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# Delay analysis: a comparison of the UK and US approaches

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The United Kingdom Society of Construction Law (SCL) first published its Delay and Disruption Protocol (the ‘Protocol’) in 2002 to provide guidance on some of the common issues that arise on a project in assessing extensions of time or compensation for delay. The Protocol is not legally binding unless incorporated into the contract (which is rare), but has been used in the UK and internationally as instructive in approaching common delay and disruption issues.

In 2017, the SCL published a revised second edition (the ‘SCL Protocol’) following industry feedback, updates in case law and changes in technology since it was first published. The SCL Protocol sets out 22 Core Principles followed by more detailed guidance on the principles, common terms, financial heads of claim and record-keeping. It states that it is

intended to be a balanced document reflecting the interests of all parties in the construction process and aims to be consistent with good practice, as opposed to setting a benchmark of best practice.<sup>1</sup> The SCL Protocol no longer recommends specific model contract clauses, which is consistent with its status as ‘guidance’ rather than a legally binding document.<sup>2</sup> It also includes as a Core Principle that extension of time claims should be submitted and assessed contemporaneously rather than adopting a ‘wait and see’ approach.<sup>3</sup>

The SCL Protocol continues to focus upon the UK construction market and, in particular, the English law position although it has received less uptake by the courts in the UK than it has in other jurisdictions. The Australian courts have shown a particular willingness to seek guidance from the SCL

Protocol,<sup>4</sup> as have the courts in Hong Kong.<sup>5</sup> In January 2017, the Malaysian Society of Construction Law published its own supplement to the first edition of the SCL Protocol to take account of the needs and expectations of the local industry. It remains to be seen whether other branches will adopt a similar approach.

In 2017, the American Society of Civil Engineers (ASCE) Construction Institute Schedule Delay Analysis Standards Committee published consensus industry standard guidelines for schedule delay analysis in the United States in accordance with the American National Standards Institute (ANSI) under the designation ANSI/ASCE/CI 67-17 Schedule Delay Analysis (the 'ASCE Standard').<sup>6</sup> The ASCE Standard was created because there was no true industry standard addressing schedule delay analysis, rather several competing lower 'manual of practice' level documents that did not provide adequate guidance. The ASCE Standard is targeted at the industry at large and aims to address delay analysis methods used only to support the party's position as opposed to being based on contemporaneous CPM Schedules. As such, the committee focused on evaluation of delays after the delaying event concludes and set out 35 guidelines that any CPM schedule delay analysis should follow in an effort to help standardise principles used in the analysis.<sup>7</sup> The ASCE Standard states that its guidelines 'generally reflect best engineering principles associated with schedule delay analysis and reflect standards of practice in the United States construction industry'.<sup>8</sup>

Both the SCL Protocol and the ASCE Standard were published in the same year with a focus on their own domestic markets, albeit the SCL has acquired an international following in recent years. Both are intended to provide guidance of general application subject to the specific contract and legal jurisdiction of the matter. Both documents are also intended to be balanced and represent the interests of all parties in construction disputes. However, they have slightly different recommendations. This article compares some key aspects of the two and considers whether the more established

SCL Protocol could learn anything from its cross-Atlantic cousin.

### Ownership of float (similar)

Ownership of float can be a contentious issue:

- Should the employer get the benefit of any float that the contractor has built into its programme if it instructs a variation/additional work or any other employer-related delay occurs?
- Should the contractor get an extension of time, even if a delaying event does not push out the completion date, in order to preserve its float?

From a contractor's point of view, any float has been built into the programme for its own benefit, as a protection against liquidated damages. As a result, the contractor should be free to dictate how it is used.

The employer will argue that it has paid for the contractor to be on site for the whole contract period (including the float) and should be entitled to the benefit of it.

The two documents take a similar approach to ownership of float. The ASCE Standard (guideline 5.2) advises that the default industry standard is that float is owned by the project and can be used by either party, subject to the contract terms and conditions. Similarly, the SCL Protocol (Core Principle 8) advises that time extensions are only granted when float is exhausted so float is also used on a first-come-first-served basis. The SCL Protocol does recognise that this should not preclude the contractor from recovering costs for employer delays that cause it to miss its planned completion date (but not necessarily its contractual completion date) where that planned date is reasonable and the employer is aware of it (Core Principle 13).

