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MANAGING POST CONTRACT VARIATIONS UNDER THE PRINCIPLE 'TRADITIONAL' IRISH FORMS OF CONTRACT

An Overview

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ABSTRACT

Variations are almost inevitable on all but the most simple of building contracts. This review examines the topic of variations in the context of the 'traditionally' procured building contracts in the Republic of Ireland. The study presents definitions of variations as set out in various contracts including the RIAI and GCCC Forms of Contract and identifies common sources of variations on building projects. The study sets out the legal framework supporting the right to vary work, establishes the nature of varied and/or extra work, and discusses the requirements for payment of such work. Variation procedures under the RIAI and GCCC Forms of Contract are discussed, focusing on the power of the architect and employer's representative to issue instructions and variations. The study then considers the valuation rules contained in both contracts and comments on various issues connected with their valuation methodologies.

The study is intended as an aid to Irish students undertaking undergraduate and conversion masters courses in quantity surveying and construction management related disciplines.

Introduction

Most of the employment given the legal profession by engineering work is to do with disputes about variations. From the contractor's point of view the main concern is to get payment for extras, to which he is entitled only if the extras are outside the work he was bound to do for the original price and not merely concessions to him, and authorized properly. ... The employer's main concern will be to avoid exorbitant prices for extras. ... (Abrahamson, 1979 p168-9)

Variations are almost inevitable on all but the most simple of building contracts. The construction industry produces many one-off purpose made buildings. Each building project is unique and has its own particular design and construction challenges. No matter how well the project has been planned, architects or employer's representatives will almost certainly need to issue further drawings, details and instructions for some reason or other. These instructions allow designers to fine tune the scheme to better achieve the client's requirements. However this flexibility comes at a price, the cost of the project or the time taken to complete it are usually affected in some way.

Ideally a building would be designed so that changes would not be required. Indeed for many clients this will be one of their main priorities. Certainty over the outturn price is a particular concern of Irish public sector contracting agencies. Public works projects are now required to be undertaken on the basis of the GCCC (Government Construction Contracts Committee) fixed price lump sums contracts. These appear to promise cost certainty, but in order to deliver this objective the project must be fully and comprehensively designed before the price is agreed. This is a time consuming process and is rarely fully achieved in practice, - the *Egan Report* found that 40% of projects exceeded their budgets. For other clients the main priority may be the need to achieve early completion, and cost certainty may be a secondary consideration. In these circumstances it is likely that fast track procurement strategies will be employed, in which case the design will not be finalised at contract award stage. In these cases a substantial variation account is only to be expected.

A variation, in a generic sense, refers to any alteration to the original contract and can involve changes to the physical works or the conditions of contract. Variations are

described using different terminology depending on the particular standard forms of contract employed, these terms include ‘changes’, ‘compensation event’ or ‘change of employer’s requirements’. In Ireland, Clause 2 of the RIAI (Royal Institute of Architects in Ireland) ‘yellow’ form of contract defines variations as *the modification of the design, quality or quantity of the Works or the addition, omission or substitution of any work* (RIAI, 2012). On public sector projects the GCCC contracts refer to variations as ‘change orders’. Clause 1.1, of these contracts contains this definition: ‘*Change Order means an instruction of the Employer’s Representative to change [including add to or omit from] the Works or to change [including impose or remove] constraints in the Contract on how the Works are to be executed.*’ (Department of Finance, 2007)

The Royal Institution of Chartered Surveyors (2010) (RICS) comment that regardless of the terminology used variations and changes have a common theme and relate to valuing either:

- the carrying out of a different scope of work (addition or omission)
- the effect of carrying out the same scope of work in a different manner (timing, conditions etc.)

In a broader sense change in building contracts includes other variables contained in the contract including factors such as prime cost sums and material and labour cost fluctuations. These are not dealt with in this study.

The valuation of variations is often one of the most contentious aspects of contract administration. Abrahamson’s use of the word ‘exorbitant’ above raises the suspicion that the valuation of changes and variations may be viewed by unscrupulous contractors as an opportunity to boost profits, or to claw back money on poorly priced projects. On the other hand contractors will be equally concerned that they are properly reimbursed for the variations. They may fear that contract administrators may take a very restrictive view of the valuation rules contained in the contract and refuse to fully recognise productivity losses or take account of knock-on costs incurred in carrying out the work.

Under Irish building contracts the responsibility of valuing variations ultimately rests with the architect/employer's representative. However, on the vast majority of substantial projects this valuation is usually based on the advice of the quantity surveyor (QS). It is important, therefore that the QS understands the principles to be applied in valuing variations, is capable of accurately calculating them, and is able to provide sound advice to those relying on his/her expertise. The RICS guidance note, '*Valuing Change*', (2010) sets out the Institution's expectations of minimum levels of service:

The quantity surveyor is expected to fulfil the following duties, notwithstanding the detailed terms of any appointment or contractual obligation:

- Review the scope of the change and quantify it, in accordance with the provisions of the construction contract.
- Review documents submitted to the client, by a contracting party, which are intended to represent a quotation or valuation of change under the construction contract.
- Prepare a valuation of the change, in accordance with the construction contract, where there is a requirement to do so.

Potts (2008) comments that the valuation of variations may not be easy, and is a task which requires considerable experience and skill. He explains that the quantity surveyors involved must have a sound appreciation of construction technology, programming and estimating practice and must keep meticulous records regarding the factors relating to the variation.

The Reasons for Variations

Murdoch and Hughes (2008) suggest that there are three ways in which variations might arise:

- (i) clients may change their minds about what they asked for before the work is complete;
- (ii) designers may not have finished all of the design and specification work before the contract was let, and

(iii) changes in legislation and other external factors may force changes upon the project team.

They explain that client-instructed variations are '*the prerogative of the client*'. On occasion clients may need to leave certain design or specification issues until after the works have commenced. They note that the design is rarely completed at the time of tender and changes may be necessary '*simply to make the building work.*' They argue that this flexibility allows the design team to delay making design decisions until a very late stage and claim that this is bad practice and should be avoided as far as possible.

Other commentators identify shortcomings in the briefing and design process as common sources of variations. Potts (2008) identifies inadequate briefing, late and inconsistent client instructions, incomplete design, poor planning, lack of coordination of specialist designs and late clarification of complex details as problem areas. The rectification of design errors (March, 2009), inadequate time allowance for design, poorly prepared tender documentation, and insufficient attention to detail (Laryea, 2011) This general lack of professional discipline is directly connected to the need to issue variation orders, and is avoidable.

The third source of variations, external factors, is typically beyond the control of any of the parties. They may be necessary to deal with unforeseen events and contingencies. For example unexpected ground conditions may force foundation design changes, specified materials may become unavailable, storm damage may require rebuilding work. External events such as changes in legislation may also give rise to variations.

Ultimately variation clauses exist for the benefit of the client and allow the design team to refine the design as the contract progresses in order to acquire a better end-product. Murdoch and Hughes (2008) warn however that this flexibility is often abused by careless clients making 'arbitrary changes'. '*This practice leaves the client dangerously exposed to claims from wily contractors who can demonstrate all sorts of consequent effects, which attract extra payment.*'

SECTION A – THE LEGAL FRAMEWORK

The Right to Vary Work

The Right to Payment

Furst and Ramsey (2001) explain that a contractor is entitled to payment for extra work carried out if he can ‘prove:

- (i) that it is extra work not included in the work for which the contract sum is payable;
- (ii) that there is a promise express or implied to pay for the work;
- (iii) that any agent who ordered the work was authorized to do so, and
- (iv) that any condition precedent to payment imposed by the contract has been fulfilled.’

