CONSTRUCTION LAW INTERNATIONAL

FROM THE IBA INTERNATIONAL CONSTRUCTION PROJECTS COMMITTEE OF THE ENERGY, ENVIRONMENT, NATURAL RESOURCES AND INFRASTRUCTURE LAW SECTION (SEERIL)

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the global voice of the legal profession

Regulating retention: a lesson from New Zealand

Design v performance specifications in construction projects

Unforeseen circumstances and contract rebalancing

Construction Law International

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Articles should be submitted to **thaya@baskaranlaw.com**.

Articles/features should normally fall in the range of 3,000 and 4,000 words.

The author's name will appear with title but without post-nominal letters, etc. Please provide a very short description (<20 words), which should include the author's name, firm or organisation, city and email. For example: '[Name] is a [role] at [firm] in [city] and can be contacted at [email].'

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Downtown Auckland skyline and waterfront at dusk – Auckland, New Zealand. Credit: Nate Hovee/Adobe Stock

FROM THE EDITORS

Dear readers,

We are delighted to introduce the July issue of *Construction Law International* (CLInt), which should reach you before the IBA Annual Conference in Toronto between 2 and 7 November 2025.

This is the penultimate issue before I move from being the Committee Editor of the International Construction Projects (ICP) Committee to being Chair of the Editorial Board. My journey with CLInt has been long from the time Edward Corbett recruited me as a correspondent for Malaysia more than 15 years ago. I have been delighted to see the continuing international nature of this magazine with articles and updates from every continent.

We have a country update from India for this July issue. We also have feature articles on retention sums, as well as design and performance specifications. The much-awaited part two of the article on unforeseen consequences and contract rebalancing is included in this issue after part one appeared in the last issue in April. Finally, I had the pleasure of reviewing the *Conduct of International Arbitration Proceedings* by Yves Derains, the review for which can be found in this issue.

We thank our contributors for sharing their experience and insights. As always we encourage all ICP members to contribute to CLInt by submitting articles to Thayananthan Baskaran at thaya@baskaranlaw.com.

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FROM THE CO-CHAIRS

Dear ICP Committee Members,

As another quarter comes to a close, we find ourselves approaching the final stretch of our journey as Co-Chairs of the IBA International Construction Projects Committee (ICP).

We are deeply grateful to all officers and members who have supported us over the past two years. Your dedication and collaborative spirit are what make this committee truly exceptional.

We're now putting the finishing touches on our sessions and social events for the IBA Annual Conference, taking place from 2 to 7 November 2025 at the Metro Toronto Convention Centre, in Toronto, Canada. With moderators and speakers confirmed, we're working closely with our subcommittees to deliver another outstanding programme. Thank you to everyone who expressed interest in speaking and contributing – your enthusiasm is what drives our success.

Here's what's on the agenda for Toronto:

Monday 3 November
•1430–1545 – Financing mega construction projects
•1615–1730 – How cultural background of the parties may affect the effectiveness of alliancing, partnering & collaborative contracts and the disputes deriving thereof?

Wednesday 5 November
•0930–1045 – Contracting for projects relying on innovative technologies: do's and don'ts
•1430–1545 – Risk allocation and force majeure revisited against the background of climate change and abnormal weather
•2000–2230 – ICP Dinner – Hart House (Music Room), 7 Hart House Circle

Thursday 6 November
•1430–1545 – Decarbonisation, climate change resilience and adaptation goals as drivers of regulatory changes for designing, building and operating infrastructure projects
•1615–1730 – ICP Business Meeting

Friday 7 November
•0830–1400 – ICP Excursion

We especially look forward to welcoming you to our traditional ICP Dinner on Wednesday evening, which will include the return of the in-person Hard Hat Ceremony. During this special moment, we'll formally welcome the nominated incoming Co-Chairs, Doug Oles and Aarta Alkarimi, along with our newly nominated officers and subcommittee chairs. The dinner will take place at Hart House (Music Room), 7 Hart House Circle.

We can't wait to see you all in Toronto!

Warm regards,

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COUNTRY UPDATE: INDIA

Construction and air pollution – finding an environmentally sound way out

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Judicial activism in India has always held an integral place in the advancement towards climate change mitigation. Since time immemorial, the Supreme Court has passed landmark judgments and directions to uphold the rights of the individuals to live in a healthy environment. In this journey, the recent past where the Court upheld the fundamental right to be free from climate change[1] has only been a reflection of the continuing quest to work towards a sustainable future.

In November 2024, the Supreme Court of India, while dealing with an ongoing environmental protection case,[2] was tasked with a unique issue pertaining to the annual increase in the pollution levels within the National Capital Territory of Delhi and the overall implementation of the Graded Response Action Plan (GRAP) of the State Government, the effect of which had been reportedly insignificant during the year.

Faced with a distinctive dilemma of restraining from legislative intrusion while simultaneously working towards its goal of upholding the fundamental right to be free from adverse effects of climate change, the Court gave directions to the State to implement Phase IV of GRAP, whereby a complete ban was imposed on non-essential construction activities within the State, due to the latter activity's contribution to the generation of solid waste, ultimately resulting in an increase in air pollution rates. It was further resolved that the Court will deal with the issues concerning the environmentally sound management of construction and demolition (C&D) waste across the country, which is a growing issue in the struggle towards climate change mitigation.

The observations and the order of the Court raised an important, yet often avoided, issue relating to the role played by the construction industry in adding to the air pollution levels of India. Being an active participant to the production of particulate matter (PM) 2.5 – the cause of many diseases and severe illnesses – the construction industry has been enjoying informal leeway in its duty towards becoming environmentally sound, due to its significant role in supporting India's economic growth.

However, with the rising environmental concerns, and the recent goal of India to achieve net-zero carbon emissions by 2070,[3] this leeway may have become a threat to the overall stance being taken by the country in working towards reducing its carbon footprint.

The struggle to breathe

According to the 2024 *World Air Quality Report*, India ranked fifth in the list of 138 countries, regions and territories contributing to global air pollution.[4] An independent report published on 8 January 2025 specified that, out of the 100 cities reviewed at a global level, 84 lie within the Indian sub-continent, including Delhi, Patna, Gwalior and Meerut.[5]

India has been on a continuous struggle to catch its breath as pollution levels soar every year. With PM 2.5 being a common enemy, various government departments have been constrained to undertake periodic initiatives to cause an overall reduction of the Air Quality Index (AQI), which has reportedly been under the 'poor' category for many cities across the year.

In the case of Delhi, a city known for its rampant air quality management issues, the Commission for Air Quality Management (CAQM), has developed GRAP, the various phases of which call for the adoption of different measures as per the AQI, including a complete ban on the construction activities when AQI levels go beyond 450.

On the other hand, cities like Mumbai have been working towards the establishment of plans to tackle concerns over decreasing air quality, wherein their primary target has been dust mitigation.

While such plans have potential positive effects subjective to the manner of their implementation, the need for a nationwide plan to control the rampant increase in the AQI has become dire.

This is stated on account of the various forms and manners in which the construction and infrastructure industry has been contributing to the pollution levels, whether concerning air, water or soil. Another major source of pollution linked to construction activities is C&D waste. Managing this waste effectively is essential to reduce its increasingly harmful impact on the environment.

Government action and the C&D management rules

The construction sector of India has historically lacked dedicated environmental legislation and has been governed mainly by general environment protection legislations of India, including the Air (Prevention & Control of Pollution) Act, 1981. Although

these enactments are well enforced in certain situations, there is a clear need for dedicated laws which may invoke greater and more streamlined responsibility of the sector towards the environment.

On 9 April 2025, the Ministry of Environment, Forests, and Climate Change (MoEFCC) accepted this need through the notification of the Environment (Construction & Demolition) Waste Management Rules, 2025 (the '2025 Rules'). Providing a holistic approach towards the management of C&D waste, the 2025 Rules offer an innovative outlook through the introduction of definitive provisions, and detailing the roles to be played by relevant stakeholders, including the central and state pollution control boards, waste storage facility operators and the 'waste producers' (construction companies) in the overall management of the C&D waste. A few of the provisions introduced through the 2025 Rules include the following.

Responsibilities of waste generators and producers

The 2025 Rules describe a waste generator as the 'occupier of the project', having full control over the waste-generating construction or demolition activities. These stakeholders have been made responsible for undertaking steps for the prevention of air pollution, littering of waste, and an avoidance of public nuisance during the collection, segregation and storage of C&D waste.

Waste storage procedures

Rule 17 invokes the liabilities of local authorities for establishing waste storage facilities in certain cases, and to further ensure that the facilities do not cause any form of public nuisance, or pollute the air or water.

Environment compensation

Rule 18 is a remarkable addition, by way of which responsibility has been attributed to the relevant stakeholders for ensuring compliance with the provisions of the 2025 Rules. Failure may lead to the invocation of liability to pay 'environment compensation', which may be equal to any loss, damage, or injury caused to nature. It has been further specified that the compensation so collected must only be used for specified purposes, including the collection and recycling of uncollected, legacy, or orphan waste.

The provisions may give a reasonable inference to the fact of the 2025 Rules being a transformative piece of legislation, worthy of being commended for the proposed initiatives towards recycling and efficient management of C&D waste.

Another reflection which may be taken from the 2025 Rules is the potential impact of dedicated laws in bringing about a certain level of accountability of the industry with respect to the baton of environment protection – thus causing the relevant stakeholders to work towards an environmentally sound development of the nation.

Mending fences

In the *MK Ranjitsinh* case,[6] the most recent reflection of the Supreme Court's endeavours to protect individuals from climate change, the Court held the right to be protected from adverse effects of climate change to be a fundamental right enshrined under Article 21 of the Constitution of India. Considering this landmark, it becomes essential that active measures are adopted for the protection of citizens from the adverse impacts of increasing levels of pollution by adopting different methods, including sustainable or clean construction.

The 'clean construction' approach promotes the use of various methods, including the barricading of construction sites with 'windbreaks' and vegetation-based mulching of soil, to decrease the overall environmental burden carried by the industry. Many of these methods carry minimal monetary burdens, and reflect efficient manners of tackling the pollution-causing factors associated with construction activities, including the extensive production of dust.

India has not been oblivious to this approach: a practical application of clean construction may be found within the city of Surat, where the World Resources Institute has assisted in the achievement of a significant reduction of construction-related pollution by adopting simple measures like the water sprinkling and covering of stone-cutting areas to achieve dust mitigation.

On a wider level, the approach is also being promoted by the MoEFCC. In September 2024, it established the India Alliance for Clean Construction (IIAC) to serve as a platform for connecting key construction stakeholders to 'drive clean air-focused practices in construction'. While the alliance is at a nascent stage, the impact of the establishment altogether is extremely positive and paints a picture of a more environmentally sound future for the construction industry.

Working towards a sustainable future

The role of the construction industry in India's economic goals is unambiguously significant. However, India's ambition of reducing its carbon footprint and providing better quality of life to its citizens is also prominent and well established. Thus, while the various measures being taken by the government and its functionaries

require due credit, there may be a need for such measures to be implemented in an efficient and expedited manner for both of India's ambitions to align without mutual contradictions.

It may only be after such an alignment that the nation achieves an environmentally sound economic growth, where the citizens are free to live and breathe.

Notes

1 *MK Ranjitsinh & Ors v Union of India*, 2024 INSC 280: [2024] 3 SCR 1320.
2 *MC Mehta v Union of India & Ors*, WP (C) 13029/1985, before the Supreme Court of India.
3 '7.93% Drop in GHG Emissions: India's Progress Towards Climate Resilience' (Ministry of Environment, Forest and Climate Change, 12 January 2025), see https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2092311#:~:text=In%20response%2C%20India%20pledged%20to,sustainable%2C%20climate%2Dresilient%20future.
4 Vishwa Mohan, 'With 13 of 20 most polluted cities, India ranks 5th globally' (*Times of India*, 12 March 2025), see https://timesofindia.indiatimes.com/india/with-13-of-20-most-polluted-cities-india-ranks-5th-globally/articleshow/118909491.cms.
5 Ed Gresser, '*Fact: India has 84 of the World's 100 Most Air-Polluted Cities*' (Progressive Policy, 23 April 2025), see www.progressivepolicy.org/india-has-84-of-the-worlds-100-most-air-polluted-cities/.
6 See n1 above.

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Downtown Auckland skyline and waterfront at dusk - Auckland, New Zealand. Credit: Nate Hovee/Adobe Stock

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Regulating retention: a lesson from New Zealand

There are two contradictory facts about retention in the construction industry that must be reconciled: on one hand, it is the most widely used form of security in the industry; in contradiction, there are major issues in using it. Different measures have been taken by common law countries to address retention issues, including abolishing retention or introducing alternative security instruments for the parties. While each of these solutions has its problems, New Zealand's solution of regulating retention by legislation can be a role model for other countries. This article delves into retention, its key issues, proposed alternative solutions, and the approach taken by New Zealand in dealing with retention.

'We must end the retentions culture in construction and consign it to the steel dustbin of history':[1] must we?

Introduction

Although a form of contract drafted for the Military Barrack Office in 1805 had provisions for retention at 12 per cent of the value of the work certified,[2] all the blame for the expansion of retention lies with the construction of the UK railway system in the 1840s. This large-scale railway construction project fostered an environment that encouraged new players to enter the construction industry to meet the rising demand. However, many of these

new contractors were unable to successfully execute the work, leading to a high number of insolvencies. To address this issue, railroad companies began withholding 20 per cent or more of the contractors' payments.[3]

Soon after, the practice of retention grew to widespread use throughout the 19th century,[4] and even a contract for building a public house in 1866 for the sum of £872 contained 25 per cent retention to protect the employer against failure of the contractor before completion, requiring the services of another contractor to complete the works.[5] This practice also spread to the rest of the construction industry: today, the retention system has become a vital part of any contract document for construction projects.

'Retention', also known as 'retainage' or 'holdback' in the United States and Canada, refers to a practice in construction contracts where the client withholds a portion of the contract value until the work is satisfactorily completed. The main contractor typically cascades the same retention through the entire delivery chain, including project subcontractors and vendors, to manage the impact of the retention deduction. The specific amount of money that can be withheld as a retention is subject to negotiation between the parties. Typically, the retention is around 3–10 per cent of the value of the work performed by the contractor.[6] The principal (client) shall release a portion of the withheld retention money, usually around 50 per cent, upon the practical completion of the works. The remaining retention money will then be released after the expiry of the contractually agreed defects liability period or the maintenance period.[7]

Retention was initially implemented in the construction industry as a mechanism to safeguard project performance.[8] However, given the significant transformation that the industry has experienced over the past century or so, the continued existence of retentions has become rather questionable. Eddie Williams argued:

> 'Given the volatile circumstances in which retainage originated, it is a historical oddity that retainage remains commonplace today when construction markets are so very different.'[9]

Therefore, there appears to be a disconnect between the actual and the intended purpose of retentions. The existing literature on retentions outlines several of its uses. Arguably, it is important to assess whether retentions are truly fulfilling the purposes for which they were originally established. This paper will argue that the real problem lies in the misuse of retention funds and hence an abolishment of the clause would be tantamount to 'throwing out the baby with the bathwater'.

