SOCIETY OF CHARTERED SURVEYORS IRELAND

SCSI Professional Guidance

Valuing change

Guidance note

1st edition

RICS®

Valuing change

Guidance note

1st Edition

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Acknowledgements;

It is with great pleasure that I introduce to you the Valuing Change Guidance Note.

With the kind permission of RICS, this guidance note has been adapted for use in Ireland using the RICS Valuing Change (GN58/2010).

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SCSI/RICS professional guidance note

This is a guidance note. It provides advice to members of SCSI/RICS on aspects of the profession.

Where procedures are recommended for specific professional tasks, these are intended to embody 'best practice', that is, procedures which in the opinion of SCSI/RICS meet a high standard of professional competence.

Members are not required to follow the advice and recommendations contained in the guidance note. They should, however, note the following points.

When an allegation of professional negligence is made against a surveyor, the court is likely to take account of the contents of any relevant guidance notes published by SCSI/RICS in deciding whether or not the surveyor has acted with reasonable competence.

In the opinion of SCSI/RICS, a member conforming to the practices recommended in this guidance note should have at least a partial defence to an allegation of negligence by virtue of having followed those practices. However, members have the responsibility of deciding when it is appropriate to follow the guidance. If it is followed in an inappropriate case, the member will not be exonerated merely because the recommendations were found in an SCSI/RICS guidance note.

On the other hand, it does not follow that a member will be adjudged negligent if he or she has not followed the practices recommended in this guidance note. It is for each individual chartered surveyor to decide on the appropriate procedure to follow in any professional task. However, where members depart from the good practice recommended in this guidance note, they should do so only for good reason. In the event of litigation, the court may require them to explain why they decided not to adopt the recommended practice.

In addition, guidance notes are relevant to professional competence in that each surveyor should be up to date and should have informed him or herself of guidance notes within a reasonable time of their promulgation.

Document status defined

SCSI/RICS produces a range of professional guidance and standards documents. These have been defined in the table below. This document is a guidance note.

Document status defined

Type of document	Definition	Status
SCSI/RICS practice statement	Document that provides members with mandatory requirements of the Rules of Conduct for members	Mandatory
SCSI/RICS code of practice	Standard approved by SCSI that provides users with recommendations for accepted good practice as followed by conscientious surveyors	Mandatory or recommended good practice (will be confirmed in the document itself)
SCSI/RICS guidance note	Document that provides users with recommendations for accepted good practice as followed by competent and conscientious surveyors.	Recommended good practice
SCSI/RICS information paper	Practice based information that provides users with the latest information and/or research	Information and/or explanatory commentary

1. Introduction

This guidance note summarises what is meant by 'change' and how it is valued under RIAI, GCCC, NEC and FIDIC forms of contract. It does not seek to cover every form within these families, but covers rules and procedures from the most regularly used forms.

For the purposes of giving guidance, it is assumed that a valid change has occurred, and the document does not attempt to deal with demonstrating entitlement to a change.

Change is given specific definition within standard forms of contract, for example a Variation, Change of Employer's Requirements or a Compensation Event. Each of these terms is explained in the definition section of the relevant contract conditions. They will all have a common theme and be associated with 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).

Guidance is given for each of the main groups of contracts and the forms in most regular use within those groups, under the following headings which map to the Assessment of Professional Competence (APC):

- General Principles (Level 1: Knowing)
- Practical Application (Level 2: Doing)
- Practical Considerations (Level 3: Doing/Advising).

Minimum level 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.

General principles: 1 (Knowing)

Guidance is given within this section in respect of the main forms of contract currently in use. There is little difference between these forms and their predecessors, however, the reader is advised to check the precise wording if working with earlier versions or forms that are not specifically reviewed in this guidance note.

There are many consistent principles of valuing change across the range of contracts. Most forms of lump sum contract, i.e. a contract which is neither measured as the works proceed nor based on a cost reimbursable arrangement, have some common basic 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 for other work in the contract are used as a basis to form a new rate or price with suitable adjustments to reflect the difference. This 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 set out in more detail against each of the standard forms reviewed in this guidance note, and summarised in the table below.