Abrahamson (1977) explains the ‘classic’ position in contract law regarding varying work. It is considered worthwhile setting out his commentary in full.

Unless there is a clause of this kind in the contract, the contractor cannot be ordered to do more or different work than he originally agreed to, nor can the employer omit any of the original work and reduce the contract price. Conversely, if the contractor alters the works without authority under the contract he is not entitled to payment for the altered work. He will also have broken the contract – the contract work has not been done and it is no defence in law that he has done equivalent or better work. It follows that the contractor will be liable for at least nominal damages and the employer may have a right of forfeiture ... and the contractor will not be entitled to an extension of time for completion because of the extra work. (Abrahamson 1979, p.169)

This commentary highlights the fact that once a contract has been concluded, its terms cannot be changed unless the contract itself so provides. Any modifications after the contract has been formed would require the negotiation of a new contract. In an industry based largely on competitive tendering, this would clearly be unworkable and would, no doubt, lead to many disputes. Clients would, no doubt, be frustrated, disappointed and disillusioned in these circumstances.

Because building involves change it is necessary to provide a means to modify the design and change the works. Therefore most standard forms of building contract provide for the issue of instructions allowing changes to be made to the works as they are being built. This study focuses on these arrangements in the ‘traditional’ RIAI ‘yellow’ and the GCCC employer designed forms of contract.

What is Varied or Extra work?

The decision as to whether the scope of the work has changed or whether modified or additional work is a variation is not always clear. Furst and Ramsey (2001) explain that in a lump-sum contract extra work may be defined as ‘*work not expressly or impliedly necessary included in the work for which the lump-sum is payable*’. They add that whether the work will be construed as a variation will depend on whether the contract has been defined in wide terms, “*such as to build a house,*” and those in which are defined in exact terms such as “*to execute so many cubic metres of digging.*” This distinction is more usually described in terms of with quantities contracts and without quantities contracts.

Contracts without Quantities

Contracts without quantities are often referred to as ‘drawing and spec’ (specification) or ‘lump sum’ contracts. Under this arrangement contractors carry the quantities risk and must prepare their own quantities when tendering for contracts. The contractor will benefit from any quantities that have been over-measured but will suffer loss should the quantities prove to be inadequate. The lump sum is usually broken down in an agreed format in a ‘contract sum analysis’ or ‘pricing document,’ which is used to value work in progress and variations. ‘Without quantities’ forms the basis on which design and build contracts are awarded and this form is also appropriate on small projects and subcontracts.

Furst and Ramsey (2001) explain that the contractor is required to carry out ‘*indispensably necessary work*’ in without quantities contracts. These works may cover

situations such as:

- where work is not expressly specified;
- where insufficient quantities are supplied for the tender or are wrongly stated on the drawings;
- unforeseen ground conditions, or method of carrying out the work;
- work to comply with statutory obligations at the time the contract was entered into, and
- work carried out in a manner directed by the engineer where this is provided for in the contract.

Issues relating to without quantities contracts have become more prominent since the introduction of the GCCC contracts in 2007. The Department of Finance's intention is that public sector building contracts should be awarded on the basis of fixed price lump-sum contracts and that the pricing document, typically a bill of quantities, should not form part of the contract. This approach effectively creates a without quantities contract on many substantial projects which previously would have been awarded on the basis of a 'with quantities' approach. Furst and Ramsey (2001) explain that the contractor will, in general, bear the loss arising from inadequate quantities provided in these circumstances:

A contractor who has been put to unexpected expense because of inaccurate quantities or drawings or impracticable plans cannot usually recover the expense by bringing an action for breach of an implied warranty that the plans, drawings or bills of quantities are accurate or practicable. No such warranties are implied merely from the fact that these documents are submitted to the contractor for tender, nor even from their attachment to the contract as a schedule.

The Liaison Committee (2006) recommend that projects in excess €500,000, at 2006 rates, should be awarded on the basis of a bill of quantities. Private sector projects below this threshold are typically awarded on the basis of the RIAI 'blue' form of contract. Public sector GCCC 'traditional' contracts, on the other hand, are designed to be awarded

for projects whose value may be in excess of €5 million. Clearly, contractors are assuming considerable risk on substantial public sector projects where the risk for incorrect quantities has been transferred to them.

Contracts with Quantities.

Substantial projects are typically awarded on the basis of the contract sum being calculated from a fully priced bill of quantities (BQ). Under this arrangement the BQ is a contract document which '*fully describe[s] and accurately represent[s] the quantity and quality of work to be carried out.*' (Society of Chartered Surveyors Ireland, 2009) The employer carries the quantities risk, and incorrect quantities and/or descriptions which do not fully describe the work are corrected and treated as a variation. The final account is calculated by adjusting the contract for the varied work, the work is not remeasured.

Occasionally contracts may be awarded on the basis of bills of approximate quantities. These are most often used where there is not enough time to produce fully detailed designs to allow an accurate bill of quantities to be prepared. In these situations the BQ forms a schedule of rates and the work is measured when the design has been completed or when the work has been carried out on site. The RICS (2010) advise that it is important to jointly agree the measurements as the work progresses on such projects.

One of the advantages of having a priced BQ is that there is a strong basis on which to value varied work. The likelihood of having agreed rates for similar work when valuing varied work is typically much greater than with contract sum analyses provided under without quantities arrangements. With approximate bills of quantities, however, it may be necessary to adjust the rates where there is a significant divergence between the billed quantities and the completed work. (RICS, 2010)

Design and Build Contracts

This is where the contractor provides the design and construction under one contract. Under this arrangement the client prepares a set of employer's requirements which form

the brief for the contractor's proposals. This is a lump sum contract where the contractor completes the design, based on the employer's requirements, in return for the contract sum which is not adjusted except for changes in these requirements.

Under this arrangement the contractor carries the quantities risk involved in completing and constructing a design to meet the employer's and statutory requirements. The employer does not provide any quantities and consequently there is a limited amount of pricing detail from which to value variations other than the Contract Sum Analysis. (RICS, 2010) Murdoch and Hughes (2008) comment that design and build contracts '*usually lack the detailed contractual machinery ... for valuing variations and ... as a lump sum contract for an integrated package, variations to the specification are awkward and best avoided.*' The RICS (2010) advise employers to ensure that pricing information should be of an appropriate level of detail to value variations.

A Promise Express or Implied to Pay for the Work

The fact that a contractor carries out extra work does not automatically entitle him to demand extra payment. The contractor must show an express or implied contract to pay for variations. This is done either by proving that the work was properly ordered under a provision of the original contract entitling him to payment, or that there is a fresh contract to pay for the works. (Furst and Ramsey, 2001)

As noted above, most building contracts contain express provisions regarding the ordering of variations. If a promise is made to pay for extra works, that promise may be enforceable as a separate contract whether or not the extras are claimable under the contract. However, this will not avail the contractor if the "extras" are in fact no more than he was bound to do under the building contract, since the promise is then unsupported by consideration.

