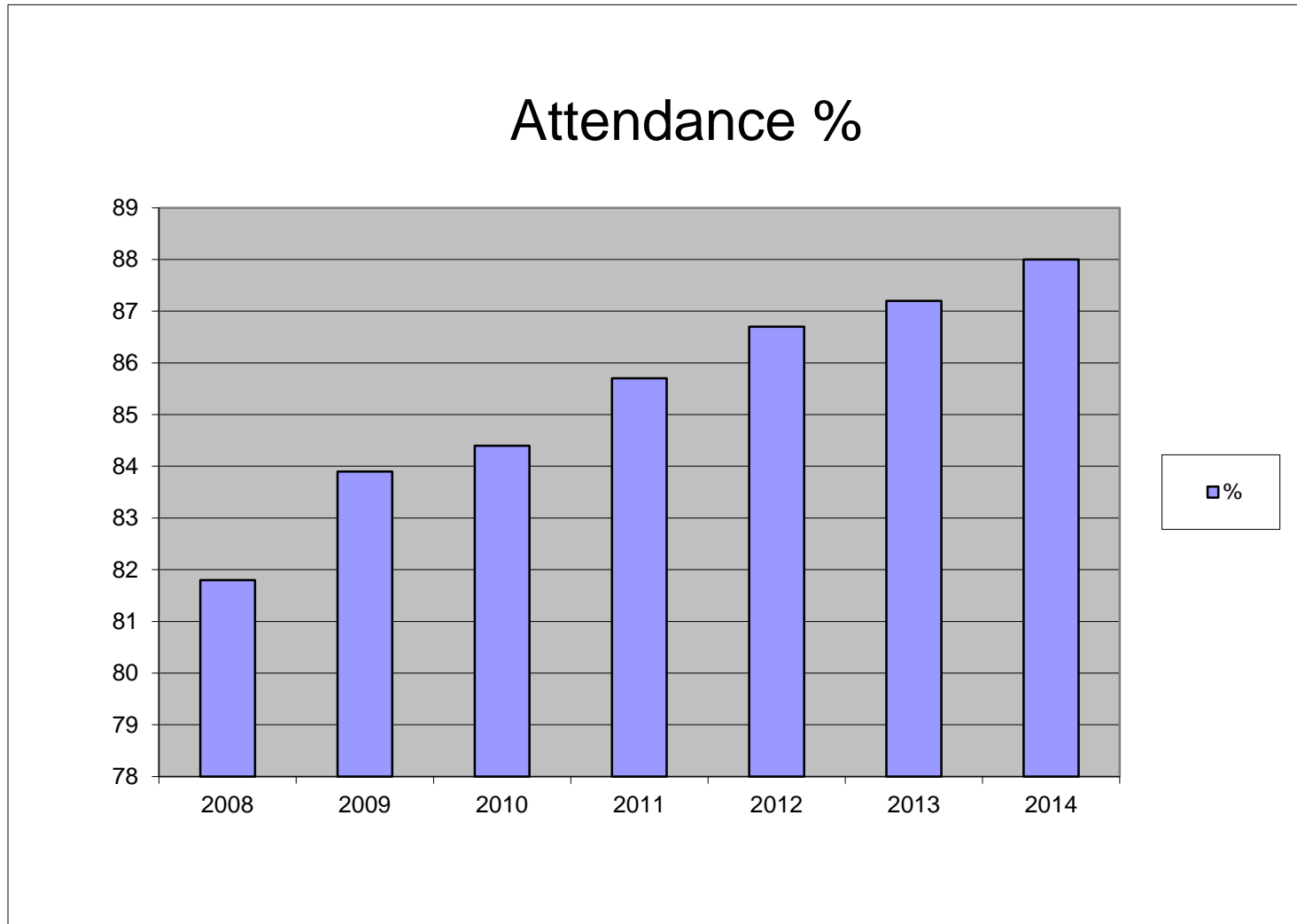
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Pupil Roll

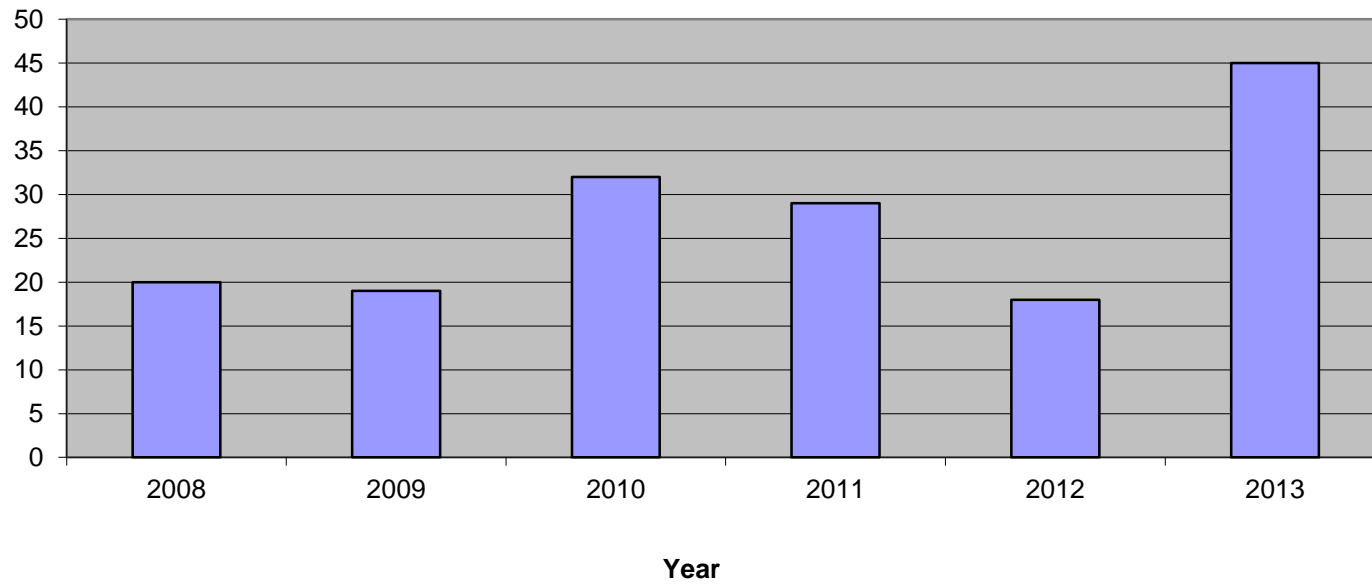
Year 7 Intake	Number of Pupils	% increase
September 2010	112	-
September 2011	131	16.9
September 2012	140	25.0
September 2013	152	35.7
September 2014	161	43.8

