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Critical Paths and Float in Construction Contracts – a Pragmatic Approach

♦ *This article addresses the legal significance of float in construction contracts, with particular reference to the contractor's right to an extension of time. Float arises when the contractor has more time available than is strictly necessary to complete the works within the agreed time. The legal relevance of float has been the subject of considerable discussion in British and Norwegian construction law literature, where the question is sometimes framed as one of which party »owns« the float. This article proposes alternative analytical frameworks, advocating a more pragmatic approach than is typically found in existing literature. In particular, the article analyses the significance of float when assessing whether the causal link required for an extension of time has been established, and when assessing whether the contractor has taken reasonable steps to mitigate the need for an extension of time. The latter analysis draws on principles developed by the Swedish Supreme Court in cases concerning the duty to mitigate loss. The article concludes that treating float as an element in a reasonableness-based assessment of the contractor's duty to mitigate offers a more flexible and contextually sensitive approach than a binary determination of float ownership. The main part of this article was originally published in Swedish under the title »Något om kritiska linjer och glapp i entreprenader« in Adestam et al (ed.), Festskrift till Per Samuelsson, Juristförlaget i Lund, 2024, pp. 679–702.*

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1. Introduction

Time is essential in construction contracts.[1] Both parties have strong interests in ensuring that the construction works are finished on time. For the employer, a delay may mean that the building cannot be used as planned. For the contractor, a delay may cause unforeseen costs due to a prolonged establishment period on the work site.

If the works are not completed within the agreed time, the employer is generally entitled to liquidated damages. The contractor is not, however, responsible for all delays. Certain types of circumstances that cause delay may entitle the contractor to an extension of the contract period. All of the dominant Nordic standard forms contain clauses that may serve as the basis for an extension of time.[2]

For the contractor to be entitled to an extension of time, it is generally required that a circumstance attributable to the employer, or for which the employer bears the risk, has caused a delay. The following clause from the Swedish standard form AB 04 serves as an illustrative example:[3]

»The Contractor shall be entitled to any necessary extension of the Contract Period, if he is prevented from completing the Contract Works within the Contract Period by:

1 *circumstances due to the Employer or to some state of affairs on his side,*
2 *decision by an authority resulting in general shortage of Facilities, materials or goods or in limitation of the supply of labour,*
3 *war, defence preparations, epidemic, strike, blockade or lockout, with the exception of strike or blockade resulting from the failure of the Contractor or of any of his Sub-Contractors to fulfil their obligations to their employees,*
4 *weather or water-level conditions which are abnormal for the locality and which have particularly adverse effects on the works,*
5 *other circumstances which are not the fault of the Contractor and which he could not have been expected to anticipate and the detrimental effect of which he could not reasonably have been able to eliminate.«*

The terms of time extension clauses vary in the Nordic standard forms. However, there is always a causation requirement. The way in which the causation requirement is formulated differs. Regardless, a recurring issue in construction disputes concerning extensions of time is whether the circumstance invoked by the contractor has *caused*, in the relevant way stipulated by the wording of the relevant clause, the delay asserted by the contractor and thereby gives rise to the extension of time claimed.

A question that may arise when the parties disagree as to whether a causation requirement is satisfied is what applies when there is *float* in the time schedule. The legal relevance of float in Swedish construction law and standard forms has been identified as a question suitable for in-depth study.[4] No such study exists. Nor is this article such an in-depth study. However, the ambition is to say something, from a Swedish perspective, about the legal significance of float when assessing the contractor's right to an extension of time. In doing this, I suggest a more pragmatic approach than I perceive in Norwegian and certainly British literature.

This article takes Swedish law and standard forms as it's starting point. Even though the discussion is based on Swedish conditions, I believe that it may be of value for anyone interested in a more pragmatic approach to construction law and questions on causation.

1 The time factor is emphasised, inter alia, in Samuelsson, *Entreprenadavtal – särskilt om ändrade förhållanden* [Construction Contracts – In Particular on Changed Circumstances], 2011, pp. 27–30, Hagstrøm and Bruserud, *Entrepriserett* [Construction Law], 2014, p. 337, and Burr, *Delay and Disruption in Construction Contracts*, 2016, pp. 1–4.

2 AB 04 chapter 4 §§ 2 and 3, AB 18 clause 39, ÍST 30:2012 clause 5.2.2, NS 8405 clause 24 and YSE 1998 § 20.

3 AB 04 chapter 4 § 3.

4 Samuelsson, *Entreprenadavtal – särskilt om ändrade förhållanden* [Construction Contracts – In Particular on Changed Circumstances], 2011, p. 189.

In Sweden, there are no statutory rules governing the rights and obligations of the parties to construction contracts where the employer is not a consumer.[5] The building industry has addressed this through standard form contracts (in the form of agreed documents). This largely reflects the situation in all the Nordic countries, even though there are some differences.

The most recent Swedish standard forms are AB 04 and ABT 06.[6] The former is intended for building and civil engineering works and building services, while the latter also includes design works. Since the standard forms hold a dominant position in the industry, it is natural to take these as the starting point when examining what rules apply to construction contracts in Sweden. That is also the approach taken below. For simplicity, reference is made only to the provisions of AB 04.[7]

Finally, a note on terminology. The article uses the term »float« throughout as the label for the phenomenon in focus. In the Swedish version of this article, the term *glapp* is instead used. In Norwegian literature, the term *slakk* is used. The term is used in the text as a synonym for float. What is precisely meant by the various terms may vary between different authors, and in this text, I try to make it clear. Anyone wishing to deepen their understanding and analysis of float must consult each respective author's text in order to form their own view of the differences in approach.

