LUISS

SCHOOL OF LAW

International Arbitration: Law and Practice

CONSTRUCTION DISPUTES: TO WHAT EXTENT CAN INTERNATIONAL ARBITRATION HARMONIZE DIVERGENT LEGAL TRADITIONS?

Chiar.ma Prof.ssa Chiara Capalti

SUPERVISOR

Chiar.mo Prof. Andrea Panzarola

CO-SUPERVISOR

Giulia Marinelli

Matricola 177913

CANDIDATE

Academic Year 2024/25

Il faut imaginer Sisyphe heureux.

Albert Camus

INTRODUCTION

In recent years, disputes arising from international construction projects have increased both in frequency and complexity. Modern infrastructure works bring together multiple stakeholders − project owners, contractors, subcontractors, consultants, and financiers − often from diverse jurisdictions. This plurality of parties and legal traditions creates fertile ground for conflict. Issues such as variations, disruptions, delays, or price adjustments are approached differently depending on whether the applicable law belongs to the civil law or the common law tradition. These divergences not only affect contractual interpretation but also influence the quantification of damages and the allocation of liability.

In this fragmented landscape, arbitration has emerged as the preferred method of dispute resolution. Its rise is explained by several features: arbitration offers neutrality when parties come from different jurisdictions; it provides procedural flexibility, allowing proceedings to be tailored to the complexity of construction disputes; and arbitral awards are enforceable in more than 170 jurisdictions under the New York Convention, a level of cross-border effectiveness that national court judgments often cannot ensure. Another advantage lies in the expertise of arbitrators: parties can appoint arbitrators with specific experience in construction disputes and with a proven ability to evaluate complex technical evidence, supported by expert witnesses such as engineers, delay analysts, and quantity surveyors. In this sense, arbitration provides not just an alternative to litigation, but a forum better suited to the realities of the international construction industry.

In this context, the question arises: *To what extent can international arbitration harmonize divergent legal traditions in construction disputes?* The question is not only concerned with whether arbitration resolves conflicts more efficiently than litigation, but more critically with whether arbitral practice contributes to substantive convergence between civil law and common law approaches. The inquiry touches upon an important debate: does arbitration simply replicate national laws in a neutral forum, or does it generate a form of "functional harmonization," producing principles that influence practice across jurisdictions?

This dissertation purports to explore this debate and answer the above-mentioned question. It is structured in three parts:

Chapter I sets the stage by exploring the rise of construction arbitration. It examines the factors that have contributed to the increase in construction disputes, from global crises such as the COVID-19 pandemic and the war in Ukraine to the complexity of project delivery and risk allocation. The chapter then explains why arbitration has emerged as the most suitable dispute

resolution mechanism in this sector, with particular attention to the structure of international standard form contracts, notably those published by FIDIC, JCT, NEC, and AIA.

Chapter II turns to the typical claims encountered in construction arbitration. Particular attention is paid to disputes concerning variations, disruptions, and delay damages, which not only account for the majority of claims but also illustrate how differently they may be addressed in civil and common law systems. This chapter highlights the evidentiary challenges, quantification techniques, and liability allocation methods that tribunals must navigate in practice.

Chapter III addresses the divergences and potential harmonization between civil law and common law in the treatment of construction disputes. Key areas of divergence, such as the enforceability of liquidated damages clauses, the doctrine of "time at large," and approaches to concurrent delays, are contrasted with emerging tendencies toward harmonization, such as the growing adoption of Critical Path Analysis in civil law jurisdictions and the widespread influence of English law in international contracts. The chapter also examines how international standard contracts and arbitral practice blend civil law notions of good faith with common law principles of certainty, thereby contributing to a more unified legal framework.

The conclusion summarises the research findings, setting out the author's view as to whether arbitration has in fact the capacity to transform legal divergence into a form of dialogue that ensures predictability and fairness in cross-border construction disputes.

CHAPTER I
THE RISE OF CONSTRUCTION ARBITRATION

1.1 Factors contributing to the increase in construction disputes

Construction disputes have become increasingly common in recent years, driven by a complex interplay of factors, including the inherent complexity of projects, the number of stakeholders involved − such as owners, contractors, and consultants, each pursuing different objectives − and the significant financial interests at stake. An analysis of 435 peer-reviewed articles conducted by Silva, Domingo, and Ameer Ali (2024) and published between 1997 and early 2023 revealed recurring and interrelated factors that contribute to the rise in construction disputes.[1]

Contractual issues and poor risk allocation

Contractual issues represent a primary source of disputes. Poorly drafted contracts with ambiguous terms, inconsistent clauses, or inadequate risk allocation create fertile ground for disagreements. The lack of contractual clarity becomes most critical when unexpected events occur, and the contract fails to provide necessary guidance on how to react appropriately.[2]

Scope changes and variations

The contractual framework can also lead to disputes when scope changes occur, usually initiated by the employer. Scope changes consist of modifications to the originally agreed scope of work, such as additions, omissions, substitutions, or alterations in design, quality, or materials.[3] Although scope modifications are sometimes necessary and even beneficial, especially when they reflect evolving needs or unforeseen site conditions, they often disrupt established workflows, schedules, and budgets.[4] Unclear communication, insufficient documentation, and unfair adjustment mechanisms often provoke disputes regarding the allocation of responsibilities among the parties, as well as time extensions and cost implications.

---

[1] SILVA P.M., DOMINGO N. e AMEER ALI N.A.N., *Causes of Disputes in the Construction Industry – A Systematic Literature Review*, Journal of Financial Management of Property and Construction, 2024.
[2] ÇEVIKBAS M. e KÖKSAL A., *An Investigation of Litigation Process in Construction Industry in Turkey*, Teknik Dergi, Vol. 29, n. 6, pp. 8715–8729, 2018.
[3] NORLING B., Variations, January 31, 2023, available at: https://norlinglaw.co.nz/blog-posts/variations/.
[4] SHALABY Y. e KHALAFALLAH A., *Change Order Disputes: Technical Causes and Negative Effects in Kuwait*, in Construction Research Congress, pp. 315–325, 2018, available at: https://www.researchgate.net/publication/327092847_Change_Order_Disputes_Technical_Causes_and_Negative_Effects_in_Kuwait.

The client (sometimes referenced as the employer: i.e., the project owner commissioning the work) holds dominant authority in several contexts, particularly in public sector projects or in certain markets where scope changes are often identified as a significant source of complexity and potential disagreement.[5]

Unforeseen site conditions

Another common source of construction conflicts lies in the occurrence of unforeseen site conditions, including geological, environmental, or infrastructural circumstances not accurately identified during the planning and design phases. Specifically, disputes often arise when contractors encounter realities that deviate significantly from what was anticipated or documented, such as unexpected soil conditions, hidden underground utilities, or unforeseen environmental hazards. These situations typically raise questions of who should bear the additional cost and responsibility for extended project durations. Unless the contract contains clear risk allocation clauses, such conditions often become contentious.[6]

Poor contract administration

In addition to objective site conditions, tensions are often intensified by poor understanding and administration of the contract. Even when a contract is well-drafted, its successful implementation depends on a shared and consistent interpretation by all parties involved, their adherence to the contract terms, and their good faith management.[7]

Unfortunately, this ideal scenario is rarely met in practice due to misinterpretation of obligations, neglect of procedural requirements, and a general lack of communication - factors that lead to disagreements that could have been avoided with better contract administration.[8]

Quality issues and defective work

Another frequently cited cause of dispute is the quality of the contractor's work. Issues related to defective workmanship, the use of substandard materials, or failure to comply with technical specifications are often identified during construction or after handover. These deficiencies not

[5] LOVE P.E.D., DAVIS P.R., SAI ON C. e IRANI Z., *Causal Discovery and Inference of Project Disputes*, IEEE Transactions on Engineering Management, Vol. 58, n. 3, pp. 400–411, 2011.

[6] TANRIVERDI C., ATASOY G., DIKMEN I. e BIRGONUL M.T., *Causal Mapping to Explore Emergence of Construction Disputes*, Journal of Civil Engineering and Management, Vol. 27, n. 5, pp. 288–302, 2021

[7] MARKOVITS D., *Good Faith as Contract's Core Value*, NYU School of Law, 2011, available at: https://www.law.nyu.edu/sites/default/files/Markovits%20Good%20Faith%20as%20Contracts%20Core%20Value.pdf.

[8] OMAR K.S., OLA L. e AMUND B., *Why Conflicts Occur in Roads and Tunnels Projects in Norway*, Journal of Civil Engineering and Management, Vol. 25, n. 3, 2019.

only compromise the integrity and safety of the structure, but also generate disputes over liability, remediation costs, and contractual penalties. Moreover, poor quality of work is often symptomatic of deeper problems within the contractor's organizational structure, including insufficient training, poor supervision, or unrealistic cost-cutting strategies.[9]

Time-related disputes and delays

Time-related disputes are also pervasive in the construction industry, particularly those arising from contractors' failure to meet agreed project deadlines. Delays in delivery can have cascading financial impacts, leading to claims for liquidated damages and affecting subsequent project phases or external stakeholders.[10] As will be further analyzed in Section 2.2 below, while some delays may be justifiable, such as those resulting from *force majeure* events, others may stem from internal project management deficiencies, such as misallocation of resources or technical limitations. The distinction between excusable and non-excusable delays frequently becomes a matter of legal contention, further complicating the resolution of disputes.[11]

Payment issues

A recurring and particularly sensitive source of conflict in the construction sector concerns issues of non-payment or delayed payments. Financial disputes rank among the most contentious, especially in markets where enforcement mechanisms are weak or mutual trust between parties is limited.[12] Employers may delay payments due to financial difficulties or because they disagree with progress claims. Employers also sometimes use fund withholding as a strategic business tool. For their part, contractors may contribute to this issue by submitting inflated claims or by failing to satisfy the contractual conditions required for payment. Regardless of the cause, the disruption of financial operations produces severe negative effects

[9] BARMAN A. e CHAROENNGAM C., *Decisional Uncertainties in Construction Projects as a Cause of Disputes and Their Formal Legal Interpretation by the Courts: Review of Legal Cases in the United Kingdom*, Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, Vol. 9, 2017.

[10] BROMLEY C. and HAWKINS T., *Delays in Quantum and Financial Methods: Computing Costs and Damages*, in *The Guide to Construction Arbitration*, 5th ed., Global Arbitration Review, 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/delays-in-quantum-and-financial-methods-computing-costs-and-damages

[11] GARDEZI S.S.S., MANARVI I.A. e GARDEZI S.J.S., *Time Extension Factors in Construction Industry of Pakistan*, Procedia Engineering, Vol. 77, pp. 196–204, 2014, available at: https://www.researchgate.net/publication/265379547_Time_Extension_Factors_in_Construction_Industry_of_Pakistan.

[12] ABDUL NABI M. e EL-ADAWAY I.H., *Understanding Disputes in Modular Construction Projects: Key Common Causes and Their Associations*, Journal of Construction Engineering and Management, Vol. 148, 2022.

on project supply chain stability, while diminishing trust among stakeholders. This frequently results in work suspension or the initiation of legal proceedings.[13]

Notably, in a study conducted by Goh, Wong, and Low, published in the Journal of Surveying, Construction and Property in 2023, delay-related issues were ranked as the most significant contributor to disputes, reflecting the central role that scheduling and time overruns play in project conflicts.[14]

Design quality issues

Lastly, poor design quality often lays the groundwork for later disputes. Inadequate or erroneous design documents can result in costly rework, coordination problems, and inconsistencies during execution. Design-related disputes tend to arise when specifications are ambiguous, incomplete, or poorly aligned with site realities. In many cases, design flaws only become apparent once construction is underway, at which point corrective actions are expensive and time-consuming. The lack of early collaboration between designers and contractors, as well as insufficient constructability reviews, are frequent contributors to this type of conflict.[15]

* * *

The factors discussed above represent the recurrent causes that typically give rise to construction disputes. However, in order to fully capture the dynamics of this industry sector, it proves necessary to consider how extraordinary external events can exacerbate such issues. In this regard, the pandemic and the war in Ukraine constitute two significant case studies: both have amplified existing vulnerabilities and generated unprecedented challenges. Addressing these events separately allows for a better understanding of how global crises may transform general risk factors into major sources of conflict.

[13] HILLEBRANDT P., HUGHES W. e MURDOCH J., *Financial Protection in the UK Building Industry: Bonds, Retentions and Guarantees*, Routledge, 2002.
[14] GOH, K.Z.H, WONG, S.Y. e LOW, W.W. *Factors Causing Dispute in Construction Industry: Contractors' Perspectives*, Journal of Surveying, Construction and Property, 2023
[15] ABRAMSON I., *Root Causes of Disputes on Tunnel Construction Projects*, North American Tunneling, Vol. 98, pp. 55–62, 1998.

1.1.1 The aftermath of the pandemic: Labor shortages, *force majeure* claims

The COVID-19 pandemic has triggered widespread disruptions across global systems, with the construction sector proving particularly susceptible.[16] Severe trade restrictions and supply chain breakdowns lead to extensive employment losses, decelerating economic growth worldwide.

Although approaches varied between countries, a general pattern emerged: work on sites was either slowed or halted entirely. When operations eventually resumed, they operated under strict health and safety protocols that became mandatory, fundamentally altering traditional working practices.[17]

Government-imposed lockdowns and travel restrictions created a cascade of challenges, disrupting the supply chains while triggering widespread labor shortages. Construction operations with global involvement depend heavily on worker mobility between sites, particularly in remote areas where local labor markets cannot meet demand.[18] The pandemic's mobility restrictions meant workers were either unable or unwilling to reach construction sites due to logistical constraints and infection risks.

This labor shortage significantly delayed project timelines and contributed to substantial economic losses. Many businesses were forced to reduce staff, with some workers being repatriated to their countries of origin - either by choice or due to national mandates. This created sudden manpower shortages, deepening unemployment within the sector.[19]

Alongside workforce issues, the procurement of construction materials and equipment became equally challenging. International construction projects typically rely on extensive global supply chains connecting manufacturers, suppliers, freight services, customs authorities, and local distributors. As a result, any disruption in one part of the chain tends to cascade across others, producing delays that are both unpredictable and difficult to mitigate.[20]

As projects stalled or slowed, many contractors found themselves unable to meet their contractual obligations, raising serious concerns about potential breaches and the resulting

[16] YAT M., MALIKAH e KANG C.W., *Effects of the COVID-19 Pandemic on the Construction Sector: A Systemized Review*, Engineering, Construction and Architectural Management, 2023

[17] WETMORE T. e ELLIOT S., *COVID-19 and Construction Disputes*, in SCHERER M., BASSIRI N. e ABDEL WAHAB M.S. (eds), *International Arbitration and the COVID-19 Revolution*, Kluwer Law International, 2020, pp. 204

[18] HARAPKO S., *How COVID-19 Impacted Supply Chains – and What Comes Next*, published 27 May 2025, available at: https://www.ey.com/en_us/insights/supply-chain/how-covid-19-impacted-supply-chains-and-what-comes-next

[19] BISWAS A., KAR A., MONDAL T., BUNTEE e BARDHAN G.A.D.P.K., *The Impact of COVID-19 in the Construction Sector and Its Remedial Measures*, Journal of Physics: Conference Series, Vol. 1797, n. 1, 2021

[20] WETMORE e ELLIOT, *COVID-19 and Construction Disputes*, cit., p. 216

liabilities. While the COVID-19 pandemic brought unprecedented global crisis and new containment procedures, it is unlikely to have fundamentally altered the nature of disputes typical in the construction industry.

Rather than redefining the legal landscape, the pandemic has acted as a magnifying glass, enlarging areas of friction and introducing additional complexity within typical claims.

Contractors' requests for extensions of time (EOTs) – i.e., formal contractual mechanisms through which contractors seek additional time to complete the works without incurring in delay damages – skyrocketed in recent years. Likewise, claims for prolongation and disruption costs, additional payment, and compensation for the costs associated with the prolonged presence on site significantly increased. These demands are largely linked to the disturbances caused by the pandemic and its effects. At the same time, the employers continue asserting their right to liquidated damages where contractual deadlines are not met. What has changed is the legal foundation for such claims, and the burden of proof on the parties involved.[21]

In this context, *force majeure* gained renewed importance during the pandemic. Some industry bodies, such as the European Construction Industry Federation, recognized COVID-19 as a *force majeure* event, thereby supporting the exclusion of liability for certain contractual breaches, the broader legal response was far from uniform.[22]

In common law jurisdictions, such as England, *force majeure* is not a standalone legal doctrine but rather a matter of contract. It exists only where parties have expressly included a *force majeure* clause in the contract, and its scope and effects are defined entirely by the contract's language. Therefore, whether COVID-19 qualifies as a force majeure event under English law depends on the specific wording of the contractual clause.[23]

In contrast, civil law systems, often codify *force majeure* or establish it through case law, typically implying it into contracts even without an express clause.[24] Standard form contracts widely used in international construction projects typically contain force majeure clauses, although their effectiveness varies significantly.[25]

---

[21] STIEGLER S., *Claims for Prolongation Costs*, published 3 January 2024, available at: https://www.diales.com/en/news/claims-for-prolongation-costs; DLA PIPER, *Unmasking the Future: An Insight into COVID-19 Construction Claims Beyond the Pandemic*, 2023, available at: https://www.dlapiper.com/en/insights/publications/2023/08/unmasking-the-future-an-insight-into-covid19-construction-claims-beyond-the-pandemic

[22] YAS N.C.O.L., *Effects of COVID-19 Pandemic on Contractual Relations*, Journal of Legal, Ethical and Regulatory Issues, Vol. 24, n. 3, pp. 1–9, 2021.

[23] LONGSTAFF T., FINNAN J. and HEDAR D., Coronavirus: force majeure, frustration and illegality, April 8, 2020, available at: https://www.exchangechambers.co.uk/coronavirus-force-majeure-frustration-and-illegality/.

[24] WETMORE e ELLIOT, *COVID-19 and Construction Disputes*, cit., p.212

[25] BUNNI, N.G., *The FIDIC Forms of Contract*, 3rd ed., Blackwell Publishing, Oxford, 2005

Obeid and Khalifeh (2020) emphasize that the effectiveness of such clauses depends heavily on precise drafting and the explicit inclusion of events such as pandemics. Without such specificity, parties may encounter considerable challenges in invoking *force majeure* defence. Certain international institutes including, most notably, the International Chamber of Commerce (ICC) offer model clauses that can be incorporated in contracts either expressly or by reference. In response to the COVID-19 pandemic, the ICC updated its force majeure clauses to adapt to the pandemic's commercial effects. Among other notable updates, the new ICC *force majeure* clause allows either party to terminate the contract if *force majeure* impediments persist for more than 120 days.[26]

Another frequently invoked contractual remedy following the COVID-19 pandemic has been the "change in law" clause, particularly within standard form contracts. These provisions typically allow contractors to claim time and cost adjustments when legal or regulatory changes, such as lockdowns or health mandates, directly disrupt project performance. However, the effectiveness of such claims depends heavily on the specific contractual language and the applicable jurisdiction. Each claim requires a careful factual and legal analysis to determine, first, whether the relevant government measure qualifies as a legal "change" within the meaning of the contract; second, whether this change had a demonstrable impact on the performance of the project; and third, whether the change falls within the scope of what the contract defines as the "law of the Country."[27] This latter point is particularly important in standard form contracts that refer to the "law of the Country where the Site is located," a phrase which may require a site-specific interpretation. In such cases, it becomes essential to establish whether the measure in question originates from a legal source (e.g., statute, regulation, decree) that forms part of the domestic legal system applicable to the physical location of the project site, as opposed to regional, supranational, or merely administrative guidance not formally binding under national law.[28]

In addition to invoking *force majeure* or *change in law* clauses, contractors operating under contracts governed by civil law systems may look to the doctrine of hardship as a potential avenue for relief. While hardship specifics vary across jurisdictions, the underlying principle remains broadly similar: when an extraordinary event fundamentally alters a contract's

[26] OBEID Z. and KHALIFEH H., *Covid-19, Contractual Obligations and Force Majeure*, International Bar Association, 30 June 2020, available at: https://www.ibanet.org/article/d814f145-a77b-4bba-b93a-65678a94e83c

[27] *Ibidem,*

[28] WIELICZKO, Max, *A COVID-19 Legal Toolkit for the Construction Industry: Force Majeure and Change in Law*, HFW Insights, 2025, available at: https://www.hfw.com/insights/a-covid-19-legal-toolkit-for-the-construction-industry-force-majeure-and-change-in-law/

economic balance, making performance excessively burdensome for one party, the affected party may seek renegotiation or judicial adjustment to restore fairness.[29]

Unlike *force majeure*, which typically suspends performance, hardship does not excuse non-performance: the contractor must continue performing while seeking redress. This distinction is critical in long-term construction projects where continued performance is expected despite financial strain.

The doctrine's application is highly fact-dependent and subject to variability in both legal interpretation and judicial discretion. Whether the pandemic justifies a contractual rebalancing depends not only on the magnitude of its economic impact but also on how risks were originally allocated and whether the relevant law recognizes hardship in a mandatory or discretionary fashion.[30]

In the absence of a *force majeure* clause, a hardship mechanism, or a change in law provision that could provide a basis for contractual relief in the event of regulatory measures such as lockdowns or health mandates, contractual performance may only be excused by relying on general legal doctrines such as frustration, impossibility, or impracticability. These doctrines operate as default legal remedies and are subject to strict conditions: they generally require that an unforeseeable and extraordinary event has rendered performance objectively impossible or radically different from what was originally contemplated by the parties. As such, they are typically invoked only as a last resort, when no express contractual provision is available to address the disruptive event.[31]

This inherent severity explains why, in practice, parties strongly prefer to rely on express force majeure clauses, where available. These clauses allow for more flexible responses, such as suspension of obligations or time extensions, without necessarily bringing the contract to an end.

A party's ability to seek relief for a force majeure event therefore depends on the specific force majeure clause included in the contract, which must be interpreted based on its exact wording.[32]

---

[29] NORTON ROSE FULBRIGHT, Force majeure/hardship clauses and frustration in English law contracts amid COVID-19, United Kingdom, March 2020, available at: https://www.nortonrosefulbright.com/en-me/knowledge/publications/b54cf723/force-majeure-hardship-clauses-and-frustration-in-english-law-contracts-amid-covid-19.

[30] WETMORE e ELLIOT, *COVID-19 and Construction Disputes*, cit., p. 216

[31] TAM J., *Navigating Global Supply Chain Uncertainty: Force Majeure and Other Doctrines That May Excuse Contractual Performance*, published 8 April 2025, available at: https://supplychaincompliance.bakermckenzie.com/2025/04/08/us-navigating-global-supply-chain-uncertainty-force-majeure-and-other-doctrines-that-may-excuse-contractual-performance/

[32] *Classic Maritime Inc v. Limbungan Makmur Sdn Bhd and another*, [2019] EWCA Civ 1102, Court of Appeal (England and Wales).

Januarita and Sumiyati (2021) contend that effective legal risk management requires anticipating such contingencies through thorough and forward-looking contractual drafting.[33] Their research demonstrates that well-drafted clauses explicitly addressing pandemics can greatly minimize interpretive conflicts and financial losses in force majeure scenarios.[34]

Importantly, if one of these doctrines, namely frustration, impossibility, or impracticability, is accepted, it typically results in the termination, not just a pause in obligations. Parties only go this route when ready to walk away entirely, usually when continuing would be totally unworkable or no longer makes business sense.

The COVID-19 pandemic has fundamentally tested the resilience of construction contracts and highlighted the critical importance of comprehensive risk allocation. While traditional legal doctrines have provided some relief mechanisms, the pandemic's unique characteristics have exposed gaps in contractual frameworks and emphasized the need for more precise drafting.

Moving forward, the construction industry must learn from these experiences to develop more robust contractual provisions that can better address similar global disruptions. Crucially, any claim grounded in the doctrines analyzed above, hinges on establishing direct causation between COVID-19-related disruptions and the specific performance failures, while also demonstrating reasonable mitigation efforts. Courts and tribunals will continue to examine factors such as restrictions duration and severity, concurrent delays, and parties' efforts to adapt to changing circumstances.[35]

1.1.2 The effects of the war in Ukraine: Energy price volatility and the scarcity of materials

The February 2022 invasion of Ukraine has had profound repercussions across various sectors, including the construction industry. The conflict has triggered sharp fluctuations in energy prices and material availability, significantly disrupting construction activities and fuelling a surge in sector-wide disputes.

Already weakened by the COVID-19 pandemic, construction supply chains faced further disruption after the invasion.[36] In 2021, Russia supplied over 40% of EU's natural gas imports;

[33] JANUARITA R. e SUMIYATI Y., *Legal Risk Management: Can the COVID-19 Pandemic Be Included as a Force Majeure Clause in a Contract?*, International Journal of Law and Management, Vol. 63, n. 2, pp. 219–238, 2021.
[34] *Ibidem.*
[35] WETMORE e ELLIOT, *COVID-19 and Construction Disputes*, cit., p. 216.
[36] MNA ADVISORS, *Ukraine Conflict: Impact on Construction*, MN Advisors Blog, 2 March 2022, available at: https://www.mnadvisors.com/blog/post/ukraine-conflict-impact-on-construction.

by 2023, this share had plummeted to approximately 8%, altering Europe's energy security landscape and creating unprecedent price volatility.[37]

Oil prices rapidly spiked to $130 a barrel before stabilizing near $100,[38] placing severe financial strain on construction firms that depend on predictable pricing to plan and execute long-term projects.

The transition from pipeline-based supply to liquified natural gas (LNG) has intensified inflationary pressures across Europe. While governments introduced extraordinary tax relief measures to mitigate the impact on domestic and industrial consumers, high energy costs eroded consumer purchasing power and further constrained construction budgets.

Analysts warn that Europe will continue to face higher energy prices than the US, where market corrections have been swifter.

Geopolitical instability in key supplier regions such as Egypt, Qatar, and Azerbaijan adds to this instability, amplifying risks of further price hikes.[39]

Beyond energy disruption, the war has exacerbated shortages of essential construction materials, including steel, bitumen, and iron. Disrupted supply chains and rising demand during the post-pandemic recovery have pushed process for steel, lumber, and other key sources to record highs, making procurement increasingly difficult and straining project feasibility.[40]

These challenges have severely disrupted engineering, procurement, and construction projects, giving rise to complex operational, legal, and financial risks. Shortages in labor, materials, and equipment are driving delays, cost overruns, and surge in time-related claims − particularly requests for extensions of time. Contractors are seeking compensation for escalating costs, while project owners counter with claims for liquidated damages.[41] Escalating material and labor costs have fuelled claims for compensation through price adjustment mechanisms,

---

[37] EURONEWS, *Three Years On: How Russia's Invasion Reshaped Energy Prices Across Europe*, Euronews, 24 February 2025, available at: https://www.euronews.com/business/2025/02/24/three-years-on-how-russias-invasion-reshaped-energy-prices-across-europe.

[38] *Ibidem.*

[39] ENESCU A.-G. e RĂILEANU SZELES M., *Discussing Energy Volatility and Policy in the Aftermath of the Russia–Ukraine Conflict*, Frontiers in Environmental Science, Vol. 11, 2023, available at: https://doi.org/10.3389/fenvs.2023.1225753.

[40] FIEC (European Construction Industry Federation), *Construction industry hit hard by war in Ukraine*, *Construction Europe*, June 2022, available at: https://www.fiec.eu/application/files/2816/6195/4482/2022-June-FIEC_article-Construction_industry_hit_hard_by_war_in_Ukraine-KHL.pdf.

[41] BOOLOGASUNDARAVIJAYAN I., *Claims and Damages in EPC/Construction Contracts: Impact of the Russia-Ukraine War*, 2 June 2023, available at: https://www.researchgate.net/publication/387723777_DISPUTE_RESOLUTION_IN_CONSTRUCTION_CONTRACTS_THE_ROLE_OF_ARBITRATION.

prolongation and disruption costs, and in some cases even contract renegotiations, as parties seek to rebalance the economic burden of performance in light of unprecedented volatility.

Simultaneously, volatility in material prices and labor costs has generated claims for cost adjustments, making mechanisms like variation orders and escalation clauses critical for resolving such issues. Many existing contracts prove inadequately designed to handle such drastic cost fluctuations, leading to conflicts over price adjustments, highlighting the importance of variation orders and escalation clauses.[42]

The allocation of responsibility for the care and security of works has come under increased scrutiny, requiring clear contractual definitions of responsibilities. Provisions concerning force majeure, indemnities, and liability sharing must be carefully assessed to ensure clarity in handling war-related risks. While the war itself may qualify as a force majeure event, providing grounds for relief from contractual duties, contractors invoking such clauses must meet stringent notice and evidentiary requirements to successfully invoke such provisions.[43]

In response to these unprecedented challenges, stakeholders are adapting through various strategies to mitigate the adverse effects of these disruptions.[44]

Companies are adopting more resilient procurement strategies to address supply chain vulnerability. Strategic sourcing across multiple regions enables business to create diverse supplier networks that reduce reliance on individual suppliers. In parallel, many firms are securing bulk purchasing agreements to stabilize costs and protect against future price surges.[45]

Governments have implemented various measures to alleviate pressure on the construction sector. These include infrastructure stimulus programs that drive demand while supporting industry expansion. To promote sustainability, tax incentives are being offered for adopting energy-efficient materials and technologies. In addition, public procurement policies are being revised to align with current market conditions, helping companies better manage financial strain caused by escalating costs.[46]

---

[42] *Ibidem*.

[43] BOOLOGA SUNDARA VIJAYAN I., *Claims and Damages in EPC/Construction Contracts: Impact of the Russia-Ukraine War*, LinkedIn article, 2 June 2023, available at: https://www.linkedin.com/pulse/claims-damages-epcconstruction-contracts-impact-war-vijayan/.

[44] WOMBLE BOND DICKINSON, *Rebuild Ukraine: A Construction Disputes Perspective from the UK*, Womble Bond Dickinson Articles and Briefings, 11 April 2023, available at: https://www.womblebonddickinson.com/uk/insights/articles-and-briefings/rebuild-ukraine-construction-disputes-perspective-uk.

[45] REAL INSTITUTO ELCANO, *The Volatility of Energy Prices and Its Effect on Industry*, Elcano Royal Institute – Analyses, 2 February 2023, available at: https://www.realinstitutoelcano.org/en/analyses/the-volatility-of-energy-prices-and-its-effect-on-industry/.

[46] *Ibidem.*

The surge in construction disputes following the Ukraine war has led to a significant increase in the use of arbitration as the preferred dispute resolution mechanism. The volatility in energy prices and material scarcity has triggered complex contractual disagreements, often requiring specialized expertise to resolve them efficiently. As further detailed at Section 1.2 below, this complexity makes arbitration an increasingly attractive alternative to litigation, offering parties greater flexibility and expertise in addressing war-related contractual issues.

1.2 Why is arbitration the preferred method for construction disputes

The relationship between arbitration and construction has evolved symbiotically: the rise of large-scale projects in the second half of the 20th century led to prominent arbitrations that paved the way for the recognition of international commercial arbitration as a legitimate system of private international justice.[47] Today, arbitration has become the default dispute resolution method in construction, with industry surveys consistently confirming its popularity among practitioners and stakeholders.[48] The *Arcadis Global Construction Disputes Reports* (including the 2021 edition) confirm that arbitration remains one of the most used mechanisms when negotiated settlements fail, especially in high-value or complex cases.[49] The *Queen Mary University of London Surveys* (2018 and 2019) likewise highlighted arbitration's central role in the construction and energy sectors, with users calling for quicker and more cost-effective solutions, including wider access to interim measures.[50] Data from the *ICC's 2020 statistics* further supports this trend, showing that construction and engineering disputes accounted for 20% of all ICC cases, rising to 38% when energy-related cases are included, reinforcing arbitration's leading role in the field.[51]

In the context of international construction disputes, arbitration emerges as the most suitable and effective method of dispute resolution. As Born (2021) notes, construction conflicts often involve highly technical matters and voluminous factual records, which demand adjudicators

[47] PARK W. W., *Arbitrability: International & Comparative Perspectives*, Wolters Kluwer, 2009.
[48] HARDY B., NUYTS A., *Overview: Construction Arbitration in Europe*, Liedekerke, 17 November 2021, available at: https://globalarbitrationreview.com/review/the-european-arbitration-review/2022/article/overview-construction-arbitration-in-europe.
[49] ARCADIS (Arcadis), *2021 Global Construction Disputes Report*, 2021
[50] SCHOOL OF INTERNATIONAL ARBITRATION (QMUL) in partnership with White & Case, *2018 International Arbitration Survey: The Evolution of International Arbitration*, 2018, available at https://www.qmul.ac.uk/arbitration/research/2018/; SCHOOL OF INTERNATIONAL ARBITRATION (QMUL) in partnership with Pinsent Masons, *2019 International Arbitration Survey: International Construction Disputes*, 2019, available at: https://www.qmul.ac.uk/arbitration/research/2019/).
[51] ICC (International Chamber of Commerce), *ICC Dispute Resolution Statistics: 2020*, 3 August 2021, available at: https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-dispute-resolution-statistics-2020/.

with sector-specific expertise.[52] As will be detailed at Section 1.2.3 below, unlike traditional litigation, arbitration allows the parties to appoint arbitrators with specialized knowledge and to tailor procedural rules to the complexity of the dispute, ensuring a more informed and efficient resolution process. Moreover, in cross-border construction projects, arbitration offers a neutral and independent forum, free from the risk of local judicial bias, and guarantees enforceable outcomes under international instruments such as the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention).[53] This neutrality is especially valuable when parties come from different jurisdictions and legal cultures, where mutual trust and fear of bias, particularly when state entities are involved, makes litigation in national courts impractical.[54]

The flexibility of arbitral proceedings also enables more efficient handling of complex cases, allowing parties to control the scope of disclosure, the structure of hearings, and the overall timetable. Given that construction projects timelines span years - from initial development though engineering, construction, and commissioning - with key documentation created daily by dozens of participants, disputes often involve enormous amounts of data requiring review and evaluation as evidence.

Disputes concerning time, cost and quality frequently necessitate complex schedule analyses and expert testimony to determine the cause of project delay. That is why the rules and accepted practices in arbitration are well-suited to the nuances of construction disputes,[55] enabling parties to present technical evidence effectively and obtain informed decisions from specialized arbitrators.

Additionally, the often invoked confidential nature of arbitration is particularly attractive in the construction sector, where companies often seek to avoid public exposure of technical defects, contractual breaches, or project delays.[56] In many jurisdictions, arbitration provides parties with substantial privacy protection, as most elements of the arbitration process remain confidential between the parties and are not subject to public scrutiny.

Arbitration may also integrate into multi-tiered dispute resolution mechanisms, such as those found in the standard contracts published by the International Federation of Consulting

---

[52] BORN G., *International Commercial Arbitration*, Kluwer Law International, 2021, p. 307 *et seq.*

[53] *Ibidem;* New York Convention was adopted by the United Nations in 1958 and counts, as of today, 172 signatory states. It is often regarded as the cornerstone of international arbitration.

[54] NAZZINI R., *Transnational construction arbitration: key themes in the resolution of construction disputes,* Routledge, 2018

[55] KIEFER D., Suitability of Arbitration Rules for Construction Disputes, *The Guide to Construction Arbitration*, 5th ed., *Global Arbitration Review*, 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/suitability-of-arbitration-rules-construction-disputes

[56] BORN G., International Commercial Arbitration, cit.

Engeneering (*Fédération Internationale des Ingénieurs-Conseils*, commonly known as FIDIC). FIDIC is a leading international industry body that develops widely used standard form contracts for construction and engineering projects worldwide. Under the FIDIC contract suite, arbitration typically follows initial negotiation or adjudication phases, thereby providing a structured escalation process for dispute resolution. This adaptability further enhances arbitration's appeal in the construction industry, reinforcing its role as the optimal tool for resolving disputes.[57]

Against this background, the following sections will explore in greater detail the key advantages often cited as reasons for arbitration's widespread use in construction disputes, ranging from procedural flexibility and confidentiality to the availability of expert arbitrators.

1.2.1 Procedural advantages

Procedural advantages stand at the core of arbitration's appeal in construction disputes. These advantages manifest in several dimensions – from the tailoring of procedural timelines to the management of evidence – each of which contributes to a more efficient and case-sensitive resolution framework.