Attendance

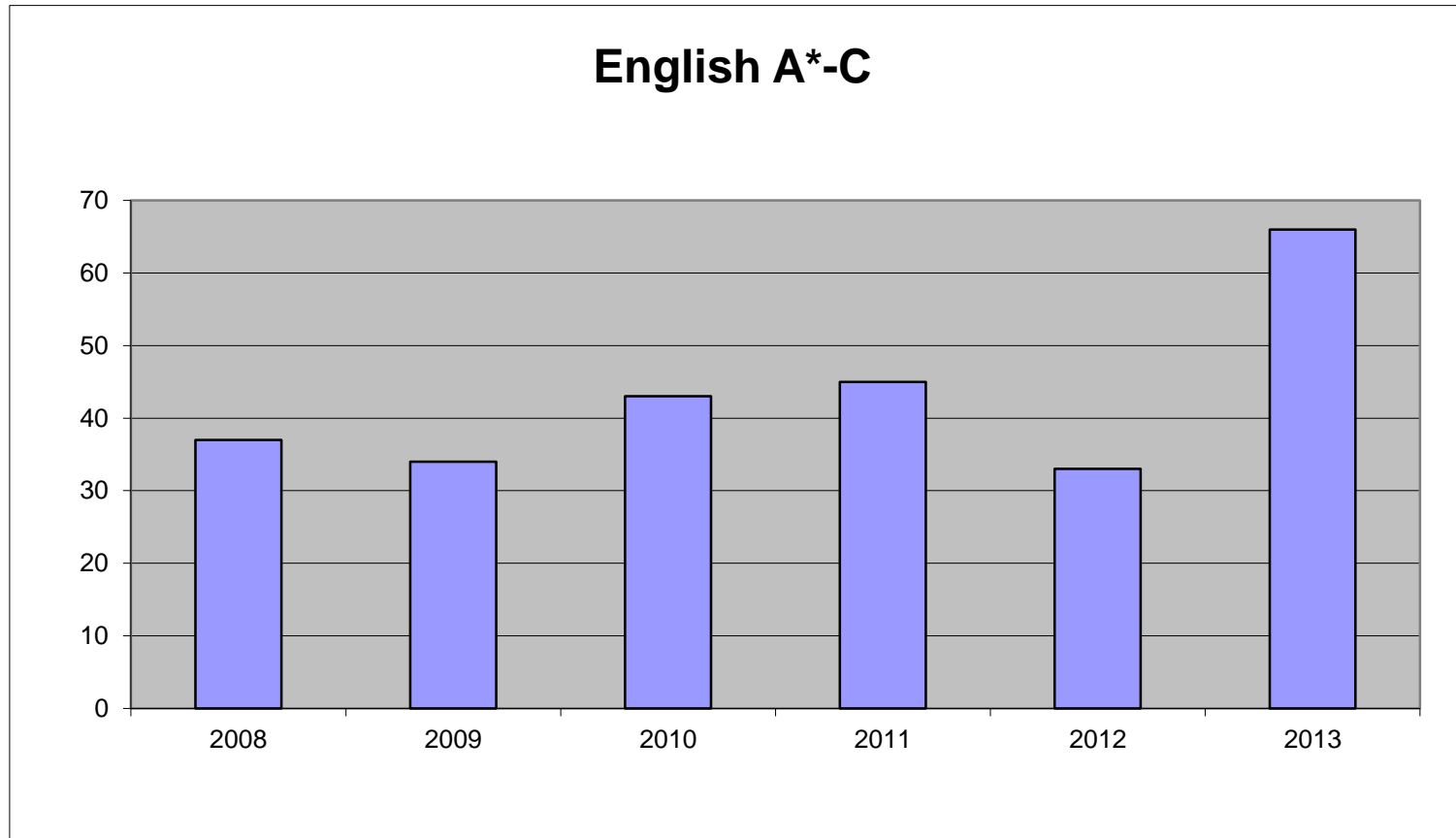


Attainment

L2 Threshold inc Eng & Maths

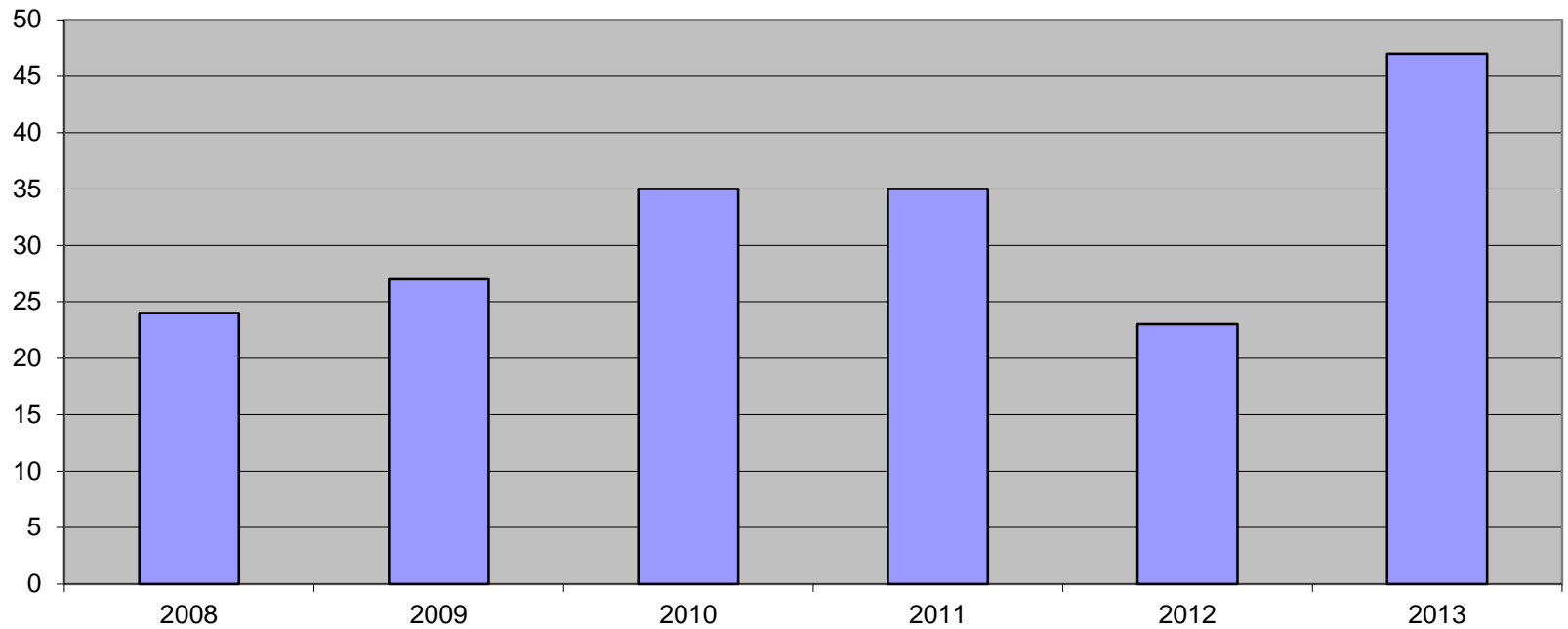


Attainment



Attainment

Maths A*-C



Teaching Staff

Attendance

Sept 2011 - March 2012 - 311 days lost to sickness

Sept 2012 - March 2013 - 160 days lost

Morale

No full time member of staff has applied for a post elsewhere.

