

## Penyrheol Fire Damage Rebuild Project

Thursday 20<sup>th</sup> August 2009

Geraint Flowers – CCS  
Justin Moore – Carillion PLC  
John Fletcher – CCS  
Martin Nicholls – CCS



Background: Penyrheol School was destroyed by fire in March 2006

Before:



Background: Penyrheol School was destroyed by fire in March 2006

After:



Background: Penyrheol School was destroyed by fire in March 2006

After:



Background: Phase 1 - Emergency Management

- Pupils to be kept on site
- Rented temporary accommodation to be used in short term
- GCSE pupils were the priority

Background: Phase 2 - Modular Block

- All pupils to be back on site by September 2006
- Purchase modular classroom (2000m<sup>2</sup>) to be used in medium term
- Additional supplementary works
  - Provision of temp kitchen
  - Conversion of squash courts
  - Renovation of annexe building



Background: Phase 2 – Modular Block

- Foundation pictures June 2006



## Background: Phase 2 – Modular Block

- Craning Units to Site – June 2006



## Background: Phase 3 – New Build

- In the aftermath of the fire CCS made the decision that certain elements of critical information would be required in order to go out to tender for the new build. These were

- **A Project Budget - The Insurance Settlement**

The project brief determined that the budget would primarily consist of the insurance settlement. No additional funding would be earmarked from CCS capital scheme. This meant that it was imperative to agree a beneficial settlement

- **The Ground Conditions**

CCS engineers had concerns as to the conditions in the ground on the site footprint. It was agreed that internal investigative work would be carried out in order to gain a level of information to be included in a tender document

- **The Brief**

There was a requirement to collate the client requirements for the new build which would involve consulting varied stakeholders such as school staff, Governors and pupils



## Wider Organisational Impacts for CCS

### Initial Drivers for change

- Historic traditional procurement route
- Opportunity to review working practices
- Challenge organisational culture
- Changing construction world
- Political requirements and scrutiny
- Positive implications of demonstration project

### Impact to Date

- Improved understanding of procurement approach
- Political support for developments
- Regular scrutiny reports with next scheduled for 23rd September
- Impact on changing the corporate methodology with future major projects being developed on a collaborative basis
- Ability to confirm that methodology has delivered objectives to reinforce all of the positive aspirations



## What type of tender?

- **2 stage tender process underpinned by JCT Contractors Design**

- **Tender documents went out to framework contractors in November 2006 with interviews being held in January 2007**

- **Carillion were appointed as the primary contractor for pre construction design services in February 2007.**

- **Carillion were appointed as a result of providing the most conclusive answers to a scoring matrix devised by CCS which included the following areas of enquiry:**

- Approach to collaborative working and onsite delivery
- Solution to ground problems
- Pre construction fee
- Profits and overhead percentage
- Preliminaries percentage

- **KEY TO THE PROCESS IS THAT THE MAIN CONTRACTOR IS INVOLVED FROM DAY ONE!**



## Demonstration Project – Why collaborative working?

### Mission statement

***“To involve all stakeholders from day one. Everyone will be given the opportunity to input into a sustainable process and end product.”***

This approach would potentially help us to alleviate historical problems such as:

- Where is brief?
- You didn't finish on time!
- The project is over budget!
- The process has been confrontational – lots of AI's
- I haven't been consulted on this design!
- High levels of criticism



### Collaborative Working – What were the potential benefits to CCS?

- A greater degree of cost certainty
- Early manageable input from all stakeholders – everyone gets a say!
- Flexibility in design process
- Sustainable input from stakeholders
- Contractor driven process
- Greater certainty of Programme
- Effective relationships are built
- Effective communications routes developed
- Emphasis on people and processes



## Pre- Construction Plan (Finalised)



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## Pre- Construction Plan Content

1. Project Directory
2. Roles and Responsibilities
3. Control of Design Documents
4. Project Objectives
5. Pre-Construction Activities
6. Pre-Construction Programme / Strategic Programme / Timetable
7. Agreed Education Schedule / Schedule of 'Wish' Lists / Initial IRS
8. Workshop Structure/Matrix/Agenda
9. Risk Register:
  - i) Project Board
  - ii) 2nd Stage
10. CDM – Designer's Role
11. Management Systems
12. Resolution Ladder

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## Work Shop Structure



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## Project Management Methodology – How the project operated

