Lessons learned: Operational Reviews

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What is involved

- SFC Operational Stage: 6-12 months post handover
  - Opportunity to evaluate the process of delivering the project
  - Early evaluation of the actual building to identify any initial occupational and operational problems
- Five ORs (Operational Reviews) carried out to date
  - N Glasgow College
  - Dumfries and Galloway College
  - Jewel and Esk – Edinburgh and Midlothian campuses
  - Borders Hawick Campus
  - QMU

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Post Project Review

- Debriefing process
- Facilitated Workshop: based on HEDQF Forum process
- Blame free setting
- Focus on lessons learned

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Aspects covered

- All aspects of design, procurement and construction process
  - Feasibility, briefing and design inc appointment of consultants, detailed design
  - Construction stage eg Programme management, Health and safety
  - Post completion eg Handover, moving in and after care
  - Management and operation (Optional)

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Wide range of attendees

- Client
- Project sponsor
- Estates Dept
- FM
- Project Managers
- QS
- Architect
- Engineers
- Contractors

Some lessons: Feasibility, Briefing and Design

- Good idea to have a college representative devoted full-time to the project eg project sponsor, administrator
- Build up good relationships with funding bodies
- Using RIAS to advise on appointment of consultants was valuable and would be recommended
- Important to involve end users from all levels especially to advise on technical issues eg workshops
- Do as much of the design detailing as possible pre-tender – fewer grey areas post contract

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Some lessons: Construction stage

- Start dealing with utility companies as early as possible to reduce delays
- In a tight market contractors can be wary of atypical contracts eg single stage tenders
- Tight programmes, contingencies and delays
- Integrating fit out into the main contract can allow for more control
- Communicate with neighbours prior to starting on site and keep them informed
- Consider the knock on effect of large numbers of design changes/variations

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Project in use: DQI workshops

- Based on the Design Quality Indicator (DQI) developed by the Construction industry Council

- Used at key stages during a project lifecycle
  - Briefing - to discuss and set aspirations for a project;
  - During design - to monitor the progress of the design
  - On completion – to ensure that the building meets aspirations
  - Post Occupancy – to obtain feedback on the building in use

- In-use version provides a ‘taster’ of early performance issues

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What does it involve?

- Workshop attended by 10-12 participants representing a wide range of stakeholders including:
  - Academic, administrative and technical staff
  - Facilities manager/ site manager
  - Students
  - Other users eg visitors, community
- Questionnaire relating to all aspects of school design: paper and on-line versions
- Facilitated workshop: open discussion and shared language

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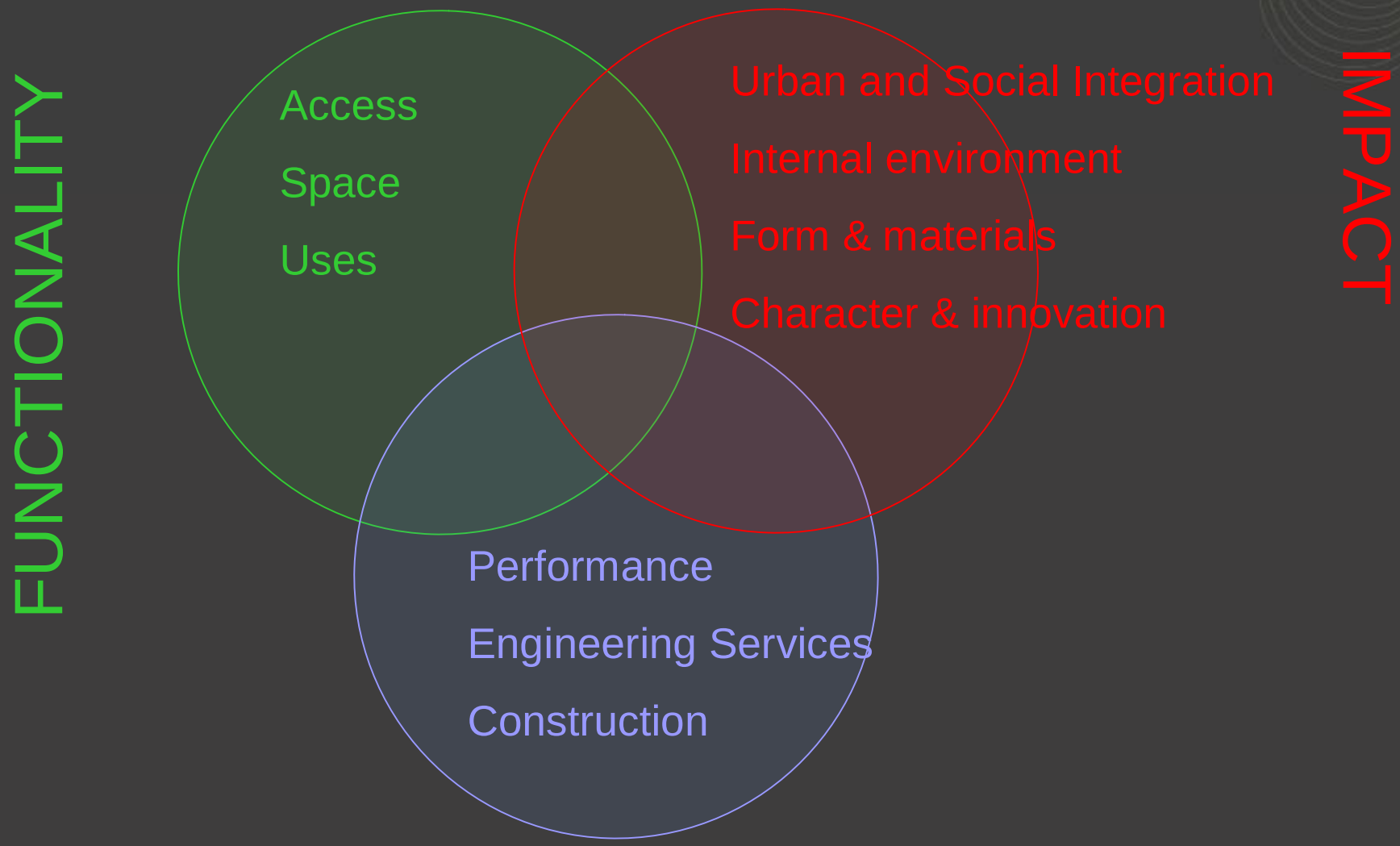
DQI Questionnaire