This is in line with the approach of the Joint Contracts Tribunal (JCT) standard form of contract in the UK.<sup>9</sup> In it, the entitlement to extension of time only arises where the delaying event (known as a relevant event) causes a delay to the contractual completion date. However, some of the other forms adopt a different approach. In both the New Engineering Contract (NEC) and Fédération Internationale des Ingénieurs-Conseils (FIDIC) standard forms, float is owned by the contractor.<sup>10</sup> The NEC distinguishes between planned completion and completion date the former being the date in the

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contractor's programme. It provides that a delay to the completion date is assessed as the length of time that, due to the compensation event, planned completion is later than planned completion as shown on the accepted programme.<sup>11</sup> This preserves the 'terminal float' in the project for the benefit of the contractor and also shows the importance of ensuring that the accepted programme is up-to-date.<sup>12</sup> The Chartered Institute of Building (CIOB) Time and Cost Management Contract takes a different approach again, with each party setting aside 'time contingencies' at the start of the project for their exclusive use for events identified within their respective risk registers although total float can be used by either party.<sup>13</sup>

Federal contract forms in the US include a statement that float is not owned by either party. US standard forms of contract generally allow for an equitable adjustment to contract time in the event of a delay but do not always specifically address float.<sup>14</sup> The Engineers Joint Contract Documents Committee (EJCDC) identifies that to obtain a time extension the delay has to be 'adversely affecting an activity on the critical path' at the time of the impact, which means exceeding the float in the schedule.<sup>15</sup>

ConsensusDocs requires identification of float in the schedule with monthly updates.<sup>16</sup>

### Concurrent delay (slightly different)

Regarding concurrent delay, the two documents are slightly different. Both the SCL Protocol (Core Principle 10) and ASCE Standard (Chapter 8) provide that concurrent delay is excusable, meaning that an extension of time can be granted, but non-compensable, meaning no loss and expense flows from it.

There is currently a divergence in approach between the English and Scottish courts in how concurrent delay should be treated. In England, the courts have followed the approach set out in the SCL Protocol and ASCE Standard and allowed a full extension of time but no compensation for the period of concurrency.<sup>17</sup> The rationale behind that has been explained as being that if parties have expressly provided in their contract for an extension of time caused by certain events, the parties are taken to have contemplated that there could be more than one effective cause of delay (including a cause that would not qualify for an extension of time) and this express contract term amounts to an



agreement that there should be an extension of time.<sup>18</sup>

However, in *City Inn v Shepherd Construction*, the Inner House of the Court of Session in Scotland (the Scottish Appeal Court) found that where there are two competing causes of delay (one of which is excusable and the other that is not) and where neither is a dominant cause of delay, the extension of time and any compensation attaching to it should be apportioned fairly and reasonably between the competing causes.<sup>19</sup> It is worth noting that this case was based on a JCT form of contract that includes a reference to the extension of time being 'fair and reasonable', which may have influenced the approach. This approach has been criticised by some commentators who suggest allowing only a partial extension of time when there has been employer delay is contrary to the prevention principle.<sup>20</sup>

More recently, there was the case of *North Midland Building Ltd v Cyden Homes Ltd* [2018] EWCA Civ 1744. In it, the contract contained a clause providing that 'any delay caused by a Relevant Event which is concurrent with another delay for which the Contractor is responsible shall not be taken into account'. These clauses have been increasingly used in the UK and mean that the contractor bears the risk of not being entitled to an extension of time and of bearing the resulting liquidated damages if there are concurrent contractor and employer delaying events. In this case, the court upheld the validity of such clauses on the basis they represent a clear allocation of the risk to the contractor.