A number of situations arise which call for comment

Work Done without Request

Unless instructed to do so, if a contractor uses better materials or does more work this does not entitle him/her to extra payment. Permission to do work different from that contracted for must also be distinguished from an instruction to vary the work. However an employer may become liable for extra payment where he '*consents to the execution of different work*' which '*he knows or must be taken to know will cost more*'. In emergency situations, likewise, a contractor may recover costs incurred in protecting the employer's property. (Furst and Ramsey, 2001)

The Agent was Authorised to Order the Work

Furst and Ramsey (2001) explain that, in the absence of a variations clause, an architect has no implied power to vary the terms of the contract, or to vary the contract works. They note, however, that usually the building contracts will contain express term empowering the architect to order variations. They add that if a contractor carries out extra work under the authority of the architect he/she must show: (a) that the architect had an authority to order extra work, and (b) that the particular work for which he/she is claiming was properly ordered within the scope of that authority.

The Architect Must have the Authority to Issue the Instruction.

Keane (2001) explains that an architect is the agent of an employer and has the authority '*to act on his own discretion where the contract is specific about his powers and so bind the employer.*' He comments that an architect has no authority to bind the employer to decisions, which '*exceed his contractual power or which would commit the Employer to expense not originally contemplated or authorised by the Employer*'. He adds that 'normal' instructions, i.e. usual practice and custom, - are binding. The architect must decide whether an instruction is a reasonable one to make. He suggests that an architect would usually be empowered to instruct a variation costing €1,000 on a contract with a value of one million pounds. However, if the extra works amounted to €100,000 this would probably need to be authorised by the employer. He adds that whilst an architect

may be authorised to vary the works, he/she has no authority to alter the contract, and *'only by agreement between the Employer and the Contractor can the terms and the conditions of the contract itself be varied.'*

Murdoch and Hughes (2008) view this limitation in a similar manner. They comment that variation clauses do not entitle the employer or architect to instruct large scale and significant changes to the nature of the works that *'go to the root of the contract.'* They suggest that if a contract to build eight houses was changed to build to twelve houses that this change would possibly go to the root of the contract. However, if the contract was for 1008 houses, then changing this number to 1012 would probably be viewed a minor change in quantity, and allowed under the contract. They comment that on a contract to build a swimming pool, a variation changing it to a house would clearly be beyond the scope of the contract.

The Variation was Properly Ordered within the Scope of that Authority

Instructions must be within the scope of the contract (*intra vires*). Ramus, Birchall and Griffiths (2006) explain that an architect *'may only issue an instruction where the contract conditions expressly allow him to do so'*. If a contractor considers that an architect has issued an invalid instruction he may ask the architect to identify the specific contract condition that authorises the architect to issue the instruction. If the contractor disagrees with the response he may refer the issue to conciliation/adjudication and ultimately arbitration.

The RIAI 'yellow' and 'blue' forms state that *no variation ... shall vitiate this contract*. Murdoch and Hughes (2008) comment that this is *'a somewhat misleading statement, which adds nothing to the general legal position'*. *Permissible variations are not unlimited in scope, ... Extensive changes that alter the work beyond anything in the documents are excluded by the contractual definition, ... [and] beyond the scope of the variations clause, despite the text asserting that it would not.'*

The case of *Blue Circle v. Holland Dredging* illustrates the distinction between a

variation and work which is beyond the scope of the contract.

‘The parties entered into a contract under which the defendants were to dredge a channel that served the claimants' docks in Larne Lough. The dredged material was to be deposited in areas of the Lough to be notified by the local authority. When the claimants instructed the defendants instead to use the dredged material so as to construct an artificial island, it was held that this could not be regarded as a variation. It was beyond the scope of the original contract altogether, and thus had to form a separate contract. (Murdoch and Hughes, 2008)

It was stated in the *Blue Circle* case that a variation is something, which bears some relationship to the work of which it is variation. If the work could not have been in contemplation of the parties at the time they made their contract, then it must fall outside the scope of the variation clause.

Murdoch and Hughes (2008) report the case of *McAlpine Humberoak Ltd v McDermott International Inc* which shows the difficulties in deciding what constitutes extensive change.

The claimants entered into a sub-contract for the construction of part of the weather deck of a North Sea drilling platform. The documents on which the claimants tendered included 22 engineers' drawings. However, when work began, a stream of design changes transformed the contract into one based on 161 drawings. The trial judge ruled that these changes were so significant as to amount to a new contract, but the Court of Appeal held that they could all be accommodated within the contractual variations clause.

Furst and Ramsey (2001) note that it is always possible for a contract to include a clause that fixes express limits on the amount of variations. This approach has been adopted on the GCCC public sector works contracts. Schedule 1 Section A attached to these contracts sets out limitations on an employer's representative's authority to perform functions and powers under the contract with regard to *inter alia*:

- The maximum adjustment to the contract sum for a single change order unless approved by the employer and
- the maximum cumulative value of adjustments to the contract sum for change

orders in any 3 month unless approved by the employer. (Department of Finance, 2007)

Furst and Ramsey (2001) explain that when an architect issues instructions beyond their powers under the contract this does not:

“saddle the employer with liability, The architect is not the employer’s agent in that respect. He has no authority to vary the contract. Confronted with such acts, the parties may either acquiesce, in which case the contract may be *pro tanto* varied and the acts cannot be complained of, or a party may protest and ignore them. But he cannot saddle the employer with responsibility for them.”

They add that if work outside the contract is ordered to the knowledge of the employer, the contractor will normally be able to recover a reasonable price for such work on a fresh contract.

A variation may not include the nomination of a sub-contractor for measured work already priced by the contractor. The common law position provides specifically that none of the contractor's work can be taken away and given to others during the contract. (Murdoch and Hughes, 2008) Keane (2001) states that it is generally accepted that architects do not have the authority to order variations after the issue of the certificate of practical completion. Instructions must also be legal, illegal variations are void and cannot be enforced by law.

Fulfilling a Condition Precedent to Payment.

Most building contracts provide that a written order is a necessary requirement ‘*condition precedent*’ for the payment for extras, and that no extras will be paid for unless they comply with the procedures set out in the contract. The RIAI form of contract for example requires variations to be in writing. This provisions seeks to prevent unauthorised or extravagant claims for extras.

Keane (2001) comments that nothing causes more trouble during the final stages of a contract than alleged or unconfirmed variations instructed ‘*several months or even years*’

previously. He believes that there is no clear legal precedent regarding a contractor's entitlement to the reimbursement for unconfirmed variations where the contract stipulates that these should have been confirmed in writing. He refers to two conflicting judgements:

In Donovan v South Dublin, Guardians [1905] 5 NIJR 106 it was held that extras, which had not been ordered in writing, had to be paid because they had been certified, but the position had they not been certified was not discussed. In *Quinn v Stranorlar RDC* [1907] 41 LTR 290, extras had not been confirmed in writing, but it was held that payment could be withheld as the contract provided for extra works to be ordered in writing, and countersigned by the chairman of the Council.

He concludes that, in general, a written order is required only where the contracts words make this a condition precedent to payment.

SECTION B - VARIATION PROCEDURE UNDER THE PRINCIPLE IRISH FORMS OF CONTRACT.