1.2.1.1 Tailored procedural timelines (contrast with court backlogs)

The arbitration process offers customized dispute resolution that aligns with the expectations and the needs of the parties involved. Unlike national courts, which often impose rigid and protracted formalities, arbitration provides flexible procedures tailored to the circumstances of each case.[58]

This adaptability is particularly valuable in construction disputes, where delays can escalate costs and jeopardize project completion. For instance, parties can agree to expedited hearings or streamlined evidence submission, significantly reducing resolution times compared to congested court systems, where backlogs routinely extend disputes by months or even years. As noted in the United Nations Commission on International Trade Law (UNCITRAL) Notes on Organizing Arbitral Proceedings, which clarify that this procedural flexibility "*is useful in that it enables the arbitral tribunal to take decisions on the organisation of proceedings that take into account the circumstances of the case, the expectations of the parties and of the*

[57] *Ibidem.*
[58] BORN G., *International Commercial Arbitration*, cit., chap. 15

members of the arbitral tribunal, and the need for a just and cost-efficient resolution of the dispute."[59]

In construction arbitration, procedural timelines are a central tool for balancing efficiency and fairness: the speed of arbitration largely depends on the willingness of the parties to adhere to established timelines and the arbitrator's management of the proceedings. In contrast, judges are generally more likely to be rigorous in enforcing case timetables through the case management process.[60]

Under Article 24(2) of the ICC Rules, the arbitral tribunal sets a timetable, typically following the case management conference, covering each phase of the proceedings. This timetable should be both realistic and adaptable, considering case complexity, multiparty dynamics, the need for preliminary determinations, and logistical aspects like document production or expert evidence.

While the ICC Rules envision a six-month period for rendering the final award, construction disputes often exceed this, due to their complexity. Tribunals must therefore build in flexibility for document production, expert evidence, or unforeseen delays, while encouraging party cooperation and agreement on realistic deadlines. Importantly, timelines should ideally be agreed upon by all parties, as this fosters procedural cooperation and limits future objections.

Compared to litigation, arbitration offers greater efficiency Courts are bound by heavy dockets, strict case management, and lengthy pre-trial procedures, whereas arbitration allows hearings to be scheduled more flexibly and arbitrators appointed with earlier availability. Arbitration agreements may also stipulate specific timeframes, and in some cases proceedings can continue alongside the ongoing construction project, minimizing disruption.[61]

Another advantage lies in the management of evidence. In common law jurisdictions, arbitration typically involves a narrower scope of discovery compared to litigation, which simplifies the exchange of information and can significantly reduce costs. By focusing on essential documents and key facts, arbitration avoids the often burdensome discovery procedures of court proceedings.[62] In civil law systems, where discovery is already limited, this advantage may be less significant. Additionally, the less formal approach to evidentiary

---

[59] UNCITRAL, *Notes on Organizing Arbitral Proceedings*, United Nations, New York – Vienna, October 2016, available at: https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/arb-notes-2016-e.pdf.

[60] REDMANS, *Arbitration vs Litigation in Construction Disputes*, Redmans Solicitors, 2023, available at: https://redmans.co.uk/insights/arbitration-vs-litigation-in-construction-disputes/.

[61] GREENBERG VOGT J., *The Benefits of Arbitration in Construction Disputes*, *Construction Dive*, published Jan. 26, 2024, available at: https://www.constructiondive.com/news/benefits-arbitration-construction-disputes/705803/.

[62] LINCOLN & ROWE, *11 Key Differences Between Arbitration vs Litigation*, published July 17, 2023, available at: https://lincolnandrowe.com/2023/07/17/11-key-differences-between-arbitration-vs-litigation/.

rules in arbitration accelerates hearings and enables parties to concentrate on substantive issues rather than procedural technicalities.[63]

1.2.2 Confidentiality advantages

A common perception is that arbitration is by definition confidential. In reality, confidentiality is not an automatic feature of arbitral proceedings but rather depends on the applicable *lex arbitri* or on confidentiality orders made by the arbitral tribunal. In practice, however, the arbitration law of many important arbitration seats recognize an express or implied duty of confidentiality, and in numerous cases, arbitral tribunals issue specific confidentiality orders requiring the parties to preserve secrecy over the proceedings, the documents produced, and the award itself.

This characteristic, when present, is particularly valued by parties in the construction sector. Unlike traditional court proceedings, which are generally public and risk exposing sensitive technical or financial information, arbitration offers a level of privacy that helps safeguard proprietary know-how, trade secrets, and reputational interests.[64] Protecting such information is crucial in construction disputes, where public disclosure of disagreements may jeopardize long-standing business relationships and undermine trust between stakeholders.[65] By resolving conflicts privately, parties can limit unwanted publicity and preserve the possibility of long-term collaboration.

The dichotomy between privacy and confidentiality in international commercial arbitration has been increasingly scrutinized since the 1980s. Some jurisdictions, such as the United Kingdom, have always recognized an implied duty of confidentiality in arbitral proceedings.

However, as held by the Australian Court (*Esso v. Plowman*, 1988), the concept of confidentiality must be distinguished from the notion of privacy: "*the mere fact that the parties to a dispute agree impliedly or expressly to have the dispute arbitrated in private does not import any legal obligation or equitable obligation not to disclose to third parties any information at all which may be said to have been obtained by virtue of or in the course of the Arbitration*".[66] Hence, whilst privacy entails the right to keep strangers out of the proceedings,

---

[63] NADLER G., *Arbitration Is Meant to Be Expeditious—But Is It Really?*, *JAMS Blog*, published 2024, available at: https://www.jamsadr.com/blog/2024/arbitration-is-meant-to-be-expeditious-but-is-it-really.

[64] TROUTMAN PEPPER, *Arbitrating Construction Disputes in the US*, *Practical Law Arbitration*, 2022, available at: https://www.troutman.com/a/web/335766/Arbitrating-Construction-Disputes-in-the-US-Practical-Law-Arbi.pdf.

[65] BOZIMO I., *Confidentiality in Arbitration: Protecting Business Secrets*, published 19 October 2023, available at: https://www.hostedinafrica.com/confidentiality-in-arbitration-protecting-business-secrets/.

[66] *Esso Australia Resources Ltd v Gas and Fuel Corporation of Victoria and State Electricity Commission of Victoria*, High Court of Australia, Judgment [1995] HCA 19, 7 April 1995.

confidentiality relates more to the obligation to keep the information, the evidence of witnesses, the documents, and the award itself secret.

In response, the English Court of Appeal in *Ali Shipping v. Shipyard Trogir* (1998)[67] reaffirmed the confidential nature of arbitration, holding that the duty of confidentiality "*arises as the nature of the contract itself implicitly requires*". *Ali Shipping* also confirmed that materials presented and/or produced in arbitral proceedings remained, with very few exceptions, confidential in subsequent proceedings. The Commercial Court's decision aligned with the reasoning in *Dolling Baker* (1990)[68], affirming that by engaging in arbitration, parties implicitly agree not to disclose or use, for purposes outside the arbitration, any documents prepared, disclosed, or produced during the proceedings, including transcripts, witness testimony, notes of evidence, and the final award, unless with the opposing party's consent or by court order or permission. The Court acknowledged an exception: where negotiations and contracts are closely interrelated and all parties are under the same beneficial ownership and control, disclosure of such materials may occur without breaching the implied duty of confidentiality.[69]

However, confidentiality can no longer be universally assumed in arbitration, so parties seeking to protect the privacy of proceedings should explicitly include confidentiality clauses in their arbitration agreement or establish a separate confidentiality agreement at the outset. The leading institutional rules are consistent in affirming the private nature of arbitration; for example, Article 26(3) of the ICC Rules provides that persons not involved in the proceedings shall not be admitted. Article 28(3) of the UNCITRAL Rules addresses the position in similar terms. The fact that arbitration hearings are held in private is generally undisputed. Consequently, it appears logical that any documents disclosed and evidence presented during such hearings should likewise be, and continue to remain, confidential.[70]

To enhance the legal framework surrounding confidentiality in construction arbitration, jurisdictions are encouraged to adopt comprehensive regulations that specify the obligations of all participants involved, defining the parameters of confidentiality and detailing acceptable exceptions. By doing so, legal systems can better protect sensitive information and enable

---

[67] *Ali Shipping Corp v. Shipyard Trogir*, [1999] 1 W.L.R. 314, English Court of Appeal, 19 December 1997.
[68] *Dolling-Baker v. Merrett*, [1990] 1 W.L.R. 1205, English Court of Appeal, 21 March 1990.
[69] SMEUREANU I.M., *Confidentiality in International Commercial Arbitration*, International Arbitration Law Library Series, vol. 22, Kluwer Law International, 2011, p. 44; D'ARCANGELO M. and EPSTEIN J., *A Justification for Esso v Plowman?*, *The Arbitrator & Mediator*, April 2006, available at: https://www7.austlii.edu.au/au/journals/ANZRIArbMedr/2006/4.pdf.
[70] BLACKABY N., PARTASIDES C., and REDFERN A., *Redfern and Hunter on International Arbitration*, 7th ed., 2022, p.124.

stakeholders within the construction industry to navigate these legal landscapes effectively to uphold their rights and obligations efficiently.[71]

1.2.3 Technical expertise as an advantage of arbitration: Engineers vs. judges in delay analysis

There is no perfect arbitrator suited for every international dispute. Some disputes require specific legal qualifications, personal strengths, or linguistic capabilities, notwithstanding the increasing predominance of English as the language of international dispute resolution.[72]

In the context of construction, the technical expertise of arbitrators is crucial, especially in engineering, architecture, or project management. This is why arbitration represents a significant advantage over litigation: traditional courts may struggle with technical nuances such as critical path delay analysis, defective workmanship, scope variations and scope-delivery models. Conversely, the flexibility of arbitration offers a forum where parties can select arbitrators who are not only experienced in dispute resolution but also familiar with the technical dynamics of construction projects. The arbitrators' expert knowledge leads to better decision accuracy and reduces dependence on outside expert witnesses while improving the speed of the procedures.[73]

Engineers, most often engaged as party-appointed experts rather than as arbitrators themselves, are adept at translating complex technical concepts into clear and accessible language. This ability is particularly valuable in arbitration, where decision-makers without engineering backgrounds must grasp the significance of technical evidence. The skill of engineers in presenting data in a coherent and structured manner enhances the communication of delay analysis findings. Thus, arbitration offers an advantage over litigation since experienced arbitrators tend to be more receptive to technical expert testimony and to sophisticated methods of delay analysis than generalist judges, thereby facilitating informed and accurate decision-making in disputes where engineering expertise is critical.[74]

Building on this point, one of the features which typically distinguishes a generalist judge from an arbitrator with expertise in construction disputes is the arbitrator's usual broader acceptance, more effective use of and greater familiarity with forensic delay analysis methods when it comes to adjudicating delay claim in large construction projects.

---

[71] KIEFER D., *Suitability of Arbitration Rules*, cit.
[72] BORN G., *International Commercial Arbitration*, cit., p. 2448.
[73] *Ibidem.*
[74] ULLAH Z., *Delay Analysis Methodologies*, published 5 January 2021, available at: https://www.linkedin.com/pulse/delay-analysis-methodologies-zaka-ullah-gondal/.

Delay analysis are indeed almost invariably used in international arbitrations dealing with delay claims whereas in national courts its use is far less common. Although no comprehensive studies appear to exit on the subject, the courts' reluctance to rely on forensic delay analysis may be due to the fact that judges (especially if coming from civil law jurisdiction) do not usually receive specific training on the complex technical aspects of delay analysis, and parties are neither procedurally accustomed nor always allowed to appoint technical experts who could support the court in understanding the methodologies of delay analysis.

In short, forensic delay analysis is a set of technical methodologies used to identify, measure, and allocate responsibility for delays in construction projects: it essentially explaines how different events have impacted the project timeline, and supports the fair resolution of delay claims.

Various methods exist, each with its own assumptions, advantages, and limitations.

One of the primary methods employed by engineers in delay analysis is Time Impact Analysis (TIA), a technique which involves examining individual delay events and their cumulative effects on the project schedule. By comparing baseline schedules to updated timelines, engineers can quantify the impact of each delay, making TIA a straightforward and efficient analytical tool.[75]

There are, however, several other delay analysis methods commonly used in arbitration that, as noted, are not frequently used in civil law jurisdictions, due to their preference for simpler, data-driven analyses over hypothetical or speculative models.[76] These include the Impacted As-Planned method, which inserts delay events into the original baseline schedule to simulate their theoretical effect on completion; this method is useful when as-built data is lacking, but it is criticized for its hypothetical nature. Conversely, the Collapsed As-Built method removes delay events from the actual as-built schedule to determine when the project would have finished "but for" the delays; although intuitive, it is vulnerable to manipulation and often viewed with caution by courts. Another widely used approach is the As Planned vs. As-Built comparison, which contrasts scheduled and actual start and finish dates to highlight deviations and identify delays. This method is most effective in relatively simple projects with a stable critical path. Finally, the Windows Analysis divides the project into distinct time periods ("windows") and compares planned versus actual progress within each segment, providing a

[75] CERTO T., *Breaking Down the Walls: A Series on Construction Delay Claims*, published 15 April 2025, available at: https://angle.ankura.com/post/102k8fa/breaking-down-the-walls-a-series-on-construction-delay-claims-part-5-of-6

[76] ULLAH, *Delay Analysis Methodologies*, cit.

detailed and data-driven assessment of delays based on contemporaneous records. While highly accurate, this method requires extensive documentation and is more resource-intensive to perform.[77]

To ensure that such complex technical methodologies are properly understood and fairly assessed, leading arbitral institutions such as the ICC and the LCIA are known for their ability to appoint arbitrators with substantial experience in the construction sector. While they do not operate on the basis of fixed public rosters, they have access to extensive networks of qualified professionals, ensuring that disputes are adjudicated by individuals familiar with industry standards.[78] The ICC 2021 Dispute Resolution Statistics confirm that over 25% of arbitrators appointed in construction cases had non-legal backgrounds, most commonly in civil engineering and project management.[79]

This further underlines the construction industry's reliance on technically informed decision-makers, both within the contract structure and in external dispute resolution mechanisms.[80]

1.3 Standard international construction contracts mandating arbitration

When dealing with large-scale international construction projects, the question of how disputes are resolved is not merely procedural, but it is often determinative of whether the project itself will succeed. Given the inherently transnational nature of these contracts, and the frequent involvement of parties from different jurisdictions, international arbitration is the means of dispute resolution most frequently used in international standard forms of construction contracts.

As noted at Section 1.2 above, this preference for arbitration is not accidental: arbitration offers parties a neutral and flexible forum, greater confidentiality, and, above all, a reliable enforcement mechanism through the 1958 New York Convention, which ensures recognition of arbitral awards in more than 170 countries.

---

[77] *Ibidem*; OPENAI, *ChatGPT (GPT-5), Response to the prompt "Explain the delay analysis methods employed in construction arbitration"*, available at: https://chat.openai.com/.

[78] BLACKABY N., PARTASIDES C., and REDFERN A., *Redfern and Hunter on International Arbitration*, 7th ed., Oxford University Press, 2022.

[79] INTERNATIONAL CHAMBER OF COMMERCE, *2021 ICC Dispute Resolution Statistics*, Statistical Report, published 2023, available at: https://jusmundi.com/en/document/publication/en-2021-icc-dispute-resolution-statistics.

[80] GILLION E., MORSON T., JACKSON J., and DE JAGER P., *The New FIDIC Suite 2017: Significant Developments and Key Changes*, in *The International Construction Law Review*, 2018, available at: https://fidic.org/sites/default/files/ICLR%20Article_The%20New%20FIDIC%20Suite%202017_October%202018%20%5B2018%5D%20ICLR%20384_0.pdf; BORN G., *International Commercial Arbitration*, cit., p. 1808

The FIDIC contract suite is perhaps the most structured in this regard, mandating a multi-tiered system in which arbitration is accessible only after disputes have passed through several steps, in order to encourage the early resolution of disputes by technically qualified bodies in real-time and at the project site, rather than through distant arbitral tribunals years later.[81]

By contrast, contracts such as those drafted by the Joint Contracts Tribunal, the New Engineering Contract, and the American Institute of Architects tend to reflect a more flexible or even minimalist approach, where arbitration is an available but not always obligatory recourse, and where pre-arbitral adjudication may be optional or entirely absent.

Depending on the legal tradition, policy orientation, and procedural philosophy of the drafting institution, divergences can be observed in the pre-arbitral structure embedded in each system,[82] but arbitration clauses remain a crucial component of the dispute resolution frameworks in the construction sector.

1.3.1 FIDIC (role of Dispute Adjudication/Avoidance Boards - DAABs)

The evolution of dispute resolution provisions in FIDIC contracts has undergone significant transformation from 1957 to the present, reflecting a growing emphasis on fairness, neutrality, and efficiency. Initially, all disputes were to be referred exclusively to the Engineer - i.e., a figure typically appointed by the employer to serve a quasi-neutral role in administering the contract and certifying claims - whose decisions were binding unless challenged in arbitration. However, this approach drew criticism due to the Engineer's dual role as both the employer's agent and impartial adjudicator.[83]

To address these concerns, in 1995 FIDIC introduced the Orange Book, which marked a pivotal shift by adding two important features: the Dispute Adjudication Board (DAB), offering independent and binding (though not final) determinations, and a formal requirement for an amicable settlement period before moving to arbitration.[84]

The 1999 edition institutionalized these changes across all standard forms, reconfiguring the dispute resolution process into a compulsory framework comprising three distinct tiers, as set out in Clause 21 of the 2017 Red Book: first, a decision by the Engineer (Sub-Clause 3.7), then adjudication by Dispute Adjudication Board (DAB), followed by an attempt at amicable

[81] SEPPÄLÄ C., *The FIDIC Red Book Contract: An International Clause-By-Clause Commentary*, 1st ed., Kluwer Law International, 2023.
[82] JENKINS J., *International Construction Arbitration Law*, Wolters Kluwer, 2021.
[83] SEPPÄLÄ C., *FIDIC and Dispute Adjudication Boards (DAB(s))*, Paris, 2015, available at: https://fidic.org/sites/default/files/webinar/PresentationCSeppFIDICandDisputeAdjudicationBoards.pdf
[84] GODWIN W., *The 2017 FIDIC Contracts*, Wiley-Blackwell, Hoboken, 2019.

settlement before arbitration. At this stage, the DAB was typically appointed on an *ad hoc* basis, operating only when a dispute arose, and without a formal role in preventing disputes.[85] This tiered system is not merely procedural. It reflects FIDIC's conviction that only the most intractable disputes reach the arbitral stage, while the majority are filtered through technical mechanisms aimed at reducing confrontation and preserving the progress of the works.

In 2008, the Gold Book introduced a significant innovation by redefining the DAB as the Dispute Avoidance/Adjudication Board (DAAB). Unlike the DAB, the DAAB was conceived as a standing board, appointed at the beginning of the project, with a dual mandate: to decide disputes formally and to proactively assist the parties in avoiding disputes through informal means. The Gold Book also introduced a specific "Avoidance of Disputes" clause that allowed the parties to seek the DAAB's help before a formal dispute crystallised.[86]

The 2017 edition consolidated this evolution by adopting the DAAB as the default model across all three main Books (Red, Yellow, and Silver), thereby replacing the earlier DAB system. Clause 21 of the 2017 Red Book sets out this multi-tiered structure: first, a determination by the Engineer (Sub-Clause 3.7); second, adjudication by the DAAB (Sub-Clause 21.4); and third, a 28-day amicable settlement phase (Sub-Clause 21.5). Only after these steps, or if they are expressly bypassed, may a party commence arbitration (Sub-Clause 21.6).[87] In other words, this mechanism allows conflicts to be speedily adjudicated in the first instance, while preserving the parties' right to have their disputes fully and finally decided on the merits at a later stage: i.e., "pay now, argue later."[88]

Under this system, disputes begin with a formal claim to the Engineer, who must consult the parties and issue a neutral and timely determination. If a party is dissatisfied, it must issue a Notice of Dissatisfaction (NOD) to preserve its right to challenge the Engineer's determination.[89] Conversely, if no NOD is issued, the determination itself or any part of it not expressly included in the NOD will become final, conclusive, and immediately enforceable in arbitration.[90]

---

[85] FIDIC, *Forms of Contract (Red, Yellow, Silver Books – 1992–1999)*; GILLION E., MORSON T., JACKSON J., and DE JAGER P., *The New FIDIC Suite 2017: Significant Developments and Key Changes*, cit.

[86] *Ibidem.*

[87] GODWIN W., *The 2017 FIDIC Contracts*, cit.

[88] TAN S., STAREY A., and COLDWELL B., *Security of Payment under FIDIC Contracts: More Secure, for Now*, Singapore, 2015, available at: https://www.inhousecommunity.com/article/security-of-payment-under-fidic-contracts-more-secure-for-now/

[89] McCREA R., *The 2017 FIDIC Dispute Resolution Procedure: Part 1 – The New Dispute Resolution Mechanism*, London, 2018, available at: https://www.fenwickelliott.com/research-insight/articles-papers/contract-issues/2017-fidic-dispute-resolution-procedure-part-1.

[90] ROBINSON M.D., *Guide to the FIDIC Conditions of Contract for Construction: The Red Book 2017*, Wiley-Blackwell, 2019

The second tier, the DAAB, has the main purpose of allowing the parties to try to resolve the dispute before resorting to arbitration proceedings, which are far lengthier, more formal, and more expensive. The DAAB is composed by three members unless otherwise agreed, and conducts regular site inspections and reviews progress reports to acquire familiarity with the details of the project.[91]

The DAAB must then complete and issue its reasoned decision in writing within 84 days after receiving the formal dispute submission. The DAAB's decisions, while binding, become final only if not challenged within 28 days through a NOD. The failure by one party to comply with decision issued by the DAAB enables the other party to bypass further steps and proceed directly to arbitration. At the same time, the DAAB may be called upon, or may itself invite the parties, to engage in informal resolution efforts, though this dual role as both advisor and adjudicator has raised concerns about potential bias, if the same board is later asked to rule formally on the same matter.[92]

Following the DAAB's decision and an unsuccessful NOD (or no NOD at all), the parties must enter a 28-day amicable settlement phase before arbitration can begin. Whilst this is formally a prerequisite, in practice it often serves more as a cooling-off period than a true effort at resolution, unless both parties are genuinely willing to negotiate.[93]

Lastly, arbitration remains the last resort and is governed by the ICC Rules by default (Sub-clause 21.6), though parties are free to opt for other institutions. Importantly, the arbitral tribunal is empowered to fully reopen and reassess any prior Engineer or DAAB decisions unless they have become final and binding. Notably, FIDIC's 2017 revision abandoned the idea, tested in its 2016 draft, of imposing a time bar on the commencement of arbitration post-NOD, due to concerns that it would encourage premature filings and add unnecessary pressure.[94]

Overall, FIDIC's modern dispute resolution system embodies a sophisticated balance of staged intervention, neutrality, and procedural discipline, intended not only to resolve but also to proactively avoid disputes. Nevertheless, the increasing complexity and formalism of the 2017

[91] BROWN N.A., *FIDIC 2017: A Definitive Guide to Claims and Disputes*, ICE Publishing, 2025
[92] GODWIN W., *The 2017 FIDIC Contracts*, cit.
[93] ABDUL-MALAK A. and JABER S., *Opportunities for Attempting Amicable Settlement Along the Claim/Dispute Timeline*, in *Interaction Between Theory and Practice in Civil Engineering and Construction*, ISEC Press, 2016, available at: https://www.isec-society.org/ISEC_PRESS/EURO_MED_SEC_01/pdf/LDR-5_v2_236.pdf ; GODWIN W., *The 2017 FIDIC Contracts*, cit.
[94] GILLION E., MORSON T., JACKSON J., and DE JAGER P., *The New FIDIC Suite 2017*, cit. p. 406 *et seq.*; GODWIN W., *The 2017 FIDIC Contracts*, cit.

model raise the open question of whether its procedural gains fully offset the administrative burdens it imposes on parties in large-scale international projects.[95]

1.3.2 JCT, NEC, AIA (comparison of arbitration clauses)

While the FIDIC suite is often regarded as the most structured and arbitration-focused among international construction contracts, the Joint Contracts Tribunal (JCT), the New Engineering Contract (NEC), and the American Institute of Architects (AIA) Standard Forms offer important variations that reflect the legal traditions and market practices of their jurisdictions. Each adopts a different posture toward arbitration, shaping its accessibility and procedural role within the broader dispute resolution framework.

The JCT contracts, widely used in the United Kingdom and other common law jurisdictions, are shaped by the statutory framework of the Housing Grants, Construction and Regeneration Act of 1996, which grants parties an absolute right to adjudicate disputes at any time during the contract's execution. Consequently, arbitration is not mandatory by default. Instead, they typically offer it as an elective option, which parties may adopt through the contract's dispute resolution provisions.[96]

If the parties wish for disputes and differences to be determined by arbitration rather than litigation, this intention must be clearly stated in the contract by specifying that "*Article 9 and clauses 9.4 to 9.9 apply*." Otherwise, litigation before the courts will remain the default dispute resolution forum under the JCT standard forms.[97]

Where selected, arbitration is conducted in accordance with the JCT 2016 edition of the Construction Industry Model Arbitration Rules (CIMAR), applying the 1996 UK Arbitration Act,[98] with the parties remaining free to designate the applicable rules and arbitral institution.

This discretionary model is consistent with JCT's broader philosophy of preserving party autonomy and adaptability. By offering parallel avenues for dispute resolution, it allows contracting parties to tailor procedures to the size, complexity, and international reach of a given project.[99] Yet, this flexibility has attracted criticism in contexts where arbitration might

---

[95] NADAR R., *The Dispute Settlement Provisions of the 2017 FIDIC Forms of Contract*, in BALTAG C. and VASILE C. (eds), *Construction Arbitration in Central and Eastern Europe: Contemporary Issues*, Wolters Kluwer, 2023.

[96] CHAPPELL D., *The JCT Minor Works Building Contracts 2016*, Wiley-Blackwell, 2017.

[97] MAC LABHRÁI S., *Guide to the JCT Design and Build Contract* (2024 Edition), Routledge, Abingdon, 2025.

[98] HEGAZY M.M., *Major Differences between FIDIC, JCT, and NEC*, presented at EEA Conference, May 2021, available at: https://www.researchgate.net/publication/351624983_Major_Differences_between_FIDIC-JCT-NEC.

[99] NAZZINI R. and GODHE A., *2024 Construction Adjudication in the United Kingdom: Tracing Trends and Guiding Reform*, Centre of Construction Law, King's College London, 2024, available at:

arguably offer a more reliable and neutral forum, particularly in high-value or cross-border projects. In such cases, the absence of a presumptive arbitration clause can introduce ambiguity or tactical maneuvering, with each party potentially favoring the forum perceived as more advantageous after a dispute has already materialized.[100]

This latent uncertainty has led some to suggest that stronger guidance or a more arbitration-leaning default might be desirable in certain JCT forms, particularly in light of the increasing congestion and cost of domestic litigation. According to this view, relying on mutual agreement at a later stage could potentially delay resolution and create opportunities for forum-shopping.[101] Nonetheless, proponents defend JCT's model as reflecting commercial reality: many UK-based projects still benefit from access to specialist construction courts, and the ability to choose between arbitration and litigation preserves a high degree of procedural pragmatism.[102] Ultimately, the model underscores a deliberate tension between structure and flexibility, privileging bespoke solutions over a one-size-fits-all dispute architecture.[103]

The NEC, developed under the auspices of the UK Institution of Civil Engineers (ICE), represents a fundamentally different approach to construction project governance and dispute resolution when compared to FIDIC. First introduced in 1993, the NEC suite was designed to foster collaboration, transparency, and proactive risk management, and has since become one of the most widely adopted standard forms in the UK public construction sector.[104] NEC contracts emphasize early issue identification and resolution, with a strong managerial component embedded in the roles of Project Managers and risk registers.

A key factor distinguishing NEC contracts from other international models is their interaction with the Housing Grants, Construction and Regeneration Act 1996 (HGCRA), which introduced the statutory right to adjudication in all qualifying UK construction contracts.

In other words, any contractual dispute resolution mechanism under NEC must conform to the HGCRA and cannot override or exclude this statutory right. Consequently, whilst FIDIC

https://kclpure.kcl.ac.uk/portal/en/publications/2024-construction-adjudication-in-the-united-kingdom-tracing-tren.

[100] *Ibidem.*

[101] KNOWLES R., *200 Contractual Problems and their Solutions*, 3rd ed., Wiley-Blackwell, February 2012.

[102] *Ibidem.*

[103] PICKAVANCE J., *A Practical Guide to Construction Adjudication*, 1st ed., Wiley Blackwell, Chichester, 2016.

[104] NEC, *History of the NEC Contracts*, available at: https://www.neccontract.com/why-choose-nec/history?srsltid=AfmBOoo7nbBPUlBmhFvneXa8ErId7tPcWZEu6EEs81JSUM-govgy_Fmt.

contracts are recognized in the UK, domestic practitioners tend to favor NEC forms, which are purpose-built for alignment with UK adjudication requirements and project culture.[105]

NEC3 (2005) and NEC4 (2017) both incorporate adjudication as a mandatory precondition to arbitration or litigation, though the structure varies depending on the applicability of the HGCRA. In both suites, parties are required to choose between two adjudication options: Option W1, which applies where the HGCRA does not apply (e.g., non-UK projects or exempt contracts), and Option W2, which applies where the HGCRA does apply.[106] Under either option, disputes must first be referred to an adjudicator. NEC4, in addition, introduced Option W3, a further mechanism establishing a standing Dispute Adjudication Board (DAB), broadly comparable to FIDIC's DAAB. Moreover, NEC4 innovated by inserting a preliminary phase, prior even to adjudication, in which senior representatives of the parties are required to meet and attempt to resolve the issue amicably within a four-week window.[107] Although this step encourages early settlement, it does not preclude either party from proceeding to adjudication under the statutory right. Under Option W2, consistent with the HGCRA, either party can refer a dispute to adjudication at any time. Once the adjudicator renders a decision, the dissatisfied party has a four-week window to notify the other side of its intent to refer the matter to arbitration (or litigation). Failure to do so renders the adjudicator's decision final and binding. Conversely, Option W1 includes a shorter two-week limitation period for initiating adjudication following failed negotiations. Should this deadline lapse, the right to adjudicate is extinguished, reflecting the less protective regime that applies in the absence of statutory adjudication.

In addition to Options W1 and W2, NEC4 also introduced Option W3, a novel mechanism providing for a standing Dispute Adjudication Board (DAB), similar in spirit to FIDIC's DAAB. The board may assist parties in resolving potential differences before they escalate into formal disputes, and issue recommendations that become binding unless a Notice of Dissatisfaction (NOD) is submitted within four weeks. If challenged, the issue can then be escalated to arbitration or litigation.[108]

---

[105] HEGAZY M.M., *Major Differences between FIDIC, JCT, and NEC*, cit.; PICKAVANCE J., *A Practical Guide to Construction Adjudication*, cit.

[106] INCHMORE A., *NEC3 and NEC4*, in *Construction Law Review 2023–2024*, Chartered Institution of Civil Engineering Surveyors (CICES), available at: https://journals.cices.org/ces/construction-law-review-2023-2024/features/nec3-and-nec4.

[107] *Ibidem.*

[108] HUNTER D., *Dispute Resolution: Option W2 in the NEC4 Engineering and Construction Contract*, Daniel Contract Management Services, available at: https://www.danielcms.co.uk/publications/news-blog/94-dispute-resolution-option-w2-in-the-nec4-engineering-and-construction-contract.

However, the actual use of W3 within the UK context is expected to be limited, as most domestic contracts fall under the HGCRA and continue to rely on the statutory adjudication process, which precludes widespread adoption of alternative dispute board models. It should be noted, however, that Option W3 is not compatible with contracts governed by the HGCRA, and its adoption is therefore limited to non-qualifying contracts or used in a supplementary, non-statutory capacity.[109]

Nevertheless, the potential of hybrid dispute boards under NEC was tested with notable success during the 2012 London Olympic and Paralympic Games, a project involving multiple contracts under the NEC3 suite, with a total value exceeding £9.3 billion.[110] A two-tiered dispute resolution system was established: first, the Independent Dispute Avoidance Panel (IDAP), designed to assist parties in resolving issues proactively through informal consultation; second, a formal Adjudication Panel compliant with the HGCRA, to decide unresolved disputes. Importantly, only the latter was subject to statutory regulation, while the IDAP served as a consensual and advisory mechanism.[111]

This dual system proved highly effective: only two disputes were formally adjudicated, none proceeded to litigation, and the Olympic infrastructure was delivered on time, within budget, and according to contractual specifications, an extraordinary achievement in a mega-project environment. This case illustrates that, although UK law constrains the structure of dispute boards through statutory adjudication, creatively integrated mechanisms, like those permitted under NEC, can still serve as powerful tools of dispute avoidance and early resolution.[112]

Lastly, the AIA contracts reflect a stronger inclination toward arbitration as the final and preferred method of dispute resolution. Common in the United States and developed within a litigious legal culture wary of prolonged and expensive court proceedings, AIA contracts, such as the A201 General Conditions of the Contract for Construction, contain a multi-tiered dispute resolution process culminating in binding arbitration, typically under the rules of the American

---

[109] KING A. and GOULD D., *NEC Dispute Resolution Provisions: A Comparison Between NEC3 and NEC4*, *Construction Law Review*, 2022–2023, available at: https://journals.cices.org/ces/construction-law-review-2022-2023/features/nec-dispute-resolution-provisions.

[110] NATIONAL AUDIT OFFICE, *The London 2012 Olympic Games and Paralympic Games: Post-Games Review – Report – Value for Money*, 5 December 2012, available at: https://www.nao.org.uk/reports/the-london-2012-olympic-games-and-paralympic-games-post-games-review/.

[111] *Ibidem;* MOSEY D. (ed.), Collaborative Construction Procurement and Improved Value, Wiley-Blackwell, 2019.

[112] STEPHENSON G. and FRITH B., *Dispute Boards and the Olympic Games: A Tried and Tested Method of Dispute Avoidance, Part 3: Use of DBs on Previous Olympic Games Projects*, 2023, available at: https://www.corrs.com.au/insights/dispute-boards-and-the-olympic-games-a-tried-and-tested-method-of-dispute-avoidance.

Arbitration Association (AAA).[113] Article 15 of A201 provides for an Initial Decision Maker (IDM), often the Architect, to issue preliminary decisions, followed by mediation, and then arbitration as the final forum unless the parties agree otherwise.[114]

This sequence illustrates a strong institutional preference for arbitration, underpinned by procedural rules that ensure efficiency and privacy. Moreover, AIA contracts offer greater clarity in identifying the arbitral forum, rules, and selection procedures, thereby reducing ambiguity and enhancing predictability in dispute resolution.

Unlike FIDIC, however, AIA contracts do not mandate adjudication or require the use of dispute boards. In large infrastructure projects, Dispute Review Boards (DRBs) are sometimes employed, but their recommendations are non-binding.[115] Despite this, empirical studies show that DRBs have a 97% success rate in preventing litigation when implemented early and consistently.[116]

In conclusion, what emerges from this comparative overview is a nuanced spectrum of approaches: the JCT model, situated within a mature common law system, grants significant procedural latitude and allows parties to opt into arbitration without making it a structural requirement. The NEC, in line with its project management philosophy, relegates arbitration to a residual role, emphasizing early neutral evaluation and dispute avoidance mechanisms. The AIA, operating within a litigation-averse US context, embraces arbitration more affirmatively, integrating it into a structured progression that supports enforceability and efficiency.

While the formal prominence of arbitration varies among these models, a common underlying rationale persists: *i.e.,* in cross-border or high-stakes construction projects, arbitration offers unique advantages in terms of neutrality, technical specialization, and international enforceability.[117]

Nonetheless, these models also highlight that the benefits of arbitration are not uniform in application: their effectiveness depends on how well the contract structures the escalation path,

---

[113] JOHNSTON G.B., *Assembling the Architect: The History and Theory of Professional Practice*, Bloomsbury Visual Arts, London, 2020; AMERICAN INSTITUTE OF ARCHITECTS (AIA), *FAQs: Disputes, Claims, Arbitrations, and Litigations*, available at: https://help.aiacontracts.com/hc/en-us/articles/1500009276822-FAQs-Disputes-claims-arbitrations-and-litigations#faqs-disputes-claims-arbitrations-and-litigations-0.

[114] LESSER S.B. and BACON B.A., *The AIA Introduces the Initial Decision Maker in Its Dispute Resolution Provisions*, 2008, available at: https://beckerlawyers.com/wp-content/uploads/2018/03/2076_lesser_20080316_better_worse.pdf.