Applications to posts

English Post

2012- 6 applicants

20132013 - 18 applicants.

Alan Jones - Arup

Environmental Considerations / Impact on New Build

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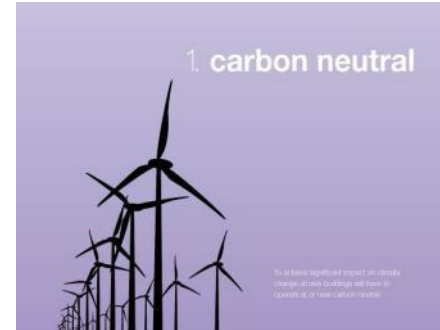


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Design Philosophy



“At the beginning of every project we will aim to provide all of our clients with a strategy of how we might design within the natural capacity of the planet.”

Design Philosophy

Energy Performance Certificate
Non-Domestic Building
HM Government

Llanwern High School
Hartridge Farm Road
NEWPORT
NP18 2YE

Certificate Reference Number:
0220-2964-0322-1870-6064

This certificate shows the energy rating of this building. It indicates the energy efficiency of the building fabric and the heating, ventilation, cooling and lighting systems. The rating is compared to two benchmarks for this type of building: one appropriate for new buildings and one appropriate for existing buildings. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

Energy Performance Asset Rating

More energy efficient

A+

Net zero CO₂ emissions

A 0-25

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G over 150

◀

41

This is how energy efficient the building is.

Less energy efficient

Technical information

Main heating fuel:	Natural Gas
Building environment:	Heating and Natural Ventilation
Total useful floor area (m ²):	12849.192
Building complexity (NOS level):	5
Building emission rate (kgCO ₂ /m ²):	24.5

Benchmarks

Buildings similar to this one could have ratings as follows:

36

If newly built

96

If typical of the existing stock

The Code for Sustainable Buildings

This is to certify that

Llanwern High School, Hartridge Farm Road, Newport, NP18 2YE

has achieved a score of 72.06%, and a BREEAM rating of

EXCELLENT

Pass

Excellent

This Design and Procurement assessment was carried out under the 2006 version of BREEAM Schools

Signed on behalf of BRE Global Ltd

Elaine Harvie
Licensed Assessor

HLM Architects
Architect

Arup
M&E Engineers

Leadbitter Construction
Contractor

22nd September 2011
Date

Arup
On behalf of

Clarkebond
Structural & Civil Engineers

Newport City Council
Client

Davis Langdon LLP
Project Manager

Certificate Reference: A-SCH-EH04-2

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Sister School to Newport High School



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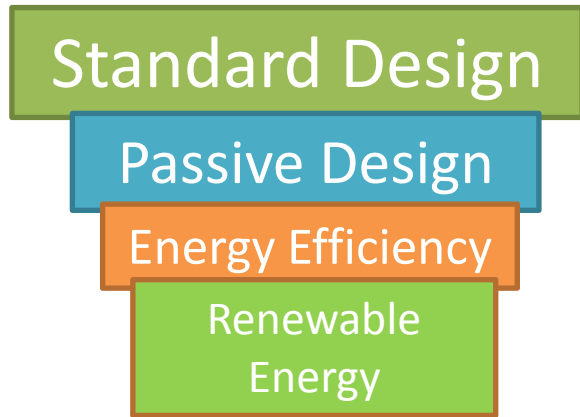
Shared Design Methodology

Lessons learnt/design methodology from Newport High School

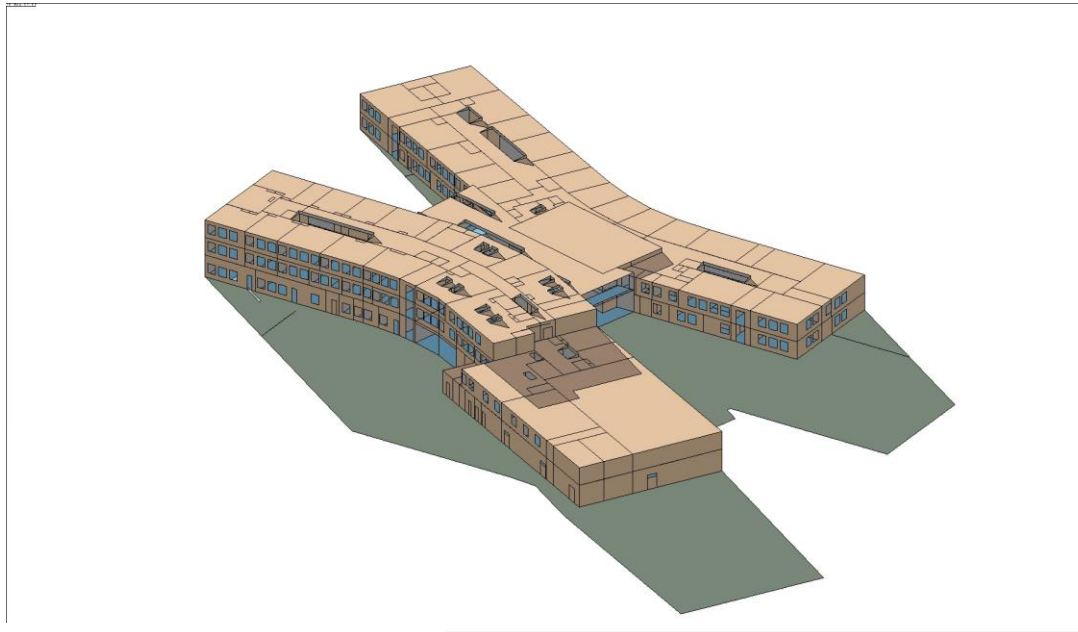
- Maximise passive design features
- High efficiency equipment
- Renewables contribution
- Holistic design
- Flexibility in classroom use
- Optimise daylight & working with natural light
- CHP not appropriate – no swimming pool at Llanwern