The RIAI Standard Form of Contract

The RIAI contract is published in two editions. The 'with quantities' commonly known as the 'yellow' form is used on substantial projects which are over €500,000 at 2006 prices (Liaison Committee, 2006) This form is used where a bill of quantities is provided to contractors. The 'without quantities,' known as the 'blue' form is used on smaller projects based drawings and specifications. The contractor measures the quantities when using this form. The wording of both forms is almost identical, the chief difference being the inclusion of the word 'not' in the statement on the cover of the form. I.e. that quantities do *not* form part of the contract.

Clause 2 Scope of the Contract

The main powers conferred upon the architect by the RIAI standard forms of contract are outlined in the first part of Clause 2 (Scope of Contract) is reproduced in Box 1 below: This clause requires the contractor to complete the works in accordance with the contract

documents to the satisfaction of the architect. The contractor must also comply with architects' instructions regarding: modifying the design, quality or quantity of the works; correcting discrepancies between the contract documents; removing materials from site, opening up covered work, condemning work and having it redone, postponing work, dismissing people for incompetence or misconduct, remedying defects, and any other proper matters.

The Contractor shall carry out and complete the Works in accordance with the Contract Documents and with the directions and to the reasonable satisfaction of the Architect who may in his absolute discretion and from time to time issue further drawings, details and/or written or oral instructions (hereinafter referred to as Architect's Instructions in regard to:-

- (a) the modification of the design, quality or quantity of the Works or the addition, omission or substitution of any work (hereinafter referred to as variations);
- (b) any discrepancy in or between any of the Contract documents;
- (c) the removal from the site of any materials or goods brought thereon by the Contractor and the substitution of any other materials or good therefore
- (d) the opening up for inspection of any work which has been covered up
- (e) the removal and/or re-execution of any works which in his opinion are not in accordance with the Contract
- (f) the postponement of any work to be executed under the provisions of this Contract
- (g) the dismissal from the Works of any person employed thereupon who may in the opinion of the Architect be incompetent or guilty of misconduct
- (h) the amending and making good of any defects under Clause 31 of these Conditions
- (i) any other matters appertaining to the proper execution of this Contract

The Contractor shall forthwith comply with and duly execute any work comprised in such Architect's Instructions.

Box 1 – RIAI Standard Form of Building Contract Clause 2 (Part) -Scope of Contract

Clause 2 (a) of contains the basic definition of a variation as '*the modification of the design, quality or quantity of the Works or the addition, omission or substitution of any work*'. Clause 2 (i) also empowers the architect to issue instructions regarding '*any other matters appertaining to the proper execution of this Contract*'. These powers appear very wide at first glance, particularly when read in conjunction with Clause 13 which states

that *'no variation instruction will vitiate (invalidate) the contract.'* Keane (2001) has described clause 2(a) as the architect's 'catch all' powers which enables him to change the works without referring every single variation to the employer for approval. However, the previous discussion has identified that the architect's power to issue instructions is limited and that variations must be of the kind that would have contemplated by the employer and contractor.

While all variations derive from instructions, not all instructions result in variations. For example, the matters referred to in sub-clauses 2c-i would typically not involve variations. Clause 2(b) *any discrepancy in or between any of the Contract Documents*, however, would give rise to a variation if work was under-measured or mistakenly left out of a bill of quantities. Instructions which give rise to variations are processed under Clause 13 of the contract.

Instructions Given by Employers, Consultants and Site Personnel

Keane (2001) states that *'only the Architect can order a variation.'* An employer is not entitled to order variations, and the contractor may refuse to carry out an employer's instruction. He stresses the importance of the architect's exclusive right to order variations or issue instructions, adding that this power should only be delegated to site architects, clerks of works, other consultants etc. in unusual situations, and only where the employer is aware of this delegation. It is advisable, therefore, that the consultant's drawings are issued through the architect.

Clause 13. Ascertainment of Prices for Variations

Clause 13 deals with the procedures for dealing with variations and their effect on the contract sum. The first paragraph of the Clause sets out the procedure for ensuring that variations are properly recorded. It is essential for the architect to record all variations, and to ensure that any oral instructions are incorporated into the schedule of variations. (Keane 2001)

Variations must be in writing. Oral instructions or directions which vary the work must be confirmed in writing to be valid. Architects' instructions are traditionally issued on standard forms, but occasionally may be in the form of letters, drawings and minutes of meetings signed by the architect. The procedure for confirming oral instructions is as follows:

- Oral instructions are to be confirmed by the contractor in writing to the architect within 5 working days.
- If the architect dissents from the confirmation of the verbal instruction, this must be done within 5 further working days.
- Otherwise the oral instruction will be deemed to be given in writing and are therefore valid.

The QS has no authority to recommend unconfirmed instructions in certificate recommendations to the architect. Ramus et al (2006) note that where a contractor carries out any variation involving them in additional expense which has not been the subject of a written architect's instruction, that they run the risk of being unable to recover the extra costs. Verbal or site instructions may, however, be sanctioned by the architect up to the issue of the Final Certificate.

The architect may also sanction variations introduced by the contractor. The contractor normally has no authority to vary anything. For example, the contractor cannot substitute higher quality work or materials than those specified. A contractor who does vary anything can be instructed to remove it (RIAI - Clause 8). This power for the architect to sanction an unauthorized variation by the contractor is thus an important one, since it allows the architect easily to pick up and deal with minor items which are varied by the contractor, or which are directed by the clerk of works and not confirmed by the architect. (Murdoch and Hughes, 2008)

Prompt Valuation

Keane (2001) notes that variations should be valued without undue delay. He adds that the contractor is entitled to prompt payment for properly authorised variations and that these payments should be included in the next interim certificate. He views as 'sensible' the provision allowing the contractor to be present and take notes when the QS is valuing the variation, claiming that it should reduce later disputes over the value of the variation. Murdoch and Hughes, (2008) note that a variation instruction is not required to 'firm up' approximate quantities as these are calculated on the actual quantity of work.

The GCCC Construction Contracts

The GCCC public works contracts were introduced in 2007 to replace the previous GDLA (Government Departments and Local Authorities) form of contract on public sector building projects. One of the Department of Finance's primary objectives in introducing these contracts is to '*move towards greater cost certainty at contract award stage and ensure as far as practicable that the accepted tender prices and the final cost are the same.*' (Department of Finance 2007). This objective is to be achieved through the employer providing comprehensive tender information including site investigation and archaeological reports to allow a contractor to price the detailed design and associated contractual risks. A major priority is to reduce the incidence of variations, or 'change orders', as they are referred to in these contracts.

Issuing Instructions

Section 4 of the GCCC contracts concerns project management issues. Much of this section deals with the role of powers of the employer's representative. Howley and Lang (2008) note that the employer's representative may issue instructions in the form of directions and change orders. They add that the employer's representative may change the works requirements, impose, change, or remove restrictions on the way work is done and may issue change orders up to the issue of the Substantial Completion Certificate. Instructions must be in writing except when there is imminent danger to safety or health or of damage to property, where oral instructions may become necessary.