The standard form contracts used in the UK do not take a standard approach to concurrent delay. JCT and NEC do not deal with the issue at all,<sup>21</sup> whereas FIDIC allows parties specifically to set out in the Special Conditions how concurrent delay should be assessed, failing which it is to be assessed 'as appropriate taking due regard of all relevant circumstances'.<sup>22</sup> Given the vagueness of the default, parties may prefer to use the Special Conditions to agree a specific method of analysing this. The CIOB contracts are even more specific and are the only UK standard form contracts to provide a definition of concurrent delay.<sup>23</sup>

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The standard form contracts in the US, and federal contracts, all generally provide for a time extension for an excusable delay, without any language precluding the amount of time extension for concurrent delay. American Institute of Architects (AIA) and ConsensusDocs do not specifically address concurrent delay. The EJCDC contract specifically says that any 'concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled'.<sup>24</sup>

### **Review of schedule delays during the project (different)**

During the project, the two documents take a different position on evaluation of schedule delays. The SCL Protocol (guidance with Core Principle 4) advises use of prospective time impact analysis (TIA) at the start of the delay whether before or after the delay has finished during the project. It is not until time-distant from the delay event that the SCL Protocol (Core Principle 11) recommends switching to a retrospective delay analysis method.

By contrast, the ASCE Standard does not specifically address using a prospective TIA, but does recommend generally following the contractually mandated procedure. This frequently involves use of a prospective TIA once changed work is identified. However, after conclusion of the delay, the ASCE Standard (Chapter 4) suggests using actual impact to the scheduled completion date whether during the project or long after completion.

Both the SCL Protocol (Core Principle 4) and ASCE Standard (Chapter 1) encourage resolution of issues during the project rather than waiting until the end of the project. However, the SCL Protocol's recommendation of allowing a different method time distant from the delay or after project conclusion may be an impediment to expeditious resolution. For instance, if one of the parties does not like the result of the prospective TIA method, that party would have an incentive to wait until it becomes time-distant from the event, then choose a different delay analysis method that produces a better result while still following the SCL Protocol recommendations.

This can, likewise, be the position within the JCT form of contract. It provides for applications for extension of time to be made 'as soon as reasonably possible'<sup>25</sup> after a delay

event becomes apparent and for decisions on whether or not to award extension of time to be made within 12 weeks.<sup>26</sup> That would require a prospective analysis. However, it also provides for a post-completion review and for an additional (but not reduced) extension to be granted if 'fair and reasonable' and based on a retrospective analysis.<sup>27</sup> The NEC calls for more 'on the spot' prospective analysis as the contractor is required to apply for compensation events within a strict eight-week time period.<sup>28</sup> The project manager then has a fixed period of time to respond.

The US standard forms all require initial notice of time extension requests, but do not specify a period for submitting the claim particulars. The US federal contract forms typically specify a 'prospective' TIA when the delay is first identified, but do not address how to treat delay if no agreement is reached while the delay is ongoing. As a result, some courts have opined that a retrospective TIA comparing the delay between schedule updates is acceptable after the fact on federal projects and is not inconsistent with the prospective requirement in the contract.<sup>29</sup>

Unlike the SCL Protocol, the ASCE Standard's position of recommending one consistent set of guidelines whether immediately after the delay or long after completion of the project means that there would be no incentive for the parties to wait to resolve time-related disputes in terms of following the guidance.

However, employers tend to be of the view that a retrospective analysis, which allows any subsequent contractor delays to be factored into the analysis, is favourable to them and would be inclined to wait before making its analysis, regardless of the contract terms.

**Entitlement to extension of time versus compensation for the same period (different)**

The SCL Protocol and ASCE Standard differ with respect to the relationship between extension of time requests and the method of calculating compensation. The SCL Protocol (Core Principle 12) advises that extension of time entitlement does not automatically lead to entitlement to compensation. It further provides (Core Principle 22) that once it is established that compensation for prolongation is due, the evaluation of the sum due is made by reference to the period

when the effect of the employer risk event was felt and not to the extended period at the end of the contract.