- Core team meeting
  - Formal meeting
  - Update on progress
  - Greater school involvement
- Senior Management Team Meeting (SMT)
  - Less formal approach
  - Look at issues in more detail
  - Delivery team focus
- Planning for Handover Meeting (PFHO)
  - Commenced within 3 months of project start up
  - Detailed programming of handover process
  - Includes periodic consultation with "on the ground staff" e.g. site manager, canteen staff, heads of department etc
  - Drills down into detail of every task in order to make handover process as smooth as possible

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## Pre Construction



## Site Safety and Ways of Working ~ Construction Period

- Target Zero – Target Zero Campaign – no reportable accidents by 2010
- Safety Actions Groups
- Don't Walk By
- Inductions
- ACE – the approach of our Health and Safety Management System is based on the "AC2E Model". The model contains 4 key elements:
  - Awareness
  - Competence
  - Compliance
  - Excellence



John McDonough  
(Group Chief Executive)  
takes personal  
responsibility for Health, Safety,  
Environmental matters

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## Site Safety at Penyrheol Construction Period

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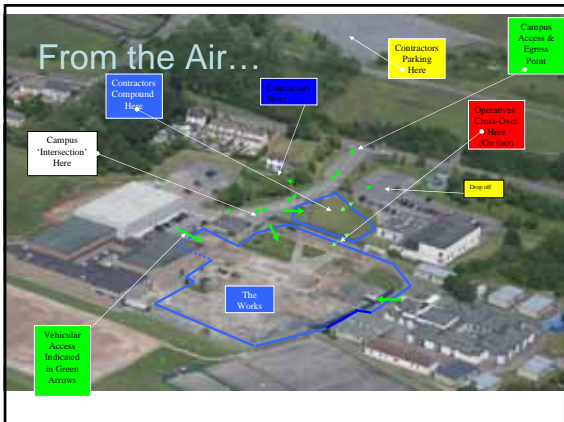
**Key Risks**

- Live campus with school, leisure centre and swimming pool on site
- 900 pupils crossing the construction site 5 times a day
- Delivery Management
- Parking – Staff and Contractor

**Outcome**

- Agreed Health and Safety Plan with Stakeholders
- Daily liaison with Staff Representative (Deputy Head)
- Approved Logistics Plan


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## Practical Completion PERFORMANCE REPORT

for  
Penyrheol School, Swansea.

19<sup>th</sup> August 2009



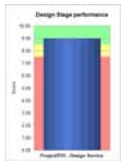
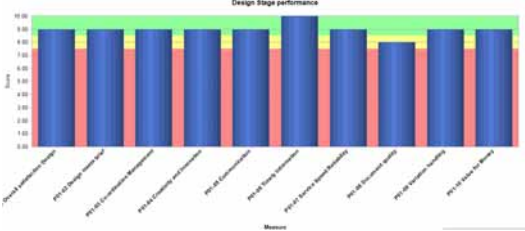
PREPARED FOR SWANSEA COUNCIL, BY JON WELLS



### PROJECT DESIGN questionnaire

The Teams collective assessment of Design, at the start of works on Site.

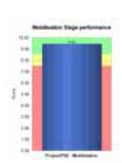
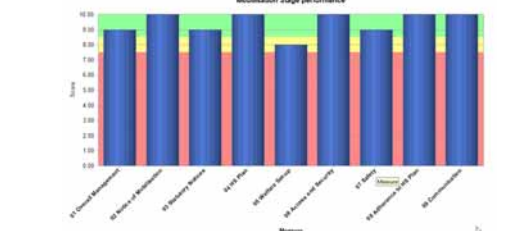
(Assessed May 08)  
To be re-assessed as part of Post Occupancy Evaluation

### PROJECT MOBILISATION questionnaire

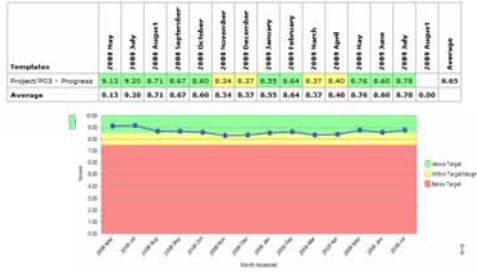
The Teams collective assessment of the Mobilisation phase, at the start of works on Site.

(Assessed May 08)  
To be re-assessed as part of Post Occupancy Evaluation

## PROJECT PROGRESS

Overall average scores, for each month.



## PROJECT PROGRESS

Average score for each measure, for each month.

