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Preparing Interim Payment Valuations for Construction Works - Worked Examples and Solutions

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Introduction

The effective administration of the payment clause of a building contract is one of the most important tasks that the contract administrator and consultant quantity surveyor perform during the contract period. The importance of cashflow within the construction supply chain is key to the smooth running of a contract. The implementation of the Construction Contracts Act (2013) in July 2016 now regulates payment practice on the vast majority of Irish construction contracts with values in excess of €10,000[1]. The Act's primary purpose is to ensure that contractors, and more particularly subcontractors, are paid promptly, and in full, for work that they have carried out. The Act requires construction contracts to provide an '*adequate mechanism*' for calculating both the timing of payments, and the amounts to be paid. If such a mechanism is not included in the agreement; the procedures set out in the 'Schedule' to the Act are deemed to apply. The default arrangements in the Schedule require contractors to be paid within 30 calendar days of submitting a payment claim. The default provisions in the Schedule apply to ***all*** subcontract payment agreements, unless more favourable terms than those set out in the Schedule can be secured. The Act also outlaws previous widespread payment practices such as pay-when-paid conditions. The primary impact of the Act, therefore, may be viewed as enshrining interim payments as the standard means of paying for construction work in order to generate the vital cashflow required by the supply chain.

This study examines the principles and procedures for calculating interim payments in accordance with the terms of the Royal Institute of the Architects of Ireland (RIAI) 'Yellow' and 'Blue' Forms of Contract (2017) and the Public Works Contract PW-CF1 (version 2.2 09/01/2017). These contract forms have recently been amended to take account of the Construction Contracts Act. Both the RIAI and PW-CF groups are considered to be 'Tier 1' contracts for the purposes of the Act and these, indeed, provide an 'adequate mechanism' for calculating payment amounts and intervals. The payment provisions of the RIAI contracts

[1] Contracts below €10,000 in value, contracts relating to owner-occupier residences of less than 200m² in area, material and plant supply contracts, employment contracts, and Public Private Partnership arrangements, are exempt from the application of the Act.

closely aligns with the Act's payment 'Schedule' for the payment of subcontractors, the Public Works Forms rather less so.

The Act is not specific as to what constitutes an 'adequate mechanism' for payment but it is supposed that a number of common approaches would satisfy the Act's requirements such as:

- regular predetermined set periodic payments;
- milestone or stage payments, which are predetermined payments made following the completion of specific sections of the work;
- detailed interim valuations of the construction work in progress.

Set periodic payments

Under this system a contractor might be paid €100,000 per month on a €1,000,000 project scheduled to last ten months. This approach is very simple to administer and promises certainty of cash flow. However, valuations do not accurately reflect the value of the work actually performed, particularly if the contractor falls behind programme, or if the works are varied, or if defective work is subsequently discovered. Overpayment is a particular risk in the event of the Contractor's liquidation. (Hackett *et al*. 2007).

Stage payments

This approach pays agreed amounts of money when certain stages of the work are finished. For example, on completion of the substructure or when the building is weather-tight. This approach is also simple to operate and does not overvalue the works. However it does not include for further work in progress and materials on site. Non-completion of minor items of work within a stage could also hold up the payment for the entire stage. (Hackett *et al*. 2007)

Detailed interim valuations of the construction work in progress

This is the default mechanism for making payments under the principle Irish standard forms of building contract. The RIAI Contract sets out its payment procedures in Clause 35(b), with the corresponding PW–CF payment provisions being contained in Section 11 of that contract. Hackett *et al* (2007) view this arrangement to be the fairest method. '*Variations, defective work and delays to building work, can be dealt with at each interim valuation*'. They note, however that the approach requires a substantial, regular input from both the contractor and the employer's professional team in order to administer the arrangement effectively.

Under the Construction Contracts Act, particular attention must now be paid to contesting or making cuts in contractors' payment claims. In order to reduce the Contractor's claim the Employer must deliver a '*response to the payment claim notice*'. These are elsewhere referred to as 'withholding notices', or 'pay less notices' and these must be delivered to the Contractor within 21 days of the payment claim date, specifying the proposed payment amount, the reasons for the differences, and the relevant calculations supporting the proposed payment. If a response notice is not issued, the amount stated in the payment claim notice becomes payable, in full, (no matter how outrageous) on the scheduled date for payment.

Payments Procedures under the RIAI and Public Works Contracts

Timing of Payment Claims

The RIAI Contract.