2. Delay and Extension of Time

2.1 The Contractor's Obligation to Complete the Contract Works Within the Contract Period

The works which, according to the contract documents, are included in the contractor's undertaking are in AB 04 referred to as *contract works*.[8] The scope of the obligation may be modified after the contract has been entered into by means of *alterations and additions*. The contract works together with any alterations and additions are referred to as the *total works*.

The agreed time for executing of the contract works is referred to as the *contract period*. The date specifying when the works must have been completed may be referred to as the *completion date*. A time limit specifying that parts of the contract works must be completed by a certain point in time may be referred to as a *milestone*.[9]

There are various definitions of float. Simply put, float is surplus time, *i.e.* time available for the execution of the works in excess of what is strictly necessary for completion. Float is »extra« time available to the contractor. This can be illustrated as follows.

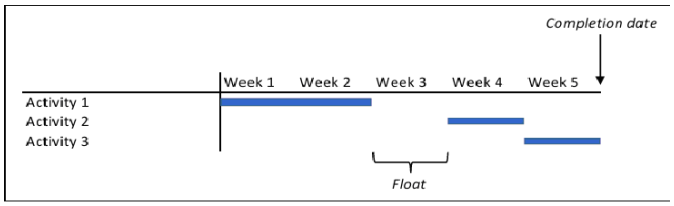

Figure 1.

Figure 1 is a time schedule for a construction project consisting of three activities. According to the construction contract, the works must be completed at the end of week 5, which is marked »Completion date«. Activity 3 cannot begin until activity 2 has been completed, and activity 2 cannot begin until activity 1 has been completed. The horizontal blue bars show how long each activity takes to perform, according to the contractor's planning. Activity 1 is scheduled to be performed during weeks 1 and 2, while the following activity 2 is not to be performed until week 4. No activity is planned for week 3. There is float during week 3.

The contractor is, pursuant to AB 04 chapter 4 § 1, obliged to »plan the execution of the Contract Works so that they can be completed within the Contract Period«. However, it is not always possible to perform the works according to the contractor's planning. When an activity is completed later than the contractor planned, a *delay* has occurred.[10]

The actual time taken to perform the construction project is referred to in AB 04 as the *time for completion*. If the contractor fails to complete the contract works within the agreed time, there is a *late performance*. AB 04 presupposes that the parties have agreed on liquidated damages for late performances.[11] The amount of the liquidated damages is usually calculated based on the number of weeks by which the completion date or milestone has been exceeded.

The above can be illustrated by the following figure, which concerns the same construction project as Figure 1.

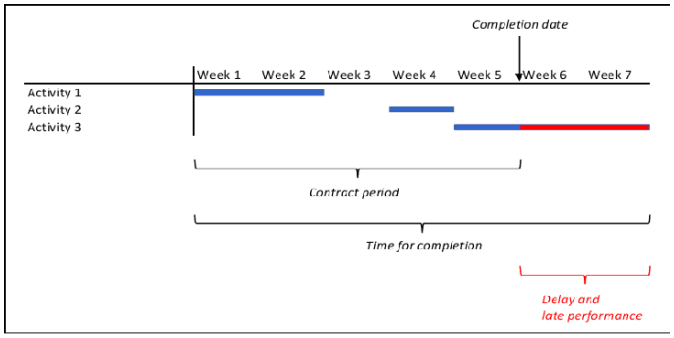

Figure 2.

The completion date is at the end of week 5. The actual time taken for each of the project's three activities is shown by the horizontal bars. According to the contractor's time schedule, activity 3 should

5 However, general rules of contract law apply, such as Sec.36 of the Nordic Contracts Act. For construction contracts where the employer is a consumer, the rules of the Swedish Consumer Services Act apply.

6 The Swedish Construction Contract Committee (BKK) has been working on revisions of AB 04 and ABT 06 since 2016.

7 What is stated is, however, also relevant to the standard form ABT 06.

8 The correct term is really »Contract Works«. However, in this article I choose to not use any of the capitalized letters used in AB 04 in the body text. The purpose is to facilitate the reading of the text.

9 Contract period is defined in AB 04. Completion date and milestone are not.

10 »Delay« is used here – unlike in AB 04 – to refer to the situation where an activity is completed later than the contractor planned. Not all such delays result in the contract works being completed later than agreed. The term *late performance* is used here to refer to an overrun of the completion or a milestone.

11 AB 04 chapter 5 § 3.

have been completed at the end of week 5 (see figure 1). The activity could, however, not be completed until the end of week 7. This constitutes a two-week delay and late performance. If the parties have agreed on liquidated damages calculated on a weekly basis, it is those two weeks that form the basis for calculating the damages.