The administrative procedures for processing change orders, have been tightened up from those in the GDLA form, to ensure that the cost and time implications associated with the variation are established promptly. Change orders are listed among various items classified as ‘compensation events’ which may entitle the contractor to extra time to complete the works and/or additional payment for the works. There is a greater emphasis in the GCCC contracts on agreeing the cost of varied works prior to their construction. This is discussed below.

SECTION C – VALUING CHANGE

Despite the existence of numerous forms of contract, the RICS (2010) notes that there are many consistent principles and that there is little substantial difference in the provisions for valuing variations among the various standard form of contract. Nevertheless they advise practitioners to check the precise wording of the contract to establish the actual agreement regarding any change to the works. They identify the following common valuation principles.-

- ‘Additions to, and omissions from, contracted works are valued by quantifying the change of scope and using rates and/or prices for identical or similar work as the basis of valuation.
- Effects on preliminaries, risk allowances, design fees, overheads and profit etc. should be considered as appropriate for the circumstances.
- When work is not identical or similar, rates and/or prices from other work in the contract are used as the basis to form a new rate or price with suitable adjustments to reflect the difference. The difference could be due to changes in conditions, character, quantity, or other reasons provided for by the contract.
- When it is not possible to produce a new rate or price on this basis, a fair rate or price is calculated, usually by the employing party, to reflect the changed factors.

- As a last resort, when a ‘fair’ rate or price cannot be identified due to special circumstances, work is valued on the basis of the time taken and resources used to complete it. This may be a ‘daywork’ valuation.’

These principles are considered further in relation to the principle Irish contracts below.

The RIAI Form of Contract

Box 2 sets out the valuation rules extracted from Clause 13 of the RIAI contracts.

...in respect of such variations and the valuation thereof unless previously or otherwise agreed shall be made in accordance with the following rules:

(a) The rates in the Bill of Quantities referred to in section (i) of sub-clause 3(a) or the Schedule of Rates mentioned in section (ii) of sub-clause 3(a) of these Conditions whichever applies to this Contract shall determine the value of work carried out as a variation where such work is of a character similar to that to which the aforesaid rates apply and is carried out under similar conditions. The aforesaid rates shall also determine the value of any work omitted provided that if in the opinion of the Architect such an omission varies the conditions under which any remaining items of work are carried out such remaining items shall also be deemed to be varied and shall be valued under rule (b) hereof.

(b) The said rates where variations are not of a similar character or executed under similar conditions as aforesaid shall be the basis of prices for the same so far as may be reasonable; failing which a fair valuation thereof shall be made based upon rates for similar work in the locality current at the time the variations are executed.

(c) Where in the opinion of the Architect variations cannot properly be measured and valued in the manner set out in rule (a) or rule (b) the Contractor shall be allowed daywork prices:

i) at the rates in any in the Bill of Quantities referred to in Section (i) of sub-clause 3(a) or in the Schedule of Rates referred to in Section (ii) of sub-clause 3(b) as the case may be; or

ii) where no such rates have been inserted at the rates in the Schedule of Daywork Charges agreed between the Society of Chartered Surveyors in the Republic of Ireland and the Construction Industry Federation and approved by the Royal Institute of the Architects of Ireland and current at the time the work is carried out; or

iii) where the work has been executed by a member of a sub-contracting trade at the rates agreed between the said Society and the appropriate body representing the sub-contracting trade or, where no such rates have been agreed, at the rates set out in Section (i) of this rule

Box 2 RIAI Valuation Rules – Clause 13 (part)

These rules echo the principles set out by the RICS above, i.e. by agreement, by bill rates if the work is of similar character and executed under similar conditions, based on bill rates if appropriate the work is not similar or is not executed in similar conditions, fair

valuation based on market rates if there are no appropriate bill rates, and daywork as tendered or based on SCS/CIF agreements as a last resort. These rules cover any work executed as a result of a variation, work sanctioned as if it were a variation and work done as a consequence of an instruction on the expenditure of a provisional sum. The RICS (2010) note that these rules reflect a '*sliding scale of options based on how closely the varied work resembles work that is part of the contract.*' These are now considered in greater detail

By Agreement.

The most straightforward way of valuing variations is to agree a credit or addition to the contract sum before the work is carried out. The contractor and employer can negotiate a satisfactory sum, on the basis that parties to a contract are free to re-negotiate the terms at any time. The RICS (2010) note that this approach reflects common industry practice where the parties exchange information and calculations relating to the value of a variation which, when agreed, forms part of a rolling final account.

The pre-agreement of variations is viewed as an important aspect of effective project cost control. Ashworth, Hogg and Higgs (2013) advise that '*If the cost control is to be effective then any changes that might affect the contract should be costed prior to instructions being issued to the contractor.*' They add however that while pre-costed variations provide cost certainty, that they tend to be more expensive than those valued by 'traditional' means. This is due to factors such as: absence of competition, cautious valuation of possible prolongation and disruption risks, time pressure in formulating the valuation, and the inclusion of a provision for abortive work should the proposal not be accepted.

At Bill Rates

Rule 13 (a) provides that where the varied work is of a *similar character* and is carried out under *similar conditions*, that the valuation should be based on contract rates. Keane (2001) comments that *The Agreed Rules of Measurement* make it easier to determine

whether the work is of a similar character or is executed under similar conditions. He adds that ‘similar’ does not mean ‘identical’ and that it is a matter of judgment as to whether or not the variation can be so described. If the contractor disagrees with the QS’s or architect’s decision he/she can seek conciliation on the matter.

Abrahamson (1979) observes that ‘*The basic consideration is that the contractor has agreed to do all work within the contract – original and varied – on the basis of his bill rates.*’ Potts (2008) adds that the logic in following contract rates is that contract is founded on that ‘bargain’, and since the contract envisages variations it is fair to both sides to use these rates. He adds that these form the starting point for valuing variations, irrespective of whether they appear too high, too low or unreasonable for some other reason.

The RICS (2010) commenting on the JCT ‘with quantities’ contract note that variation work should be quantified using the same rules of measurement as the BQ and that an allowance may need to be made where preliminary items are effected, or for any percentage or lump sum adjustments in the contract bills. Murdoch and Hughes (2008) explain that these adjustments may be necessary, for example, where a contractor allows for overheads and profit as a lump sum addition or reduction in the general summary of the bill. They add that certain preliminaries may be needed in a different way if items are varied. For example, changing the way in which brickwork is to be finished may involve keeping scaffolding on site for an extra period.

Keane (2001) notes that the second part of the rule provides that if an omission ‘*in the opinion of the Architect*’ affects the remaining work to be carried out, then the second rule of measurement in the clause shall be used for valuing the remaining works.

Based on Bill Rates

Where work is not of a similar character or executed under similar conditions the valuation of the variation should be based on bill rates in so far as this is reasonable. The bill rates should include a fair adjustment for the difference in character, conditions

and/or quantity. The application of this rule is occasionally referred to as ‘star rates’ or ‘enhanced rates’. Potts (2008) comments that it was common practice to attempt to base a valuation on the perceived ‘*rate which the contractor would have inserted against that item that item had it been included at the time of tender.*’

Adjusting bill rates as the basis for valuing varied work can be problematic as the contractor may employ various pricing techniques to achieve tactical objectives during the contract. For example, preliminaries costs may be distributed, to a greater or lesser extent, over the individual work descriptions, works carried out early in the contract may be ‘front-loaded’, or may be under or overvalued as a result of a discrepancy. Laryea (2011) for example, reports that contractors are often reluctant to raise queries regarding flawed documentation at tender stage, viewing this as an opportunity to exploit any deficiencies during the post contract stage. Potts (2008) seeks to reduce the scope for disagreement over rates and recommends that employer’s Qs should obtain a breakdown of the six most significant rates prior to entering into contract. It is suggested that this may also be helpful in the process of reporting on tenders.