Measures	2008 May	2008 July	2008 August	2008 September	2008 October	2008 November	2008 December	2008 January	2008 February	2008 March	2008 April	2008 May	2008 June	2008 July	2008 August	Average
PR3-01 Overall satisfaction with Progress	8.00	8.67	8.00	8.67	7.33	7.66	6.33	7.67	8.00	7.67	8.00	8.67	8.33	8.00	8.33	8.00
PR3-04 Right Lat Time	8.33	8.33	7.33	7.33	7.67	7.67	8.00	8.00	8.00	7.67	7.33	8.00	8.00	8.00	7.33	7.77
PR3-05 Material storage and handling	8.33	8.00	8.67	8.00	8.00	7.33	8.00	7.33	8.00	8.33	8.00	8.67	8.33	8.00	8.33	8.33
PR3-06 Workmanship	9.00	9.00	9.00	8.33	8.00	8.00	7.67	8.00	8.00	7.67	8.00	8.00	8.00	8.33	8.33	8.33
PR3-07 Defect resolution	8.00	8.00	8.00	8.00	8.00	7.33	8.00	8.00	8.00	7.33	7.33	8.00	8.00	8.00	8.00	8.00
PR3-08 Communication	8.71	8.67	8.33	8.67	8.33	8.33	8.67	8.67	8.33	8.33	8.33	8.67	8.67	8.67	8.67	8.65
PR3-09 Variation handling	8.00	8.00	8.33	8.67	8.33	8.33	8.00	8.33	8.00	8.33	8.67	8.33	8.67	8.67	8.67	8.65
PR3-10 Issue resolution	8.33	8.33	8.67	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
PR3-11 Complaints	10.00	10.00	8.67	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
PR3-12 Impact on Neighbours	8.71	8.67	8.33	8.33	8.00	8.00	8.00	8.00	8.00	8.67	8.00	8.67	8.67	8.67	8.67	8.65
PR3-13 HSE Management	8.22	8.33	8.00	8.00	8.00	8.33	8.33	8.67	8.00	8.33	8.33	8.33	8.33	8.33	8.33	8.33
PR3-14 HSE Management	8.22	8.33	8.00	8.00	8.33	8.33	8.67	8.00	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
PR3-15 HSE Accidents	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
PR3-16 Accessibility	8.00	8.67	8.67	8.67	8.00	8.22	7.67	8.00	8.33	8.00	8.00	8.33	8.00	8.33	8.33	8.33
PR3-17 Variation process	8.33	8.33	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
PR3-18 Payment on time	8.00	10.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.33
PR3-19 Overall Satisfying	8.60	8.33	8.60	8.00	7.67	7.67	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
<b>Average</b>	<b>8.68</b>	<b>8.24</b>	<b>8.71</b>	<b>8.68</b>	<b>8.62</b>	<b>8.24</b>	<b>8.41</b>	<b>8.37</b>	<b>8.62</b>	<b>8.42</b>	<b>8.42</b>	<b>8.81</b>	<b>8.81</b>	<b>8.81</b>	<b>8.81</b>	<b>8.65</b>

## PROJECT COMPLETION 360 questionnaire

### Performance Dashboard

Average score for each measure



## PROJECT COMPLETION 360 questionnaire

Assessors scores for each measure (Blank are skipped).

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PR3-07 Defect resolution	8.00	8.00	8.00	8.00	8.00	7.33	8.00	8.00	8.00	7.33	7.33	8.00	8.00	8.00	8.00	8.00
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PR3-10 Issue resolution	8.33	8.33	8.67	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
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PR3-18 Payment on time	8.00	10.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.33
PR3-19 Overall Satisfying	8.60	8.33	8.60	8.00	7.67	7.67	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
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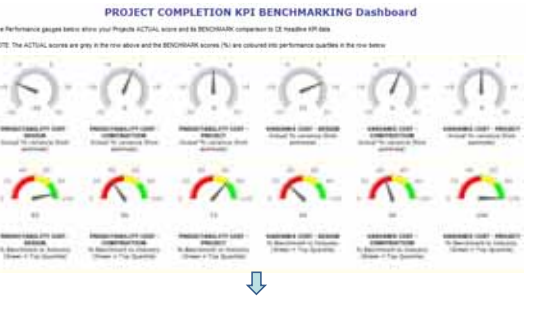
## BENCHMARKS TO CE HEADLINE KPIs 2009