2.2 The Contractor May Avoid Liquidated Damages Through an Extension of Time

There are various reasons why construction works may be delayed. Certain circumstances causing a delay may entitle the contractor to an extension of the contract period, provided all conditions for an extension of time are met. Under AB 04, the contractor may obtain an extension of time on account of the employer's breach of contract and certain cases of incorrect preconditions. In addition, the employer bears the time risk for certain events that do not constitute a breach of contract on the employer's part. Such events may also entitle the contractor to an extension of time. Examples of circumstances for which the employer bears the time risk under AB 04 include strikes, epidemics and exceptional weather conditions.[12]

Through an extension of the contract period, the completion date or a milestone is postponed. This may allow the contractor to avoid liquidated damages. This can be illustrated as follows.

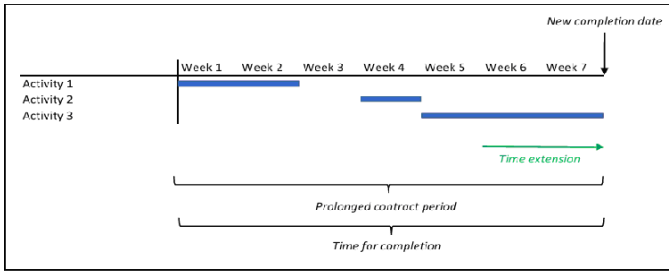

Figure 3.

In this case, the contract period has been extended by postponing the completion date by two weeks. The completion date thus falls at the end of week 7, rather than at the end of week 5. There is accordingly no late performance.

The existence of a circumstance for which the employer bears the time risk is not sufficient to entitle the contractor to an extension of time. A further condition is that the circumstance has caused a time impact on the works. Whether the contractor has proved causation is a common issue in construction disputes.

The structure of AB 04 means that the contractor's obligation to pay liquidated damages cannot be determined until all of the contractor's claims for extension of time have been resolved by the parties or decided by a court or arbitral tribunal. Until then, a confirmed overrun of the completion date or a milestone is only a preliminary late performance, since the contract period may be adjusted by postponing the completion date or a milestone and thereby reducing or entirely eliminating the late performance.

3. The Contractor's Time Schedule

3.1 The Contractors Time Schedule – an Overview

The contractor's scheduling of the contract works must be reported to the employer in a *time schedule*. The times stated in the contractor's time schedule (or schedules) are not, as a starting point, binding on the parties. A time schedule is not a document by which agreed time limits for the construction project are established. Times stated in the contractor's time schedule are not binding unless the parties have expressly agreed otherwise.

Time schedules may appear in various forms. The most important is the so-called *production time schedule*, in which the contractor sets out its overall plan for performing the works.[13] The production time schedule gives the employer the opportunity to monitor and check the progress of the works. Ongoing reviews of the production time schedule usually take place at site meetings.[14]

3.2 The Time Schedule – an Important Piece of Evidence but Also a Basis for Objections

The contractor's time schedule may be an important piece of evidence for the contractor. As indicated above, the contractor's right to an extension of time is conditional upon the contractor being able to prove a causal link between a time-extension-entitling circumstance and a delay. A professional, detailed and up-to-date time schedule may be the contractor's most important piece of evidence for proving such causal links.

The time schedule may also be used by the employer if it contests the contractor's claim for an extension of time. If the time schedule shows that there is float, the employer may, by reference to the float, contend that the contractor has a right to an extension of time. The parties' typical positions and arguments in such cases can be illustrated by the following condensed dialogue.[15]

CONTRACTOR C: Circumstance X, for which the employer bears the time risk, has delayed the completion of the contract works by two weeks. The contract period must therefore be extended by postponing the completion date by two weeks.

EMPLOYER E: The production time schedule prepared by C, shows that C has one week of float available. C therefore does not need a two-week extension of time. The completion date can only be postponed by one week.

CONTRACTOR C: C has, under AB 04 chapter 3 § 4, sole authority to direct the execution of the works and thus owns the float in the time schedule. The float does not affect C's right to an extension of time.

In the dialogue, the employer emphasizes the absence of a need for a certain extension of time, while the contractor underlines that it is the contractor who plans the performance and that any float is at the contractor's disposal. The employer's argument targets one purpose of the extension of time rules, namely that the contractor should be able to avoid liquidated damages. The contractor's argument instead focuses on the allocation of responsibility between the parties, namely that it is the contractor who is responsible for and has authority over the planning of the works. Whether float affects the contractor's right to an extension of time is sometimes framed as a question of which party »owns« the float.[16]

12 AB 04 chapter 4 § 3. See Utterström, S*törningar och tidsförlängning – En entreprenadrättslig studie* [Disruptions and Extensions of Time – A Study in Construction Law], 2022, pp. 192 ff. on time risk in construction contracts.

13 Cf. Liman et al., *Entreprenad- och konsulträtt* [Construction and Consultancy Law], 2016, pp. 145 f.

14 Site meetings are governed by AB 04 chapter 3 § 3.

15 The dialogue is based on the reasoning in Samuelsson, *Entreprenadavtal – Särskilt om ändrade förhållanden* [Construction Contracts – In Particular on Changed Circumstances], 2011, p. 185.

16 See further in Section 6 below.

3.3 Possibilities of Identifying Float in the Time Schedule

A precondition for the employer to be able to identify float is that the contractor presents its time schedule to the employer. It is expressly prescribed in AB 04 that the contractor has an obligation to present the time schedule to the employer.[17] The employer's ability to identify float is facilitated if the time schedule is detailed and up to date.