The interim payment procedures are set out in Clause 35 of the RIAI Contract with subclause 35 (b) regulating payment intervals. This subclause has recently been modified in response to the introduction of the Construction Contracts Act. The Contractor is now entitled to submit a payment claims within one calendar of month from the actual date of possession and thereafter at the intervals stated in the Appendix (this default period is one calendar month). The Contractor's detailed progress statement typically constitutes a 'payment claim notice' in compliance with the Act.

The Contractor initiates the payment process by submitting a detailed progress statement to the Architect, valuing the work, including sub-contract work, completed at the payment claim date. On most projects the task of checking the valuation will be carried out by the Employer's consultant quantity surveyor. This task must be attended to promptly, as the Contract requires the Architect to issue a Certificate within the timescale set out in the Appendix to the Contract. This default period for 'turning around' valuations is five working days.

The Public Works Contract PW-CF1

Section 11.1, '*Interim Payment'*, of the PW-CF1 Contract provides that, where a valuation exceeds the minimum payment threshold, that contractors can apply for interim payments at the periods set out in the Schedule Part 1L. The default period for submitting interim payment, like the RIAI contract, is monthly. The application procedure aligns with the requirements of the Construction Contracts Acts requiring the Contractor to '*give a payment claim notice to the Employer's Representative, in the form of an interim statement, [not later than 5 days after the date agreed between the Parties to be the payment claim date]*. The payment claim must provide a fully detailed breakdown based on the Pricing Document specifically identifying amounts included for each of the named Specialists. The claim must also include other supporting details required by the Employer's Representative.

Amounts of Interim Payments.

The RIAI Contract

Clause 35 (c) sets out the procedures for valuing the content of interim certificates; in brief this covers the value of the work '*duly*' (properly) executed and the materials delivered since the previous valuation. Duly executed work includes elements such as preliminaries, provisional work, prime cost work, works covered by architect's instructions, material and labour price fluctuation claims, and loss and expense claims. These components are considered below.

The Public Works Contract PW-CF1

Section 11.1.2 of the Public Works Contract is broadly similar in approach to interim payments as the RIAI Contract but has fewer components. Provisional work and prime cost work are not accommodated within Public Works Contracts. Similarly claims for fluctuations in labour and materials prices are only likely to apply on *exceptionally* large contracts. The payment comprises '*the Contract value of the Works properly executed'*, plus an evaluation of unfixed materials, and 'Compensations Events'.

Commentary

The consultant quantity surveyor's role is to check the contractor's valuation and issue a certificate recommendation to the contract administrator in accordance with the terms of the particular contract. The quantity surveyor must make a fair valuation of the work. While interim valuations are not conclusive, they must be a fair and reasonable assessment of the value of work done. Care must be taken not to over-value or under-value the work. Under-valuation reduces vital cash-flow to which the Contractor is entitled. Over-valuation on the other hand risks the Employer's position in the event that the Contractor defaults and fails to complete the

Works. In this event the Employer may have to pay a completion contractor for work and materials, for which the original contractor has already been paid. – A disastrous outcome.

The QS must visit site to verify that the work claimed for has actually been carried out, and that the contractor's application for payment is arithmetically correct. A general appraisal should also be made as to the overall level of the valuation - bearing in mind progress on site and the projected cash flow. The certificate recommendation must also separately identify payments for nominated / specialist sub-contractors.

It is common for the QS to disagree with the Contractor's valuation and adjust it, and in these instances, the Architect *must* explain the differences *specifying the reason or reasons for the difference and the basis on which the amount certified for payment is calculated* (RIAI 2017). It should be noted that the CCA requires the Employer to submit a *written* response to a payment claim notice (a withholding notice or pay-less notice) in order to contest a contractor's payment claim.

Periods for Honouring Certificates.

The Employer's primary contractual duty is to pay the Contractor.

Under the RIAI Contract, as soon as the Architect's interim certificate is presented to the Employer, the Employer must pay the Contractor within seven working days (unless another period is stipulated in the Appendix). Failure by the Employer to pay on time entitles the Contractor after seven working days to claim AA bank interest on overdrafts from the Employer for the outstanding certified amount.

The corresponding arrangements in the Public Works Contract requires the Employer's Representative to issue a response to payment claim notice to the Contractor, within 14 days of receipt of the Contractor's payment claim notice. The response notice must be in the form of a certificate and be copied to the Employer. The response notice to the Contractor must set out the valuation calculations on which the Certificate is based. The Employer's Representative is also required to provide the individual named specialists with details of the gross and net amount included within the Certificate for their respective works. The Contractor will then invoice the Employer for the certified sum. The Employer shall pay the amount due on the invoice within 21 days after receiving the invoice.