Contract title	Generic Type	Basis of Quantification	Description of Change Variation
RIAI – (Blue) without quantities	Traditional	Lump sum	Variation
RIAI – (Yellow) with quantities	Traditional	Adjustable	Variation
PW-CF1 Public Works Contract for Building Works designed by the Employer	Traditional	Lump sum	Compensation event
PW-CF2 Public Works Contract for Building Works designed by the Contractor	Design and Build	Lump sum	Compensation event
PW-CF3 Public Works Contract for Civil Engineering Works designed by the Employer	Traditional	Lump sum	Compensation event
PW-CF4 Public Works Contract for Civil Engineering Works designed by the Contractor	Design and Build	Lump sum	Compensation event
PW-CF5 Public Works Contract for Minor Building and Civil Engineering works designed by the Employer	Traditional	Lump sum	Compensation event
PW-CF6 Short Public Works Contract for Public Building and Civil Engineering Works	Traditional	Lump sum	Compensation event

Contract title	Generic Type	Basis of Quantification	Description of Change Variation
PW-CF7 Public Works Investigation Contract	Traditional	Lump sum	Compensation event
PW-CF8 Public Works Short Investigation Contract	Traditional	Lump sum	Compensation event
NEC Option A - Priced Contract with Activity Schedule	Traditional / Design & Build	Lump sum	Compensation event
NEC Option B - Priced Contract with Bill of Quantities	Lump sum	Variation	Compensation event
NEC Option C - Target Contract with Activity Schedule	Traditional / Design & Build	Target cost	Compensation event
NEC Option D - Target Contract with Bill of Quantities	Traditional / Design & Build	Target cost	Compensation event
NEC Option E - Cost Reimbursable Contract	Traditional / Design & Build	Cost reimbursable	Compensation event
NEC Option F - Management Contract	Traditional / Design & Build	Cost reimbursable	Compensation event
FIDIC Conditions of Contract for Construction	Traditional	Lump sum	Variation
FIDIC Conditions of Contract for Plant and Design Build	Design & Build	Lump sum	Variation

1.01 RIAI (Blue) Contract Without Quantities

What constitutes change under this form?

This form of contract is sometimes referred to as a ‘spec (specification) and drawings’ or ‘lump sum’ contract. The employer does not provide the contractor with a bill of quantities and the contractor is required to complete the work shown on the spec and drawings for a lump sum. This is broken down in an agreed format against a Work Schedule, Contract Sum Analysis or a Schedule of Rates. The Schedule of Rates is used as the basis for valuing any variations.

The principal characteristic of this contractual arrangement is that the contractor holds the risk of having quantified the scope of work correctly from the contract documents. The employer does not prepare a bill of quantities and consequently there is a limited amount of pricing detail from which to value variations. The employer should ensure that the pricing information included in the contract is of appropriate detail for this purpose.

This must take the form of a schedule of rates, which may be quantified.

Change is defined as follows:

(i) the alteration or modification of the design, quantity or quality of the Works

(ii) the imposition by the Employer of any [additional] obligations or restrictions, or the addition to or alteration or omission of any obligations or restrictions. These obligations or restrictions can include access to the site, or specific parts of the site, limitations on working space or working hours, and carrying out of work in a specified order, and create changes in condition and/or character of the work.

How is change valued?

The common practice in the industry is for the parties to exchange information and calculations pertaining to the value of a Variation and ultimately reach an agreement, which forms part of a rolling final account.

Where agreement has not been reached, the quantity surveyor is obliged to carry out a valuation of the variation in accordance with the 'Valuation Rules' as set out in Clause 13 of the contract. These are:

(i) where the work is of a similar nature and is carried out under similar conditions to the work described in the Bill of Quantities then the rates in the Bill of Quantities shall be used.

(ii) where the work is not of a similar nature or is not carried out under similar conditions then the rates in the Bill of Quantities shall be used as far as possible.

(iii) where there are no applicable rates for the variation in the bill of quantities then rates which are used in the locality for similar work shall be used.

(iv) where none of the above methods are suitable then the work may be valued on a dayworks basis. Dayworks is a method of valuing work where the contractor is reimbursed the cost of the labour, the plant, the materials and other costs incurred in carrying out the variation, plus a percentage for profit and overheads.

1.02 RIAI (Yellow) With Quantities

What constitutes change under this form?

As the name suggests, this form of contract has a contract sum calculated from a fully priced bill of quantities. The bill of quantities is referred to as the Bill of Quantities and it is a contract document. The bills of quantities define the quality and quantity of the work to be carried out by the contractor. The employer holds the risk that these quantities are accurate and for any errors in their preparation against the stated measurement rules. Any errors in quantity or method of preparation are corrected and treated as variations.

The benefit to the employer of having a priced bill of quantities, amongst other things, is that there is far more information for the quantity surveyor to use for the valuation of variations. The likelihood of having agreed rates for similar work, to use when valuing change, increases when compared to lump sum versions.

The categories of change are the same as for the Without Quantities form as outlined in 1.01 above.

How is change valued?

The approach here is the same as when working with the Without Quantities form.

1.03 GCCC Contracts

What constitutes change under this form?

The scope of the Works defined in the Works Requirements should not change. The Works Requirements set out in the Contract can be revised by a *change order* issued by the ER (Employer's Representative) in relation to any matter concerning the works.

