GreenSpec

COPING WITH SUBSTITUTION

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QUALITY

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey." John Ruskin (1819-1900)

With the growth in Design and Build, Construction Management, Management Contracting and their many hybrids, we have seen changes in specification that have eroded the position of the designer and the quality of the completed building. Increasingly the requirements and methods of these forms of procurement have influenced the practices of contractors working under traditional contracts. Significantly it has become more commonplace for contractors to offer alternative products to those specified, usually offering potential savings.

If tender figures are returned that match the project budget, there should be no need to consider alternatives. However, if savings subsequently need to be made, it is the responsibility of the QS to identify areas of efficiency within the design and not that of the contractor who will inevitably governed by wholly different priorities.

PRODUCT QUALITY AND DESIGN LIFE

It should be understood that potential savings usually mean diminished quality and life expectancy. Often cheaper initial costs mean more expensive in-use costs: running, maintenance and replacement costs and increases in maintenance and replacement frequency.

There is a need to balance initial and in-use costs and for informed decisions to be made. Life Cycle Analysis (LCA) and Component Life (CL) comparisons offer this opportunity.

Davis Langdon Everest Consultancy (DLEC) have carried out research and published some information on LCA via 'Building' magazine articles, but comprehensive published information is not yet available. Building Performance Group (BPG) have developed and, with SPON, published Component Life Manuals (CLM) for Housing Association Property Mutual (HAPM), non-housing elements in Building Fabric Component Life Manual (BFCLM) and services components in the BPL CLM. These manuals give guidance on the expected life (insurable life), modes of failure and maintenance requirements of many if not all components used in buildings. Their use at the design stage can help the designer to select all components to match a predetermined design life and achieve consistency across the range of components. With this information the designer, client and Quantity Surveyor (QS) can also review potential savings, carrying out a series of balancing acts comparing a potential saving in costs with a consequent reduction in component life.

On studying the content of these CLMs it becomes clear that product quality is the key to life expectancy. Usually in the form of BSI Kitemark and BBA certificates, but also other schemes like Wimlas, SGS Yarsley Testguard, CARES, BWF Certifire, and European schemes including European National Agrément Schemes, European Technical Approvals (ETA) and Euro-Agrément.

These schemes have a number of things in common, the products are usually made to a published regulation, code of practice or standard tested or monitored to ensure they comply (Product Quality); Management procedures too are checked to ensure that consistency can be achieved in production (Quality Assurance).

OR EQUIVALENT AND APPROVED

The case of LEEDSFORD v CITY OF BRADFORD in 1956 determined that the term 'or otherwise approved' as used in a specification does not mean that the designer must then consider those alternatives offered by the contractor. Likewise, it does not oblige the designer to offer any explanation for not considering the offered alternatives.

Many European Directives and their implementing national legislation, particularly the Construction Products Directive (CPD) and the Building Regulations (Regulation 7) were published or updated in the years leading up to or following the year 1992 when the United Kingdom formally joined the European Union.

Whilst the terms 'or similar' & 'or equal' were in common use for decades leading up to 1992, the term 'or equivalent' only latterly began to have a greater significance in European Law, particularly as it related to government financed 'Public Works' projects.

The term 'or equivalent' has been well-established in standard specifications. Both the late PSA General Specification and the current NBS National Building Specification Preliminaries used and use the term.
The term is also given prominence in EU legal definitions, in EU directives and the UK national legislation implementing them. Its is required on all Government financed 'Public Works'. Unlike other commonly used terms such as 'or otherwise approved', 'or similar' and 'or equal', the term 'or equivalent' carries more import and a tighter definition which can control the product's performance as well as its physical characteristics.

A ready definition of 'or equivalent' is provided by NBS Clause A31/200. The clause requires any proposed substitutions to be notified to the Contract Administrator (often but not always the Architect) submitting evidence in the form of English language test results, certificates, specifications, details, guarantees, etc. These must show equivalency of materials, safety, reliability, appearance, durability, function, of products and all accessories, etc.

NGS GreenSpec CLAUSES

The National Green Specification (NGS) clauses address specification substitution. One of the issues that they address is the time involved in checking contractors proposed alternatives. The designer will have gone to the effort to select materials, understand their requirements, design with them and specify them. The last thing the designer wants is to have to go through the whole process again for an alternative material offered by the contractor. The important issue is to make the contractor fully responsible for the whole process of proving the equivalency and suitability of their proposed departure from the designer's proposal. In this context, the more detailed the clause the less likely an alternative material will be found to match all characteristics and a clause describing a product where alternatives will be considered need not be in so much detail.

It is important that a clause requires the tender to be strictly in accordance with the Contract Specification, Drawings and Bill of Quantities to allow comparison of tenders on 'apples for apples' basis. Alternatives and options need to be offered as a separate submission along with the compliant tender, to allow comparison of 'apples with pears' and/or 'pears with oranges' from the different tenderers.

The clause can be useful in requiring reasons for substitution as well as asking for all evidence of equivalency in respect of all items of a descriptive clause, comparison and highlighting of the relevant information. Where a substitution for a specified material, component or system is proposed as part of any alternative tender and (depending upon the designers initial research) any of all of the following can be asked for in the Specification: Manufacturer's illustrative and technical literature, Performance characteristics, Test results and/or assessments, Third party independent accreditation; Specification, Drawings, Method statements; CDM Risk assessment, COSHH data sheet review; Environmental assessment by the manufacturer, materials, country of origin, transport methods and embodied energy, Life Cycle Costing, Component Life Assessment. (based on HAPM/ BPG/BPL CLM), and information of availability of spares and maintenance materials in the UK.

Where insufficient or no evidence is provided, substitution should not be considered.

SUBSEQUENT SUBSTITUTIONS

If further specification substitutions are proposed during the construction, the Contractor should be required to provide all such information with at least one months notice of date of ordering materials. This will allow thorough evaluation by the design team, in time to meet the Programme. Late submissions should be discouraged and ideally not be considered. Any substitutions carried out without such submission and subsequently detected, should be subject to thorough comparison and submissions and if found wanting, required to be replaced with the specified or compliant materials.