To add to the now-questionable use of retention clauses, a few problems have been identified, including adverse impacts on the cash flow of contractors, sums held are always being at risk of being lost owing to insolvencies, and the retention release being abused by employers. Hence, some countries have abolished the practice of retentions, finding alternative provisions to deal with the risks for which retentions were originally implemented. Others have attempted to outlaw the practice but have been unsuccessful. Yet, there are some countries that appear content with the ongoing practice of retention and consider it to be useful.[10]

As an example, following the collapse of a major contractor who owed substantial retention funds to subcontractors, New Zealand has reformed the law governing retentions, becoming a pioneer in limiting this practice by legislation. The first reform mandated that retentions be ringfenced and held in trust. The second reform tightened the requirements around accounting and record-keeping, made it easier for subcontractors to access retention funds, and introduced criminal penalties in the form of fines for non-compliance with the retention regulations.[11]

This article first addresses the purposes of using retention in the construction industry and discusses the difficulties in using retention. It then considers the solutions proposed for such difficulties and alternative options for protecting the quality of work. Finally, this article analyses the New Zealand approach towards retention, with the aim of identifying a potential role model for other countries to emulate.

Reasons behind the popularity of retention

Construction projects are distinctive undertakings that typically require a significant financial and resource commitment. Each project is often highly complex, involving the application of novel methods and technologies, and is generally subject to strict time and cost constraints. Due to the

substantial cost and duration of construction activities, partial payments for the work are typically disbursed during the production process. In essence, project owners provide partial payment for an 'incomplete product' prior to the project's completion and final acceptance. Extending payment during the production phase carries inherent risks, including the potential for overpayment for the work completed, payment for defective work, and the continued solvency of the involved parties until the project is complete.[12] To counter these risks, the practice of retainage has evolved as a common approach in the industry.

Therefore, there appears to be a disconnect between the actual and the intended purpose of retentions.

According to a survey conducted in 2012, ten reasons were identified for using retention in the construction industry.[13] The varied purposes of retentions, as outlined in the table below, share a common element of performance security in one form or another. This security is intended to either rectify defects or address non-performance due to insolvency, or simply to incentivise good performance by the contractor. Some of the applications of retentions are valid during the construction phase, while others are relevant for the defects liability period or the maintenance phase. The purposes listed in Table 1 are also ranked (1 to 5) in the order of most important to the least important in the minds of the industry players.

At first glance, the current retention practice appears uncontentious: for principals or head contractors, it guarantees that the contract work is free of defects, while in principle, the contractor/subcontractor's money is safeguarded and eventually released after a contractually agreed specific event or circumstance occurs. Moreover, withholding cash retention is the best assurance for principals and head contractors compared to other types of guarantees. Many subcontractors lack the ability to obtain bank guarantees, or would need to do so by offering valuable working capital or personal assets as collateral. At the same time, principals and main contractors are often hesitant to accept surety bonds due to the perceived risks associated with them.[14]

Description of purposes of retentions	**Rank**
Performance security – eg, to assure project completion or complete outstanding work or in case of non-performance	1
Rectify defects during the defects liability period	2
Leverage to get defects put right	3
Motivation/incentive for early or timely completion	3
Protection against insolvency	4
Rectify defects during construction	5
Financial security in case of overpayment	5
Administrative convenience	5
Funds to pay mechanic's lien	5
Quality assurance	5

Table 1: Purposes of retentions

On the other hand, those holding the retentions are essentially given carte blanche as to how they hold and use retention money, which results in several issues.

The key issues relating to retention

The implementation of retention mechanisms unfortunately has become tainted by exploitative practices which frequently culminate in the delayed or non-payment of retention monies to subcontractors. These abusive practices have overshadowed and undermined the unique advantages that retention once provided to the construction industry as a straightforward, effective, economical and readily available form of performance security.[15]

According to the study conducted by the *Pye Tait Report*[16] into retentions in the English construction industry, several issues emerged. Delays in paying retention monies appear to be commonplace in the construction sector, and the contractor survey also provided evidence of frequent non-payment of retentions. Delayed or non-payment of retention monies may also weaken relationships throughout the construction supply chain. Furthermore, according to this survey, head contractors sometimes utilise these retention monies as their working capital (such as for labour costs) or incorporate them into their general expenditures.

Insolvency is another issue, as most principals hold retentions in their own bank account. This suggests that for contractors there is no protection from upstream insolvencies, as retention monies held against their work are not typically ringfenced in a separate account which is at arm's length from the normal business accounts of the principal. The insolvency of a single large main contractor or client can have widespread ramifications across multiple contractors within the supply chain. This is because the insolvent main contractor or client is, in most cases, simultaneously involved in a substantial number of projects and construction contracts with various subcontractors at a given point in time. Consequently, the financial failure of the principal entity can trigger a domino effect, adversely impacting a wide range of subordinate contractors throughout the supply chain.

Subcontractors can also experience a drain on cash flow due to retention, exacerbated by issues such as overdraft fees and limited access to finance, as well as incurring additional administrative time as a result of the practice of retentions. Evidence gathered from another part of this survey also indicates that a proportion of contractors increased tender prices to offset retention. This can also have an impact on the wider economy, as it may be a factor in reducing the competitiveness of businesses and incurring higher costs for clients. The survey also shows that, if contractors have less readily available working capital where monies are held in retention, this may have an impact on the economy as a whole if construction sector business growth is obstructed.

The aforementioned key issues relating to retentions are listed in Table 2 and ranked 1 to 5 in the order of most problematic to the least in the industry.

The Key issues relating to retentions	**Rank**
The late and non-payment of retention money by holding parties	1
Employers/head contractors using retention money they are holding on behalf of their subcontractors as working capital	2
Insolvency of employers/head contractors	3
Considerable strain on the supply chain, predominately on subcontractors and their ability to maintain cash flow to their business	4
Increasing tender prices to cover retention risks	5
The use of retention provisions is divisive and weakens relationships throughout the construction supply chain	5
Retention may constrain business growth	5

Table 2: Key issues relating to retentions

It must also be noted that almost all businesses and subcontractors that are subject to retentions believe that some form of assurance is needed in construction contracts.[17] Therefore, alternative mechanisms to retention should be explored

to find whether they are suitable replacements for retention.

Proposed solutions to retention issues

The negotiation of security provisions by a principal is often influenced by a variety of factors, including concerns regarding the potential inadequacy of damages as a remedy for non-performance and project funding requirements.[18] Conversely, a contractor's or subcontractor's approach to negotiating such provisions is frequently driven by considerations related to cash flow and business operations. Those receiving security seek to mitigate their exposure to the risks of non-performance, while those providing security are primarily concerned with maintaining the operational viability of their business.[19]

The insolvency of a single large main contractor or client can have widespread ramifications across multiple contractors within the supply chain.

Despite the widespread use of cash retention across all levels of the construction industry, retention is not universally considered an appropriate or desirable form of security.[20] As an alternative to retention, it is also common practice for contracting parties to agree on the use of alternative security instruments, either as a substitute for or in addition to cash retention. These alternative security mechanisms – discussed below in brief – often include:

- retention bonds;
- performance bonds;
- escrow accounts;
- parent company guarantees; and
- retentions held in trust funds.

Retention bonds

A retention bond, also referred to as a retention guarantee or retention surety bond, is a financial mechanism provided by a bank or surety company to a project owner or client. This bond serves as a substitute for the retention amount that the project owner would typically withhold from the contractor. In essence, the bond ensures that the surety company will pay the retention amount to the project owner if the contractor fails to fulfil their contractual obligations or defaults on the project. If the retention bond is accepted after withholding a part of the payment due to the contractor as retention, the principal must then release retention as the security provided by retention money is now located in the bond.[21]

Performance bonds

A performance bond functions as a risk mitigation mechanism, designed to ensure that compensation is provided to the client in the event that a contractor fails to fulfil their contractual obligations. In this arrangement, a third party, typically a financial institution such as a bank or insurance company, undertakes to pay a specified sum of money to the client, who may be the main contractor, should the contractor be unable to meet their commitments. However, unlike retention bonds, the value of the performance bond does not reduce at the point of practical completion.[22]

It is believed that both the use of retention bonds and performance bonds in lieu of retention money are generally unsuitable alternatives for most subcontractors.[23] Subcontractors typically have insufficient assets to provide the necessary security required by banks before they act as a surety for a bond. Furthermore, bonds would potentially increase prices across projects as a result of reduced competition, as potentially many subcontractors may exit the market because they cannot obtain bonds at a reasonable price.[24] Within the European construction market, particularly in the United Kingdom, the prevailing view is that on-demand performance bonds are not readily available for civil and building projects.[25] As such, construction clients more commonly procure default performance bonds, if at all.[26] From the principal's point of view, even an on-demand bond bears the risk of nonpayment since the contractor would be able to restrain the principal from calling upon the retention bond by filing a case in court.[27]

Escrow accounts:

An escrow account functions as a mechanism to segregate a portion of a contractor's

funds as security for interim payments. In this arrangement, the principal deposits an agreed-upon sum, often equivalent to two or three months' projected interim payments, into an independent, interest-bearing deposit account managed by a third-party stakeholder. This account can be jointly held by the principal and contractor, or maintained by a solicitor acting as an agent on their behalf. The primary purpose of these accounts is to act as a security, allowing the contractor to access the escrowed funds only in the event that the employer fails to make one of the regularly scheduled payments stipulated in the building contract.[28] Principals are unable to use the money deposited in the escrow account for other purposes, such as working capital, as they would be able to with the cash retention. However, escrow accounts are not generally viewed as a form of security against defects, and a more important purpose is to provide a form of security in the event of insolvency (of the principal and/or main contractor, depending on how the account is set up).[29] Furthermore, to use an escrow account parties may have to spend additional time administering payments and bear the additional professional time and costs of the others involved in operating that account.[30]

Parent company guarantees

In the construction industry, a parent company guarantee is a type of guarantee where the immediate or ultimate parent company of the contractor promises to be responsible to the principal if the contractor fails to perform their obligations under the contract. In other words, if the contractor fails to do so, the guarantor agrees to pay the principal for any losses arising from the contractor's failure.[31] The specific liability of the parent company depends on the wording of the contract in each case which is determined through negotiation before the contract is finalised. It is common for the construction contract to require the contractor to obtain such a parent company guarantee as a prerequisite for the right to call for payment under the contract.[32]

Prima facie, such a third-party guarantee provides an incentive for contractors to return to remedy defects and they incur only minimal costs in procuring such a guarantee, though further research revealed that the extent of a guarantor's liability is not always straightforward and is frequently the source of disputes.[33] Resolving these types of disputes can be both costly and time-consuming. Moreover:

> 'There are two main drawbacks of using a parent company guarantee in place of retentions in the construction sector. Firstly, not all contractors have a parent company and therefore would not be able to provide the guarantee, and secondly, there is no security if the parent company goes into administration.'[34]

Therefore, third-party guarantees are not commonly used as the sole form of security compared to other types of security arrangements.[35]

Retentions held in trust

A retention held in a trust fund (or account) is a set-aside fund that would have otherwise been withheld by the client or employer in their own financial records. The client or main contractor is required to establish a dedicated account and deposit enough money to cover the costs owed at the conclusion of the contract. This retention money is therefore ringfenced and distinctly identified from the start of the project while it is protected in the event of the client or contractor becoming insolvent. According to the *Pye Tait Report*:

> 'Although evidence is limited, there is sufficient information to suggest this option as a potential alternative means of implementing cash retentions that would work across the construction sector.'[36]

the optimal model for any security of payment scheme is that retention money is held in a retention trust account for the duration of the construction project

A recent article that analysed the strengths and weaknesses associated with retention trust accounts in Australia and New Zealand also proposed that the optimal model for any security of payment scheme is that retention money is held in a retention trust account for the duration of the construction project until it is due to be paid or otherwise applied under the terms of the contract.[37] In a similar article, Ali Al Ebrahimi suggested the implementation of a deemed statutory trust framework.[38] In this model, a statutory trust account will be created whereby a principal makes progress

payment to the head contractor; in return, the head contractor is required to hold the relevant proportion owed to the subcontractor on trust.[39] This requirement will then cascade down the contractual chain, meaning that further trust will be required by law and within each tier of the pyramid scheme.[40]

A study was conducted in 2020 in Scotland regarding retentions in the construction industry, a part of which was allocated to alternative mechanisms to retentions.[41] As indicated in Figure 1, when asked what options they thought should be 'applicable for wider use across the whole sector', most respondents (42 per cent) agreed that retentions should be held in trust, with 27 per cent agreeing with retention bonds and 24 per cent saying escrow stakeholder accounts.