Figure 1 below sets out the periods for submitting, certifying/responding to and payment of interim valuations under the Construction Contracts Act, RIAI and PW-CF1 contracts. Note that subcontractors typically lodge payment claims notices to main contractors *before* they, in turn, submit their applications to the contract administrator. Consequently, the period for the Contractor to issue a response to a subcontractor's payment claim notice is shorter than indicated in the figure below. What is clear, nevertheless, is that main contractors may have to pay subcontractors before being paid themselves, particularly on public works contracts.

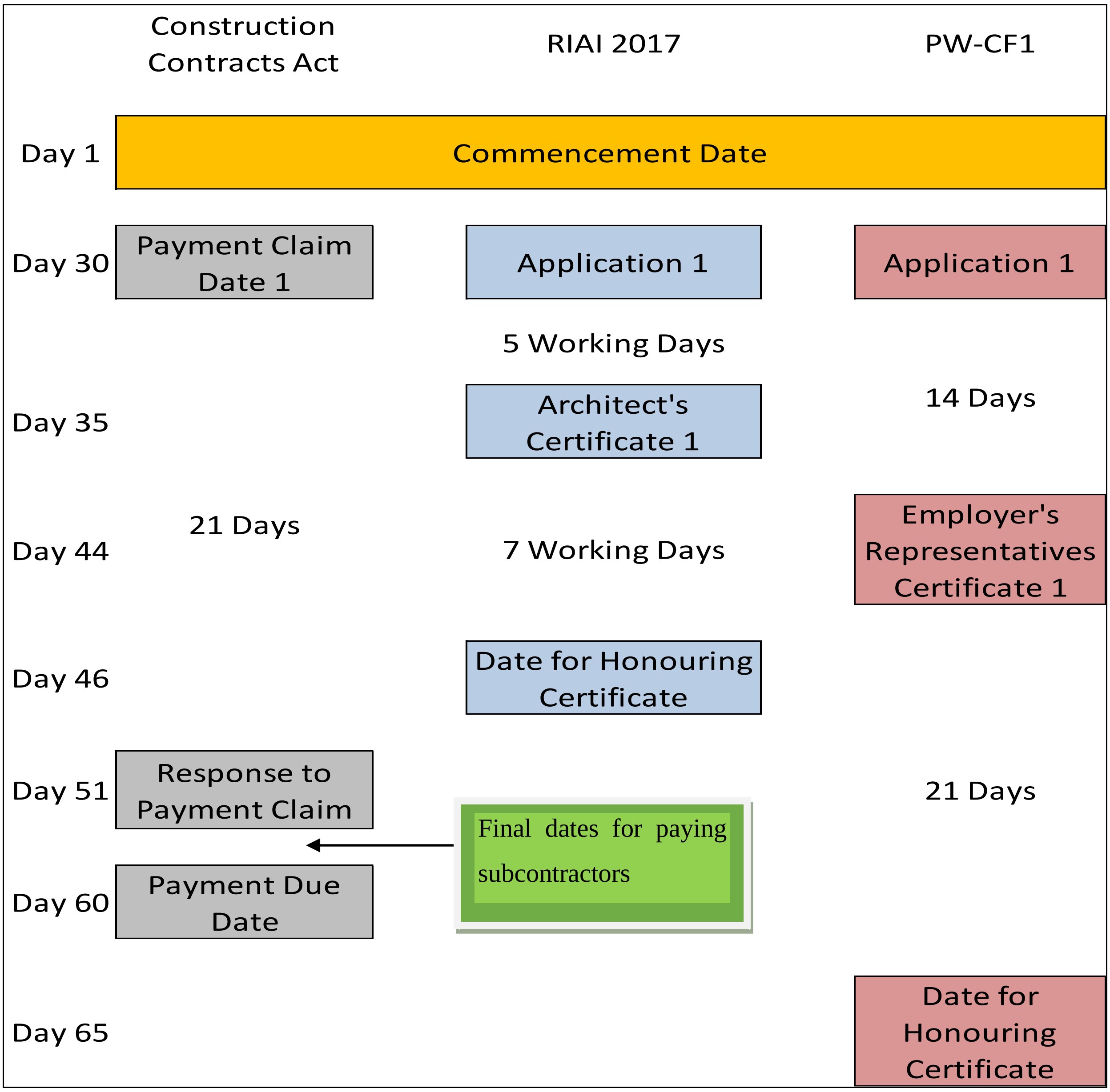

Figure 1 Default periods for submitting and honouring interim payments

Failure by the Employer to pay on a certificate is a ground for the Contractor to threaten to suspend work, and subsequently determine its employment under the building contract (subject to notice). The Employer does not have the right to obstruct or interfere with the issue of any Architect's or Employer's Representative's certificates. The Architect / Employer's Representative should advise employers as to their responsibility regarding honouring certificates before commencing construction. Where the project is funded in whole or in part by grant aid, e.g. school contracts, the Architect should advise the Employer as to the obligations to honour certificates whether grants have been paid or not.