Not all changes to the Works Requirements result in compensation events – for example amendments resulting from a Contractor's error are not compensation events. (Compensation events are detailed in Part 1K of the Schedule.)

When work in the Works Requirement is to be omitted, the Employer's Representative should issue a *change order* removing the work and identifying its value – which should then be deducted from the Contract Sum The Pricing Document enables the Employer to prescribe to prospective tenderers the way they should break down their tendered lump-sum price and to provide details of other tender cost information. The different forms of contract have different requirements in relation to the Pricing Document, as set out in the following table:

- PW-CF1 to PW-CF5: The Pricing Document required for the Contract is identified by the Employer in Part 1 of the Schedule and is supplied as part of the tender documents issued to tenderers.
- PW-CF6: There is no reference to a Pricing Document in the Contract Conditions for PW-CF6. A pricing document may be listed under Clause 1.3 of the Schedule but a Bill of Quantities should not be listed in this Clause. It should instead be derived from a Bill of Quantities or Schedule of Rates in the manner permitted under Section 6 of ITT-W4 and ITT-W5 to provide the rates and prices referenced in Clause 4.5 of the Contract Conditions to evaluate completed work or any compensation events that may arise under the Contract.
- PW-CF7 and PW-CF8: There is no reference to a Pricing Document in the Contract Conditions for PW-CF7 or PW-CF8. However, a document with the same or a similar function (for example, a Bill of Quantities) could be included as one of the contract documents specified under Clause 1.1 of the Schedule.

In a traditional contract the Employer retains the design risk and may also retain a greater degree of risk overall.

The contract specifies (under Part 1K of the Schedule) all the compensation events that are allowed including those risks linked to compensation events that may or may not be transferred. The Employer retains the cost risk for 12 of the 21 risks listed in Part 1K of the Schedule. There is a minimum of 1 optional risk that the Employer is not responsible for and a maximum of 5 (depending on the Contract PW-CF1 to PW-CF5) that the Employer has the option to transfer them to the Contractor. (This does not apply to PW-CF6, PW-CF7 or PW-CF8.).

The Contractor is entitled to compensation from the Employer in the event that one of the optional risks *included* in the Contract and not transferred to the Contractor being realised. (This does not apply to PW-CF6, PW-CF7 or PW-CF8.).

Design-and-build contracts allocate a greater degree of risk to the Contractor than traditional contracts.

The design-and-build contract specifies the compensation events that are allowed. With the exception of three optional risks in Schedule Part 1K these events are always retained by the Employer. Where these optional risks are retained by the Employer, the Contractor may seek compensation from the Employer in the event that one or more of these risks is realised. However delay costs will only be paid if the Date for Substantial Completion is moved out as a result of a compensation event and then gradually depending on which Programme Contingency threshold has been used up.

How is change valued?

Where the ER issues a change order (under clause 4.4 of PW-CF1 to PW-CF5) that involves a change to the Works Requirements, and where such a change is a compensation event, there may be a concomitant adjustment in the relevant provisions in the Bill of Quantities. Such adjustments must be valued using the appropriate valuation methods permitted under the contract (clause 10.6) which states that additional, substituted, and omitted work shall be valued as follows:

i) Use rates in the Pricing Document, where work is similar nature and is to be executed under similar conditions

ii) Where work is not similar to work priced 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.

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

iv) 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, using the labour, plant and mark-up rates quoted by the contractor at tender stage (in schedule Part 2).

Note, however, that it is not permitted to change any quantity in the Bill of Quantities independently of a change in the Works Requirements. In other words, there is no provision for the issue of a change order that has as its sole purpose a change in quantities.

1.04 NEC Option A - Priced Contract with Activity Schedule

What constitutes change under this form?

This contract has a contract sum calculated from a series of lump sums for each of the activities on the Activity Schedule.

Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract. These events cover a range of situations which are agreed to be at the Employer's Risk. Compensation Events deal with the cost effect of the 'change' together with any extension of time and loss and/or expense that is due.

How is change valued?

Change is valued by considering changes to the activity schedule caused by a Compensation Event. These changes could, for example, include scope of work addition or omission, design fees, preliminary type items, as well as changes in sequence or timing. The prices (specific parts of the contract sum) are assessed (valued) as the effect on:

(i) the Defined Cost of the work already done

(ii) the forecast Defined Cost of the work not yet done

(iii) the resulting fee (fee percentage applied to the amount of Actual Cost covering specific costs, mainly head office overheads and profit).

