# Clause 12

**Summary**

**FIDIC 1999 is a re-measurement contract so that the Employer takes the risk of variations to the quantities and, in certain cases, to the rates and prices which may be applied for the work executed. If the Employer wishes to employ a Contractor on a lump-sum or cost plus basis then this clause needs to be deleted.**

**Sub-Clause 12.1 deals with the measurement of the works. Sub-Clause 12.2 does not include a reference to any standard method of measurement but states that the works are to be measured in accordance with the Bill of Quantities or other applicable Schedules. The lack of reference to a particular standard method of measurement has been criticised.[1] Sub-Clause 12.3 deals with evaluating the appropriate rate or price for the works. There are three methods of evaluating the works:-**

**a) The rate or price specified for such item in the Contract; but if there is no such item**
**b) The rate or price specified for similar work.**
**c) However, in certain specified circumstances, a new rate or price shall be appropriate.**

**Sub-Clause 12.4 deals with the valuation of omissions from the Work.**

**As this is a re-measurement contract there is no warranty that the quantities measured in the Bill of Quantities are accurate. Nael Bunni suggests that when quantities within the Bill of Quantities are exceeded then payment should be at the rates set out in the Bill. [2] There have been some cases where the courts have adopted differing approaches; however, in those cases the wording of the re-measurement clause differed to that within FIDIC. These decisions have been described by Dr. Bunni as being controversial.**

**Origin of clause**

The clause has its origins in clauses 52, 56, 57.1 of FIDIC 4th edn, which in turn were also found in the 3rd edn.

**Cross-references**

Reference to clause 12 or 'measurement' is found in the following clauses:-

- [1] Jaeger & Hök, *FIDIC – A Guide for practitioners* (2010) p.297

[2] Nael Bunni, *The FIDIC Form of Contract*, (2005) 3rd edn Blackwell

- Sub-Clause 7.3 (Inspection)
- Sub-Clause 7.5 (Rejection)
- Sub-Clause 13.3 (Variation Procedure)
- Sub-Clause 14.1 (The Contract Price)

**The Purpose of the Clause**

Sub-Clause 14.1 provides that the quantities, which may be set out in the Bill of Quantities or other Schedule, are estimated quantities and are not to be taken as the actual and correct quantities for the purposes of Clause 12 [*Measurement and Evaluation*]. Clause 12 is based upon the principle that the Works are to be valued by measuring the quantity of each item of work under Sub-Clause 12.2 and then applying the appropriate rate per unit quantity or the appropriate lump-sum price under Sub-Clause 12.3.

If the Employer prefers to have a lump-sum contract then Clause 12 needs to be deleted. In the "Guidance for the Preparation of Particular Conditions" there is an example of a "Lump Sum Contract."

The Contractor should check the substantive law of the contract to ensure that it allows for the re-measurement of work, without additional notices being given. Certain laws place prohibitions or restrictions on additional payments of more than the contract sum. For example under Article 886(1) of the Federal Law No 5 of 1985 of the UAE the following applies: "If a contract is made under an itemized list on the basis of unit prices, the contractor must immediately notify the employer thereof, setting out the increased price expected, and if he does not do so he shall lose his right to recovered the excess cost over and above the value of the itemized list." While it remains unclear whether this Article of Federal Law No 5 would have the effect of displacing Sub-Clause 12.3, it has been argued that it may have a very significant impact.[3] The suggestion is that the re-measurement provisions of FIDIC 1999 would fall foul of Article 886(1) as there is no provision within FIDIC to give a notice if the estimated quantities are to be exceeded.

**Sub-Clause 12.1 Works to be Measured**

Sub-Clause 12.1 describes the procedure for measuring the quantity of each item of work. Quantities should preferably be agreed between the representatives of the Engineer and the Contractor, as a continuing process, and as the execution of the Works proceeds. Although the second paragraph empowers the Engineer to take the initiative in requiring a measurement to be made, this activity should be regarded as a

[3] Chris Larkin *Quantity Clause Needs Update* – http://cmguide.org/archives/1365/print

joint activity.

