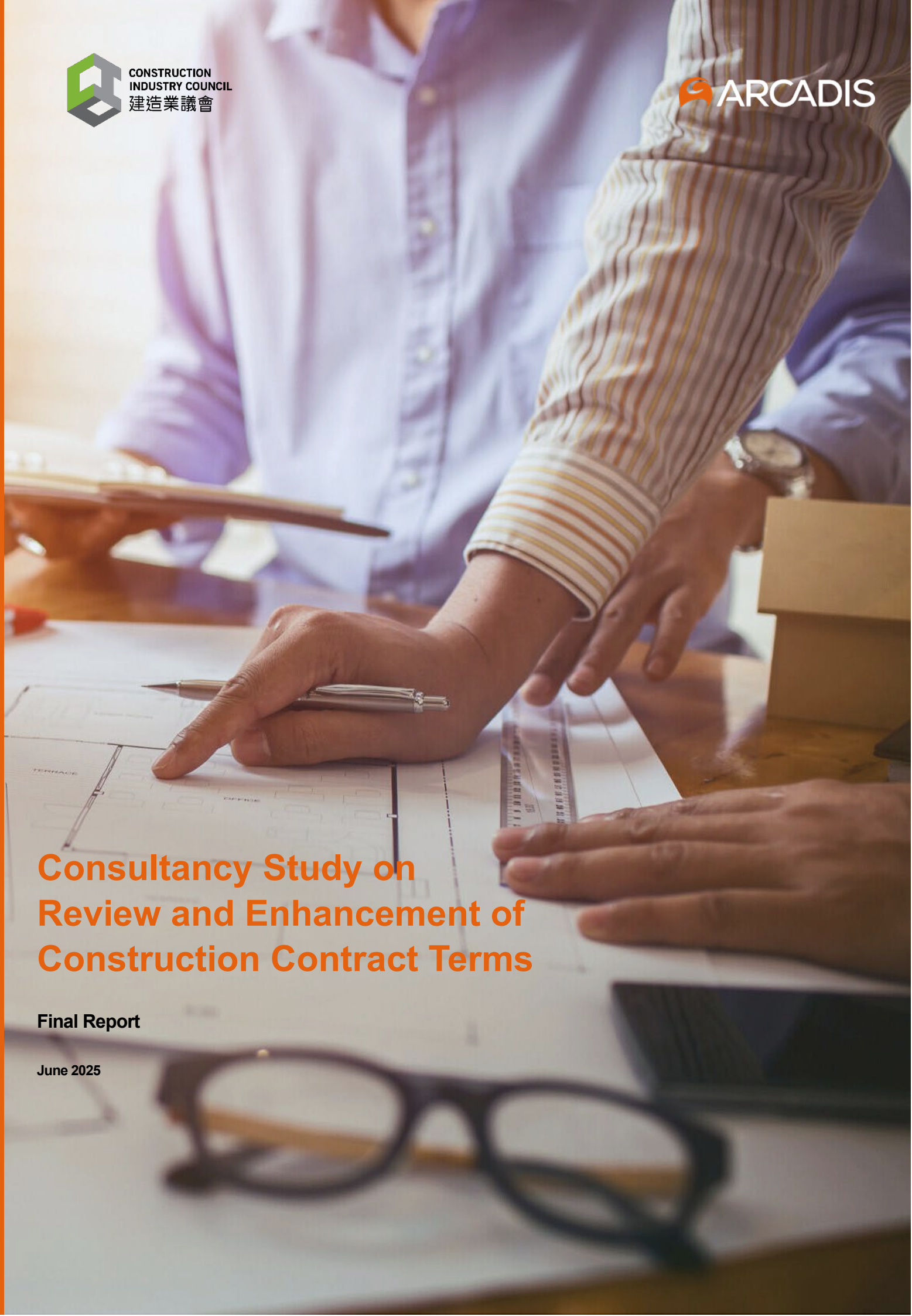
CONSTRUCTION INDUSTRY COUNCIL
建造業議會

ARCADIS



Consultancy Study on Review and Enhancement of Construction Contract Terms

Final Report

June 2025

CONTENTS

Abbreviations

Abbreviation	Definition
ACC	Additional Conditions of Contract
AI	Architect's Instruction
CEDD	Civil Engineering and Development Department
CIC	Construction Industry Council
Criteria	Reasonableness Assessment Criteria
CVI	Confirmation of Verbal Instruction
DevB	Development Bureau
DfS	Design for Safety
DLP	Defects Liability Period
ECC	Engineering and Construction Contract
EI	Engineer's Instruction
E&M	Electrical & Mechanical
EOT	Extension of Time
FIDIC	International Federation of Consulting Engineers
GBR	Geotechnical Baseline Report
HKCA	Hong Kong Construction Association
HKCSA	Hong Kong Construction Sub-Contractors Association
HKEMCA	The Hong Kong Electrical & Mechanical Contractors' Association
HKFEMC	The Hong Kong Federation of Electrical and Mechanical Contractors
HKGBCA	Hong Kong General Building Contractors Association
JCT	Joint Contracts Tribunal
JV	Joint Venture
LD	Liquidated Damages
L&E	Loss and Expense

Abbreviation	Definition
MLP	Master Layout Plan
MOS	Material On-Site
MTR	Mass Transit Railway
NEC	New Engineering Contract
NSC	Nominated Subcontractor
PC	Practical Completion
PCI	Pre-Construction Information
PFSS	Pay for Safety Scheme
PMI	Project Manager's Instruction
PolyU	The Hong Kong Polytechnic University
REDA	The Real Estate Developers Association of Hong Kong
RICS	Royal Institution of Chartered Surveyors
RSTC	Registered Specialist Trade Contractors
RSTCF	Registered Specialist Trade Contractors Federation
RSTCS	Registered Specialist Trade Contractors Scheme
SCC	Special Conditions of Contract
SME	Small and Medium-Sized Enterprises
SOP/SOPL	Security of Payment Legislation
VO	Variation Order
We/Our/Arcadis	Arcadis Consultancy Hong Kong Limited

Executive Summary

The Construction Industry Council ("CIC") commissioned Arcadis Consultancy Hong Kong Limited ("We/Our/Arcadis") to identify different forms of construction contracts commonly used in Hong Kong and review the contract terms on their reasonableness and balance in the rights and obligations of the contracting parties. In addition to the findings from reviewing **6** commonly adopted forms of construction contract in Hong Kong, we have also conducted interviews with **21** local stakeholders from clients, consultants, main contractors, subcontractors and relevant professional institutions to consolidate pain points, verify findings, and develop and refine our recommendations.