Approach to Passive Design

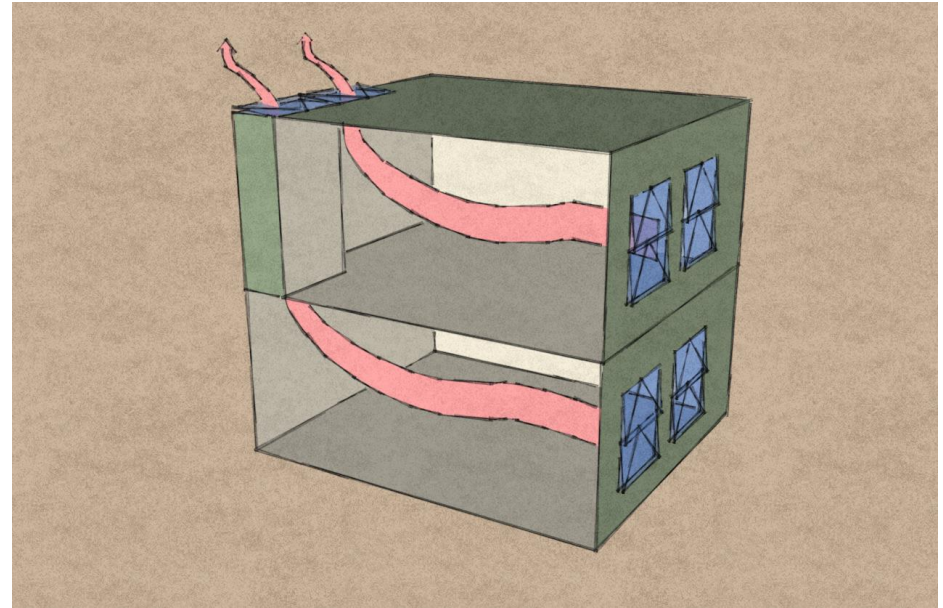


- Passive Design
 - Building form & orientation
 - Passive ventilation strategy
 - Reduced air leakage
 - Improved building fabric
 - Improved glazing
 - Natural ventilation



Natural Ventilation

- Natural Ventilation
 - Openable windows
 - Chimneys
 - Cross ventilation
 - Passivent Louvres



- Passivent Louvres
 - Natural ventilation for halls with virtually zero energy
 - Supply and extract of air
- Fitted to:
 - Sports Hall
 - Main Hall
 - Dance Activity Hall

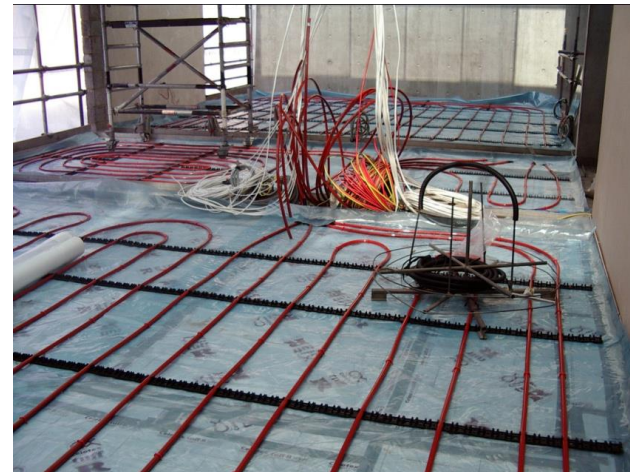
Heating Strategy - Underfloor Heating



Boilers



Thermostat



Underfloor Heating

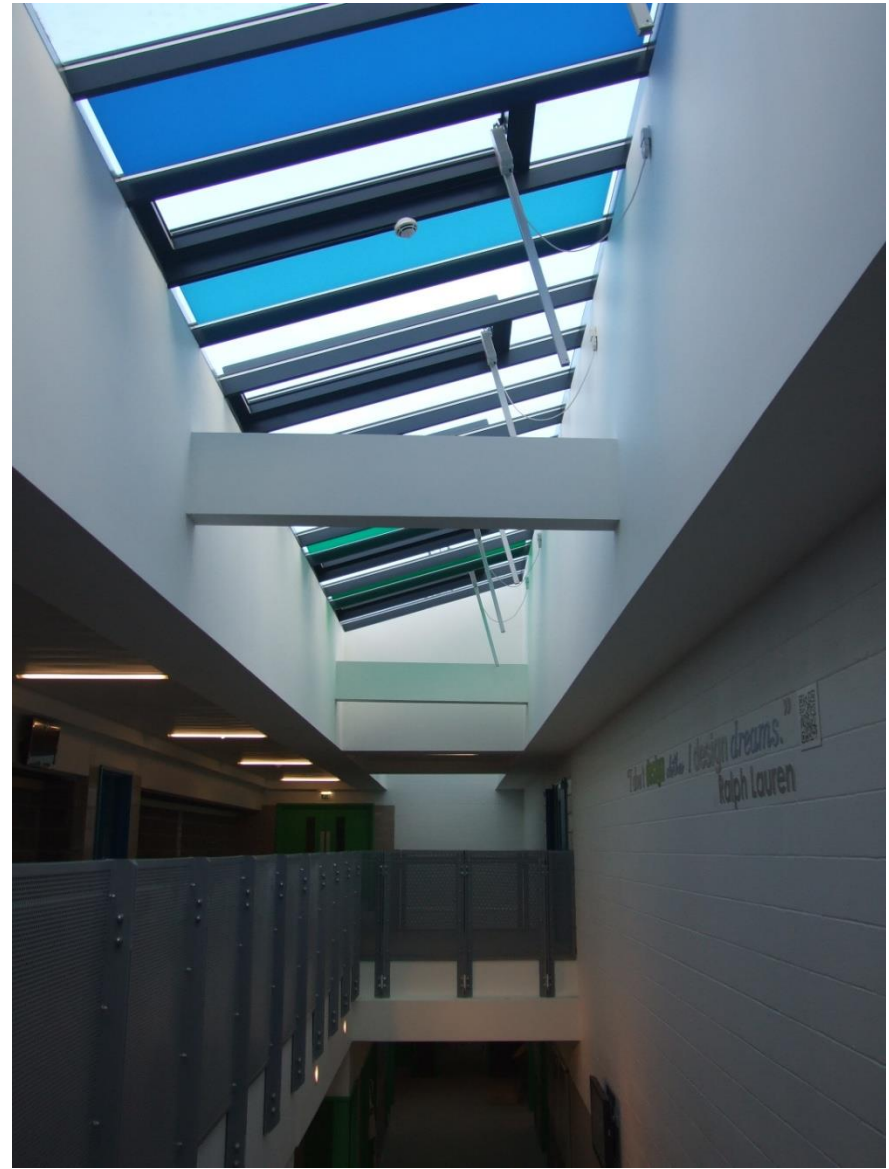
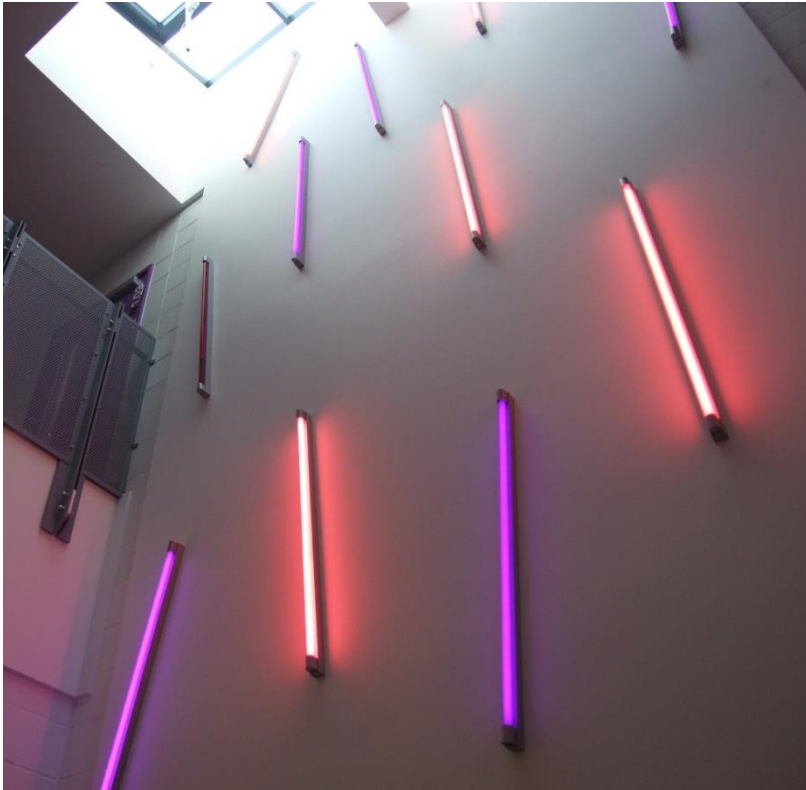
Classroom Lighting