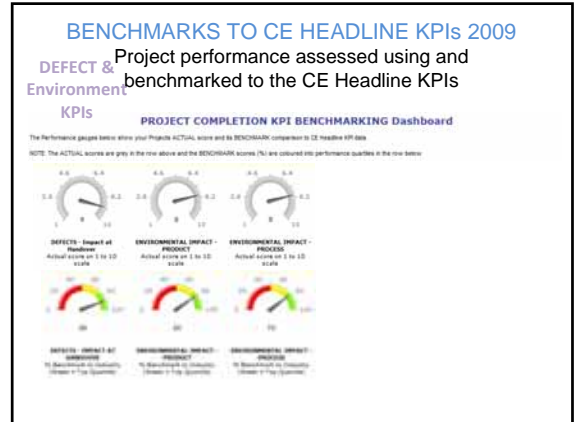
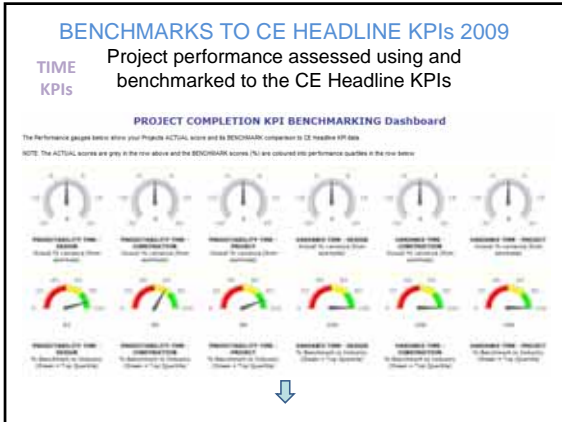
SATISFACTION KPIs Project performance assessed using and benchmarked to the CE Headline KPIs.



## BENCHMARKS TO CE HEADLINE KPIs 2009

COST KPIs Project performance assessed using and benchmarked to the CE Headline KPIs.





### Sustainable Features

**General Measures**

- Building management system
- Maximum use of natural light to reduce reliance on artificial light
- U value in excess of building regs
- Timber - FSC sourced timber
- High performance seamed aluminium roof
- Blinds to windows
- Maximising natural daylight through window and rooflight layout.
- Demolition of existing building over 90% material crushed and used on site
- Solar shading (brise soleil) to minimise solar gain
- Wildlife habitat preserved

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### Sustainable Features

**Mechanical measures**

- Natural ventilation in preference mechanical or air conditioning
- Passivent
- Water saving automatic flush controls to urinals
- Economy flow control taps and showers
- Low Nitrous Oxide Gas Fired Condensing Boilers
- Zoning of heating circuits to allow parts of building to be heated independently
- Automatic boiler controls including optimum start
- Inverter drives on all large heating pumps and fans
- Special installations – sprinkler
- Rainwater harvesting

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### Sustainable Measures

**Electrical measures**

- Energy efficient, high frequency lighting using T5 lamps
- Presence detector automatic controls to ensure lighting is only on when in occupation (PIRs)
- Sub-metering
- Solar PV array to generate electricity
- Electrically operated high level windows controlled by BMS system
- Automatic entrance doors to maintain draught lobbv
- Low energy external lighting
- Display panels for children to learn from energy saving

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### Environmental Assessments

- BREEAM – Very Good achieved
- City and County of Swansea Environmental Impact Assessment (Part of Green Dragon accreditation) – Low impact on environment score achieved for the development.

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## How successful was it?

Carillon and CCS - Agreed a programme of work that will deliver the following key milestones:



MILESTONE	DATE	ACHIEVED?
Concept design signed off	30/04/07	Yes
Floor plans, elevations, roof, plan, finishes signed off	25/06/07	Yes
Initial room data sheets signed off	20/07/07	Yes
Planning achieved (earliest)	12/11/07	Yes
Report Tender to Client	29/10/07	Yes
Award contract (second stage)	11/02/08	Yes
Council website launched	28/1/08	Yes
School Newsletter	18/2/08	Yes
Construction Enabling Works	08/04/08	Yes
Parents/Public meeting	26/2/08	Yes
Site set up and start	01/04/08	Yes
New School handed over complete	24/08/09	Yes
Within Budget of £9,913,000	20/8/09	Yes

## Did we solve the historical problems we set out to solve by adopting the collaborative working process??



Objective	Outcome
Where is brief?	Brief was developed by the Project Team and signed off by the Project Board. Contractor had a high degree of input into the process
You didn't finish on time!	Project delivered on programme
The Project was over budget!	Project delivered within budget. All stakeholders understood the rationale behind including different elements.
The process was confrontational	The communication routes were excellent throughout. Effective working relationships were developed that allowed for issues to be resolved in a win/win manner
I haven't been consulted on the design	Everyone had an input - This does not mean to say that everyone got what they wanted!!
High levels of criticism of end product	Extensive stakeholder involvement meant that the key people had ownership of the end product. "It's our school"

## Any Questions?