Amongst a wide array of pain points related to construction contracts used in both public and private sector in Hong Kong, the major contractual issues identified can be categorised into **6 contractual pain points** pertaining to timeliness of retention / bond release, legitimacy of contra charges, timeliness of issuance of instructions, timeliness of VO / EOT / claim assessment, timeliness of final account settlement and risk sharing.

Although our study focuses on contractual issues, we have further extended the analysis to a non-contractual perspective and pinpointed **6 non-contractual pain points** that were collected from our stakeholders. The most major pain point expressed by our stakeholders appears to be the project administration and people problems that lead to potential unnecessary disputes and not being able to work efficiently as one coherent team.

Short to Medium Term Recommendations

We have further researched and explored strategies for improvement by making reference to local and overseas practices and input from the interviewed stakeholders. We propose the below **21 short to medium term contract enhancement measures** under **6 key areas** aiming to improve the contract fairness and overall contract performance, namely:

- Contract specificity
- Assessment periods and party specific timeframes
- Alleviation of financial detriments
- Third party involvement
- Training to enhance contract administration practice
- Safety

These recommendations provide a directional guide on how stakeholders may enhance their construction contract terms during contract drafting, but the actual implementation may vary from project to project.

SHORT TO MEDIUM TERM

1. CONTRACT SPECIFICITY

- Clear outline of internal procedures in the contract with **detailed yet practical mechanisms** to manage informal / urgent instructions, claims and variations
- Use **unamended original core clauses** and standard contract forms
- **Clear procedures** for contra charge
- Well-defined **inspection and handover** procedures
- Clear stipulation for provision of **general facilities**
- Enhanced transparency in **subcontracting**
- Improve upstream **payment security** mechanism
- Implement **ground risk sharing mechanism** with adoption of Geotechnical Baseline Report ("GBR") as baseline
- Improve final account settlement mechanism with **specified time commitment**, **default mechanism** and **incentive bonus** for early completion

2. ASSESSMENT PERIODS AND PARTY-SPECIFIC TIMEFRAMES

- Contract clauses should include **specified timeframes** for each actionable party and **default non-compliant consequences** should payments not be settled on time
- Inclusion of clear mechanism for **change management review**

3. ALLEVIATION OF FINANCIAL DETRIMENTS

- Insurance to be purchased by the contractual party with **the best terms**
- Development of clearer criteria for the **call and release of bond**
- Implementation of **step-down bond** with a clear release mechanism
- Use **retention bond** and use of **segregated account for retention**
- **Project based facilitating measures** for cashflow improvements

4. THIRD PARTY INVOLVEMENT

- Engage **external consultant** with an official title in the contract to monitor the execution of the sub-contract, to be **written in the contract as a requirement** and jointly appointed by the main contractor and client.
- Full engagement of a **dispute resolution advisor**

5. TRAINING TO ENHANCE CONTRACT ADMINISTRATION PRACTICE

- Upskill contract administration and cultivate open approach
- Promulgate **documentation** and **record keeping** practice

6. SAFETY

- Incorporation of construction design management across all stages of projects

Long-term Recommendations

Although the above pain points have been identified through our study and reinforced by our interviewed stakeholders, we have consolidated substantial evidence to deduce that the root of contractual imbalance is largely attributable to **contract administration and individuals' practices**. While we are cognizant of the significant efforts by the Hong Kong government in legislating the Security of Payment Legislation ("SOPL")[1], which was gazetted on 27 December 2024 and will come into effect on 28 August 2025; together with the Development Bureau's effort in enhancing the adoption of collaborative contract forms e.g. New Engineering Contract ("NEC") in public works, this study provides additional and more upstream directions to further promulgate balance and reasonableness in construction contracts across the whole industry.

We believe that an overall **uplift in contract administration practices** for construction professionals via training, the eventual **shift to partnering** and ultimately **adoption of more collaborative contract forms and alliance contracts** would be the continuing solutions for the Hong Kong construction industry. The shift from the traditional practice of transferring risks to downstream parties to a more collaborative approach of project delivery may be a key enabling factor to minimise disputes occurrence in construction and improve the overall contract reasonableness. There are also numerous studies and cases substantiating the benefits of partnering and alliance contracts in construction. We believe that the key drivers for clients to adopt a more collaborative approach of project delivery are the relevant cost and time improvements. Additionally, a strengthened commitment to partnering may also lead to improved relationships and overall project execution. Therefore, we would consider contractual enhancement and partnering as the active approaches to resolve the observed contract imbalance and potentially lead the industry towards a more collaborative future.

Although the pain points and areas of concern identified in this study would be non-exhaustive and may not be able to reflect the entirety of the situation in the Hong Kong construction industry, we are confident that the study findings can enable industry practitioners and policymakers to formulate more detailed strategies and conduct further studies to enhance not only the various commonly adopted construction contracts, but also the overall construction project performance.

[1] Construction Industry Security of Payment Bill to be introduced into LegCo: Press Releases, the Government of the Hong Kong Special Administrative Region, 2024

1. Introduction

1.1 Background

Arcadis was commissioned by the Construction Industry Council ("CIC") to review the contract terms commonly adopted in construction contracts in Hong Kong on their reasonableness and identify the areas of concern and pain points faced by the industry. The intended outcome of this consultancy is to foster equitable risk-sharing and a collaborative work culture in the Hong Kong construction industry by evaluating the reasonableness of contract terms and suggesting potential enhancements to mitigate future disputes and claims.

Risk allocation can influence the overall performance of construction projects, and inequitable risk sharing may be one of the contributors to construction disputes. Thus, enhancing the fairness of construction contract terms may enable risks to be managed and allocated more effectively and equitably among contracting parties; such that risks can be handled by parties that are most capable of controlling them, and possibly in a way that improves the project performance. Additionally, mitigating disputes from the project through enhancing the fairness of contract terms also helps to achieve greater efficiency and a more harmonious working environment.