[115] McMILLAN D.D. and RUBIN R.A., *Dispute Review Boards: Key Issues, Recent Case Law, and Standard Agreements*, 2005, available at: https://www.jonesday.com/-/media/files/publications/2005/05/dispute-review-boards-key-issues-recent-case-law-a/files/disputereviewconstruction252spring05/fileattachment/disputereviewconstruction252spring05.pdf

[116] *Ibidem.*

[117] KIEFER D., Suitability of Arbitration Rules for Construction Disputes, *The Guide to Construction Arbitration*, cit.

how clearly it defines triggers and timelines, and how robustly it incorporates procedural safeguards such as notice periods, standing boards, or mediation requirements.

Furthermore, the conduct of the parties, especially regarding notice compliance, document preservation, and good faith negotiations, often plays a decisive role in whether arbitration fulfils its promise of a fair and efficient resolution. In this sense, while arbitration may be the ultimate stage in these contracts, its success as a dispute resolution mechanism is deeply shaped by the pre-arbitral architecture and the legal culture in which it is embedded.

1.4 Institutional trends: Data spotlight

Lastly, institutional data confirm and reinforce the rise of construction arbitration discussed in this chapter. Leading arbitral institutions consistently demonstrate the prominence of construction and engineering disputes in international arbitration. As evidenced by the ICC Dispute Resolution Statistics (2024)[118] and the Singapore International Arbitration Centre (SIAC) Annual Report (2023)[119] these institutions regularly identify construction and engineering disputes as among their most prominent case categories, confirming arbitration's firmly established role as the preferred dispute resolution method in these sectors.

The ICC, as the leading arbitral institution worldwide, served as the main theatre for the major construction arbitrations arising from the construction boom in the Arab countries during the 1970s and 1980s.[120] This historical prominence has continued to the present day.

Specifically, the statistical evolution demonstrates construction arbitration's enduring significance: in the 1970s, international construction arbitration accounted for 30% of all commercial disputes submitted to the ICC Court of Arbitration;[121] during the 1980s, construction disputes represented more than 20% of all commercial cases submitted to ICC arbitration annually;[122] recent data confirms that construction arbitration has maintained its leading position. In 2012, construction and engineering cases comprised 17% of all cases submitted to the ICC.[123] Since 2017, when the ICC began making its annual statistical reports

[118] ICC, ICC Dispute Resolution: 2024 Statistics, available at: https://iccwbo.org/wp-content/uploads/sites/3/2025/06/2024-Statistics_ICC_Dispute-Resolution.pdf.

[119] SIAC, Annual Report 2023, available at: https://jusmundi.com/en/document/publication/en-siac-singapore-international-arbitration-centre-annual-report-2023.

[120] BESAISO, *Decision-making in International Construction Arbitration*, cit., chap.1

[121] THOMPSON R., *International Chamber of Commerce – Arbitration of Disputes Arising under International Construction Contracts*, *International Business Lawyer*, 1977, Vol. 5 No. 2, p. 225.

[122] SEPPÄLÄ C.R., *International Construction Contract Disputes: Commentary on ICC Awards Dealing with the FIDIC International Conditions of Contract*, *ICC International Court of Arbitration Bulletin*, 1998, Vol. 9 No. 2.

[123] WEBSTER T.H. and BUHLER M., *Handbook of ICC Arbitration: Commentary, Precedents, Materials*, London, Sweet & Maxwell, 2014

publicly available, the data reveals continued growth. According to the latest 2024 Report, disputes originating from construction/engineering and energy sectors accounted for 44% of all newly registered cases, with 193 cases (23.2%) and 170 cases (20.5%) respectively.[124]

Similarly, the caseload statistics of the London Court of International Arbitration (LCIA) show that approximately 16% of all arbitrations conducted under the LCIA Rules in 2016 were related to construction and infrastructure projects. However, in recent years, construction and infrastructure cases have dropped to 10% or less of the total caseload.[125]

The Hong Kong International Arbitration Centre (HKIAC) caseload statistics as well indicate a historically strong presence of construction-related disputes. Between HKIAC's establishment in 1985 and 2002, construction cases represented more than 40% of all disputes, with 1,144 construction cases out of 2,764 total cases.[126] Although their share has decreased over time, construction disputes still account for approximately 10% of the caseload, as reported in the 2024 statistics.[127] The Cairo Regional Centre for International Commercial Arbitration (CRCICA or the Center) has consistently reported that construction disputes constitute a significant share of its caseload, with notable fluctuations over time: these disputes accounted for 25% of cases in both 2015 and 2016, 32% in 2017, 25% in 2018, 32% in 2020, and 17% in 2021 (CRCICA, 2022).[128] In 2023, disputes arising from the construction sector ranked in first place, representing 39% of the total caseload.[129] Significantly, construction disputes at CRICA also tend to involve the highest monetary values. For example, the largest case submitted to the Centre in 2015, valued at approximately $1 billion, originated from a construction contract (CRCICA, 2016).[130]

Despite fluctuations in proportional representation over time, several key patterns emerge from this statistical analysis.

First, construction arbitrations consistently maintain the highest overall representation across major arbitral institutions.

---

[124] INTERNATIONAL CHAMBER OF COMMERCE, *2024 ICC Dispute Resolution Statistics*, ICC, 2025, available at: https://iccwbo.org/wp-content/uploads/sites/3/2025/06/2024-Statistics_ICC_Dispute-Resolution.pdf.

[125] BESAISO, *Decision-making in International Construction Arbitration*, cit.

[126] MOSER M.J. and CHENG T.Y., *Hong Kong Arbitration: A User's Guide*, The Hague, Kluwer Law International, 2004.

[127] HONG KONG INTERNATIONAL ARBITRATION CENTRE (HKIAC), *Statistics*, available at: https://www.hkiac.org/about-us/statistics.

[128] CRCICA (Cairo Regional Centre for International Commercial Arbitration), *Annual Caseload Report 2022*, available at: https://crcica.org/arbitration/annual-caseload-reports/.

[129] CRCICA, Caseload 2023 – Marked increase in average sum in dispute despite declined total cases registered, available at: https://crcica.org/news/caseload-2023-marked-increase-in-average-sum-in-dispute-despite-decline-total-cases-registered/.

[130] BESAISO, *Decision-making in International Construction Arbitration*, cit.

Second, beyond leading in terms of cases volume, international construction disputes also typically involve the largest claim values, often reaching billions of dollars or pounds.[131]

These statistics collectively confirm that construction arbitration has not only maintained its historical prominence but has evolved into one of the most significant sectors in international commercial arbitration, both in terms of numbers and values. This institutional evidence therefore, corroborates the broader trend analysed in this chapter: *i.e.*, the steady and enduring rise of construction arbitration.

[131] FLOOD J. and CAIGER A., *Lawyers and arbitration: The juridification of construction disputes*, The Modern Law Review, Vol. 56, No. 3, 1993, pp. 412–440.

CHAPTER II
TYPICAL CLAIMS IN CONSTRUCTION ARBITRATION

2.1 Common types of claims in construction disputes

Construction claims can have significant repercussions for players within the sector. The financial pressure they generate may undermine profitability, disrupt cash flow, and reduce a company's ability to compete for future projects. Beyond their economic impact, such disputes often damage relationships among stakeholders: the resulting loss of trust can hinder future collaboration, limit partnership opportunities, and harm the industry's reputation.[132]

The repercussions extend beyond the individual firm. Recurring delays frequently trigger a domino effect − missed deadlines, reputational damage, higher insurance costs, and disruptions to subsequent projects − leading to sector-wise instability.

Given these risks, it is essential to analyse the wide range of claims that may arise across the supply chain. A deeper understanding enables industry actors to prevent disputes where possible, or at least manage them effectively so that project delivery is not compromized.[133] When claims do arise, it is equally important to address them promptly, interpret the relevant contract provisions, identify the underlying issues, implement sound risk management strategies, and seek specialist advice.[134]

In construction law, the term *claim* generally refers to the assertion of a right, usually by the contractor, to additional payment and/or an extension of time. Although the word "claim" rarely appears in standard form contracts, it is widely used in practice to describe any application by a contractor seeking compensation beyond the regular interim payment provisions set out in the building contract. Claims may concern financial reimbursement, such as for direct loss and/or expense, as well as non-monetary relief, most notably extensions of time.[135]

Without *claims clauses* in construction contracts, contractors would be forced to pursue damages for breach of contract. From this perspective, claims clauses provide a procedural and legal mechanism through which contractors can seek redress.

---

[132] BREMEN J., Contractors' Claims, Remedies and Reliefs, in *The Guide to Construction Arbitration*, 5th edn, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/contractors-claims-remedies-and-reliefs

[133] MAYO J., *Proactively Addressing Potential Construction Claims*, published 16 May 2025, available at: https://www.consensusdocs.org/news/proactively-addressing-potential-construction-claims/

[134] GRIPPA J., *Emerging Trends in Construction Arbitration: Adapting to a Changing Landscape*, published 8 May 2024, available at: https://milesmediation.com/blog/emerging-trends-in-construction-arbitration-adapting-to-a-changing-landscape/

[135] CHAPPELL D., *Building Contract Claims*, Wiley-Blackwell, 2011, p. 3

In common law systems, contractor claims against the employer are often grouped into four categories: contractual claims, common law claims, quantum meruit claims, and *ex gratia* claims.

Contractual claims arise under express contract clauses that give the contractor a right to raise claims in specific circumstances, avoiding the costs and uncertainty of litigation.[136] For instance, Clause 4.23 of the JCT Standard Building Contract 2005 enables the contractor to claim for direct loss and/or expense.[137]

In situations where the contractor cannot meet the procedural or substantive requirements of a contractual claim (for instance, failing to submit a notice within the prescribed time), common law claims become relevant. These claims, sometimes described as *extra-contractual*, typically concern damages for breach of contract but may also involve tortious liability or breach of statutory duty.[138]

A *quantum meruit* claim, which literally means "as much as he has earned," is a claim for reasonable remuneration where no specific price has been agreed. Such claims are grounded in principles of restitution and unjust enrichment.[139]

Ex gratia claims are not based on any legal or contractual right, but on the employer's goodwill or discretion. The term, meaning "as a matter of grace," reflects their character as "hardship claims," advanced where the contractor suffers significant financial loss but lacks a legal basis for recovery.[140]

In civil law systems, contractor claims against the employer are not traditionally divided into such neat categories. Instead, they are analysed under the doctrine of obligations, with the legal basis for a claim determined according to its source. This alternative approach reflects the codified, systematic structure of civil law, with its emphasis on clearly defined sources of rights and obligations.[141]

Although legal systems differ in how they formally classify claims, the practical reality of construction disputes suggests a more functional approach. In arbitration, claims are often

---

[136] *Ivi*, p. 4

[137] FENWICK ELLIOTT, Mastering Contracts - JCT 2005, available at: https://www.fenwickelliott.com/sites/default/files/Contract%206%20-%20Mastering%20Contracts%20-%20JCT%202005.pdf.

[138] LABHRAÍ S., Guide to the JCT Design and Build Contract (2024 Edition), Routledge, 2025.

[139] *Ibidem.*

[140] *Ibidem.*

[141] BREMEN J. and GRASSO M., Employers' Claims and Remedies, in *The Guide to Construction Arbitration*, 5th edn, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/employers-claims-and-remedies

assessed according to the factual circumstances from which they arise and the economic or procedural consequences they produce.

Among the most frequent claims in construction arbitration are those involving modifications to the original scope of work, commonly referred to as claims for extra work or variations. These arise where the contractor is instructed, formally or informally, to perform tasks not envisaged by the contract, or where design changes require an adjustment to the scope or method of execution.[142]

Closely related are delay and disruption claims, which typically stem from interference, late instructions, or cumulative inefficiencies that hinder progress, even without a full suspension of work.[143]

Another recurring type involves price adjustment claims, particularly where unexpected increases in the cost of raw materials or labor render performance uneconomical in the absence of adequate contractual mechanisms for compensation or renegotiation.[144]

It is worth noting that these claims frequently overlap. A design change, for instance, may require extra work, delayed completion, and generate substantial cost overruns due to the reallocation of labor and equipment. The interdependence calls for a coordinated approach to both the submission and resolution of claims. From a procedural standpoint, each type of claim entails distinct evidentiary challenges, ranging from strict notification requirements to the production of detailed records, expert reports, and quantified assessments of the financial impact.

The following sections will examine these categories in greater detail.

[142] MEMON A.H., ABDUL RAHMAN I., Significant Causes and Effects of Variation Orders in Construction Projects, in *Research Journal of Applied Sciences, Engineering and Technology*, available at: https://www.researchgate.net/publication/268630247_Significant_Causes_and_Effects_of_Variation_Orders_in_Construction_Projects.

[143] BROMLEY C., HAWKINS T., *Delays in Quantum and Financial Methods for Computing Costs and Damages*, Secretariat, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/delays-in-quantum-and-financial-methods-computing-costs-and-damages.

[144] ABDUL-MALAK M.A.U., HAMIE J.M., *Proposed Framework for the Rendering of Construction Contract Document Interpretations by Engineering Professionals*, in Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, vol. 11, 2019, available at: https://doi.org/10.1061/(ASCE)LA.1943-4170.0000305

2.1.1 Variations & extra works

In the construction sector, claims related to extra works and variations are among the most frequently encountered, reflecting the dynamic nature of large-scale infrastructure projects and the frequent need to modify original contractual obligations during performance. Both involve deviations from the original scope of the contract, but they differ significantly in nature, legal foundation, and treatment within standard form contracts.[145]

These claims arise when the contractor is required to perform tasks beyond the original contractual scope, often due to formal change orders or informal instructions issued by the employer.[146]

In most construction contracts, the employer is permitted to make such changes, which are usually administered by the employer's appointed agents, such as the Engineer in the FIDIC contracts, who must issue instructions to vary the works and persuade the contractor not to carry out variations without written instructions.[147]

Variations refer to alterations made to the originally agreed scope of work that remain within the contractual framework and are generally foreseen by the contract. They may involve quantitative changes (such as increases or decreases in the volume of work) or qualitative changes (such as alterations in method, design, or materials). Whether or not a change constitutes a variation and, therefore, which party bears the risk of that change, primarily depends upon the terms of the contract.

When properly instructed, such variations can entitle the contractor to an adjustment in the contract price and/or the time for completion. However, the enforceability of variation claims in arbitration depends largely on the contractor's ability to demonstrate compliance with procedural prerequisites outlined in the contract, such as the timely submission of written notices, updated programs, detailed cost assessments, and substantiating documentation.[148]

Standard form contracts used in international projects typically contain comprehensive mechanisms for managing variations: for instance, the FIDIC Red Book in Clause 13.3

---

[145] PATIL S., CHAPHALKAR N. B., *Causes and Implications of Variation and Deviations in Construction Contracts*, available at: https://www.researchgate.net/publication/361209638_Causes_and_Implications_of_Variation_and_Deviations_in_Construction_Contracts.

[146] GAVAMUKULYA C., *Variations in Construction Contracts*, *European Journal of Applied Sciences and Engineering Technology*, December 2024, available at: https://www.researchgate.net/publication/387572673_Variations_in_Construction_Contracts.

[147] HACKETT J., *Construction Claims: Current Practice and Case Management*, 1st ed., LLP Professional Publishing, 2000.

[148] AL-MUSTAFA R.M., *Reevaluating Contractual Changes in Construction: The Legal Distinction Between Variations and Extra Work Under FIDIC Red Book 1999 and UAE Law*, submitted 6 May 2025, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5205821

specifies the procedure under which variations may be initiated and how to determine their financial and temporal implications.[149]

Other widely used standard forms, such as NEC or JCT contracts, adopt similar variation mechanisms, albeit with jurisdiction-specific nuances.

Nevertheless, disputes often arise when variation instructions are informal, ambiguous, or not documented in accordance with contractual procedures. In such cases, arbitral tribunals are called upon to interpret the contract terms, assess the factual background, and determine whether a valid variation exists and whether the contractor is entitled to additional compensation or time.[150]

Extra works, by contrast, refer to tasks that fall entirely outside the original contractual scope and are not contemplated by the variation provisions. These may include additional construction elements, new installations, or auxiliary services that were not included in the original bill of quantities or technical specifications. Often, such works are carried out following informal instructions, verbal agreements, or out of operational necessity, especially when time constraints or on-site conditions require immediate response.[151]

Unlike variations, which have a clear contractual procedure for valuation and compensation, extra works usually lack such formal pathways and are more difficult to enforce. Because of their extra-contractual nature, claims for extra works require strong evidence: contractors must show that the employer requested or accepted the work (even implicitly), that the work conferred a benefit, and that the cost was reasonable. Documentation such as correspondence, verbal confirmations, time and cost records, and expert valuation play a key role, particularly where the employer asserts the work fell within original scope.[152]

Contractors seeking compensation for extra works may need to rely on common law doctrines such as quantum meruit, which allows recovery for the reasonable value of services rendered where no price has been agreed, or on civil law principles of unjust enrichment. In both

[149] ACERIS LAW LLC, *Variation Claims in International Arbitration*, published 28 July 2022, available at: https://www.acerislaw.com/variation-claims-in-international-arbitration/

[150] CHAPPELL D., *Building Contract Claims*, Wiley-Blackwell, 2011; MISHRA A. K., AITHAL P. S., *Effectiveness of Arbitration in Construction Projects*, *International Journal of Management, Technology, and Social Sciences (IJMTS)*, vol. 7(1), 2022, pp. 96–111.

[151] GALLIGAN T.C. JR., *Extra Work in Construction Cases: Restitution, Relationship, and Revision*, in *Tulane Law Review*, vol. 63, no. 4, available at: https://www.tulanelawreview.org/pub/volume63/issue4/extra-work-in-construction-cases-restitution-relationship-and-revision

[152] *Ibidem*.

systems, tribunals require proof that the employer requested or benefited from the work, and that the contractor did not volunteer it gratuitously.[153]

In practice, the distinction between variations and extra works is not always straightforward. A contractor may consider a task to be extra work, while the employer argues that it was implied by the original scope or required to meet performance specifications. Therefore, clear documentation, contemporaneous correspondence, and accurate cost tracking are crucial in both cases.

2.1.2 Disruption claims

Disruption claims arise when a contractor suffers reduced productivity, not necessarily a project delay, but a significant loss in efficiency due to hindrances, interruptions, or uncoordinated conditions. Unlike delay claims, which focus on the project's final completion date, disruption claims address the impact of interferences on the contractor's workflow, which is often said to be attributable to employer-related actions or omissions, even when the contractual completion date remains unaffected.[154]

The Society of Construction Law (SCL) Delay and Disruption Protocol, an industry-recognized guidance document providing best practice on the analysis and management of delay and disruption in construction projects, defines disruption as "*a disturbance, hindrance or interruption to a Contractor's normal working methods, resulting in lower efficiency.*"[155]

Disruption claims therefore concern loss of productivity in the execution of specific work activities and may be compensable when caused by employer-responsible events.[156] Common triggers include late instructions, restricted access, out-of-sequence working, or frequent changes that undermine established routines, even without affect the critical path.[157]

---

[153] METROPOLITAN ENGINEERING, CONSULTING & FORENSICS (MECF), *Change Order and Extra Work Construction Claims*, available at: https://sites.google.com/site/metropolitanforensics/change-order-and-extra-work-construction-claims; ZAND PAZANDI A., FOROOTAN F., POURROSTAM T., RAVANSHADNIA M., *Arbitration of Disputes in the Construction Industry*, available at: https://journalsonline.academypublishing.org.sg/Journals/SAL-Practitioner/Construction-and-Infrastructure/ctl/eFirstSALPDFJournalView/mid/591/ArticleId/1798/Citation/JournalsOnlinePDF; WILMOT-SMITH F., *Extra-Contractual Claims: Unjust Enrichment*, in *Contractual Remedies*, Oxford University Press, 2021, available at: https://doi.org/10.1093/oso/9780198832805.003.0003.

[154] BROMLEY C., HAWKINS T., *Delays in Quantum and Financial Methods for Computing Costs and Damages*, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/delays-in-quantum-and-financial-methods-computing-costs-and-damages

[155] SOCIETY OF CONSTRUCTION LAW, *Delay and Disruption Protocol*, 2nd edn, 2017, available at: https://www.scl.org.uk/sites/default/files/documents/SCL_Delay_Protocol_2nd_Edition_Final.pdf

[156] GIBSON R., *A Practical Guide to Disruption and Productivity Loss on Construction and Engineering Projects*, Wiley-Blackwell, 2015, p. 5

[157] HEWITT A., *Construction Claims and Responses: Effective Writing and Presentation*, Wiley-Blackwell, 2025.

Although courts and tribunals accept the idea of disruption compensation, recovery is historically difficult: disruption claims are often contentious, hard to quantify, and typically result in lower awards than delay claims.[158]

For a disruption claim to succeed, three core elements must usually be established: liability, damage, and causation.[159]

Liability is a legal prerequisite that establishes responsibility for disruption and is distinct from any quantification of its financial impact.

Damage refers to the measurable loss of productivity experienced by the claimant. This typically requires comparing the cost of executing the work as originally planned with the actual cost incurred under disrupted conditions. While such assessments may be more straightforward for isolated changes, they become more complex in cases of cumulative impacts, where multiple overlapping changes and events must be evaluated together.[160]

Causation requires showing that the employer's actions directly caused the inefficiency or loss, distinguishing these from other factors, such as contractor inefficiencies or external conditions.[161]. This step is the most challenging

Disruption, at its core, reflects lost productivity and increased rework. Any analysis must therefore not only quantify additional costs but also link them directly to the specific disruptive causes. An effective claim should map cause and effect across time and project areas, demonstrate how multiple events may interact to produce compounded impacts, and specify both the extent and duration of productivity losses.[162]

Because disruption is inherently complex, tribunals place strong emphasis on the methodology used to demonstrate loss.

The Measured Mile Analysis stands out as the most widely accepted method: it involves comparing productivity rates during unaffected periods (baseline) with those during disrupted phases on identical or similar activities. The difference, multiplied by applicable labor or equipment rates, provides a credible calculation of inefficiency cost. The technique is robust when data is reliable, but it poses challenges when similar comparison periods are not available.[163] Critically, the SCL Protocol recognises this method as the preferred productivity-

[158] GIBSON R., *A Practical Guide to Disruption and Productivity Loss on Construction and Engineering Projects*, Wiley-Blackwell, 2015.
[159] GIBSON, *A Practical Guide to Disruption*, cit., p.110
[160] *Ibidem*.
[161] *Ibidem*.
[162] *Ibidem*.
[163] HÖK G.-S., KAR P., An Interdisciplinary Commentary to the Approach of the Assessment of Disruption Claims from a German and an English Perspective, 23 January 2024, available at: https://www.ibanet.org/clint-january-2024-feature-5

based analysis, with alternatives like earned value or system dynamics modelling included only if justified by available data.[164]

Expert testimony also plays a pivotal role in arbitration. Experts not only interpret quantitative data but also bridge the technical causation between employer actions and the resulting productivity loss. Aceris Law (2022) highlights that effective expert collaboration, particularly between delay analysts and quantity surveyors, is essential to produce credible disruption claims, especially in global projects.[165]

The SCL Protocol stresses the importance of timely recognition and contractual notification of disruption events. Claimants are encouraged to document and raise issues contemporaneously, rather than retrospectively, to preserve evidentiary integrity and avoid the pitfalls of global, unspecific claims.[166]

Regardless of the methodology used, for the disruption claim to be robust it should be both auditable and adaptable, capable of testing alternative assumptions, mapping causation transparently and serving as an objective for validation. Only with such rigor can disruption claims be convincingly substantiated in arbitration.

2.1.3 Price adjustment clauses (material cost fluctuations)

In long-duration construction contracts, price adjustment clauses, commonly known as *escalation clauses* or *cost fluctuation provisions*, serve as essential risk allocation mechanisms designed to mitigate the financial repercussions of unexpected volatility in input costs such as raw materials, energy, or labor.[167]

These clauses are quite common in international practice, where supply chain disruptions, pandemic-related inflation, and geopolitical events (*e.g.*, steel tariffs, conflict in Eastern Europe) have led to sharp increases in construction material prices over recent years.

The rationale behind these contractual provisions is twofold: on one hand, they aim to preserve the economic equilibrium of the contract by protecting contractors from absorbing unexpected

---

[164] FORTUNE N., Introduction to Disruption Claims, 24 October 2023, available at: https://www.diales.com/en/news/introduction-to-disruption-claims

[165] ACERIS LAW LLC, *Global claims in construction arbitration*, 17 June 2022, available at: https://www.acerislaw.com/global-claims-in-construction-arbitration/; GONZALES A., SCHULDES J., SALDANHA A. G., Quantifying Disruption in Power Projects Using the Measured Mile Analysis, Spire Consulting Group, LLC, available at: https://www.spireconsultinggroup.com/wp-content/uploads/2021/04/White-Paper-Quantifying-Disruption-in-Power-Projects-Final-1.pdf

[166] SOCIETY OF CONSTRUCTION LAW, *Delay and Disruption Protocol*, 2nd edn, 2017, available at: https://www.scl.org.uk/sites/default/files/documents/SCL_Delay_Protocol_2nd_Edition_Final.pdf.

[167] CHAMMOUT B., EL-ADAWAY I. H., ABDUL NABI M., ASSAAD R. H., *Price Escalation in Construction Projects: Examining National and International Contracts*, *Journal of Construction Engineering and Management*, vol. 150, no. 9, 2024, available at: https://doi.org/10.1061/JCEMD4.COENG-13918.

cost increases that could jeopardize performance. On the other hand, they provide employers with a structured and transparent method for verifying and managing those increases without resorting to litigation or opportunistic renegotiation.[168] As such, escalation clauses help stabilise contractual relationships under volatile market conditions.

Standard forms of construction contracts incorporate escalation mechanisms with varying degrees of complexity. For instance, Clause 13.8 of the FIDIC Red Book (1999) provides an index-based methodology for adjusting the contract price in accordance with changes in input costs. This is typically implemented through a formula that attributes weighted coefficients to different cost categories, such as labor, cement, and steel, and then multiplies the cost variations by their relative weights in the contract value.[169]

Comparable provisions are present in other widely used models. The NEC4 Engineering and Construction Contract, for example, includes Option X1, which allows for compensation events triggered by fluctuations in predefined indices.[170] Likewise, the JCT Standard Building Contract (2016) offers Fluctuations Options A, B, and C, though their practical use is often limited to public infrastructure projects or periods of exceptional inflation.[171]

Despite these frameworks, disputes concerning price adjustment clauses frequently arise in arbitration. These disputes typically revolve around the threshold required to trigger the clause, the suitability or accuracy of the cost indices selected, and the timing of the claim submission. A particularly contentious issue is whether a specific increase in costs should be addressed through the contractual price adjustment mechanism or rather treated as a hardship event under general contract law.

In civil law systems, this may lead to the invocation of legal doctrines such as Article 1195 of the French *Code civil*, which introduces the so-called *théorie de l'imprévision* and allows a party to request renegotiation of the contract when unforeseeable circumstances make performance excessively onerous, or the German concept of *Störung der Geschäftsgrundlage* under Section 313 of the BGB, which enables a party to seek adaptation or termination of the

---

[168] HSF KRAMER, *Price Adjustment Clauses: Legal and Commercial Implications for Construction Contracts*, 30 May 2023, available at: https://www.hsfkramer.com/notes/construction/2023-05/price-adjustment-clauses-legal-and-commercial-implications-for-construction-contracts

[169] INTERNATIONAL CONSTRUCTION KNOWLEDGE HUB, *Escalating Construction Costs under FIDIC: Is Sub-Clause 13.8 an Answer?*, available at: https://internationalconstructionknowledgehub.com/escalating-construction-costs-under-fidic-is-sub-clause-13-8-an-answer/.

[170] PATTERSON R., *How to Use NEC Secondary Option X1 on Price Adjustment for Inflation*, 23 May 2022, available at: https://www.neccontract.com/news/how-to-use-nec-secondary-option-x1-on-price-adjustment-for-inflation.

[171] BLUNDELL N., SEKKAR H., *Three Options for Managing Inflation Risk Using JCT Construction Contracts*, 14 October 2022, available at: https://corporate.jctltd.co.uk/three-options-for-managing-inflation-risk-using-jct-construction-contracts/.

contract when fundamental and unforeseen changes undermine the original contractual equilibrium.[172]

From an arbitral perspective, tribunals tend to examine closely the precision and scope of the clause wording, the reliability and independence of the selected indices, the demonstrable causal relationship between the cost increase and the contractor's losses, and the procedural compliance of the claiming party, including timely notice and documentary substantiation.[173]

Where contractual mechanisms are ambiguous or silent, claims often rest on expert evidence. Cost engineers and quantity surveyors play a critical role in quantifying the alleged cost overruns by comparing actual procurement prices with baseline projections, typically using public cost indices such as the OECD Construction Cost Index or the Engineering News-Record Construction Cost Index.[174]

To reduce the incidence of such disputes, best practices in contract drafting recommend that price adjustment clauses be clearly worded, tailored to the economic conditions of the project, and based on objective and verifiable data sources. They should also require ongoing disclosure and documentation throughout the performance period to ensure traceability and facilitate equitable resolution.[175]

Ultimately, in the absence of such clauses, or when they are poorly drafted, parties may resort to legal doctrines such as frustration in common law jurisdictions or hardship in civil law systems. However, such remedies tend to involve more complex evidentiary thresholds and greater legal uncertainty.

---

[172] SCHWENZER I., MUÑOZ E., Duty to Renegotiate and Contract Adaptation in Case of Hardship, in Uniform Law Review, 2019 available at: https://cisgonline.org/files/commentFiles/Schwenzer_Munoz_24_UnifLRev_2019_149.pdf; CISG ADVISORY COUNCIL, Opinion No. 20: Hardship under the CISG, available at: https://www.cisgac.com/opinion-no-20-hardship-under-the-cisg/; ZAMIR H., Comparative Study of Price Adjustment Formula and Its Implications in Construction Contracts, uploaded 2018, available at: https://www.academia.edu/37345929/COMPARATIVE_STUDY_OF_PRICE_ADJUSTMENT_FORMULA_AND_ITS_IMPLICATIONS_IN_CONSTRUCTION_CONTRACTS

[173] HUGHES W., CHAMPION R., MURDOCH J., *Construction Contracts: Law and Management*, Fifth Edition, Routledge, 2015.

[174] KOC K., GURGUN A. P., Ambiguity Factors in Construction Contracts Entailing Conflicts, *Engineering, Construction and Architectural Management*, May 2021, available at: https://www.researchgate.net/publication/351604067_Ambiguity_factors_in_construction_contracts_entailing_conflicts; OECD, *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, July 2017, available at: https://www.oecd.org/content/dam/oecd/en/publications/reports/2017/07/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-2017_g1g71100/tpg-2017-en.pdf.

[175] WHITELEY R. F., SAMPSON Jr. P. L., Important Terms for Price Escalation Clauses to Mitigate the Inflationary Effect of Tariffs on Construction Materials, Bracewell LLP, *National Law Review*, 12 February 2025, available at: https://natlawreview.com/article/important-terms-price-escalation-clauses-mitigate-inflationary-effect-tariffs.

2.2 Delay damages

Delay damages play a central role in the legal framework of construction contracts, serving as a mechanism through which the consequences of late performance are quantified and contractually agreed upon.[176]

According to their impact, in construction projects, delays are often categorized into three major types: critical and non-critical delay, excusable and inexcusable delay, and compensable and non-compensable delay.

The first and most fundamental distinction is between critical and non-critical delays. A critical delay is one that directly affects the critical path and therefore has an impact on the project's final completion date or on a key contractual milestone.[177] For instance, if the delay concerns a task that must be completed before others can proceed, then the overall schedule is necessarily extended. Conversely, a non-critical delay might affect the progress of a particular task without altering the overall timeline. Although such delays may still have cost or resource implications, they do not trigger liability for late completion.[178]

Once it is established that a delay is critical, the next step is to determine whether it is excusable or inexcusable. Excusable delays arise from circumstances beyond the contractor's control, such as extreme weather conditions, natural disasters, unforeseen site conditions, or changes initiated by the project owner. In these cases, contractors are typically entitled to a time extension, as they could not reasonably have foreseen or prevented the cause of the delay. [179]

On the other hand, inexcusable delays are attributable to the contractor's own actions or omissions, such as poor scheduling, failure to coordinate subcontractors, or insufficient staffing. These delays usually do not justify any extension of time or additional payment and may even expose the contractor to penalties.[180]

---

[176] BENARROCHE A., Construction Delay Claims: Learn the Main Types — and Their Defenses, Procore, last updated 10 December 2024, available at: https://www.procore.com/library/construction-delay-types.

[177] ABDELALIM A. M., ELSHERBINY S., *Critical Delay Factors in Construction Projects and Their Proposed Solutions from the Perspective of Total Quality Management*, *International Journal of Engineering Trends and Technology*, vol. 72, no. 2, February 2024, pp. 1–8, available at: https://www.researchgate.net/publication/378398370_Critical_Delay_Factors_in_Construction_Projects_and_Their_Proposed_Solutions_from_the_Perspective_of_Total_Quality_Management.

[178] *Ibidem.*

[179] LINKHORST LAW FIRM, P.A., Understanding the Types of Construction Delays, 19 November 2024, available at: https://www.floridahardhatlaw.com/understanding-the-types-of-construction-delays/; BANERJEE R., Delays, Disruptions, and the Impact on Construction Projects, Construction Law, 13 November 2023, available at: https://www.kppblaw.com/delays-disruptions-and-the-impact-on-construction-projects/.

[180] VICKNAIR A., SHORE H., Delay Claims – Part II; Methods of Proving Delays and Required Documentation, 20 February 2025, available at: https://darcyvicknair.com/delay-claims-part-ii-methods-of-proving-delays-and-required-documentation-by-andrew-vicknair-and-heather-shore/.

The third and most specific distinction is between compensable and non-compensable delays. A delay is compensable if it not only entitles the contractor to additional time but also to monetary reimbursement for extra costs incurred.[181] This typically occurs when the delay is excusable and is also the responsibility of the owner, for example, when the client causes late delivery of design documents or delays site access. Non-compensable delays, in contrast, may still be excusable but do not result in financial compensation. This may include *force majeure* events or delays that fall under shared or neutral responsibility, depending on the terms of the construction contract.[182]

A detailed understanding of construction delay classifications is not only essential for scheduling and project planning, but also directly relevant to the legal and financial consequences that such delays may entail. Once a delay has been analyzed according to its nature, attention must be given to the potential damages arising from it: i.e., the economic consequences suffered by one party due to the disruption of the agreed timeline. Delay damages can be classified in different categories, which reflect the ways in which risk is allocated in construction contracts.

Among the most common forms of delay damages are liquidated damages which are predetermined sums, set in the construction contract itself, which become payable if the contractor fails to meet the scheduled completion date. The key function of liquidated damages is to provide certainty and reduce litigation by avoiding the need to calculate actual losses each time a delay occurs.[183] Typically expressed as a daily rate (*e.g.*, $50 per day), they must reflect a genuine pre-estimate of the losses likely to be incurred by the client in case of delay. If they are found to be excessively punitive, courts may declare them unenforceable. Therefore, parties must agree transparently on the clause at the outset of the contract.

In contrast to these pre-agreed sums, direct damages, also referred to as actual or compensatory damages, relate to the real and measurable financial losses suffered by a party as a result of the delay. They may include additional construction costs, loss of rental income, extended financing charges, or expenses associated with idle labor and equipment. Since direct damages are quantifiable and supported by documentation, they are generally easy to demonstrate but

[181] BURR A., *Delay and Disruption in Construction Contracts*, Sixth edition, Routledge, 2025; LONG R. J., *Excusable, Non-compensable Delays*, Long International, 1 May 2023, available at: https://www.long-intl.com/blog/excusable-non-compensable/

[182] *Ibidem.*

[183] DAVIS W., *Delays in Construction Contracts in Qld*, 8 February 2025, available at: https://stonegatelegal.com.au/delays-in-construction-contracts-in-qld-complete-guide/; EGGLESTON B., *Liquidated Damages and Extensions of Time in Construction Contracts*, 3rd ed., Wiley-Blackwell, 2009.

their recoverability depends on the classification of the delay as compensable and the specific terms of the contract.[184]

More challenging to establish are the so-called consequential damages, which refer to indirect or secondary losses resulting from the delay, such as loss of business opportunities, reputational harm, or penalties arising from missed third-party obligations. They often prove difficult to calculate or substantiate, as they require a causal link between the delay and the alleged loss, as well as proof of foreseeability at the time of contracting.[185] For this reason, many construction contracts either exclude them explicitly or limit their recoverability.[186] Where they are not excluded, the affected party must be diligent in collecting evidence and demonstrating the chain of causation.