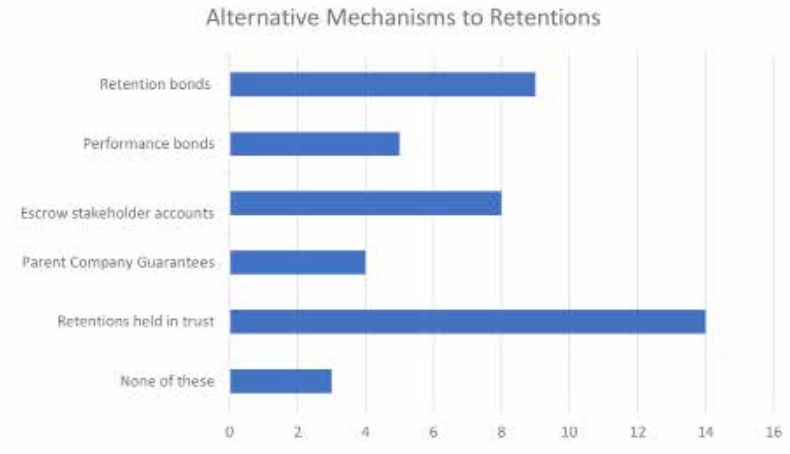

Figure 1: Alternative mechanisms to retentions

Although the general prohibition of retention had its supporters,[42] New Zealand decided to use this alternative solution to restrict retention. On 31 March 2017, it introduced a retention trust scheme that applies to parties in construction contracts.[43]

New Zealand's retention trust scheme

Although it is relatively common for main contractors in New Zealand to provide clients with both bond and retentions as security, subcontractors usually only provide retentions as security. This is because subcontractors, who are often small companies, are generally not in a strong enough financial position to obtain a performance bond from a third party or provide the necessary security (such as cash or a property mortgage) to a bank in order to get a bank guarantee.[44] Therefore, the retention practice had been open for abuse by principals and head contractors, which made the legislators look for a solution.[45]

The first attempt to secure payment to contractors in New Zealand can be traced back to the Contractors and Workers Liens Act of 1892. This legislation was originally based on the American model and underwent further changes and amendments over the years, with the most significant ones occurring in 1939 under the Labour government of Michael Joseph Savage. The main focus of this legislation was that even though the retention monies were held, the contractor and, more importantly, their subcontractors maintained a lien on the principal's land and chattels until all monies were recovered. This legislation was revoked by another Labour government under the Wages Protection and Contractors' Liens Act Repeal Act of 1987, which made it difficult for subcontractors to recover retentions.[46]

In 2001, a family company – Hartner Construction – filed for bankruptcy, leaving behind debts totalling more than NZ$30m and no funds available to pay unsecured creditors (subcontractors). This led to the enactment of the Construction Contracts Act 2002, which aimed to give subcontractors a degree of security around payments. Since the Act came into effect on 1 April 2003, it is reasonable to say that payment behaviours at the head contractor level have largely improved. The previously common 'paid when paid' or 'paid if paid' clauses have, with few exceptions, become a thing of the past. Most in the construction industry now understand and adhere to, at least in a formal manner, the payment claims and payment schedule procedures outlined in the Act.[47] Just over ten years later, however, the collapse of another major construction company showed that retention practice is an issue that should be addressed in the Act.

Spark Arena in Auckland, the ASB Sports Centre and the Supreme Court building in Wellington are landmark buildings that were constructed by Mainzeal Property and Construction Limited, which was for a time the third-largest commercial construction company in New Zealand. But in a shock to the construction industry, Mainzeal collapsed in 2013 and was put into liquidation. When Mainzeal collapsed, owing at least NZ$110m, at least NZ$18m of that was for 'retentions',[48] which highlighted

a requirement for a new retention regime to change behaviour and ensure that clients and head contractors no longer used retention money as a means of transferring business risk to subcontractors.

The Construction Contracts Amendment Act 2015 and the Regulatory Systems (Commercial Matters) Amendment Act 2017 amended the Construction Contracts Act (CCA). These amendments, collectively referred to as the 'Retention Money Provisions' or the 'Retention Regime', aimed to ensure that retention money is protected and responsibly managed.[49] The principal changes made to the CCA were in relation to the following requirements:

- retention money must be held in trust;
- accounting records must be kept; and
- rights to inspect retention money records.

The Retention Money Provisions, contained in subpart 2A of CCA, came into effect on 31 March 2017 and applied to all commercial construction contracts entered into after this date.

The Retention Money Provisions stated that all retention money must be held in trust for the benefit of the contractor in the form of cash or other liquid assets that are readily converted into cash.[50] The retention money does not, however, need to be paid into a separate trust account and can be commingled with other funds.[51] The funds may be invested, and the party withholding the funds is entitled to the benefit of the appreciation of the investment and interest up to the date the retention money is payable. If the funds are invested, the party withholding them is also liable for any shortfall resulting from realising the investment.[52] A party withholding retention money must also ensure it keeps proper accounting records of all retention money held on trust or that is protected by a financial instrument, as well as records of any transactions in relation to the funds.[53] A party withholding retention money must make the records available for inspection to the party the retentions are withheld from at all reasonable times and without charge.[54]

While the Retention Money Provisions were beneficial in regulating retention, explicitly permitting head contractors to combine retention money with their other funds was problematic when viewed within the context of general trust law. It is a fundamental and uncontroversial principle of trust law that trust property must be identifiable in order for a trust to exist.[55] Furthermore, if retention monies are held in trust and cannot be identified (and subsequently traced) once mixed with other funds, then considering retentions as trust property does not provide any advantage to subcontractors in the event of the head contractor's liquidation. In this scenario, the only recourse available to the subcontractor would be a damage claim, which would rank equally with the claims of all other unsecured creditors.[56]

Requiring head contractors to maintain 'proper accounting records' of the retention monies, including details of 'all dealings and transactions' related to the funds, will increase the likelihood of a subcontractor being able to trace and identify its funds in the event of the head contractor's liquidation. However, the onus will be on the subcontractor to regularly inspect the accounting records, which may necessitate engaging a forensic accountant if the retention monies are mixed with other funds.[57]

The said drawbacks surfaced in a number of construction firm insolvencies, the highest profile of which were Ebert and Arrow. At the date of insolvency, Ebert had withheld NZ$4,466,071 of retentions for contracts entered into on or after 31 March 2017; and Arrow withheld NZ$4.53m for contracts entered into on or after 31 March 2017.[58] The court in *Ebert* made an order appointing Ms Bennett, Mr Fisk, and Mr Longman to be receivers of the retention trust fund and allowing them to deduct their fees and expenses in administering the fund, reducing the funds available for subcontractors. In Arrow's case, the liquidators were administering the retention fund as agents of the company and were not seeking a court order to support this.[59]

To address these issues, On 5 April 2023, the Construction Contracts (Retention Money) Amendment Act 2023 was passed. The changes in the Amendment Act further strengthen and clarify protection for subcontractors' retention money and make it easier for subcontractors to access retention money without a court order, in the event of a company's insolvency. Parties to commercial construction contracts entered into after 5 October 2023 will need to comply with the new retentions regime set out in the Act. The key changes applied to the CCA are as follows:

- Retention money is automatically deemed to be held on trust by the party who is entitled to hold retention money, for the benefit of the party from whom retention money is withheld. The party who is entitled to hold the retention money does not need to actively create a trust.[60]
- The party holding retention money must hold that money in a separate bank account. The bank account must be registered in New Zealand, and it must be used solely for the purpose of holding the retention money. The party holding the retention money must advise the bank that the account is for the purpose of holding retention money.[61]
- The party holding the retention monies must maintain detailed accounting records pertaining to the retention monies. These records should be made available to the party from whom the retentions are being withheld on a quarterly basis. However, the records must be accessible for inspection at any reasonable time and without charge.[62]
- The party holding the retention money can only use it for the purposes set out in the construction contract and must comply with the provisions governing the use of retention money. The party holding the retention money must give a minimum of ten working days' notice that it intends to use the money for the purpose of remedying defects and give details of the defects to be remedied.[63]
- Failure to hold retention money in accordance with the requirements of the legislation is an offence, and a party who holds retention money is liable for a fine of up to $200,000 per offence. If the party holding the retention is a body corporate, each director also commits an offence and is liable for a fine of $50,000 per offence.[64]
- When a liquidator or receiver is appointed, the party holding the retention money ceases to be a trustee of the retention money (the liquidator or receiver steps in and is the 'new trustee'). The new trustee must notify the party from whom the retention money is withheld within ten working days of their appointment. The new trustee can have reasonable costs and fees met from the retention money on trust.[65]

These changes should provide contractors and subcontractors with more confidence that their retention monies are not being used as working capital. Additionally, recording and reporting requirements as well as enforcing penalties for noncompliance will help to some extent in compliance with the regulations. Moreover, if a principal or head contractor fails to release retention money on the day it becomes payable, the principal may have to pay interest to the contractor[66] which could be a solution for delay in release of retentions. Although the teething problems with the new legislation show that creating a retention regime that actually works is no easy task,[67] it seems the New Zealand retention scheme addressed major retention issues in the construction industry as identified in this article.

Conclusion

There are two well-recognised facts regarding retention practice in the construction industry: namely, it is the most commonly used performance security in the construction sector[68] and there are significant problems in using it that create several challenges in the whole industry.

Abolishment of retention was proposed by a few countries, such as in the UK, in order to resolve the conflict between these two facts.[69] However, it is criticised as not being workable because there is no genuine alternative form of security both available to all industry participants and viewed as acceptable by principals and head contractors. In addition, 'principals and head contractors will inevitably find ways to work around blanket prohibitions'.[70] Therefore, the issue is not with the concept of retention as a form of security itself. The real problem lies in the misuse of retention funds by the parties holding them. If regulation is deemed necessary, the objective should not be to eliminate retention entirely, but rather to address the problems that have plagued its implementation – specifically, the insecure holding and inequitable release of retention funds. This way, the construction industry can continue to benefit from retention as a legitimate security mechanism.[71] The New Zealand approach is an example of putting this theory into practice.

The financial distress experienced by contractors in New Zealand due to the insolvency of a few large companies likely served as a catalyst for policymakers to intervene and implement a regulatory framework surrounding retention practices. The initial amendment to the NZ CCA required that retention monies be held in a trust account. The subsequent reform

strengthened the accounting and documentation requirements, facilitated subcontractors' access to retention funds, and introduced criminal sanctions in the form of fines for failing to comply with the retention regulations.

Although it is recommended that any legislation enacted in the UK be similar to the one in New Zealand rather than abolishing retention practices entirely,[72] the UK legislature seems to prefer a less interventionist approach in the hope that industry-led efforts will mean that the use of retentions will gradually die out by itself. However, as Lord Aberdare said:

> 'The [UK] government still hasn't decided on a legislative approach to tackling retentions, claiming to be waiting for the emergence of an industry consensus, which seems even less likely to arrive than Godot.'[73]

Notes

1 Nigel Griffiths, The UK Government construction minister, speaking at the British Constructional Steelwork Association Annual Dinner on 2 March 2004, as reported in *Contract Journal*, 3 March 2004.
2 Ronan Champion, 'Do we need retention?' (2005), 21(6), *Construction Law Journal*, 404. It is also claimed that the concept of retentions is at least as old as the Industrial Revolution, *see* DJ Wyatt, 'Specifying retainage requirements' (2003), 56 (12), *The Construction Specifier*, 36-3.
3 DC Bausman, 'Retainage Practice in the Construction Industry' (Foundation of the American Subcontractors Association, November 2004).
4 TL Donaldson, *A Handbook of Specifications* (1859).
5 *Tooth v Hallett* (1869) LR 4 Ch App 242. See also, *Lamprell v Billericay Union* (1849) 3 Ex 283 [154 ER 850]; *Young v Smith* (1879) Hudson's BC (4th Edition, volume 2) 70 at 73; *Hickman & Co v Roberts* [1913] AC 229; *Loxton v Ryan* [1921] St R Qd 79.
6 There is no general or implied right in a construction contract to retain money. An owner may only hold back an amount as retention where there is an express contractual term permitting it to do so. *Chun Lee Engineering Co Ltd v Aoki Corporation* [1991] HKCA 297 (noted by Bateson, [1992] ICLR 407). *In the matter of Pan Interiors Ltd* [2005] EWHC 3241 (Ch) at [54]. Where a contract makes provision for there being a retention of money, but the amount of retention is unspecified, there will be no right of retention: *The Builder & Construction Group International Pty Ltd v Datalec Services Pty Ltd* [2009] NSWSC 1136 at 7–9.
7 See, eg, FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer ('The Red Book') (2nd Edition, 2017) clauses 14.3, 14.9; AS 4000–1997 General Conditions of Contract, clauses 5.1, 5.4; JCT Design and Build Contract 2016 (DB 2016), clause 14.8.
8 It is also argued that 'Historically, the aim of retention, the withholding of a portion of the contractor's prospective profit by the owner until the end of the job, was to ensure satisfactory and timely completion of the project. In practice, however, retainage requirements often go far beyond withholding of profits, and are utilized as a mechanism for addressing defects discovered after the completion of construction'. Richard A Stockenberg and Jennifer S Woodbury, 'Retainage Revisited: A Time to Revise and Reform' (1996), 16(1), *Construction Lawyer*, 41.
9 Eddie Williams 'Declare war on retainage' (2005), 45(6), *Modern Steel Construction*.
10 Priyanka Raina and John Tookey, 'The purpose of retentions: a review of the existing literature', World Construction Conference 2012 – Global Challenges in Construction Industry, 2012.
11 Jane Hughes and Isobel Moorhouse, 'Retention–time to say goodbye?' (2024), 35(3), *Construction Law*, 3.
12 *Inflexibility in Contracting and Retainage Practices Could Hurt Construction Industry*, Report No. 00-26 (Office of Program Policy Analysis and Government Accountability (OPPAGA), December 2000).
13 See n10 above, 288.
14 Jeremy Coggins and Mitchell Francis, 'Is There a Place for Retention in Today's Construction Industry?' (2023), 2023(2), *International Construction Law Review*, 92.
15 *Ibid*, 95.
16 Pye Tait Consulting, *Retentions in the Construction Industry: BEIS Research Paper 17* (Department for Business, Energy & Industrial Strategy (UK), October 2017) 38, 41 ('Pye Tait Report'). This report was also influential in other countries and led to similar research, see eg, KPMG, *Retention Money Provisions – An Implementation Review of the Retention Money Provisions in the Construction Contracts Act 2002* (Ministry of Business, Innovation & Employment (NZ) Report, 27 August 2019).
17 *Practice of Cash Retention Under Construction Contracts: Public Consultation Findings*, (Scottish Government, 5 November 2020), 15; available at www.gov.scot/publications/practice-cash-retention-under-construction-contracts-public-consultation-findings (accessed on 25 July 2024).
18 Julian Bailey, *Construction Law: Volume II* (2nd edn, Routledge, 2016), 1057.
19 See n14 above, 97.
20 See n18 above, 1057.
21 Alex Ross, 'Retaining Retention Money: A Critical Analysis of the Retentions Regime in the Construction Contracts Amendment Act 2015' (2016), 22(3), *New Zealand Business Law Quarterly*, 189.
22 See n16 above, 116.
23 *Regulatory Impact Statement: Retentions in Construction Contracts* (New Zealand Ministry of Business, Innovation and Employment, December 2013), 5.
24 *Ibid*, 15
25 Jane Jenkins and Pauline Page, 'Protection Against Contractor Insolvency by Bonds' (2009), 25(5), *Construction Law Journal*, 332.
26 The most commonly used standard forms of performance bond are conditional or default bonds. See for example, the Association of British Insurers (ABI) Model Form of Guarantee Bond, Institution of Civil Engineers (ICE) Form of Default Bond and Model Form MF/1. By contrast, the International Federation of Consulting Engineers (FIDIC) Form of Conditions of Contract for Construction, 1st edn,

(1999) contains both an on-demand performance bond and a default performance bond.