- Daylight linked control
- Manual override
- Motion sensors keep lights on with a 10min overrun



Circulation Space Lighting

Daylight Controlled
Motion Sensors



Renewable Technology and Metering

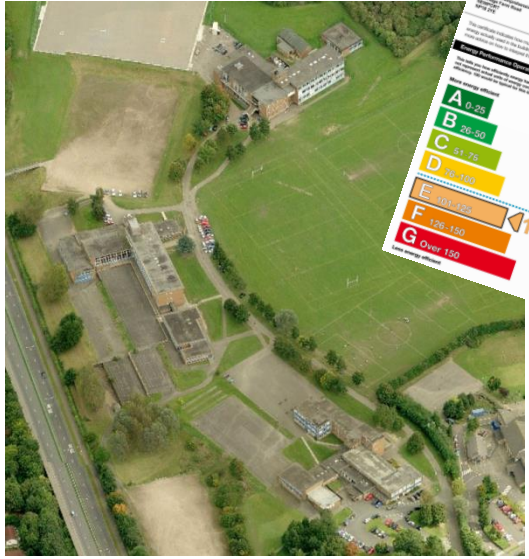
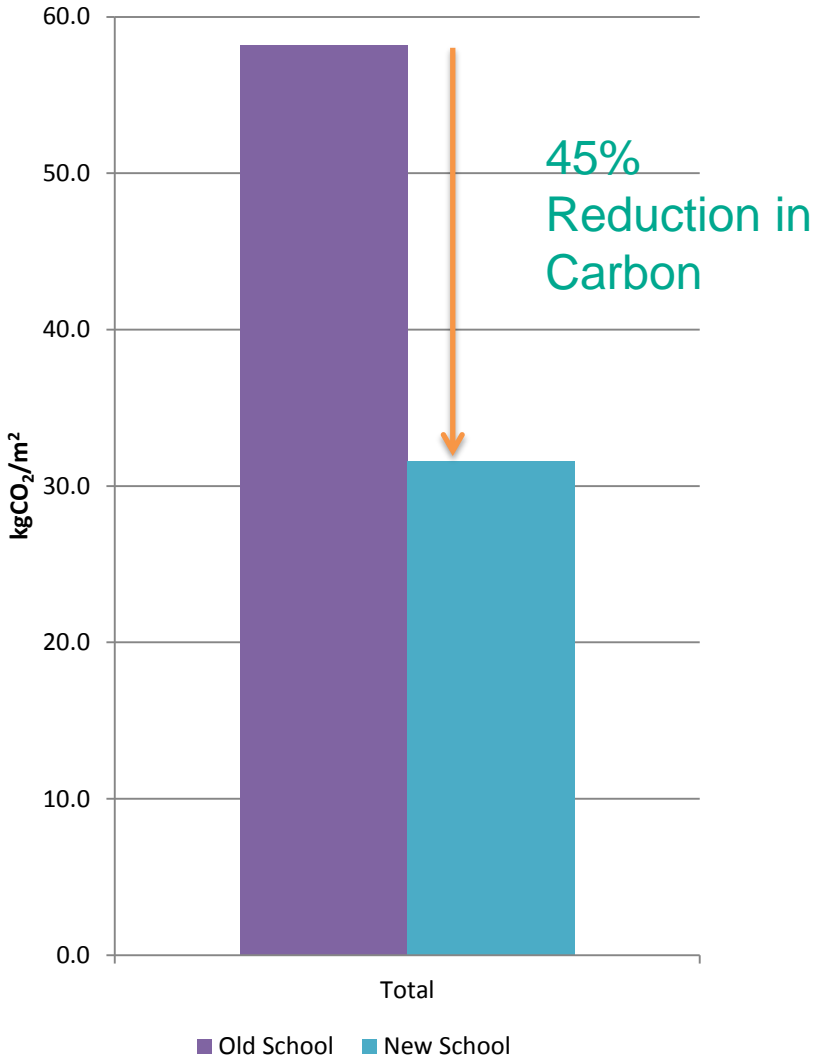
Metering

- Electricity
- Gas
- Potable Water
- Rainwater Harvesting

- Link to curriculum?



Energy Performance



©Bingmaps



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Mike Little – Bouygues UK Project Community Benefits

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Project Community Benefits

Local Investment

85% Spend in Wales

£9m Newport Company Spend

54% of all labour lived in Newport

17 Training Placements

Local Sponsorship

Community Open Days

8,000 Newsletters

Communication

Parent Site Tours



Haydn Ames – Newport City Council Community Participation and Post Occupancy Evaluation

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THE AWESOME EFFECT*

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High School

The School

- School Opening Times:
 - Monday to Friday 7.00 am – 10.00 pm
 - Saturday & Sunday 9.00 am – 5.00 pm
- Facilities fully utilised and include:
 - Sports Hall
 - Dance Studio
 - Fitness Suite
 - Sports Pitches
- Shop on school site selling uniform and sportswear

Participation

- On average over 1000 after school visitors per week
- Over 30 different organisations use the school.
These include:
 - Education Achievement Service : deliver all training from the school.
 - Newport County Football Club : who will use the school as training base for 2014/15 season and are official partners with the school.

Participation

Other groups include:

- Newport Rugby Club
- Newport Netball Club
- Gwent Basketball
- Local Community Clubs such as Hartridge Rugby and Cromwell Football
- Local Dance, Drama, Music and Fitness Groups
- Llanwern Brownies

Re-Branding

The school has been re-branded “The Awesome Effect” which was chosen by pupils.