In practical terms, once liability for delay has been established and the type of compensable damage identified, the next critical step lies in quantifying the loss. This raises the issue of methodology: i.e., how to accurately and fairly calculate the financial impact of delays.[187] Several recognized approaches exist within construction practice, each with distinct strengths and limitations: these include, among others, techniques such as Time Impact Analysis, Window Analysis, and As-Planned vs. As-Built comparisons, which will be examined in greater detail in the following sections.

The choice of method often depends on the nature of the project, the availability of data, and the legal or contractual framework involved. Identifying the nature and cause of the delay is not just a theoretical exercise, it is the cornerstone of any successful delay claim. Without clearly establishing what type of delay occurred and who caused it, the contractor cannot determine whether it is entitled to an extension of time, monetary compensation, or neither. The classification of a delay directly informs the remedies available under the contract and frames the legal strategy for the dispute.[188]

---

[184] SESSLER A., CHAKRABARTI S., STEIN M., *Compensatory Damages Principles in Civil and Common Law Jurisdictions: Requirements, Underlying Principles and Limits*, in Skadden, Arps, Slate, Meagher & Flom, *The Guide to Damages in International Arbitration*, 6th edition, Global Arbitration Review, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/compensatory-damages-principles-in-civil-and-common-law-jurisdictions-requirements-underlying-principles-and-limits.

[185] BRUN C., *Understanding the Differences: Actual Damages, Liquidated Damages, and Consequential Damages*, Vertex, 24 December 2024, available at: https://vertexeng.com/insights/understanding-the-differences-actual-damages-liquidated-damages-and-consequential-damages/

[186] MURDOCH I., Limitations of liability in construction contracts, IHL, June 2003, available at: https://fidic.org/sites/default/files/13%20Limitations_of_liability.pdf.

[187] ROYAL INSTITUTION OF CHARTERED SURVEYORS (RICS), *Ascertaining Loss and Expense*, 2nd edition, RICS Practice Information, UK, July 2024, available at: https://www.rics.org/Ascertaining-loss-and-expense_2nd_July-2024.pdf;

[188] BURR A., *Delay and Disruption in Construction Contracts*, Sixth edition, Routledge, 2025; BROMLEY C., HAWKINS T., *Delays in Quantum and Financial Methods for Computing Costs and Damages*, Secretariat, 12

In the absence of a well-supported causal analysis, claims may be dismissed as vague, overly broad, or procedurally defective. This step is therefore essential not only to meet evidentiary standards but also to align the claim with the appropriate contractual and legal framework. In short, the clearer the diagnosis of the delay, the stronger the claim.[189]

2.2.1 The impact of force majeure events and unforeseen disruptions on intermediate vs. final deadlines

The consequences of force majeure and other unforeseen disruptions on contractual deadlines in international construction have become increasingly important, especially in light of events such as the COVID-19 pandemic, extreme weather incidents, and supply chain crises. Whether these disruptions entitle a contractor to relief depends on their legal classification, contractual provisions, the type of deadline affected (intermediate milestone vs final completion), and the contractor's compliance with procedural requirements.[190]

In legal terms, *force majeure* typically refers to external, unforeseeable, and unavoidable events that prevent contractual performance, while *hardship* describes situations where performance remains technically possible but has become excessively onerous due to changed circumstances.[191]

Many standard construction contracts include clauses addressing these events. For instance, Clause 18 ("Exceptional Events") of the FIDIC Red Book (2017) replaced the former Clause 19 and provides relief, including extensions of time, cost recovery, and, in prolonged cases, potential termination, if: (i) the event is beyond the affected party's control, (ii) was unforeseeable at contract formation, (iii) could not reasonably have been avoided, and (iv) was not due to the other party's fault. [192]

In civil law jurisdictions, statutory doctrines offer similar relief. Under Article 1218 of the French Civil Code, an obligor may be excused from liability if an event is external,

---

October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/delays-in-quantum-and-financial-methods-computing-costs-and-damages

[189] EUROPEAN PATENT OFFICE, *Case Law of the Boards of Appeal of the European Patent Office*, Tenth edition, June 2024, available at: https://www.epo.org/en/legal/case-law/2022/index.html.

[190] FRIEDRICH GRAF VON WESTPHALEN & PARTNER, *Force Majeure – under German, French and US Law*, 2020, available at: https://www.fgvw.de/en/news/archive-2020/force-majeure-under-german-french-and-us-law.

[191] LORENZ & PARTNERS, *Comparison of Commonly Used Force Majeure and Hardship Clauses in International Contracts*, Newsletter No. 191 (NL109), available at: https://www.lorenz-partners.com/comparison-of-commonly-used-force-majeure-and-hardship-clauses-in-international-contracts/.

[192] BUNNI N. G., *Clauses 17 to 19 of the FIDIC Contracts*, FIDIC, available at: https://fidic.org/sites/default/files/20%20Clauses%2017%20to%2019.pdf; GLOVER J., *FIDIC, Force Majeure, Exceptional Events and the "But For" Test*, Fenwick Elliott Annual Review, 2018, available at: https://www.fenwickelliott.com/research-insight/annual-review/2018/fidic-force-majeure.

unforeseeable at contract conclusion, and unavoidable, and if the obstacle is temporary, performance is suspended, while permanent impossibility results in automatic contract termination.[193] Article 1195 adds a hardship mechanism: when unforeseeable circumstances render performance excessively onerous for a party who did not assume that risk, renegotiation may be requested, and failure to agree can lead to judicial adaptation or termination.[194]

In Italy, while the Civil Code does not expressly codify a general doctrine of hardship, Article 1467 on *eccessiva onerosità sopravvenuta* provides that in contracts of continuous or long-term performance, if extraordinary and unforeseeable events make performance excessively burdensome for one party, that party may seek termination of the contract; however, the counterparty can avoid termination by offering to renegotiate and equitably modify the contractual terms.

In German law, Section 313 BGB implements *Störung der Geschäftsgrundlage*, allowing contract adaptation or termination if unforeseen fundamental changes upset the contractual balance.[195]

This provision applies especially in long-term contracts where an unexpected event renders the initial balance of obligations unreasonable. Internationally, the UNIDROIT Principles 2016 mirror these doctrines: Article 7.1.7 covers *force majeure*, and Article 6.2.3 addresses hardship, authorizing renegotiation or judicial adjustment when performance becomes excessively burdensome.[196]

From a scheduling perspective, the distinction between intermediate milestones and final completion is pivotal. A delay confined to non-critical works may only entitle relief for the affected milestone if the overall project timeline remains intact. Conversely, disruption to critical-path activities can justify a global extension, a determination typically supported by expert delay analysis using contemporaneous documentation such as programs, site logs, and

[193] LORENZ & PARTNERS, cit.; A&O SHEARMAN, *Force Majeure and Imprévision under French Law*, 26 March 2020, available at: https://www.aoshearman.com/en/insights/force-majeure-and-imprevision-under-french-law.

[194] GIORDANELLI F., The Unification of Private Law in Times of COVID-19, LSE Law Review Blog, 7 September 2021, available at: https://blog.lselawreview.com/2021/09/07/the-unification-of-private-law-in-times-of-covid-19/

[195] RÖSLER H., Hardship in German Codified Private Law – In Comparative Perspective to English, French and International Contract Law, in *European Review of Private Law*, 2007, pp. 483–513, available at: https://cisg-online.org/files/commentFiles/Roesler_ERPL_2007_483.pdf

[196] UNIDROIT, Principles of International Commercial Contracts (2010), Chapter 7 – Section 1: Non-performance in General, available at: https://www.unidroit.org/instruments/commercial-contracts/unidroit-principles-2010/chapter-7-section-1/

weather data. Construction tribunals often rely heavily on evidence from updated schedules and as-built records to assess whether the disruption affected the project's critical path.[197]

Procedural compliance is equally essential. Under FIDIC 2017 Sub-Clause 18.2, the affected party must issue notice of an Exceptional Event within 14 days (or 28 in some variants) after becoming aware of it. Failure to do so may forfeit entitlement to time or cost remedies, regardless of the substantive merits.[198]

Pre-contractual foreseeability also matters. While the initial wave of the COVID-19 pandemic may have satisfied the *force majeure* criteria, subsequent waves, once globally known, are increasingly viewed through the lens of hardship or *imprévision*, requiring contract renegotiation or adaptation rather than absolute suspension.[199]

Lastly, the financial fallout must be assessed. Delays to intermediate milestones can suspend due payments while costs escalate due to demobilization, remobilization, procurement disruptions, or enhanced safety measures. These cumulative effects may place the contractor in a liquidity squeeze, especially in the absence of contractual mechanisms. Without built-in mechanisms such as interim valuations, price adjustments, or compensation events (for instance, NEC Option X1 or FIDIC Clause 13.8), contractors may face acute cash-flow pressures, leading to additional claims or disputes.[200]

In conclusion, the legal and economic consequences of *force majeure* and unforeseen events depend on a complex interplay of factors, including the timing of the disruption within the project schedule, the criticality of the affected activities, the foreseeability of the event, and the contractor's compliance with procedural obligations. A thorough legal assessment, combined with robust delay analysis, is essential to determine entitlement to time and cost relief. These aspects will be further examined in the following sections.

---

[197] PERILLO J., Force Majeure and Hardship Under the UNIDROIT Principles of International Commercial Contracts, in *Fordham University School of Law Faculty Scholarship*, 1997, available at: https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1782&context=faculty_scholarship

[198] GLOVER J., *FIDIC, Force Majeure, Exceptional Events and the "But For" Test*, Fenwick Elliott Annual Review, 2018, available at: https://www.fenwickelliott.com/research-insight/annual-review/2018/fidic-force-majeure.

[199] UNIDROIT, *Principles*, cit.

[200] CHADEE A., ALI H., GALLAGE S., RATHNAYAKE U., *Modelling the Implications of Delayed Payments on Contractors' Cashflows on Infrastructure Projects*, Civil Engineering Journal, vol. 9, no. 1, January 2023, pp. 52–71, available at: https://www.researchgate.net/publication/366778023_Modelling_the_Implications_of_Delayed_Payments_on_Contractors'_Cashflows_on_Infrastructure_Project

2.2.2 Methods of proof (contemporary records, expert reports)

Given the evidentiary burden involved in delay-related disputes, arbitral tribunals place particular emphasis on two fundamental tools: contemporary project records and expert reports.[201]

The first line of defense, or attack, is always the contemporaneous documentation generated during the life of the project. These records, created before the dispute has crystallized, are generally seen as the most reliable evidence of what actually occurred. They include site diaries, meeting minutes, email correspondence, look-ahead programs, labor allocation sheets, and weather logs, among others.[202] As noted in the Society of Construction Law's Delay and Disruption Protocol (2nd ed., 2017), such records are "essential" to the analysis of delay and disruption claims and constitute the baseline against which any retrospective reconstruction must be tested.[203] Tribunals typically regard them as more persuasive than witness recollections or schedules produced after the fact, and are particularly alert to inconsistencies or gaps in the documentary trail.

Where a party fails to maintain proper records, or produces only selective or self-serving extracts, it places itself at a considerable disadvantage. In *Walter Lilly & Co Ltd v Mackay* (2012), the Court made it clear that contractors must not only identify the events that caused delay but also demonstrate their precise impact on the critical path.[204] General assertions or global claims unsupported by detailed documentation are unlikely to succeed. This is especially true in cases of disruption, where proving the causal connection between specific employer actions and lost productivity can be notoriously difficult.

Alongside this documentary foundation, expert evidence plays a pivotal role in shaping how the tribunal interprets and evaluates the factual record. Experts, most commonly delay analysts, forensic schedulers, or quantum consultants, are tasked with applying structured methodologies to the available data and presenting their findings in a clear, objective, and accessible manner. Rather than serving as mere technical appendices, well-prepared expert reports often form a central component of the evidentiary framework, helping to contextualize the factual matrix and quantify its consequences.[205]

---

[201] BORN G. B., *International Commercial Arbitration*, Second edition, Kluwer Law International, 2014, Chapter 15: Procedures in International Arbitration.
[202] *Ibidem.*
[203] SOCIETY OF CONSTRUCTION LAW (SCL), *Delay and Disruption Protocol*, 2nd edition, February 2017, available at: https://www.scl.org.uk/resources/delay-disruption-protocol.
[204] *Walter Lilly & Company Ltd v. Giles Patrick Cyril Mackay and DMW Developments Ltd*, [2012] EWHC 1773 (TCC), available at: https://www.bailii.org/ew/cases/EWHC/TCC/2012/1773.html.
[205] BURR A., *Delay and Disruption in Construction Contracts*, cit.

Given the tribunal's need for analytical clarity, the choice of method is less important than its transparent application and its alignment with the project's actual history. Tools such as time impact analysis, window analysis, and as-built vs as-planned comparisons are frequently used, each with different strengths depending on the type of disruption and the quality of available data. What matters most is methodological rigor and fidelity to facts, not the label of the technique itself.[206] As reaffirmed in *John Doyle Construction Ltd v. Laing Management (Scotland) Ltd* (2004), tribunals are unlikely to accept undifferentiated or speculative claims unless they are grounded in a demonstrable causal structure supported by verifiable data.[207]

Equally important is the tone and neutrality of expert testimony. Reports perceived as argumentative, biased, or overly confident tend to diminish credibility. Conversely, those that acknowledge assumptions, explain limitations, and carefully walk the tribunal through their logic carry more weight. The expert's primary duty is not to the appointing party but to the tribunal, acting as a guide through complex technical terrain rather than an advocate.[208]

Many arbitral proceedings, especially under ICC or LCIA rules, now incorporate joint expert sessions, commonly referred to as "hot-tubbing" or witness conferencing. In these settings, opposing experts are examined concurrently, allowing the tribunal to compare their conclusions, test assumptions in real time, and explore areas of agreement or divergence more efficiently. This interactive format can often clarify technical issues and expose methodological weaknesses that might remain hidden in traditional cross-examination.[209]

Ultimately, the strength of a delay or disruption claim lies in the synthesis of contemporaneous documentation and expert interpretation. Neither element, standing alone, is likely to be persuasive: factual records without expert analysis may appear disjointed, while expert reports unsupported by underlying evidence risk being dismissed as speculative. When both elements are present and reinforce one another, however, the claim acquires a persuasive coherence that is far more likely to meet the tribunal's standard of proof.[210]

---

[206] *Ibidem.*

[207] *John Doyle Construction Ltd v. Laing Management (Scotland) Ltd,* [2004] ScotCS CSIH 36, Court of Session (Inner House), 27 May 2004., available at: https://www.bailii.org/scot/cases/ScotCS/2004/CSIH_36.html.

[208] WITNESS EXPERTS, *The Fundamental Role of Neutrality in an Expert Witness: A Pillar of Justice*, 23 January 2024, available at: https://witness-experts.com/knowledge/the-crucial-role-of-neutrality-in-an-expert-witness-a-pillar-of-justice.

[209] ICC Arbitration and ADR Commission, *Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings*, available at: https://iccwbo.org/wp-content/uploads/sites/3/2022/02/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings.pdf.

[210] BORN G. B., *International Commercial Arbitration*, cit.

2.2.3 Quantification techniques (extension of time vs. cost-based calculations)

Once a delay has been substantiated through contemporaneous documentation and supported by technical analysis, the next essential step is quantification. This process is fundamental to ensure a fair financial outcome. In modern construction contracts, delay-related consequences are typically addressed through two distinct but often interlinked mechanisms: Extension of Time (EOT) and cost-based compensation. These remedies reflect the temporal and monetary aspects of delay, and while conceptually separate, they frequently arise in tandem.

An Extension of Time operates as a protective device that shields the contractor from liability for delay damages, notably liquidated damages. It does not by itself confer any financial entitlement but rather adjusts the completion date to reflect excusable delay events. Standard forms such as the FIDIC Red Book (2017), NEC4 ECC, and JCT Design and Build 2016 provide detailed procedures for EOT claims, typically requiring prompt notification, supporting records, and schedule impact analysis.[211]

To successfully claim an EOT, the contractor must show that the delay impacted the project's critical path. The Society of Construction Law's Delay and Disruption Protocol identifies this requirement as central and highlights the importance of the Critical Path Method as the standard scheduling technique for identifying the critical path. Building on this foundation, different delay analysis methodologies, such as Time Impact Analysis or Window Analysis, may be employed to assess how specific events affected the critical path, as already discussed in Chapter 1.[212] These techniques provide a structured way to demonstrate how the event altered the program and why the revised completion date is justified.

Where the delay is not only excusable but also attributable to the employer, the contractor may pursue cost-based compensation. This typically includes prolongation costs, such as extended site overheads, idle resources, or increased supervision, as well as head office overheads (*i.e.,* the general administrative expenses of the contractor's central office, such as management salaries, rent, and support staff*)*, calculated through recognized formulae such as the Hudson, Emden, or Eichleay models.[213]

These methods are especially relevant in international arbitration, where direct proof of overhead allocation may be difficult to produce.

---

[211] GLOVER J., *FIDIC, Force Majeure, Exceptional Events and the "But For" Test*, cit.

[212] SOCIETY OF CONSTRUCTION LAW, *Delay and Disruption Protocol*, 2nd ed., 2017, Core Principle 4, available at: https://www.scl.org.uk/resources/delay-disruption-protocol.

[213] CHADEE A., ALI H., GALLAGE S., RATHNAYAKE U., *Modelling the Implications of Delayed Payments on Contractors' Cashflows on Infrastructure Projects*, cit.

However, cost claims require more than accounting entries: the contractor must prove that the claimed costs were actually incurred and that they result directly from the delay, not from inefficiencies, unrelated problems, or management failures.[214]

The preferred method for calculating loss of productivity is the Measured Mile Analysis, which, as noted as at Section 2.1.2 above, compares output on similar activities before and after disruption. If that is not possible, alternative methods such as the Modified Total Cost approach may be used, though tribunals typically demand higher evidentiary thresholds.[215]

Importantly, EOT and cost-based claims can coexist. A contractor may be entitled to both a revised completion date and reimbursement of delay-related costs, if the delay is both excusable and compensable. However, if the delay results from *force majeure* or shared responsibility, only the time relief may be granted. Conversely, in situations involving constructive acceleration, financial compensation may be awarded even where no formal EOT is recognized.[216]

While EOT claims are contractually based, cost-based claims often rely on broader legal principles, such as the law of damages, unjust enrichment, or quantum meruit, depending on the jurisdiction. In common law, the prevention principle may also operate to bar the employer from enforcing delay penalties where it has contributed to the delay. In civil law systems, contractual liability is analysed within the framework of obligations and causation, often allowing tribunals to apportion damages in a more equitable manner.[217]

Ultimately, success in quantifying a delay depends on the combination of contractual entitlement, accurate records, credible methodologies, and expert interpretation. Arbitrators require not only evidence of loss, but clear proof of linkage between cause, delay, and cost. The separation between time relief and cost compensation remains analytically significant, but in practice the two must be coordinated to form a coherent and persuasive claim.[218]

---

[214] BROMLEY C., HAWKINS T., *Damages in Construction Arbitrations*, Secretariat, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/damages-in-construction-arbitrations.

[215] ACERIS LAW LLC, *Disruption Claims in Construction Arbitration*, 2022, available at: https://www.acerislaw.com/disruption-claims-in-construction-arbitration/.

[216] DI PAOLA L., SPANU P., *Concurrent Delays*, Studio Legale Bonelli Erede Pappalardo, available at: https://fidic.org/sites/default/files/12%20paola_concurrentdelays_oct06.pdf.

[217] SAUNDERS R., *Construction Arbitration: New Zealand*, Wynn Williams & Co, last verified on 10 June 2025, available at: https://globalarbitrationreview.com/insight/know-how/construction-arbitration/report/new-zealand.

[218] FUCHS J. E., IBRAHIM H., ZHAO T., *Proving Loss of Productivity in International Arbitration*, Delta Consulting Group, 19 July 2024, available at: https://globalarbitrationreview.com/review/the-arbitration-review-of-the-americas/2025/article/proving-loss-of-productivity-in-international-arbitration.

2.3 Liability attribution in delay scenarios

In the context of construction arbitration, attributing liability for delays is a multidimensional issue shaped by legal, technical, and procedural elements. At its core lies a fragmented legal landscape composed of national laws, international arbitration rules, and evolving case law. Each of these layers provides different tools and doctrines for assessing which party, contractor or employer, should bear responsibility when a project timeline is disrupted.

National laws play a central role in defining what types of delays are compensable, whether certain liabilities can be contractually excluded, and how doctrines like vicarious liability apply.[219] For instance, some jurisdictions allow broad contractual freedom, while others, such as Canada, impose mandatory norms that prevail over the parties' choices, particularly when power imbalances or procedural fairness are at stake.[220] In parallel, international arbitration rules, such as those set by the International Chamber of Commerce and the International Centre for Dispute Resolution, offer procedural frameworks that facilitate the resolution of delay disputes, especially when multiple parties and overlapping contracts are involved.[221] These often include rules on joinder, consolidation, and document production, which become particularly relevant in disputes involving concurrent or complex delays.[222]

From a practical perspective, the legal implications of construction delays depend heavily on how different types of delay are categorized and interpreted. A particularly thorny issue arises with concurrent delays, where employer-caused and contractor-caused events overlap, raising intricate questions of causation, timing, and fairness. These situations often require sophisticated methods of analysis and a clear contractual framework to avoid ambiguity.[223]

Given this complexity, effective attribution of liability depends not only on legal definitions but also on the parties' ability to demonstrate factual causation and quantify the impact of delays. A variety of analytical approaches, ranging from productivity-based assessments to cost-based and critical path methods, are employed to establish the necessary links between delay events and project outcomes. Expert witnesses play a crucial role in this process,

---

[219] TRAVELERS, *Risk Transfer: Understanding Potential Damages Due to Unexcused Construction Project Delays*, available at: https://www.travelers.com/resources/business-industries/construction/potential-damages-due-to-unexcused-project-delays.

[220] BANKS P. D., MEIGHEN H. A., MORRISON P. (Trish), *Construction Arbitration: Canada*, Borden Ladner Gervais LLP, last verified on Monday 23rd June 2025, available at: https://globalarbitrationreview.com/insight/know-how/construction-arbitration/report/canada.

[221] PARRA MARTÍNEZ S., *Projects: delay and cost claims under common and civil law*, 28 August 2020, available at: https://www.pinsentmasons.com/out-law/guides/projects-delay-cost-claims-common-civil-law.

[222] *Ibidem.*

[223] PROTRAIN, *Decoding Concurrent Delays in Construction Contracts: Key Case Laws & Strategic Insights for Dispute Avoidance*, 26 October 2024, available at: https://www.linkedin.com/pulse/decoding-concurrent-delays-construction-contracts-key-case-laws-hxv4f

providing independent and technically grounded evaluations of the events in question. Their input must be clear, methodologically sound, and impartial to support arbitral decision-making.[224]

At the jurisprudential level, key precedents such as the *Malmaison* case have helped shape how concurrent delays are treated, particularly by distinguishing between "relevant" and "irrelevant" events and affirming the contractor's right to a time extension even when multiple causes coexist.[225] Such decisions have practical consequences for project management, underlining the importance of thorough documentation, detailed project records, and clearly drafted contractual clauses that anticipate how delays will be treated.

Still, delay attribution remains fraught with challenges: the complexity of construction projects makes causation difficult to isolate, expert analysis can be costly, and over-reliance on documentary evidence may obscure important contextual nuances. To mitigate these risks, best practices recommend early risk assessments, precise contractual language, balanced allocation of delay risks, and robust record-keeping throughout the project lifecycle.[226] Recent legislative updates, such as the Arbitration Act 2025, also aim to streamline the adjudication of such disputes, though their impact remains subject to interpretation and application.[227]

In this legal and technical environment, liability attribution serves not only as a mechanism for allocating responsibility but also as a test of how effectively contracts, legal systems, and procedural tools can manage the inevitable uncertainties of complex construction projects. The following sections will delve deeper into two core components of this process: the use of Critical Path Analysis (CPA) as a methodological tool, and the contrasting legal approaches to concurrent delay adopted by civil law and common law systems.

---

[224] CANADIAN BAR ASSOCIATION, *On the Best Use of Delay Experts in Complex Construction Disputes*, 4 July 2023, available at: https://cba.org/sections/construction-and-infrastructure-law/member-articles/on-the-best-use-of-delay-experts-in-complex-construction-disputes/.

[225] PROTRAIN, *Decoding Concurrent Delays*, cit; *Henry Boot Construction (UK) Ltd v. Malmaison Hotel (Manchester) Ltd* [1999] 70 ConLR 32 (TCC).

[226] ADRA R., LINDSAY J., NORTHCOTT E. and VAN ESPEN E., Allocation of risk in construction contracts, Crowell & Moring LLP, August 12, 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/allocation-of-risk-in-construction-contracts

[227] EVERSHEDS SUTHERLAND, *What impact, if any, will the new Arbitration Act have on the construction industry?*, 24 April 2025, available at: https://www.eversheds-sutherland.com/en/united-states/insights/the-new-arbitration-act-on-the-construction-industry

2.3.1 The critical path analysis (CPA) as a determining tool

Within the intricate process of attributing responsibility for construction delays, *Critical Path Analysis* (CPA) plays a fundamental role in demonstrating entitlement to time-related relief. In essence, CPA is a project management technique designed to identify the longest sequence of interdependent activities, known as the *critical path*, that determines the shortest possible duration for completing a project.[228] Tasks on the critical path have zero total float, meaning any delay to them results in a corresponding delay to the entire project. As such, CPA allows for a clear distinction between delays that are causally connected to the overall project timeline (*actionable delays*) and those that are not.[229]

In arbitration proceedings, CPA serves both as a diagnostic and evidentiary tool: it enables experts and tribunals to assess which specific events actually caused delays to completion, and which party is accountable. This is particularly significant when dealing with claims for extension of time, liquidated damages, or acceleration costs.[230] CPA underpins the forensic analysis required to establish delay causation by linking factual events to their practical effects on project delivery, allowing for more objective and structured determinations.[231]

Several forensic scheduling methodologies are commonly employed to operationalize CPA in disputes. As already outlined in Chapter I and briefly recalled in Section 2.2.3 above, these include the Time Impact Analysis, the Window Analysis, and the As-Planned vs As-Built comparison.[232] Each of these approaches has distinct strengths and limitations, but all ultimately rely on CPA, as identified through CPM, as their conceptual foundation.

A critical concept in CPA is the management of *float* (*i.e.,* the available scheduling flexibility or "slack time" within non-critical activities), or the amount of time an activity can be delayed without affecting the overall project duration. While non-critical activities may possess some degree of float, critical tasks do not. [233] In arbitration, the presence or absence of float is often decisive in determining whether a delay is compensable: a delay to a non-critical activity may

---

[228] THORNLEY, G., *Critical path analysis in practice: collected papers on project control*, Routledge, 2001; ICC COMMISSION ON ARBITRATION AND ADR, *Construction Industry Arbitrations: Recommended Tools and Techniques for Effective Management – 2019 Update*, ICC, 2019, available at: https://iccwbo.org/wp-content/uploads/sites/3/2019/02/icc-arbitration-adr-commission-report-on-construction-industry-arbitrations.pdf.

[229] *Ibidem*.

[230] BAYRAKTAR M. E., ARIF F., HASTAK M., GAD N. A., *Judiciary's Use of the Critical Path Method to Resolve Construction Claims*, *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 30 June 2011, available at: https://ascelibrary.org/doi/10.1061/%28ASCE%29LA.1943-4170.0000079.

[231] FISHER J., *Critical Path Analysis: Definition, Purpose, and Examples in Construction Projects*, 21 October 2024, available at: https://www.mastt.com/blogs/critical-path-analysis.

[232] SHARPE PRITCHARD, *Methods of Delay Analysis in Construction Projects*, 7 May 2024, available at: https://www.sharpepritchard.co.uk/latest-news/methods-of-delay-analysis-in-construction-projects/.

[233] ICC COMMISSION ON ARBITRATION AND ADR, *Construction Industry Arbitrations*, cit.

not justify an extension of time, whereas a delay to the critical path almost certainly will. Furthermore, disputes frequently arise regarding ownership of float whether it belongs to the contractor, the employer, or the project as a whole and how it should be allocated when multiple delay events coincide.[234]

Beyond traditional delay analysis, CPA also plays a role in more complex claims, such as *disruption* and *acceleration*. As explained at Section 2.1.2 above, disruption claims involve reduced productivity or interference with the planned sequencing of work, even when the overall completion date is not directly delayed. In such cases, CPA can help demonstrate that although no delay to completion occurred, critical activities were still negatively affected, resulting in financial loss. Conversely, in acceleration claims, where a contractor is required to complete work faster than planned, CPA can substantiate that the revised program compressed the critical path, often incurring increased costs or resource strain.[235]

The effectiveness of CPA as a determining tool in arbitration is heavily dependent on the quality of project records, the consistency of scheduling updates, and the methodological rigour of expert analysis.[236] Without accurate and contemporaneous documentation, such as baseline programs, progress updates, and event logs, the reconstruction of the critical path becomes speculative and prone to challenge. Similarly, inconsistent application of CPA techniques or reliance on manipulated schedules can undermine the probative value of the analysis.[237]

On the contrary, when properly applied, CPA provides a powerful, transparent, and structured framework for assessing causation and entitlement in time-related disputes. It facilitates communication between technical experts and legal decision-makers by translating complex project dynamics into visual and logically coherent models.[238] In this sense, CPA is not merely a scheduling tool, but a bridge between project management realities and the evidentiary demands of arbitration proceedings. It enables arbitral tribunals to move beyond subjective narratives and focus instead on demonstrable impacts grounded in the actual sequence and dependency of project activities.

---

[234] MCSORLEY M., CHAUDHARY I., *Criticality in Construction Claims*, first published in *Construction Law Journal*, November 2022, republished on 23 January 2023, available at: https://www.hka.com/article/criticality-in-construction-claims/.

[235] OOMMEN P., *Performing Disruption Analysis for Construction Projects*, 6 October 2021, available at: https://www.hka.com/article/performing-disruption-analysis-for-construction-projects/; MASTRANDREA F., *Acceleration of Construction Projects*, 7 February 2024, available at: https://www.hka.com/article/acceleration-of-construction-projects/.

[236] ICC COMMISSION ON ARBITRATION AND ADR, *Construction Industry Arbitrations*, cit.

[237] PARRY A., *The Improvement of Delay Analysis in the UK Construction Industry*, July 2015, available at: https://core.ac.uk/download/pdf/46520273.pdf.

[238] *Ibidem.*

2.3.2 Concurrent delays: "First in time" (common law) vs. apportionment (civil law)

The legal treatment of concurrent delays, situations where employer and contractor-related events overlap in causing project disruption, differs significantly between civil law and common law systems, reflecting contrasting philosophies of liability attribution. While earlier sections have discussed the technical and procedural complexity of delay analysis, the core distinction at this stage lies in how legal systems allocate responsibility when both parties have contributed to the delay.

An initial distinction must be drawn between "true concurrent delay", where employer- and contractor-responsible events occur and produce delay effects simultaneously, and the broader concept of "concurrent delay," which includes sequential events whose impacts overlap on the project's critical path. While the former is rare, the latter is far more common and central to legal disputes.[239]

In common law jurisdictions, the prevailing doctrine historically favors a more rigid and formal approach. Central to this is the prevention principle, which holds that an employer cannot enforce delay-related penalties if they have themselves caused, or contributed to, the delay.[240] However, the practical application of this principle is often constrained by judicial reluctance to apportion liability between parties unless expressly allowed by the contract. On the contrary, common law courts tend to apply the "first in time" or "but for" approach, where priority is given to the earliest delay event deemed legally relevant.[241] As a result, if the contractor is found to have initiated a delay before any employer-related event occurred, their claim for relief, whether in time or cost, may be rejected altogether. Even when both parties contributed, courts frequently deny financial compensation unless the contractor can demonstrate that the employer's actions were the sole or dominant cause of delay.[242] This places a substantial evidentiary burden on claimants and has historically limited the scope for equitable outcomes. This burden is compounded by the application of the so-called "but for" test, which requires the contractor to prove that, but for the employer's delay, timely completion would have been

---

[239] *City Inn Ltd v. Shepherd Construction Ltd* [2010] CSIH 68, para. 49, where Lord Osborne observed that "[o]ne of the problems in using such expressions as "concurrent delay" or "concurrent delaying events" is that they may refer to a number of different situations."; LOVETT G., WHELAN R., *Comparative Approaches to Concurrent Delay*, cit.

[240] LOVETT G., WHELAN R., *Comparative Approaches to Concurrent Delay*, Akin Gump Strauss Hauer & Feld, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/comparative-approaches-concurrent-delay.

[241] *Ibidem.*

[242] BREMEN J., *Contractors' Claims, Remedies and Reliefs*, Quinn Emanuel Urquhart & Sullivan LLP, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/contractors-claims-remedies-and-reliefs.

possible.[243] In practice, this is often an insurmountable hurdle in situations where multiple overlapping delays are present.

Notable judicial decisions, such as *Malmaison*[244], have carved out a limited space for granting extensions of time in cases of concurrent delay, while subsequent rulings like *North Midland*[245] have confirmed that parties remain free to draft contractual provisions that exclude or limit such relief altogether.[246] In essence, the common law model emphasizes legal certainty, predictability, and the primacy of contract terms, even at the expense of proportional fairness.

By contrast, civil law systems generally allow for a context-sensitive assessment of liability, based on codified principles of fault and causation. Rather than prioritizing the temporal sequence of delay events, civil law courts consider the respective contributions of each party and allocate liability accordingly. In practice, this enables judges to weigh the broader context of the delay and the significance of each contributing factor, irrespective of which event occurred first.[247] Unlike the adversarial structure of common law proceedings, civil law jurisdictions often follow a more judge-led procedural model, in which courts play an active role in assessing causation and responsibility. This procedural orientation supports a more nuanced and context-sensitive evaluation of concurrent delay scenarios. Notably, civil law systems tend to distinguish clearly between entitlement to an extension of time and entitlement to financial compensation: while a contractor may not be precluded from receiving a time extension despite their own partial fault, monetary relief typically requires exclusive causation attributable to the employer.[248] This doctrinal separation fosters a balanced approach, wherein liability is neither ignored nor overstated but aligned with each party's actual contribution to the disruption.

The divergence between these two legal cultures has practical implications not only for dispute resolution but also for contract drafting. In particular, concurrency clauses are gaining traction, especially in international and construction contracts, as a proactive mechanism to preempt disputes by defining concurrency scenarios and their consequences in advance. Under common law, carefully drafted clauses can effectively limit judicial discretion and allocate risk *ex ante*, often in favor of the employer. In civil law jurisdictions, however, such clauses may be

[243] *Thomas Barnes & Sons Plc (In Administration) v. Blackburn with Darwen BC* [2022] EWHC 2598 (TCC), para. 118.
[244] *Henry Boot Construction (UK) Ltd v. Malmaison Hotel (Manchester) Ltd* [1999] 70 ConLR 32 (TCC).
[245] *North Midland Building Ltd v. Cyden Homes Ltd* [2018] EWCA Civ 1744.
[246] LOVETT G., WHELAN R., *Comparative Approaches to Concurrent Delay*, cit.
[247] ON A. D., *Strict Liability and the Aims of Tort Law: A Doctrinal, Comparative, and Normative Study of Strict Liability Regimes*, Doctoral Thesis, Maastricht University, 2020, available at: https://doi.org/10.26481/dis.20201201do.
[248] *Ibidem*.

interpreted more restrictively, particularly where they conflict with mandatory statutory provisions or the overarching duty of good faith. Nevertheless, in both systems, explicit contractual language addressing concurrent delays, including their legal treatment, consequences, and evidentiary standards, plays a critical role in managing legal uncertainty.[249]
As arbitration becomes increasingly transnational, understanding the contrasting legal approaches to causation and responsibility becomes ever more crucial. While each system retains its doctrinal foundations, recent developments suggest limited but meaningful convergence: civil law jurisdictions increasingly engage with persuasive jurisprudence, while common law courts have begun to explore proportional or equitable reasoning, particularly in complex, multi-party construction disputes. Ultimately, the comparative analysis of concurrent delay highlights the broader challenge legal systems face in balancing contractual certainty with fairness in technically complex environments involving overlapping obligations.[250]
Although legal convergence remains partial, there is a growing recognition across traditions that rigid adherence to formal causation tests may fail to reflect the practical realities of delay. Emerging approaches often aim to integrate the predictability of contract law with a more equitable and context-sensitive allocation of responsibility.