2. Methodology

2.1 Three-Phased Approach

This study adopts a three-phased approach, consisting of 1) Contract Review Phase, 2) Stakeholder Interview Phase and 3) Stakeholder Forum Phase. During Phase 1, we identified the forms of contract commonly used in the Hong Kong construction industry and reviewed the potentially imbalance terms and risk allocation patterns to develop the Review Report. In Phase 2, we conducted an industry-wide stakeholder engagement comprising of more than 20 interviews with different industry stakeholders to collect industry viewpoints and compile a Summary Report. In Phase 3, the stakeholder forum involves group discussions among different parties to deliberate the findings and recommendations of this study.

2.2 Phase 1 – Contract Review

We obtained and reviewed 6 different but commonly adopted forms of construction contract in Hong Kong covering both public and private sector, with critical assessment of contract terms against a set of Reasonableness Assessment Criteria ("Criteria"). The Criteria consists of whether the relevant contract terms:

- Cause imbalance in parties' rights and obligations
- Do not necessarily protect legitimate interests
- Cause financial or detriment to other party
- Exclude the parties' liability from breach of contract

The below 7 areas have been reviewed in contracts:

1. Payment
2. Instruction / Variation
3. Claims
4. Contra Charges
5. Insurance and Bonds
6. Final Account Settlement
7. Dispute Resolution

Based on each relevant area of concern, the findings from each form of contract were summarised and initial conclusions were drawn in the Review Report. For all the reviewed contracts, all contracting parties and contract names remained anonymous. For confidentiality reasons, the forms of contract reviewed have not been disclosed; furthermore, the individual contract terms have also been rephrased such that no exact wording from the contracts would be revealed in our report.

2.3 Objectives of Stakeholder Interviews

The objective of the stakeholder interview was to obtain industry stakeholders' insights and feedback on risk-sharing patterns under commonly used construction contracts in Hong Kong as well as pain points experienced and the associated root causes relating to contract administration. We also collected recommendations from stakeholders regarding practical strategies to address the identified pain points.

The intended outcomes of the interviews were as follows:

- Confirmation of areas of concern identified in the Review Report
- Identification of pain points from industry stakeholders
- Exploration of the implications of these pain points
- Obtain preliminary recommendations for contract enhancement

2.4 Phase 2 – Stakeholder Selection

To obtain a balanced view on the subject matter, the interviewees were selected based on the following selection criteria:

- Contractual parties including the representatives from key industry stakeholders, including client bodies (in both public and private sectors), consultants, main contractors, and subcontractors
- Client bodies who adopt their own forms of contract and their forms of contract were not covered in the Review Report
- Client bodies who do not employ nominated main contractors or self-owned in-house main contractors
- Client bodies, consultants, main contractors and subcontractors who:
    - Are currently involved in active contracts
    - Have a sizeable market share in their respective sector
    - Cover various project types and trades e.g. Foundation and Electrical and Mechanical ("E&M")
    - Nominated Subcontractors
- Consultants who are more involved in contract execution than design
- Relevant industry professional institutions / associations

To establish an understanding of the pain points and difficulties experienced by stakeholders from the downstream supply chain, we conducted interviews in the following order: Subcontractors, Main Contractors (Group C [2], Non-Group C), Consultants (Architect, Engineer, Cost Commercial Management), Client Bodies (Public, Quasi-Government, Private), and Professional Institutions / Associations.

In total, we have interviewed 21 stakeholders across the 5 stakeholder groups and received 7 written responses from professional institutions / associations. The 21 interviewed stakeholders consist of 3 subcontractors, 4 main contractors, 3 consultants, 6 clients and 5 institutions / associations that represent each of the aforementioned sector. All interviewed personnel hold management or executive positions within their entity.

Subsequent to the stakeholder interviews, the Summary Report was submitted, containing a grand summary of interview responses collected from stakeholders, categorised by the most common pain points revealed. The pain points were further divided into contractual and non-contractual pain points, providing directions for the types of recommendations included in this Draft Report.

[2] Group C denotes public contracts of capital expenditure exceeding HKD 400 million.

2.5 Phase 2 – Stakeholder Engagement Format

A semi-structured interview format was selected to achieve the above-mentioned objectives, allowing for an easier flow of conversation to obtain insightful feedback. Prior to the interviews, the stakeholders were provided with the interview questions in advance to facilitate meaningful discussion. During the interviews, the stakeholders were asked a set of questions regarding the risk-sharing patterns of contracts, elaboration on the identified pain points, suggested improvements for contracts, and the inclusion of safety clauses in contracts. The interview questions were derived from findings of the Review Report, particularly with reference to the area of concerns and pain points reviewed.

Some sample questions used to guide the interviews are listed below, starting with an overview of contract forms used, moving onto pain points, and ending with the interviewees' suggested recommendations as well as other areas. These questions were slightly modified on a case-by-case basis.

1. **Introduction**
   - What form(s) of contract does your organisation most commonly use? How are they selected?
   - Have there been challenges in using the above-mentioned form(s) of contract?

2. **Elaboration on Identified Pain Points**
   - Do you agree with the areas of concern identified – (payment, instruction & variation, claims, contra charges, insurance and bonds, final account settlement, dispute resolution) and the pain points?
   - Based on your experience, elaborate on the challenges in the identified areas
   - What other problems did your organisation encounter using the contract forms?

3. **Suggested Improvements for Contracts**
   - What suggestions do you have to mitigate the risks of the pain points? Can be both contractual and non-contractual.
   - Are you aware of any best practices from local or overseas organisations that should be applied in Hong Kong?

4. **Others**
   - Do you think fair contract terms will lead to improvement in contract performance i.e. time and cost improvement? In your opinion, what are the key enablers to improve contract performance?
   - Are clauses on safety included in the above-mentioned form(s) of contract? If yes, how effective are they in uplifting safety performance, and are there any suggestions to further enhance such clauses?

The stakeholder interviews were conducted for a duration of around one hour either in-person or virtually, depending on the preferences of the engaged consultees.

Given the timeframe and the need to broaden the range of responses received, in addition to the in-depth interviews, a questionnaire containing the same set of interview questions was also sent during the interview period to a selected group of stakeholders from professional institutes to obtain written feedback. All feedback has been analysed and summarised in this Report.