Awesome effect branding runs through school on:

- Website
- Twitter
- Digital Signage
- Banners and Pop-ups
- Posters
- Mini Buses
- All Promotional Materials (Bags, Pens)

As well as all external advertising

- Press Adverts
- Match Programmes and Magazine Advertising
- Flyers
- Banners and Posters

Consistent message as the school really is “Awesome”

Special Events held at the School

- Year 11 School Prom run from the school
- Home Nations Lacrosse Championships
- Wales U19s v Australia U19s football match
- Masonic Lodge Annual Conference
- Wales Rugby League team trained at the school for World Cup
- Czech Republic U21s v Montenegro U21s

Next Year:

- Newport County will play all reserve team games
- Wales U19s will play New Zealand U19s
- Recently been approached to be the base for Wales Lacrosse Team

Summary Comparison of Community use between Llanwern and Hartridge

Hartridge:

Community use – one football club and some occasional bookings

Income circa £5,000 (annual)

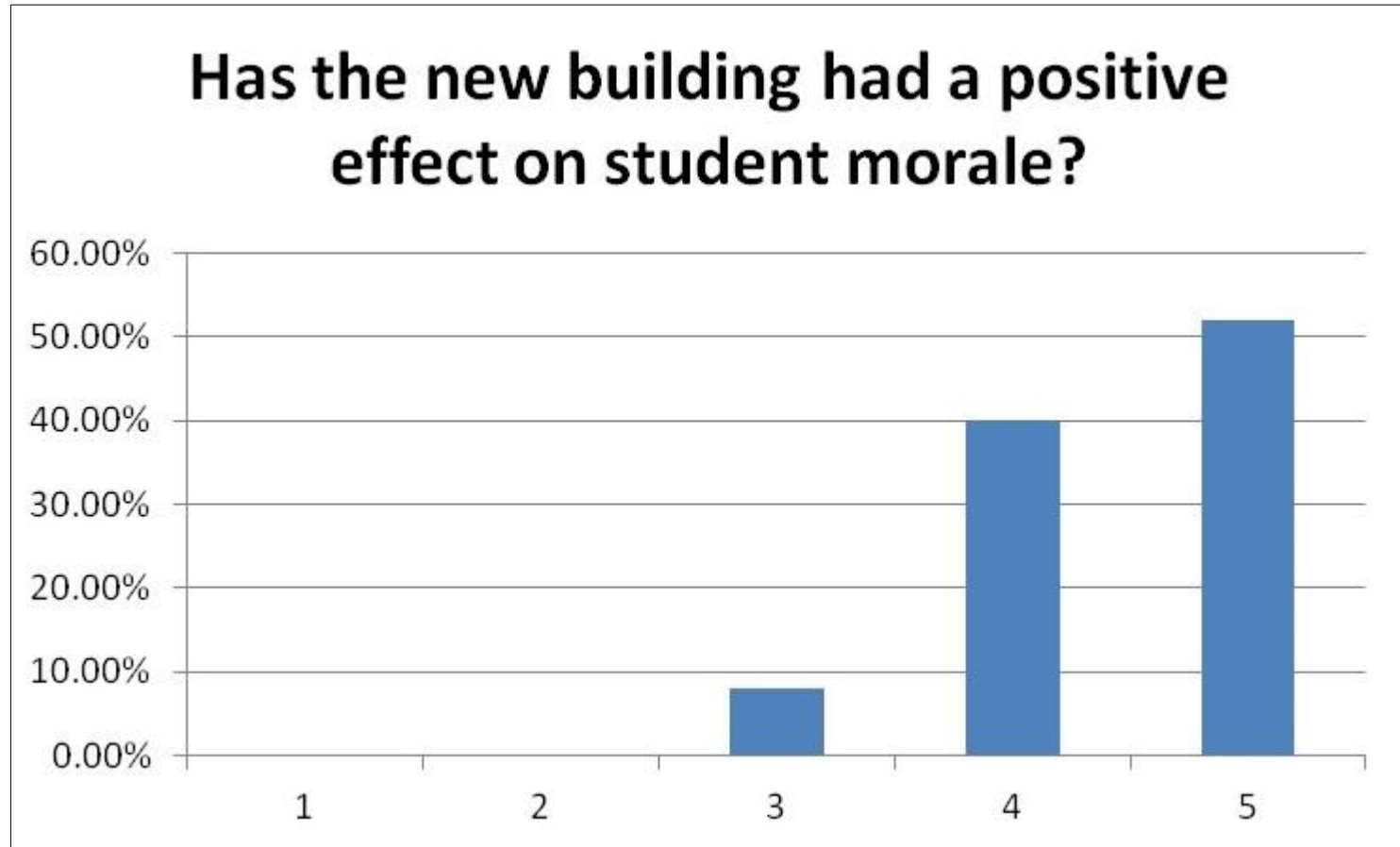
Llanwern:

Constant usage as previously outlined

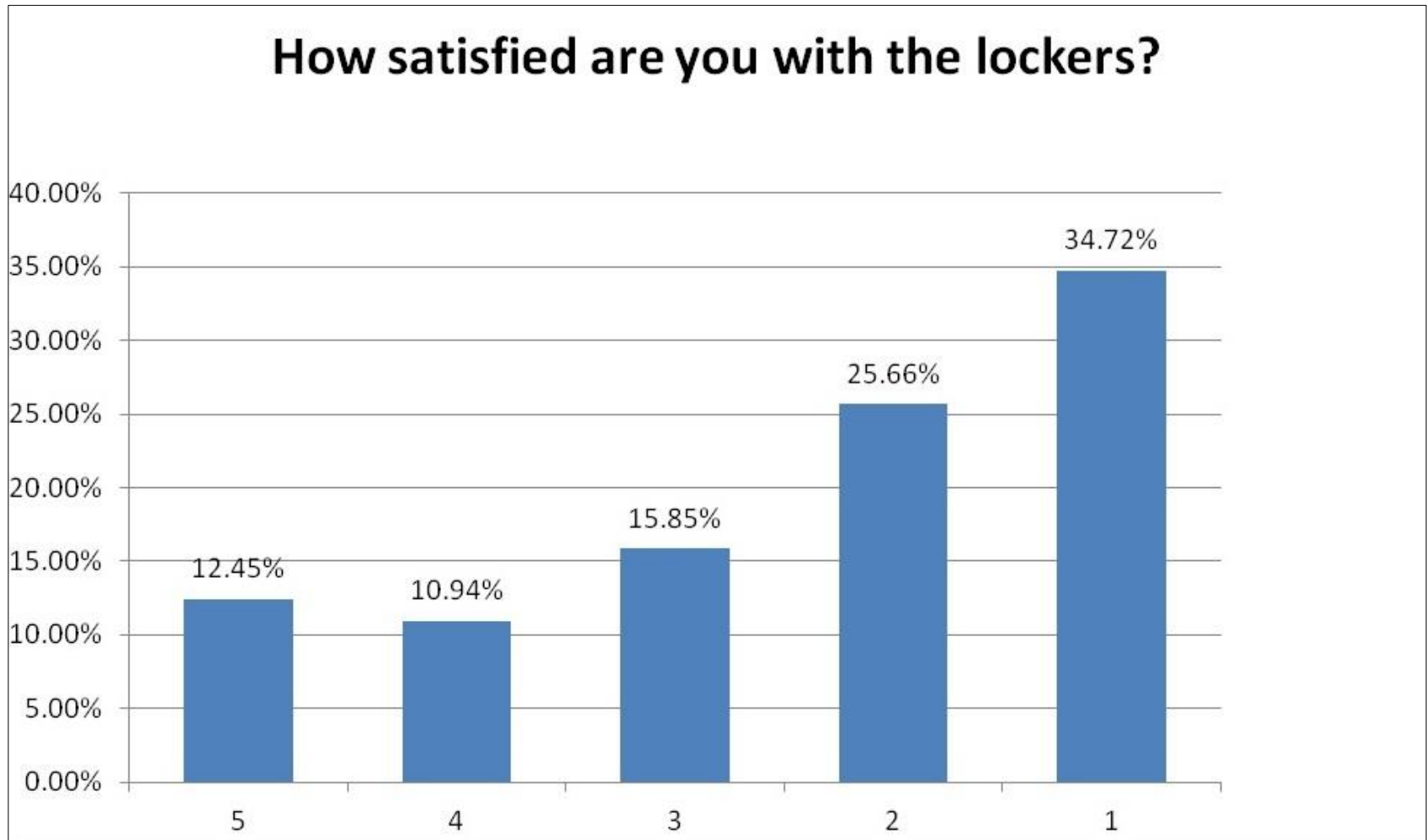
Income circa £100,000

All this additional income is used to provide further educational resources for the students as well as providing ongoing maintenance and refurbishment programmes.