The contract does not specify any particular time in which measurements are to be taken. The Sub-Clause refers only to when the Engineer requires the works to be measured and then he must give reasonable notice. Once reasonable notice has been given the Contractor's representative (or other representative) is required to attend and assist the Engineer and provide any particulars requested. Although it is the Engineer that is obliged to measure the works this often does not happen in practice. The Contractor is often more likely to be in a better position to measure the works itself and often does measure the works rather than merely assist the Engineer. The Engineer then checks and confirms the Contractor's measurement.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be considered to be accurate. The Contractor will not be able to open up, review or revise this measurement at a later stage because the Engineer does not make a determination regarding the measurement. Instead the Contract deems the measurement to be accurate. Similarly, where the measurement is made from records and the Contractor does not attend and does not dispute the records then these records will be considered to be accurate. If the Contractor disagrees with the records then it must give notice to the Engineer within 14 days or, again, the records will be accepted as being accurate.

In the case of *Norwest Holst Construction v Co-operative Wholesale Society*[4] the parties failed to measure the works as it progressed and at the end of the job it became impractical to re-measure. The Employer sought to argue that the works should be measured from a schematic drawing within the tender drawings and that any bends or deviations amounted to uninstructed work and therefore should be ignored for the re-measure. The arbitrator referred to this as nonsense and concluded that the works to be valued were the works which had been undertaken.

**12.2 Method of Measurement**

These two sub-paragraphs describe what is typically referred to as the "method of measurement" applicable to the Works. This method relates primarily to what quantities are to be applicable to the evaluation, rather than to the measuring techniques (although they may also be described), and plays an important part in the whole evaluation of the Contract Price.

Sub-paragraph (a) states that measurement shall be made of the net actual quantity. The meaning of this phrase is far from settled, particularly in the absence of a Standard Method of Measurement being referred to within the contract.[5]

[4] [1998] All ER (D) 61
[5] EC Corbett, *FIDIC 4th A Practical Legal Guide, page 344*

This method (or principles) of measurement may comprise:

- principles for measurement which are specified in a preamble to the Bill of Quantities,
- a publication which specifies principles of measurement and which is incorporated (by reference) into the Bill of Quantities, or
- for a contract which does not contain many or complex items of work, principles included in each of the item descriptions in the Bill of Quantities.

The FIDIC Guide states that "each item of the Works is to be measured in accordance with such principles/method of measurement, which takes precedence over the general principle described in sub-paragraph (a) of this Sub-Clause." However, there is nothing which indicates this within the Contract as sub-paragraphs (a) and (b) are conjoined with the word "and."

A Bill of Quantities has been defined as:[6]

> "The product specification that details the operations required to build a standard construction project. It covers the costs of inputs (labour, materials and plant), subcontracting, preliminaries and overheads. It also covers contractor's profit or loss, architect's and engineer's fees and non-deductible taxes. A bill of quantities is structured to provide a weighted price for each component specified which, when summed across components, provide the purchasers' price for the standard construction project described."

The Contractor must always take care to verify that the Bill of Quantities contains all item descriptions of work within the Drawings or Specification. The Bill of Quantities should have been made up from a detailed analysis of the design calculations, Specifications and Drawings. The works are then divided into separate trades or types of activity and a brief description of the activity is then provided. Quantities are then inserted – these quantities may be either estimated or calculated precisely. The rates within the Bill of Quantities are often a single rate compounded from the costs of labour and materials. The rates may not consider all the main costs incurred by a Contractor such as temporary works. Bills of Quantities have therefore been criticized[7] as not reflecting real cost in the event that there are changes to the scope of the works.[8] For this reason the British Research Establishment has developed operational bills which it considers more accurately reflect the real costs.

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[6] Definition from the Stat Extracts of the Organisation for Economic Co-operation and Development (OECD)

[7] Ian Duncan-Wallace, *Construction Contracts: Principles and Policies in Tort and Contract* at paragraph 26-16

[8] In contrast John Molloy *Civil Engineering Measurement Claims in Hong Kong* *http://www.fig.net/pub/fig2007/papers/ts_3g/ts03g_02_molloy_1664.pdf* advocated the use of Bills of Quantity

In England the use of a Bill of Quantities is on the decline with more lump sum contracts and with the NEC Engineering and Construction Contract using priced-activity schedules.