2.6 Phase 3 – Stakeholder Forums

As the last stage of the project, stakeholder forums have been held to obtain feedback with the intention of establishing a general consensus on the findings and recommendations of this study. A total of 3 forums have been conducted in the format of face-to-face session, and we have invited participants who were involved in the stakeholder interview phase with the addition of relevant local associations. We have arranged our 3 stakeholder engagement forums in the following arrangement:

CIC Review and Enhancement of Contract Terms – Stakeholder Forum no. 1
Participant: The Real Estate Developers Association of Hong Kong (REDA)
Date: 9 August 2024 (AM)
Main Objective: To collect opinions from client's / developer's perspective

CIC Review and Enhancement of Contract Terms – Stakeholder Forum no. 2
Participant: Hong Kong Construction Association (HKCA)
Date: 27 November 2024 (AM)
Main Objective: To collect opinions from main contractor's perspective

CIC Review and Enhancement of Contract Terms – Stakeholder Forum no. 3
Participants: Representatives from local SME contractors and subcontractors associations, including:

1. Hong Kong General Building Contractors Association (HKGBCA)
2. Hong Kong Construction Sub-Contractors Association (HKCSA)
3. The Hong Kong Federation of Electrical and Mechanical Contractors (HKFEMC)
4. The Hong Kong Electrical & Mechanical Contractors' Association (HKEMCA)
5. Registered Specialist Trade Contractors Federation (RSTCF)

Date: 27 November 2024 (PM)
Main Objective: To collect opinions from SME contractors and subcontractors.

From the stakeholder forums, we identified that views were much divided, as summarised in Appendix A. While this report has identified the major pain points facing the construction industry as a whole, the views obtained from different stakeholders during the stakeholder forums provide extra insights into the identified pain points from the perspectives of their represented sectors, providing useful information for formulation of future initiatives.

3. Pain Points

3.1. Key Observations

Following the analysis of our interview findings, we have divided key pain points experienced by the stakeholders into contractual and non-contractual pain points. An overview summary of the pain points with further categorisation under each of the two groups can be found below:

3.2. Contractual Pain Points

3.2.1 Timeliness of Retention and Bonds Release

Some of the main contractors and subcontractors have raised concerns about the impact of timeliness of release of retention and bonds on cash flow, and the impact is more substantial on subcontractors. In some cases, bonds were only released during or even upon completion of the Defects Liability Period ("DLP"), rather than upon PC, prolonging the withholding of cash flow.

The timeliness issue of release of retention and bond is more pressing on subcontractors. Some subcontractors highlighted that the retention / bond release criterion was beyond their control, e.g. bonds being released solely upon PC under the main contract. There was a case where a subcontractor was not able to receive retention and the bond remained unreleased because the PC under the main contract was delayed but at no fault of the subcontractor. However, it is worth noting that with the upcoming implementation of the SOP Ordinance, clauses that make release of payment (e.g. release of retention) conditional on the operation of another contract would become void.

Consequently, the timeliness for retention and bond release could be a source of financial challenges, especially regarding bond. Under the current economic climate, some SME contractors and subcontractors reported that there are challenges when obtaining a bond as the bank requested 100% collateral, causing substantial financial burden as they are typically smaller scale and may not own sufficient assets for the purpose of obtaining bonds. While it is hard to verify the difficulties faced by them, we deduce that this could be true considering the current uncertain market condition where asset values have been impacted substantially.

3.2.2 Legitimacy of Contra Charge Clause

Our observation suggest that the legitimacy of contra charge is major contractual pain point. It is quite common in contracts to stipulate such clause, however, there appears to be a lack of clear mechanism, grounds / justifications for contra charge and how the contra charge is calculated and capped in existing contracts, thereby giving rise to disputes. For example, contra charges imposed without prior notification, without justification, without breakdown and even retrospectively in some cases. However, we think that whether contra charges could be fairly executed may depend on the project

administrators and often, the bargaining power of the parties along the construction supply chain, i.e. a downstream party is typically at a weaker position to bargain.

Moreover, some reasons for imposing contra charges were perceived to be questionable. Examples raised by stakeholders include administration charges for reporting a site accident not included in the contract and pre-mature charging of contra charge in anticipation of liquidated damages ("LD").

3.2.3 Timeliness of Issuance of Instructions and Variations Assessment

Instructions, including Architect's Instruction ("AI"), Engineer's Instruction ("EI") and Project Manager's Instruction ("PMI"), are crucial aspects of the contract. Our analysis of the interview responses highlights a common challenge relating to timeliness of issuance of written instructions. We have observed that site works may often precede the corresponding CVI / instructions, as there is often a time lag between time of work and formalising instructions. This can lead to the prolongation of associated payments being received by contractors, as the CVI / instructions could not be submitted and notified to the upstream party timely and formally. When CVI / instructions are not timely confirmed / issued, it can become a source of disputes, especially when evaluation of cost implications of the CVI / instruction is deferred to a later stage of the project, the project team may lack understanding of the instructions and the involved staff may no longer be with the team.

We stress on the importance of a clear mechanism and a proper timeframe in the contract to formalise a verbal instruction. However, contract provisions relevant to verbal instructions varies from contract to contract. While some contracts recognise the status of CVI, CVI may have no status in some contracts. In contracts where CVI has no status, the timeliness of a formal instruction would be more crucial. It was revealed in one interview that it has taken up to one year for a Confirmation of Verbal Instruction ("CVI") for a particular contract to be acknowledged as a PMI, which was undesirable. On the other hand, we have observed the absence of a proper timeframe in the contract that overlooks the entire instruction mechanism. Vague wordings such as 'reasonable time' can lead to ambiguous interpretations and further impacting the timeliness of assessment instructions.

Additionally, we have identified concerns over uncertainties regarding the authority and responsibilities of parties confirming CVI / issuing instructions. For example, some responses have revealed that architects may not have authority to confirm CVI / release instructions without the client's approval in consideration of the preliminary cost implications. Therefore, even if a timeframe is stipulated in the contract, since the contract may not take into account the client's roles and responsibilities in CVI confirmation / instruction issuance and the time required for the client's internal approval procedures, architects may be unable to confirm CVI / issue instructions in accordance with the stipulated timeframe. Essentially, it is pivotal for project stakeholders to work in a cooperative manner to expedite CVI confirmation / instruction issuance: the main contractor and subcontractors to provide as much information available as they can for the consultant to evaluate the preliminary cost implications of the potential instruction; the consultant to provide the information necessary for the client consider the potential instruction; the client to go through the internal approval

procedures as timely as possible—with a view to minimising the uncertainties in relation to CVI confirmation / instruction issuance.