The change to the activity schedule is valued by identifying resources that are affected by the change, by reference to the Schedule of Cost Components, and establishing their cost or forecast cost. Effectively the contractor is put back in the position he or she would have been in had the Compensation Event not occurred. This approach is used for both the contractors direct costs and also those of the sub-contracted supply chain.

1.05 NEC Option B - Priced Contract with Bills of Quantities

What constitutes change under this form?

This contract has a contract sum based on a series of lump sums calculated by multiplying the rates by the quantities for the items in the bill of quantities. Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract. The following Compensation Events are specifically included in Option B to deal with the following circumstances should they arise:

- a difference between the final total quantity and the quantity stated in the Bills of Quantities (inaccurate quantities)
- any such inaccurate quantity causes the Defined Cost per unit to change
- an item in the Bill of Quantities comprises more than 0.5% of the Prices at the Contract Date (contract sum)
- correction of departures from the adopted method of measurement
- correction of an inconsistency between the Bill of Quantities and another document.

How is change valued?

Change is valued by considering changes to the bill of quantities caused by a Compensation Event. This can be on a Defined Cost basis, as Option A, or based on the use of rates and lump sums from the bill of quantities (if the project manager and contractor agree).

1.06 NEC Option C - Target Contract with Activity Schedule

What constitutes change under this form?

This contract has a contract sum calculated from a series of lump sums against each of the activities in the activity schedule.

Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract. See Option A above for further guidance.

How is change valued?

Change is valued by considering changes to the activity schedule caused by a Compensation Event. See Option A above for further guidance.

1.07 NEC Option D - Target Contract with Bills of Quantities

What constitutes change under this form?

This contract has a contract sum based on a series of lump sums calculated by multiplying the rates by the quantities for the items in the bill of quantities.

Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract, reference Option B above for further guidance.

How is change valued?

Change is valued by considering changes to the bill of quantities caused by a Compensation Event. This can be on an actual cost basis, as Option A, or based on the use of rates and lump sums from the bill of quantities (if the project manager and contractor agree).

1.08 NEC Option E - Cost Reimbursable Contract

What constitutes change under this form?

This contract does not have a contract sum, the prices being based on the Defined Cost plus the fee.

Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract. See Option A above for further guidance.

How is change valued?

Change is valued by considering the actual cost of change caused by a Compensation Event. See Option A above for further guidance.

1.09 NEC Option F - Management Contract

What constitutes change under this form?

This contract does not have a contract sum, the prices being based on the Defined Cost plus the fee.

Change is implemented via the occurrence of any of the Compensation Events which are defined in the contract. See Option A for above for further guidance.

How is change valued?

Change is valued by considering the Defined Cost of change caused by a Compensation Event. See Option A above for further guidance.

1.10 FIDIC Conditions of Contract for Construction

What constitutes change under this form?

This form of contract comprises a set of conditions for building and civil engineering construction works, intended for international application, where works are designed by the Employer.

The contract sum is usually derived from a priced bill of quantities or other schedule which may either be remeasured, or form the basis of a lump sum or series of lump sums.

The engineer designs the Works and administers the contract, acting for the employer. The engineer may instruct the contractor to undertake a variation in the Works or request the contractor to submit a proposal. There is no provision for the contractor to undertake a variation unless and until the engineer instructs or approves. A variation may comprise:

(i) an increase or decrease in the quantity of work

(ii) a change in the quality and other characteristics of any item of work

(iii) changing the levels, positions and/or dimensions of any part of the Works

(iv) omission of any work (unless it is to be carried out by others)

(v) execution of additional work

(vi) changes in a specified sequence or timing of construction of any part of the Work, i.e. where the sequence or timing has been prescribed and is at the employer's risk.

How is change valued?

Change is valued under this form by the engineer in the following manner:

(i) the contractor, if requested by the engineer, prepares a contractors proposal for the evaluation of the variation. This evaluation shall follow the Valuation Rules unless the engineer instructs or approves otherwise.

(ii) the engineer instructs the contractor to commence the variation and may require the contractor to record the costs in connection with the variation.

(iii) the engineer fixes new rates or prices for variations which are not the subject of a contractor's proposal.

All rates and prices used to value the variation, by either the contractor or the engineer, should be derived by application of the Valuation Rules within the contract.

1.11 FIDIC Conditions of Contract for Plant and Design-Build

What constitutes change under this form?

This form of contract comprises a set of conditions for building and civil engineering construction works that are delivered under a design and build arrangement, intended for international application. Design is carried out by the contractor.

The contract sum is a lump sum, based in the contractor holding full responsibility for design. A Variation is described as a change to the Employer's Requirements which is instructed or approved as a variation.

How is change valued?