The RICS (2010) has issued guidance on various aspects of ‘character’, ‘conditions’ and ‘quantity’.

Character

The character of an item is what distinguishes it from other work. For example concrete forming columns or beams is more expensive to place than similar concrete poured in ground floor slabs. Likewise reinforced concrete takes longer to compact than plain in-situ concrete. Joinery is similar. A carpenter may take longer to fix a hardwood door than a softwood door and the material will cost more. Both operations may be carried out in similar conditions but the character means that the rates are not appropriate and need to be adjusted. (RICS, 2010)

The RICS (2010) set out a checklist of various factors which may relate to change in character:

- ‘change of material – i.e. type of timber (hardwood, softwood, sourcing of timber etc.) or choice of brick or block (supply price, density/weight), change of mortar or change of concrete finish (brushed, power floated or tamped).
- change of method of fixing to other work – i.e. a skirting is plugged and screwed as opposed to pelleted and glued, or a conduit being chased into a wall as opposed to being surface fixed.
- change of background of other work – i.e. emulsion paint is applied to new render in lieu of plaster.’”

Conditions

The stage at which work is programmed may affect its cost. For example, carrying out groundworks in winter instead of summer, or night working instead of day working will reduce expected productivity. Likewise constraints on access, such as working at height, or productivity impacts such as completing cladding work once scaffolding has been struck will increase the cost of the work. The following list indicates examples of change of conditions. (RICS, 2010)

- ‘work carried out at varied depth – e.g. deeper excavation causing lower productivity for removal of arisings;
- seasonal variation for work compared with agreed programme – e.g. increased winter working;
- working in completed areas – requirements for protection;
- working with varied access constraints – e.g. use of staircase in lieu of hoisting, access via completed areas, increased number of trades working in an area;
- changed material distribution strategy – e.g. tower crane removed or utilization changed;

- attendances – ability to share cost specific attendant items across other operations may have changed based on timing;
- reduction or increased quantities of work may affect outputs and ratios of attendant costs;
- plant utilisation allowances;
- height at which the work is carried out, and
- size of components relative to weight changes, e.g. steelwork.”

Quantity

The contractor’s tender reflects the scale of the works set out in the contract documents. The prices are based on factors such as procurement volume discounts, labour gang efficiencies, and supervision ratios. If these quantities change then these rates may need to be revisited and adjusted. There should not automatically be a rate adjustment if the quantity of work changes and these, or other factors need to be considered relative to the other particular operation in question (RICS, 2010). Changes in quantity alone must be significant in order to justify the adoption of star rates.

Preliminaries

It may be necessary to review these resources for each variation to assess if allowances are to be made to cater for the varied work’s impact on the contractor’s preliminaries. Adjustments are not automatic and should only be made where appropriate. There should be evidence of additional resources being used, such as prolonged use of staff, additional staff, additional or prolonged attendant labour, plant, access equipment etc. The contractor should be prepared to demonstrate where the costs are fixed or time related. Increased preliminaries, due to the cumulative effect of multiple changes, is most likely to be dealt with as loss and expense. (RICS, 2010)

The following list indicates matters which may impact on preliminaries. In many instances preliminaries may not be affected by individual variations. The RICS advise that care is needed to ensure that preliminary items are not included in the included in the rates and that *'not all items will be applicable to every situation:-'*

- access equipment, including extended hire – craneage, scaffolding, hoisting, mobile towers etc.
- temporary protection – hoardings, fans, walkways etc.
- insurances (sometimes turnover related charges);
- staffing;
- attendant labour – access control, welfare, loading and distribution etc.
- hired plant and small tools;
- temporary power and water – consumption charges;
- temporary electrics changes to the installation;
- waste removal – labour, skips, disposal etc.
- safety;
- supervision – non working labour and staff;
- document control;
- out of hours working;
- whether work is the subject of a defined provisional sum, in which case due allowance for preliminaries are deemed to have been made by the contractor in the contract sum;

- possible duplication with additional preliminaries resources that have already been valued under variations for adjacent work or adjacent work carried out on a daywork basis;
- whether the cost is a fixed allowance price or time related;
- ‘head office’ overheads and profit – the case law on this topic is constantly evolving, so it would be prudent to examine the situation before proceeding.’ (2010 pp.19-20)

Fair Valuation

If it is unreasonable to adjust bill rates or there are no appropriate bill rates, a fair valuation based on rates reflecting similar work in the locality shall apply. This approach is occasionally referred to as ‘market rates’. The RICS (2010) comment that the requirements of this form of valuation have not been definitively defined. They advise that a fair valuation should take account of the contractors cost of carrying out the works and include an allowance for overheads and profit. Ashworth et al. (2013) suggest that on occasion the valuation of such work may involve returning to first principles to derive a rate, but where the work is of a common nature it should be possible for the QS to negotiate an appropriate rate. Knowles (2000) comments that ‘*courts, ... would invariably take a subjective view and hold that the rate must be fair in all the circumstances which occurred on the project and which were relevant to the calculation of the rate*’.

Murdoch and Hughes (2008) comment that it is not easy for a contractor to invoke this clause after the work has been done. They advise contractors to confirm with the architect before undertaking the work, that it should be valued under this rule. If this is not done, the architect may claim that the contractor’s lack of protest shows that the work can be based on rates.

Dayworks

Where the architect is of the opinion that a valuation based on bill rates or fair rates is

inappropriate the valuation of the variations may be priced on a daywork basis.

Keane (2001) explains that dayworks is a method of pricing based on paying the labour materials and plant costs incurred in carrying out the work. The RIAI contract provides for pricing daywork as a percentage addition on the prime cost of the labour, material and plant on a project. These are set out in the *Schedule of Daywork Charges* (SCSI 2012a) and *Percentage Additions to Labour Costs* (SCSI 2012b) published by the *Liaison Committee* of the SCSI. These define the various terms used such as ‘prime cost’ and provide for percentages which may be added to the original costs to cover profit, overheads, etc. Keane adds that daywork accounts are not popular with architects because of the difficulty of verifying the correct amounts, particularly in relation to hours worked. There is also little incentive for the contractor to be efficient when carrying out dayworks. Bills of quantities occasionally include a dayworks section in lieu of a contingency, allowing contractors to tender their daywork rates – this is discussed in greater detail under the GCCC contract below.

The RICS (2010) suggest that dayworks may be appropriate for opening up works for inspection, testing operations, repair of damage etc. They advise that the approach should be restricted to short duration, limited scope activities. They recommend that dayworks should only be used as a last resort and urge that *‘care should be taken that a daywork valuation is not covering the payment of resources that are already being recovered via the valuation of other variations or loss and expense.’*

Contractors often argue that dayworks represent a fair means of valuing a variation, especially where the variation results in working out of sequence, bringing subcontractors back to site and/or purchasing small orders at higher prices. It is probably true that most variations result in out of sequence work, and while there may be contract rates for similar work these are unlikely to reflect the actual cost to the contractor in these circumstances.