If float reduces the contractor's ability to obtain an extension of time, the contractor may have reason to design the time schedule in such a way that it is difficult or impossible for the employer to identify float. In the literature, it is argued that planned contingency time is also rarely directly visible in the contractor's production time schedule. Instead, float is often embedded in the activities by including activities in the time schedule with a longer duration than can be expected to be necessary.[18]

In figure 1, the float between activity 1 and activity 2 is clear. Assume that the contractor's time schedule was instead designed so that the reported duration for activity 1 was three weeks rather than two weeks – even though the contractor knows that the likely duration of the activity is only two weeks. In such a case, the time schedule does not reveal the existence of float. For the employer to identify the float would then require good knowledge of the project and its conditions, and experience of the type of activity in question and its typical progress.

The contractor is obliged to plan the works in a workmanlike manner. This applies both under AB 04 and default rules of law.[19] This also includes an obligation to present the time schedule in a workmanlike manner. It can hardly be considered workmanlike to intentionally design a time schedule in such a way that float cannot be identified.[20] Neither can it be considered loyal.[21]

4. The Critical Path

There are different views on what constitutes float and what its legal significance is. Certain views found in the literature will be set out in sections 5 and 6 below. In order for these to be comprehensible, however, something must first be said about critical paths.

The critical path is the longest chain of activities in a construction project (or other projects) that must be completed for the project to be finished. It is the sum of the durations of these activities that determines how long the project will take to complete.[22]

In the Society of Construction Law Delay and Disruption Protocol, »critical path« is defined as follows.[23]

»The longest sequence of activities through a project network from start to finish, the sum of whose durations determines the overall project duration.«

The critical path is most easily explained with the help of a time schedule. The following figure may be illustrative.

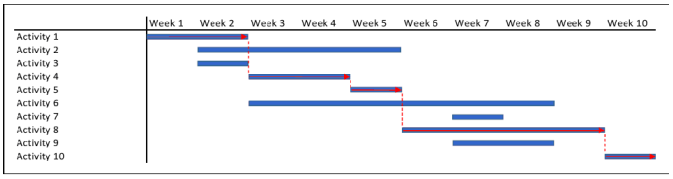

Figure 4.

Figure 4 is an illustration of how different activities may be presented in a time schedule. The red arrows mark the critical path. It aims to show that activity 1 must be completed for activity 4 to be able to begin, that activity 4 must be completed for activity 5 to be able to begin, and so on. It can accordingly be seen that a time shift of activity 1 will shift not only activity 4 but also subsequent activities on the critical path, namely activities 5, 8 and 10.

Why there is a connection between the activities on the critical path cannot be determined from the figure. In practice, such an assessment must be made by an expert, given the type of activities and the circumstances in the individual case.

There may be additional connections between the activities in a construction project beyond those captured by the critical path. The critical path shows only which activities must be completed for subsequent activities to be able to begin, and which together are the longest sequence of activities in the project.

The point of the critical path is to identify time-critical connections between different activities. If an activity on the critical path is completed later than planned, a subsequent activity will – as a starting point – be shifted in time correspondingly. In the Delay and Disruption Protocol cited above, the following is stated in connection with the definition of »critical path«.

»A delay to progress of any activity on the critical path will, without acceleration or re-sequencing, cause the overall project duration to be extended, and is therefore referred to as a »critical delay'.«

Critical path is not a legal concept. The term does not appear in AB 04. The critical path should instead be understood as an analytical tool, the purpose of which is to identify time-critical connections between different activities in a construction contract (or another project). This facilitates both effective planning and identi-

17 AB 04 chapter 4 § 1, first sentence. The employer simultaneously has a duty to provide the contractor with »available documentation« for the contractor's time planning, see AB 04 chapter 4 § 1, second sentence.

18 Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, p. 296.

19 AB 04 chapter 2 § 1, second sentence, and – for example – Statens offentliga utredningar (SOU) 1979:36, Konsumenttjänstlag [The Consumer Services Act], pp. 186 and 189.

20 Consideration may also be given to the general duty of loyalty and the obligation of a contracting party to notify the other party of circumstances of significance to the contractual relationship, see Nytt Juridiskt Arkiv (NJA) 2018 s. 171 para. 14. See also NJA 2021 s. 943, paras. 14–18, that points in the same direction.

21 Cf. NJA 2017 s. 203 para. 8.

22 It should be noted here that in discussions of critical paths in construction projects, it may be necessary to clarify which critical path is intended. The completion of groundworks may have one critical path. One critical path may apply to milestone 1, while another may apply to milestone 2. Yet another critical path may apply to the time for completion. It is this last critical path that is the focus of the article.

23 The definition is found on p. 62 of the document, which can be downloaded at https://www.scl.org.uk/. See on the Society of Construction Law Delay and Disruption Protocol in Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 2.

fication of which circumstance has caused the works not to be completed within the agreed time.[24]

Float, time schedules and critical paths are closely connected. According to Burr, float is a by-product of scheduling based on the critical path. Outside the scheduling context, the word »float« has no meaning, according to Burr.[25]

5. Different Types of Float

In British construction law literature, a distinction is made between different types of float.[26] To a Swedish construction lawyer, there would appear to be a degree of conceptual inflation. Against that background, it may be questioned whether it is appropriate to »import« the British categories of float. That is also not the intention of this section. Instead, certain views on and distinctions between different types of float found in British and Norwegian construction law literature are briefly set out.