Post Occupancy Evaluation



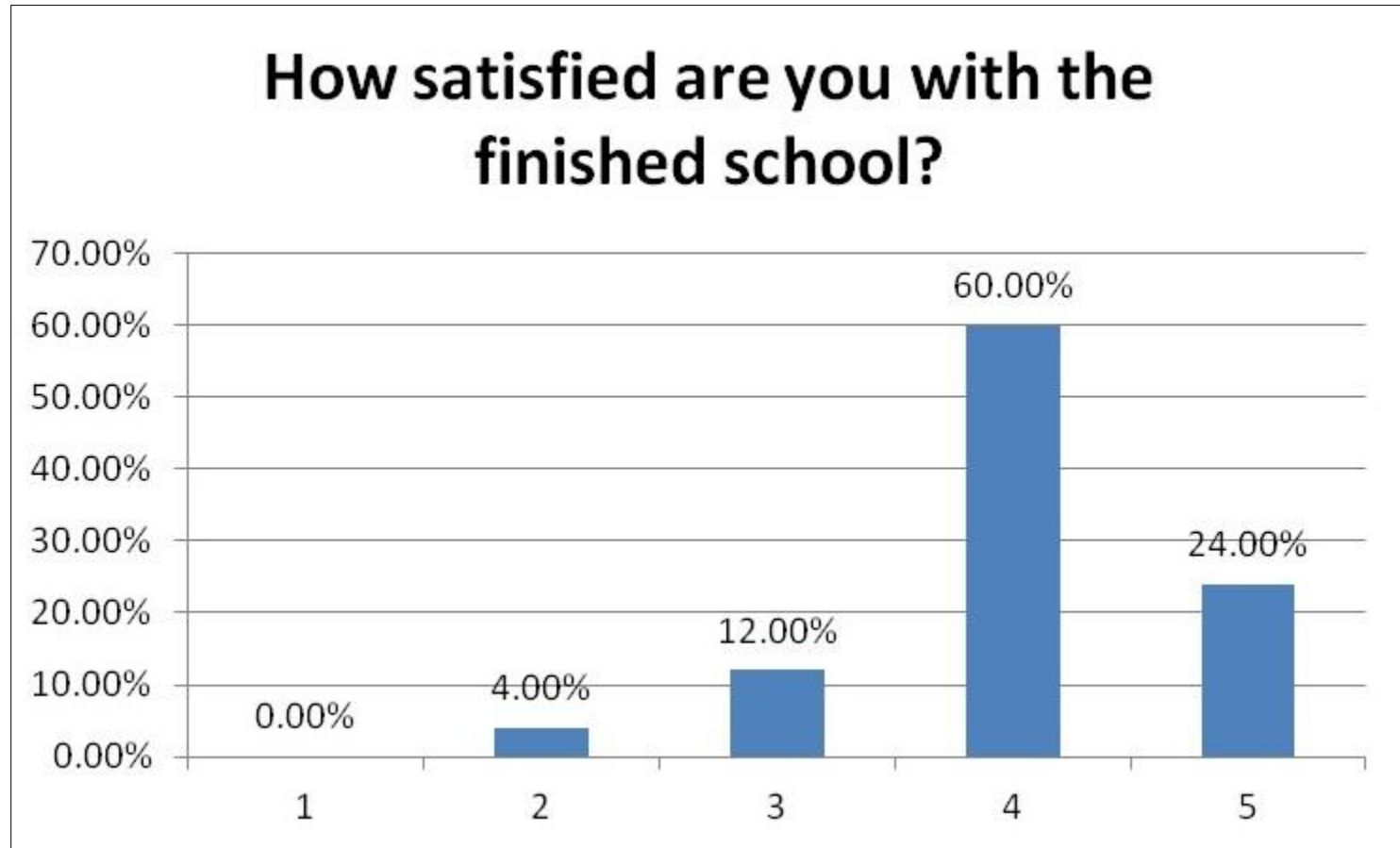
Post Occupancy Evaluation



Post Occupancy Evaluation



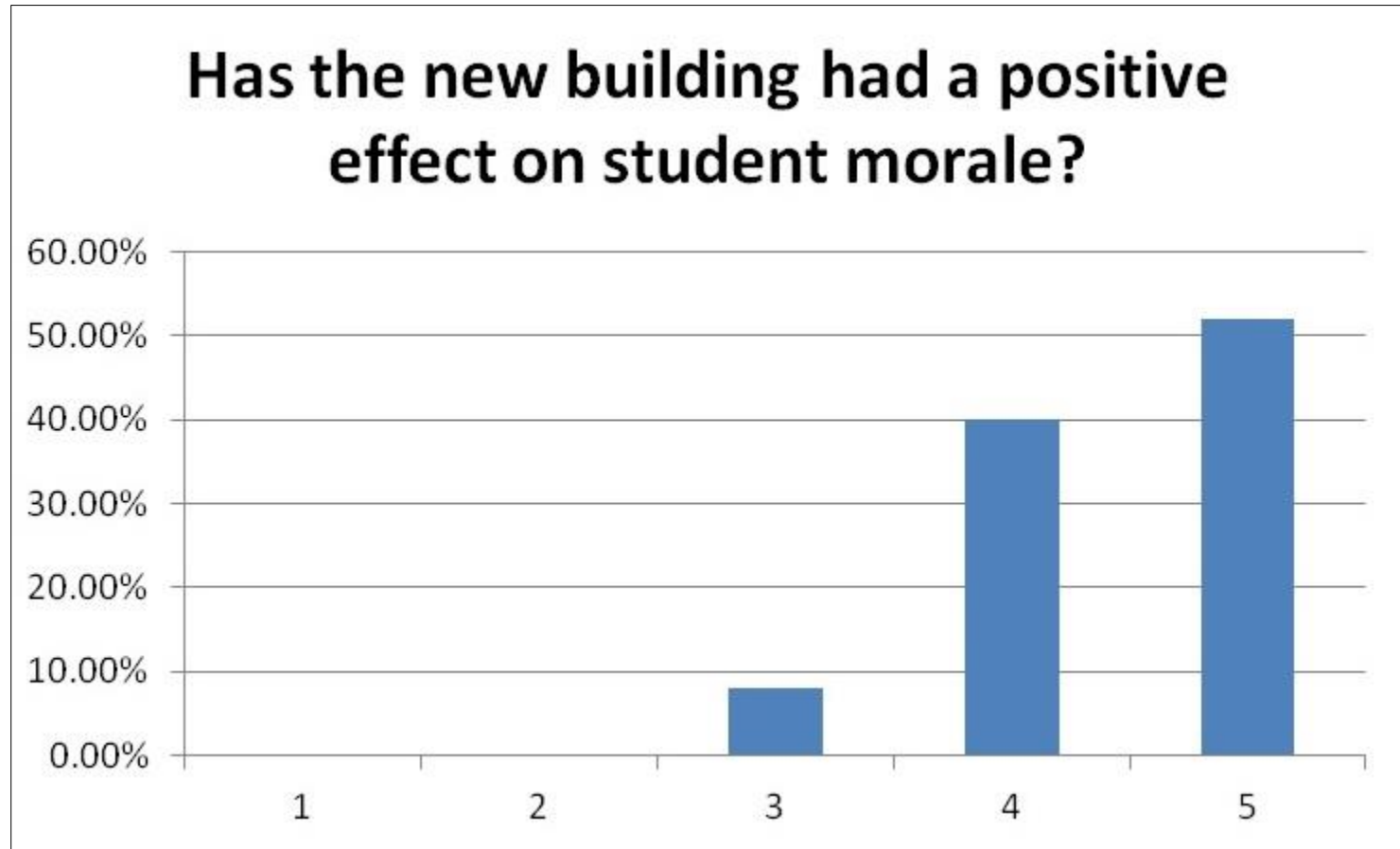
Post Occupancy Evaluation



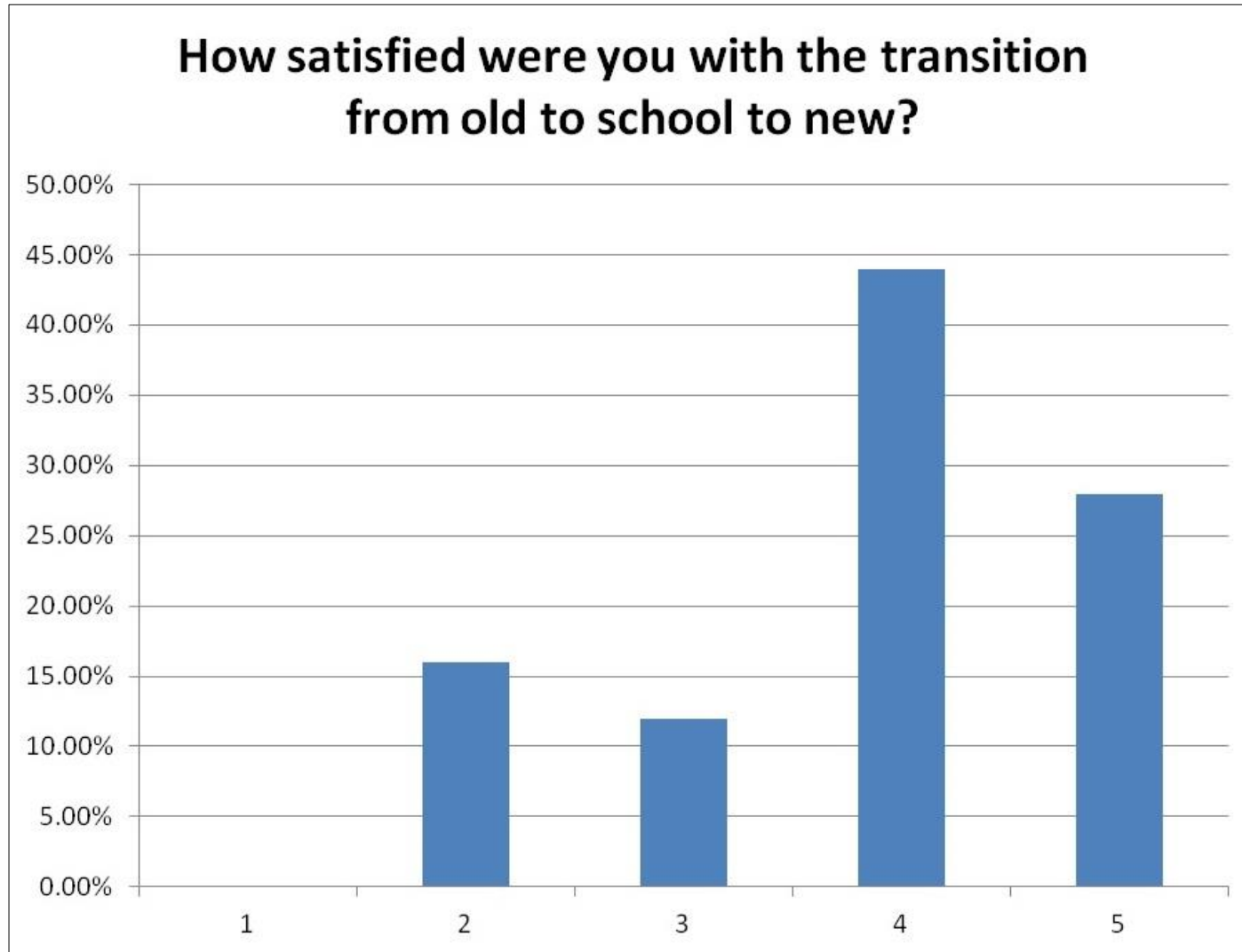
Post Occupancy Evaluation



Post Occupancy Evaluation



Post Occupancy Evaluation



THE AWESOME EFFECT*

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Q & A

Followed by School Tour