Unfixed Materials

As noted above, the RIAI Contract entitles contractors to payment for materials '*delivered upon the site*' provided they are properly protected and not prematurely delivered, and, in the absence of retention of title issues, once certified these become the Employer's property. The Contractor, however, remains entirely responsible for replacing them, should they become damaged or are stolen.

Cartlidge (2017) comments that it may sometimes be inappropriate for large, delicate or expensive items of plant to be stored on site. Clause 35(d) provides the Architect with the discretion to include the cost of such materials in valuations before they are delivered to site, provided a number of safeguards (eight) are satisfied. Such materials must be for the works, be complete, be as specified, insured, and separately set aside in specific storage locations and, the supply orders are in writing confirming the Contractor's ownership of the materials.

A noteworthy difference between the RIAI and Public Works Contract is their differing approach to paying for unfixed materials. Under the Public Works Contracts payment for *all* unfixed work items, not just off-site materials, is at the Employers Representative's discretion, and only if this is provided for in Schedule part 1L. The Schedule part 1L also allows a percentage ceiling of up to 90% to apply to the reimbursement of unfixed materials.

Similar vesting, protection and delivery conditions to those included in the RIAI contract apply to the reimbursement of unfixed materials. Payment for unfixed materials which have been delivered to site may be claimed provided they are complete, suitably stored, not prematurely delivered, and that title of the materials have been vested in the Employer. Additional safeguards are required to protect the Employer's position in relation to the payment for off-site materials. These further requirements are that the materials are clearly identifiable at the supplier's premises, are insured and bonded.

Keane (2001) argues that payment for 'off-site' materials would only be made for unique purpose-made end products such as fabricated structural steelwork, precast concrete products and like components and special equipment that would not be stocked by typical builder's providers.

Retention

The RIAI Contract

Sub-clauses 35 (e, f and g) set out various procedures for dealing with retention money which is set aside in order to rectify defective work. Retention is normally held as a percentage of the value of the executed work and materials. The amount of the retention held may be capped if a particular limit is stated in the Appendix. The insertion in the Appendix states that the retained percentage is '*not to exceed 10%*'

The most common option for dealing with retention is set out in Sub-clause 35 f (2). This sub-clause provides that retention is held on '*the value of the work and materials'* by the Employer during the construction phase of the project. The retention is held on trust for the Contractor by the Employer who is not obliged to invest this money. One moiety (half) of the retention is released on Practical Completion of the Work. The other half of the retention is released on foot of the Final Certificate.

Alternatively, under sub-clause 35(g), the retention may be deposited in a 'Joint Account' with the interest accruing to the Contractor. As with Sub-clause 35 f (2), one half of the retention is released on Practical Completion of the Work. The other half of the retention is released on foot of the Final Certificate. This approach appears to be rarely used in practice.

In addition, sub-clause 35 (f) 1 sets out a further mechanism for dealing with the remaining retention held after the issue of the Certificate of Practical Completion. Under this arrangement the Contractor provides an approved retention bond which triggers the full release of the remaining retention.

It should be noted that a number of components of a valuation are not subject to retention. These include: reimbursement of fluctuation claims, reimbursement of contractor's loss and expense claims, and payment for remedial work in connection with damage covered by the Contractor's all risks insurance (sub-clause 22, (c) (i)). Fees or charges legally demandable by local and other authorities and similarly performance bonds where separately identified would not be subject to retention.

The Public Works Contract

The retention provisions are set out in the Section 11.3 of the Public Works Contract and are quite similar to the default arrangements in the RIAI Form. The percentage to be retained is entered in the Schedule, part 1L which indicates a default of 10% unless otherwise stated. Half of the retention is released on the issue of the Certificate of Substantial Completion of the Works with the balance being released on the issue of the Defects Certificate. After the handover of the Works, the Contractor may avail of an option to release the balance of the retention by providing the Employer with an acceptable retention bond.

Full Payment under the Public Works Contract

The Public Works Contracts Forms contains a number of sanctions which aim to eliminate the failure to provide collateral warranties, up-to-date programmes, and certificates of compliance with employment legislation requirements. These sanctions include, for example, a cut of 15% of the interim valuation where the contractor fails to submit a revised up-to-date construction programme.