[249] AMLOGU R., KLINTON B., *Dispute Resolution in Construction Contracts: The Role of Arbitration*, January 2025, available at: https://www.researchgate.net/publication/387723777_DISPUTE_RESOLUTION_IN_CONSTRUCTION_CONTRACTS_THE_ROLE_OF_ARBITRATION
[250] LOVETT G., WHELAN R., *Comparative Approaches to Concurrent Delay*, cit.; JONES D., *Concurrent Delay in Construction Disputes: A Comparative View*, *Construction Law Journal*

CHAPTER III
DIVERGENCES AND HARMONIZATION IN CIVIL VS. COMMON LAW APPROACHES

This third chapter examines how civil law and common law traditions diverge in their treatment of key contractual and procedural issues in international construction arbitration, and whether these differences can be harmonized in practice. The analysis is structured in three main steps. First, it outlines the historical and conceptual roots of the divergence between the two legal families, highlighting their impact on arbitral proceedings. Second, it focuses on two illustrative examples, liquidated damages and the "time at large" doctrine, that vividly show how different legal traditions approach similar issues. Lastly, it explores mechanisms of harmonization in practice, ranging from the use of Critical Path Analysis and the prevalence of English law in international contracts, to the role of standard forms and the blending of principles such as good faith and contractual certainty. This structure allows for a progressive transition from divergence to convergence, setting the stage for a nuanced understanding of how arbitration manages the coexistence of distinct legal traditions.

3.1 Irreconcilable differences?

The historical divergence between common law and civil law traditions led to different conceptions of dispute resolution, that remain apparent in international construction arbitration. Common law, rooted in medieval English judicial practices, developed around custom and precedent. Over time, the doctrine of *stare decisis* created a culture of predictability by binding courts and arbitrators to past decisions. Civil law, by contrast, stems from Roman law and codification projects such as the Napoleonic Code and the German *Bürgerliches Gesetzbuch*, which sought to create comprehensive statutory frameworks.[251] These legacies explain why common law systems emphasize judicial interpretation and party autonomy, while civil law systems expect adjudicators to uphold broader principles of justice and contractual balance.[252]

[251] STRONG S.I., Past as Prologue: Arbitration as an Early Common Law Court?, Vol. 57, Issue 5, 2020, June 08, 2020; PECKAR & ABRAMSON, Doing Business in Civil Law Countries – What to Know to Avoid Major Pitfalls and Key Areas of Concern During the Negotiation Process, published 1 November 2019, available at: https://www.pecklaw.com/news/doing-business-in-civil-law-countries-what-to-know-to-avoid-major-pitfalls-and-key-areas-of-concern-during-the-negotiation-process/.

[252] ELSING S.H. e TOWNSEND J.M., Bridging the Common Law-Civil Law Divide in Arbitration, *Arbitration International*, Vol. 18, 1 March 2002; PAMPHILIS D. e FRANCO F., Interim relief including emergency arbitrator in construction arbitration, published 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/interim-relief-including-emergency-arbitrator-in-construction-arbitration

These foundations are visible in arbitral practice. In common law jurisdictions, arbitration retains a strong adversarial character: arbitrators act primarily as neutral decision-makers while the parties advance their own cases.[253] On the contrary, civil law jurisdictions often apply inquisitorial elements to arbitration, with arbitrators taking a more proactive role in fact-finding. Arbitrators also approach contracts through statutory principles such as good faith, proportionality, and equity, which can justify intervention when strict enforcement would be unjust.[254]

The construction industry highlights the foregoing differences.

Major projects face disruptions ranging from labor shortages and supply chain crises to inflation and geopolitical shocks.[255] In a common law setting, tribunals focus first on the contract: if it contains a force majeure or extension-of-time clause, it will generally be enforced; if not, remedies are narrow.

In such cases, one of the potential safety valves is the doctrine of frustration, which applies only in extreme circumstances, such as the destruction of the relevant construction or the outbreak of war at the site's location, and, as noted in Chapter I, operates only when an unforeseeable event renders performance radically different from what was originally undertaken. Therefore, common law offers no statutory mechanism to rebalance contractual obligations in the face of unforeseen hardship.[256]

Conversely, civil law systems provide statutory "safety nets:" doctrines such as *imprévision* in France (Article 1195 *Code civil*), *Störung der Geschäftsgrundlage* in Germany (Section 313 BGB), and *eccessiva onerosità sopravvenuta* in Italy (Articles 1467–1469 *Codice Civile*) explicitly authorize adaptation or termination of contracts in cases of unforeseen hardship.[257] Thus, where a common law tribunal may feel bound by the contract's silence, a civil law tribunal may be compelled by statute to rebalance obligations.

---

[253] BERMANN G.A., Chapter 19: Applicable Law and the Civil and Common Law Divide, in COMAIR-OBEID N. e BREKOULAKIS S. (eds), *The Plurality and Synergies of Legal Traditions in International Arbitration: Looking Beyond the Common and Civil Law Divide*, Kluwer Law International, 2023, pp. 233–238.

[254] *Ibidem*; BORRIS C., Common Law and Civil Law: Fundamental Differences and their Impact on Arbitration, *Arbitration: The International Journal of Arbitration, Mediation and Dispute Management*, Vol. 60, 1994, available at: https://kluwerlawonline.com/journalarticle/Arbitration:+The+International+Journal+of+Arbitration,+Mediation+and+Dispute+Management/60.2/AMDM1994019.

[255] WYATT T.R., *Pandemics and Contractual Issues*, in National Academies of Sciences, Engineering, and Medicine, Washington, DC, The National Academies Press, 2024, available at: https://doi.org/10.17226/27954; https://nap.nationalacademies.org/read/27954/chapter/3.

[256] *Ibidem*.

[257] TRENOR J.A. e LIM H-S., Navigating Force Majeure Clauses and Related Doctrines in Light of the COVID-19 Pandemic, available at: https://www.wilmerhale.com/-/media/9d863f06f56f4c02a3bb79ec7ad4f0f0.pdf.

Interpretive methods also diverge. Common law emphasizes the text of the contract, reflecting the principle that sophisticated parties are best placed to allocate risks.[258] Civil law, instead, insists that contracts must be performed in good faith, and this principle shapes interpretation. These different approaches can lead to strikingly different outcomes.[259] For example, a liquidated damages clause will be strictly enforced in England unless it constitutes an unenforceable penalty, while in France or Italy the same clause might be reduced if deemed excessive. Similarly, the common law doctrine of "time at large," which invalidates liquidated damages where the employer prevents timely completion without providing an extension mechanism, has no equivalent in civil law, where statutory doctrines achieve balance.[260]

Cultural expectations add another layer. Parties from common law backgrounds often anticipate robust oral advocacy, cross-examination, and reliance on precedent. On the contrary, civil law parties expect dossier-based procedures, limited witness confrontation, and reliance on codified principles rather than judge-made law.[261] This can led to misunderstandings: for instance, a civil law contractor may expect good faith to soften a harsh clause, while a common law employer may expect strict enforcement of the contract.[262]

The question arises whether such divergences can be harmonized or not. In practice, arbitration often blends traditions pragmatically: tribunals invoke good faith to soften rigid clauses or stress predictability to guide interpretation. International standard contracts such as FIDIC, NEC, and JCT combine strict risk allocation with mechanisms for equitable adjustment. Yet some doctrines remain irreconcilable. The common law hostility to punitive remedies, illustrated by the penalty rule, cannot be reconciled with civil law's acceptance of penalty

[258] GILSON R.J., SABEL C.F. e SCOTT R.E., Text and Context: Contract Interpretation as Contract Design, *Cornell Law Review*, Vol. 100, Issue 1, November 2014, Article 1, available at: https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=4646&context=clr

[259] MEPHARISHVILI T., The Principle of Good Faith in Contractual Relations, *European Scientific Journal (ESJ)*, Vol. 21, 2025, available at: https://doi.org/10.19044/esj.2025.v21n39p162

[260] BELLHOUSE J. e COWAN P., Common Law "Time at Large" Arguments in a Civil Law Context, *Construction Law Journal*, No. 8, 2007, available at: https://atelierclaimadvisor.weebly.com/uploads/1/8/1/5/18150217/common_law_-_time_at_large_arguments_in_a_civil_law_context.pdf.

[261] LARZUL O.C., Doing Business in Civil Law Countries – What to Know to Avoid Major Pitfalls and Key Areas of Concern During the Negotiation Process, published 1 November 2019, available at: https://www.pecklaw.com/news/doing-business-in-civil-law-countries-what-to-know-to-avoid-major-pitfalls-and-key-areas-of-concern-during-the-negotiation-process/

[262] BERMANN, Applicable Law and the Civil and Common Law Divide, cit.

clauses.[263] Conversely, civil law's willingness to adapt contracts in hardship situations is alien to common law reasoning, which insists that tribunals should not rewrite bargains.[264]

Arbitration cannot erase centuries of legal evolution; it must navigate them. Awareness of structural divergences is essential, as the choice of governing law can alter outcomes in delay claims, liquidated damages, or hardship relief. Arbitrators must respect the integrity of the applicable system while crafting awards acceptable to parties from different traditions. International arbitration therefore manages, rather than dissolves, the divide between common law and civil law. The task is not to homogenize, but to mediate workable solutions.

The following sections will examine two illustrations, liquidated damages and the doctrine of time at large, that show how these divergences play out in practice in construction arbitration.

3.1.1 Liquidated damages

Liquidated damages clauses occupy a central position in construction contracts and vividly illustrate the divergence between common law and civil law traditions. Their function is to set in advance a sum payable in the event of delay, sparing the parties the burden of proving actual damages.[265] Yet its enforceability depends heavily on legal culture: what one system treats as a valid pre-estimate of loss, another may consider a disguised penalty; what one jurisdiction views as contractual autonomy, another may subject to judicial moderation.[266]

The peculiarities of construction explain why liquidated damages are so common. Projects are exposed to delay risks that cannot be precisely quantified at the time of contracting. Financing costs, lost opportunities, and supply-chain disruptions are foreseeable but impossible to calculate in advance. By stipulating a daily or weekly rate, usually capped at a percentage of the contract price, parties replace speculation with certainty and incentivize timely performance.[267] The resulting tension lies in whether this deterrent function can coexist with the compensatory logic that underpins damages.

---

[263] CALLEROS C., Punitive damages, liquidated damages, and clauses pénales in contract actions: A comparative analysis of the American common law and the French Civil Code, Brooklyn Journal of International Law, Vol. 32, No. 1, 2006, available at: https://brooklynworks.brooklaw.edu/cgi/viewcontent.cgi?article=1256&context=bjil

[264] *Ibidem.*

[265] SHI Z., The Relationship Between Interest and Liquidated Damages in Construction Contracts, *Asian Social Science*, Vol. 19, n. 4, 2023, p. 70, available at: https://doi.org/10.5539/ass.v19n4p70.

[266] LEBON C.H., *Liquidated Damages*, in *Government Contracting Database*, Cohen Seglias, updated 29 June 2018, available at: https://www.cohenseglias.com/government-contracting-database/liquidated-damages/.

[267] EGGLESTON B., *Liquidated Damages and Extensions of Time in Construction Contracts*, 3rd ed., Wiley-Blackwell, 2009.

In common law jurisdictions, the boundary is strict: to be enforceable, liquidated damages must represent a "genuine pre-estimate" of likely loss, while clauses considered extravagant or punitive are void.[268] This reflects a deep hostility towards penalties in contract law, where damages must compensate rather than punish. If a liquidated damages clause is struck down, the employer must prove actual loss, which constitutes a much heavier burden.[269]

Civil law systems take a different view: since, as noted above, they are influenced by codified doctrines of obligations and equity, they regard penalty clauses as legitimate tools to secure performance.[270] Courts and arbitrators will enforce them unless the amount is manifestly excessive, in which case they may reduce it to a proportionate level. In this framework, party autonomy is respected but tempered by judicial oversight, ensuring that outcomes remain consistent with fairness and good faith.[271]

The divergence between common and civil law approaches to liquidated damages produces significant practical consequences. For example, a clause stipulating, for example, liquidated damages at 0.5% of the contract price per week of delay (capped at 10%) might be enforceable in France or Italy, though subject to possible reduction, but void under English law if deemed punitive rather than compensatory.[272] For multinational projects, where the governing law is often determined by bargaining power or by standard forms such as FIDIC, this divergence can produce significantly different results.

Drafters of standard forms are acutely aware of these risks. FIDIC contracts, for example, specify both the daily rate and the maximum recoverable amount, reinforcing proportionality and enhancing the likelihood of cross-jurisdictional enforceability.[273] FIDIC clauses also often define triggering events, exclude force majeure, and require notices. Even so, enforceability cannot be guaranteed in transnational disputes, given the divergent approaches of different legal systems.

---

[268] OBEIDAT Y.M.G., The "Penalty" Clause in English Law: A Critical Analysis and Comparison with Jordanian Law, Doctoral Thesis, University of Leeds, July 2004, available at: https://etheses.whiterose.ac.uk/id/eprint/11265/1/412029.pdf.

[269] *Ibidem.*

[270] MACKAAY E., *The Civil Law of Contract*, SSRN Electronic Journal, January 2011, available at: https://doi.org/10.2139/ssrn.3554090.

[271] GOLDBERG K. e MAZZA E., *Damages Limitation Clauses in International Arbitration*, published 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/damages-limitation-clauses-in-international-arbitration

[272] HALL A., *Liquidated Damages Clauses vs. Penalties: Practical Drafting Tips*, available at: https://aaronhall.com/liquidated-damages-clauses-vs-penalties-drafting-tips/; SIMPSON M., *Liquidated Damages vs Penalty: Key Legal Differences*, UpCounsel, updated 8 August 2025, available at: https://www.upcounsel.com/liquidated-damages-vs-penalty.

[273] FIDIC, *Contracts Guidance on the Effects of Inflation and Unavailability of Goods and Labour Following the Global COVID-19 Pandemic and the War in Ukraine*, *FIDIC Guidance Memorandum*, March 2023, available at: https://www.fidic.org/sites/default/files/Guidance%20Memo%20-%20War%20memorandum_170323_final.pdf.

Arguments over liquidated damages often crystallize the larger philosophical divide. Employers stress the need for strict enforcement to secure performance and reflect commercial risks, while contractors argue that such clauses are punitive, especially when delays stem from complex or shared causes.[274] Arbitrators must assess whether a clause fairly allocates risk or functions as an oppressive device, an inquiry that draws them directly into the deeper divide between common law's certainty and civil law's fairness.[275]

For these reasons, liquidated damages are more than a technical device: they expose the structural divergence between traditions. Tribunals strive to respect the parties' bargain while ensuring enforceability, often borrowing reasoning across systems, invoking proportionality in common law settings or emphasizing contractual certainty in civil law contexts.[276] Yet the divide persists: liquidated damages remain a test case of differences too deeply embedded to be harmonized.

The following sections explore how each system conceives these clauses: first, the common law's "genuine pre-estimate" test, and second, civil law's treatment of penalty clauses under national codes.

3.1.1.1 Common law: The "genuine pre-estimate" test and its evolution

A suspicion of penalties in private contracts has long shaped English common law. By the early twentieth century this attitude crystallized in *Dunlop Pneumatic Tyre Co Ltd v. New Garage and Motor Co Ltd* (1915),[277] which established the "genuine pre-estimate of loss" test. The House of Lords upheld a clause requiring a distributor to pay a fixed sum for resale below an agreed price, holding that it was a legitimate attempt to forecast loss rather than a punitive sanction.[278] Lord Dunedin's judgment set guiding criteria: a clause would be upheld if it

[274] TORRES-FOWLER R.Z., BATES A. Jr e HARRELL D.E. Jr, *Contractor's Claims, Remedies and Reliefs*, published 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/contractors-claims-remedies-and-reliefs

[275] KLING M.W. e GAINES T.A., *Damages in Construction Arbitrations*, published 1 February 2021, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/4th-edition/article/damages-in-construction-arbitrations.

[276] PARTRIDGE SNOW & HAHN, *Strategies for Negotiating Liquidated Damage Clauses*, Client Alert, 17 June 2016, available at: https://www.psh.com/strategies-for-negotiating-liquidated-damage-clauses/.

[277] *Dunlop Pneumatic Tyre Co Ltd v. New Garage and Motor Co Ltd*, [1915] AC 79 (HL).

[278] CHIA S.J., *The Law on Liquidated Damages: A Comparative Approach Across Common Law Jurisdictions*, Hogan Lovells, 28 March 2022, available at: https://www.hoganlovells.com/en/publications/the-law-on-liquidated-damages-a-comparative-approach-across-common-law-jurisdictions.

reasonably estimated anticipated loss at the time of contracting, but struck down as a penalty if it was "extravagant and unconscionable."[279]

The *Dunlop* framework created a sharp distinction between compensatory provisions and punitive sanctions. Courts assessed whether the stipulated sum could reasonably be justified at the time of formation, without regard to the loss actually suffered.[280] This approach offered predictability, but in practice, disputes persisted over what qualified as a "genuine" estimate, especially in construction, where delay damages are often pre-agreed but difficult to quantify with precision.[281]

By the early twenty-first century, critics argued that the *Dunlop* test was too rigid for modern commerce, where parties seek not only to compensate loss but also to protect broader interests such as brand reputation, market stability, or deterrence of opportunistic breach. The UK Supreme Court responded in *Cavendish Square Holding BV v. Talal El Makdessi* ("Cavendish") and *ParkingEye Ltd v. Beavis* (2015; "Parking Eye") reformulating the penalty rule: while the "genuine pre-estimate" test remained relevant, enforceability turned on whether the clause imposed a detriment disproportionate to the innocent party's legitimate interest in enforcing the bargain.

This new framework broadened judicial tolerance for commercially justified clauses.[282] In *ParkingEye*, the Court upheld an £85 charge for overstaying in a car park, reasoning that the operator's interest in space management justified the fee even though it exceeded actual loss.[283] In *Cavendish*, a shareholder who breached restrictive covenants lost entitlement to further payments, a consequence upheld as protecting the company's goodwill.[284] These cases confirmed that legitimate commercial interests may extend beyond quantifiable loss.

Construction cases soon reflected this shift. In *Eco World-Ballymore Embassy Gardens Co Ltd v. Dobler UK Ltd* (2021), the High Court upheld liquidated damages for delay in a sectional completion contract, rejecting the argument that partial possession rendered the clause disproportionate.[285] The decision showed that courts will enforce liquidated damages

[279] *Ibidem.*
[280] CHERNYAVSKAYA A., The Penalty Doctrine: Protective or Punitive?, *Auckland University Law Review*, Vol. 23, 2017, pp. 147–170.
[281] *Ibidem.*
[282] SWAMINATHAN S., A Centennial Refurbishment of Dunlop's Emporium of Contractual Concepts, *Common Law World Review*, Vol. 45, nn. 2–3, 2016, pp. 248–256, available at: https://doi.org/10.1177/1473779516659025
[283] *ParkingEye Ltd v. Beavis*, [2015] UKSC 67.
[284] *Cavendish Square Holding BV v. Talal El Makdessi*, [2015] UKSC 67
[285] *Eco World-Ballymore Embassy Gardens Co Ltd v. Dobler UK Ltd*, [2021] EWCA Civ 660.

provisions that serve an employer's legitimate interest in timely completion, even if they do not match a strict pre-estimate of financial harm.[286]

Despite this flexibility, scrutiny remains rigorous. Clauses that are oppressive, extortionate, or disconnected from any identifiable interest are still struck down as penalties. The doctrine continues to embody the common law's resistance to punitive sanctions, but now through a proportionality test sensitive to commercial context.[287] For arbitration, this evolution has mixed consequences: on one hand, tribunals seated in England have greater latitude to uphold liquidated damages clauses where commercial rationale is clear. On the other, the broader inquiry requires deeper engagement with bargaining dynamics and party interests, increasing the complexity of disputes. Drafting practice has adapted by advising that parties should state expressly the commercial purpose behind stipulated damages to improve enforceability.[288]

In sum, the trajectory from *Dunlop* to *Cavendish* illustrates the adaptability of common law. The "genuine pre-estimate" test remains important but now serves as evidence rather than a decisive standard, supplemented by an inquiry into legitimate interests and proportionality. In construction arbitration, where liquidated damages are ubiquitous, this evolution reflects the common law commitment to contractual certainty, tempered by judicial oversight to prevent abuse.

The Australian position diverges markedly from the English one. In *Andrews v. ANZ* (2012; "Andrews"),[289] the High Court held that the penalty doctrine was not confined to secondary obligations triggered by breach, but could also extend to primary obligations, such as contractual fees, if they were penal in substance.[290] This theoretical expansion of the penalty rule suggested a broader supervisory role for courts, prompting concerns about judicial interference in commercial bargains. However, subsequent appellate decisions have narrowed the practical reach of *Andrews*. In *Australia Capital Financial Management Pty Ltd v. Linfield Developments Pty Ltd*[291] and *Arab Bank Australia Ltd v. Sayde Developments Pty Ltd*[292] the

[286] GLOVER J., *Eco World – Ballymore Embassy Gardens Company Ltd v. Dobler UK Ltd*, *Dispatch Newsletter*, Fenwick Elliott, 7 September 2021, available at: https://www.fenwickelliott.com/research-insight/newsletters/dispatch/archive/eco-world-ballymore-embassy-gardens-dobler-uk.

[287] HISCOCK M., *Construction Delays Go to VAR*, Wright Hassall, 10 January 2025, available at: https://www.wrighthassall.co.uk/knowledge-base/construction-delays-go-to-var.

[288] MCDONALD A., VAN DER HOORN I., *Damages in Arbitration – A Perspective from the UK*, Insight Article, Clyde & Co, 16 May 2025, available at: https://www.clydeco.com/en/insights/2025/05/damages-in-arbitration-a-perspective-from-the-uk

[289] *Andrews v. Australia and New Zealand Banking Group Ltd*, [2012] HCA 30.

[290] CHIA, *The Law on Liquidated Damages*, cit.

[291] *Australia Capital Financial Management Pty Ltd v. Linfield Developments Pty Ltd*, [2011] NSWSC 138.

[292] *Arab Bank Australia Ltd v. Sayde Developments Pty Ltd*, [2016] NSWCA 328.

New South Wales Court of Appeal upheld disputed provisions by emphasizing their proportionality to the protection of legitimate commercial interests. These cases illustrate that, despite the formal broadening of the rule in *Andrews*, Australian courts have generally adopted a hands-off approach, showing deference to contractual risk allocation unless a clause is egregiously disproportionate.[293]

Singaporean jurisprudence reflects yet another trajectory. In *Denka Advantech Pte Ltd v. Seraya Energy Pte Ltd* (2020),[294] the Court of Appeal explicitly rejected the Australian expansion, reasoning that extending the penalty doctrine to primary obligations would unduly constrain freedom of contract. At the same time, it declined to abolish the doctrine altogether, maintaining judicial control where a breach gives rise to disproportionate sanctions.[295] Importantly, the Singaporean courts also took the opportunity to scrutinize the *Cavendish* approach. While acknowledging its influence, they reaffirmed the relevance of the *Dunlop* test, emphasizing that the focus must remain on whether a clause provides a genuine pre-estimate of loss. In doing so, Singapore struck a more conservative balance: it preserved predictability by retaining the compensatory logic of *Dunlop* while avoiding wholesale adoption of the "legitimate interest" doctrine.[296]

These debates have further intersected with liquidated damages, particularly in the context of termination. In *Triple Point Technology Inc v. PTT Public Company Ltd* (2021; "*Triple Point*"),[297] the UK Supreme Court clarified that liquidated damages accrue up to the date of termination, even where the delayed works were not accepted, and that thereafter the employer may claim general damages.[298] The case also addressed the interaction with limitation of liability clauses, holding that carve-outs for "negligence" should be interpreted broadly to include contractual as well as tortious negligence. Singaporean case law has followed a similar path.[299] In *LW Infrastructure Pte Ltd v. Lim Chin San Contractors Pte Ltd* (2011),[300] the High

---

[293] FRASER H., *2017 WA Lee Lecture: The Australian Law of Contractual Penalties*, *QUT Law Review*, Vol. 18, Issue 2, 2017, pp. 111–136, available at: https://lr.law.qut.edu.au/article/download/763/706/763-1-2566-1-10-20190306.pdf

[294] *Denka Advantech Pte Ltd v. Seraya Energy Pte Ltd*, [2020] SGCA 119.

[295] CHIA, *The Law on Liquidated Damages*, cit.

[296] *Ibidem.*

[297] *Triple Point Technology Inc v. PTT Public Company Ltd*, [2021] UKSC 29.

[298] HOWE M., *UK Supreme Court Confirms Correct Approach to Application of Liquidated Damages Clauses When Work Not Completed*, Blog *International Arbitration Legal Developments*, WilmerHale, 19 August 2021, available at: https://www.wilmerhale.com/en/insights/blogs/international-arbitration-legal-developments/20210819-uk-supreme-court-confirms-correct-approach-to-application-of-liquidated-damages-clauses-when-work-not-completed.

[299] *Ibidem.*

[300] *LW Infrastructure Pte Ltd v. Lim Chin San Contractors Pte Ltd*, [2011] SGCA 6.

Court held that accrued rights to liquidated damages survive termination, a position effectively confirmed by the UK Supreme Court's reasoning in *Triple Point*. Both jurisdictions thus converge on the principle that accrued liquidated damages remain enforceable, preserving commercial certainty in construction projects where delays are common and damages difficult to prove.[301]

Taken together, these developments reveal that common law jurisdictions share a historical suspicion of punitive sanctions, but their modern responses diverge significantly. English law has recalibrated the doctrine by linking it to legitimate interests; Australian law has expanded it in theory but applied it cautiously in practice; and Singaporean law has deliberately retained a narrower, compensatory focus.[302]

For international construction arbitration, this fragmented common law landscape means that the enforceability of penalty and liquidated damages clauses depends heavily on the governing law chosen by the parties. This stands in sharp contrast to civil law systems, where such clauses are generally accepted as legitimate but subject to judicial moderation for proportionality, as the following section will demonstrate.[303]

3.1.1.2 Civil law: Penalty clauses under Italian, French and German codes

Civil law systems approach liquidated damages differently from common law systems. Rather than distinguishing strictly between valid liquidated damages and unenforceable penalties, civil law systems fold both into the broader category of penalty clauses (*clauses pénales, clausole penali, Vertragsstrafe*). These clauses are accepted as legitimate incentives to perform, and deterrence is not considered inherently illegitimate.[304] The key safeguard is proportionality: if a clause is manifestly excessive, courts or arbitrators may reduce it rather than nullify it. This reflects a conception of contractual justice that privileges fairness and judicial moderation alongside party autonomy.[305]

---

[301] WALDEK D. e LIM T.W., *Singapore Appellate Court Confirms Validity of Delay Liquidated Damages on Termination*, Herbert Smith Freehills, 7 February 2023, available at: https://www.hsfkramer.com/notes/construction/2023-02/singapore-appellate-court-confirms-validity-of-delay-liquidated-damages-on-termination.

[302] CHIA, *The Law on Liquidated Damages*, cit.

[303] GOLDBERG K. e MAZZA E., *Damages Limitation Clauses in International Arbitration*, in *The Guide to Damages in International Arbitration*, 6th ed., Global Arbitration Review, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/damages-limitation-clauses-in-international-arbitration.

[304] HATZIS A.N., Having the Cake and Eating It Too: Efficient Penalty Clauses in Common and Civil Contract Law, *International Review of Law and Economics*, Vol. 22, Issue 4, December 2002, pp. 381–406, available at: https://doi.org/10.1016/S0144-8188(02)00111-4.

[305] *Ibidem.*

The Italian Civil Code illustrates this balance: Article 1382 recognizes that parties may predetermine damages in the event of breach or delay, limiting compensation to the agreed amount; however, Article 1384 empowers courts to reduce penalties that are "manifestly excessive." Italian courts regularly exercise this discretion, especially in construction contracts where employers impose heavy daily penalties for delay. The principle of proportionality guides reductions, ensuring that stipulated amounts bear a reasonable relationship to anticipated harm.[306] Article 1256 further tempers penalties by extinguishing obligations rendered impossible by circumstances beyond the debtor's control, a doctrine relied upon during the COVID-19 pandemic when restrictions made performance impracticable.[307]

French law provides one of the most influential models: Article 1231-5 of the *Code civil* authorizes judges to reduce or increase an agreed penalty if it is manifestly excessive or trivial. This statutory power of *réduction judiciaire* expresses the French commitment to contractual balance: penalties are valid in principle, but they must remain equitable; indeed, courts have frequently exercised this power in construction disputes, cutting daily penalties that would otherwise exceed the value of the works. French law thus treats penalty clauses as both enforceable and subject to recalibration in the interests of fairness.[308]

The German Civil Code follows a similar logic: Section 339 recognizes the validity of contractual penalties for non-performance, while Section 343 empowers courts to reduce penalties deemed disproportionately high. General provisions on unfair contract terms (Sections 305–307 Bürgerliches Gesetzbuch) also apply, preventing stronger parties from imposing oppressive penalties in standard-form contracts. German courts have reduced penalties in public procurement cases where stipulated daily amounts far exceeded the employer's actual exposure.[309] The German Federal Court of Justice has also emphasized that while penalties may secure performance, they cannot serve as a vehicle for unjust enrichment.

---

[306] PATTI F.P., Penalty Clauses in Italian Law, *European Review of Private Law*, Vol. 23, Issue 3, 2015, pp. 309–325, available at: https://doi.org/10.54648/erpl2015025

[307] SALSI G. e VASCELLARI B., *COVID-19: "I Started Something I Couldn't Finish" – Legal Consequences of the Pandemic on Contracts Governed by Italian Law*, K&L Gates, 19 March 2020, available at: https://www.klgates.com/COVID-19-I-Started-Something-I-Couldnt-Finish---Legal-Consequences-of-the-Pandemic-on-Contracts-Governed-by-Italian-Law-03-19-2020

[308] MARÍN GARCÍA I., *Enforcement of Penalty Clauses in Civil and Common Law: A Puzzle to Be Solved by the Contracting Parties*, *European Journal of Legal Studies*, Spring/Summer 2012, available at: https://ejls.eui.eu/wp-content/uploads/sites/32/pdfs/Spring_Summer2012/ENFORCEMENT_OF_PENALTY_CLAUSES_IN_CIVIL_%20AND_COMMON_LAW_.pdf

[309] HOEPPNER J., *On Liability and Liability Clauses in German Law*, *JBB's Blog on German and European Technology and Data Privacy Law*, 12 June 2012, available at: http://germanitlaw.com/on-liability-and-liability-clauses-in-german-law/

Although Italy, France, and Germany articulate their rules differently, the structure is consistent: penalty clauses are valid unless disproportionate, in which case the court reduces them to a reasonable level. Unlike common law, which voids clauses deemed punitive, civil law moderates them. The difference does not lie in whether agreed damages are legitimate, but in how excess is corrected: invalidation in common law, judicial reduction in civil law.[310]
For international arbitration, the divergence is significant: a clause that would be void under English law as a penalty may still be enforceable, though reduced, in France, Italy, or Germany. This makes civil law systems less likely to annul liquidated damages clauses outright, but it also introduces uncertainty, since parties cannot know in advance whether a tribunal will enforce the full amount.[311] Critics see this flexibility as undermining predictability; defenders argue it preserves contractual justice by preventing windfall gains or oppressive burdens.[312]

3.1.2 The "time at large" doctrine

The "time at large" doctrine reflects the common law's application of the prevention principle, rooted in the maxim "no one may benefit from their own wrong", whereby an employer cannot enforce a fixed completion date if its own conduct has caused or prevented timely performance.[313] In construction contracts, the doctrine applies where the employer undermines the agreed completion date and the contract provides no effective mechanism for adjustment.[314] The fixed date is displaced and the contractor's obligation becomes one of completing the works within a "reasonable time," judged in light of the project circumstances.[315] The consequence of this is that the employer loses the right to liquidated damages tied to the original completion date. Time at large thus operates as the legal corollary of the prevention principle meaning that a party cannot benefit from its own interference with performance.[316]

---

[310] HATZIS, Having the Cake and Eating It Too: Efficient Penalty Clauses in Common and Civil Contract Law, cit.
[311] RINCÓN ORDÓÑEZ R. e GUERRA TORO J.I., Non-compensatory Damages in International Arbitration, in The Guide to Damages in International Arbitration, 6th ed., Global Arbitration Review, 21 June 2024, available at:
https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/non-compensatory-damages-in-international-arbitration.
[312] *Ibidem.*
[313] YULE I., The Prevention Principle and Time at Large, Shoosmiths, 6 March 2018, available at: https://www.shoosmiths.com/insights/articles/prevention-principle-time-at-large-13853.
[314] VERMEERSCH B., Construction Contracts: How the "Time at Large" Remedy Could Resolve Pandemic Project Disputes, Lexpert, 7 June 2021, available at: https://www.lexpert.ca/news/legal-insights/construction-contracts-how-the-time-at-large-remedy-could-resolve-pandemic-project-disputes/356573.
[315] RUSSELL V., Duties and liabilities of construction professionals, Capital Projects in the Education Sector, November 7, 2006, available at:
https://www.fenwickelliott.com/sites/default/files/Other%203%20-%20Duties%20and%20Liabilites.pdf
[316] YULE, The Prevention Principle and Time at Large, cit.; BEG M.A., Time at Large: Concept and How It Applies, Robert Gordon University, November 2019, available at:

This doctrine is particularly significant in construction arbitration because of the industry's reliance on liquidated damages to manage delay. As noted in Chapter II above, liquidated damages clauses are closely linked to EOT provisions. Where these provisions are absent, inadequate, or misapplied, the employer risks setting time at large.[317] The contrast between civil law and common law in this respect is stark: civil law jurisdictions possess statutory mechanisms such as *imprévision*, *Störung der Geschäftsgrundlage*, or *eccessiva onerosità sopravvenuta*, which allow courts or tribunals to adjust obligations directly when unforeseen events upset the contractual balance; common law, by contrast, offers no statutory safety net; it relies on the parties' contractual machinery, and when that fails, the time at large doctrine intervenes.[318]

Judicial precedents illustrate both the reach and the limits of this doctrine: in *Henry Boot Construction (UK) Ltd v. Malmaison Hotel (Manchester) Ltd*[319] and later in *Walter Lilly & Company Ltd v. Giles Patrick Cyril Mackay and DMW Developments Ltd,*[320] English courts confirmed that contractors are entitled to extensions when employer-related events cause delay, and that the employer cannot rely on liquidated damages in such circumstances.[321] Scottish law, in *City Inn v. Shepherd*,[322] went further by apportioning concurrent delays, reflecting the complexity of modern projects. Yet in *North Midland Building v. Cyden Homes*,[323] the Court of Appeal of England and Wales enforced bespoke drafting that excluded extensions for concurrent delay, underscoring the common law's prioritization of contractual freedom even where it narrowed the protection of the prevention principle.[324] These decisions show that while time at large shields contractors against employer interference, its effect can be limited by precise drafting.

For arbitral tribunals, the doctrine highlights the tension between certainty and fairness in delay management: employers value liquidated damages for their predictability, while contractors

https://www.researchgate.net/publication/338670577_TIME_AT_LARGE_Concept_and_how_it_applies.

[317] ABRAMS C., Construction Contracts and the Prevention Principle: Application in Practice, Channing Law, 3 May 2023, available at: https://channing-law.co.uk/construction-contracts-prevention-principle/.

[318] BERMANN, Chapter 19: Applicable Law and the Civil and Common Law Divide, cit.

[319] *Henry Boot Construction (UK) Ltd v. Malmaison Hotel (Manchester) Ltd, [1999] C.L.C. 1537.*

[320] *Walter Lilly & Company Ltd v. Giles Patrick Cyril Mackay and DMW Developments Ltd, [2012] EWHC 1773 (TCC).*

[321] WARNOCK D. e ARMITAGE A.J., Freedom of Contract Trumps the Doctrine of Prevention, Norton Rose Fulbright, September 2018, available at: https://www.nortonrosefulbright.com/en/knowledge/publications/42101f1a/freedom-of-contract-trumps-the-doctrine-of-prevention.