27 See eg, *Simon Carves Ltd v Ensus UK Ltd* [2011] EWHC 657 (TCC). *Sumitomo Mitsui Banking Corporation Europe Limited v Euler Hermes Europe* [2019] EWHC 2250 (Comm). *MW High Tech Projects UK Limited v Biffa Waste Services Limited* [2015] EWHC 949 (TCC). *Kawasaki Heavy Industries Ltd v Laing O'Rourke Australia Construction Pty Ltd* [2017] NSWCA 291.

28 Richard Pike, 'Escrow accounts and PBAs' (*Construction Newsletter*, Sep/Oct 2012), 6.

29 See n16 above, 121.

30 Chris Hoar, 'Alternative Forms of Financial Security in Construction Projects: The Rise of the Escrow Account' (*Construction Newsletter,* February 2016), 2.

31 Katie Graham, 'The Parent Company Guarantee v Bonds Debate' (*Construction Newsletter*, October 2006), 171.

32 *Ibid*, 171.

33 See n14 above, 89.

34 See n16 above, 122.

35 See n14 above, 89.

36 See n16 above, 126.

37 Joseph Xuereb and Harrison Frith, 'Retention Trust Accounts: Administrative Nightmare or No-Brainer?' (2023), 39(2), *Construction Law Journal*, 99-115.

38 Ali Al Ebrahimi, 'Is Australia's Building Industry Providing Adequate Protection to Subcontractors Where a Head Contractor Becomes Insolvent?' (2019), 35(7) *Construction Law Journal*, 393-417.

39 John Murray, *Review of Security of Payments laws* (Report, 21 May 2018), 307–310.

40 Richard Davis, *Construction Insolvency,* (5th edn, Sweet & Maxwell, 2014*),* 331.

41 See n17 above.

42 John G Walton 'Construction Contracts Amendment Bill 2013 – Revision or Review – Update?' (paper presented at the AMINZ Breakfast, Wellington, 4 July 2014); Master Plumbers, Gasfitters & Drainlayers NZ Inc 'Commerce Select Committee Submission on Construction Contracts Amendment Bill 97-1'.

43 Construction Contracts Amendment Act 2015, s 2(2). There are three Australian jurisdictions which have legislated to require retention money to be held in a separate trust account with an approved or recognised financial institution. They include Western Australia, New South Wales and Queensland.

44 Janine Stewart and Riaia Donald and Stefan Jammes, 'Retentions: Where's the Trust?'(2015), 21 (2), *New Zealand Business Law Quarterly*, 192.

45 David Finnie and Noushad Ali Naseem Ameer Ali, 'The New Zealand Construction Contracts Amendment Act 2015 – for Better or Worse?' (2015), 15(4), *Construction Economics and Building*, 102.

46 T Ramachandra and JOB Rotimi, 'The Nature of Payment Problems in the New Zealand Construction Industry' (2011), 11(2), *Australasian Journal of Construction Economics and Building*, 24.

47 John Walton, '20 Years of the Construction Contracts Act 2002', AMINZ Construction Day, 13 September 2022.

48 Receivers' First Report on the State of Affairs of Mainzeal Property and Construction Limited (In Receivership & In Liquidation) Mainzeal Living Limited (In Receivership & In Liquidation) (PricewaterhouseCoopers, 8 April 2013) at 9. See also, Sally Peart, 'Mainzeal case little comfort for subcontractors', (*Otago Daily Times*, 25 March 2019), at www.odt.co.nz/business/mainzeal-case-little-comfort-subcontractors, accessed on 25 July 2025).

49 KPMG, *Retention Money Provisions – An Implementation Review of the Retention Money Provisions in the Construction Contracts Act 2002* (Ministry of Business, Innovation & Employment (NZ) Report, 27 August 2019) 6.

50 S18C, CCA, inserted by the Construction Contracts Amendment Act 2015 (2015 No 92).

51 S18E (2), *ibid.*

52 S18 F of CCA, *ibid.*

53 S18FC of CCA, inserted by s152 of the Regulatory Systems (Commercial Matters) Amendment Act 2017 (2017 No 12).

54 S18FC (4) of CCA, *ibid.*

55 *Westdeutsche Landesbank Girozentrale v Islington London Borough Council* [1996] AC 669 (HL) at 705.

56 See n44 above, 196.

57 *Ibid.*

58 See n49 above, 28–29.

59 *Ibid.*

60 S18 (c)4(b) of CCA, as amended in 2023.

61 18E of CCA, *ibid.*

62 18E & 18FC of CCA, *ibid.*

63 18C(c) of CCA, *ibid.*

64 18DA of CCA, *ibid.*

65 18J of CCA, *ibid.*

66 S18G inserted on 31 March 2017 by s18 of the Construction Contracts Amendment Act 2015 (2015 No 92).

67 Kate Holland, 'How Do You Solve a Problem Like Retentions?' (Building Disputes Tribunal, 17 January 2024), at: https://buildingdisputestribunal.co.nz/how-do-you-solve-a-problem-like-retentions/, accessed on 25 July 2025.

68 John Green 'We Can't Fix the Past - Can We Fix the Future?' (paper presented to RANZ Conference, Auckland, June 2013), 4.

69 The Construction (Retentions Abolition) Bill 2021–22 (UK), sponsored by Lord Aberdare.

70 See n14 above, 99.

71 *Ibid*, 100.

72 See n11 above, 3.

73 Joshua Stein, 'Trusting construction sector to tackle retentions likened to "waiting for Godot"' (*Construction News*, 30 March 2022), see www.constructionnews.co.uk/buildings/trusting-construction-sector-to-tackle-retentions-likened-to-waiting-for-godot-30-03-2022/, accessed on 25 July 2025.

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FEATURE ARTICLE

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Design versus performance specifications in construction projects

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In international construction projects, the distinction between design (or prescriptive) and performance specifications plays a pivotal role in shaping contractual obligations and risk allocation. Understanding the impact of the choice of specification, shaping the content of the contract to align with that choice, and managing issues as they arise during the project are all important aspects of managing overall project success.

What are design and performance specifications?

When design specifications are used, the employer provides detailed design documents describing how the project should be executed, including specific materials, methods and equipment: for example, specifying particular grades of steel or providing specific designs. The key aspects of risk allocation in this scenario tend to include:

- **Employer's responsibility**: the employer is responsible for any defects in the design. If the employer's design is flawed, the contractor is not liable for issues arising from these defects, provided the contractor has followed the design accurately, subject to any duty to warn if the contractor becomes aware of errors or defects in the information provided.
- **Contractor's liability**: the contractor's liability is limited to executing the work

in accordance with the provided design. The contractor may not be responsible for the performance of the final product beyond the specifications given by the employer. However, even when a design specification is provided, there may still be decisions the contractor must make when executing the work, which may ultimately affect the performance.

- **Design modifications**: any modifications to the design must be approved by the employer. The contractor cannot make changes without the employer's written consent, which can limit the contractor's flexibility in addressing unforeseen issues.

In contrast, performance specifications define the outcome to be achieved, such as performance levels, efficiency, or durability, leaving the details on how to achieve that outcome to the discretion of the party executing the work. The risk allocation in this scenario tends to be different:

- **Contractor's responsibility**: the contractor is responsible for ensuring that the final product meets the performance specifications. This includes selecting appropriate designs, materials and methods to achieve the desired performance outcomes.
- **Employer's liability**: the employer's liability is reduced, as the contractor assumes more responsibility for the design and execution. The employer is less involved in the detailed design process and focuses on defining the performance criteria.
- **Flexibility and innovation**: performance specifications allow the contractor greater flexibility to innovate and optimise the construction process. The contractor can choose the most efficient means to meet the performance criteria, potentially leading to cost savings and improved outcomes.

The nature of the contract tends to drive the type of specification.

In a design/build approach, the employer may contract with a single entity responsible for both design and construction, often setting forth performance-based criteria. The contractor assumes a higher level of risk, as it is responsible for both the design and the performance. This approach can encourage innovation and efficiency but requires the contractor to have sufficient technical expertise and resources to design and execute the project, such that it meets the performance criteria. It also requires the employer to clearly define the performance standards expected from the contractor. This includes quality benchmarks, timelines and deliverables.

Conversely, in a design/bid/build approach, the employer hires a designer to create the project plans and a contractor to build it based on those plans. The risk profile can vary depending on the role the employer played in developing the plans, the relationship between the designer and contractor, and any subcontractors involved. This approach can be beneficial for projects where the employer has a clear vision and detailed requirements. The employer needs to ensure that design specifications are detailed and unambiguous, to avoid the need for variations and the potential for increased time and cost.

Of course, the above outline risk allocations are subject to specific contract terms and any alterations to the risk profile brought about by these.

In relation to standard of work, the contract will usually provide specificity. This will often include reference to complying with contractual documents, such as the employer's requirements, scope, specification, drawings or other documents where the work is described. Often, there may also be reference to compliance with building regulations, statutory requirements, standards and codes of practice, or other sector-specific standards or guidance.

In terms of liability, some contracts specifically include a fitness-for-purpose obligation on the contractor, such as the FIDIC Silver Book. Others imply a fitness-for-purpose obligation which can arise where there is, such as in a New Engineering Contract (NEC), an obligation to carry out work in accordance with the scope and the scope will define the extent of the contractor's design obligations and the purpose of the design work. Absent a contractual fitness-for-purpose obligation (in the UK at least), a contractor will have an obligation to execute the work in a good and workmanlike manner, using the skill and care to be expected of a builder of ordinary competence. However, under many national laws, where employers make known the purpose of the building or other infrastructure, and the circumstances indicate that they are relying on the contractor's skill to provide it, there is an implied term that the works will be fit for the purpose for which they were intended.

Managing risk during contract negotiation

It is important for employers to consider what type of specification to provide, for contractors to evaluate the associated risk, and for both to negotiate terms that clearly delineate their responsibilities.

During the negotiation, a prudent starting point is to consider the development of the project through its time schedule, assessing the various phases, considering the scope of works and the possibility of variation, direction and the impact of these on the contractual provisions necessary to support the choice of specification. For instance, in a project aimed at the construction of an industrial plant:

- **Initial planning and design phase**: this phase involves the conceptualisation of the project, studies, preliminary designs and securing necessary permits. Important items to consider are the nature of the employer, the contractor's skills, the location and any mandatory legal provisions of said location (as it will affect approaches to responsibility), and details around flexibility and modifications. A government or public sector employer may focus more on strict compliance with regulatory requirements and a high level of accountability, whereas an experienced employer may have high expectations for innovative solution making, which can foster a more collaborative approach. A newcomer to the market may need guidance and support to understand responsibilities and focus on meeting fundamental requirements and standards. The ability of public sector employers to be flexible and accept changes may be limited due to bureaucratic procedures for approval, which can be time-consuming, whereas an experienced employer may show greater flexibility to accept adjustments based on evolving needs. Newcomers may lack flexibility for changes due to inexperience and prefer a clear and structured change process.
- **Detailed engineering and procurement phase**: during this stage, designs are developed and materials/equipment are procured. Questions may arise, which can include identifying responsibilities for various tasks, the extent of the scope and complexity of the project, and what is to be the approach to the specifications and performance standards. A more complex project will potentially require a more detailed specification (whether design or performance) and risk management strategies.
- **Construction phase**: this phase encompasses civil works, installation of machinery, etc. Regular monitoring and quality control are essential to ensure adherence to the project specifications. In contracting terms, parties must consider key phases and milestones, requirements for progress reporting and performance monitoring, and any linkage to payments and retention.
- **Commissioning and testing phase**: upon completion of construction, the plant undergoes commissioning and then testing to ensure works meet the design/performance requirements. The type of specifications will also determine who is responsible for developing the commissioning and testing procedures.

A newcomer to the market may need guidance and support to understand responsibilities and focus on meeting fundamental requirements and standards.

- **Operational phase**: once the plant is fully operational, ongoing maintenance and management are crucial to ensure effective functioning. This phase may also involve periodic reviews and upgrades to enhance performance. In the event of failures, this phase can be one where disputes arise related to performance against specifications.

Understanding the employer's goals – cost, quality, and/or time – will also influence the risk allocation and contract terms.

Managing risk during contract execution

Issues can arise if there is ambiguity as to what type of specification is being referenced: these can lead to disputes and increased risk.

For instance, a specification that 'the structure should require no substantial repairs for 25 years' may seem like a performance specification but it may be difficult to confirm whether this standard has been met at the time of the construction.

Also, in a contract where the employer is responsible for design and engineering and the contractor for construction, the contractor might argue that it is following a prescriptive specification, constructing in compliance with the drawings provided

by the employer. However, certain aspects of the scope may actually be performance specifications. For example, if the contract states that the contractor must 'fabricate and then deliver concrete caissons at location X,' the employer might consider the obligation to deliver to be a performance specification. However, the contractor may argue that since the transportation of concrete caissons requires complex engineering, and since the employer was responsible for the overall design, the employer should have developed the method statements for transportation. The contractor may then require a variation to be issued, arguing that until the employer provides the required technical input, the 'prescriptive specification' is incomplete, rather than acknowledging that this part of its scope is under a performance specification.

In some cases, the nature of the specification can be unclear due to the content of lengthy technical schedules. For example, in the UK case of *MT Højgaard A/S v E.ON Climate & Renewables UK Robin Rigg East Limited and another* [2017] UKSC 59, MT Højgaard (MTH) was engaged by E.ON to design, fabricate and install the foundation structures for 60 offshore wind turbines. Shortly after completion, grouted connections incorporated within the foundation structures failed. MTH's obligations included a requirement to exercise reasonable skill and care and to comply with an international standard for the design of offshore wind turbines known as J101 – a prescriptive requirement. However, a schedule to the contract contained a requirement that the design of the foundations 'shall ensure a lifetime of 20 years in every aspect without planned replacement' – a performance requirement.

Compliance with J101 was intended to bring about a service life of 20 years, subject to a probable rate of failure of between one in every 10,000 to 100,000 installations. However, J101 contained a significant error, not known about at the time the contract was entered into, which dramatically reduced the service life of the foundations. Compliance with J101 did not therefore provide a design life of 20 years in reality.

The Supreme Court commented on the issues arising, where complex contracts are entered into with obligations expressed in the main body of the contract but with other obligations buried elsewhere in the technical schedules. However, it decided to give effect to the natural meaning of the two Technical Requirements Paragraphs, which introduced the performance element and imposed a fitness-for-purpose obligation, in addition to MTH's other obligations to exercise reasonable skill and care and to follow the J101 prescriptive standard.

Disputes can also arise between the parties in relation to whether the parties 'changed' the nature of the specification. For example, where the contract has a performance specification, but the employer starts directing the contractor with extensive comments/direction during the project, can this change the nature of the specification from performance to prescriptive?

An important factor in answering this question will be the applicable law, and whether there are mandatory legal provisions that would take precedence over the contract.