By contrast, ASCE Standard (guideline 4.4) advises that the actual impact to the schedule is evaluated by comparing the schedule before and after the delay. ASCE Standard guidelines 4.5 and 4.6 affect excusable delays, while guideline 4.7 addresses compensable delay, identifying that compensable delay has to extend the longest path. Where there is excusable delay, a time extension to offset liquidated damages is granted. Where there is compensable delay, the contractor receives compensation as well. Taken together, excusable and compensable delays are both evaluated within the framework outlined in guideline 4.4, meaning that generally the same method of assessment that is used to identify compensable delay would automatically match an excusable time period.<sup>30</sup>

This will be heavily influenced by the contract terms. In JCT, there is a different list of events giving rise to extension of time (relevant events) and loss and expense (relevant matters). This reflects the risk allocation. Relevant events include both employer fault events (eg, variations and access delays) and neutral events (force majeure and weather), whereas relevant matters are only employer fault events. Further, there can be entitlement to loss and expense for disrupted activities, even where there is no delay to completion. This arises from the wording of the loss and expense provision which allows for recovery where 'the regular progress of the Works or any part of them has been or is likely to be materially affected'. In NEC, all compensation events bring an entitlement to time and money. The money element is assessed at the date of notice.<sup>31</sup> Likewise, US standard forms of contract and federal contracts generally outline which events are both excusable and compensable (measured the same way), versus which events are solely excusable (but not compensable). The US standard forms typically follow the guidance from the Federal Acquisition Regulation (FAR) applicable to federal contracts where extreme low-probability events outside the control of either party are excusable, but not compensable.<sup>32</sup>

**Schedule delay analysis method selection (slightly different)**

For selection of delay analysis method after the fact, the documents are similar, but

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slightly different. Neither the SCL Protocol nor the ASCE Standard explicitly recommend a schedule delay analysis method. The SCL Protocol (guidance 11) mentions six common methods and several other less common methods, but does not identify any preference among these. The SCL Protocol lists a variety of factors to be deployed in deciding which method to use.<sup>33</sup> While most of the factors would affect the risk of using a less accurate or less preferred method, many have no bearing on validity or acceptability of method, such as value of dispute, time available, nature of the events, nature of the project and forum of dispute resolution. The only factors likely to have a substantive effect on selection of method by potentially limiting options available are quality of records, quality of programmes and contract conditions. SCL Protocol guidance 11.8 recommends the parties get together and agree a method to save time and cost. While good in theory, in practice there would be pressure on both sides to pre-investigate methods that would give each side a better position ahead of the meeting to agree a method, because knowing results ahead of time might influence the method discussion. The court in *Walter Lilly v Mackay* had controversially seemed to suggest that the same answer should result whether a prospective or retrospective analysis was undertaken but that has recently been doubted in *Fluor v Shanghai Zhenhua Heavy Industry Ltd*, where the facts known at the time of the delay to those on the ground were recognised as limited and may lead to a different result when looking back with the benefit of hindsight.<sup>34</sup>

The ASCE Standard also does not recommend any particular method, nor does it mention any specific methods by name. The ASCE Standard only references methodology in Chapter 1, recommending that whichever method is used should comply with the underlying 35 guidelines and principles outlined in the Standard, such as incorporating the delays into the analysis in chronological order, using the CPM schedules to evaluate delay by measuring the change to the projected completion date of the schedule, and apportioning concurrent delay. The ASCE Standard approaches the issue from a

different direction but attempts to achieve the same goal as the SCL Protocol – to minimise dispute over method. It remains to be seen whether it will have the desired effect in practice although parties may well simply continue to select the method most advantageous to their own position.

### **Changing schedules after the fact (slightly different)**

With regard to changing schedules after the fact, the SCL Protocol and ASCE Standard have slightly different positions. The ASCE Standard (Chapter 10) includes several guidelines addressing when and to what extent changes should or may be made to the contemporaneous schedules during a delay analysis performed after the fact. The SCL Protocol does not address the topic directly, but guidance 11.2 advises that the selection of a delay method must be ‘sound from a common sense perspective’ where there is a risk that use of the contemporaneous schedules ‘might produce anomalous results’.<sup>35</sup> This could be likely to be interpreted to apply a reasonableness standard for making those determinations, as opposed to the ASCE Standard’s more prescriptive guidelines on that point. It is notable that the JCT contract has an overriding requirement for a ‘fair and reasonable’ extension of time. The AIA similarly provides a time extension ‘for such reasonable time as the Architect shall determine’.<sup>36</sup> The ConsensusDocs also allows for an ‘equitable adjustment to the Contract Time’.<sup>37</sup> EJCDC contains ‘Contractor shall be entitled to an equitable adjustment’.<sup>38</sup>

In terms of case law, there are numerous examples of the courts preferring a common-sense and fact-based analysis as opposed to a complex computer-generated analysis where the output can only be as good as the underlying data inputted into the analysis.