[322] *City Inn Ltd v. Shepherd Construction Ltd, [2007] CSOH 190.*

[323] *North Midland Building Ltd v. Cyden Homes Ltd, [2018] EWCA Civ 1744.*

[324] PROTRAIN, 'Doctrine of Prevention' in Construction Contracts Law, LinkedIn, 29 September 2024, available at: https://www.linkedin.com/pulse/doctrine-prevention-construction-contracts-law-protrain-h0uvf/.

invoke time at large to resist enforcement where employer conduct has disrupted the program.[325] Unlike the forensic analyses of causation and quantification described in Chapter II, this doctrine rests on the legal principle according to which if the employer invalidates the contractual timetable, it forfeits liquidated damages. Modern standard forms, particularly FIDIC, have developed detailed EOT machinery to prevent time being set at large, but in arbitration involving non-standard contracts or poorly administered procedures, the doctrine remains a live issue.[326]

The COVID-19 pandemic provided a recent illustration of the potential operation of the time at large doctrine. Lockdowns and supply chain disruptions exposed the fragility of contractual time provisions. In Canadian debates, courts and commentators revisited whether employer-related delays during the pandemic could set time at large where no adequate EOT clause existed.[327] Although most tribunals preferred to rely on force majeure clauses, the renewed attention showed the continuing relevance of time at large as a "safety valve" when contractual frameworks collapse.[328]

In the context of international construction arbitration, the time at large doctrine underscores how different legal traditions respond to the same problem, namely employer-caused delay, with very different tools.

In common law, courts do not rewrite the bargain but annul liquidated damages if employer prevention has destroyed the contractual completion date. In civil law, instead, statutory doctrines allow affirmative adjustment of obligations, preserving the contractual timetable rather than displacing it. This explains why time at large rarely features in civil Law arbitration: delay is managed through codified principles of good faith, proportionality, or hardship.[329]

This doctrine, rooted in common law's emphasis on contractual freedom, stands in sharp contrast to civil law systems, which provide statutory mechanisms to adjust contracts in the face of unforeseen hardship. The next section explores this divergence in detail.

---

[325] PARK E.Y., SHARPE Z., HAN S. e KO H., Mandatory Laws and Extra-Contractual Claims, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/mandatory-laws-and-extra-contractual-claims.

[326] CHRISTENSEN M.J., PARK D. e KWON J.H., Non-FIDIC Standard Form Construction Contracts, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/non-fidic-standard-form-construction-contracts.

[327] VERMEERSCH B., Construction contracts: how the "time at large" remedy could resolve pandemic project disputes, cit.

[328] *Ibidem;* BEG M.A., Time at Large: Concept and How It Applies, cit.

[329] PEJOVIC C., Civil Law and Common Law: Two Different Paths Leading to the Same Goal, Victoria University of Wellington Law Review, Vol. 32, No. 3, 2001, available at: https://doi.org/10.26686/vuwlr.v32i3.5873.

3.1.2.1 English law's strict contractualism vs. civil law's *rebus sic stantibus* adaptations

English law has long adhered to a strict contractualist philosophy, reflecting the conviction that commercial parties are best placed to allocate risks at the drafting stage. Rooted in *pacta sunt servanda* and reinforced by doctrines such as consideration and freedom of contract, this approach leaves little room for judicial interference once the bargain has been struck.[330] Relief in the face of unforeseen circumstances is confined to narrowly construed doctrines such as frustration, which operates only when an event renders performance radically different from what was originally undertaken.[331] As a result, tribunals applying English law will ordinarily enforce the contract as written, even where performance has become more onerous, unless the parties themselves have provided mechanisms, such as force majeure or extension-of-time clauses, to redistribute risk.[332]

Civil law jurisdictions, by contrast, incorporate into their positive law the principle of *rebus sic stantibus*, which recognizes that contractual obligations cannot be understood in isolation from the circumstances in which they operate.[333] Doctrines such as *imprévision* in France (Article 1195 *Code civil*), *Störung der Geschäftsgrundlage* in Germany (Section 313 BGB), and *eccessiva onerosità sopravvenuta* in Italy (Articles 1467–1469 c.c.) empower courts and arbitral tribunals to modify or even terminate contracts when unforeseen events fundamentally alter the contractual equilibrium.[334] The objective is not to undermine the stability of contracts but to preserve their viability by restoring fairness and proportionality, particularly in long-term relationships where rigid enforcement would defeat the contract's purpose.[335]

In the construction sector, where projects often span several years and are exposed to geopolitical shocks, inflationary spikes, and supply chain crises, the practical consequences of these divergent philosophies are considerable. Under English law, a sudden escalation in material costs or state-imposed restrictions will not excuse performance unless expressly

[330] ELLIOTT A., Applicable Law for Construction and Engineering Contracts: Constraints on Freedom of Choice, Pinsent Masons, 23 November 2023, available at: https://www.pinsentmasons.com/out-law/analysis/applicable-law-construction-engineering-contracts; KULL I., Pacta Sunt Servanda versus Clausula Rebus Sic Stantibus, Juridica International, Vol. VI, 2001.
[331] SUTHERLAND T., How Can a Commercial Contract Protect My Business from Unforeseen Circumstances?, LegalVision, updated 29 May 2024, available at: https://legalvision.co.uk/commercial-contracts/contract-protection-unforeseen-circumstances/.
[332] *Ibidem.*
[333] MARCHISIO G., Rebus Sic Stantibus: A Comparative Analysis for International Arbitration, 11 July 2012, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2103641.
[334] SALIBA A.T., Rebus Sic Stantibus: A Comparative Survey, Murdoch University Electronic Journal of Law, Vol. 8, No. 3, September 2001, available at: https://classic.austlii.edu.au/au/journals/MurUEJL/2001/18.html.
[335] *Ibidem.*

covered by contractual clauses.[336] Under civil law, by contrast, the same circumstances may trigger statutory adjustment, allowing contractors to seek judicial or arbitral rebalancing even in the absence of specific provisions.[337] This explains why civil law systems are often perceived as offering a statutory "safety net," whereas English law requires meticulous drafting to anticipate and allocate extraordinary risks.

For international arbitration, the divergence creates both challenges and opportunities. It compels tribunals to navigate between certainty and equity, respecting the governing law while ensuring outcomes that remain commercially workable.[338] It also shapes the procedural strategies of the parties: employers invoking English law will typically emphasize the sanctity of the bargain and resist judicial modification, while contractors under civil law may rely on hardship doctrines to argue for renegotiation or adaptation.[339]

Understanding this structural divide is therefore essential, as it can decisively influence the resolution of disputes over delay, cost overruns, or force majeure in cross-border construction projects.

Notwithstanding these structural divergences, arbitral practice increasingly seeks pragmatic solutions that blend predictability with fairness.

The following section addresses these mechanisms of harmonization.

3.2 Harmonization in practice

The sharp contrasts outlined in the previous section may suggest that civil and common law approaches are destined to remain fundamentally opposed. Arbitration practice, however, reveals a more nuanced picture. Although structural divergences continue to shape legal reasoning, arbitral tribunals, practitioners, and contract drafters have developed strategies to reduce their practical impact. What emerges is not a theoretical unification of systems, but a gradual convergence in the way disputes − particularly those involving delay damages in construction projects − are managed, argued, and ultimately resolved.[340]

---

[336] MCCALLUM, HOAGLUND & MCCALLUM, The Evolution of Construction Law Guidance, 2 August 2024, available at: https://mhmfirm.com/articles/the-evolution-of-construction-law-guidance/.

[337] FITUCH M., How Will the *Rebus Sic Stantibus* Clause Affect Contracts Because of COVID-19?, The Impact Lawyers, available at: https://theimpactlawyers.com/articles/how-will-the-rebus-sic-stantibus-clause-affect-contracts-because-of-covid-19.

[338] MARCHISIO G., Rebus Sic Stantibus: A Comparative Analysis for International Arbitration, cit.

[339] *Ibidem.*

[340] ELSING S.H. e TOWNSEND J.M., Bridging the Common Law–Civil Law Divide in Arbitration, Hughes Hubbard & Reed, available at: https://www.hugheshubbard.com/news/bridging-the-common-law-civil-law-divide-in-arbitration.

This process reflects the pragmatic nature of arbitration itself. International construction disputes rarely unfold within a single legal culture; on the contrary, the contracts are multinational, arbitrators often come from diverse backgrounds, and awards circulate across different jurisdictions under the New York Convention. In this environment, strict adherence to one tradition risks alienating parties from another or even undermining the enforceability of the award. Tribunals are therefore pushed toward solutions that resonate across systems, combining the evidentiary pragmatism of common law (for instance, reliance on detailed delay analysis to prove causation) with the corrective principles of civil law (such as proportionality in moderating damages).[341] In this context, harmonization does not mean erasing differences, but rather cultivating methods that allow them to coexist without paralyzing dispute resolution.
The instruments used to achieve this harmonization are varied. They include soft-law instruments − such as the UNIDROIT Principles or the UNCITRAL Model Law − which provide an important transnational vocabulary that arbitrators can invoke when dealing with disputes over liquidated damages, extensions of time, or unforeseen disruptions. They also include industry protocols, notably the Society of Construction Law Delay and Disruption Protocol, which promote uniformity by proposing methodologies − such as contemporaneous delay analysis − that are acceptable in both civil and common law settings.[342]
At the same time, the contractual landscape has evolved: standard forms like FIDIC, NEC, and AIA deliberately incorporate features drawn from both traditions, creating a hybrid framework for managing claims over delay and disruption.[343] In practice, these contracts function almost like a private form of legislation, offering parties a predictable environment where even complex delay damages claims are channeled into familiar and widely accepted procedures.
Over time, arbitral reasoning itself has become a harmonizing force. Awards in high-value construction disputes have gradually generated a body of practice sometimes referred to as a *lex constructionis*.[344] This emerging transnational jurisprudence illustrates how arbitrators, faced with the necessity of producing commercially sensible and enforceable outcomes, borrow

[341] CASE B.S., What to Do When Contract Performance Is Delayed?, CIC Law, available at: https://ciclaw.com/articles/what-to-do-when-the-contract-performance-is-delayed/.
[342] ELSING S.H. e TOWNSEND J.M., Bridging the Common Law–Civil Law Divide in Arbitration, cit.
[343] YOO B. e LEE S.-W., The Annual ICC FIDIC Conference Recap (Part I): Challenges and Emerging Trends in Construction Dispute Resolution, Wolters Kluwer Arbitration Blog, 5 November 2024, available at: https://legalblogs.wolterskluwer.com/arbitration-blog/the-annual-icc-fidic-conference-recap-part-i-challenges-and-emerging-trends-in-construction-dispute-resolution/.
[344] ZHARIKOV A., Lex Constructionis: A Failed Transnational Construction Law Concept?, Construction Law Journal, Vol. 41, No. 3, May 2025, pp. 99–114, available at: https://www.researchgate.net/publication/391595728_Lex_constructionis_a_failed_transnational_construction_law_concept_Published_in_Construction_Law_Journal_2025_413_99-114.

arguments across traditions. For instance, arbitrators may invoke proportionality to temper a punitive damage clause, or emphasize certainty to discipline overly broad claims for consequential delay damages. In doing so, they build bridges between civil law's concern for fairness and common law's emphasis on predictability, ensuring that awards are both acceptable to parties and enforceable across jurisdictions.[345]

Harmonization in practice is thus best understood as a process of selective borrowing and pragmatic adaptation: the divergences remain real, as shown in the different treatment of liquidated damages or concurrent delays, but they are managed through hybrid reasoning, transnational instruments, and the widespread use of standard contracts.

The following sections illustrate this dynamic in concrete terms by analyzing: (i) the acceptance of Critical Path Analysis in civil law jurisdictions; (ii) the enduring appeal of English law as a reference point for international construction contracts; (iii) the unifying role of standard forms; and (iv) the blending of good faith and certainty in arbitral awards. Together, these examples show that arbitration does not dissolve the civil-common law divide, but rather it transforms it into a more manageable and productive tension, particularly in the sensitive field of delay damages.[346]

3.2.1 The critical path analysis in civil law jurisdictions

The integration of the Critical Path Analysis into construction arbitration has presented particular challenges in civil law jurisdictions. While common law systems, with their adversarial procedures, have long accepted CPA as a reliable method of demonstrating causation and delay, civil law tribunals, operating within codified frameworks and inquisitorial traditions, have had to reconcile its use with statutory obligations and general principles such as causation, proportionality, and good faith.[347]

One area of divergence lies in the treatment of expert evidence: in many common law proceedings, parties present competing experts who employ different methodologies (e.g., as-planned vs. as-built, time impact, or windows analyses), often leading to tactical disputes. By contrast, civil law traditions tend to emphasize tribunal-appointed experts, who deliver a single

[345] SESSLER A., CHAKRABARTI S. e STEIN M., Compensatory Damages Principles in Civil and Common Law Jurisdictions, cit.
[346] *Ibidem*.
[347] YANG J.-B. e KAO C.-K., Critical Path Effect Based Delay Analysis Method for Construction Projects, International Journal of Project Management, Vol. 30, Issue 3, April 2012, pp. 385–397, available at: https://doi.org/10.1016/j.ijproman.2011.06.003

neutral assessment.[348] In international arbitration proceedings seated in civil law jurisdictions, both models may appear, but the tendency toward tribunal-appointed expertise shapes CPA's role: rather than serving primarily as an adversarial instrument, CPA functions as an impartial technique to reconstruct project timelines and assess delay. This enhances objectivity but reduces the tactical flexibility that parties might exploit in adversarial settings.[349]

The evidentiary role of CPA is also conditioned by codification. Civil codes typically set out causation and damages in broad terms without mandating specific methodologies. As a result, CPA does not operate as a doctrine of law but as a technical means of substantiating claims within statutory frameworks.[350] Tribunals use CPA to supply factual precision, while principles such as proportionality (France, Italy) or good faith guide the legal consequences of delay. The emphasis on documentary evidence in civil law systems strengthens this approach: strict duties to preserve contemporaneous records, whether derived from codified obligations or tribunal procedure, align closely with CPA's reliance on accurate project data, reinforcing its probative value.[351]

Regional developments illustrate how codified systems are evolving: the UAE Civil Code does not expressly regulate concurrent delays, yet arbitral practice has relied on CPA to disentangle overlapping causes and allocate responsibility.[352] Saudi Arabia's Civil Transactions Law of 2023 goes further, explicitly referencing concurrency, thereby signalling legislative recognition of structured analytical tools in delay assessment.[353] These developments underscore both the practical necessity of CPA in modern construction disputes and its gradual acceptance within statutory frameworks.[354]

The broader significance of CPA's growing acceptance lies in its contribution to harmonization: as large-scale, cross-border projects often involve parties from both common

---

[348] COHEN A.M., Construction Contracts: Provisions Regarding Dispute Resolution, Benjamin, Bain, Howard & Cohen, LLC, 4 October 2018, available at: https://www.lorman.com/resources/construction-contracts-provisions-regarding-dispute-resolution-17365?srsltid=AfmBOora5nrHfY2XGMpKh_NNO2trLWNC6nonRCB9gCZCZkoftOwXFKm0.

[349] GRIPPA J., Emerging Trends in Construction Arbitration: Adapting to a Changing Landscape, Miles Mediation and Arbitration, 8 May 2024, available at: https://milesmediation.com/blog/emerging-trends-in-construction-arbitration-adapting-to-a-changing-landscape/.

[350] KENTON W., Critical Path Analysis (CPA): Definition, Purpose, and Example, Investopedia, updated 27 June 2025, available at: https://www.investopedia.com/terms/c/critical-path-analysis.asp.

[351] YANG e KAO, Critical Path Effect Based Delay Analysis Method, cit.

[352] HEWAGE C.V., Concurrent delay in construction contracts: a deep dive from a UAE legal perspective, June 12, 2025, available at: https://www.linkedin.com/pulse/concurrent-delay-construction-contracts-deep-dive-uae-mphil-bec-r--hlt5c/.

[353] Kingdom of Saudi Arabia Civil Code: General Principles of Contract Law - The Formation of Contracts, Insight Article, Clyde & Co, 13 July 2023, available at: https://www.clydeco.com/en/insights/2023/07/the-saudi-civil-transactions-law-general-principle; Saudi Arabia's Civil Transactions Law, International Bar Association, 25 July 2024, available at: https://www.ibanet.org/clint-june-2024-feature-3.

[354] *Ibidem.*

law and civil law traditions, CPA provides a structured, universally intelligible framework for analyzing delays. It thus bridges civil law's reliance on codified obligations with common law's pragmatic embrace of managerial techniques. While subordinated to codified standards, CPA enriches arbitration practice by enhancing factual clarity, enabling more accurate allocation of responsibility, and advancing the broader trend toward convergence in international construction arbitration.[355]

3.2.1.1 Italian courts' gradual adoption of CPA despite no statutory basis

The gradual incorporation of Critical Path Analysis into Italian judicial and arbitral practice illustrates how civil law jurisdictions can absorb methodologies developed in common law or managerial contexts. Unlike France or Germany, where courts have long combined flexible codified principles such as proportionality and good faith with a pragmatic openness to technical tools, Italy was slower to embrace CPA as an evidentiary methodology. Yet over the past two decades, Italian courts have increasingly recognized its utility in clarifying causation, apportioning liability, and resolving delay disputes in construction.[356]

The absence of prescribed evidentiary rules in arbitration grants tribunals broad discretion in evaluating proof. This discretion has facilitated the judicial acceptance of CPA − once regarded as a purely managerial tool − as a rigorous methodology for substantiating claims for extensions of time and damages. However, its probative value is contingent upon its foundation in contemporaneous project records and its validation through expert testimony.[357]

The process has been incremental. Early Italian arbitral practice and trial judgments acknowledged CPA but were generally reluctant to rely on it exclusively. Concerns centered on data quality: CPA requires accurate baselines and regular updates, which are often missing in Italian projects, especially in public procurement with fragmented record-keeping.[358] Over time, however, judges realized that traditional documentary review and witness testimony were

[355] GRIPPA J., Emerging Trends in Construction Arbitration: Adapting to a Changing Landscape, Miles Mediation and Arbitration, cit.
[356] MCSORLEY M. e CHAUDHARY I., Criticality in Construction Claims, cit.
[357] CAHER C., KRUEGER M. e CAI X., Documents and Other Types of Evidence in Construction Disputes, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/documents-and-other-types-of-evidence-in-construction-disputes.
[358] VITA G., FERRARA P.L. e PATTI A., Analysis of Time Duration of Civil Disputes in Italy: A Case Study with Microdata from Sicilian Courts, The Annals of Regional Science, Vol. 74, No. 1, March 2025, pp. 1–30, available at: https://ideas.repec.org/a/spr/anresc/v74y2025i1d10.1007_s00168-024-01340-8.html; MCSORLEY M. e CHAUDHARY I., Criticality in Construction Claims, cit.

insufficient for complex disputes, whereas CPA offered a structured framework for mapping critical activities and transparently allocating responsibility for delay.[359]

Recent judicial developments, although not directly involving CPA, reinforce this openness. In several 2024 decisions (e.g., nos. 4427, 7375, and 7635),[360] the *Corte di Cassazione* examined novel contractual arrangements and questions of admissibility in credit assignment transactions.[361] While unrelated to construction scheduling, these cases illustrate the Court's willingness to interpret existing law flexibly in order to accommodate evolving practices. Read in context, these judgments suggest increasing judicial receptivity to analytical methodologies like CPA.[362]

Legislative reforms have also supported this shift. While no statute expressly mandates CPA, reforms in public procurement law and the *Riforma Cartabia* (*Legislative Decree No. 149 of 10 October 2022*) emphasized efficiency, transparency, and modernization of dispute resolution, aligning Italy with EU directives.[363] These reforms created a climate in which CPA is seen less as a foreign import and more as a practical tool advancing judicial efficiency and fairness.[364]

Notwithstanding this, challenges remain, as CPA depends on reliable data and parties' willingness to maintain contemporaneous records, something Italian contractors and employers

[359] BREKOULAKIS S. e THOMAS D.B. (eds), The Guide to Construction Arbitration, 4th ed., Law Business Research Ltd, 2021, available at: https://www.debevoise.com/-/media/files/pdf/gar-guide-to-construction/pdf1.pdf; GIBBS S., The Status of the Society of Construction Law Delay and Disruption Protocol, Built Intelligence, 31 January 2025, available at: https://www.builtintelligence.com/blogs/home/the-status-of-the-society-of-construction-law-delay-and-disruption-protocol-by-sean-gibbs?srsltid=AfmBOoptNVGIe-Tt-Y31Jox75SfV-TI2EPl6nJzEwGHqYP2fkOYsjhh9.

[360] *Corte di Cassazione, [2024] No. 4427; Corte di Cassazione, [2024] No. 7375; Corte di Cassazione, [2024] No. 7635*.

[361] COZZI F., The Italian Supreme Court Paves the Way to Further Expansion of Litigation Funding in Italy, National Law Review, 5 August 2024, available at: https://natlawreview.com/article/italian-supreme-court-paves-way-further-expansion-litigation-funding-italy; NORTON ROSE FULBRIGHT, A Modernization of Italian Arbitration Law, May 2023, available at: https://www.nortonrosefulbright.com/en-sg/knowledge/publications/f3baa1b1/a-modernization-of-italian-arbitration-law.

[362] *Ibidem.*

[363] DEGLI ESPOSTI A., The Italian Legal Market for the Year 2022: State of Play and Steps Ahead, Chambers, 24 February 2023, available at: https://chambers.com/articles/the-italian-legal-market-for-the-year-2022-state-of-play-and-steps-ahead-3; JALILVAND N.S., A New Era of Procurement: Understanding Design Levels in Italy's 2023 Code, Master's Thesis, Politecnico di Milano, 2023, available at: https://www.politesi.polimi.it/retrieve/b63cb3d5-2f0b-4b46-bd3a-cf17a56a74e6/A%20New%20Era%20of%20Procurement-Understanding%20Design%20Levels%20in%20Italy%27s%202023%20Code%20%28Decreto%20Legislativo%2031%20Marzo%202023%20n.%2036%29%20.pdf.

[364] *Ibidem.*

have historically resisted, often preferring *ex post* negotiation.[365] This cultural factor has slowed CPA's spread. Moreover, courts also avoid elevating CPA into a binding standard, treating it instead as one element among a broader evidentiary framework that includes witness testimony, contractual documents, and expert analysis.[366]

Despite these limits, the trend is unmistakable. Italian courts are progressively incorporating CPA, recognizing its capacity to clarify causation and allocate responsibility transparently.[367] Over time, this trend may prompt two consequences: statutory recognition of CPA as an admissible evidentiary tool, and greater industry pressure on contractors and employers to adopt CPA proactively during projects to protect their legal positions.[368]

In conclusion, Italy demonstrates how civil law jurisdictions can gradually integrate non-statutory methodologies without abandoning codified foundations. CPA remains subordinated to general principles of causation and damages, but its acceptance shows a pragmatic judicial turn: courts are prepared to use analytical tools that make complex disputes more manageable.[369] This careful but steady adoption illustrates how harmonization in practice often occurs, not through sweeping legislation, but through judicial willingness to bridge engineering practice and legal reasoning.

3.2.2 The prevalence of English Law in international construction contracts

The choice of English law as the governing law of international construction contracts is one of the most striking features of contemporary arbitration practice. Its dominance reflects both historical influence and distinctive legal attributes that make it attractive in cross-border projects.[370] From the spread of common law during the British Empire to London's consolidation as a global hub for finance and professional services, English law has acquired a reputation for clarity, predictability, and enforceability.[371] In the construction sector, where

[365] MAJRASHI N., Causes of Disputes in Construction Projects, International Journal of Civil and Structural Engineering Research, Vol. 12, Issue 2, October 2024 – March 2025, pp. 75–81, 18 December 2024, available at: https://doi.org/10.5281/zenodo.14514341, available at: https://www.researchpublish.com/upload/book/Causes%20of%20Disputes%20in%20Construction%20Projects-18122024-3.pdf.

[366] CAHER C., KRUEGER M. e CAI X., Documents and Other Types of Evidence in Construction Disputes, cit.

[367] COZZI F., The Italian Supreme Court Paves the Way to Further Expansion of Litigation Funding in Italy, cit.; *See e.g. Court of Brescia (Specialised Business Section), [2023] No. 2920; Court of Florence (Business Section), [2020] No. 978.*

[368] NORTON ROSE FULBRIGHT, A Modernization of Italian Arbitration Law, cit.

[369] *Ibidem.*

[370] SIVARAMAKRISHNAN P., The Benefits of Choosing English Law in Cross-Border Financial Transactions, Cogency Global, 4 April 2024, available at: https://www.cogencyglobal.com/blog/the-benefits-of-choosing-english-law-in-cross-border-financial-transactions-0.

[371] CHEUNG M., Recent English Cases Reaffirm Certainty in Contractual Interpretation, International Bar Association, 5 May 2025, available at: https://www.ibanet.org/clint-april-2025-feature-4.

disputes are technically complex and financially significant, these qualities have made it a preferred reference point.[372]

A key reason for this prevalence is the doctrine of party autonomy: English law allows contracting parties to select their governing law even in the absence of a geographic connection. This flexibility gives international participants a stable and familiar framework, reducing uncertainty in projects that involve multiple legal cultures.[373] The Rome I Regulation in the European Union and broader private international law principles reinforce this autonomy, and English courts consistently uphold such choices except where overriding mandatory rules or public policy intervene.[374] In construction projects involving diverse contractors, subcontractors, and financiers, this ability to designate English law ensures coherence.

The extensive body of case law developed through the common law method is another attraction: precedents on liquidated damages, concurrent delay, collateral warranties, and the prevention principle provide a detailed roadmap for likely outcomes. The Technology and Construction Court (TCC), a specialist division of the High Court of Justice of England and Wales dedicated to construction, engineering, and technology disputes, has deepened this predictability, producing a specialist jurisprudence frequently cited in arbitral proceedings. Its expertise gives parties confidence that disputes will be resolved efficiently and in line with commercial expectations.[375]

English law's structure also offers practical advantages: limitation periods are clear − six years for simple contracts and twelve years for deeds − and widely understood.[376] Standard forms such as JCT and NEC are drafted with English law in mind, incorporating features like provisions on changes in law and duties to warn, reflecting the system's emphasis on clarity and risk management.[377] Arbitration institutions such as the LCIA also operate in an

[372] HEADY E.J., Construction Law-The History Is Ancient!, Smith Currie, 19 July 2012, available at: https://www.smithcurrie.com/publications/common-sense-contract-law/construction-law-the-history-is-ancient/.
[373] QLTS SCHOOL, Why English Law Governs Most International Commercial Contracts, QLTS Journal, available at: https://www.qlts.co.uk/blog/why-english-law-governs-most-international-commercial-contracts/.
[374] AMIR N. e ALBERSTEIN M., Designing Responsive Legal Systems: A Comparative Study, Pepperdine Dispute Resolution Law Journal, Vol. 22, 2022, pp. 263–, available at: https://digitalcommons.pepperdine.edu/drlj/vol22/iss2/1; ASHURST, Interpretation of Contracts under English Law, 4 February 2025, available at: https://www.ashurst.com/en/insights/quickguide-interpretation-of-contracts-under-english-law/.
[375] DE CORDOVA P., English Contracts - Principles of Construction, Jurit, March 2016, available at: https://jurit.com/news/english-contracts-principles-of-construction/
[376] SIVARAMAKRISHNAN P., The Benefits of Choosing English Law in Cross-Border Financial Transactions, cit.
[377] ADRA R., LINDSAY J., NORTHCOTT E. e VAN ESPEN E., Allocation of Risk in Construction Contracts, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/allocation-of-risk-in-construction-contracts.

environment shaped by these principles, ensuring consistency between contract drafting, dispute resolution, and enforcement.[378]

Risk allocation under English law further appeals to international participants: bonds, guarantees, and detailed clauses on delay and liquidated damages are enforceable with minimal judicial interference, provided they are not punitive.[379] Employers value the certainty of bargains enforced as written, while contractors know that courts and tribunals will rarely rewrite obligations in the name of equity. This balance favors predictability, a highly prized feature in global infrastructure projects.[380]

Applying English law, however, also has some downsides: its literal interpretive style can produce outcomes that appear rigid or detached from commercial realities. For example, relief for unforeseen events is narrow as frustration applies only in extreme circumstances, and force majeure depends entirely on contract wording.[381] The COVID-19 pandemic confirmed that English law provides limited statutory protection compared with civil law jurisdictions, where doctrines like *imprévision* or hardship allow judicial adjustment.[382] For parties accustomed to those systems, English law may seem unforgiving, and tribunals must sometimes temper it with broader principles to avoid inequitable results.[383]

Jurisdictional and enforcement issues also arise, as awards and judgments based on English law may face scrutiny in civil law jurisdictions less familiar with doctrines such as time at large or the penalty rule.[384] This can complicate enforcement, requiring arbitrators to frame awards with sensitivity to international public policy and recognition standards.[385]

Despite these challenges, English law's dominance is secure. Recent developments such as the Building Safety Act 2022, enacted after the Grenfell Tower fire, show its adaptability to new

---

[378] NORTON ROSE FULBRIGHT, Joint Ventures: Choice of Law and Choosing the Right Dispute Resolution Forum, United Kingdom, available at: https://www.nortonrosefulbright.com/en/knowledge/publications/a0974408/joint-ventures-choice-of-law-and-choosing-the-right-dispute-resolution-forum.

[379] DE CORDOVA P., English Contracts - Principles of Construction, cit.; ADRA R., LINDSAY J., NORTHCOTT E. e VAN ESPEN E., Allocation of Risk in Construction Contracts, cit.

[380] SIVARAMAKRISHNAN P., The Benefits of Choosing English Law in Cross-Border Financial Transactions, cit.

[381] REED P. e KERRY S., Frustration of International Construction and Engineering Contracts and COVID-19, Gatehouse Chambers, 24 June 2021, available at: https://gatehouselaw.co.uk/frustration-of-international-construction-and-engineering-contracts-and-covid-19/.

[382] CHEUNG M., Construction Law in 2023: A Review of Key Legal and Industry Developments, i-law, 2023, available at: https://static.i-law.com/ilaw/SFE/pdf/2023_LLI_Construction_Law_Review.pdf.

[383] CHEUNG M., Recent English Cases Reaffirm Certainty in Contractual Interpretation, cit.

[384] CHRISTIE R.H., The Law Governing an International Construction Contract, University of Cape Town, 2007, available at: https://www.i-law.com/ilaw/doc/view.htm?id=130190.

[385] OSTENDORF P., The Shortcomings of English Contract and Related Areas of Law: A Case for Reform? An Outsider's (or Court Jester's?) View, LinkedIn, 12 September 2024, available at: https://www.linkedin.com/pulse/shortcomings-english-contract-related-areas-law-case-reform-patrick-o71me/.

regulatory concerns.[386] The TCC is already producing case law under this Act, which will influence contract drafting worldwide.[387] Arbitration practice continues to export English principles globally, reinforcing its status as the *lingua franca* of international construction. At the same time, arbitrators often temper strict English textualism with references to good faith or proportionality, ensuring awards are acceptable across systems.[388]

In sum, English law's prevalence in international construction contracts stems from history, institutional infrastructure, and distinctive doctrinal features. Its dominance shows how common law reasoning has been internationalized, even in disputes seated in civil law jurisdictions. Yet its application in arbitration highlights the need for harmonization: tribunals frequently integrate English principles with civil law expectations to produce awards that are both enforceable and commercially sensible.

This dynamic − i.e., export of English law coupled with its adaptation in a transnational arbitral context − is one of the clearest examples of harmonization in practice.

3.2.3 The use of international standard contracts as unifying tools

International standard forms, such as those published by FIDIC, NEC, or ICC, function as a potent source of transnational private regulation. Their primary unifying effect stems from the provision of a pre-established contractual framework that mitigates the doctrinal divergences between common law and civil law systems.[389] By codifying principles of risk allocation, variation procedures, and dispute resolution in globally recognized templates, these instruments enable parties from diverse legal backgrounds to collaborate under a shared set of rules and a common contractual language.[390] This dual function, limiting the uncertainty inherent in heterogeneous domestic laws while simultaneously enhancing the predictability of

[386] HILL R. e GILBERT J., Constructing a Low-Carbon Economy: Recent Developments in English Construction Law, White & Case, 24 April 2024, available at: https://www.whitecase.com/insight-our-thinking/constructing-low-carbon-economy-recent-developments-english-construction-law; NAZZINI R., Construction Law in the 21st Century, 1st ed., 2024.

[387] NAZZINI R., Construction Law in the 21st Century, cit.

[388] BREKOULAKIS S. e THOMAS D.B. (eds), The Guide to Construction Arbitration, cit.

[389] MOSS G.C., International Contracts between Common Law and Civil Law: Is Non-State Law to Be Preferred? The Difficulty of Interpreting Legal Standards Such as Good Faith, Transnational Dispute Management, available at: https://www.transnational-dispute-management.com/article.asp?key=1061; GODWIN W., *International Construction Contracts: A Handbook with Commentary on the FIDIC Design-Build Forms*, Wiley-Blackwell, 2013.

[390] BAL F.B., FIDIC - Brief History & Evolution of Standard Forms of Contracts, LinkedIn, 3 February 2024, available at: https://www.linkedin.com/pulse/fidic-brief-history-standard-forms-contracts-b-eng-mbe-pmp--khfhf/.

outcomes, particularly in arbitration, cements their central role in the international construction sector.[391]

The efficacy of these standard forms is a direct result of their hybrid legal drafting: they artfully amalgamate common law features, such as meticulously detailed clauses governing extensions of time, force majeure, and liquidated damages, with fundamental civil law concepts like good faith (*bona fides*), proportionality, and the principle of equitable adjustment.[392] The resulting contractual ecosystem is a neutral ground where neither legal tradition holds supremacy. This synthesis is perhaps most evident in multi-tiered dispute resolution clauses, incorporating Dispute Adjudication Boards, amicable settlement phases, and arbitration, which effectively merge adversarial and inquisitorial elements into a coherent, cross-cultural model.[393]

Furthermore, the widespread adoption of these contracts facilitates regulatory harmonization. Standard contracts frequently incorporate obligations pertaining to health and safety, environmental protection, and anti-corruption, thereby establishing minimum compliance baselines that operate irrespective of the contract's governing law.[394] In this capacity, they transcend their role as mere private agreements and function as instruments of legal convergence, aligning global contractual practice with evolving international public policy standards.[395]

In conclusion, international standard contracts serve as powerful unifying tools by reducing legal fragmentation, channeling disputes into structured and predictable frameworks, and generating a consistent body of interpretative principles. While they cannot entirely erase the deep-rooted philosophical differences between legal families, they provide an indispensable functional bridge, enabling contracting parties and tribunals to navigate those differences within a coherent and enforceable contractual order.

---

[391] CHEN Y., WANG W., ZHANG S. e YOU J., Understanding the Multiple Functions of Construction Contracts: The Anatomy of FIDIC Model Contracts, Construction Management and Economics, Vol. 36, No. 8, 2018, pp. 472–485

[392] WEAVER Y., Basic Differences Between a Common Law System and a Civil Law System in Terms of Contracts and Business, LSL CPAs, 31 May 2016, available at: https://lslcpas.com/basic-differences-common-law-system-civil-law-system-terms-contracts-business/; ELSING S.H. e TOWNSEND J.M., Bridging the Common Law–Civil Law Divide in Arbitration, cit.

[393] MOSS G.C., International Contracts between Common Law and Civil Law: Is Non-State Law to Be Preferred? The Difficulty of Interpreting Legal Standards Such as Good Faith, cit.; PARRA MARTÍNEZ S., Projects: Delay and Cost Claims under Common and Civil Law, Pinsent Masons, 28 August 2020, available at: https://www.pinsentmasons.com/out-law/guides/projects-delay-cost-claims-common-civil-law.

[394] OSWALD S., Conquering Common Challenges in Construction Contracts, IRMI, 7 March 2025, available at: https://www.irmi.com/articles/expert-commentary/conquering-common-challenges-in-construction-contracts.

[395] STACK R.E., Three Global Drafting Considerations for International Construction Contracts, Faegre Drinker, 17 April 2019, available at: https://www.faegredrinker.com/en/insights/publications/2019/4/three-global-drafting-considerations-for-international-construction-contracts.