3.2.4 Timeliness of VO / EOT / Claim Assessment

The timeliness issue also extends to variation order (VO) / extension of time (EOT) / claim assessment. It has come to our attention that VO / EOT / claim may often be assessed at the end of the contract, resulting in deferral in receipt of the associated payments by the downstream parties, as well as agreement and settlement of final account.

The issue may be attributable to the absence of a clear time bar for the relevant assessment period. However, we have received feedback stakeholders that even if a timeframe was stated in contract, there were occasions where the timeframe was extended (when so permitted by the contract) or the timeframe was simply not met. For example, one form illustrates a party-specific timeline to handle variations, with 14 days for the Main Contractor to submit a lump sum quotation, 14 days for surveyors to assess the variation, and 7 days for the contract manager to notify the contractor of acceptance or need for revision. However, we have noticed that contract terms specifying the timeframe for client approval of variations may not necessarily consider the limitations faced by project managers in obtaining approval. Complex internal procedures within the client's organisation may impede the timeliness of approval of variations in a similar way as CVI confirmation / instruction issuance where client's internal approval is required.

From a wider perspective, the complications arise from the multi-tier subcontracting system in Hong Kong and the involvement of different stakeholders in a project. The deferred responses in relation to VO / EOT / claim assessment may be due to incomplete, unclear and untimely submissions from main contractors, who have to obtain information from subcontractors to support their submissions. However, subcontractors could only work out the submissions upon CVI / instructions from the main contractors channelled down from the client via the consultant, but the timeliness of CVI confirmation / instruction issuance may depend on the client's internal approval procedures. To conduct assessment the consultants would rely on the main contractor's submissions and the client would rely on the professional assessment advised by the consultant to go through internal procedures to make decision on the VO / EOT / claim assessment.

The implications of untimely assessment of VO / EOT / claims are multifold: While the contractors' and subcontractors' ability to plan working resources and schedule is affected, the clients' is also faced with uncertainty of the cost implications until the project has reached a very late stage or even the final account stage. Therefore, there has been views as to whether the QS can process an assessment based on the information available to the QS, and whether the QS could make a partial assessment, as a way out of complete acceptance or rejection of the entire submissions to enable early partial payments to improve project cash flow. But the essence of the problem is complexity of the flow of information and directives tier by tier due to the indirect contractual relationship under a multi-tier subcontracting system.

3.2.5 Lengthy Settlement of Final Account

Similar to VO / EOT / claim assessment, the untimely settlement of final account would appear to be attributable to the absence of a well-defined mechanism with a clear timeline for final account period and timeframe for the submission of substantiations. However, we have noticed that even if an overall time bar for completion of final account is stipulated in the contract, the actual duration may be extended due to many reasons.

The timeliness of issuance of instructions, VO / EOT / claim assessment and the disputes arising from contra charges as well as internal approval procedures within the upper stream contracting entity can have a significantly knock-on impact to the prompt resolution of final account settlement. Again, similar to VO / EOT / claim assessment, the quality, completeness and clarity of the final account submissions is also an important factor in determining how timely could a final account be assessed and agreed. In particular, it is common that the document submissions go back and forth, leading to a buildup of paperwork, further prolonging the final account settlement and contractor's cash flow.

Additionally, the problem of project staff turnover makes final account settlement more difficult, as the responsible staff may have already left the project or even the company, leaving the successors with a limited understanding of the unsettled issues.

3.2.6 Risk Sharing

While we have observed that the inclusion of amendment clauses in the contract may enhance contract delivery by providing contractors with a clearer understanding of the contract risks and responsibilities, we have also observed that there were instances where SCC has included clauses to alter the contract's nature and risk sharing pattern to be in favour of a particular party or to nullify certain essential conditions for filing claims. Common issues included the removal of the list of events eligible for an EOT and the elimination of time bars for accepting variations, which could result in financial and programme risks for main contractors and subcontractors. As such, the main contractors and subcontractors may price the risks into the contract, thus affecting the financial viability of the project.

The equity in risk sharing and availability of clear contract procedures in domestic subcontracts are questionable as the use of standard domestic subcontract form is not popular, as contrasted to nominated subcontracts. Typically, the contract does not specify a programme specific to subcontractors with regards to EOT. Where EOT is not granted to the main contractor, subcontractors also suffer losses as their subsequent work prolongation remains uncompensated.

Regarding ground risks, we have noticed challenges faced by main contractors when the contract places majority of these risks on the main contractor. This had been particularly problematic in the presence of unforeseen ground conditions, such as encountering previously unidentified structures during excavation works. Although tender documents may provide some information on underground works, it may often be presented as reference material only and may not accurately reflect actual circumstances. At the same time, findings from our Review Report showed similar

issues experienced by subcontractors, where certain forms of contract nullify the entitlement to claim payment or EOTs in relation to unforeseen site conditions or ground risks. Overall, there was a lack of a shared risk mechanism that adequately safeguards contracting parties' interests in this aspect. However, we gathered from our stakeholder interviews that there are client entities adopting a fairer and robust ground risk sharing approach in their contracts through the agreement of assumed risk sharing based upon an independent and contractually binding Geotechnical Baseline Report.

3.3. Non-Contractual Pain Points

3.3.1 Project Administration / People Problem

We have observed that the challenges faced in construction projects are often more related to contract administration and individuals' way of work rather than the clarity and fairness of contract terms. In traditional contracts, contracting parties are inclined to resort to their contractual positions when disputes arise, aiming to protect their own interests. Such disputes may not be easily resolved through negotiation and will have to go through litigation or arbitration, causing a strained relationship between parties who continue to work on the project whilst in dispute. Despite the progress made by the public sector in adopting fairer contract frameworks, such as the NEC for public works, the traditional administration practices may prevail in other sectors of the construction industry. Contracting parties may only prioritise their individual interests without considering how to facilitate the contract delivery or generate a win-win solution. This can have adverse effects on the project, such as impacting project schedules, costs and communication.

We have also noticed that there were instances where contract terms were not honoured or followed as intended, such as delays in assessing or approving variations and claims. However, due to power imbalances, contractual parties may choose not to exercise their full authority, as doing so may not only further deteriorate the relationship between parties which potentially leads to additional costs but also risk jeopardising business relationships and being "blacklisted" for future projects.