To the extent there are no mandatory law provisions, the contract becomes the parties' main reference point. There are certain clauses that provide guidance on the extent to which employer interference during the project can affect a performance specification.

For example, the contract may contain a 'four-corner clause', indicating that the contract can only be modified by a written (or even signed) amendment. Such a clause can protect employers who provided extensive direction on the methods chosen by the contractor to achieve a certain specification. These clauses exclude modifications of the contract by 'behaviour' so the employer can argue that the performance specification has been unamended to the extent oral comments or directions were given. There is one important caveat: if the employer's comments or directions are given during meetings which are recorded in meeting minutes that are signed by the parties, the contractor might be able to successfully argue that the performance specification was amended to a prescriptive specification, by virtue of such signed meeting minutes.

Infrastructure contracts often also contain a list of 'required submittals' indicating, for each instance, whether the contractor or the employer is responsible for delivering the respective submittals. If the list requires the contractor to develop a method statement for achieving the performance specification, this is another indication that the contractor

remains responsible for the final method statement and achieving the performance specification, even if the employer has made its own suggestions of methods to be used.

Also, contracts usually state that approvals of drawings and other documents do not constitute acceptance or relieve the contractor from any of its contractual responsibilities. This can be an indication that any type of comments or approvals do not amend the contract.

Finally, contracts often contain clauses that require the contractor to confirm that it has reviewed the relevant documentation and remains liable for such project documentation (maybe with a few exceptions of rely-upon information). In this instance, even if the employer has sent the contractor preferred options of methods to be used or has given guidance on how to achieve certain specifications, the contractor remains liable to review this employer documentation for accuracy and compliance with the contract.

There are thus several contract provisions that can help manage the risk that performance specifications are requalified as prescriptive specifications, to the extent these clauses are permitted by the applicable law.

In the absence of such clear contract provisions or where the applicable law does not allow some of these clauses, parties need to resort to the applicable law to resolve their dispute concerning the specifications. Depending on the applicable law, this can lead to very different outcomes.

By way of illustration, New York courts consider numerous factors to analyse whether a specification is a performance specification or a design specification, such as: (1) the nature or degree of the contractor's involvement in the specification process; (2) the degree to which the contractor is allowed to exercise discretion in carrying out its performance; and (3) the parties' course of dealing. Accordingly, extensive meddling by the employer could have an impact and might lead a court to decide that the performance specification had become a design specification such that the contractor now only needs to show that it has complied with that to avoid liability.

By contrast, certain civil law countries have several important – even mandatory – provisions that determine the responsibilities of the parties when it comes to design.

Belgium has a three-party structure, where it is mandatory (subject to limited exceptions for particular industrial installations) to have an architect[1] who is responsible for the final design, and where the architect and contractor, by law, cannot be the same party. The fact that the architect, and not the employer or the contractor, is responsible for the final design, immediately constrains the employer in its ability to include performance specifications to begin with.

Whether behaviour during the project can alter the nature of the contractually agreed performance specification therefore depends on the contractual clauses and the applicable law.

To the extent that meeting the performance specification requires real design activities on the part of the contractor, the parties would have been required by law to hire a separate architect. In addition, both the architect and the contractor have far-reaching duties to warn if the design will not be safe or fit for purpose, such that even if the employer tries to impose certain methods, the architect and the contractor will have final responsibility for warning the employer that a method might not be appropriate.

Regardless of the contractual provisions, the courts in Belgium therefore tend to be reluctant to place the design responsibility with the employer and the contractor's duty to warn is an additional important factor that is considered.

Whether behaviour during the project can alter the nature of the contractually agreed performance specification therefore depends on the contractual clauses and the applicable law.

In circumstances where a contractor has successfully argued that the employer altered the nature of the performance specification to a prescriptive specification through extensive direction, another question often arises: 'Can the contractor avoid liability by arguing that the method directed by the employer was doomed to fail?'

Again, the answer will depend heavily on the applicable law. Under New York law, this question is resolved using the Spearin Doctrine. To prevail under this doctrine, a contractor must show that:

1. its obligations were prescriptive design specifications;
2. it followed those prescriptive design specifications; and

3. the prescriptive design specifications were defective and could have never reached the desired result.

From a practical point of view, this is difficult to prove because it requires substantial factual and expert evidence.

The contractor will need to prove that it followed the exact method that was prescribed by the employer, and that it did not make any errors in the performance of its work.

The contractor will also need to bring expert evidence proving that the method or prescriptive design specification could have never reached the desired result. When the parties are working on a first-of-its-kind complex construction project, this can be particularly challenging. However, if the contractor succeeds in meeting its burden of proof, New York law does offer a way to escape liability.

By contrast, and as discussed above, certain civil law countries impose quite far-reaching duties to warn architects and contractors, such that even if a method was doomed to fail, the architect or contractor will still be liable, unless they specifically warned the employer about this risk and the employer insisted on the use of the method anyway (perhaps for cost reasons). To decide whether the architect or contractor should have warned the employer, the courts will assess whether a 'reasonable contractor of reasonable skill in the same situation' would have warned the employer. The threshold to escape liability in the case of 'defective specifications' could therefore be considered to be higher than under New York law.

Use of technical experts

There can be several aspects where technical expert evidence is required in cases where compliance with specifications is concerned.

Where the 'doomed to fail' argument is deployed, this requires evidence related to whether the project specifications were aligned with performance expectations. From a performance-based argument, they may be straightforward ('the building did not withstand the specified loads') but in the context of a first-of-its-kind technology, that can be considerably more challenging. In this case, it is important to evaluate the foreseeable factors that were available at the time of specification designation, and whether the designer applied techniques consistent with state of the art engineering/technical practice.

'Standard of care' arguments may also be used in conjunction with both types of specifications. It may be straightforward to identify whether the standard of care was met with respect to a design specification (eg, was the code followed?) although if the standard of care is a fitness-for-purpose one, arguments may arise as to whether the finished construction meets that requirement.

For performance specifications, it may be more difficult. In the case of complex and rare projects, it may be that no typical standard of care has been established due to the unique nature of the work. It can be further challenging to identify what impact the alleged design deficiency (whether in the specifications or in the execution of the design) had on the performance of the project. This is where the two types of specifications, and issues related to what standard of care is accepted (reasonable skill and care or fitness for purpose) are joined hand in hand.

As an example, consider a case where there is a performance specification for some component of a facility ('the component must carry a particular load'). Concurrently, there is an implicit design specification associated with that component (it had to be tested in accordance with a code). Further consider that, in this case, testing identified certain 'rejectable' indications in the component. However, the indications that were found, while rejectable, were benign and the component would satisfactorily meet the performance specification. This is an instance where the 'design specification' was not met, but the 'performance' remained unaffected. Depending on the code, the employer may be able to require that the contractor repair the identified indications. However, certain situations may also allow for additional engineering analysis, such as an ASME 579 Fitness for Service analysis, to determine what remedy, if any, is required.

Also challenging from the point of view of technical expert input is the situation where there is no clear performance deficiency. For example: 'the structure should require no substantial repairs for 25 years'. If the project is less than 25 years old, how does one

prove/disprove that this specification was met, unless it is clear there has been, or will be, a need for repairs considered to be substantial (however that may be quantified). In certain cases, one may be able to model the deterioration. In the case of corrosion or cracking, known corrosion or crack growth rates could, for example, be used to evaluate the potential for future degradation. Of course, such approaches require the use of accepted models and well-founded engineering assumptions.

Practical and technical opportunities for dispute avoidance during the project execution

Large construction projects continually push the engineering envelope while attempting to limit cost overruns and delays. Given this, the types of issues identified above are not uncommon.

An emerging trend is providing opportunities during construction to clarify the technical, financial, and performance goals before there is significant impediment to the project. This requires parties to step away from the strict contractual approach and adopt a problem-solving, collaborative approach.

An example of this was a very large, structurally critical weld in a construction project executed in the United States. The performance specification detailed how the building, and this welded connection, had to behave during a large earthquake. The fabricator executed the weld in accordance with the welding code – effectively a design specification. However, the code never explicitly described a weld of this size and type. There was therefore a concern that the weld may not perform as intended. However, the contractor had executed the fabrication of the weld in accordance with the plans and the code. The project had already been built around this one connection, and re-welding it or re-building would incur significant time and cost expenses. The solution identified was that all parties collaborated to identify a plan involving testing of mock-up welds, identical to the one already in the building, to ensure that it would perform as required. This collaborative approach substantially reduced the delay and additional cost that might otherwise have been incurred.

Conclusion

During contract negotiations, it is important for the parties to assess the nature of the specifications they are including into their contracts and the resultant risk allocation. Once a certain specification has been chosen, it is important to include contractual clauses that reinforce and confirm this choice, regardless of the parties' later behaviour.

It can particularly be helpful for parties to work with their experts during the negotiation phase, to make sure that the specification is feasible and clear from both a legal and technical perspective. Once the project execution has commenced, if issues arise, there is considerable benefit to parties working together to identify solutions to issues that emerge, notwithstanding strict contractual positions.

1 Under Belgian law, 'architect' is a protected title, and it refers exclusively to architects on the national list of architects. In this context, the architect is distinct from an engineer. The architect's task is to develop the design and perform the required calculations, etc. They are ultimately responsible for the design and need to sign off on it (even if engineers were also involved on the project assisting the architect).

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Unforeseen circumstances and contract rebalancing

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Although construction contracts are generally based on predictions as to the costs and time required to perform various tasks, the parties' terms must sometimes be rebalanced to adjust for unforeseen circumstances that are encountered. In this article, authors from seven countries compare how such unforeseen circumstances are handled in their respective jurisdictions, including analysis under both common law and civil law systems. This is the second of two parts; the first part was published in the preceding issue of this journal.

Government changes in law

Although there are still relatively few places where construction work is *directly* interrupted by wars or civil unrest, those events and other political developments can have widespread *indirect* impacts on the costs of the progress of construction.

Following the Russian invasion of the Ukraine, a number of (mostly Western) governments implemented embargoes against Russian commerce, and there was a concerted effort in a number of countries to reduce consumption of Russian natural gas. Government actions have also been used to freeze foreign assets and to restrict access to the international banking system.

In the United States and elsewhere, government tariffs, duties and other import taxes have been imposed on foreign products in retaliation for perceived unfair trade practices or to protest actions of foreign governments. Because the construction industry operates in a global marketplace (especially with regard to purchases of major materials like steel and aluminium), the unexpected imposition of embargoes, tariffs and increased customs duties can have significant impacts on the costs of construction.

Embargoes, tariffs, customs duties, increased taxes and new restrictive regulations are all obviously acts of government that can be characterised as changes in law. In many construction contracts, changes of law (if they were not known or foreseen at the time of contracting) are identified as a basis for compensating the contractor under a variation or change order.

Example

World Bank sample clause (from PPP in Infrastructure Center for Contracts, Law and Regulations):

> If the Contractor suffers (or will suffer) delay and/or incurs additional costs as a result of a Change of Law [and the net cost to the Contractor is in excess of [ ] as a result of a Change of Law], then the Contractor will be entitled to an adjustment to the [contract price/tariffs] and/or an extension of time. The Contractor must deliver a notice to the Authority [within [] weeks/months of the occurrence of that Change of Law] identifying the Change of Law and the impact of that change of Law, [accompanied by full details of the claim]. The Authority will proceed in accordance with the Determination Procedure to agree or determine these matters.

FIDIC contracts

The 1999 and 2017 editions of the FIDIC Red, Yellow and Silver Books all contain provisions entitling a contractor to additional time and costs incurred as a result of a change in law taking effect after the base date. Measures such as embargoes, tariffs, customs, duties, increased taxes and new restrictive regulations are covered by this clause and would generally entitle a contractor to additional time and cost incurred, to the extent that such changes in laws were implemented in the country where the works are performed.

In the 1999 edition of the FIDIC rainbow suite, the change in law provision is drafted in identical terms across the three books (with one minor difference: the Silver Book refers to the 'Employer' rather than the 'Engineer'). Sub-Clause 13.7 [*Adjustment for Changes in Legislation*] provides that:

> 'The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.
>
> If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
>
> (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
>
> (b) payment of any such Cost, which shall be included in the Contract Price.
>
> After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.'

Because the construction industry operates in a global marketplace (…) the unexpected imposition of embargoes, tariffs and increased customs duties can have significant impacts.

The 'Base Date' is defined as the date 28 days prior to the latest date for submission of the tender (Sub-Clause 1.1.3.1 of the 1999 edition of the FIDIC Red, Yellow and Silver Books). The definition of 'Laws' is broad, encompassing 'all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority'. (Sub-Clause 1.1.6.5 of the 1999 edition of the FIDIC Red, Yellow and Silver Books).

In the 2017 edition of the FIDIC rainbow suite, the change in law provision is now found in Sub-Clause 13.6 [*Adjustments for Changes in Laws*]. This clause is significantly longer than its 1999 equivalent but retains the same core principles: a contractor may be entitled to time and cost as a result of a change in law introduced after the base date. However, the definition of changes in law is broader, as it now includes changes in permits, permissions and licences. In this respect it is more favourable to contractors. Yet, in contrast to the 1999 edition, the employer is now entitled to a reduction in the contract price if the change in law results in a decrease in 'Cost'.

Sub-Clause 13.6 [*Adjustments for Changes in Laws*], which is identical across the three books (with the minor exception that the Silver Book refers to the 'Employer' and not the 'Engineer'), states that:

> 'Subject to the following provisions of this Sub-Clause, the Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in:
> (a) the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws);
> (b) the judicial or official governmental interpretation or implementation of the Laws referred to in sub-paragraph (a) above;
> (c) any permit, permission, license or approval obtained by the Employer or the Contractor under sub-paragraph (a) or (b), respectively, of Sub-Clause 1.13 [Compliance with Laws]; or
> (d) the requirements for any permit, permission, licence and/or approval to be obtained by the Contractor under sub-paragraph (b) of Sub-Clause 1.13 [Compliance with Laws], made and/or officially published after the Base Date, which affect the Contractor in the performance of obligations under the Contract. In this Sub-Clause 'change in Laws' means any of the changes under sub-paragraphs (a), (b), (c) and/or (d) above. If the Contractor suffers delay and/or incurs an increase in Cost as a result of any change in Laws, the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost.
>
> If there is a decrease in Cost as a result of any change in Laws, the Employer shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to a reduction in the Contract Price.
>
> If any adjustment to the execution of the Works becomes necessary as a result of any change in Laws:
> (i) the Contractor shall promptly give a Notice to the Engineer, or
> (ii) the Engineer shall promptly give a Notice to the Contractor (with detailed supporting particulars).
>
> Thereafter, the Engineer shall either instruct a Variation under Sub-Clause 13.3.1 [Variation by Instruction] or request a proposal under Sub-Clause 13.3.2 [Variation by Request for Proposal].'