The contractor can be directed by the engineer to provide a proposal prior to implementing a variation. The proposal shall comprise a description of the proposed design, and adjustments to the Contract Price or Time for Completion. The engineer shall consult with the contractor and either approve, disapprove or pass comment on the proposal.

Practical application: 2 (Doing)

This section looks in more detail at the Valuation Rules that govern how change is valued, and begins to look at the practical application of these general principles. The same forms of contract discussed in section 1 are reviewed here also.

2.01 RIAI (Blue) without quantities

What are the Valuation Rules?

The Valuation Rules are set out in the Contract Conditions and reflect a sliding scale of options, based on how closely the varied work resembles work that is part of the Contract Documents.

1 Where work is of similar 'character' and carried out under similar conditions to work in the original Contract Documents then the valuation of the Variation shall be consistent with rates, prices or amounts for work in the Priced Document, which could be a bill of quantities or a schedule of rates. Where work of a similar character and carried out under similar conditions the valuation shall be based on contract rates modified to reflect any change in conditions or change to the quantity of work carried out.

The application of these various factors is sometimes referred to as 're-rating' or 'star rating'. These rules apply to all rates, even those that a contractor may have over or under priced at tender stage. If contract rates are modified rates are not appropriate, a fair valuation is made using rates for similar work in the locality. If the Architects opinion is that these methods are not proper for the work involved, daywork prices shall apply. There are many quite complex issues to deal with when valuing a variation and these are considered below.

- **Character.** The character of an item of work is what distinguishes it from other, possibly similar, specifications of work. An example of this could be in the specification of finishes such as joinery or stonework. A piece of stone may be bedded in the same material and attract the same labours in terms of cutting and grouting, but the specification of the material itself will effect cost greatly. Joinery is the same. A carpenter may take more time to hang a hardwood door then a softwood door and the material itself will be more expensive.
These operations may be carried out under the same conditions but the character means that the rates are not relevant and need to be adjusted.
- **Conditions**. The stage at which work is programmed into the contract period will affect the cost of execution. This could be due to the timing in the year, such as carrying out groundworks in winter as opposed to summer, or constraints due impinged access or productivity impacts such as completing cladding works once scaffolding has been struck.
- **Quantity**. At tender stage, the contractor will assess the economies of scale that can be achieved by carrying out the quantity of work indicated in the Contract Documents. The estimator will make judgments such as procurement volume discounts, labour gang efficiencies and supervision ratios. If these quantities change, up or down, then these factors 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 particular operation in question.
- **Preliminaries**. It is usual for a contractor to prepare a bill of preliminaries for a project, which should follow the structure of the agreed rules of measurement. These preliminary resources may include site accommodation and set up, staff, scaffolding and access equipment, craneage, power, and many

other items that are not included in rates for work items. It is necessary to review these resources for each variation to assess if allowances are due to be made (in addition or omission) to cater for the impacts on the contractor's preliminaries by execution of the change. It is not the case that adjustments should be made automatically. If the contractor's bill of preliminaries is part of the contract Schedule of Rates, the contractor is not required to evidence his or her cost in connection with additional preliminaries (these are value based adjustments to contract rates as opposed to ascertainment of costs or losses) but there should be evidence provided 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 costs are fixed (a single one-off cost) or time related (where the costs vary with time, such as rental, maintenance and the like). Increased preliminaries due to the cumulative effect of multiple changes is most likely to be dealt with as Loss & Expense.

2 '**Fair valuation using rates for similar work in the locality**.' In instances where work is not of a similar character then it should be valued at 'fair rates and prices'. The requirements of this form of valuation are open to debate and interpretation. Case law does not provide a definitive position. For the purposes of this guidance note it is assumed that the terms 'fair rates and prices' and 'fair valuation' are the same.

3 **Daywork**. This is a method of valuing additional or substituted work which cannot properly be valued by measurement. Records, or vouchers, need to be prepared by the contractor recording the labour, plant and materials used in the operation. These records are to be submitted to the architect/contract administrator for verification. The valuation of work on daywork is made by using the verified records and applying rates derived by reference to the Schedule of Daywork Charges agreed between the Society of Chartered Surveyors 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. together with the percentage definitions set out in the Priced Document. Examples of daywork activities could be opening up works for inspection, testing operations, repair of damage etc. It is intended for short duration, limited scope activities. Significant works, or works of a prolonged duration, should be capable of valuation by measurement, either using a contract rate as a basis or preparing a new rate based on fair rates and prices. Daywork is a last resort basis of valuing works and 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 & Expense.

4 **Change of Conditions for other work.** The change to one area of the work can change the character or conditions of other work. (Clause 13(a)) An example of such an instance could be a change in ceiling design having a serious effect on the way the mechanical and electrical services installation is installed and commissioned, or some additional external drainage work impacting 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 as well, in accordance with the Valuation Rules.

