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The art of performance...

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Post Occupancy Evaluation – will it cause additional litigation owing to building performance not measuring up to POE studies versus original claimed performance levels?

A Post Occupancy Evaluation can reduce building operational costs and increase occupant productivity. But what happens when the operation of a building doesn't perform to the expectation of its original design?

Building operational failures can be regarded as *'teething problems'*, common with *'settling in'*, and are often blamed on poorly drafted contract requirements. [1] Building owners and contractors failure to understand contract mechanisms is a leading cause for dispute in the construction industry.

Building performance is traditionally measured on completion of the static works, this stage is commonly referred to as commissioning. Some may consider that innovation, such as the methods and technology used to validate performance, have progressed more rapidly than the case law and legal interpretation associated with building performance.

The future operation of a building is more likely to fail as building owners become less familiar with modern methods of construction, and more reliant on the language of the contract where building operation and performance is defined.

A POE case study by CIBSE[2] found that actual energy usage was 22% more than the original design intent. The major causation of the increase was identified as technical issues (such as the operation and performance of the equipment) and a minor change in the building's operation.[3]

Common Contract Terms

To demonstrate the relationship between building performance and the language of the contract, consider an intended room temperature and the possibilities at the point of possession. These are listed in the order they are most likely to occur whilst executing a JCT[4] standard form contract:

i) The Contractor's Proposal include the Employer's Requirements intended room temperature,
ii) The Contractor's Design Documents were developed and include the intended room temperature,
iii) The installation and equipment were approved and capable of satisfying the intended room temperature,
iv) The intended room temperature was proven during commissioning,
v) It has been demonstrated to the client how to achieve the intended room temperature,
vi) The intended room temperature will be proven during the extreme use of the building (during peak winter and summer conditions, full capacity and empty),
vii) The building will perform at the intended room temperature (or range of temperatures) for its entire lifecycle.

[1] S.Moon et al, *Claims and Dispute Causation - A Global Market Sector Analysis* (HKA, 2019), page 11
[2] Chartered Institute of Building Services Engineers
[3] CIBSE, *TM63 - Operational performance: Building performance modelling and calibration for evaluation of energy in-use* (CIBSE, 2020), page 20
[4] Joint Contracts Tribunal

If a standard form is followed with no amendments, the contractor may have an obligation to satisfy points one and two only. Point three, there is no explicit obligation for the contractor to seek approval of the equipment, however, this is often drafted into the contract or considered good practice. It would be less likely to have an obligation to approve a complete heating 'system'.

Points four and five may also be considered good practice and operations & maintenance (O&M) manuals are common and may include this information. However, some may say that the quality of O&M manuals varies drastically from contract to contract. Ultimately, it is the owner's responsibility to procure an appropriate maintenance contract, this may be primarily driven by budget rather than quality.

It is considered that points six and seven are the least likely to be an obligation of the contract. However, it is suggested that points six and seven are the real intentions of the building owner. A considerably higher standard than points one and two.

Some may consider points six and seven to be too onerous an obligation to place on a contractor. However, consider that a POE identifies that performing at an efficient temperature could reduce the building's energy consumption by 30% for its lifecycle,[5] this saving could far eclipse the cost for the installation of the original system.

"Contract negotiations are one of the first and most important events when making considerations for future building operations"

Further, consider the importance of a more complex, critical system with multiple interfaces. For example, a basic commercial office block may have a huge range of complexity in systems, such as fire suppression or building management system (BMS).

Avoiding the actual intention of the building may encourage a *"merry-go-round of buck-passing"* [6] if the future operation falls into dispute.

In contrast with the JCT, the NEC standard form includes an explicate clause for tests and inspections. Understandably, the NEC does not provide the level of detail required for testing, as this is generally specific to the building.

NEC encourages the building owners to define the works, and it is expected that the parties have the knowledge and understanding to do this.
In FIDIC, Tests on Completion is a prescribed clause in the contract. It is the owner's obligation to detail the procedure for the test and the expected outcome. Passing the Test on Completion is a precondition to the Taking-Over Certificate. Therefore, it is vital that the detail of the Test on Completion is defined by the owner to allow completion.

If the building owner fails to define the Test on Completion, the parties may incur difficulties when executing the contract.

This type of contract mechanism is common in power and utility projects, such as power plants and renewables, for example, wind turbines. The mechanism serves the purpose of ensuring projects operate, function and perform as per the owner's requirements.

[5] Eliot Crowe, Evan Mills et al, *Building commissioning costs and savings across three decades and 1500 North American buildings,* (Elsevier B.V, 2020)
[6] Richard Millett QC counsel to the Grenfell inquiry

The mechanism is not so common in commercial building projects, despite common failures in the performance and operation of the building that may lead to significant financial loss.

Can stakeholders mitigate potential loss from performance gaps identified in a POE?
There is opportunity to narrow the gap of knowledge and understanding between building owner and contractor. Greater consideration to the language of the contract can be made when drafting completions provisions that complement a buildings future operation and performance.

Commercial building owners often construct singular bespoke projects. In comparison with contractors, owners may be considered less familiar with construction contracts and building performance. Therefore, there may be a greater reliance on consultants who may be less familiar with the owner's business needs and the actual intention of the building.

When procuring a construction contract, building owners have near limitless contract types and clause options available relevant to completion, handover and future operation.
Contract negotiations are one of the first and most important events when making considerations for future building operations. Questions probing the building operation are often overlooked at this stage by building owners until after the contract has been negotiated. Interweaving complex variations into the contract at a later date, such as consideration for future building operations, can often lead to disputes.[7]

Can poor operational performance be considered a defect?
Latent defects are those which are hidden, or unknown and usually become apparent after the defects' liability period.

A failure in the operation, function, or performance of a building would not necessarily be considered a defect unless it was explicitly referred to in the construction contract, such as a standard or specification. If it was considered a defect, it may be difficult to dispute, calculate and demonstrate a loss.

Similar, failure in the operation, function, or performance of a building would unlikely be considered a defect in a lease unless specified in a Service Level Agreement (SLA).

By example, if a heating system was being operated inefficiently by a tenant after being commissioned by the contractor it would only likely be considered a defect if the contract documents or SLA were explicit on how efficient the system should operate.

Therefore, despite O&M guidance it is still common for building owners to be unfamiliar with the operation of their building at completion. For example, a basic operation such as how to correctly and efficiently operate a central heating system.

If building owners are unsatisfied with the building's systems interface and are unaware of the extent of the building's inefficiencies, there is likely little or no recourse for a claim. However, the cost of running a building inefficiently can be significant over the lifecycle of a building.

If you require any further information, please contact Robert Eadie at roberteadie@hka.com.

[7] S.Moon et al, *Claims and Dispute Causation - A Global Market Sector Analysis* (HKA, 2019), page 11