Murdoch and Hughes (2008) point out that a decision as to whether or not this method

should be adopted is for the architect advised by the quantity surveyor to make. It is not for the contractor to insist on valuation according to dayworks. They add that the clause lays down details as to how the dayworks items are to be calculated, both for the main contractor and for specialists. There are strict procedures requiring the contractor to produce vouchers - daywork sheets - specifying the time spent on the work, the names of the workers employed on it, and details of the plant and materials used. All of these vouchers should be given to the architect promptly after the work is executed. Where a clerk of works is employed he/she would usually agree these with the contractor and should then sign and submit them to the architect.

Omissions

Clause 14 of the RIAI contract deals with omissions. Omissions are generally valued at contract rates. However, if the omission is of such a scale that it affects the remaining work to be carried out then a fair valuation shall be made for valuing the remaining works.

Sub-clause 14 (a) provides that the contractor may be compensated for loss in the event of extensive omissions. Keane (2001) comments that a contractor may have ordered materials, or entered into employment contracts, or refused other work in anticipation of carrying out the works that are omitted. He adds that such omitted work should be recompensed on a quantum meruit basis. The contractor will have to provide evidence of the expense incurred and the quantity surveyor will have to advise on the reasonableness of the sums claimed. Keane also notes that the employer is not entitled to omit work, and then have it performed by another contractor, or by a sub-contractor.

Sub-clause 14 (b) is designed to compensate the contractor for the loss of profit and for under-productive use of overheads as a result of reduced workload. In effect this clause means that contractor is entitled to 10% if the measured work content of the overall contract reduces by more than 10%. It does not entitle the Contractor to claim 10% if certain elements or parts of the works are significantly reduced, i.e by more than 10%, if

the overall measured amount is not reduced by the 10%. Any provision in the contract that clearly anticipated a possible credit such as P.C. Sums, provisional sums, provisional work, contingency sums or any deductions under the wage and price variation clause are specifically excluded from the requirement to pay a 10% allowance.

Change of Conditions for Other Work

In certain unusual situations a variation may bring about a substantial change in the conditions under which other work is executed. In these situations the other work is treated as if it had, itself, been varied. The RICS (2010) provide the following examples:- a change in ceiling design may have a serious effect on the mechanical and electrical services installation and commissioning, or some additional external drainage work may impact on the method of supporting scaffolding for cladding works. Where a substantial change of conditions has occurred then those effects on other work can be valued in accordance with the valuation rules.

Provisional Sums

A provisional sum is a financial allowance included within a contract sum to cover “*work or costs which cannot be entirely foreseen, defined or detailed at the time the tendering documents are issued.*” (SCSI, 2011) These sums typically cover matters such as groundworks, builders work in connection with services, remedial works and contingencies, whose extent could not be accurately established in advance of opening up or site inspection. Provisional sums also cover work which is not sufficiently designed to allow the contractor to submit a firm price at tender stage.

Clause 18 of the RIAI contract provides that such sums are spent in whole or in part at the disposal of the architect. If the sum is spent on nominated subcontract work or on nominated suppliers, it is treated as a P.C. Sum. The RICS (2010) explain that such work will be valued either on the basis of a contractor’s quotation, or in accordance with the valuation rules, and the contract sum will be adjusted accordingly. A provisional sum for undefined work may entitle the contractor to be paid additional preliminaries, assessed in

accordance with the valuation rules, and to an extension of time if the provisional sum work causes a delay to completion.

Loss and expense

One of the main difficulties associated with valuing variations is the means of dealing with their indirect effects on the contractor's programme and organisation. These effects are often claimed as extras under a separate heading of delay and disruption. While this is normally regarded as a separate issue, it is considered unrealistic to this topic in isolation from loss and expense, and it is felt appropriate to comment on some of the indirect issues which may arise as a result of varying the work.

It is generally straightforward enough to assess the direct cost and time effects of individual variations. It is, however, much more difficult to assess their indirect or consequential effects. As the number of variation orders grows so do the consequential effects increase, often at a much faster rate.

Contractors are often perceived to view variations as an opportunity of boosting margins and recovering losses. However it may be difficult for a contractor to demonstrate the actual cost of carrying out varied work. Even simple specification changes may involve:-

- Abortive and/or additional design work including the knock-on effect on current construction drawings.
- Cancellation of, or modifications to, existing orders placed with suppliers, and the placing of new orders with consequent potential delays in delivery of material to site.
- Delay and/or rephasing of the manufacturing programme, reprogramming site operations or accelerating work into a shorter period, with consequential additional overtime costs and loss of productivity.
- Extending the contract period and the contractual ramifications.

These difficulties are compounded where there are numerous variations and the contractor's head office involvement becomes disproportionate to the value of the contract. In these circumstances the contractor will typically seek to recover for the additional time spent by head office personnel on the project, any prolongation costs associated with an extended contract period on site, and loss of productivity, disruption and overtime working due to changes in the programme.

According to the RICS (2010) loss and expense becomes payable to the contractor, on satisfactory demonstration of entitlement in accordance with the conditions, for direct loss and/or expense which has been incurred for which no reimbursement would be made under any other provision of the conditions of contract.

Clause 2 paragraph 4 of the RIAI contract provides for reimbursement of such loss.

If compliance with an Architect's Instruction will involve the Contractor in loss or expense beyond that provided for in or reasonably contemplated by this Contract the Contractor shall so inform the Architect; then, unless such instruction was issued by reason of some breach of this Contract by the Contractor the amount of such loss or expense shall be ascertained by the Architect and be added to the Contract Sum.

Keane (2001) comments that unforeseen events or factors often intervene in building work and that this paragraph allows for the extra payment which might be involved. This paragraph deals with situations which arise beyond the provisions of Clause 13. Such loss and expense must be unforeseen and the architect must judge whether the loss or expense could have been contemplated, and/or whether it was provided for under the contract. He adds that these types of claims can be difficult to resolve and recommends that the following steps be taken to ease that process.

- 'The claim should be made at the time the loss or expense is occasioned, and not at the final account stage.
- The claim should be specific, and not an all-embracing claim.
- The claim must relate to items of loss and expense that could not be claimed under

Clause 13.

- ‘Loss’ would relate normally to preliminaries, head office, overheads, on-costs and profit margins which the contractor would have assumed to be protected under the contract provisions, and ‘expense’ would relate to an unexpected item in performing a variation.’

Keane adds that the UK courts have established

that interest would be payable on a loss and expense claim if payment were delayed (FG Minter Ltd v Welsh TSO [1981] 13 BLR 1); that the phrase ‘loss and expense’ can be equated to damages at common law (Wright Ltd v PH&T (Holdings) Ltd [1968] 13 BLR 26); that an allowance can be included for office overheads (Tate & Lyle Food and Distribution Ltd v GLC [1982] 2 AC 509), and finally, that loss of profit would be a permissible item for loss and expense claims, but only if the Contractor could prove that he could have employed his resources profitably elsewhere (Peak Construction v McKinney Foundations [1971] 1 BLR 114).