6 **Additional Provisions**. Where a valuation does not relate to carrying out additional orsubstituted work, or the omission of work, or where the Valuation Rules cannot effectively deal with the valuation of a variation, then a fair valuation shall be made. These provisions provide a very wide authority to the effects of change to be valued as part of a variation. If used properly, then there is likely to be less need to invoke the Loss & Expense provisions of the contract.

When valuing work on a fair basis it is necessary to understand how the contractor's costs are generated. The contractor will employ a series of resources, some directly engaged such as labour, plant, materials, staff and other preliminaries, while other resources are provided by sub-contractors. The contractor will have limited choices as to how to execute work imposed by a variation. In many cases the contractor will be in breach of his or her sub-contracting arrangements if the contractor brings in other companies to do substituted works. It is also not desirable, from a management and programming perspective, to introduce additional trades or companies into the supply chain unless absolutely essential. These constraints mean that the contractor's cost for executing a variation are, in reality, quite fixed.

A 'fair valuation' or one based on 'fair rates and prices' should therefore be cognisant of the contractor's cost of carrying out the works. Where new resources are brought to the how these are procured, then it is not unreasonable to expect the contractor to demonstrate market competitiveness (where this does not cause delay to the execution of the variation). Where existing resources are used, either directly or via existing sub-contracting arrangements, then the valuation should reflect these costs. An allowance should be made for the contractor's overheads and profit as part of any 'fair valuation' or computation of 'fair rates and prices'. Any costs associated with putting right defective work should not be included in any valuation.

7 **Contractor's Quotations**. (Clause 14) It applies when the architect/ contract administrator requests that the contractor provides a quotation.

The contractor may notify the architect/contract administrator, within a defined time period, identifying disagreement with the approach of producing a quotation. The contractor is then not obliged to proceed unless instructed further, in which case the variation will be valued by the quantity surveyor in accordance with the Valuation Rules. A reason for the contractor refusing to provide a quotation could be that there is insufficient information to provide a lump sum and take the financial and/or time risks of invoking the change. For example, a lack of design information, inability to access the affected area, unknown ground conditions etc.

Schedule 2 of the Conditions provides a detailed procedure for the submission and acceptance of a quotation. The key issues for inclusion and consideration in a quotation are:

- 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 an Extension of Time
- any amounts to be paid in lieu of ascertaining Loss & Expense
- a fair and reasonable amount in respect of the cost of preparing the quotation should be included. This fair and reasonable amount is to be paid even if the quotation is not accepted
- method statements and resource requirements should be included if asked for by the instruction to provide the quotation.

Provisional Sums

A Provisional Sum is a financial allowance, included within the Contract Sum, for work which is not sufficiently designed to allow the contractor to offer a firm price at tender stage.

The Provisional Sum is omitted from the adjusted Contract Sum and the valuation of the variation added back. A Provisional Sum is therefore only an allowance for work which may or may not be carried out. The contractor bears no risk in connection with the adequacy of the Provisional Sum.

When does Loss & Expense apply?

Loss & Expense becomes payable to the contractor, on satisfactory demonstration of entitlement in accordance with the Conditions, that direct loss and/or expense has been incurred for which no reimbursement would be made by a payment under any other provision of the Conditions.

There are many tools on the quantity surveyor's workbench for valuing all sorts of changes to work, the introduction of new work, and effects on other work caused by change. If these tools are used properly, and to their full extent, there are likely to be limited occasions where the contractor needs to seek ascertainment of Loss & Expense. For more detailed guidance please refer to the relevant section of the Black Book which relates to Ascertaining Loss & Expense.

2.02 RIAI (Yellow) with quantities

What are the Valuation Rules?

The Valuation Rules under this form of contract are similar to the Without Quantities form. The following points should be noted.

- Variation work should be measured and quantified using the same rules of measurement as the bills of quantities.
- Allowance shall be made for any lump sum or percentage adjustments applicable from the bills of quantities. This could be a main contractors/directors discount, expressed as either a lump sum or percentage.
- Adjustment is to be made for preliminary items, where appropriate.
- If an approximate quantity is a reasonable forecast of the quantity of work required then the rate in the bills of quantities shall be used to determine the valuation. Work which is the subject to an approximate quantity is measured fully in accordance with the chosen measurement rules. The quantity is then remeasured once the design has been completed, and the quantity is adjusted (if necessary).
- If an approximate quantity is not a reasonable forecast of the actual quantity then the rate in the bills of quantities is used as the basis for the valuation and a fair allowance is made for the change in quantity.

2.03 GCCC contracts

What are the variations rules?