The 'Base Date' remains defined as the date 28 days prior to the latest date for submission of the tender (Sub-Clause 1.1.4 of the 2017 edition of the FIDIC Red and Yellow Books, and Sub-Clause 1.1.2 of the 2017 edition of the Silver Book).

The definition of 'Laws' is broader than in the 1999 definition, now encompassing 'all national (or state) legislation, statutes, acts, decrees, rules, ordinances, orders, treaties, international law and other laws, and regulations and by-laws of any legally constituted public authority'. (Sub-Clause 1.1.49 of the 2017 edition of the FIDIC Red and Yellow Books, and Sub-Clause 1.1.43 of the 2017 edition of the Silver Book).

Italy

In Italy, the risk of changes in law is usually allocated in the contract. Different scenarios could apply, depending on the type and location of construction and on the different stakeholders. With regard to embargoes and new restrictive regulations, under the Italian Civil Code, the unforeseeable changes of law rendering the contractual execution impossible or against law, are a so-called *factum principis*, which:

- exempts the debtor from duty to perform the contract and from liability in respect thereof;
- determines the extinguishment of the obligation and of the contractual termination.[1]

In this connection, on occasion of the past conflict in Kuwait, the Court of Genoa stated that contracts under which Italian companies undertook to construct warships for the Government of Iraq were considered terminated due to the practical impossibility of their performance. They were rendered impossible because of the embargo imposed by the United Nations and the Italian Government during the Iran–Iraq conflict.[2]

In the event that unforeseeable and mandatory changes in law enacted after the contract execution materially impact performance of a contract scope, a variation could be regarded as a necessary remedy. If the contract fails to provide for this remedy, the contractor may be obliged to implement the required variation for a price not exceeding one-sixth of the overall agreed price. If this threshold is exceeded, the Contractor can withdraw from the contract

and is entitled to receive equitable compensation. Similarly, the employer may be entitled to withdraw from the contract if an unexpected change in law would require paying the contractor large equitable compensation.[3]

Germany

In Germany, unexpected changes in laws and regulations can reach the level of interference with the basis of a transaction as addressed in section 313 of the German Civil Code. The same principles apply as described above under Italian law. It may, however, be unnecessary to modify the contract if the change in the law already provides regulations that will maintain a proper balance of interests under existing contracts.[4]

Changes in tax laws in principle do not qualify as an event that invokes section 313 unless specific tax regulations and their effects are clearly identified in a contract as essential underlying terms.

However, in the context of the Covid-19 pandemic, where businesses were ordered to close by public authorities, German courts have granted a right to request a modification in rent to be paid whereby compensation from and interests of the landlord have to be fairly considered.[5]

Austria

There is no general provision in Austrian civil law that assigns the risk of changes in the law to a party. However, amendments to Austrian law typically contain transitional provisions and clauses governing the implementation of a new regulation. From these rules, it can often be determined in individual cases who bears the risk of the new regulation. If there is no such provision, the rules of the sphere theory already described above apply in the area of contract law. Legislative changes fall within the 'neutral sphere', where the contractor generally bears the risk.

ÖNORM B 2110 also contains no general provision that assigns the risk of a change in standards, whether of a legal or technical nature, to a party. However, ÖNORM B2110 does contain various provisions that assign individual risks of a change in legal provisions to a party. These provisions are outlined below.

If the statutory provisions on VAT change during the term of a contract, the VAT is to be reimbursed at the newly resulting rate (clause 6.3.1.3). The ÖNORM orders that the VAT is to be paid by the employer in the statutory rate applicable at the time.

The employer is also generally responsible for obtaining the necessary permits and official approvals for the construction work (clause 5.4.1). If a change in this connection occurs during the construction project, the risk is borne by the employer.

In contrast, the contractor shall obtain the necessary permits and official approvals required for the performance of its services (section 5.4.2). Therefore, the contractor bears the risk for these permits. Interestingly, however, ÖNORM B2110 states that the contractor is not required to obtain any permits if these have already been obtained by the employer (clause 5.4.2), so that the employer also assumes the risk of change in this area.

Technical performance specifications regularly refer to technical ÖNORM standards, and it is agreed that the contractor must comply with these standards when providing the services. In this context, ÖNORM B 2110 stipulates that the version valid at the time of the commencement of the offer period shall apply. If there is no defined offer period, the date of the offer shall apply (clause 5.1.2). If such a technical ÖNORM is amended during execution, the employer shall decide whether to order a change in performance. If an employer orders such a change, it must generally compensate the contractor for the resulting additional costs.

Legislative changes could also potentially lead to the annulment or adjustment of a contract due to the cessation or modification of the contractual basis. According to the case law, however, a change in legal circumstances only very rarely leads to a party being able to challenge the contract on the grounds that the basis of the contract has ceased to exist.[6]

Finland

In Finland, there is no statutory legislation that allocates the risk of changes in law affecting a construction contract. Under local general conditions in YSE 1998, however, there is a provision addressing changes in

costs caused by state legislative measures – see paragraph 3 in the below section 49:

> **Section 49 Effect of change in prices and wages on contract price**
>
> 1. Unless otherwise specifically stated in the contract, changes in the level of prices and wages shall not increase or decrease the contract price.
>
> 2. Value added tax is calculated on the contract price as the actual tax payable at the time in question.
>
> 3. Unless otherwise stated in the contract, changes in costs caused by state legislative measures (act, decree, decision of the Council of State or a ministerial decision), other than those referred to in paragraph 2, shall be taken into account as a factor increasing or decreasing the contract price only if their combined effect is at least 0.5 per cent of the contract price exclusive of value added tax. Taking such cost changes into account also requires that
> – their justification arose after submission of the tender leading to the contract or, in other cases, after signing of the contract,
> – they could not have been taken into account in preparing the tender or, likewise, in drawing up the contract, and
> – they have a direct effect on the building contract work covered by the contract.

In England (…) If the change takes effect before the contract is signed (…) then the parties are generally bound by the terms of the contract.

> 4. Demands concerning changes in costs must be presented with their justifications no later than the time of the contract inspection under §70 or §71. By providing the relevant receipts or using any other reliable method, the contractor must notify the client of the information necessary for calculating the changes in cost.
>
> 5. Neither party, however, shall have the right to a change in the contract price under paragraph 3 with the said justification in so far as the change that may be compensated on the basis of the index clause of the contactor would be in excess of what is permitted by the legislation in force at the given time. If such a change in cost occurs at the end of the building contract period, the contracting party responsible for the delay shall not be entitled, on the basis of these provisions, to demand an increase or decrease in the contract price in his favour.

The above section 49 has been invoked by many contractors claiming that European Union sanctions against Russia, being comparable to Finnish state legislative measures under paragraph 3, would allow them to claim compensation for the resulting price increases. However, this is not the intended application scenario for this specific YSE 1998 term, and accepting such logic would effectively change the prevailing notion that contractors should generally bear the risk of price changes (this main rule being stated in paragraph 1). The general notion is thus to deny claims for cost increases based on the Ukraine war and EU sanctions based on YSE 1998 section 49, but that position is yet to be tested in Finnish courts.

England

In England virtually all construction works are carried out under a contract, and works of substantial value are usually performed under a JCT or NEC contract. The standard form contracts take different approaches to changes in law after the contract is signed. If the change takes effect before the contract is signed, even if the works have commenced before the change of law, then the parties are generally bound by the terms of the contract they signed up to.

In the case of NEC there is an optional clause X2 'Changes in Law' which states:

> X2.1 A change in the law of the country in which the Site is located is a compensation event if it occurs after the Contract Date. If the effect of a compensation event which is a change in the law is to reduce the total Defined Cost, the Prices are reduced.

This clause must be actively selected when completing the contract otherwise there is no right to a compensation event for changes in law.

The position under the JCT contract form is different, continuing the example of the JCT DB form.

France

French private law does not contain any mechanism that guarantees compensation for an unforeseen change in law. This matter is therefore left to negotiation between the parties. The two main standard forms of private construction contracts in France have adopted different approaches to changes

in law. NF P 03-001 for private building works provides that a contractor is entitled to compensation for costs incurred due to changes in laws or regulations that increase the costs of the performance of the works and that are not covered by the price variation clause (Article 9.3); whereas NF P 03-002 for civil engineering works limits a contractor's entitlement to additional costs incurred only for changes in VAT and similar taxes applicable to invoicing (Article 9.3). Prudent contractors would therefore be well advised to expand the scope of the change in law provisions in NF P 03-002 through the particular conditions.

Under French administrative law, the theory of *fait du prince* (literally, act of the prince) provides that a contractor must be compensated for any action or measure taken by a public body in its public capacity that: (1) was unforeseeable when the contract was signed and (2) makes performance of the contract more onerous. However, one key limitation is that it applies only if the measure or action was taken by a public legal entity that is the contracting party.

The standard form of contract for public works in France (*Cahier des Clauses Administratives Générales – CCAG. – Marchés publics de travaux*, last published in 2021) provides that in the event of unforeseen changes in legislations or regulations which increase the cost of performing the contract, the parties shall meet to assess the financial impact of the change and, if necessary, formalise an amendment to implement the required changes (Article 9.1.1).

Changes in the market pricing

In construction, as in other industries, long periods of stable prices tend to reduce focus on allocating the risk of market price fluctuations that affect labour and materials. As the world emerged from the disruptions of the Covid-19 epidemic and the massive deficit spending by governments that was intended to maintain market stability, the industrialised world sustained a surge of inflation and increased price volatility among contractors and suppliers who were attempting to handle (or take advantage of) asymmetrical surges in demand.

If labour pricing is uncontrolled, contractors can be exposed to the risk of labour cost escalation which can generate substantial losses in a time of unusual inflation. When workers experience substantial increases in their own costs of living, it is not surprising that they press for wage increases, and construction projects are exposed to the risks of strikes and other labour disruptions while those demands are being resolved.

One remedy on large multi-year unionised projects is to stabilise prices through a project labour agreement that establishes hourly rates and benefits to remain in effect throughout the life of the job. Another approach is for a contract to allow for periodical labour escalation adjustments (eg, annually) which can be tied to a published price index and/or capped at a maximum percentage of increase per year.

With regard to materials, pricing can vary due to a variety of factors other than acts of government. As noted earlier, an event like the Covid-19 epidemic can severely disrupt supply and demand factors, leading to shortages and spikes in key materials like steel, aluminium and cement. Sudden market price variations can also arise directly or indirectly from wars, civil unrest and other government acts.

In the past, unexpected price volatility for materials has primarily been a contractor risk, but recent events have created pressures to modify this approach. On many jobs, the practical reality is that key material suppliers will not guarantee prices for longer than 30 or 60 days, and contractors are unwilling and/or unable to bear the risks of substantial price fluctuations occurring later on a long-term project.

In the past, unexpected price volatility for materials has primarily been a contractor risk, but recent events have created pressures to modify this approach.

One possible remedy is for the employer or contractor to pre-purchase sufficient materials for a job at the outset and thereby avoid exposure to long-term price fluctuations. Another remedy is for contracts to allow a price variation for documented material price increases above the prices reasonably assumed at the time a job was bid. A third approach might be to establish a contract contingency fund that can be used for unexpected material price fluctuations (sharing any unused contingency between the parties so as to incentivise cost savings).

FIDIC contracts

The 1999 and 2017 editions of the Red and Yellow Books contain a price revision clause. The 1999 and 2017 editions of the Silver Book, however, do not contain such a clause, as these forms place greater risk on the Contractor.

Sub-Clause 13.8 [*Adjustment for Changes in Cost*] of the 1999 edition of the FIDIC Red and Yellow Books provides that:

> 'In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data included in the Appendix to Tender. If there is no such table of adjustment data, this Sub-Clause shall not apply.
>
> If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.
>
> The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$Pn = a + b\frac{Ln}{Lo} + c\frac{En}{Eo} + d\frac{Mn}{Mo} + \cdots\cdots$$

where:

> '**P**n' is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period 'n', this period being a month unless otherwise stated in the Appendix to Tender;
>
> '**a**' is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;
>
> '**b**', '**c**', '**d**', ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;
>
> '**L**n', '**E**n', '**M**n', ... are the current cost indices or reference prices for period 'n', expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and
>
> '**L**o', '**E**o', '**M**o', ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" (stated in the table) is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price: whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if

they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.'

Sub-Clause 13.7 [Adjustment for Changes in Cost] of the 2017 edition of the FIDIC Red and Yellow Books provides that:

'If Schedule(s) of cost indexation are not included in the Contract, this Sub-Clause shall not apply.

The amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts calculated in accordance with the Schedule(s) of cost indexation. To the extent that full compensation for any rise or fall in Costs is not covered by this Sub-Clause or other Clauses of these Conditions, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as certified in Payment Certificates, shall be calculated for each of the currencies in which the Contract Price is payable. No adjustment shall be applied to work valued on the basis of Cost or current prices.

Until such time as each current cost index is available, the Engineer shall use a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either:

(a) each index or price applicable on the date 49 days before the expiry of the Time for Completion of the Works; or

(b) the current index or price

whichever is more favourable to the Employer.'

Under Sub-Clause 13.8 of the 1999 edition of the FIDIC Red and Yellow Books and Sub-Clause 13.7 of the 2017 edition of the FIDIC Red and Yellow Books, the employer may bear some of the risk of increased cost of goods and labour.

However, the extent to which the employer bears the risk of inflation depends on negotiations between the parties and, more specifically, the price indices and coefficients included in the table of adjustment data in the Appendix to Tender (in the 1999 form), or in the Schedule(s) of cost indexation (in the 2017 form).

In other words, there is no guarantee that the actual inflation suffered by a contractor will be fully covered by applying the FIDIC price adjustment formula. The contract price will only increase to the extent allowed by the formula. As a result, recent projects have shown that contractors often recover only a fraction of their additional costs incurred due to inflation.

Furthermore, the non-recovered inflation costs remain a contractor risk, owing to the specific language of the second paragraph of Sub-Clause 13.8 of the 1999 edition of the Red and Yellow books, and the fourth paragraph of Sub-Clause 13.7 of the 2017 edition of the Red and Yellow books (as reproduced above).

However, despite these contractual limitations, as discussed below, some remedies may be available under the applicable law, such as the hardship theory under French private and administrative law.