3.3.2 Procedural Problems

The long assessment and processing time for payment, variations, and claims was a recurring issue faced by main contractors and subcontractors. Obtaining client approval for issuing contractual instruction could be a time-consuming process, which also appeared to be an issue faced by project consultants. Several factors contributed to these lengthy approval procedures, including limited resources, complex internal procedures within the client organisation, restricted authority of project managers to communicate with the client's senior management, the involvement of multiple parties in joint ventures requiring approvals from each party, and the need to seek approval from the government department funding the contract in the case of public contracts.

It is also worth noting that the management approach adopted by the contract manager or administrator has a significant impact on variations, instructions, and claims. When contractors raised claims for variations, clients might request quotations for variations and assess them retrospectively. This approach if not implemented and clearly honoured at the contract outset could impede on contract progress, create challenges for contractors in providing supporting quotation documentation and information to support their claims, and ultimately determine the success of the variation claim.

3.3.3 Unfamiliarity to Contract Administration

Although NEC has been adopted in public contracts since 2009, from our findings, we gathered from our stakeholders that some of the contract administrators and resident site staff may not always work in a way that fully leverages the power of NEC contracts, i.e. continue to work with a more traditional approach of contract administration. This may lead to the benefits of adopting NEC contracts towards contract administration not being fully materialised. We have gathered from our engagements that disputes relating to variations often arise due to verbal or unclear instructions caused by less experienced parties not establishing and implementing formal procedures.

In addition, there has also been shortage in experienced professionals from our interviews, which aligns with the findings from the Manpower Forecast released by the CIC[3]. The above issue also represents a lack of experience among consultants and contractor personnel on contract administration, which could hinder the early resolution of issues, subsequently leading to contractual issues such as abortive works, variations, and ultimately disputes. The expertise and knowledge of contract administration staff can play a significant role in mitigating contract and project issues or exacerbating disputes within the contract lifecycle.

As expressed by our stakeholders, this apparent “brain drain” phenomenon specifically refers to the professional consultants in Hong Kong, whereby they struggle to retain their talents, especially mid-senior level staff as they have a high tendency to move to more attractive roles. We deduced that one potential reason being the ever increasingly competitive environment for consultants in the Hong Kong construction industry, leading to lower professional fees and subsequently losing the ability to retain talent.

3.3.4 Adversarial Relationship

Based on our findings collected during the stakeholder interviews, we have realised that contracts do not always provide equal protection to all parties in all areas. It is not uncommon for clients to shift anticipated project risks to the contractor and expect the risks to be priced into the contract price. However, as tendering price plays a significant

[3] Manpower Forecast for Hong Kong Construction Industry: Construction Industry Council, 2023

role in the tenderer selection process, contractors are forced to submit a competitive price in order to win the contract amidst fierce competition. Hence, the contract sum may not necessarily be sufficient to protect the contractor's interests. The imbalanced allocation of risk among contracting parties can often lead to a defensive stance when disputes arise, resulting in prolonged resolution times for payment, variations, claims, and final account settlement. This situation can have significant repercussions, including contract delays and cost overruns.

3.3.5 Multi-Tiered Subcontracting

We have observed from engaging with our stakeholders that challenges arise from the long-standing practice of multi-tiered subcontracting within the construction industry.

A major pain point raised by stakeholders was the indirect payment chain from the client to the lower tier subcontractors as a result of multiple layers of parties between the client and the actual working person. This leads to payment delays which may result in cash flow issues further down the project value chain. This also transpires in the form of frontline workers not being paid timely and fully. Yet, this situation is expected to be improved with the implementation of the SOP Ordinance. It is expected that, with improved cashflow of subcontractors thanks to the implementation of the SOP Ordinance, frontline workers could receive their wages more promptly.

Furthermore, from a cost perspective, multi-tiered subcontracting may lead to overall higher transactional cost due to the effect of margin on margin, resulting in higher construction cost. Conversely, the profit may be very marginal for the lower tiers of subcontractors, which may negatively impact the quality of works, the use of less skilled labour, and potentially lead to site safety issues (Tam, et al., 2011).

3.3.6 Safety

While the Government's Pay for Safety Scheme ("PFSS") was frequently mentioned in interviews, our interview findings suggested that subcontractors have not been able to benefit from the scheme. Some responses have indicated that the nature of the Pay for Safety Scheme has primarily delivered benefits to the main contractor, who would be rewarded for implementing safety measures, while the subcontractor, responsible for executing these measures would not receive subsequent benefits. This is because the Pay for Safety clause is in the main contract but frequently nullified in the subcontract. While the main contractor is responsible for the overall safety management and coordination of the site, efforts from subcontractors are essential to instil a safety mindset and uphold a safety spirit at the working level. The current practices mainly rely on the contra charge mechanism to enforce safety rules at subcontractor level, which is a passive way to incentivise safety. The absence of clear definitions on safe operations in contracts further complicates the situation. Therefore, it is the right time for the industry to evolve towards a more positive and proactive approach to elevate safety, permeating from the client level, down to the main contractor's level, and subcontractor level.

From a contractual perspective, we concluded that the lack of a deeply ingrained safety mindset and accountability could be an underlying factor contributing to safety issues. We have observed that safety may not always be prioritised in the contract awarding process, where cost and technical tend to carry more significance. Furthermore, there is insufficient demarcation on the roles and responsibilities of each contracting party with relation to safety specifically. We consider that further efforts may be required to further strengthen the safety-oriented culture within the industry and emphasise that safety remains a paramount consideration, for all stakeholders throughout the built asset lifecycle.

4. Recommendations

Based on the pain points identified from the interviews, we conducted research on local and overseas best practices, such as that from UK, Australia and New Zealand, among others, to develop contractual recommendations on improving contract fairness, appropriate risk allocation and overall project delivery. The recommendations are grouped into "short to medium term" and "long-term", where we anticipate that the short to medium term recommendations can generally be implemented within 2 years while long term recommendations may take longer than 2 years to be implemented.

4.1. Short to Medium Term Recommendations

4.1.1 Contract Specificity

a. Detailed Mechanisms to Manage Instructions

Due to tight programme or other unforeseen factors, it is sometimes inevitable to issue informal or urgent instructions. Nevertheless, it is necessary to establish clear and detailed procedures, which are practical to be implemented in the contract, for managing informal or verbal instructions to avoid potential disputes on variations and claims.