If a compensation event occurs that requires additional, substituted or omitted work, the Contract Sum will have to be adjusted. The assessment of such an adjustment is set out in the Contract and can be based on:

- Rates in the Pricing Document for similar work;
- Rates based on the rates in the Pricing document when the work is not similar OR fair valuation based on similar work in the locality, of available; or
- The number of hours worked by each category of work person multiplied by the tendered hourly rate plus other identified tendered costs and percentages for materials and plant.

The Employer or the ER should notify the Contractor if they believe the Contract Sum needs to be adjusted, or if monies are owed to them by the Contractor. The Contractor has 20 working days to reply in accordance with clause 10.9.2 of PW-CF1 to PW-CF5 and the ER should determine the matter in accordance with the Contract.

2.03.01 Measurement errors where the Employer carries the risk

Where the Contract Sum is to be adjusted because of measurement errors in the Pricing Document and the difference is not greater than €500, the Contractor must bear the cost of the error. The Contractor must also bear the cost of any re-measurement he requests unless errors above this €500 threshold are discovered.

Note: the €500 is a threshold so if the error is more than €500 the Contractor recovers the full cost e.g. the error is €501 so the Contractor recovers €501.

Consistent with the Government Decision of 2004, measure-and-value contracts are no longer to be used on public works projects. They have been replaced with lump-sum fixed-price contracts that exclude all the key elements of any measure-and-value contracts including contingency sums, provisional sums and provisional quantities. The only adjustment to quantities that is possible (other than one arising from a measurement error with a value in excess of €500 for each item) is where there is a change order altering the Works Requirements that results in an adjustment in quantities.

2.03.02 Measurement errors where the Employer does not carry the risk

Where measurement errors arise in the Pricing Document (for example, in the Bill of Quantities) and quantities do not form part of the Contract, the rule in relation to the Contractor carrying the first €500 for the error for each item in the Pricing Document is to be disregarded because the Contractor must now bear all the cost of the error. The opportunity to change quantities is even more restricted in this situation and only arises if there is a change order changing the Works Requirements that result in an adjustment in quantities.

2.04 NEC Option A - Priced Contract with Activity Schedule

What are the Valuation Rules?

Assessments for changed Prices (adjustments to the contract sum) are valued based on the Defined Cost of changes to the activity schedule. Defined Cost is costs based on rates and percentages stated in the Contract Data and other amounts at open market or competitively tendered prices. Alternatively the contractor and the project manager can adopt a more traditional approach to valuation and agree rates and lump sums instead of Defined Cost. In practice it will be necessary to utilise a combination of these approaches to facilitate the smooth running of the project.

To the extent that Defined Cost is used as the basis for valuing change, the Shorter Schedule of Cost Components is used to identify the resources that may be costed. This is the method of valuing all resources, whether they are directly engaged by the contractor or by his or her sub-contractors. In other words, the contractor cannot just submit sub-contractors' quotations to the project manager (where the Defined Cost approach is being used).

The contractor cannot recover his or her own costs or the sub-contractors' costs for preparing quotations.

The Contractor's Fee is added to the Defined Cost of any change or should be included in any lump sum adjustment accepted by the project manager. All costs which are not included in the Defined Cost are treated as included in the Fee. Typical examples are head office overheads, profit, insurance premiums and insurance excesses.

2.05 NEC Option B - Priced Contract with Bills of Quantities

What are the Valuation Rules?

The guidance in Option A applies here also unless stated otherwise.

Assessments for changed Prices (adjustments to the contract sum) are valued based on the Defined Cost of changes to the Bill of Quantities.

If there is a Compensation Event changing an item within the Bill of Quantities, it is valued on the basis of a changed rate, quantity or lump sum.

If there is a Compensation Event for which there is no item in the Bill of Quantities then, unless the contractor and the project manager agree otherwise, a new priced item is compiled in accordance with the adopted method of measurement. They can also agree to use rates and lump sums to assess a Compensation Event instead of Defined Cost.

2.06 NEC Option C - Target Contract with Activity Schedule

What are the Valuation Rules?

The guidance in Option A applies here also unless stated otherwise.

Assessments for changed Prices (adjustments to the contract sum) are valued based on the Defined Cost of changes to the Activity Schedule.

Assessments are made based on the Schedule of Cost Components, unless the contractor and the project manager agree to use the Shorter Schedule of Cost Components.

Defined costs, under this form, permit the payment of the cost of preparing quotations. The definition of Defined Cost is more extensive under this form, and a new term 'disallowed cost' is introduced. These points are considered outside the scope of this guidance as they relate principally to the regular valuing of work completed, and due for payment, as opposed to the valuation of change. A note of caution, if amounts paid to sub-contractors for Compensation Events that are in excess of amounts included in agreed quotations under the Main Option contract then the excess amount paid to sub-contractors is treated as disallowable.