Italy

In Italy the risk of unexpected excessive price volatility affecting construction contracts is specifically addressed in the Civil Code, which allows a price adjustment if, as a result of unforeseeable circumstances, an increase or decrease in the cost of the materials or labour causes an increase or decrease of more than one-tenth of the total price agreed upon.[7]

This rule of law can be waived by the parties and, in the past, such waiver was a common practice. However, the drastic market price fluctuations experienced in the last few years as a consequence of the pandemic and the Ukraine war, have put the price volatility and possible remedies in the limelight.[8] Nowadays the inclusion of automatic price adjustment clauses has become the norm not only in private projects but also in public tenders.

The new Italian Public Contracts Code established the inclusion in tender documents of a price revision clause mandatorily applicable upon the occurrence of particular conditions of an objective nature, unforeseeable at the time of the contract tender.[9]

Germany

In Germany price increases are generally considered to be a risk of the contractor. For example, price increases for steel in the early 2000s were not considered as events interfering with the basis of the transaction.

However, the latest price increases arising from the Ukraine war and the recent abnormal inflation have led to ministerial regulations and may change the prevailing practice.

There are no fixed limits, but some commentaries propose that price increases between 20 to 25 per cent might be an appropriate threshold for contract price adjustments. Some even want to see the threshold as low as 15 per cent, but this would apply not to a single item of material but to the total volume of the contract price.

It is recommended to include price escalation clauses in offers and in contracts.[10]

Austria

In principle, a contractor bears the risk of price increases for goods or services that it procures. However, price reductions also benefit the contractor. This is in the nature of a fixed price arrangement.

In contrast, ÖNORM B 2110 stipulates in clause 6.3.1.1 that a fixed price only applies to services that are to be completed according to the contract within six months after the end of the bidding period. For services to be performed thereafter, variable prices apply. Variable prices can be determined under ÖNORM B 2111, which is based on various price indices (eg, wages) to protect against inflationary changes. Therefore, according to these provisions, a contractor in Austria generally bears the risk of inflation only for six months, after which prices are adjusted according to a transparent procedure with published indices for the construction industry. In practice, the generally applicable consumer price index can also be used instead of specialised construction cost indices.

Theoretically, it would also be conceivable to rely on the cessation of the basis of the contract, but this approach is regularly rejected by Austrian courts. However, in extreme circumstances, where the fulfilment of the contract would result in a financially unsustainable situation endangering one party's existence, it could be argued based on this premise.

Finland

In Finland, the contractor would traditionally be considered to bear the risk of price increases for goods or services that it procures.

Contract provisions establishing a right to a price increase would have to be specifically agreed upon in writing. The YSE 1998 general conditions section 48 sets out a general framework for adjustments in case the parties have agreed to apply some kind of price indexation. It is indeed becoming more and more common for contractors to require at least certain crucial procurement packages within their scope to be indexed (either by consumer price index or specialised construction cost indices).

In very extreme cases, where a party can prove a wholly unforeseeable price increase that would result in the contract being economically unsustainable, one could argue that the pricing should be adjusted based on section 36 of the Finnish Contracts Act as discussed above.

During the first months of the Ukraine war, there were cases where construction contract negotiations stalled, and some employers agreed to include clauses giving comfort to contractors whose procurement market pricing was significantly affected by the EU sanction effects. In some of those cases, parties could agree to indexation of key purchases, or even adopting a cost-plus contracting form for some procurement packages. Some parties also negotiated an employer risk contingency fund, and incentivised risk sharing based on certain target costs while allowing demonstrable price variations to be compensated to contractors.

England

In England the general position is that where a contract is for a fixed price then the risk of cost increases is a contractor risk. Where the contract form is a cost reimbursable contract, however, then the risk of cost increases is an employer risk.

Even in a fixed price contract, which the JCT Design and Build Contract is generally perceived to be, there are provisions for price adjustments when there has been a change in the nature of the works. Generally, the JCT DB form includes three options to deal with price fluctuations, Options A, B and C. Option A is the default position and the only

one in the printed forms. A brief summary of the Options is as follows:

- Option A – deals with contribution, levy and taxes paid by the employer.
- Option B – labour and materials cost and tax fluctuation.[11]
- Option C – Formula adjustment based on a detailed provision for the calculation of the loss. This also includes provisions for fluctuations in the price of articles manufactured outside of the United Kingdom.

Generally, these fluctuation provisions, while an option in the unamended contract, are a risk that most employers will not accept. In the present climate of uncertainty, more contractors are insisting on fluctuations being reinstated into contracts.

France

French private law does not contain any default price revision principle. Furthermore, historically the doctrine of hardship was not recognised under French private law. However, the 2016 reform of the French Civil Code introduced a new Article 1995, which formally recognises the doctrine of hardship in French private law. Under Article 1995 of the French Civil Code, hardship creates a right to renegotiate a contract upon the occurrence of circumstances:

- which were not foreseeable when the contract was entered into;
- which make the performance of the contract excessively onerous for a party; and
- where the risk of such onerous performance was not assumed by that party.

If the other party refuses to renegotiate or renegotiations fail, a court may, at the request of a party, revise or terminate the contract.

However, Article 1195 is not mandatory law, meaning it can be excluded by contract. In this respect, French Courts hold that if a contract has a lump-sum fixed price, the parties are considered to have waived the benefit of Article 1195.[12] If a contract contains a price revision clause (such as Sub-Clause 13.8 [*Adjustments for Changes in Cost*] of the 1999 edition of the Red and Yellow Books or Sub-Clause 13.7 [*Adjustments for Changes in Cost*] of the 2017 edition of the Red and Yellow Books), a French judge will likely consider that the contractor has assumed the risk of inflation beyond the price adjustment formula, as these provisions expressly indicate.

The Paris Commercial Court judgment dated 14 December 2022[13] illustrates how French judges can use their power under Article 1195 of the French Civil Code in the context of the inflation of goods or materials. A supplier of ceramic tiles argued that, as of 2020, the Covid-19 outbreak followed by the war in Ukraine increased its production costs, justifying the renegotiation of the contract prices. However, renegotiation failed. The supplier therefore asked the court to revise the contract price or, alternatively, terminate the contract. The Commercial Court found that the conditions of hardship pursuant to Article 1195 of the French Civil Code were met, however, it considered the supplier's requested price revision was not justified and therefore, decided to terminate the contract. This case illustrates how the doctrine of hardship under French law may be used by contractors to renegotiate or terminate their contracts when performance becomes excessively onerous.

historically the doctrine of hardship was not recognised under French private law. However, the 2016 reform of the French Civil Code introduced a new Article 1995, which formally recognises the doctrine of hardship in French private law.

The two main standard forms of private construction contracts in France both contain price revision clauses,[14] but differ in their approaches to hardship. NF P 03-001 for private building works expressly provides that in the event of a change of circumstances that (1) was unforeseeable when the contract was entered into, (2) which makes performance of the contract excessively onerous for a party, and (3) where the risk of such onerous performance was not assumed by that party, such party is entitled to request the renegotiation of the contract. If the other party refuses to renegotiate or renegotiations fail, the parties shall have recourse to mediation or conciliation before proceeding with litigation or arbitration (Article 9.1.4). NF P 03-002 for civil engineering works, however, does not contain a hardship clause; the default private law position (ie, Article 1195 of the French Civil Code) described above therefore applies.

French administrative law has recognised the doctrine of hardship since the 1916 case *Gaz de Bordeaux* (French Council of State, the highest administrative court). However, this doctrine differs from that of French private

law. It provides that when unforeseeable circumstances for which the contractor is not responsible arise and upset the economy of the contract – without rendering its performance impossible – and cause substantial loss to the contractor, then the contractor remains strictly bound to perform the contract but is entitled to compensation from the public entity.

The purpose of this indemnity is to assist the contractor in overcoming an exceptional and temporary financial difficulty so as to allow the performance of the contract without (or with minimal) interruption. This reflects the legal philosophy behind French administrative law – described above – which prioritises continuity of public services

For the hardship doctrine to apply under French administrative law, the economy of the contract must be upset. The assessment of whether the economy of a contract has been upset is determined on a case-by-case basis as there is no established threshold. For instance, in one case, an increase of 7 per cent of extracontractual costs was sufficient to establish that the economy of the contract was upset.[15] Whereas, in another case, an increase of 10 per cent in the contract price was not considered sufficient for the hardship doctrine to apply.[16]

While the contractor must generally bear part of the extra costs, typically 80 per cent to 90 per cent of the loss is likely to be borne by the public entity.[17]

The hardship doctrine is mandatory law under French administrative law. As a result, it cannot be excluded by contract. If the contract contains a price adjustment formula that only provides minimal protection against economic hardship, the contractor may still be entitled to relief under the administrative doctrine of hardship, provided that the contract economy remains upset after application of the price adjustment formula.[18]

The standard form of contract for public works in France (*Cahier des Clauses Administratives Générales – CCAG. – Marchés publics de travaux*, last published in 2021) does not contain a price revision clause.

However, it expressly states that such a price revision clause may be agreed between the parties.[19] In addition, the *CCAG. – Marchés publics de travaux* has essentially codified the French administrative doctrine of hardship. Article 54 provides that when unforeseeable circumstances arise, that a diligent contractor could not have foreseen, and which upset the economy of the contract, the parties shall examine, in particular, the financial impact of this change, in good faith, and determine the compensation to be provided to the contractor. Importantly, Article 54 expressly provides that the price revision is excluded for the assessment of whether the contract economy has been upset.

Supply chain disruptions/delays

In addition to price volatility affecting material purchases, recent projects have experienced abnormal delays and disruptions to delivery dates of essential materials and equipment. Some of these disruptions were tied to lockdowns during the Covid-19 epidemic. Others have been tied to labour disputes affecting international shipping. Some have also been tied to the Ukraine war or to dramatic increases in market demand. Some have also been tied to shifts in sources of manufacturing, eg, as the US and other countries seek to reduce dependence on key products from economies controlled by what are perceived as hostile governments.

People around the world have recently grown accustomed to hearing that 'supply chain disruptions' are causing long and unpredictable delays in delivery of consumer products. Construction contractors have similarly been affected by long and often unpredictable delays in obtaining specified materials or equipment that are essential to their work.

In the past, unexpected delays in obtaining key materials have often been treated as a contractor risk. As recent market conditions have brought this issue to the forefront, however, there are increasing pressures to share or reallocate this risk.

Again, practical solutions are likely to include at least treating unexpected supply chain delays as an excusable basis for project time extensions. Other practical solutions may include:

- direct employer pre-purchases of long lead materials and equipment with uncertain delivery dates;
- a shared contingency fund that can be used to cover increased costs associated with unexpected supply chain delays; and
- treatment of unexpected supply chain delays as a basis for equitable compensation.

Regardless of which solutions are adopted, contractors and engineers should contribute their expertise to help employers identify key project components likely to be affected by supply chain delays and to assist in reasonable efforts to mitigate such delays.

FIDIC contracts

The 1999 and 2017 editions of the Red and Yellow Books contain time relief for shortages caused by epidemics or government actions. The 1999 and 2017 editions of the Silver Book, however, do not contain such relief, as these forms place greater risk on the contractor.

Sub-Clause 8.4 [*Extension of Time for Completion*] of the 1999 edition of the FIDIC Red and Yellow Books provides that:

> 'The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:
>
> (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
>
> (b) a cause of delay giving an entitlement to extension of time under a Sub- Clause of these Conditions,
>
> (c) exceptionally adverse climatic conditions,
>
> (d) *Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions*, or
>
> (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site. [...].' (*emphasis added*).

Sub-Clause 8.5 [*Extension of Time for Completion*] of the 2017 edition of the FIDIC Red and Yellow Books provides that:

> 'The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to Extension of Time if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over the Works and Sections] is or will be delayed by any of the following causes:
>
> (a) a Variation (except that there shall be no requirement to comply with Sub-Clause 20.2 [Claims For Payment and/or EOT]);
>
> (b) a cause of delay giving an entitlement to EOT under a Sub-Clause of these Conditions;
>
> (c) exceptionally adverse climatic conditions, which for the purpose of these Conditions shall mean adverse climatic conditions at the Site which are unforeseeable having regard to climatic data made available by the Employer under Sub-Clause 2.5 [Site Data and Items of Reference] and/or climatic data published in the Country for the geographical location of the Site;
>
> (d) Unforeseeable shortages in the availability of personnel or Goods (or Employer-Supplied Materials, if any) caused by epidemic or governmental actions; or
>
> (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site. [...].' (*emphasis added*).'

As discussed above, a contractor may also be entitled to time relief under the force majeure provisions (in the 1999 edition of the rainbow suite) or Exceptional Events provisions (in the 2017 edition of the rainbow suite), provided that the conditions for such provisions are met.

Italy

In Italy, the previously discussed remedies available in case of supervening circumstances (impossibility and hardship) can also apply to supply chain disruptions/delays. In the past, such disruptions/delays were commonly treated as risks of the contractor. Following the pandemic and outbreak of the Ukraine war, however, employers and contractors have increasingly adopted a more collaborative approach to mitigate the project risks arising from supply chain disruptions and delays. In the author's view, this is one of the (few) positive consequences of the recent problematic years.

Germany

In Germany the principles set out in the first chapter related to war as a force majeure event

can be applied to supply chain disruption and delays as well. In addition, a supplier/contractor may use such events as a defence against claims for damages since those necessitate fault of the supplier/contractor who might be excused.

Austria

In this case as well, problems in the supply chain are generally treated as a responsibility in the sphere of the contractor. The contractor normally has the ability to choose its suppliers. Even with a nominated subcontractor, the contractor usually remains responsible for problems in the supply chain.[20]

In Finland, as in some other EU jurisdictions, (…) force majeure or hardship events may also be applied in case of disruptions in the supply chain, to the extent proven by the contractor claiming time and cost.

ÖNORM B 2110 does not provide for any deviating regulation in this regard. The considerations described in the first chapter thus also apply here.

Finland

In Finland, as in some other EU jurisdictions, the previously discussed force majeure or hardship events may also be applied in case of disruptions in the supply chain, to the extent proven by the contractor claiming time and cost. The discussed YSE 1998 general conditions are also widely applied in construction subcontracting.

As discussed in connection with Italy, and notwithstanding the general notion that supply chain disruptions are typically a contractor risk, Finland saw with Covid-19 and now with effects of the Ukraine crisis that employers are more willing to accept a collaborative risk share approach. Most typically, unforeseen supply chain disruptions and delays are handled as variations, or the employers are accepting compensation for alternative purchases or acceleration costs where the originally intended procurement's availability or schedule has been affected.

England

England has undergone two recent events which have led to supply chain disruption, Brexit and Covid-19. Covid-19 has generally been considered as the equivalent of a force majeure event or as a risk of the contractor, where the contractor had sufficient notice of Brexit to take it into account.

In the NEC4 form, supply chain disruption and events such as Covid-19 would fall within Core Clause 19, as referred to above.