3.2.4 Blending good faith (civil law) with certainty (common law) in awards

A fundamental and persistent divergence between civil law and common law systems resides in their respective prioritization of good faith and contractual certainty. Civil law jurisdictions, rooted in Roman law traditions and comprehensive codifications, elevate good faith (*bona fides*) to a foundational principle governing contractual obligations (*e.g., Section 242 BGB in Germany; Article 1375 of the Italian Civil Code*).[396] This duty permeates all stages of a contract, imposing requirements of honesty, reasonableness, and cooperative conduct, and granting adjudicators the power to adjust obligations to preserve fairness.[397] In stark contrast, common law systems, and English law in particular, have historically been reticent to recognize a general duty of good faith, prioritizing instead the certainty and predictability derived from the strict enforcement of the parties' written bargain, with minimal judicial interference.[398]

In the context of long-term, complex construction projects, where unforeseen disruptions and evolving risks are inevitable, this doctrinal clash becomes acutely visible. Arbitration, as the preferred forum for resolving such international disputes, cannot ignore this tension: tribunals, often composed of members from mixed legal backgrounds, are compelled to develop a jurisprudential methodology that reconciles these competing values to produce awards that are both equitable and enforceable across jurisdictions.[399]

The prevailing approach in modern arbitral practice is not to choose one principle over the other, but to blend them into a coherent analytical framework: tribunals typically commence their analysis with a strict textual interpretation of the contract, affirming the primacy of party autonomy and the need for certainty.[400] However, where a rigid application of the contractual terms would lead to patently disproportionate, abusive, or commercially absurd outcomes, arbitrators increasingly invoke principles of good faith, reasonableness, and fair dealing as corrective mechanisms.[401] This may manifest in the equitable interpretation of ambiguous clauses, the reduction of liquidated damages deemed to constitute a penalty (in line with

---

[396] MACKAAY E., Good Faith in Civil Law Systems - A Legal-Economic Analysis, in DE MOT J. (ed.), die Keure - Juridische Uitgaven, 2012, pp. 105-134, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1998924; ELSING S.H. e TOWNSEND J.M., Bridging the Common Law–Civil Law Divide in Arbitration, cit.

[397] *Ibidem.*

[398] PERRY C., Good Faith in Contract Law, Edward Elgar, 2024; JACKSON S., Good Faith under English Law: Evolution or Revolution?, Pinsent Masons LLP, available at: https://dialnet.unirioja.es/descarga/articulo/8024594.pdf.

[399] BESAISO, *Decision-making in International Construction Arbitration*, cit.; KIEFER D., Suitability of Arbitration Rules for Construction Disputes, *The Guide to Construction Arbitration*, cit.

[400] BREKOULAKIS S. e THOMAS D.B. (eds), The Guide to Construction Arbitration, cit.

[401] ENMAN-BEECH J., The Good Faith Challenge, Journal of Commonwealth Law, Vol. 1, 31 May 2019, available at: https://www.journalofcommonwealthlaw.org/article/8812-the-good-faith-challenge.

principles found in many civil codes and common law doctrines), or the implication of duties to cooperate in the performance of the contract.[402]

This sophisticated synthesis is vividly illustrated in some awards.[403] For instance, a tribunal may uphold a liquidated damages clause (a common law-friendly concept) but then proceed to adjust its *quantum* based on principles of proportionality derived from civil law, ensuring the compensation is commensurate with the actual loss. Conversely, even tribunals seated in common law jurisdictions have begun to acknowledge the "relational" nature of long-term construction contracts, where an expectation of cooperation is inherent.[404]

Through the repeated and consistent interpretation of common clauses in FIDIC, NEC, and similar standard forms, arbitral tribunals are fusing common law's commitment to certainty with civil law's pursuit of equity, thereby generating a transnational common law of construction disputes.[405] In this hybrid system, certainty ensures commercial stability and enforceability, while good faith guarantees legitimacy and fairness, preventing the rigid application of law from yielding unjust results.[406]

Thus, international arbitration transcends its primary function of dispute resolution to become a dynamic laboratory for legal harmonization. It provides a neutral forum where different legal traditions interact, cross-fertilize, and evolve into hybrid principles suited to the demands of global commerce. This process not only bolsters the legitimacy and acceptability of awards under instruments like the New York Convention but also actively contributes to the shaping of a globalized legal framework for the construction industry.[407]

Ultimately, the divergences between civil and common law are not limited to doctrinal theory but directly affect the way delays are evidenced and managed. As noted above,[408] technical

---

[402] *Ibidem;* NORTON ROSE FULBRIGHT, A Comparative Look at Good Faith and Changed Circumstances, Hardship and More - The Canadian Supreme Court's Decision in *Churchill Falls (Labrador) Corporation Limited v. Hydro-Québec*, September 2019, available at: https://www.nortonrosefulbright.com/en-de/knowledge/publications/759728ff/a-comparative-look-at-good-faith-and-changed-circumstances-hardship-and-more.

[403] See e.g. Zhongshan Fucheng Industrial Investment Co. Ltd. v. Federal Republic of Nigeria, final award, March 26, 2021 (ICSID Case No. ARB(AF)/18/2); ICC, Final Award, Case No. 15372, 2012.

[404] *Ibidem.*

[405] JABERI M.S. e HENDRY L., A Growing Need for International Enforcement of Construction Adjudication Decisions, International Bar Association, 22 November 2024, available at: https://www.ibanet.org/clint-november-2024-feature-4.

[406] *Ibidem.*

[407] REILLY B., Procedural Good Faith in International Arbitration, Squire Patton Boggs, 2018, available at: https://www.squirepattonboggs.com/~/media/files/insights/publications/2018/08/procedural-good-faith-in-international-arbitration/31651--procedural-good-faith-in-international-arbitration.pdf; BREKOULAKIS S. e THOMAS D.B. (eds), The Guide to Construction Arbitration, cit.

[408] For the concept and practical application of Critical Path Analysis, see supra, Chapter II, Section 2.2 (Delay Damages). For an earlier discussion of the divergent treatment between common law and civil law systems in matters of causation and contractual adjustment, see supra, Chapter I, Sections 1.1.1 and 1.1.2.

tools such as the Critical Path Analysis receive different treatment depending on the legal culture: they are widely accepted in common law jurisdictions, where a precise causal demonstration is indispensable, while civil law systems tend to rely more on overarching principles such as good faith and equity, showing greater caution toward technical causation models. This highlights that, alongside contractual clauses and judicial doctrines, even evidentiary methodologies are shaped by broader legal traditions. International arbitration thus operates as a forum of mediation, where engineering techniques and legal principles converge to produce outcomes that are both effective and acceptable across systems. The resulting picture is not one of complete unification, but rather of progressive hybridization, in which arbitral practice crafts workable solutions while still respecting the deep-rooted structures of each legal tradition.

CONCLUSION

The question that this dissertation purported to answer was whether, and to what extent, international arbitration is capable of harmonizing divergent legal traditions in the field of construction disputes. The answer that emerges from the analysis illustrated above is nuanced: arbitration cannot fully erase the structural differences between civil law and common law, but it does moderate them, and in doing so it creates a shared practice that functions as a form of partial harmonization.

At its core, international arbitration is a pragmatic response to the challenges of cross-border construction projects. Parties confronted with conflicting doctrines, varying procedural cultures, and diverging concepts of liability require a mechanism that can deliver consistent and enforceable outcomes. Arbitration provides this framework. It offers a neutral forum where civil law's emphasis on codification and judicial control interacts with common law's preference for precedent and contractual autonomy. What results is not uniformity, but a process of synthesis in which arbitral tribunals draw upon principles from both traditions to produce decisions that are intelligible and acceptable to parties from diverse legal backgrounds.

The sources analysed in this dissertation point to two parallel truths. On the one hand, certain divergences remain irreducible. Doctrines such as the enforceability of penalty clauses, the scope of "time at large," or the apportionment of concurrent delays reflect foundational differences in legal philosophy. Arbitration does not, and perhaps cannot, abolish these contrasts. On the other hand, arbitration has fostered convergence in practice. The increasing reliance on Critical Path Analysis in delay disputes, the influence of English law as a preferred governing law, and the widespread use of international standard form contracts all reveal a tendency toward common methods and shared expectations, regardless of jurisdictional origin.

What emerges from these dynamics is a form of functional harmonization: arbitration does not create a codified supranational system, but it establishes practices and standards that transcend legal traditions. Through the consistent application of expert evidence, reliance on internationally recognized contractual models, and the hybrid reasoning of arbitral tribunals, parties can achieve a level of predictability that would otherwise be unattainable in a fragmented legal environment. In this way, arbitration transforms divergence into dialogue: it does not erase differences, but it channels them into outcomes that are both workable and legitimate.

The ultimate conclusion is that international arbitration harmonizes civil and common law approaches only to a limited extent, but this extent is far from negligible. For the construction industry, where disputes can jeopardize billion-dollar projects and critical infrastructure, even

partial harmonization has profound value. It reduces uncertainty, fosters trust between contracting parties, and facilitates the smooth functioning of an inherently global sector. Arbitration thus occupies a transformative role: not as a legislator imposing uniformity, but as a mediator constructing bridges across traditions.

To that extent, the answer to the research question is clear. International arbitration cannot and should not eliminate the diversity of legal systems, but it can harmonize them sufficiently to ensure predictability, fairness, and efficiency in the resolution of international construction disputes. This is its true achievement, and it explains why arbitration has become not only the preferred but the indispensable forum for resolving construction disputes in a globalized world.

BIBLIOGRAPHY

Books

BERMANN G.A., Chapter 19: Applicable Law and the Civil and Common Law Divide, in COMAIR-OBEID N. e BREKOULAKIS S. (eds), *The Plurality and Synergies of Legal Traditions in International Arbitration: Looking Beyond the Common and Civil Law Divide*, Kluwer Law International, 2023

BLACKABY N., PARTASIDES C., REDFERN A. e HUNTER M., *Redfern and Hunter on International Arbitration*, 7ª ed., Oxford University Press, 2022.

BORN G. B., *International Commercial Arbitration*, 2ª ed., Kluwer Law International, 2014.

BORN G. B., *International Commercial Arbitration*, 3ª ed., Kluwer Law International, 2021.

BREKOULAKIS S. e THOMAS D. B. (eds), *The Guide to Construction Arbitration*, 4ª ed., Law Business Research (Global Arbitration Review), 2021.

BROWN N. A., *FIDIC 2017: A Definitive Guide to Claims and Disputes*, ICE Publishing, 2025.

BURR A., *Delay and Disruption in Construction Contracts*, 6ª ed., Routledge, 2025.

BUNNI N. G., *The FIDIC Forms of Contract*, 3ª ed., Blackwell Publishing, Oxford, 2005.

ÇEVIKBAS M. e KÖKSAL A., *An Investigation of Litigation Process in Construction Industry in Turkey*, Teknik Dergi, Vol. 29, n. 6, pp. 8715–8729, 2018

CHAPPELL D., *Building Contract Claims*, Wiley-Blackwell, 2011.

CHAPPELL D., *The JCT Minor Works Building Contracts 2016*, Wiley-Blackwell, 2017.

EGGLESTON B., *Liquidated Damages and Extensions of Time in Construction Contracts*, 3ª ed., Wiley-Blackwell, 2009.

GIBSON R., *A Practical Guide to Disruption and Productivity Loss on Construction and Engineering Projects*, Wiley-Blackwell, 2015.

GODWIN W., *International Construction Contracts: A Handbook with Commentary on the FIDIC Design-Build Forms*, Wiley-Blackwell, 2013.

GODWIN W., *The 2017 FIDIC Contracts*, Wiley-Blackwell, 2019.

HACKETT J., *Construction Claims: Current Practice and Case Management*, LLP Professional Publishing, 2000.

HEWITT A., *Construction Claims and Responses: Effective Writing and Presentation*, Wiley-Blackwell, 2025.

HILLEBRANDT P., HUGHES W. e MURDOCH J., *Financial Protection in the UK Building Industry: Bonds, Retentions and Guarantees*, Routledge, 2002.

HUGHES W., CHAMPION R. e MURDOCH J., *Construction Contracts: Law and Management*, 5ª ed., Routledge, 2015.

JENKINS J., *International Construction Arbitration Law*, Wolters Kluwer, 2021.

JOHNSTON G. B., *Assembling the Architect: The History and Theory of Professional Practice*, Bloomsbury Visual Arts, London, 2020.

KNOWLES R., *200 Contractual Problems and their Solutions*, 3ª ed., Wiley-Blackwell, 2012.

LABHRÁI S., *Guide to the JCT Design and Build Contract (2024 Edition)*, Routledge, Abingdon, 2025.

MOSER M. J. e CHENG T. Y., *Hong Kong Arbitration: A User's Guide*, Kluwer Law International, 2004.

MOSEY D. (ed.), *Collaborative Construction Procurement and Improved Value*, Wiley-Blackwell, 2019.

NADAR R., *The Dispute Settlement Provisions of the 2017 FIDIC Forms of Contract*, in BALTAG C. and VASILE C. (eds), *Construction Arbitration in Central and Eastern Europe: Contemporary Issues*, Wolters Kluwer, 2023.

NAZZINI R., *Transnational Construction Arbitration: Key Themes in the Resolution of Construction Disputes*, Routledge, 2018.

NAZZINI R., *Construction Law in the 21st Century*, 1ª ed., 2024.

PARK W. W., *Arbitrability: International & Comparative Perspectives*, Wolters Kluwer, 2009.

PERRY C., *Good Faith in Contract Law*, Edward Elgar, 2024.

PICKAVANCE J., *A Practical Guide to Construction Adjudication*, 1ª ed., Wiley-Blackwell, 2016.

ROBINSON M. D., *Guide to the FIDIC Conditions of Contract for Construction: The Red Book 2017*, Wiley-Blackwell, 2019.

SEPPÄLÄ C., *The FIDIC Red Book Contract: An International Clause-By-Clause Commentary*, Kluwer Law International, 2023.

SMEUREANU I. M., *Confidentiality in International Commercial Arbitration*, International Arbitration Law Library Series, vol. 22, Kluwer Law International, 2011.

THORNLEY G., *Critical Path Analysis in Practice: Collected Papers on Project Control*, Routledge, 2001.

WEBSTER T. H. e BUHLER M., *Handbook of ICC Arbitration: Commentary, Precedents, Materials*, Sweet & Maxwell, London, 2014.

WETMORE T. e ELLIOT S., *COVID-19 and Construction Disputes*, in SCHERER M., BASSIRI N. e ABDEL WAHAB M.S. (eds), *International Arbitration and the COVID-19 Revolution*, Kluwer Law International, 2020

WILMOT-SMITH F., *Extra-Contractual Claims: Unjust Enrichment*, in *Contractual Remedies*, Oxford University Press, 2021

WYATT T.R., *Pandemics and Contractual Issues*, in National Academies of Sciences, Engineering, and Medicine, Washington, DC, The National Academies Press, 2024.

Case law

Ali Shipping Corp v. Shipyard Trogir, [1999] 1 W.L.R. 314, English Court of Appeal, 19 December 1997.

Andrews v. Australia and New Zealand Banking Group Ltd, [2012] HCA 30.

Arab Bank Australia Ltd v. Sayde Developments Pty Ltd, [2016] NSWCA 328.

Australia Capital Financial Management Pty Ltd v. Linfield Developments Pty Ltd, [2011] NSWSC 138.

Cavendish Square Holding BV v. Talal El Makdessi, [2015] UKSC 67

City Inn Ltd v. Shepherd Construction Ltd, [2007] CSOH 190.

Classic Maritime Inc v. Limbungan Makmur Sdn Bhd and another, [2019] EWCA Civ 1102, Court of Appeal (England and Wales).

Denka Advantech Pte Ltd v. Seraya Energy Pte Ltd, [2020] SGCA 119.

Dolling-Baker v. Merrett, [1990] 1 W.L.R. 1205, English Court of Appeal, 21 March 1990.

Dunlop Pneumatic Tyre Co Ltd v. New Garage and Motor Co Ltd, [1915] AC 79 (HL).

Eco World-Ballymore Embassy Gardens Co Ltd v. Dobler UK Ltd, [2021] EWCA Civ 660.

Esso Australia Resources Ltd v Gas and Fuel Corporation of Victoria and State Electricity Commission of Victoria, High Court of Australia, Judgment [1995] HCA 19, 7 April 1995.

Henry Boot Construction (UK) Ltd v. Malmaison Hotel (Manchester) Ltd [1999] 70 ConLR 32 (TCC).

ICC, Final Award, Case No. 15372, 2012.

John Doyle Construction Ltd v. Laing Management (Scotland) Ltd, [2004] ScotCS CSIH 36, Court of Session (Inner House).

LW Infrastructure Pte Ltd v. Lim Chin San Contractors Pte Ltd, [2011] SGCA 6.

North Midland Building Ltd v. Cyden Homes Ltd, [2018] EWCA Civ 1744.

ParkingEye Ltd v. Beavis, [2015] UKSC 67.

Triple Point Technology Inc v. PTT Public Company Ltd, [2021] UKSC 29.

Walter Lilly & Company Ltd v. Giles Patrick Cyril Mackay and DMW Developments Ltd, [2012] EWHC 1773 (TCC).
Zhongshan Fucheng Industrial Investment Co. Ltd. v. Federal Republic of Nigeria, Final Award, March 26, 2021 (ICSID Case No. ARB(AF)/18/2).

Conventions

New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).
UNIDROIT Principles of International Commercial Contracts (2016).
UNCITRAL Model Law on International Commercial Arbitration (1985, with amendments as adopted in 2006).
UNCITRAL Notes on Organizing Arbitral Proceedings (2016).

Legislation

Arbitration Act (UK, 1996).
Arbitration Act (UK, 2025).
Bürgerliches Gesetzbuch (BGB), Germany, Sections 242, 305–307, 313, 339, 343.
Codice Civile, Italy, Articles 1256, 1375, 1382, 1384, 1467–1469.
Code civil, France, Articles 1195, 1218, 1231-5.
Civil Transactions Law, Saudi Arabia, 2023.
Housing Grants, Construction and Regeneration Act, UK, 1996.
Legislative Decree No. 149, October 10, 2022 (Riforma Cartabia), Italy.
Rome I Regulation (EC Regulation No. 593/2008).

Papers

ABDELALIM A. M., ELSHERBINY S., *Critical Delay Factors in Construction Projects and Their Proposed Solutions from the Perspective of Total Quality Management*, International Journal of Engineering Trends and Technology, 72(2), 2024.
ABDUL-MALAK A. and JABER S., *Opportunities for Attempting Amicable Settlement Along the Claim/Dispute Timeline*, in *Interaction Between Theory and Practice in Civil Engineering and Construction*, ISEC Press, 2016.
ABDUL-MALAK M. A. U., HAMIE J. M., *Proposed Framework for the Rendering of Construction Contract Document Interpretations by Engineering Professionals*, Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 11, 2019.

ABDUL NABI M., EL-ADAWAY I. H., *Understanding Disputes in Modular Construction Projects: Key Common Causes and Their Associations*, Journal of Construction Engineering and Management, 148, 2022.

ABRAMSON I., *Root Causes of Disputes on Tunnel Construction Projects*, North American Tunneling, 98, 1998.

ADRA R., LINDSAY J., NORTHCOTT E. e VAN ESPEN E., Allocation of Risk in Construction Contracts, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025.

AL-MUSTAFA R.M., *Reevaluating Contractual Changes in Construction: The Legal Distinction Between Variations and Extra Work Under FIDIC Red Book 1999 and UAE Law*, submitted 6 May 2025.

AMIR N. e ALBERSTEIN M., Designing Responsive Legal Systems: A Comparative Study, Pepperdine Dispute Resolution Law Journal, Vol. 22, 2022.

BARMAN A., CHAROENNGAM C., *Decisional Uncertainties in Construction Projects as a Cause of Disputes and Their Formal Legal Interpretation by the Courts: Review of Legal Cases in the United Kingdom*, Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 9, 2017.

BAYRAKTAR M. E., ARIF F., HASTAK M., GAD N. A., *Judiciary's Use of the Critical Path Method to Resolve Construction Claims*, Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 30 June 2011.

BELLHOUSE J. e COWAN P., Common Law "Time at Large" Arguments in a Civil Law Context, *Construction Law Journal*, No. 8, 2007.

BISWAS A., KAR A., MONDAL T., BUNTEE, BARDHAN G. A. D. P. K., *The Impact of COVID-19 in the Construction Sector and Its Remedial Measures*, Journal of Physics: Conference Series, 1797(1), 2021.

BORRIS C., Common Law and Civil Law: Fundamental Differences and their Impact on Arbitration, *Arbitration: The International Journal of Arbitration, Mediation and Dispute Management*, Vol. 60, 1994.

CALLEROS C., Punitive damages, liquidated damages, and clauses pénales in contract actions: A comparative analysis of the American common law and the French Civil Code, Brooklyn Journal of International Law, Vol. 32, No. 1, 2006.

ÇEVIKBAŞ M., KÖKSAL A., *An Investigation of Litigation Process in Construction Industry in Turkey*, Teknik Dergi, 29(6), 2018, pp. 8715–8729.

CHADEE A., ALI H., GALLAGE S., RATHNAYAKE U., *Modelling the Implications of Delayed Payments on Contractors' Cashflows on Infrastructure Projects*, Civil Engineering Journal, 9(1), 2023, pp. 52–71.

CHAMMOUT B., EL-ADAWAY I. H., ABDUL NABI M., ASSAAD R. H., *Price Escalation in Construction Projects: Examining National and International Contracts*, *Journal of Construction Engineering and Management*, vol. 150, no. 9, 2024.

CHEN Y., WANG W., ZHANG S. e YOU J., Understanding the Multiple Functions of Construction Contracts: The Anatomy of FIDIC Model Contracts, Construction Management and Economics, Vol. 36, No. 8, 2018, pp. 472–485.

CHERNYAVSKAYA A., The Penalty Doctrine: Protective or Punitive?, *Auckland University Law Review*, Vol. 23, 2017, pp. 147–170.

CHRISTIE R.H., The Law Governing an International Construction Contract, University of Cape Town, 2007.

ELSING S. H., TOWNSEND J. M., *Bridging the Common Law–Civil Law Divide in Arbitration*, Arbitration International, 18, 2002.

ENESCU A.-G., RĂILEANU SZELEȘ M., *Discussing Energy Volatility and Policy in the Aftermath of the Russia–Ukraine Conflict*, Frontiers in Environmental Science, 11, 2023.

ENMAN-BEECH J., The Good Faith Challenge, Journal of Commonwealth Law, Vol. 1, 31 May 2019.

FLOOD J., CAIGER A., *Lawyers and Arbitration: The Juridification of Construction Disputes*, The Modern Law Review, 56(3), 1993.

FRASER H., *2017 WA Lee Lecture: The Australian Law of Contractual Penalties*, *QUT Law Review*, Vol. 18, Issue 2, 2017.

GALLIGAN T.C. JR., *Extra Work in Construction Cases: Restitution, Relationship, and Revision*, in *Tulane Law Review*, vol. 63, no. 4.

GARDEZI S.S.S., MANARVI I.A. e GARDEZI S.J.S., *Time Extension Factors in Construction Industry of Pakistan*, Procedia Engineering, Vol. 77, pp. 196–204, 2014.

GAVAMUKULYA C., *Variations in Construction Contracts*, European Journal of Applied Sciences and Engineering Technology, December 2024.

GILLION E., MORSON T., JACKSON J., and DE JAGER P., *The New FIDIC Suite 2017: Significant Developments and Key Changes*, in *The International Construction Law Review*, 2018.

GILSON R. J., SABEL C. F., SCOTT R. E., *Text and Context: Contract Interpretation as Contract Design*, Cornell Law Review, 100(1), 2014.

GOH K. Z. H., WONG S. Y., LOW W. W., *Factors Causing Dispute in Construction Industry: Contractors' Perspectives*, Journal of Surveying, Construction and Property, 2023.

HATZÍS A. N., *Having the Cake and Eating It Too: Efficient Penalty Clauses in Common and Civil Contract Law*, International Review of Law and Economics, 22(4), 2002.

JALILVAND N.S., A New Era of Procurement: Understanding Design Levels in Italy's 2023 Code, Master's Thesis, Politecnico di Milano, 2023.

JANUARITA R., SUMIYATI Y., *Legal Risk Management: Can the COVID-19 Pandemic Be Included as a Force Majeure Clause in a Contract?*, International Journal of Law and Management, 63(2), 2021.

KOC K., GURGUN A. P., Ambiguity Factors in Construction Contracts Entailing Conflicts, *Engineering, Construction and Architectural Management*, May 2021.

KULL I., Pacta Sunt Servanda versus Clausula Rebus Sic Stantibus, Juridica International, Vol. VI, 2001.

LOVE P. E. D., DAVIS P. R., SAI ON C., IRANI Z., *Causal Discovery and Inference of Project Disputes*, IEEE Transactions on Engineering Management, 58(3), 2011.

MACKAAY E., Good Faith in Civil Law Systems - A Legal-Economic Analysis, in DE MOT J. (ed.), die Keure - Juridische Uitgaven, 2012.

MACKAAY E., *The Civil Law of Contract*, SSRN Electronic Journal, January 2011.

MAJRASHI N., Causes of Disputes in Construction Projects, International Journal of Civil and Structural Engineering Research, Vol. 12, Issue 2, 2024

MARCHISIO G., Rebus Sic Stantibus: A Comparative Analysis for International Arbitration, 11 July 2012.

MARÍN GARCÍA I., *Enforcement of Penalty Clauses in Civil and Common Law: A Puzzle to Be Solved by the Contracting Parties*, *European Journal of Legal Studies*, 2012.

MCSORLEY M., CHAUDHARY I., *Criticality in Construction Claims*, first published in *Construction Law Journal*, November 2022, republished on 23 January 2023.

MEPHARISHVILI T., *The Principle of Good Faith in Contractual Relations*, European Scientific Journal (ESJ), 21, 2025.

MEMON A. H., ABDUL RAHMAN I., *Significant Causes and Effects of Variation Orders in Construction Projects*, Research Journal of Applied Sciences, Engineering and Technology.

MISHRA A. K., AITHAL P. S., *Effectiveness of Arbitration in Construction Projects*, *International Journal of Management, Technology, and Social Sciences (IJMTS)*, vol. 7(1), 2022

MOSS G.C., International Contracts between Common Law and Civil Law: Is Non-State Law to Be Preferred? The Difficulty of Interpreting Legal Standards Such as Good Faith, Transnational Dispute Management.

OBEIDAT Y.M.G., The "Penalty" Clause in English Law: A Critical Analysis and Comparison with Jordanian Law, Doctoral Thesis, University of Leeds, July 2004.

OMAR K. S., OLA L., AMUND B., *Why Conflicts Occur in Roads and Tunnels Projects in Norway*, Journal of Civil Engineering and Management, 25(3), 2019.

ON A. D., *Strict Liability and the Aims of Tort Law: A Doctrinal, Comparative, and Normative Study of Strict Liability Regimes*, Doctoral Thesis, Maastricht University, 2020.

PATTI F.P., Penalty Clauses in Italian Law, *European Review of Private Law*, Vol. 23, Issue 3, 2015.

PEJOVIC C., Civil Law and Common Law: Two Different Paths Leading to the Same Goal, Victoria University of Wellington Law Review, Vol. 32, No. 3, 2001.

PERILLO J., *Force Majeure and Hardship under the UNIDROIT Principles of International Commercial Contracts*, Fordham University School of Law Faculty Scholarship, 1997.

RÖSLER H., *Hardship in German Codified Private Law – In Comparative Perspective to English, French and International Contract Law*, European Review of Private Law, 2007.

SALIBA A.T., Rebus Sic Stantibus: A Comparative Survey, Murdoch University Electronic Journal of Law, Vol. 8, No. 3, September 2001

SCHWENZER I., MUÑOZ E., *Duty to Renegotiate and Contract Adaptation in Case of Hardship*, Uniform Law Review, 24, 2019.

SHALABY Y., KHALAFALLAH A., *Change Order Disputes: Technical Causes and Negative Effects in Kuwait*, in *Construction Research Congress 2018*, 2018.

SHI Z., *The Relationship Between Interest and Liquidated Damages in Construction Contracts*, Asian Social Science, 19(4), 2023.

SILVA P. M., DOMINGO N., AMEER ALI N. A. N., *Causes of Disputes in the Construction Industry – A Systematic Literature Review*, Journal of Financial Management of Property and Construction, 2024.

STRONG S. I., *Past as Prologue: Arbitration as an Early Common Law Court?*, 57(5), 8 June 2020.

SWAMINATHAN S., A Centennial Refurbishment of Dunlop's Emporium of Contractual Concepts, *Common Law World Review*, Vol. 45, nn. 2–3, 2016

TANRIVERDI C., ATASOY G., DIKMEN I., BIRGONUL M. T., *Causal Mapping to Explore Emergence of Construction Disputes*, Journal of Civil Engineering and Management, 27(5), 2021.

THOMPSON R., *International Chamber of Commerce – Arbitration of Disputes Arising under International Construction Contracts*, *International Business Lawyer*, 1977, Vol. 5 No. 2, p. 225.

VITA G., FERRARA P.L. e PATTI A., Analysis of Time Duration of Civil Disputes in Italy: A Case Study with Microdata from Sicilian Courts, The Annals of Regional Science, Vol. 74, No. 1, March 2025.

YANG J.-B., KAO C.-K., *Critical Path Effect-Based Delay Analysis Method for Construction Projects*, International Journal of Project Management, 30(3), 2012.

YAS N. C. O. L., *Effects of COVID-19 Pandemic on Contractual Relations*, Journal of Legal, Ethical and Regulatory Issues, 24(3), 2021.

YAT M., MALIKAH, KANG C. W., *Effects of the COVID-19 Pandemic on the Construction Sector: A Systemized Review*, Engineering, Construction and Architectural Management, 2023.

ZHARIKOV A., Lex Constructionis: A Failed Transnational Construction Law Concept?, Construction Law Journal, Vol. 41, No. 3, May 2025.

Rules and Regulations

American Institute of Architects (AIA), A201 General Conditions of the Contract for Construction, 2017.

Construction Industry Model Arbitration Rules (CIMAR), 2016.

FIDIC Conditions of Contract (Gold Book), 2008.

FIDIC Conditions of Contract (Orange Book), 1995.

FIDIC Conditions of Contract for Construction (Red, Yellow and Silver Books), 2017.

ICC Rules of Arbitration, 2021.

Joint Contracts Tribunal (JCT) Standard Building Contract, 2016.

LCIA Arbitration Rules, 2020.

New Engineering Contract (NEC3 and NEC4), 2005, 2017.

OECD, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, July 2017.

Society of Construction Law (SCL) Delay and Disruption Protocol, 2ª ed., 2017.

UNCITRAL Arbitration Rules, 2013.

UNCITRAL Notes on Organizing Arbitral Proceedings, 2016.

Surveys and Reports

ARCADIS, *2021 Global Construction Disputes Report*, 2021.

CANADIAN BAR ASSOCIATION, *On the Best Use of Delay Experts in Complex Construction Disputes*, 4 July 2023, available at: https://cba.org/sections/construction-and-infrastructure-law/member-articles/on-the-best-use-of-delay-experts-in-complex-construction-disputes/.

CRCICA (Cairo Regional Centre for International Commercial Arbitration), *Annual Caseload Report 2022*, available at: https://crcica.org/arbitration/annual-caseload-reports/.

CRCICA, *Caseload 2023 – Marked increase in average sum in dispute despite declined total cases registered*, available at: https://crcica.org/news/caseload-2023-marked-increase-in-average-sum-in-dispute-despite-decline-total-cases-registered/.

EURONEWS, *Three Years On: How Russia's Invasion Reshaped Energy Prices Across Europe*, Euronews, 24 February 2025, available at: https://www.euronews.com/business/2025/02/24/three-years-on-how-russias-invasion-reshaped-energy-prices-across-europe.

EUROPEAN PATENT OFFICE, *Case Law of the Boards of Appeal of the European Patent Office*, Tenth edition, June 2024, available at: https://www.epo.org/en/legal/case-law/2022/index.html.

FIDIC, *Contracts Guidance on the Effects of Inflation and Unavailability of Goods and Labour Following the Global COVID-19 Pandemic and the War in Ukraine*, *FIDIC Guidance Memorandum*, March 2023, available at: https://www.fidic.org/sites/default/files/Guidance%20Memo%20-%20War%20memorandum_170323_final.pdf.

FIEC (European Construction Industry Federation), *Construction industry hit hard by war in Ukraine*, *Construction Europe*, June 2022, available at: https://www.fiec.eu/application/files/2816/6195/4482/2022-June-FIEC_article-Construction_industry_hit_hard_by_war_in_Ukraine-KHL.pdf.

HARDY B., NUYTS A., *Overview: Construction Arbitration in Europe*, Liedekerke, 17 November 2021, available at: https://globalarbitrationreview.com/review/the-european-arbitration-review/2022/article/overview-construction-arbitration-in-europe.

HONG KONG INTERNATIONAL ARBITRATION CENTRE (HKIAC), *Statistics*, available at: https://www.hkiac.org/about-us/statistics.

ICC (International Chamber of Commerce), *ICC Dispute Resolution Statistics: 2020*, 3 August 2021, available at: https://iccwbo.org/news-publications/arbitration-adr-rules-and-tools/icc-dispute-resolution-statistics-2020/.

ICC, *ICC Dispute Resolution: 2024 Statistics*, available at: https://iccwbo.org/wp-content/uploads/sites/3/2025/06/2024-Statistics_ICC_Dispute-Resolution.pdf.

ICC COMMISSION ON ARBITRATION AND ADR, *Construction Industry Arbitrations: Recommended Tools and Techniques for Effective Management – 2019 Update*, ICC, 2019, available at: https://iccwbo.org/wp-content/uploads/sites/3/2019/02/icc-arbitration-adr-commission-report-on-construction-industry-arbitrations.pdf.

ICC COMMISSION ON ARBITRATION AND ADR, *Leveraging Technology for Fair, Effective and Efficient International Arbitration Proceedings*, available at: https://iccwbo.org/wp-content/uploads/sites/3/2022/02/icc-arbitration-and-adr-commission-report-on-leveraging-technology-for-fair-effective-and-efficient-international-arbitration-proceedings.pdf.

INCHMORE A., *NEC3 and NEC4*, in *Construction Law Review 2023–2024*, Chartered Institution of Civil Engineering Surveyors (CICES), available at: https://journals.cices.org/ces/construction-law-review-2023-2024/features/nec3-and-nec4.

INTERNATIONAL CHAMBER OF COMMERCE, *2021 ICC Dispute Resolution Statistics*, Statistical Report, published 2023, available at: https://jusmundi.com/en/document/publication/en-2021-icc-dispute-resolution-statistics.

INTERNATIONAL CHAMBER OF COMMERCE, *2024 ICC Dispute Resolution Statistics*, ICC, 2025, available at: https://iccwbo.org/wp-content/uploads/sites/3/2025/06/2024-Statistics_ICC_Dispute-Resolution.pdf.

MNA ADVISORS, *Ukraine Conflict: Impact on Construction*, MN Advisors Blog, 2 March 2022, available at: https://www.mnadvisors.com/blog/post/ukraine-conflict-impact-on-construction.

NATIONAL AUDIT OFFICE, *The London 2012 Olympic Games and Paralympic Games: Post-Games Review – Report – Value for Money*, 5 December 2012, available at: https://www.nao.org.uk/reports/the-london-2012-olympic-games-and-paralympic-games-post-games-review/.

NAZZINI R. and GODHE A., *2024 Construction Adjudication in the United Kingdom: Tracing Trends and Guiding Reform*, Centre of Construction Law, King's College London, 2024, available at: https://kclpure.kcl.ac.uk/portal/en/publications/2024-construction-adjudication-in-the-united-kingdom-tracing-tren.

QUEEN MARY UNIVERSITY OF LONDON (QMUL) in partnership with White & Case, *2018 International Arbitration Survey: The Evolution of International Arbitration*, 2018, available at: https://www.qmul.ac.uk/arbitration/research/2018/.

QUEEN MARY UNIVERSITY OF LONDON (QMUL) in partnership with Pinsent Masons, *2019 International Arbitration Survey: International Construction Disputes*, 2019, available at: https://www.qmul.ac.uk/arbitration/research/2019/.

REAL INSTITUTO ELCANO, *The Volatility of Energy Prices and Its Effect on Industry*, Elcano Royal Institute – Analyses, 2 February 2023, available at: https://www.realinstitutoelcano.org/en/analyses/the-volatility-of-energy-prices-and-its-effect-on-industry/.

ROYAL INSTITUTION OF CHARTERED SURVEYORS (RICS), *Ascertaining Loss and Expense*, 2nd edition, RICS Practice Information, UK, July 2024, available at: https://www.rics.org/Ascertaining-loss-and-expense_2nd_July-2024.pdf.

SIAC (Singapore International Arbitration Centre), *Annual Report 2023*, available at: https://jusmundi.com/en/document/publication/en-siac-singapore-international-arbitration-centre-annual-report-2023.