2.07 NEC Option D - Target Contract with Bills of Quantities

What are the Valuation Rules?

Guidance here is identical to Option B, with the exception that payment of the cost of preparing quotations is permitted.

2.08 NEC Option E - Cost Reimbursable Contract

What are the Valuation Rules?

Guidance here is identical to Option C, with the exception that there is no Activity Schedule and the cost of preparing quotations is permitted.

2.09 NEC Option F - Management Contract

What are the Valuation Rules?

Guidance here is identical to Option C, with the exception that there is no Activity Schedule and the cost of preparing quotations is permitted.

2.10 FIDIC Conditions of Contract for Construction

What are the Valuation Rules?

The Valuation Rules, to be followed by the contractor and/or the engineer, comprise a set of options which closely match the general principles, namely:

(i) variations to be valued at the same rates and prices set out in the contract

(ii) use the relevant rates and prices set out in the contract as a basis for valuation, with reasonable adjustments for changes in quantity, conditions and character

(iii) new rates or prices to be derived from the reasonable cost of executing the work, together with reasonable profit

(iv) the engineer can determine a provisional rate or price until such time as an appropriate rate or price is agreed or determined

(v) use of daywork, for work of a minor or incidental nature, if the engineer agrees.

Rates are adjusted for quantity variance if the quantity increases or decreases by more than 10% from the quantity in the Bill of Quantities or other schedule, the value of the item comprises more than 0.01% of the Accepted Contract Amount, or the Variation directly changes the unit cost by more than 1%. This provides some useful objective analysis.

There is also provision for the contractor to propose Value Engineering, which is valued in accordance with the evaluation procedure set out above. The contractor shares in the savings that are generated at a share range set out in the contract.

Provisional Sums are valued in accordance with the evaluation procedure.

2.11 FIDIC Conditions of Contract for Plant and Design-Build

What are the Valuation Rules?

The Conditions do not offer detail as to the Valuation Rules to be followed by the contractor and/or the engineer, other than adjustments to the Contact Price should include reasonable profit. The engineer can direct the contractor to keep records of costs in connection with a variation. Cognisance to the general principles, set out at the beginning of this guidance note, would be a useful starting point.

3 Practical considerations: (Doing/Advising)

This section uses a checklist approach to look at many of the practical considerations that have to be made when valuing specific items or circumstances, in accordance with the Valuation Rules discussed in section 2.

A chartered surveyor should consider these aspects when advising on the likely valuation of change under the contract in question.

3.01 Changes in character

The following list gives an indication to the sorts of variations which may give rise to a change in character:

- change of material - i.e. type of timber (hardwood, softwood, sourcing of timbers 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 or 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.

3.02 Changes in conditions

The following list gives an indication to the sorts of variations which may give rise to a change in conditions:

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

3.03 Valuing preliminaries

The following list gives an indication to the sorts of items which should be considered when adjusting Preliminaries in connection with a variation. Not all items will be applicable to every situation and care should be taken to establish if such items are already covered in rates used to value the change:

- 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 the work is the subject of a Defined Provisional Sum, in which case due allowance for preliminaries are deemed to have already 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 current situation before proceeding.

3.04 Dayworks

The following list gives an indication to the sorts of variations which may be valued on a Daywork basis:

- minor additions of quantity to completed works
- disjointed operations with extreme changes of conditions
- opening up the works (subsequently found to be in accordance with the contract)
- emergency works immediately proceeding loss or damage to the works
- cleaning and clearance operations
- testing
- repair and reinstatement of damage (assuming that large scale reinstatement will usually be separately measured and priced).

3.05 General considerations

- Consider the effects on other work caused by the variation in question. This can be 'collateral' effects on other work.
- Are costs being claimed as Loss & Expense which should reasonably from part of the valuation of the variation?
- Any 'exclusions' and 'assumptions' to an agreement or a valuation should be clearly set out. For example certain risk items may be valued later, once the events have unfolded on the project.

Valuing change

1st edition, guidance note

This guidance note summarises what is meant by ‘change’ and how it is valued under RIAI, GCCC (PWC), NEC and FIDIC forms of contract.

Change is given specific definition within standard forms of contract, for example a Variation, Change of Employer’s Requirements or a Compensation Event. Each of these terms is explained in the definition section of the relevant contract conditions.

Guidance is given for each of the main groups of contracts and the forms in most regular use within those groups, under the following headings which map to the Assessment of Professional Competence (APC):

- General Principles (Level 1: Knowing)
- Practical Application (Level 2: Doing)
- Practical Considerations (Level 3: Doing/Advising).

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