One definition of float is that it is »the amount of time that non-critical activities can absorb, in excess of their original intended duration, without impacting on the critical path of the works as a whole«.[27] As can be seen from the quotation, the definition builds on the concept of the critical path.

Burr distinguishes between float on the one hand and time intentionally set aside by the contractor as contingency time on the other. Contingency time set aside by the contractor, but not allocated to a specific purpose, is not float. This is because it is not a question of surplus time; on the contrary, it is time required for the performance of the project. What remains unknown, at the time of the contractor's scheduling of the works, is the manner in which the contingency time will be needed. Float is, by contrast, surplus time that has not been allocated to any purpose whatsoever.[28]

In an article by Hyldmo Bjørnvik and Johansen on float, Burr's distinction is not maintained. The authors use the term float to refer both to contingency time resulting from the contractor's scheduling and to surplus time arising during the performance of the project. Float also encompasses contingency time agreed by the parties, for example »that the contractor in its progress planning must allow for a specific percentage increase in the scope of work, without such an increase entitling the contractor to an extension of time«. The authors emphasize that the contractor is always obliged to plan for a certain amount of contingency time to manage unforeseen circumstances.[29]

The type of float may depend on the float's relationship to the activities in the contractor's time schedule. Float may occur (1) before the reported duration of an activity, (2) during the reported duration of an activity, or (3) after the reported duration of an activity.[30] A further distinction could also be drawn between float that occurs (a) at the very beginning of the time schedule, (b) at the very end of the time schedule, or (c) somewhere in between.

It may be questioned whether surplus time of the kind referred to in (a) above should properly be regarded as float. In such a case, the contractor has planned to begin the works later than would have been possible under the contract. If a circumstance that would otherwise entitle the contractor to an extension of time occurs during the time between a possible start of the works and the planned start of the works, an extension of time should be excluded, simply because there is no effect on the progress of the works. It is only if the circumstance affects the planned start of the works that the contractor can obtain an extension of time. Prior to that, there is no time impact at all on the works.

Float at the very end of the time schedule is referred to in British literature as »end float«. The existence of such float means that the contractor has planned to complete the project before the time for completion. End float gives the contractor a time buffer that can be used to manage unforeseen circumstances and realized risks.[31] Such a planned early completion does not mean that the contract period is changed.

In British construction law literature, many other types of float also appear, including free float, independent float, interfering float, total float and negative float.[32] The British conceptual framework and reasoning is sophisticated and can appear challenging. It is clear that the presentations on float are closely connected to various scheduling software.[33]

For the purposes of this article, float will hereinafter refer to surplus time on the critical path, regardless of whether that time is intentionally planned contingency time or has arisen in some other way. Surplus time occurring at the very beginning of the contractor's time schedule is, however, not regarded as float.[34]

24 Cf. Pedersen, *Tidsstyring i byggerier, AB og nye aftaleformer i byggeriet* [Time Management in Construction Projects, AB and New Agreement Forms in Construction], 2014, p. 200, and the quotation from the judgment in Mirant Asia-Pacific Construction (Hong Kong) Ltd v Ove Arup & Partners International Ltd found in Burr, *Delay and Disruption in Construction Contracts*, 2016, pp. 9 f.

25 Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 731. See, however, Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, p. 295, where the authors, citing other British literature, state that »[f]or activities not on the critical path, float will constitute and describe the time available before the activity reaches the critical path.«

26 Burr, *Delay and Disruption in Construction Contracts*, 2016, pp. 730 ff.

27 Furst and Ramsey, *Keating on Construction Contracts*, 2022, p. 275.

28 Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 731.

29 Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, pp. 294, 297 f. and 303 f.

30 Cf. Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 732, who, however, expresses it as the float existing at the beginning, during or at the end of an activity, and also notes that the calculation of float depends on the type of scheduling software.

31 Furst and Ramsey et al., *Keating on Construction Contracts*, 2022, p. 275, and Dennys and Clay et al., *Hudson's Building and Engineering Contracts*, 2015, p. 783.

32 Burr, *Delay and Disruption in Construction Contracts*, 2016, pp. 733–739.

33 The same view is expressed in Samuelsson, *Entreprenadavtal – Särskilt om ändrade förhållanden* [Construction Contracts – In Particular on Changed Circumstances], 2011, p. 186.

34 This should be regarded as a working definition for the purposes of this article. There may be reason, in other contexts, to adopt certain of the definitions and distinctions found in the literature.