The costs of supply chain disruption may fall within the fluctuation provisions of the JCT form. See above on fluctuations.

From an English common law position, the doctrine of frustration may work as a defence to a claim for loss sustained by the employer as a result of supply chain delays to the works.

France

French private law does not contain any specific provision entitling a contractor to additional time due to delays and disruptions to delivery dates of essential materials and equipment.

However, a contractor may be entitled to time relief under the force majeure provision of Article 1218 of the French Civil Code, provided it can establish that the event was unforeseeable at the time of the entry into the contract and prevented it from performing its obligation. In this respect, it should be noted that Article 1218 only provides that the event shall prevent the debtor from performing 'its obligation', meaning *any* of the debtor's obligations but not *all* of its obligations. In the context of a construction contract, a contractor typically has an obligation to complete the works by a certain date. If delays in the delivery of essential materials and equipment prevent the contractor from completing the project on time, it may be entitled to time relief pursuant to Article 1218.

A contractor may also be entitled to request the renegotiation of the contract or, if the other party refuses to renegotiate or renegotiations fail, request the court to revise or terminate the contract pursuant to Article 1995 of the French Civil Code, provided the conditions of hardship under French private law (described above) are met.

The main standard forms of contract for private works do not provide time relief for delays and disruptions to delivery dates of essential materials and equipment. However, they do provide that a contractor may be entitled to time relief due to force majeure events.[21] They also allow for the application of the hardship provision of Article 1195 of the French Civil Code, as described above.

French administrative law does not contain any specific provision granting time relief due to delays and disruptions to delivery dates of essential materials and equipment. However, time relief may be available under the doctrine of force majeure as applied by French administrative courts. Compensation may also be available under the hardship doctrine.

Indeed, as mentioned above, the standard form of contract for public works in France (*CCAG. – Marchés publics de travaux*) has essentially codified the French administrative doctrine of hardship.

Exchange rate fluctuations

Unlike some of the other circumstances discussed above, there is nothing especially new about the risk of international current exchange rate fluctuations in construction contracting. Projects with participants from multiple countries are generally accustomed to fixing contract payments in a stable currency, and there are existing financial vehicles by which contractors can hedge against currency fluctuations during the life of an extended job.

As the global marketplace changes at a rapid rate, however, many contractors and suppliers may find themselves entering international transactions for the first time. Although some countries have long experience with endemic inflation (affecting the exchange rate value of their currency), many others have no such experience. Those who are new to international market volatility may need to be reminded about the need to protect their pricing. This applies both to the revenues they receive and to the prices they pay to their own subcontractors and suppliers.

Some contractors will feel adequately protected if their revenue is fixed in their home currency. Others may purchase a hedge guarantee against exchange rate fluctuations. Others may be able to negotiate a contract term promising equitable compensation for unexpected currency fluctuations during the life of their project.

FIDIC contracts

The 1999 and 2017 editions of the Red, Yellow and Silver Books do not provide protection for contractors against exchange rate fluctuations. Sub-Clause 14.15(e) of the 1999 edition and Sub-Clause 14.15(f) of the 2017 edition of the rainbow suite merely provide that 'if no rates of exchange are stated in the [*Appendix to Tender/Contract Data*], they shall be those prevailing on the Base Date and published by the central bank of the Country'.

United States

Example: US Code of Federal Regulations s 200.440 [Exchange Rates]

> (a) Cost increases for fluctuations in exchange rates are allowable costs subject to the availability of funding. Prior approval of exchange rate fluctuations is required only when the change results in the need for additional Federal funding, or the increased costs result in the need to significantly reduce the scope of the project. The Federal awarding agency must however ensure that adequate funds are available to cover currency fluctuations in order to avoid a violation of the Anti-Deficiency Act.
>
> (b) The non-Federal entity is required to make reviews of local currency gains to determine the need for additional federal funding before the expiration date of the Federal award. Subsequent adjustments for currency increases may be allowable only when the non-Federal entity provides the Federal awarding agency with adequate source documentation from a commonly used source in effect at the time the expense was made, and to the extent that sufficient Federal funds are available.

Italy

Italian case law generally considers currency exchange rate fluctuations to be a contractor risk, unless these fluctuations are extraordinary and unforeseeable.[22]

In light of the above, Italian contractors typically prefer to use their own currency and to fix a date of reference to be used in calculating damages. In any case, where it is not possible to fix a price in Euros, the risk of currency fluctuation is typically handled through purchasing a hedge guarantee.

Germany

The situation in Germany is comparable to the Italian position.

Finland

In Finland, currency exchange rate fluctuations are considered contractor risks, unless the effects are so considerable and unforeseeable that the application of section 36 of the Finnish Contracts Act (as explained above) could be invoked.

Austria

Since the introduction of the Euro, as electronic currency in 1999 and as physical currency in 2002, foreign exchange risk has diminished significantly. Indirectly, however, this risk continues to have an impact when purchasing goods traded in dollars (especially crude oil).

Some kind of reasonable balance in risk allocation is an important part of anticipating the things that cannot clearly be anticipated.

In Austria, foreign exchange risk is primarily borne by the contractor, as it decides where and under what conditions to purchase materials and equipment. Since the foreign exchange risk can easily be hedged through forward contracts, this risk remains with the contractor, even in circumstances of extraordinary fluctuations.

ÖNORM B 2110 does not contain any special regulations in this respect; adjustments in line with price adjustments provisions may possibly lead to corresponding price modifications indirectly.

England

In England contracts tend not to refer to currency exchange rate fluctuations. The NEC form does anticipate issues with exchange rate fluctuations by having an Option X3 for multiple currencies (for use with NEC 4 Options A and B).

The JCT forms do not expressly deal with currency fluctuations, but that contingency would potentially come under one of the Fluctuation Options explained above.

France

French private law does not contain any specific provision entitling a contractor to compensation for exchange rate fluctuations.

However, a contractor may request the renegotiation of the contract or, if the other party refuses to renegotiate or renegotiations fail, request that a court revise or terminate the contract if the conditions of hardship under French private law are met, pursuant to Article 1995 of the French Civil Code.

The main standard forms of contract for private works do not include any specific provision entitling a contractor to compensation for exchange rate fluctuations. However, they allow for the application of the hardship provision under Article 1195 of the French Civil Code, as described above.

French administrative law does not provide any specific financial relief for exchange rate fluctuations. However, financial compensation may be available under the hardship doctrine, provided that the economy of the contract is upset.[23]

Furthermore, as mentioned above, the standard form of contract for public works in France (*CCAG. – Marchés publics de travaux*) has essentially codified the French administrative doctrine of hardship.

Conclusion

The construction industry inevitably imposes risks on all its participants. Those who provide goods or services reasonably expect to earn a profit commensurate with the risks that they have agreed to accept. Risks are often assigned to a particular party, but they can also be shared through contingency allowances, liability caps, or through project delivery

systems that are designed to share risks of unexpected conditions.

Although it may be reasonable to expect some degree of the unexpected, there are practical limits on the financial risks that a for-profit contractor or supplier can afford to bear. Either through insurance or assumption of risk by public employers, many risks of unexpected conditions end up ultimately being borne by the taxpaying public. Even on private projects where unexpected risks are borne by the employer, they are often ultimately transferred to the general public that purchases goods and services from the employer. Some kind of reasonable balance in risk allocation is an important part of anticipating the things that cannot clearly be anticipated.

Notes

1 Italian Civil Code (as of 2025), Art 1256, first para.
2 Court of Genoa, decision 11 July 1996.
3 Italian Civil Code (as of 2025), Art 1660.
4 BGH – VII ZR 106/07 – 8 May 2008. See http://juris.bundesgerichtshof.de/cgi-bin/rechtsprechung/document.py?Gericht=bgh&Art=en&nr=44069&pos=0&anz=1.
5 BGH – XII ZR 8/21 – 12 January 2022; OLG Düsseldorf - 10 U 192/21 – 23 June 2022.
6 Riedler in Schwimann/Kodek, *ABGB Praxiskommentar*, marginal no 9 to s 901.
7 Italian Civil Code (as of 2025), Art 1664, first para.
8 Francesco Goisis and Pasquale Pantalone, '*La revisione dei prezzi negli appalti pubblici come condizione per l'attuazione del PNRR, tra principi euro unitari e vischiosità normative nazionali*' (March 2023) Diritto Amministrativo, 1, 97.
9 Italian Public Contracts Code, Art 60.
10 Samples in the German language could read as follows:
Für Angebote: *„Aufgrund der pandemiebedingten sehr dynamischen Preisentwicklung für…… (Vorprodukte) erhalten wir von unseren Lieferanten derzeit nur Tages- bzw. Wochenpreise. Wir bitten Sie daher um Verständnis, dass wir angesichts der sich daraus ergebenden Dynamik – unser Angebot nur unverbindlich / freibleibend abgeben und uns an die in unserem Angebot genannten Preise nur bis zum …. gebunden halten können.'*
Oder: *„Die Preise des obigen Angebots sind Festpreise bei einer Lieferung bis zum ……. Danach gilt: Sollte sich der Einkaufspreis/Marktpreis für benötigte Materialien des obigen Angebots zum Zeitpunkt der Lieferung gegenüber dem Zeitpunkt der Angebotserstellung um mehr als …… Prozent nachweislich erhöht haben, ändert sich der Einheitspreis entsprechend der Gewichtung des Materialanteils in dieser Position.'*
Als Klausel in einem Vertrag: *„Für den Fall, dass nach Vertragsschluss die von ……. zu zahlenden Netto-Einkaufspreise für Vormaterialien/Rohstoffe (insbesondere …..) zum Zeitpunkt der Lieferung um mehr als ……Prozent steigen sollten, hat das Recht, den Eintritt in ergänzende Verhandlungen zu verlangen, mit dem Ziel, durch Vereinbarung eine angemessene Anpassung der vertraglich vereinbarten Preise für die betroffenen vertragsgegenständlichen Materialien herbeizuführen.*
11 See www.jctltd.co.uk/docs/Fluctuations_Options_BC/DB-2016-FluctuationsOptionsBC.pdf, accessed 25 July 2025.
12 See for instance, Bordeaux Court of Appeal, 27 April 2021, no 20/04054.
13 TC Paris, 14 December 2022, no 2022033136.
14 Articles 9.4.1.1 and 9.4.1.2 of NF P 03-001 and NF P 03-002.
15 Société Altagna, CAA Marseille, 17 January 2008, no 05MA00493.
16 Société Balas Mahey, CAA Paris, 10 July 2015, no 12PA04253.
17 André de Laubadère and others, *Traité des Contrats Administratifs* (2nd edn, LGDJ, 1984), vol II, 623 (para 1394).
18 Philippe Malinvaud, *Droit de la Construction*, (7th edn, Dalloz Action, 2018), 1343 (para. 417.447).
19 Article 9.4, *CCAG. – Marchés publics de travaux.*
20 OGH 3 Ob 55/91.
21 NF P 03-0001, Article 10.3.1.2; NF P 03-0002, Article 10.5.1.2.
22 See Italian Supreme Court decisions 11200/2003 and 1027/1995.
23 Philippe Malinvaud, *Droit de la Construction* (7th edn Dalloz Action, 2018) 1343 (para 417.446).

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The Conduct of International Arbitration Proceedings

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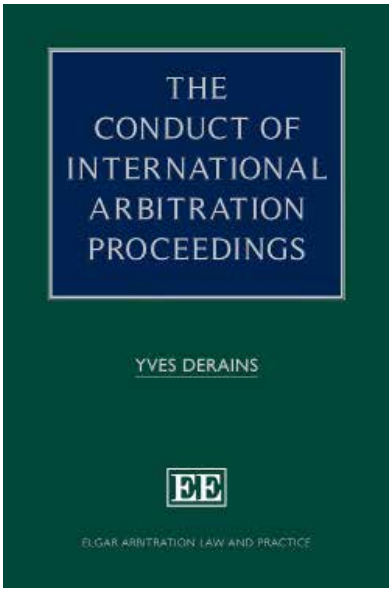

The Conduct of International Arbitration Proceedings provides a comprehensive and thoughtful exploration of how arbitral proceedings should be conducted, from the constitution of the tribunal to the issuance of the final award. The book calls upon arbitrators to rethink the standard practices they have become accustomed to. At its core, it challenges the tendency towards the 'standardisation' of arbitral procedure and presents a call for deliberate, tailored arbitration practice, rooted in fairness, efficiency, and cultural neutrality. Drawing on decades of arbitral experience, the author questions whether the trend towards procedural standardisation has sacrificed the flexibility and case-specific pragmatism that international arbitration was originally designed to embrace.

Another key section addresses the practical reality of arbitrator appointment. The author notes that, while parties often retain the right to nominate their own arbitrators, this freedom is not without controversy. He also acknowledges the criticisms surrounding unilateral appointments – or what are sometimes referred to as 'beauty contests' – as well as the limits that ought to be imposed on them to present a delicate balance between party autonomy and procedural integrity.

The author explores the arbitrator's mission, going beyond the usual definitions of rendering enforceable awards, and suggests that the arbitrator must manage the entire case lifecycle with procedural integrity at every step. The author challenges the notion that arbitrators are purely passive adjudicators, suggesting a more active role that includes the option in some cases to assist parties towards amicable solutions: equally raising the fact that such involvement must be exercised with restraint and with full awareness of the risks it poses to perceived impartiality.

The author does not shy away from identifying the flaws in the standard model of arbitration. Many proceedings, he argues, have become overly rigid, protracted and expensive: a consequence of excessive formalism, broad document production and unnecessary duplications in written submissions. In short, the argument put forward is that what was once intended as a harmonised procedural structure has, in many instances, become a straitjacket. While institutions have sought to harmonise arbitral processes across legal cultures, the result is often unnecessarily prolonged and costly proceedings. The author then offers viable alternatives to this rigid system, such as early procedural conferences, limited witness examination, bespoke scheduling and case-management tools designed to avoid procedural bloat. He concludes that there is no one-size-fits-all model and emphasises that tailor-made proceedings remain the best answer to the procedural complexities of international arbitration.

The author addresses virtual hearings, acknowledging the shift during the Covid-19 pandemic. He strikes a balanced tone, recognising the benefits of virtual hearings, such as savings in cost and greater accessibility, while also noting that virtual hearings may be inappropriate when witness credibility or complex party dynamics are at issue.

Finally, the author concludes with a consideration of the arbitral award. The discussions on deliberation, dissent and award scrutiny are well presented and practical advice is offered on drafting clear, enforceable awards. This serves as an excellent checklist for arbitrators.

In conclusion, the book presents a pragmatic and experienced perspective on the procedural life cycle of an international arbitration. What stands out is its grounding in real-world arbitration practice, making it a valuable resource.