The FIDIC Guide suggests that where there are omissions within the Bill of Quantities, which are discovered during the course of the works, then disputes may arise as to whether an additional item ought to be included. The FIDIC Guide suggests that Clause 12 ought to be read as follows:

- If the Bill of Quantities includes (either incorporated by reference or specified) principles of measurement which clearly require that an item of work be measured, and if the Bill of Quantities contains no such item, then an additional Bill item will be required in order to satisfy the requirement for measurement in accordance with such principles.

- If the Bill of Quantities includes (either incorporated by reference or specified) principles of measurement which do not clearly require that a particular item of work be measured, and the work was as described in the Contract and did not arise from a Variation, then measurement in accordance with such principles does not require the addition of a new Bill item.

- If the Bill of Quantities does not include principles of measurement for a particular item of work, and the work was as described in the Contract and did not arise from a Variation, then measurement in accordance with such principles does not require the addition of a new Bill item.

**12.3 Evaluation**

The Engineer is required to agree or determine the value of each item of work, applying measured quantities to rates and prices in accordance with this Sub-Clause.
The second paragraph confirms that, for each item, the appropriate rate or price shall be:

(a) The rate or price specified for such item in the Contract; or
(b) If there is no such item, the rate or price specified for similar works.
(c) However, in certain defined circumstances, a new rate or price shall be specified.

Each of the grounds, as set out above, is looked at individually.

*Ground (a)*
Sub-Clause 12.3 requires that the parties will start by ascertaining whether there is a rate or price specified for such item in the Contract. The difficulty comes when

considering the words "specified for such item in the Contract." The works as set out in the Specifications and Drawings are therefore valued in accordance with the rates and prices in the Contract. Additional quantities should also be valued in accordance with this ground where the work was specified in the Contract.[9]

It is less clear when a variation should be valued in accordance with this ground as the varied work is not work specified in the Contract. It should also be noted that there are fundamental differences in the wording of FIDIC 4th Red Book clause 52 compared to Sub-Clause 12.3 of FIDIC 1999. Clause 52 of FIDIC 4th Red Book specified that a ground (a) type evaluation was to be used as a basis for valuing variations. Sub-Clause 12.3 of FIDIC 1999 is less obvious. However, having regard to ground (c) below it seems clear that the drafters of this clause intended ground (a) to be used for valuing Variations and it is the norm that where an Engineer instructs varied work (for example more piles) and there is a bill item for the particular type of piles used, then the Engineer will value the work using bill rates.

*Ground (b)*

Ground (b) applies where there is no specified item for the work in the Contract and therefore a rate is used for similar work. The FIDIC Guide suggests that in order to determine whether there is "similarity of work" the Engineer should consider the description in sub-paragraph 12.3(b)(iii), which refers to similarity in terms of work being of similar character and executed under similar conditions.

"Similar character" and "similar conditions" are not always easy terms to define. Where the contract foresees large areas of soil replacement then if, for example, there are lots of small additional areas where ground improvement works have to be undertaken this will not fall within ground (b). The works may well be of a similar character as foreseen in the Contract but will not be carried out under similar conditions.

There are numerous circumstances which may arise where the Contractor may claim that works were not carried out under similar conditions. For example, there may be winter working rather than summer working; night rather than day working; the discovery of antiquities may change the way the works are executed and so on. However a change in economic conditions is not considered a change under ground (b). This issue was considered in *Henry Boot Ltd v Alstom Combined Cycles Ltd*[10] where Judge Humphrey Lloyd held that:

> *"The words 'executed under similar conditions' do not of course refer to economic or financial conditions or considerations … Intrinsic profitability or otherwise of the rate or price is not therefore a relevant consideration to be taken into account in the application of the principle set out in clause*

[9] *Grinaker Construction (TVL) (PTY) Ltd v Transvall Provincial Administration* (1982) S.A.R 78
[10] [1999] EWHC Technology 263