6. Who »Owns« the Float?

A recurring question in construction law literature is which of the parties »owns« the float.[35] This refers to whether the contractor's right to an extension of time is unaffected by the existence of float, or whether float renders such a right impossible (where the float exceeds the time impact) or reduces it (where the float is less than the time impact).[36]

The prevailing view in the British literature examined is that the project itself »owns« the float. It is only when the existing float has been consumed that the contractor can obtain an extension of time. As noted above, however, there are a number of different distinctions between different types of float and their legal significance. There is also a discussion of how float relates to specific scheduling tools and methods.[37]

The general rule in Norway appears to be different, namely that the contractor controls the float. There are, however, exceptions to the general rule. Hyldmo Bjørnvik and Johansen emphasise the significance of what has caused the float. Their reasoning is based on the »principle of functional allocation«, which is central to Norwegian construction law. The principle means that the allocation of risk between the parties follows the functional allocation of the parties' obligations. This means, for example, that the contractor bears the risk for materials, machinery and planning, while the employer bears the risk for information about the site and design provided by the employer. Hyldmo Bjørnvik and Johansen take the view that the contractor has, as a starting point, the right to use float that is the result of circumstances on the contractor's side under the principle of functional allocation. By the same token, the employer controls float that is the result of circumstances on the employer's side.[38]

Approaching the question of the legal significance of float as a question of which of the parties »owns« the float appears to lead to complicated reasoning about different types of float and scheduling software, or to difficult borderline determinations about what has caused a particular instance of float. Alternative approaches are to consider the significance of float when (a) assessing whether there exists a causal link required for an extension of time, and/or (b) assessing whether the contractor has taken reasonable steps to limit the need for an extension of time. This is what will be done in the two sections that follow.

7. Float and Causation

A recurring question in construction disputes is what circumstance has caused an activity to be completed later than the contractor planned. Is the delay of the activity caused by circumstance X, which may entitle the contractor to an extension of time? Or is the delay caused by circumstance Y, which cannot entitle the contractor to an extension of time? That the parties have differing views on causation is not unique to construction disputes or construction contracts. On the contrary, it may be argued that many legal problems are discussed as questions of causation.[39]

The question of float may also be viewed from a causation perspective. The employer may refer to float and contend that the float means there is no such causal link as is required for an extension of time to be granted. This can be illustrated as follows.

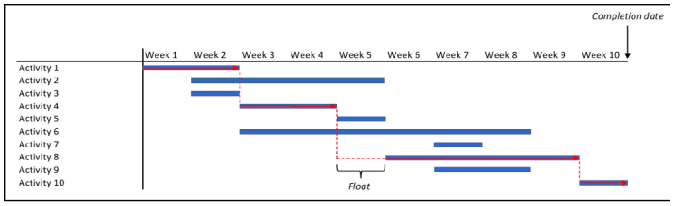

Figure 5.

Figure 5 is based on figure 4 but has been adjusted so that activity 5 is no longer on the critical path. This creates float between activity 4 and activity 8, both of which are on the critical path. This float exists during week 5.

Assume that activity 4 is delayed by one week due to a circumstance that may entitle the contractor to an extension of time, for example exceptional weather conditions.[40] The activity can therefore not be completed until the end of week 5. Contractor C claims an extension of time of one week. Employer E objects that C has no right to an extension of time since the downpour has not affected C's ability to complete the contract works within the contract period. According to E, there is no time-critical impact on the time for completion; the causal chain is broken.

The employer's prospects of succeeding with this objection depend on the design of the relevant contractual conditions. In AB 04, it is chapter 4 §§ 2 and 3 that may entitle the contractor to an extension of time.[41]

AB 04 chapter 4 § 2, second sentence of the first paragraph, reads as follows:

»The Contract Period shall be extended or curtailed to the extent that Alterations or Additions in relation to quantities stated in the Contract Documents affect the possibility of meeting the Contract Period.«

AB 04 chapter 4 § 3, first item, reads as follows:

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35 Cf. Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 731, Dennys and Clay et al., *Hudson's Building and Engineering Contracts*, 2015, p. 784, and Carnell, *Causation and Delay in Disruption Disputes*, 2005, p. 214, and Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], På Rett Grunn II, 2021, p. 294.

36 In Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, p. 299, float is explained as follows: »In relation to a claim for extension of time, the situation will regularly be that a circumstance arises for which the employer bears the risk, and which causes the contractor's work to take longer than it would have without that employer circumstance. If the contractor has float in its progress and the employer's circumstance can be managed within that float, *i.e.* without delays in relation to the completion date or other agreed milestones, the question arises whether the contractor is nonetheless entitled to an extension of time.«

37 Burr, *Delay and Disruption in Construction Contracts*, 2016, p. 746, Furst and Ramsey, *Keating on Construction Contracts*, 2022, p. 275, Dennys and Clay et al., *Hudson's Building and Engineering Contracts*, 2015, p. 784, and Carnell, *Causation and Delay in Disruption Disputes*, 2005, pp. 212 f.

38 Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, pp. 300 f.

39 Cf. Andersson, *Kausalitet som evigt fräscht – eller evinnerligt eländigt och onödigt – juridiskt problem* [Causation as an Eternally Fresh – or Everlastingly Wretched and Unnecessary – Legal Problem], Juridisk Publikation, issue no. 2, 2015, pp. 335 f.

40 *Cf.* AB 04 chapter 4 § 3, point 4.

41 AB 04 chapter 4 § 2 may entitle the contractor to an extension of time on account of variation work [ÄTA-arbete] or changes in quantities, and chapter 4 § 3 on account of circumstances of a certain kind that impede the contractor's works.

»The Contractor shall be entitled to any necessary extension of the Contract Period, if he is prevented from completing the Contract Works within the Contract Period«

Both provisions refer to the contract period. In AB 04, this means »the time stated in the contract documents for performance of the contract works or a main section thereof«.[42] The contract period is thus a time period prescribed in the contract, during which the contract works are to be performed. It is bounded on the one hand by the earliest date from which the works may begin and on the other by the time for completion. As already mentioned, milestones may prescribe that parts of the contract works must be completed by a certain point in time. An extension of the contract period means that the time for completion or milestones or are postponed.