The difficulty for contractors is to achieve a successful outcome. Potts (2008) notes that the employer’s QS may rigidly apply contract rates whereas the contractor will seek to enhance the rates to reflect the costs on site. The agreement of the account in these circumstances may involve protracted negotiations, and may become both costly, time consuming and fractious, thereby damaging business relationships. Potts refers to variations as a fertile source of litigation as evidenced in the *Building Law Reports*. He recommends that in complex cases negotiators must be prepared to adopt a give-and-take attitude to achieve a satisfactory outcome, arguing that there is ‘*seldom one correct solution.*’

The GCCC Form of Contract

Section 10.6. of the GCCC Form of Contract deals with adjustments to the contract sum, the section is set out in Box 3 below.

The valuation rules contained in the GCCC are broadly in line with those contained in the RIAI discussed above. The GCCC contracts, however, do not provide for provisional

sums or PC Sums. The main differences relating to variations between these forms are the emphasis on pre-costed variations and the approach to dealing with dayworks in the GCCC contracts.

Adjustments to the Contract Sum for a Compensation Event shall be as follows:

10.6.1. If the Compensation Event requires additional, substituted or omitted work, similar to work for which there are rates in the Pricing Document, to be executed under similar conditions, the determination shall use those rates.

10.6.2. If the Compensation Event requires additional, substituted or omitted work that is not similar to work for which there are rates in the Pricing Document, or is not to be executed under similar conditions, the determination shall be on the basis of the rates in the Pricing Document when that is reasonable.

10.6.3. If the adjustment cannot be determined under the above rules, the Employer's Representative shall make a fair valuation.

10.6.4. The Employer's Representative may direct that additional or substituted work required as a result of a Compensation Event be determined on the basis of the cost of performing the additional or substituted work, compared with the Contractor's cost without the Compensation Event, determined as follows:

(1) the number of hours worked or to be worked by each category of work person stated in the Schedule, part 2E, and engaged on the work to which the Compensation Event relates, on or off the Site, multiplied in each case by the tendered daily rate for that category stated in the Schedule, part 2E

(2) the cost of materials used in that work, taking into account discounts and excluding VAT, plus the percentage adjustment tendered by the Contractor and stated in the Schedule, part 2E

(3) the cost of plant reasonably used for that work, whether hired or owned by the Contractor, at the rates in the document listed in the Schedule, part 1K, plus or minus the percentage adjustment tendered by the Contractor and included in the Schedule, part 2E. If the document listed in the Schedule does not give a rate for a plant item, a market rental rate shall be used, plus or minus the percentage adjustment.

10.6.5. Adjustments for delay cost shall be in accordance with sub-clause 10.7.

Box 3 Adjustments to the Contract Sum under the GCCC Contracts

Contractor's Quotations

Section 10.4 of the contract empowers the employer's representative, when considering implementing a change order, to require the contractor to submit a detailed performance, cost and time proposal within 20 days. The employer's representative has a further 20 days to consider the proposal or seek additional information. If the employer agrees to the contractor's proposal, a formal change order will be issued and the works proposals, contract sum and time for completion will be adjusted accordingly. If the employer

rejects the contractors proposal, the change order may still be instructed and will be valued in accordance with the Section 10.6 valuation rules set out above.

This process is similar in many respects to the approach taken under the UK JCT contracts where they are referred to as ‘Schedule 2 Quotations’ The RICS (2010) explain that these arise when the architect requests the contractor to submit a quotation for carrying out the variation. Under the JCT contract, however, the contractor may object to this approach where, for example, full design information is not available, leaving the contractor unable to fully assess the financial and/or time risks involved in quoting a lump sum price. Likewise, inability to access the affected area or unknown ground conditions etc. may render this approach less than ideal.

Applying the RICS Guidance to the Irish context, the key issues for the inclusion and consideration in such a quotation would be:

- ‘sufficient information must be provided to the contractor to enable preparation of a quotation;
- prescriptive time periods exist for the preparation and acceptance of a quotation;
- the quotation must include the value of the varied work and the effects on any other work;
- supporting calculations should be submitted, with appropriate reference to the valuation rules;
- any requirements for use of the programme contingency or an extension of time;
- any amounts to be paid in lieu of loss and expense;
- method statements and resource requirements should be included if asked for by the instruction to provide the quotation.

Under the JCT contract a fair and reasonable amount in respect of the cost of preparing

the quotation should be included and is to be paid even if the quotation is not accepted. This provision is not present in the GCCC contract.

Ramus et al (2006) describe the process as ‘attractive’ as it eliminates the need for time consuming measurement and pricing. They repeat Ashworth et al’s (2013) warning that such quotations may lead to inflated prices due to lack of competition and haste to progress the work and avoid delay. Nevertheless they comment that provided that the QS makes an approximate estimate of the net extra cost and this is similar to the contractor’s quotation, then the quotation should be acceptable.

Potts (2008) comments that the advantage of this approach to the employer is that: *‘the final commitment, including disruption and extended time, is known prior to the instruction and the majority of risk is transferred to the contractor.’* He adds that contractors also benefit from this certainty, provided the quotation is adequate to cover the likely costs.

Dayworks

Dayworks, as noted above, are usually seen as the last resort in valuing varied work. Ramus et al (2006) explain that dayworks are a variety of the cost reimbursement arrangement, and typically result in higher costs to employers than would be the case with measure and value contracts. Potts (2008) comments that contracts are typically intended retain a competitive element, but contractors often argue that varied work is not similar to priced work and that dayworks should be applied. He reports UK Judge Bowsher in *Laserbore v Morrison Biggs Wall Ltd* (1993) concluding that the cost-plus basis for deriving a ‘fair’ valuation was *‘wrong in principle even though in some instances it might produce the right result.’* There is also a perception that the approach is open to abuse.

Nevertheless the GCCC contract retains the dayworks valuation option, but includes this as part of the competitive tendering process. Schedule 2E of the contract requires tendering firms to submit a schedule of hourly rates for craftspersons, general operatives

and apprentices. These rates include related costs such as PRSI, benefits, travelling time and country money. The contractor also tenders percentage additions to cover material supply and plant on-costs. In addition the contractor tenders a daily rate to evaluate delays. These rates and percentages may then be used to evaluate compensation events, including change orders.

During periods when work is scarce it is likely that contractors competing for work will pitch these rates at a low level in order to maximise their chances of submitting a successful tender. It may therefore be to the advantage of the contracting authority to value the work on the basis of these costs rather than the prices contained in the pricing document.

Summary

This review has examined the topic of variations in the context of the ‘traditionally’ procured building contracts in the Republic of Ireland. The study identified common sources of variations on building projects and set out the legal framework supporting the right to vary work. It established the nature of varied and/or extra work, and discussed the requirements for payment of such work. Variation procedures and valuation rules and methodologies under the RIAI and GCCC Forms of Contract were explained and the challenges and process of agreeing accounts were discussed.

Varied work should be valued as far as possible in accordance with bill rates, but these may need to be adjusted to account for changes in character and condition. Where no bill rates are available, or it would be inappropriate to adjust contract rates then the contractor is entitled to a fair valuation. This typically would be based on ‘market rates’ but in exceptional cases may be based on dayworks. If an instruction results in a consequential change to the conditions of any other work, then all that other work shall also be valued as if it were a variation itself.

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