Components of Interim Payments

The Quantity Surveyor should always visit and walk around the site, accompanied by the Contractor's Surveyor whenever possible. He/she should also talk to the Clerk of Works (if one has been appointed) or other design team members on site before starting the valuation.

It is common for the Contractor's Surveyor and the Client's Quantity Surveyor to discuss and agree these interim valuations before they are forwarded to the Architect for certification. The QS must separately identify the amounts included for named specialists or nominated subcontractors work included within the interim certificate recommendations.

Preliminaries

Preliminaries refers to the contractor's costs in running the building site. The 'prelims' refer to costs which are necessary but do not form part of the completed building. These represent the contractor's site overheads and temporary costs and include matters such as: site staff, security, hoarding, temporary roads, site accommodation, insurance, plant, site cleaning and so on.

Items included in the preliminaries may be fixed costs or time related costs and several items contain both fixed price and time related cost components. Some preliminaries items such as the provision of a bond, drying out the work, cleaning site on completion for example, are fixed costs. Other items, such as the cost of site staff are largely time-related and depend on the estimated length of time the staff will spend on site. Other items, again, incur both fixed costs and time related costs, for example scaffolding incurs erection costs (fixed cost), maintenance (rental / time dependent costs) and final removal / striking costs.

In practice the preliminaries are often valued pro-rata to the percentage of the building work which has been carried out. This approach may, however, be unsatisfactory for contractors, particularly on contracts with substantial start-up costs. Ideally a itemised break-down of the prelims can be agreed prior to the start of the works. This breakdown will ensure a greater degree of accuracy in the valuation of the preliminaries and enable the contractor to promptly pay for 'point' costs as they occur.

Measured work

This component involves valuing the completed works on site. The simplest method is to visually assess the estimated percentage of the work completed within each element of the pricing document. For example 50% of substructure and 30% of external walls and so on. Although this produces a crude valuation it is a widely used technique. Where greater accuracy is required the progress of the individual work items can be measured on site. On RIAI contracts, ***provisionally measured work*** and the expenditure of ***provisional sums*** must also be promptly remeasured, valued and kept fully up to date as part of the measured works category.

Ashworth, Hogg and Higgs (2013) comment regarding the need for accuracy, advising that '*the surveyor should appreciate that an interim valuation is merely a snapshot of the progress of the works, which … change significantly within 24 hours of the assessment*'. They add that '*It* *should be remembered that detailed measurement for valuation purposes will likely have no further bearing beyond the interim payment in hand and is therefore of passing value only*.'

Nominated subcontractors and suppliers work

On RIAI contracts nominated subcontractors and suppliers are paid by the main contractor. The valuation of each nominated subcontractor's work is identified separately on both the quantity surveyor's recommendation and the architect's certificate. The main contractor is entitled to a *pro rata* proportion of the profit and special attendance on the nominated account where these are priced in the tender.

On public works contracts, although named specialists are considered to be 'domestic subcontractors' the value of their work must be separately identified in the Employer's Representative's certificate.

Value of variations / change orders

It is almost inevitable that there will be design modifications and changes as the works progress. Variations arise where the contract administrator issues a written instruction directing the contractor to carry out additional or substituted work, or to omit work. Verbal instructions should be confirmed promptly in order to authorise payment. Variations should be measured and valued as soon as possible and should be routinely agreed and signed off by the parties to the contract. It is common, however for valuations to include on-account payments for some variations until they are properly valued at a later stage.

Value of dayworks

Occasionally, it may not be appropriate to use or adjust contract rates to value particular works and it may be necessary to value these on a time and material basis. This approach is referred to as *dayworks*. Dayworks involves the contractor recording the resources used to perform the particular task; i.e. the hours worked by the various operatives, craftsmen, labourers etc. and the plant and materials used. All daywork sheets, should be properly priced in accordance with the contract provisions, and approved by the contract administrator before they are paid.

Value of unfixed materials

As noted above, the RIAI contract, generally entitles the Contractor to be paid for unfixed work materials delivered to the site. Payment for materials stored off site, however, is at the architect's discretion and *may* be included in the valuation provided the required safeguards have been fully satisfied. Under the PWC forms of contract payment for *all* unfixed materials is at the discretion of the employer's representative *and* is subject to a cap of 90% maximum of the value of the materials. Again, the PWC contracts set out strict conditions which must be satisfied as prerequisites to the Employer's Representative exercising a discretion to pay.