For example in *City Inn v Shepherd Construction*, the first-instance judge commented in relation to the employer’s programme analysis:

‘It accordingly appears that a number of errors exist in [the] programme... In my opinion that inevitably makes [the] as-built critical path analysis of very doubtful value. It is in my opinion clear that such a programme is critically dependent upon the logic links between different activities; that was accepted by both experts. If that is so, I am of opinion that [it] must be correct... that an error in one logic link can

vitiate the whole programme, and errors in a number of links will almost inevitably vitiate the programme.’

By contrast, the judge preferred the fact-based approach of the contractor’s expert approach, commenting that it:

‘appeared to me to be based on the factual evidence. Moreover, his method of proceeding appeared to be based on sound practical experience and on common sense; I also found the logical connections that he drew in discussing programming to be entirely intelligible’.<sup>39</sup>

In the US, courts and boards tend to apply significantly more preference to not changing the contemporaneous schedules used during the project, providing that those schedules have a ‘rebuttable presumption of correctness’ and ‘in the absence of compelling evidence of actual errors in the CPMs, we will let the parties “live or die” by the CPM applicable to the relevant time frames’.<sup>40</sup> In the same vein, US courts and boards strongly frown on after-the-fact schedule delay analysis methods that contradict the schedule updates. In *Sterling Millwrights*, ‘the court gave no weight to [the expert’s] after-the-fact [method] with its made-for-litigation critical path’.<sup>41</sup> In *Jiminez*, the board added:

‘Appellant seeks to have us rely on its CPM expert, and his newly created CPM analysis, which was prepared during litigation. Not surprisingly, this CPM showed VA-caused delays to the AHU accounting for the entire delay through 1999. Such self-serving analyses, created after project completion and which make adjustments to attain new and revised projected schedules, depending on theoretical contingencies, are of limited value’.<sup>42</sup>

The court in *Titan Pacific* commented generally that: ‘Analyses made after project completion, however, that make adjustments to attain new and revised projected scheduling depend on theoretical contingencies. They are of limited value’.<sup>43</sup>

### Early completion (similar)

The SCL Protocol and ASCE Standard take similar stances on delay to early completion schedules where the contractor plans to complete earlier than the contractual completion date either to save on preliminary or overhead type costs or to earn an early completion bonus. Both SCL Protocol (Core Principle 13) and ASCE Standard (guideline

6.2) acknowledge the right of the contractor to recover losses for delays to an early completion schedule, but only under certain conditions. The SCL Protocol (Core Principle 13) adds the condition that an early completion schedule has to be ‘realistic and achievable’, and disclosed to the owner at the time of contracting. The ASCE Standard (guideline 6.1) recommends that an early completion schedule be ‘reasonable and achievable’, and advises that while it is good practice to disclose, disclosure may not be needed in order for recovery. Here, the NEC contract is useful in that it includes the concept of time risk allowances being included in the accepted programme, as well as the scheduled and contractual completion dates.<sup>44</sup> If properly prepared, the programme will therefore be sufficiently transparent to allow this. Other standard forms are less prescriptive as to content. US standard forms similarly do not address early completion specifically, but their endorsement of ‘reasonable’ or ‘equitable’ adjustments may apply to delay to an early completion schedule.

### Acceleration/mitigation (similar)

For acceleration and mitigation, the SCL Protocol (Core Principle 16) and the ASCE Standard (Chapter 11) are very similar in terms of directed acceleration and voluntary acceleration. The SCL Protocol covers mitigation requirements in more detail, but both documents identify that mitigation effort requiring additional costs is acceleration as opposed to mitigation.<sup>45</sup> That is not necessarily the case in the standard forms, however. JCT requires the contractor to use best endeavours to prevent delay in the progress of the works.<sup>46</sup> While there is no definition of what would constitute best endeavours, this can involve expenditure. FIDIC places a more specific obligation on the contractor to submit a revised programme showing ‘revised methods’ to the employer where progress has fallen or will fall behind the programme or actual progress is too slow to complete within the time for completion.<sup>47</sup> ConsensusDocs takes the position that: ‘Parties each agree to take reasonable steps to mitigate the effect of such delays’.<sup>48</sup>

The ASCE Standard (guideline 11.3) identifies a five-part test for proving constructive acceleration after it has occurred:

1. an excusable delay was encountered;
2. a time extension request was made;
3. the owner denied or did not act on it;
4. the owner insisted completion must be met and the contractor notified the owner

- it construed that insistence as a directive to accelerate; and
5. the contractor expended extra resources to accelerate.