The provisions that may entitle the contractor to an extension of time in the Norwegian standard form NS 8405 are differently worded. They do not refer to any agreed time limits. NS 8405 clause 24.1 prescribes that the contractor is entitled to an extension of time on account of circumstances of a certain kind if »progress is impeded«. Hyldmo Bjørnvik and Johansen take the view that this wording does not give any guidance on the significance of float, nor does it answer the question of whether a time impact on activities not on the critical path may entitle the contractor to an extension of time. A contractor could argue that the wording enables an extension of time also where the impeded progress has no impact on the ability to finish the works within the agreed time.[43]

With regard to the provisions of AB 04, two observations may be made. The first is that under chapter 4 § 2 it is sufficient that there is an impact on the ability to meet the contract period. The same expression does not appear in chapter 4 § 3, where it is instead stated that the contractor must be impeded from completing the contract works within the contract period. Whether this entails a difference in the meaning of the provisions is not certain. If so, it would appear to mean that the threshold for work impact is lower in chapter 4 § 2 than in chapter 4 § 3.[44]

The second observation is that both provisions refer to the contract period and the ability to complete the works within that period. This suggests that the right to an extension of time is conditional upon there being a causal link between the circumstance that caused the delay of an activity and the completion of the works within the time for completion or milestones. The employer may accordingly argue that the existence of float on the critical path (for the time for completion or milestones) means the contractor has no right to an extension of time (if the float exceeds the delay) or that the extension of time should be reduced by an amount corresponding to the duration of the float (if the float is less than the delay).

If, instead, the right to an extension of time were not conditional upon the ability to complete the works before the time for completion or milestones – either on account of the content of the parties' contract or default rules of law – the contractor could argue that the right to an extension of time is unaffected by the existence of float. In support of this argument, the contractor could refer to the fact that it is the contractor who controls the planning of the works during the time for completion.[45]

8. Float and the Duty to Mitigate the Need for an Extension of Time

8.1 The Duty to Mitigate the Need for an Extension of Time in Construction Contracts

The Swedish Supreme Court has in the case NJA 2021 s. 943 stated that the general duty of loyalty means »that a party must, with care, *i.e*. to the best of its ability, respect also the interests that the other party has by virtue of the contract«. According to the court, the duty of loyalty includes »a requirement that the parties must act to ensure that the contract is performed in accordance with its terms«, and a starting point is »that a party must therefore refrain from taking actions that carry a risk that the other party will suffer loss«.[46]

The general duty of loyalty is expressed, inter alia, in rules on mitigation of loss, under which the injured party has an obligation to take reasonable measures to try to avoid or limit its loss. This duty to mitigate applies to both non-contractual and contractual relationships.[47]

In light of the general duty of loyalty – and in the same way as a party is obliged to mitigate its loss – a party to a construction contract is obliged to take reasonable steps to try to avoid or limit the need for an extension of time.[48] The contractor's duty to avoid or limit the need for an extension of time is expressed in the commentary text to AB 04 chapter 4 § 3, which reads as follows.

»*When determining what constitutes »necessary extension of the Contract Period' in the individual case account shall be taken, within the general duty of good faith between the parties, of the Contractor's capacity to limit the extension of time by rational use of the resources he has allocated for the part concerned.*«

There are strong grounds for concluding that the contractor's duty to limit the need for an extension of time is not restricted to »rational use of the resources [the contractor] has allocated for the part concerned«. One of the contractor's fundamental obligations is to achieve the prescribed work result – within the agreed time. It is a given precondition at the time of entering into the contract that unforeseen circumstances may affect the performance of the works. The contractor must take this into account in various ways at the tender stage. This may include maintaining a readiness to manage unforeseen difficulties through additional resources, in order to limit the consequences of those difficulties in a workmanlike and loyal manner.[49] It is also a matter of public interest that construction projects are completed within the planned time, or at least no later than necessary, both so that the object in question can be used within the planned time (for example, so that pupils can return to their renovated school, tenants can move into the new residential building, or trains can pull into the new railway station), and so as to limit the use of finite resources and minimise emissions. The

42 See the glossary of AB 04.

43 Hyldmo Bjørnvik and Johansen, *Hvem eier egentlig slakken?* [Who Really Owns the Float?], in På Rett Grunn II, 2021, p. 300.

44 See Utterström, *Störningar och tidsförlängning – En entreprenadrättslig studie* [Disruptions and Extensions of Time – A Study in Construction Law], 2022, pp. 223–233 for a discussion of the meaning of the (possible) condition »prevented« [hindrad] in AB 04 chapter 4 § 3.

45 That the contractor controls the planning of the works would appear to follow from default rules of law. If the parties' contract provides otherwise, the argument is less persuasive.

46 NJA 2021 s. 943, paras. 15 and 16.

47 Munukka, *Kontraktuell lojalitetsplikt* [Contractual Duty of Loyalty], 2007, pp. 167 f.

48 Cf. Utterström, *Störningar och tidsförlängning* [Disruptions and Extensions of Time], 2022, pp. 236 ff.

49 This does not mean that the contractor will always lack the right to additional remuneration or damages when engaging such additional resources.

contractor's duty to contribute, within reasonable limits, to reducing the need for an extension of time should therefore not be restricted without good reason. The commentary text should therefore not be understood as restricting what is required of the contractor in order to limit the need for an extension of time.