Value of contractual claims

The main contractor may be entitled to additional payment for loss and or expense suffered as a direct result of any delay or disruption to the works caused by the employer or the design consultants. It is up to the contractor to prove the loss and expense to the contract administrator's satisfaction. Loss and expense claims are often contentious and may take considerable time to resolve. Nevertheless, the contract administrator must include a fair and reasonable valuation of the contractor's reimbursement claim in interim certificates pending final agreement of the claim.

Loss and expense claims are not subject to retention on RIAI contracts.

Labour and material price fluctuations

Claims for fluctuations in the price of labour and materials are rare in practice, as this risk is typically transferred to the contractor on private sector projects when finalising the contract negotiations. The arrangement is achieved by striking out Clause 36 of the RIAI contract conditions. Fluctuation claims are also rare on public sector works as the PW-CF forms are fixed price for 36 months, which effectively exempts all but the very largest building contracts.

Where fluctuation claims are admissible under the RIAI Form, the Contractor can apply for payment of increases in the interim progress applications. The contract rates are deemed to be set at the 'designated date' set out in the Appendix. If wages, or the rates of 'other emoluments' rise, the extra costs can be recovered. The prices of materials at the time of the tender are deemed to be market prices and a list of such basic prices may be required. If prices increase during the course of the contract the increases are recoverable. If there is a substantial increase in the price of any goods the Contractor shall give notice in writing to the Architect within a reasonable time of becoming aware of the of an increase. A percentage addition of 7.5% is applied to labour accounts and 12.5% is applied to material increases to cover the associated irrecoverable items and the cost of preparing the account.

Fluctuation claims are not subject to retention under the RIAI contract.

Retention

The client normally retains a percentage of the gross valuation of the works, to cover the rectification of defective work and ‘snags’. Guidance on retention levels are set out in the *Liaison Committee Code of Practice for Tendering and Contractual Matters 2006*. Levels are recommended on a sliding scale from 7½% for projects less than €500,000 to 2%, for projects exceeding €5 million in value. One half of the retention is released at practical completion stage and the balance is released in the final certificate.

Value added Tax

General construction work is subject to VAT, which is currently 13½%. Certain elements of furnishings and fittings are subject to the higher rate of VAT at 23%

Previous payments to contractor

The sum due to the main contractor is the gross valuation adjusted for retention and VAT less amount previously paid.

Exercise No 1

Using the information in the following tables, advise the Architect on the amount of the interim valuation for month 4. – State any assumptions made.

Conditions of Contract	RIAI 2017 Edition with Quantities
Contract period	6 months
Liquidated and ascertained damages	€10,000 per week
Retention	5%
Fluctuations -	Clause 36 RIAI does **not** apply

Contract Sum Analysis	
Preliminaries (see breakdown below).	€50,000
Substructure	€50,000
Superstructure	€300,000
External works	€30,000
PC sums (see breakdown below)	€70,000
Contract Sum (Ex VAT)	**€500,000**

Contract Preliminaries: Breakdown	
Site Accommodation	€5,000
Hard-standings	€3,000
Site staff	€20,000
Plant and equipment	€15,000
Temporary lighting	€2,000
Employers liability insurance and third party insurance	€3,000
Insurance for the works	€1,000
Water for the Works	€1,000
Total for Preliminaries	**€50,000**

Breakdown of PC Sums.	
Structural Steelwork	€15,000
Windows and External Doors	€10,000
Engineering services	€35,000
Ironmongery	€4,000
Sanitary Fittings	€2,500
Profit and Attendance on PC Sums	€3,500
Total	**€70,000**

Progress at the end of month 4

Substructure	Complete
Superstructure and Services	70% Complete
External Works	75% Complete.
Assessment of Architects Instructions Variations	€13,500
Materials on site	€5,000
Materials off site	€2,000

Commentary and Outline Solution.

This question focusses largely on the valuation of preliminaries costs and PC sums in the interim valuation process.

Because the question contains an itemized breakdown of the preliminaries, an inference can be drawn that these details are significant. Given this information it may be supposed that a detailed valuation of the preliminaries is preferable to the more simplistic percentage of time elapsed or proportion of work completed approaches.