The SCL Protocol (Core Principle 16) states that where the contractor and employer agree that accelerative measures should be undertaken, the basis for payment and records to be kept should also be agreed. Where there is no agreement, but the contractor is considering accelerating to avoid liquidated damages in circumstances where it considers it is entitled to an extension of time, the Protocol advises the contractor should attempt to have its extension of time dispute resolved in accordance with the contractual procedures prior to accelerating. The rationale for this is most likely because of the difficulty in making a constructive acceleration claim in the absence of agreement. Going to a dispute is only of assistance if it is fast. In that case, either time will be awarded (negating the need to accelerate or incentivising the employer to agree to pay costs if the project is time-critical) or it will not meaning the contractor will be incentivised to accelerate at its own cost in order to avoid liquidated damages. A longer dispute resolution process would not allow this certainty. In many cases, there would be many other factors at play and, in practice, constructive acceleration claims are very difficult to establish. In reality, a contractor may need to make its own commercial decision based on an assessment of the relative risks.

## Summary

Overall, the SCL Protocol and the ASCE Standard are not substantially different. The differences between jurisdictions using these are likely to be as a result of the underlying legal and contractual position and then, in practice, the approach of parties in operating the contract, and the reality of availability of good quality programmes and records to analyse. Both documents support the effort to narrow disputes and resolve conflicts as efficiently as possible, in order to keep parties focused on constructing the project. That is a worthy aim, although the contentious nature of some construction projects means that they are not a panacea.

## Notes

- 1 SCL Protocol 2nd Edition, Introduction Parts E and F.
- 2 SCL Protocol 2nd Edition, Introduction Part K(g).
- 3 SCL Protocol 2nd Edition, Introduction Part K(b) and Core Principle 4.