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Some lessons: Functionality

- Heavy fire doors vs DDA access
- Car parking
- Storage space for short, medium and long term
- Social and quiet space for students and staff
- Open plan office facilitate communication NB Change management
- Provide variety of catering outlets to reduce overcrowding
- Consider provision for exams

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Some lessons: Build quality

- Temperature
- Ventilation
- Glare particularly from low winter sun – blinds
- Acoustics – open plan layouts eg library and cafeteria
- Draughts in reception areas
- Flooring choice to reduce noise transmission
- Internal meeting rooms

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Some lessons: Impact

- Narrow corridors can be intimidating for users eg special needs
- Non standard finishes eg exposed concrete can have quality implications. Manage expectations of end user
- Occupants enjoy high levels of daylight and transparency
- New buildings having a positive impact on the local community
- Occupants enjoy outdoor spaces eg for eating etc

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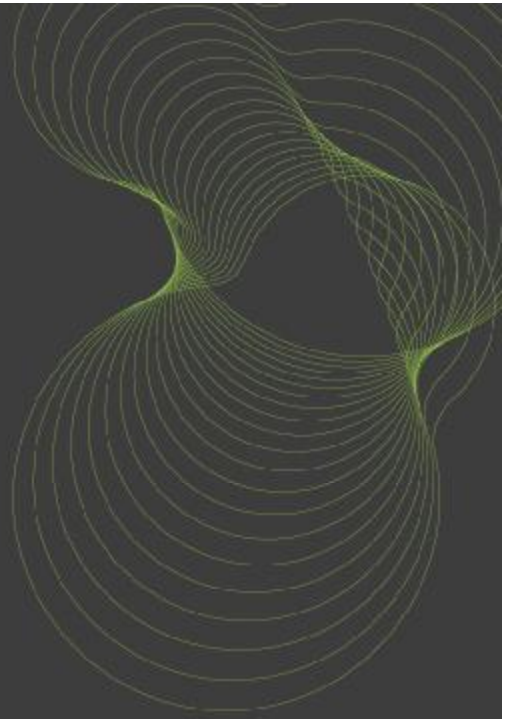

Lessons learned: Functional Performance Reviews

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Functional Performance Reviews

- Carried out 12 – 18 months after occupation
  - Allows a full seasonal cycle to have been completed so that performance under different seasonal conditions can be captured
  - Focuses on the assessment of functional and technical performance through occupant consultation as well as operational issues such as audits of energy and water usage and running costs

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Functional Performance Reviews

- Observational walk rounds
  - Identify key building features and energy systems in place
- Energy, water and sustainability audits
  - Monitoring and recording consumption levels to allow benchmarking
- BREEAM assessments
  - Determining if design stage commitments have been made
- Design Quality Method
  - Evaluating architecture, environmental engineering, user comfort, whole life costs, detail design and user satisfaction
- Occupant experience
  - Questionnaires, focus groups and interviews to examine how the occupants interact with the building
- Financial analysis
  - Cost benefit analysis