Valuation of Contract Preliminaries	
Site accommodation (€5,000). The cost of site huts contains both fixed costs and time-related (hire) cost elements. The assumption taken in this valuation is that €1,000 is included to bring the huts to site and remove them on completion (say 50/50). In relation to the €3,000 time related costs, month 4 represents 67% of the contract period. The valuation therefore is €1000 +(3,000 x 67%)= €3,000	€3,000
Hard-standings (€3,000). These are usually provided at the start-up stage of the contract and are disposed of on completion of the external works. This item is therefore predominantly fixed price and is substantially paid for less say €500 held back for clean-up operations	€2,500
Site staff (€20,000). – Site staff is generally considered to be a time related cost. The valuation therefore is €20,000 x 67% = €13,333. – Say €13,400	€13,400
Plant and equipment (€15,000). These costs are predominantly time-related, however, there may be costs generated by bringing the plant to site and removing the plant from site. This valuation assumes €500 for bringing the plant to site, 67% of the €14,000 for time related costs, with €500 being retained to cover the removal costs The valuation therefore is €500 + (67% of €14,000) = €9,880 – Say €10,000.	€10,000
Temporary lighting (€2,000); Again, these costs are predominantly time-related. An estimate of €200 has been assumed to install the lighting and €1,800 has been allowed for power and maintenance. Disposal is included in the rate.	€1,400

The valuation therefore is €200 + (67% of €1,800) = €1,400.	
Employer's liability and third party insurance (€3,000). This item covers injuries to employees and the general public arising from work place accidents. This is a fixed cost paid at the commencement of the works. It is included, therefore, in full in the valuation	€3,000
Insurance for the works (€1,000). This item provides insurance for damage to the works and is also paid 'up-front'. It is also included, therefore, in full in the valuation	€1,000
Water for the Works (€1,000) This is regarded as an installation charge and is therefore included in full in the valuation.	€1,000
Valuation of Preliminaries:	**€35,300**

Valuation of Prime Cost Work	
Structural Steelwork - Assumed complete	€15,000
Windows and External Doors - Assumed nearing completion	€8,750
Engineering services - Assumed 75% complete (€35,000 x 75%) =26,250	€26,250
Ironmongery Not commenced	€0
Sanitary Fittings Not commenced	€0
Sub-total	€50,000
Profit and Attendance – (€50,000÷€66,500) x €3,500 = €2,632 – Say €2,500	€2,500,
Total for PC Sums	**€52,500**

Build Up of Valuation No 4	
Preliminaries. - As build up above.	€35,300
Substructure. - Complete as Contract Sum	€50,000
Superstructure. - €300,000 x 70% = €210,000	€210,000
External works. - €30,000 x 75% = €22,500	€22,500
PC sums – As build up above.	€52,500
Variations – as brief	€13,500
Materials on site – as brief	€5,000
Materials off site – as brief	€2,000
Gross Valuation	**€390,800**
Less Retention 5%	-€19,540.
	€371,260
Less Valuation 3 previously paid (Say half the contract sum plus €10,000)	-€260,000
Valuation at month 4	€111,260
Add VAT 13.5%	€15,020
Amount due Valuation No. 4.	**€126,280**

Exercise No 2

Using the information in the Tables below, advise the main contractor on the amount of the interim valuation due at the end of month 7. Make any necessary assumptions

Conditions of Contract	RIAI 2017 with Quantities
Contract Sum	€2,000,000
Contract period	10 months
Contractors partial possession value	€700,000
Retention	3%
Fluctuations -	Not Applicable

Progress at the end of month 7

Measured builders work	€900,000
Piling subcontract (work complete)	€50,000
Mechanical installation	€40,000
Electrical installation	€32,000
Local Authority services Connections	€8,000
Materials on site	€10,000
Materials off site	€2,000

Commentary and Outline Solution

This question focusses on assumptions that have to be made regarding what appears to be missing or incomplete information in the question. 'Missing' particulars include the absence of references to the preliminaries and to the contractor's margins and attendance on nominated sub-contractor's accounts.

There is no mention of preliminaries in the question. This is deliberate. Preliminaries are real costs incurred in executing the work and an assessment of their value should be included in the valuation unless an assumption has been specifically stated that they have been included in the rates for the measured works. This valuation assumes preliminaries represent 10% of the Contract Sum and the have been valued pro rata the value of the work in progress i.e. the total of the measured works, PC Sums and unfixed materials.

Regarding PC Sums, it is assumed that the contractor has priced profit and attendance on these accounts. In practice profit and 'special' attendances on PC sums are included as 'Items' rather than percentages in bills of quantities measured in accordance with ARM4.