Websites

ABRAMS C., Construction Contracts and the Prevention Principle: Application in Practice, Channing Law, 3 May 2023, available at: https://channing-law.co.uk/construction-contracts-prevention-principle/

ASHURST, Interpretation of Contracts under English Law, 4 February 2025, available at: https://www.ashurst.com/en/insights/quickguide-interpretation-of-contracts-under-english-law/.

BENARROCHE A., Construction Delay Claims: Learn the Main Types - and Their Defenses, Procore, last updated 10 December 2024, available at: https://www.procore.com/library/construction-delay-types.

BLUNDELL N., SEKKAR H., *Three Options for Managing Inflation Risk Using JCT Construction Contracts*, 14 October 2022, available at: https://corporate.jctltd.co.uk/three-options-for-managing-inflation-risk-using-jct-construction-contracts/.

BOZIMO I., *Confidentiality in Arbitration: Protecting Business Secrets*, published 19 October 2023, available at: https://www.hostedinafrica.com/confidentiality-in-arbitration-protecting-business-secrets/.

BRUN C., *Understanding the Differences: Actual Damages, Liquidated Damages, and Consequential Damages*, Vertex, 24 December 2024, available at: https://vertexeng.com/insights/understanding-the-differences-actual-damages-liquidated-damages-and-consequential-damages/.

CERTO T., *Breaking Down the Walls: A Series on Construction Delay Claims*, published 15 April 2025, available at: https://angle.ankura.com/post/102k8fa/breaking-down-the-walls-a-series-on-construction-delay-claims-part-5-of-6.

CHIA S.J., *The Law on Liquidated Damages: A Comparative Approach Across Common Law Jurisdictions*, Hogan Lovells, 28 March 2022, available at: https://www.hoganlovells.com/en/publications/the-law-on-liquidated-damages-a-comparative-approach-across-common-law-jurisdictions.

CISG ADVISORY COUNCIL, Opinion No. 20: Hardship under the CISG, available at: https://www.cisgac.com/opinion-no-20-hardship-under-the-cisg/.

EVERSHEDS SUTHERLAND, *What impact, if any, will the new Arbitration Act have on the construction industry?*, 24 April 2025, available at: https://www.eversheds-sutherland.com/en/united-states/insights/the-new-arbitration-act-on-the-construction-industry.

FORTUNE N., Introduction to Disruption Claims, 24 October 2023, available at: https://www.diales.com/en/news/introduction-to-disruption-claims.

FISHER J., *Critical Path Analysis: Definition, Purpose, and Examples in Construction Projects*, 21 October 2024, available at: https://www.mastt.com/blogs/critical-path-analysis.

GRIPPA J., *Emerging Trends in Construction Arbitration: Adapting to a Changing Landscape*, published 8 May 2024, available at: https://milesmediation.com/blog/emerging-trends-in-construction-arbitration-adapting-to-a-changing-landscape/.

HALL A., *Liquidated Damages Clauses vs. Penalties: Practical Drafting Tips*, available at: https://aaronhall.com/liquidated-damages-clauses-vs-penalties-drafting-tips/.

HEWAGE C.V., Concurrent delay in construction contracts: a deep dive from a UAE legal perspective, June 12, 2025, available at: https://www.linkedin.com/pulse/concurrent-delay-construction-contracts-deep-dive-uae-mphil-bec-r--hlt5c/.

KLING M.W. e GAINES T.A., *Damages in Construction Arbitrations*, published 1 February 2021, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/4th-edition/article/damages-in-construction-arbitrations.

NEC, *History of the NEC Contracts*, available at: https://www.neccontract.com/why-choose-nec/history?srsltid=AfmBOoo7nbBPUlBmhFvneXa8ErId7tPcWZEu6EEs81JSUM-govgy_Fmt.

LESSER S.B. and BACON B.A., *The AIA Introduces the Initial Decision Maker in Its Dispute Resolution Provisions*, 2008, available at: https://beckerlawyers.com/wp-content/uploads/2018/03/2076_lesser_20080316_better_worse.pdf.

LINCOLN & ROWE, *11 Key Differences Between Arbitration vs Litigation*, published July 17, 2023, available at: https://lincolnandrowe.com/2023/07/17/11-key-differences-between-arbitration-vs-litigation/.

LONG R. J., *Excusable, Non-compensable Delays*, Long International, 1 May 2023, available at: https://www.long-intl.com/blog/excusable-non-compensable/.

LONGSTAFF T., FINNAN J. and HEDAR D., Coronavirus: force majeure, frustration and illegality, April 8, 2020, available at: https://www.exchangechambers.co.uk/coronavirus-force-majeure-frustration-and-illegality/.

MAYO J., *Proactively Addressing Potential Construction Claims*, published 16 May 2025, available at: https://www.consensusdocs.org/news/proactively-addressing-potential-construction-claims/.

METROPOLITAN ENGINEERING, CONSULTING & FORENSICS (MECF), *Change Order and Extra Work Construction Claims*, available at: https://sites.google.com/site/metropolitanforensics/change-order-and-extra-work-construction-claims.

NADLER G., *Arbitration Is Meant to Be Expeditious—But Is It Really?*, *JAMS Blog*, published 2024, available at: https://www.jamsadr.com/blog/2024/arbitration-is-meant-to-be-expeditious-but-is-it-really.

NORLING B., Variations, January 31, 2023, available at: https://norlinglaw.co.nz/blog-posts/variations/.

OECD, *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, July 2017, available at: https://www.oecd.org/content/dam/oecd/en/publications/reports/2017/07/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-2017_g1g71100/tpg-2017-en.pdf

OOMMEN P., *Performing Disruption Analysis for Construction Projects*, 6 October 2021, available at: https://www.hka.com/article/performing-disruption-analysis-for-construction-projects/.

OPENAI, *ChatGPT (GPT-5), Response to the prompt "Explain the delay analysis methods employed in construction arbitration"*, available at: https://chat.openai.com/.

OSTENDORF P., The Shortcomings of English Contract and Related Areas of Law: A Case for Reform? An Outsider's (or Court Jester's?) View, LinkedIn, 12 September 2024, available at: https://www.linkedin.com/pulse/shortcomings-english-contract-related-areas-law-case-reform-patrick-o71me/.

MASTRANDREA F., *Acceleration of Construction Projects*, 7 February 2024, available at: https://www.hka.com/article/acceleration-of-construction-projects/.

MCCALLUM, HOAGLUND & MCCALLUM, The Evolution of Construction Law Guidance, 2 August 2024, available at: https://mhmfirm.com/articles/the-evolution-of-construction-law-guidance/

PARTRIDGE SNOW & HAHN, *Strategies for Negotiating Liquidated Damage Clauses*, Client Alert, 17 June 2016, available at: https://www.psh.com/strategies-for-negotiating-liquidated-damage-clauses/.

PATTERSON R., *How to Use NEC Secondary Option X1 on Price Adjustment for Inflation*, 23 May 2022, available at: https://www.neccontract.com/news/how-to-use-nec-secondary-option-x1-on-price-adjustment-for-inflation.

PARRA MARTÍNEZ S., *Projects: delay and cost claims under common and civil law*, 28 August 2020, available at: https://www.pinsentmasons.com/out-law/guides/projects-delay-cost-claims-common-civil-law.

SHARPE PRITCHARD, *Methods of Delay Analysis in Construction Projects*, 7 May 2024, available at: https://www.sharpepritchard.co.uk/latest-news/methods-of-delay-analysis-in-construction-projects/.

STEPHENSON G. and FRITH B., *Dispute Boards and the Olympic Games: A Tried and Tested Method of Dispute Avoidance, Part 3: Use of DBs on Previous Olympic Games Projects*, 2023, available at: https://www.corrs.com.au/insights/dispute-boards-and-the-olympic-games-a-tried-and-tested-method-of-dispute-avoidance.

STIEGLER S., *Claims for Prolongation Costs*, published 3 January 2024, available at: https://www.diales.com/en/news/claims-for-prolongation-costs.

TAM J., *Navigating Global Supply Chain Uncertainty: Force Majeure and Other Doctrines That May Excuse Contractual Performance*, published 8 April 2025, available at: https://supplychaincompliance.bakermckenzie.com/2025/04/08/us-navigating-global-supply-chain-uncertainty-force-majeure-and-other-doctrines-that-may-excuse-contractual-performance/.

TAN S., STAREY A., and COLDWELL B., *Security of Payment under FIDIC Contracts: More Secure, for Now*, Singapore, 2015, available at: https://www.inhousecommunity.com/article/security-of-payment-under-fidic-contracts-more-secure-for-now/.

TORRES-FOWLER R.Z., BATES A. Jr e HARRELL D.E. Jr, *Contractor's Claims, Remedies and Reliefs*, published 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/contractors-claims-remedies-and-reliefs.

TRAVELERS, *Risk Transfer: Understanding Potential Damages Due to Unexcused Construction Project Delays*, available at: https://www.travelers.com/resources/business-industries/construction/potential-damages-due-to-unexcused-project-delays.

TRENOR J.A. e LIM H-S., Navigating Force Majeure Clauses and Related Doctrines in Light of the COVID-19 Pandemic, available at: https://www.wilmerhale.com/-/media/9d863f06f56f4c02a3bb79ec7ad4f0f0.pdf.

ULLAH Z., *Delay Analysis Methodologies*, published 5 January 2021, available at: https://www.linkedin.com/pulse/delay-analysis-methodologies-zaka-ullah-gondal/.

VICKNAIR A., SHORE H., Delay Claims – Part II; Methods of Proving Delays and Required Documentation, 20 February 2025, available at: https://darcyvicknair.com/delay-claims-part-ii-methods-of-proving-delays-and-required-documentation-by-andrew-vicknair-and-heather-shore/

WIELICZKO, Max, *A COVID-19 Legal Toolkit for the Construction Industry: Force Majeure and Change in Law*, HFW Insights, 2025, available at: https://www.hfw.com/insights/a-covid-19-legal-toolkit-for-the-construction-industry-force-majeure-and-change-in-law/.

Miscellaneus

ADRA R., LINDSAY J., NORTHCOTT E. and VAN ESPEN E., Allocation of risk in construction contracts, Crowell & Moring LLP, August 12, 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/allocation-of-risk-in-construction-contracts.

AMERICAN INSTITUTE OF ARCHITECTS (AIA), *FAQs: Disputes, Claims, Arbitrations, and Litigations*, available at: https://help.aiacontracts.com/hc/en-us/articles/1500009276822-FAQs-Disputes-claims-arbitrations-and-litigations#faqs-disputes-claims-arbitrations-and-litigations-0.

AMLOGU R., KLINTON B., *Dispute Resolution in Construction Contracts: The Role of Arbitration*, January 2025, available at: https://www.researchgate.net/publication/387723777_DISPUTE_RESOLUTION_IN_CONSTRUCTION_CONTRACTS_THE_ROLE_OF_ARBITRATION.

A&O SHEARMAN, *Force Majeure and Imprévision under French Law*, 26 March 2020, available at: https://www.aoshearman.com/en/insights/force-majeure-and-imprevision-under-french-law.

BAL F.B., FIDIC - Brief History & Evolution of Standard Forms of Contracts, LinkedIn, 3 February 2024, available at: https://www.linkedin.com/pulse/fidic-brief-history-standard-forms-contracts-b-eng-mbe-pmp--khfhf/.

BANERJEE R., Delays, Disruptions, and the Impact on Construction Projects, Construction Law, 13 November 2023, available at: https://www.kppblaw.com/delays-disruptions-and-the-impact-on-construction-projects/.

BANKS P. D., MEIGHEN H. A., MORRISON P. (Trish), *Construction Arbitration: Canada*, Borden Ladner Gervais LLP, last verified on Monday 23rd June 2025, available at: https://globalarbitrationreview.com/insight/know-how/construction-arbitration/report/canada

BEG M.A., Time at Large: Concept and How It Applies, Robert Gordon University, November 2019, available at: https://www.researchgate.net/publication/338670577_TIME_AT_LARGE_Concept_and_how_it_applies

BOOLOGA SUNDARA VIJAYAN I., *Claims and Damages in EPC/Construction Contracts: Impact of the Russia-Ukraine War*, LinkedIn article, 2 June 2023, available at: https://www.linkedin.com/pulse/claims-damages-epcconstruction-contracts-impact-war-vijayan/.

BREMEN J., Contractors' Claims, Remedies and Reliefs, in *The Guide to Construction Arbitration*, 5th edn, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/contractors-claims-remedies-and-reliefs.

BREMEN J. and GRASSO M., Employers' Claims and Remedies, in *The Guide to Construction Arbitration*, 5th edn, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/employers-claims-and-remedies.

BROMLEY C., HAWKINS T., *Damages in Construction Arbitrations*, Secretariat, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/damages-in-construction-arbitrations.

BROMLEY C. and HAWKINS T., *Delays in Quantum and Financial Methods: Computing Costs and Damages*, in *The Guide to Construction Arbitration*, 5th ed., Global Arbitration Review, 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/delays-in-quantum-and-financial-methods-computing-costs-and-damages.

CAHER C., KRUEGER M. e CAI X., Documents and Other Types of Evidence in Construction Disputes, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/documents-and-other-types-of-evidence-in-construction-disputes.

CASE B.S., What to Do When Contract Performance Is Delayed?, CIC Law, available at: https://ciclaw.com/articles/what-to-do-when-the-contract-performance-is-delayed/

CHEUNG M., Construction Law in 2023: A Review of Key Legal and Industry Developments, i-law, 2023, available at: https://static.i-law.com/ilaw/SFE/pdf/2023_LLI_Construction_Law_Review.pdf.

CHEUNG M., Recent English Cases Reaffirm Certainty in Contractual Interpretation, International Bar Association, 5 May 2025, available at: https://www.ibanet.org/clint-april-2025-feature-4.

CHRISTENSEN M.J., PARK D. e KWON J.H., Non-FIDIC Standard Form Construction Contracts, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/non-fidic-standard-form-construction-contracts.

COHEN A.M., Construction Contracts: Provisions Regarding Dispute Resolution, Benjamin, Bain, Howard & Cohen, LLC, 4 October 2018, available at: https://www.lorman.com/resources/construction-contracts-provisions-regarding-dispute-resolution-17365?srsltid=AfmBOora5nrHfY2XGMpKh_NNO2trLWNC6nonRCB9gCZCZkoftOwXFKm0

COZZI F., The Italian Supreme Court Paves the Way to Further Expansion of Litigation Funding in Italy, National Law Review, 5 August 2024, available at: https://natlawreview.com/article/italian-supreme-court-paves-way-further-expansion-litigation-funding-italy.

D'ARCANGELO M. and EPSTEIN J., *A Justification for Esso v Plowman?*, *The Arbitrator & Mediator*, April 2006, available at: https://www7.austlii.edu.au/au/journals/ANZRIArbMedr/2006/4.pdf.

DAVIS W., *Delays in Construction Contracts in Qld*, 8 February 2025, available at: https://stonegatelegal.com.au/delays-in-construction-contracts-in-qld-complete-guide/.

DE CORDOVA P., English Contracts - Principles of Construction, Jurit, March 2016, available at: https://jurit.com/news/english-contracts-principles-of-construction/.

DEGLI ESPOSTI A., The Italian Legal Market for the Year 2022: State of Play and Steps Ahead, Chambers, 24 February 2023, available at: https://chambers.com/articles/the-italian-legal-market-for-the-year-2022-state-of-play-and-steps-ahead-3.

DI PAOLA L., SPANU P., *Concurrent Delays*, Studio Legale Bonelli Erede Pappalardo, available at: https://fidic.org/sites/default/files/12%20paola_concurrentdelays_oct06.pdf.

DLA PIPER, *Unmasking the Future: An Insight into COVID-19 Construction Claims Beyond the Pandemic*, 2023, available at: https://www.dlapiper.com/en/insights/publications/2023/08/unmasking-the-future-an-insight-into-covid19-construction-claims-beyond-the-pandemic.

ELLIOTT A., Applicable Law for Construction and Engineering Contracts: Constraints on Freedom of Choice, Pinsent Masons, 23 November 2023, available at: https://www.pinsentmasons.com/out-law/analysis/applicable-law-construction-engineering-contracts;

ELSING S.H. e TOWNSEND J.M., Bridging the Common Law–Civil Law Divide in Arbitration, Hughes Hubbard & Reed, available at: https://www.hugheshubbard.com/news/bridging-the-common-law-civil-law-divide-in-arbitration.

FENWICK ELLIOTT, Mastering Contracts - JCT 2005, available at: https://www.fenwickelliott.com/sites/default/files/Contract%206%20-%20Mastering%20Contracts%20-%20JCT%202005.pdf.

FITUCH M., How Will the *Rebus Sic Stantibus* Clause Affect Contracts Because of COVID-19?, The Impact Lawyers, available at: https://theimpactlawyers.com/articles/how-will-the-rebus-sic-stantibus-clause-affect-contracts-because-of-covid-19.

FRIEDRICH GRAF VON WESTPHALEN & PARTNER, *Force Majeure – under German, French and US Law*, 2020, available at: https://www.fgvw.de/en/news/archive-2020/force-majeure-under-german-french-and-us-law.

FUCHS J. E., IBRAHIM H., ZHAO T., *Proving Loss of Productivity in International Arbitration*, Delta Consulting Group, 19 July 2024, available at: https://globalarbitrationreview.com/review/the-arbitration-review-of-the-americas/2025/article/proving-loss-of-productivity-in-international-arbitration.

GIBBS S., The Status of the Society of Construction Law Delay and Disruption Protocol, Built Intelligence, 31 January 2025, available at: https://www.builtintelligence.com/blogs/home/the-status-of-the-society-of-construction-law-delay-and-disruption-protocol-by-sean-gibbs?srsltid=AfmBOoptNVGIe-Tt-Y31Jox75SfV-TI2EPl6nJzEwGHqYP2fkOYsjhh9

GIORDANELLI F., The Unification of Private Law in Times of COVID-19, LSE Law Review Blog, 7 September 2021, available at: https://blog.lselawreview.com/2021/09/07/the-unification-of-private-law-in-times-of-covid-19/.

GLOVER J., *Eco World – Ballymore Embassy Gardens Company Ltd v. Dobler UK Ltd*, *Dispatch Newsletter*, Fenwick Elliott, 7 September 2021, available at: https://www.fenwickelliott.com/research-insight/newsletters/dispatch/archive/eco-world-ballymore-embassy-gardens-dobler-uk

GLOVER J., *FIDIC, Force Majeure, Exceptional Events and the "But For" Test*, Fenwick Elliott Annual Review, 2018, available at: https://www.fenwickelliott.com/research-insight/annual-review/2018/fidic-force-majeure.

GOLDBERG K. e MAZZA E., *Damages Limitation Clauses in International Arbitration*, published 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/damages-limitation-clauses-in-international-arbitration.

GONZALES A., SCHULDES J., SALDANHA A. G., Quantifying Disruption in Power Projects Using the Measured Mile Analysis, Spire Consulting Group, LLC, available at:

https://www.spireconsultinggroup.com/wp-content/uploads/2021/04/White-Paper-Quantifying-Disruption-in-Power-Projects-Final-1.pdf.

GREENBERG VOGT J., *The Benefits of Arbitration in Construction Disputes*, *Construction Dive*, published Jan. 26, 2024, available at: https://www.constructiondive.com/news/benefits-arbitration-construction-disputes/705803/.

GRIPPA J., Emerging Trends in Construction Arbitration: Adapting to a Changing Landscape, Miles Mediation and Arbitration, 8 May 2024, available at: https://milesmediation.com/blog/emerging-trends-in-construction-arbitration-adapting-to-a-changing-landscape/

HEADY E.J., Construction Law-The History Is Ancient!, Smith Currie, 19 July 2012, available at: https://www.smithcurrie.com/publications/common-sense-contract-law/construction-law-the-history-is-ancient/.

HEGAZY M.M., *Major Differences between FIDIC, JCT, and NEC*, presented at EEA Conference, May 2021, available at: https://www.researchgate.net/publication/351624983_Major_Differences_between_FIDIC-JCT-NEC.

HILL R. e GILBERT J., Constructing a Low-Carbon Economy: Recent Developments in English Construction Law, White & Case, 24 April 2024, available at: https://www.whitecase.com/insight-our-thinking/constructing-low-carbon-economy-recent-developments-english-construction-law.

HISCOCK M., *Construction Delays Go to VAR*, Wright Hassall, 10 January 2025, available at: https://www.wrighthassall.co.uk/knowledge-base/construction-delays-go-to-var.

HOEPPNER J., *On Liability and Liability Clauses in German Law*, *JBB's Blog on German and European Technology and Data Privacy Law*, 12 June 2012, available at: http://germanitlaw.com/on-liability-and-liability-clauses-in-german-law/

HÖK G.-S., KAR P., An Interdisciplinary Commentary to the Approach of the Assessment of Disruption Claims from a German and an English Perspective, 23 January 2024, available at: https://www.ibanet.org/clint-january-2024-feature-5.

HSF KRAMER, *Price Adjustment Clauses: Legal and Commercial Implications for Construction Contracts*, 30 May 2023, available at: https://www.hsfkramer.com/notes/construction/2023-05/price-adjustment-clauses-legal-and-commercial-implications-for-construction-contracts.

HUNTER D., *Dispute Resolution: Option W2 in the NEC4 Engineering and Construction Contract*, Daniel Contract Management Services, available at: https://www.danielcms.co.uk/publications/news-blog/94-dispute-resolution-option-w2-in-the-nec4-engineering-and-construction-contract.

INTERNATIONAL CONSTRUCTION KNOWLEDGE HUB, *Escalating Construction Costs under FIDIC: Is Sub-Clause 13.8 an Answer?*, available at: https://internationalconstructionknowledgehub.com/escalating-construction-costs-under-fidic-is-sub-clause-13-8-an-answer/.

JABERI M.S. e HENDRY L., A Growing Need for International Enforcement of Construction Adjudication Decisions, International Bar Association, 22 November 2024, available at: https://www.ibanet.org/clint-november-2024-feature-4.

JACKSON S., Good Faith under English Law: Evolution or Revolution?, Pinsent Masons LLP, available at: https://dialnet.unirioja.es/descarga/articulo/8024594.pdf.

KENTON W., Critical Path Analysis (CPA): Definition, Purpose, and Example, Investopedia, updated 27 June 2025, available at: https://www.investopedia.com/terms/c/critical-path-analysis.asp

LARZUL O.C., Doing Business in Civil Law Countries – What to Know to Avoid Major Pitfalls and Key Areas of Concern During the Negotiation Process, published 1 November 2019, available at: https://www.pecklaw.com/news/doing-business-in-civil-law-countries-what-to-know-to-avoid-major-pitfalls-and-key-areas-of-concern-during-the-negotiation-process/.

LEBON C.H., *Liquidated Damages*, in *Government Contracting Database*, Cohen Seglias, updated 29 June 2018, available at: https://www.cohenseglias.com/government-contracting-database/liquidated-damages/.

LINKHORST LAW FIRM, P.A., Understanding the Types of Construction Delays, 19 November 2024, available at: https://www.floridahardhatlaw.com/understanding-the-types-of-construction-delays/

LORENZ & PARTNERS, *Comparison of Commonly Used Force Majeure and Hardship Clauses in International Contracts*, Newsletter No. 191 (NL109), available at: https://www.lorenz-partners.com/comparison-of-commonly-used-force-majeure-and-hardship-clauses-in-international-contracts/.

LOVETT G., WHELAN R., *Comparative Approaches to Concurrent Delay*, Akin Gump Strauss Hauer & Feld, 12 October 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/comparative-approaches-concurrent-delay.

KIEFER D., Suitability of Arbitration Rules for Construction Disputes, *The Guide to Construction Arbitration*, 5th ed., *Global Arbitration Review*, 2023, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/fifth-edition/article/suitability-of-arbitration-rules-construction-disputes.

KING A. and GOULD D., *NEC Dispute Resolution Provisions: A Comparison Between NEC3 and NEC4*, *Construction Law Review*, 2022–2023, available at: https://journals.cices.org/ces/construction-law-review-2022-2023/features/nec-dispute-resolution-provisions.

MACKAAY E., *The Civil Law of Contract*, SSRN Electronic Journal, January 2011, available at: https://doi.org/10.2139/ssrn.3554090.

MARKOVITS D., *Good Faith as Contract's Core Value*, NYU School of Law, 2011, available at: https://www.law.nyu.edu/sites/default/files/Markovits%20Good%20Faith%20as%20Contracts%20Core%20Value.pdf.

McCREA R., *The 2017 FIDIC Dispute Resolution Procedure: Part 1 – The New Dispute Resolution Mechanism*, London, 2018, available at: https://www.fenwickelliott.com/research-insight/articles-papers/contract-issues/2017-fidic-dispute-resolution-procedure-part-1.

MCDONALD A., VAN DER HOORN I., *Damages in Arbitration – A Perspective from the UK*, Insight Article, Clyde & Co, 16 May 2025, available at: https://www.clydeco.com/en/insights/2025/05/damages-in-arbitration-a-perspective-from-the-uk

McMILLAN D.D. and RUBIN R.A., *Dispute Review Boards: Key Issues, Recent Case Law, and Standard Agreements*, 2005, available at: https://www.jonesday.com/-/media/files/publications/2005/05/dispute-review-boards-key-issues-recent-case-law-a/files/disputereviewconstruction252spring05/fileattachment/disputereviewconstruction252spring05.pdf.

MURDOCH I., Limitations of liability in construction contracts, IHL, June 2003, available at: https://fidic.org/sites/default/files/13%20Limitations_of_liability.pdf.

NORTON ROSE FULBRIGHT, A Comparative Look at Good Faith and Changed Circumstances, Hardship and More - The Canadian Supreme Court's Decision in *Churchill Falls (Labrador) Corporation Limited v. Hydro-Québec*, September 2019, available at: https://www.nortonrosefulbright.com/en-de/knowledge/publications/759728ff/a-comparative-look-at-good-faith-and-changed-circumstances-hardship-and-more.

NORTON ROSE FULBRIGHT, Force majeure/hardship clauses and frustration in English law contracts amid COVID-19, United Kingdom, March 2020, available at: https://www.nortonrosefulbright.com/en-me/knowledge/publications/b54cf723/force-majeure-hardship-clauses-and-frustration-in-english-law-contracts-amid-covid-19.

NORTON ROSE FULBRIGHT, A Modernization of Italian Arbitration Law, May 2023, available at: https://www.nortonrosefulbright.com/en-sg/knowledge/publications/f3baa1b1/a-modernization-of-italian-arbitration-law.

NORTON ROSE FULBRIGHT, Joint Ventures: Choice of Law and Choosing the Right Dispute Resolution Forum, United Kingdom, available at: https://www.nortonrosefulbright.com/en/knowledge/publications/a0974408/joint-ventures-choice-of-law-and-choosing-the-right-dispute-resolution-forum.

OBEID Z. and KHALIFEH H., *Covid-19, Contractual Obligations and Force Majeure*, International Bar Association, 30 June 2020, available at: https://www.ibanet.org/article/d814f145-a77b-4bba-b93a-65678a94e83c.

OSWALD S., Conquering Common Challenges in Construction Contracts, IRMI, 7 March 2025, available at: https://www.irmi.com/articles/expert-commentary/conquering-common-challenges-in-construction-contracts.

PAMPHILIS D. e FRANCO F., Interim relief including emergency arbitrator in construction arbitration, published 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/interim-relief-including-emergency-arbitrator-in-construction-arbitration.

PARRA MARTÍNEZ S., Projects: Delay and Cost Claims under Common and Civil Law, Pinsent Masons, 28 August 2020, available at: https://www.pinsentmasons.com/out-law/guides/projects-delay-cost-claims-common-civil-law.

PARRY A., *The Improvement of Delay Analysis in the UK Construction Industry*, July 2015, available at: https://core.ac.uk/download/pdf/46520273.pdf.

PATIL S., CHAPHALKAR N. B., *Causes and Implications of Variation and Deviations in Construction Contracts*, available at: https://www.researchgate.net/publication/361209638_Causes_and_Implications_of_Variation_and_Deviations_in_Construction_Contracts.

PARK E.Y., SHARPE Z., HAN S. e KO H., Mandatory Laws and Extra-Contractual Claims, in The Guide to Construction Arbitration, 6th ed., Global Arbitration Review, 12 August 2025, available at: https://globalarbitrationreview.com/guide/the-guide-construction-arbitration/sixth-edition/article/mandatory-laws-and-extra-contractual-claims.

PECKAR & ABRAMSON, Doing Business in Civil Law Countries – What to Know to Avoid Major Pitfalls and Key Areas of Concern During the Negotiation Process, published 1 November 2019, available at: https://www.pecklaw.com/news/doing-business-in-civil-law-countries-what-to-know-to-avoid-major-pitfalls-and-key-areas-of-concern-during-the-negotiation-process/.

QLTS SCHOOL, Why English Law Governs Most International Commercial Contracts, QLTS Journal, available at: https://www.qlts.co.uk/blog/why-english-law-governs-most-international-commercial-contracts/.

REED P. e KERRY S., Frustration of International Construction and Engineering Contracts and COVID-19, Gatehouse Chambers, 24 June 2021, available at: https://gatehouselaw.co.uk/frustration-of-international-construction-and-engineering-contracts-and-covid-19/.

REDMANS, *Arbitration vs Litigation in Construction Disputes*, Redmans Solicitors, 2023, available at: https://redmans.co.uk/insights/arbitration-vs-litigation-in-construction-disputes/.

REILLY B., Procedural Good Faith in International Arbitration, Squire Patton Boggs, 2018, available at: https://www.squirepattonboggs.com/~/media/files/insights/publications/2018/08/procedural-good-faith-in-international-arbitration/31651--procedural-good-faith-in-international-arbitration.pdf.

RINCÓN ORDÓÑEZ R. e GUERRA TORO J.I., Non-compensatory Damages in International Arbitration, in The Guide to Damages in International Arbitration, 6th ed., Global Arbitration Review, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/non-compensatory-damages-in-international-arbitration.

RUSSELL V., Duties and liabilities of construction professionals, Capital Projects in the Education Sector, November 7, 2006, available at: https://www.fenwickelliott.com/sites/default/files/Other%203%20-%20Duties%20and%20Liabilites.pdf

SALSI G. e VASCELLARI B., *COVID-19: "I Started Something I Couldn't Finish" – Legal Consequences of the Pandemic on Contracts Governed by Italian Law*, K&L Gates, 19 March 2020, available at: https://www.klgates.com/COVID-19-I-Started-Something-I-Couldnt-Finish---Legal-Consequences-of-the-Pandemic-on-Contracts-Governed-by-Italian-Law-03-19-2020.

Saudi Arabia's Civil Transactions Law, International Bar Association, 25 July 2024, available at: https://www.ibanet.org/clint-june-2024-feature-3.

SAUNDERS R., *Construction Arbitration: New Zealand*, Wynn Williams & Co, last verified on 10 June 2025, available at: https://globalarbitrationreview.com/insight/know-how/construction-arbitration/report/new-zealand.

SESSLER A., CHAKRABARTI S., STEIN M., *Compensatory Damages Principles in Civil and Common Law Jurisdictions: Requirements, Underlying Principles and Limits*, in Skadden, Arps, Slate, Meagher & Flom, *The Guide to Damages in International Arbitration*, 6th edition, Global Arbitration Review, 21 June 2024, available at: https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/compensatory-damages-principles-in-civil-and-common-law-jurisdictions-requirements-underlying-principles-and-limits

SHALABY Y. e KHALAFALLAH A., *Change Order Disputes: Technical Causes and Negative Effects in Kuwait*, in Construction Research Congress, pp. 315–325, 2018, available at: https://www.researchgate.net/publication/327092847_Change_Order_Disputes_Technical_Causes_and_Negative_Effects_in_Kuwait.

SIMPSON M., *Liquidated Damages vs Penalty: Key Legal Differences*, UpCounsel, updated 8 August 2025, available at: https://www.upcounsel.com/liquidated-damages-vs-penalty.

SIVARAMAKRISHNAN P., The Benefits of Choosing English Law in Cross-Border Financial Transactions, Cogency Global, 4 April 2024, available at: https://www.cogencyglobal.com/blog/the-benefits-of-choosing-english-law-in-cross-border-financial-transactions-0.

STACK R.E., Three Global Drafting Considerations for International Construction Contracts, Faegre Drinker, 17 April 2019, available at: https://www.faegredrinker.com/en/insights/publications/2019/4/three-global-drafting-considerations-for-international-construction-contracts.

SUTHERLAND T., How Can a Commercial Contract Protect My Business from Unforeseen Circumstances?, LegalVision, updated 29 May 2024, available at: https://legalvision.co.uk/commercial-contracts/contract-protection-unforeseen-circumstances/.

TROUTMAN PEPPER, *Arbitrating Construction Disputes in the US*, *Practical Law Arbitration*, 2022, available at: https://www.troutman.com/a/web/335766/Arbitrating-Construction-Disputes-in-the-US-Practical-Law-Arbi.pdf.

VERMEERSCH B., Construction Contracts: How the "Time at Large" Remedy Could Resolve Pandemic Project Disputes, Lexpert, 7 June 2021, available at: https://www.lexpert.ca/news/legal-insights/construction-contracts-how-the-time-at-large-remedy-could-resolve-pandemic-project-disputes/356573.

WALDEK D. e LIM T.W., *Singapore Appellate Court Confirms Validity of Delay Liquidated Damages on Termination*, Herbert Smith Freehills, 7 February 2023, available at: https://www.hsfkramer.com/notes/construction/2023-02/singapore-appellate-court-confirms-validity-of-delay-liquidated-damages-on-termination.

WARNOCK D. e ARMITAGE A.J., Freedom of Contract Trumps the Doctrine of Prevention, Norton Rose Fulbright, September 2018, available at: https://www.nortonrosefulbright.com/en/knowledge/publications/42101f1a/freedom-of-contract-trumps-the-doctrine-of-prevention.

WEAVER Y., Basic Differences Between a Common Law System and a Civil Law System in Terms of Contracts and Business, LSL CPAs, 31 May 2016, available at: https://lslcpas.com/basic-differences-common-law-system-civil-law-system-terms-contracts-business/.

WHITELEY R. F., SAMPSON Jr. P. L., Important Terms for Price Escalation Clauses to Mitigate the Inflationary Effect of Tariffs on Construction Materials, Bracewell LLP, *National Law Review*, 12 February 2025, available at: https://natlawreview.com/article/important-terms-price-escalation-clauses-mitigate-inflationary-effect-tariffs

WITNESS EXPERTS, *The Fundamental Role of Neutrality in an Expert Witness: A Pillar of Justice*, 23 January 2024, available at: https://witness-experts.com/knowledge/the-crucial-role-of-neutrality-in-an-expert-witness-a-pillar-of-justice.

WOMBLE BOND DICKINSON, *Rebuild Ukraine: A Construction Disputes Perspective from the UK*, Womble Bond Dickinson Articles and Briefings, 11 April 2023, available at: https://www.womblebonddickinson.com/uk/insights/articles-and-briefings/rebuild-ukraine-construction-disputes-perspective-uk.

YOO B. e LEE S.-W., The Annual ICC FIDIC Conference Recap (Part I): Challenges and Emerging Trends in Construction Dispute Resolution, Wolters Kluwer Arbitration Blog, 5 November 2024, available at: https://legalblogs.wolterskluwer.com/arbitration-blog/the-annual-icc-fidic-conference-recap-part-i-challenges-and-emerging-trends-in-construction-dispute-resolution/

YULE I., The Prevention Principle and Time at Large, Shoosmiths, 6 March 2018, available at: https://www.shoosmiths.com/insights/articles/prevention-principle-time-at-large-13853.

ZAMIR H., Comparative Study of Price Adjustment Formula and Its Implications in Construction Contracts, uploaded 2018, available at: https://www.academia.edu/37345929/COMPARATIVE_STUDY_OF_PRICE_ADJUSTMENT_FORMULA_AND_ITS_IMPLICATIONS_IN_CONSTRUCTION_CONTRACTS.

ZAND PAZANDI A., FOROOTAN F., POURROSTAM T., RAVANSHADNIA M., *Arbitration of Disputes in the Construction Industry*, available at: https://journalsonline.academypublishing.org.sg/Journals/SAL-Practitioner/Construction-and-Infrastructure/ctl/eFirstSALPDFJournalView/mid/591/ArticleId/1798/Citation/JournalsOnlinePDF.

APPENDIX

This thesis benefited from the use of a Generative Pre-trained Transformer (GPT) Artificial Intelligence, which was employed as an aid in both clarifying and structuring certain sections − specifically, the part discussing delay analysis methods. The tool assisted in presenting the different methodologies in a coherent way, but the critical assessment and elaboration of these concepts remain solely the responsibility of the author.