First, all instructions should be documented centrally and be accessible to all contract members. For example, Civil Engineering and Development Department's ("CEDD") Project Administration Handbook for Civil Engineering Works stipulates "All Architect's Instructions" issued are to be recorded in the Site Record Book"[4]. As technology is increasingly cost effective and easier to adopt, we recommend stipulating in contracts the use of digital systems to record instructions, variations, and claims, as well as upload supporting documents to improve the management and retrieval of site records.

As a general rule, changes should be developed; as far as is possible, ahead of the works with a clear mechanism to enable the client and contractor team to determine the potential impact of the change, including time, cost, quality, and risk factors. This enables the change to be considered in advance of the change being approved or rejected. The contract should also specify the authorised personnel to issue instructions to centralise the management of instructions.

In addition, a formal mechanism should be established and implemented to convert informal instructions to documented official instructions within an agreed reasonable timeframe. For example, a standardised CVI form may be created to enable the project team to coordinate and confirm any changes with all relevant contracting parties in detail. This should also include a time limit for converting informal instructions to be documented accordingly. For example, a standard form of contract stipulates that a verbal instruction involving a variation shall have no immediate effect and requires the

[4] Project Administration Handbook for Civil Engineering Works: Chapter 7 Contract Management, Civil Engineering and Development Department, 2024

contractor to confirm it by writing (i.e. confirmation of verbal instruction, CVI) to the Architect within a specified period. The CVI shall be deemed to take effect only if it is not dissented by the Architect within a specified reply period and the Architect shall issue a formal variation instruction to cover the CVI accordingly. This standard form of contract regulates verbal instructions by formalising the CVI mechanism in the contract.

The contract should unequivocally state that the contractor is at risk of undertaking any changes to the scope, prior to the receipt of a binding contractual instruction, as this places the emphasis on the client team to formally instruct any changes into the works ahead of implementation, to prevent abortive works claimed by the contractor.

We understand that the mishandling of verbal instructions may potentially lead to uncertainties and disputes, therefore, it is vital to include clear procedures for handling informal instructions under urgent situations in the contract, which can substantially avoid disputes. It is also recommended that the authority to issue CVIs is expressly limited in the contract, to prevent CVIs being received by site personnel without paper authorisation, i.e. during site walks from stakeholder's sharing of opinions, which can be construed as verbal instructions.

b. Use Unamended Original Core Clauses and Standard Contract Forms

We reflected on our review findings and pain points gathered from stakeholder engagement sessions, where a majority of the contractual pain points that would cause imbalanced risk allocation appear to originate from amending the original core clauses of a standard form of contract. From our analysis of stakeholder opinions, there seemed to be a general consensus that the core clauses of a standard form of contract drafted by construction industry bodies or professional institutions typically have a clear and balanced risk allocation. This is further supported by the "RICS Practice Information – Appropriate Contract Selection" published by the RICS in April 2024, where it mentioned "Standard form construction contracts are generally drafted in a balanced manner, reflecting the views of different parties to a construction project (e.g. employers, contractors and consultants). The contracts are drafted so that risks are borne by the party best able to manage those risks. Therefore, it is entirely possible for parties to use standard form construction contracts on an unamended basis."

We understand that the standard form of contract is drafted in a general way for ease of application to a wide range of projects, so that in many cases, the use of SCC is inevitable to suit specific needs and requirements of individual projects. We emphasise the importance of professionalism in contract drafting, and that SCC be drafted on the basis that they serve to improve but not to alter the original spirit of the contract. Ideally, we recommend the use of unamended contract forms if circumstances allow. When the use of SCC is unavoidable due to project needs or requirements, we recommend that the core clauses and the spirit of the contract forms shall be kept as far as practicable to maintain the balance in risk allocation between parties, and that no parties should take on risks that they may not be able to manage. This may also save contracting parties from encountering problems such as misinterpretation of contract clauses, which can result in insufficient deployment of risk mitigation measures and

possibly misjudgement of overall contract sum, leading to unnecessary financial detriments.

As far as subcontracts are concerned, common contract forms for subcontracts can also be considered for adoption, since these forms tend to have a more comprehensive contractual framework and standardised general terms and conditions. Stakeholders may make reference to some of the existing standard sub-contractor forms, including the CIC Standard Form of Domestic Subcontract[5] and the HKCA Standard Form of domestic Sub-contract[6].

c. Clear Procedures for Contra Charge

A clear mechanism and timeframe for contra charges should be implemented in domestic or nominated subcontracts to prevent disputes on contra charges between main contractors and subcontractors. Such mechanisms may include the personnel to raise contra charges, with documented records and supporting evidence prior to the implementation of the charges. Furthermore, contracting parties may consider implementing a notification mechanism in the contract, where detailed reasons and evidence must be attached to the notification to support the contra charge. It is also essential to impose a time limit between the incident and raising the contra charge to prevent lengthy disputes when the contra charge occurs only at the payment certification period. Finally, we have also noticed that the contra charge clause typically includes a set of house rules stipulating the rules for subcontractors to comply with. It is worth mentioning that with the upcoming implementation of the SOP Ordinance, the party that has received a deduction in payment due to a contra charge may be able to proceed to adjudication to challenge the contra charge to the extent that the SOP Ordinance allows. As such, clear procedures for contra charge not only protect the party who receives the payment, but also the party who makes the payment by minimising the potential payment disputes that need to be referred to adjudication.

d. Well-defined Inspection and Handover Procedures

Main contracts and subcontracts should clearly specify the DLP to protect the financial interests and resources of all contracting party, as well as avoiding potential counter charges between parties due to the handling of numerous defective works issued. A clear duration of DLP can also benefit the contractors in pricing in the costs of making good defects within the period accurately, providing better fairness to all contracting parties. If appropriate, contracting parties also may include clauses to enhance flexibility, e.g. extending the DLP at an extra unit cost up to a certain period of time.