*52(1)(a)…. The work is not executed under dissimilar conditions simply because the applicable rate may result in the contractor being paid markedly more or less than that which might be regarded as 'fair', eg more or less than actual or reasonable cost plus profit and overheads."*

*Ground (c)*

Ground (c) applies only in specific circumstances. It applies to mitigate the effects of grounds (a) and (b) if certain criteria are met. Where a contractor submits a global claim, ground (c) should not be used to value the claim if parts of the claim should be properly valued under ground (a) or (b).[11]

Sub-paragraph (a) specifies four criteria which are applicable without reference to Clause 13, and a new rate shall only be appropriate if all four criteria are satisfied. Therefore it is possible for the Contractor to claim a new rate under Sub-Clause 12.3 on the basis of additional quantities. The four criteria are:

(i) The measured quantity of the item of work must be less than 90%, or more than 110%, of the quantity stated in the Bill of Quantities. This criterion is consistent with the principle that Bill of Quantities provides only an estimate – see Sub-Clause 14.1(c).

(ii) When the difference in quantity (namely, the difference between the Measured Quantity and quantity in the Bill of Quantities) is multiplied by the rate per unit quantity stated in the Bill of Quantities, the result must be more than 0.01% of the Accepted Contract Amount. This criterion is specified in order to avoid adjusting a rate if the adjustment will have little effect on the final Contract Price.

(iii) The difference in quantity (namely, the difference between the Measured Quantity and quantity in the Bill of Quantities) must have affected the "Cost per unit quantity", which is the Cost incurred executing the work covered by the item, divided by the quantity of the item as measurable in accordance with the applicable method of measurement.

(iv) The Contract must not have used phrase "fixed rate item" in relation to the item in the Bill.

If the four criteria are met, the Bill rate would typically be changed in proportion to such change in Cost per unit quantity which was the direct result of the change in quantity.

[11] *Final Award in Case 5634*, ICC International Court of Arbitration Bulletin Vol 2, No 1 page 22; and *J. Crosby & Sons Ltd v Portland UDC* (1967) 5 BLR 121

Sub-paragraph (b) specifies criteria relating to work instructed under Clause 13, which includes Variations, work under Provisional Sums, and (possibly) some types of work valued under the provisions in the Daywork Schedule. In these cases, a new rate or price will be considered appropriate if there is no Bill rate or price for work of similar character and executed under similar conditions. In other words where there is a Variation then evaluation under ground (c) occurs only when the works, the subject of the variation, cannot be evaluated under grounds (a) or (b). If a new rate or price is to be assessed, it may be derived from relevant rates and/or prices in the Bill of Quantities or other appropriate Schedules, and/or from reasonable Costs. Where the rate is to be built up then this is often termed as a 'star rate'.

*Galliford (UK) Ltd v Aldi Stores Ltd*[12] illustrates that these provisions of the contract can have a significant effect on the costs of undertaking the works. In *Galliford* Judge Bowsher QC had to consider a claim for additional payment by the Contractor where it had written £0.00 in its Bill of Quantities for removal of contaminated material. A variation had been instructed by which the Contractor had to move a significant quantity of contaminated material. The Employer claimed that the Contractor was not entitled to recover anything. The court agreed and held that the Contractor could recover nothing as it had not proven that the works were not carried out under similar conditions or that there had been a significant change in the quantity of the work.

Similarly, Lord Lloyd, in *Henry Boot Construction v Alston Combined Cycles*[13] stated that there were limited exceptions which would allow an Engineer to correct the rates in a contract. The Engineer could not make a correction just because they were too high or too low or inserted by mistake. His lordship then stated:[14]

> *"If the Engineer were free to open up the rates at the request of one party or the other because they were inserted in the Bill of Quantities by mistake, it would not only unsettle the basis of competitive tendering, but also create the sort of uncertainty in the administration of building contracts which should be avoided at all costs."*

However, where the mistake does not reflect the common intention of the parties then the courts may be able to interpret the contract to remove an ambiguity in drafting or rectify the contract. The difference between contractual interpretation and rectification is however important. Lord Neuberger in *Marley v Rawlings*[15] (a case on wills) held:

> *"At first sight, it might seem to be a rather dry question whether a particular*

[12] [2000] All ER (D) 302
[13] [2000] EWCA Civ 99
[14] *Ibid* at page 8
[15] [2015] AC 129 at para 40

> *approach is one of interpretation or rectification. However, it is by no means simply an academic issue of categorisation. If it is a question of interpretation, then the document in question has, and has always had, the meaning and effect as determined by the court, and that is the end of the matter. On the other hand, if it is a question of rectification, then the document, as rectified, has a different meaning from that which it appears to have on its face, and the court would have jurisdiction to refuse rectification or to grant it on terms (e.g. if there had been delay, change of position, or C third party reliance)."*

Rectification is therefore a discretionary remedy while interpreting the contract is simply finding the true meaning of the parties within the contract. While a DAB can interpret the contract it is extremely doubtful whether it has the power to rectify a contract, as this would involve changing the "Contract" as defined at Sub-Clause 1.1.1.1. In contradistinction, when dealing with contractual interpretation the DAB should seek to ascertain the intention of the parties

> *"from the language they have used interpreted in the light of the relevant factual situation in which the contract was made. But the poorer the quality of the drafting, the less willing any court should be to be driven by semantic niceties to attribute to the parties an improbable and unbusinesslike intention, if the language used, whatever it may lack in precision, is reasonably capable of an interpretation which attributes to the parties an intention to make provision for contingencies inherent in the work contracted for on a sensible and businesslike basis."* [16]

This statement was recently approved by the Supreme Court in *Rainy Sky SA & Orsd v Kookmin Bank*.[17]

In most cases where there has been an error in the Bill of Quantities then the task will be one of rectification rather than contractual interpretation. It will however be an extremely rare case where the courts decide to rectify the Bill of Quantities.[18]

**12.4 Omissions**

Sub-Clause 12.4 must be read alongside Sub-Clause 13.1 and 13.3. As a general principle of law: a contract for the execution of work confers on the contractor not only the duty to carry out the work but the corresponding right to complete the work which it contracted to carry out. To take away or vary the work is an intrusion into and an infringement of that right entitling the contractor to damages, unless the contract provides for work to be varied or omitted. … reasonably clear words are needed in order to remove work from the contractor to have it done by somebody else. It is implicit in most contracts that an employer who

[16] *Mitsui Construction Co Ltd v AG of Hong Kong* [1986] 33 Build LR 1 at 14 per Lord Bridge
[17] [2011] UKSC 50
[18] See, for example, *Swainland Builders Ltd v Freehold Properties Ltd* [2002] 2 EGLR 71

exercises a power to omit work must genuinely require the work not to be done at all, and it cannot exercise such power with a view to obtain having the work undertaken by another at a cheaper price – see *Abbey Developments Limited v PP Brickwork Limited*[19] and *Stratfield Saye Estate Trustees v AHL Construction Ltd*[20]. This is the position within FIDIC 1999; i.e., that the Employer can omit work but cannot do so in order to have the work done by another.

It is accepted that an Employer can omit work and have that work done by another contractor only if there are clear words in the contract. In *Multiplex Construction (UK) Limited v Cleveland Bridge UK Limited and Cleveland Bridge Dorman Long Engineering Limited*[21] Jackson J held that: "A variation clause entitles the employer to omit work which he no longer requires. Absent specific provision to that effect, a variation clause does not entitle the employer to omit work for the purpose of giving it to another contractor".

Where the Employer does omit work and the valuation of that work is not agreed then Sub-Clause 12.4 is applicable. This provision entitles the Contractor to compensation for the costs reasonably incurred in the expectation of carrying out work subsequently omitted. It should be noted that the Sub-Clause refers to "cost" rather than to "Cost." The Engineer is obliged to determine the cost in accordance with Sub-Clause 3.5 and the sum determined will be added to the Contract Price.

By: Andrew Tweeddale

[19] [2003] EWHC 1987
[20] [2004] EWHC 3286
[21] [2008] EWHC 2220 (TCC) at para 1553