Valuation of Preliminaries	
Measured Work - as brief.	€900,000
PC Sums - see next.	€136,500
Unfixed materials	€12,000
Sub-Total	€1,048,500
Valuation of the Preliminaries assumed 10% of Sub-total	**€104,850**

Valuation of PC Sums	
Piling subcontract (work complete)	€50,000
Mechanical installation	€40,000
Electrical installation	€32,000
Local Authority services Connections	€8,000
Sub-Total	€130,000
Profit and Attendance assumed 5%	€6,500
Valuation of PC Sums	**€136,500**

Build Up of Valuation No 7	
Preliminaries – As above	€104,850
Measured builder's work. - As brief	€900,000
PC Sums. – As above	€136,500
Materials on site – As brief	€10,000
Materials off site – As brief	€2,000
Gross Valuation	€1,153,350.00
Less Half retention on partial possession (1.5% on €700,000)	-€10,500.00
Less Full retention on balance (€1,453,350 -€700,000) =€453,350 x 3%	-€13,600.50
	€1,129,249.50
Less Previously Paid (Say)	-€1,000,000.00
Valuation at Month 7	€129,249.50
Add VAT 13.5%	€17,448.68
Amount Due Valuation No 7	**€146,698.18**

Exercise 3.

Using the information in the following tables, advise the Architect on the amount of the interim valuation for month 16. The Client has taken possession of all the works except the car parks and certain other external works are not yet finished.

Conditions of Contract	RIAI with Quantities
Contract period	15 months
Liquidated and ascertained damages	€15,000 per week
Retention	3%
Fluctuations -	Clause 36 RIAI applies

The Contract Sum €4,800,000 is broken down as follows

Preliminaries	300,000
Substructure (all provisional)	300,000
Superstructure	3,350,000
External works	300,000
Drainage (all provisional)	100,000
PC sums	450,000

Progress to date

Substructure complete	315,000
Superstructure complete	3,300,000
External Works	70% complete.
Drainage, Remeasured.	90,000
PC Sums	
Kitchen equipment (supply only) invoice received	40,000
Electrical sub-contractor invoice received	120,000
Mechanical sub-contractor invoice received	160,000
Service connections invoice received	50,000
Materials on site	12,000
Materials off site	12,000
A claim for a six week extension of time and associated loss and expense has been submitted.	18,000
Fluctuations: Sectoral Employment Order	11,000

Commentary and Outline Solution

This question relates to a scenario where the contract has not been completed within original period for completion. The question therefore raises valuation issues such as prolongation costs and liability for liquidated damages. In the outline solution the assumption made is that the Contractor is responsible for two weeks of the delay and that liquidated have been applied as a result. The assumption made is that the other four weeks of the Contractor's claim are valid and €12.000 has been included in the valuation in respect of this claim. Regarding the application of liquidated damages, this is at the discretion of the Employer who is the only person who may deduct liquidated damages from an Architect's certificate. In answering this question it is assumed that the main contractor has been informed that liquidated will be applied in this instance.

The question also raises issues relating to the valuation of the preliminaries and prime cost work. These, again have been required certain assumptions to be made In this instance the overall preliminaries costs have been broken down into set-up, running and removal costs. Notional valuations have been entered against the running and removal costs.

Valuation of Preliminaries	
Site set-up costs; assumed €50,000 – complete	€50.000
Site running costs: assumed €230,000 - nearing completion - Say	€220,000
Decommissioning and removal assumed €20,000 - 50% Complete	€10,000
Preliminaries Valuation No 16	**€280,000**

PC Sums	
Supply kitchen equipment invoice received	€40,000
Electrical sub-contractor invoice received	€120,000
Mechanical sub-contractor invoice received	€160,000
Service connections invoice received	€50,000
Total PC Sums	**€370,000**
Profit 3% of €370,000	€11,100
Attendance assumed €10,000 in BQ – Say.	€8,900
PC Sums Valuation 16	**€390,000**

Valuation No 16	
Preliminaries – see breakdown above.	€280,000
Substructure – as remeasurement	€315,000
Superstructure – complete	€3,300,000
External Works – 70% of €300,000	€210,000
Drainage – remeasured to date.	€90,000
PC Sums – as breakdown above	€390,000
Materials on site – drainage and car parking	€12,000
Materials off site – discretion to pay approved	€12,000
Loss and expense – Allowance for four of the six weeks claim	€12,000
Fluctuations: clause 36 applies	€11,000
Gross Valuation	**€4,632,000**
Less: Full retention on external works, drainage and unfixed materials - €210,000 plus €90,000 plus €24,000. = **€324,000** x 3%	-€9.720
Less: Half retention on works taken over by client – Gross valuation €4,632,000 **less** outstanding works above €324,000 and **less** sums not subject to retention the loss and expense and fluctuation claims €23,000 = **€4,285,000** x 1½%	-64,275
Valuation	**€4,558,005**
Less Previous Paid Valuation No 15 (Say)	-€4,258,005
Less Liquidated Damages: Two weeks @ €15,000	-€30,000
Net Valuation	**€270,000**
Add Value Added Tax @13½%	€36,450
Certificate Recommendation No 16	**€306,450**

References

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