The content of the contractor's duty to limit the need for an extension of time may be determined by reference to the principled duty to mitigate. The Supreme Court has in NJA 2017 s. 9 commented on the content of the duty to mitigate. The duty means that the injured party must take reasonable measures to limit the loss, which entails taking appropriate measures. The starting point is that the duty to mitigate is the same regardless of the existence or degree of fault on the other party's side. The assessment of whether the injured party has satisfied its duty to mitigate shall be made on the basis of the position that party was in when the other party's liability in damages arose, and concerns the expected effects of the measures, how easily they could be taken, what risks were associated with the measures, and what inconvenience the measures would have caused the injured party. Typically, very costly measures are not required. It is as a starting point the party liable in damages that bears the burden of proving that the injured party could have taken additional measures to limit the loss and that the injured party should have recognised that this possibility existed.

8.2 By Making Use of Float, the Contractor Can Limit the Need for an Extension of Time

If float exists, there may be an opportunity for the contractor to avoid or reduce the need for an extension of time by making use of the float. It therefore follows naturally that, within the framework of its duty to limit the need for an extension of time, the contractor has an obligation to use the time buffer that the float represents. This may reduce or entirely eliminate the need for an extension of time. In light of NJA 2017 s. 9, para. 32, there is support for this regardless of what has caused the delay, *i.e.* regardless of whether the time-extension-entitling circumstance consists of the employer's breach of contract, incorrect preconditions, or an event for which the employer bears the time risk.

It might, however, be considered whether there is a duty on the contractor to make use of float in the manner described above in the event of a time impact caused by ordered alterations and additions.[50] In such a situation, it is not a question of a delay of an activity on the critical path. Instead, it is the employer's decision to prescribe variations that causes a shift in the time for completion and/or a milestone. The contractor's duty to limit the time impact would then reasonably be restricted to planning its works in a workmanlike and loyal manner so that unnecessary time consequences of the variation work are avoided.

In all other cases, it falls upon the contractor to take reasonable steps to limit the need for an extension of time. This may go beyond what follows from a workmanlike and loyal time planning of the works. Since the duty of the contractor is decided based on a reasonableness assessment, considerations as to whether float should be used to reduce the need for an extension of time may be made with account taken of the circumstances in the individual case. The type of construction project, the connections between activities, and the contractor's scheduling could thereby be of significance. By treating float as part of a reasonableness assessment, the adjudicator is freer in its consideration of float than would be the case if it were a question of a »binary« determination, where the float reduces the right to an extension of time by as many weeks as its duration in the time schedule – or does not affect the right to an extension of time at all. An objection to this approach might be that foreseeability suffers. However, the Supreme Court has in NJA 2017 s. 9 laid down certain guidelines for the assessment of mitigating measures, which should be able to provide some guidance to parties and adjudicators also on the question of reasonable measures to limit the need for an extension of time in construction contracts.

Two factors that could particularly be taken into account when assessing whether the contractor is obliged to make use of float in order to avoid or reduce the need for an extension of time are (a) how the float arose and (b) when the contractor became aware of the float. Float that arises because a certain activity could be completed more quickly than planned certainly enables the contractor to begin the next activity on the critical path earlier than planned. Whether this is possible in practice may depend on what resources are needed for the subsequent activity to begin and whether these are available earlier than planned. Float that was planned by the contractor at the tender stage – and which is therefore known to the contractor already at the time of entering into the contract – is the type of float in respect of which the contractor would typically be expected to have better opportunities for use when seeking to limit the need for an extension of time.

9. Summary

One of the contractor's fundamental obligations in a construction contract is to complete the works within the agreed time. If this is not done, there is late performance and a breach of contract. It is customary for construction contracts to impose on the contractor an obligation to pay liquidated damages for late performance.

Certain circumstances affecting the contractor's ability to complete the contract works within the contract period may entitle the contractor to time extension. That means that the completion date and/or milestones are postponed. This enables the contractor to avoid late performance and the obligation to pay liquidated damages. Whether the contractor has a right to an extension of time is a recurring question in construction disputes.

The contractor is obliged to plan the works in a workmanlike manner so that they can be completed within the agreed time. It may happen that the contractor has more time available than is necessary to complete the works within the agreed time. Such surplus time may be referred to as float.

In foreign construction law literature, there is a comprehensive discussion on the legal significance of float. The discussion concerns whether float affects the contractor's right to an extension of time. The fundamental question is sometimes framed as a question of which of the parties »owns« the float.

An alternative approach when examining the legal significance of float, is to assess whether there is the kind of causal link required for the contractor to have a right to an extension of time. The significance of float in such an assessment depends on the design of the contractual provisions prescribing the conditions for the contractor's right to an extension of time. Float may also be significant in assessing whether the contractor has taken sufficient steps to limit the need for an extension of time. Float then becomes part of a reasonableness-based assessment, in which the adjudicator has the opportunity to take into account the circumstances of the individual case.

50 AB 04 chapter 2 § 3.