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Functional Performance Reviews

- FPRs carried out to date:
  - Cumbernauld College
  - Carnegie College
  - John Wheatley College
  - Cardonald College
  - South Lanarkshire College

  - Queen Margaret University underway

Functional Performance Review

- **Lessons learned**
  - **Be a well informed client, be confident and assertive in the choices you make, shape the early design brief and ensure that sustainability is integrated and runs through the life of the project.**
  - **Have a sustainability champion on the client side to ensure sustainability is included in the brief and procurement process.**

bre

FPR – lessons learned

- **Carry out site visits to other new colleges to gather information on building services systems and any lessons learnt**

FPR – lessons learned

- **Appoint an independent BREEAM assessor early in the design process to provide consultancy advice and conduct both a D&P and PCR assessment.**

- **Consider how the procurement process chosen will work for you as a client and affect the building outcomes and relationships with the contractor or design team.**

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FPR – lessons learned

- **Ensure adequate time is allowed in the programme for the construction period and that construction quality is tightly managed**

FPR – lessons learned

- **Select a contractor with adequate resources to manage a project effectively on site and with good continuity.**

- **Ensure that staff feedback from the consultation process is included in the designs wherever possible.**

FPR – lessons learned

- **Being an informed client will help to challenge and question M&E designs based on experience of what has and has not worked in similar situations and to not repeat common mistakes.**

bre

FPR – lessons learned

- **Ensure that M&E contracts penalise for oversizing as well as undersizing to get optimum efficiency of building services.**

- **Ensure robust thermal comfort and daylighting modelling is carried out accurately and identifies issues at the modelling stage which can then be resolved.**

bre

FPR – lessons learned

- **Spend more time planning M&E services around layout and functional use of room to avoid congestion and poor/inefficient location of services.**

- **Set a carbon target per m^3 for the building to avoid inefficient design of services and include this in contracts.**

bre

FPR – lessons learned

- **Include college facilities management expertise in setting a brief and through the design process to ensure buildings are functional and maintainable.**

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FPR – lessons learned

- Fit daylight and occupancy sensors in all appropriate areas to prevent overlighting with artificial light and carry out daylight/glare modelling.

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FPR – lessons learned

- Put clear instructions on lighting/heating/ventilation controls and train staff on how to use the building efficiently.

Functional Performance Review

- Occupant feedback
  - **Temperature**
    - *Main entrance areas and atriums are often found to be cold and draughty. There is generally a great deal of student movement throughout the day, thus need to carefully consider the door designs and how much heat is lost and draught comes in to these areas.*
  - **Lighting**
    - *Classrooms with interactive white boards or data projectors need adequate and robust shading. However, natural light and view out are found to be important to occupants.*
    - *Automatic lighting is often found to be a problem in most colleges – either turning off in occupied rooms, taking too long to turn off in unoccupied rooms, or lacking control in terms of which lights are on and how bright. This may well mean this type of lighting is practically not as energy efficient as it purports to be.*

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Functional Performance Review

- Occupant feedback
  - **Noise**
    - *Extraction systems in construction workshops are found to be a frequent problem.*
  - **Cleanliness and appearance**
    - *Smokers at the entrances to the buildings are found to intimidate and create a bad impression. The design team must consider ways to move smokers away from the building entrance (not just a management issue). Colleges that employ day cleaners and keep on top of the cleanliness and the décor tend to report the staff and students look after the buildings more and take more pride in them.*

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Functional Performance Review

- Occupant feedback
  - **Size of teaching spaces**
    - *Many teaching spaces are described by occupants as too small for the number of students expected to use them.*
  - **Security**
    - *Many occupants are concerned about how easy it is for anyone to get into and around the college buildings without being challenged. Many feel there should be fewer unmanned entrances.*
  - **Storage**
    - *Storage space in new buildings is a major issue for occupants. Teaching staff would like more storage space for teaching materials in areas where they teach. Students would like more well managed lockers, especially those who are expected to bring in specialist clothing or equipment. Cleaning staff need adequate storage for cleaning product and equipment. More storage for construction students' project work as well as materials would be desirable.*

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POE – future work

- Strategic Reviews
  - Due to commence at the end of this year
  - 3 -5 years after occupation
  - A longer term view of how far the building has met the original business needs, whether these have changed, performance in the longer term and whether changes need to be implemented.
  - Also provides the opportunity to re-evaluate the whole procurement process and to re-examine the functional and technical performance requirements to inform future estates strategy

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Thank you……………