- 4 *Alstom v Yokogawa Australia PTY Ltd (No 7)* [2012] SASC 49; *Santos Ltd v Fluor Australia PTY Ltd* [2017] QSC 153.
- 5 *Leighton Contractors (Asia) Ltd v Stelux Holdings Ltd* [2004] HKCFI 804.
- 6 ASCE Standards, p iii, ASCE Standard ANSI/ASCE/CI 67-17 Schedule Delay Analysis.
- 7 C 1 Introduction, p 1, ASCE Standard ANSI/ASCE/CI 67-17 Schedule Delay Analysis.
- 8 C 1 Introduction, p 1, ASCE Standard ANSI/ASCE/CI 67-17 Schedule Delay Analysis.
- 9 See, eg, cls 2.28.1.2 and 4.20.1 of the JCT Standard Building Contract with quantities 2016.
- 10 Cl 63.5 of NEC4 and cl 63.3 of NEC3 and cl 8.5 of FIDIC (2017 editions).
- 11 Cl 63.5 of NEC4.
- 12 The importance of the accepted programme is also recognised by the SCL Protocol, Core Principle 9.
- 13 Cl 45 of the CIOB Time and Cost Management Contract (2015).
- 14 Ar 8.3.1 of American Institute of Architects (AIA) A201 General Conditions of the Contract for Construction 2017; Art 6.3.1 of ConsensusDocs 200 Standard Agreement and General Conditions between Owner and Constructor 2017; Art 4.05, C of EJCDC C-700 Standard General Conditions of the Construction Contract 2018.
- 15 Art 4.05, D, 1 of EJCDC C-700 2018.
- 16 Art 6.2.1 of ConsensusDocs 200 2017.
- 17 *Henry Boot Construction (UK) Limited v Malmaison Hotel (Manchester) Limited* (1999) 70 ConLR 32 QBD (TCC), where this was the position as agreed by the parties; approved in a number of cases since including *Walter Lilly & Co v Mackay* [2012] EWHC 1773 (TCC).
- 18 *Keating on Construction Contracts*, para 8-026.
- 19 *City Inn v Shepherd Construction* [2007] CSOH 190.
- 20 John Marrin QC, *Concurrent Delay Revisited*, SCL (2012).
- 21 Except for the JCT Major Project Construction Contract (2016), which provides that the employer must make a 'fair and reasonable adjustment to the Completion Date notwithstanding any period of concurrent delay', cl 18.7.3.
- 22 Cl 8.5 of the FIDIC Red Book.
- 23 Cl 52.1 of the CIOB Time and Cost Management Contract and cl 41.1 of the Contract for Complex Projects.
- 24 Art 4.05, D, 2 of EJCDC C-700 2018.
- 25 Cl 2.24 of the JCT Design and Build Contract (2016).
- 26 Cl 2.25.2 of the JCT Design and Build Contract (2016).
- 27 Cl 2.25.5 of JCT Design and Build Contract (2016).
- 28 Cl 61.3 of NEC 4.
- 29 See, eg, *George Sollitt Const Co v US*, 64 Fed Cl 229, 268 (2005); *In re Fru-Con Const Corp*, ASBCA No 53544, ASBCA No 53794, 05-1 BCA (CCH) s 32936, 163162, 2005 WL 874471; *Appeals of Harrison Western Corp*, ENGBCA No 5556, ENGBCA No 5576, 93-1 BCA (CCH) s 25382, 1992 WL 221976 (Corps Eng'rs BCA 1992).
- 30 The only exception to that general rule might be the special case of early completion, which is also treated the same by both the SCL Protocol and the ASCE Standard (see 'Early completion (similar)' below).
- 31 *But cf Northern Ireland Housing Executive v Healthy Buildings* [2017] NIQB 43, which suggested it could be actual cost incurred (rather than anticipated cost at the date of the notice) if known at the time the assessment was made. Deeny J remarked at [54] 'why should I shut my eyes and grope in the dark when the material is available to show what work they actually did and how much it cost them?'

- 32 FAR 52.249-10(b) (1); ConsensusDocs, Arts 6.3.1 and 6.3.2; EJCDC C-700 Art 4.05, C; AIA A201 Art 8.3.1.
- 33 SCL Protocol, guidance 11.3.
- 34 *Fluor v Shanghai Zhenhua Heavy Industry Ltd* [2018] EWHC 1 (TCC) 654.
- 35 SCL Protocol, guidance 11.2.
- 36 Art 8.3.1 of AIA A201 2017.
- 37 Art 6.3.1 of ConsensusDocs 200 2017.
- 38 Art 4.05, A in EJCDC C-700 2018.
- 39 *City Inn v Shepherd Construction* [2007] CSOH 190 at paras [38] and [40].
- 40 *Appeal of Santa Fe, Inc*, VABCA No 2168, 87-3 BCA (CCH) s 20104, 1987 WL 47788 (Veterans Admin BCA 1987).
- 41 *Sterling Millwrights, Inc v United States*, 26 Cl Ct 49 (1992).
- 42 *In re Appeal of Jimenez, Inc*, VABCA No 6351, VABCA No 6352, VABCA No 6353, VABCA No 6354, VABCA No 6421, VABCA No 6422, VABCA No 6423, VABCA No 6591, VABCA No 6611, 02-2. BCA (CCH) s 32019, 2002 WL 31185730 (Veterans Admin BCA 2002).
- 43 *Titan Pacific Const Corp v US*, 17 Cl Ct 630, 35 Cont Cas Fed (CCH) s 75693, 1989 WL 78828 (1989), aff'd, 899 F 2d 1227 (Fed Cir 1990).
- 44 Cl 31.2 of NEC 4.
- 45 SCL Protocol, Core Principle 15, at 7; ASCE Standard ANSI/ASCE/CI 67-17 Schedule Delay Analysis, guideline 4.4.
- 46 Cl 2.25.6.1 of the JCT Standard Form Building Contract with Quantities.
- 47 Cl 8.7 of the FIDIC Red Book.
- 48 Art 6.3.3, ConsensusDocs 200 2017.

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