[5] Standard Form of Domestic Sub-contract, Construction Industry Council, 2016

[6] Standard Form of Domestic Sub-contract, Hong Kong Construction Association, 2008

e. Clear Stipulation for the Provision of General Facilities

To avoid potential disputes and delay in works progress, contracts should clearly stipulate the provision of general facilities, such as scaffolding, lifting, and hoisting facilities. Such measures can facilitate contracting parties in conducting their site works in a timely manner and prevent potential disputes under the contract or conflicts under contra charges.

f. Enhanced Transparency in Subcontracting

Clients and contractors may consider regulating the number of subcontracting tiers for certain types of work, with due consideration to the safety, risk, scale, and scope of work. There could be clauses directly controlling the subcontracting tiers. Examples may be found in public works contracts, particular in the Additional Conditions of Contract for NEC, where tier of subcontracting is limited to one tier for high-risk operations or confined spaces, while the other works may be subcontracted for a maximum of two tiers. As a further administrative mean to ensure the effective implementation of such initiative, a mechanism could be introduced, whereby during site induction training and registration, the workers must bring along their employment contract or proof thereof to verify the site worker is indeed an employee of a current subcontractor on the concerned project.

Additionally, it is worthwhile to leverage upon the protection offered by the soon-to-be-implemented Construction Industry Security of Payment Ordinance (Cap. 652) (“SOP Ordinance”), a higher transparency in sub-contracting enables the clients’ or upper-tier contractors’ early intervention in case of any non-payment along the construction cashflow chain. Enhanced transparency in subcontracting of public contracts has been achieved through adoption of a subcontractor management system which requires main contractors to submit and update subcontractor management plan. To utilise the opportunity of the upcoming implementation of the SOP Ordinance, it may be the right moment to extend this subcontractor management system from the public sector to the private sector. In addition to enabling clients’ early intervention in payment disputes along the construction cashflow chain, a more transparent subcontractor management system enables the clients to have additional control on the quality and standard of subcontractors, through the Architect’s right to remove substandard sub-contractors if so vested to him within the contract.

A more enhanced subcontracting strategy is the collective involvement of both client and main contractor to regulate and control the subcontracting of the works, which primarily involves maintaining a two-way communication and possibly co-selecting subcontractors of particular selected trades by representatives of both the client and contractor. Contractually, this may be enforced by clearly stipulating the approval or endorsement process of subcontractors within a specified timeframe and regulating the subcontracting tiers on projects. For example, NEC ECC HK Edition stipulates the acceptance of proposed subcontractors by project manager.

Lastly, with the aim of enhancing subcontractor's overall quality of work, use of skilled tradesmen, and selection of subcontractors with good financial standing and track record, we recommend selecting subcontractors only from the CIC's Registered Specialist Trade Contractors (RSTCs) for works under the designated trades of the Registered Specialist Trade Contractors Scheme (RSTCS). Alternatively, the client may even formulate its own "list of subcontractors" and contractually steer the main contractor to only select from this list.

g. Upstream Payment Security Mechanism

To safeguard the payments for contracting parties, contracts can specify a clear mechanism to release payments. For example, a "cheque-for-cheque" mechanism can be adopted in contracts. Under such arrangement, the main contractor, in the presence of the Client, must provide the payment for the subcontractor, and the client would present the main contractor a payment that covers the amounts payable to the main contractor and the subcontractor. This seeks to create simultaneous payment that both main contractor and subcontractor are paid simultaneously. Subject to a project's scale and complexity, projects can consider different options to implement bespoke payment securities.

h. Ground Risks Sharing by Adopting Geotechnical Baseline Report

To establish more balanced risk allocation between contractual parties on ground risks, a ground risk sharing mechanism should be stipulated in contracts, including the use of GBR as the ground's baseline conditions. The GBR provides an overview of the anticipated range of uncertainty based on the geotechnical data collected, which can reduce the level of ambiguity on the ground risks. Tenderers can utilise the GBR and the risk sharing mechanism to price in the associated costs at a more reasonable rate. According to NEC, GBR has been used in contracts across North America, Singapore, Australia, Europe, and Hong Kong, where the use of GBR has seen benefits of clarifying the risk allocation[7].

During the contract period, it is possible for the project team to encounter unforeseen ground conditions. Contracts should embrace an equitable risk sharing mechanism where the contractor is eligible for a reasonable EOT or claims entitlement.

i. Final Account Settlement Mechanisms

In a highly ideal situation, the final account settlement could be shortened if project records/documents are detailed and comprehensive, and that the project teams strictly abide to each pre-set time bar as well as stipulated assessment period. However, we understand that this may not be the case for most projects. Hence, to accelerate the settlement of the final account, mechanisms may be established to impose time

[7] Ground and Risk in NEC: Using Geotechnical Baseline Reports, NEC, 2023

constraints or provide incentives for the contracting parties to agree on the final account. Furthermore, the contract form adopted is suggested to stipulate a clear timeframe for confirming the final account, including the timeframe for contractors to submit relevant documents substantiating the final account. For example, a standard form of contract stipulates a default 12 month period, if not altered by the contract drafter, for completion of the final account. Furthermore, a standard form of contract further stipulates that the contractor shall submit to the quantity surveyor all the documents that are reasonably necessary for the adjustment of the contract sum no later than 6 months after PC or 3 months before the end of the period for the completion of the final account, whichever is earlier, and that the submission of such documents shall not be a condition precedent to the quantity surveyor preparing the final account, permitting the quantity surveyor to prepare the final account based on the information that is available to him if the contractor fails to submit such documents in a timely manner. To facilitate the final account settlement in a timely manner, we recommend that the project team adopt a collaborative and timely mindset in documenting and resolving the instructions, variations and claims received during a project timeframe, in addition to utilizing existing and new technologies to facilitate additional efficiency and accuracy in documentative tasks.

The upcoming implementation of the SOP Ordinance is expected to expedite the final account settlement process, as the provisions of the SOP Ordinance also apply to the final account settlement. In this regard, it is expected that variations would be agreed in a timelier manner, and that agreements related to VOs less likely to be deferred to final account stage. Whilst the soon-to-be enacted SOPL can substantially resolve payment disputes at a legal level, we believe that the above contractual recommendations can work in adjunction with the SOPL by clearly stating contracting parties' obligations and encourage early prevention of payment issues without the involvement of legal actions. By adopting the previous recommendations on setting clear mechanisms for handling instructions and claims, the number of claims can be reduced effectively and thus shorten the final account settlement. Incorporating such recommendations into contracts serves as a commitment for contracting parties to achieve, as well as paving the way to facilitate better collaboration in the long term.

When comparing to overseas practices, adopting better payment practices can generate savings in construction costs. According to the United Kingdom's Office of Government Commerce, recommended fair payment practices include requiring fair payment charters to be signed for contracts and advanced certification of works for early payments[8]. It is estimated that the implementation of better payment practices can yield up to 2.5% savings in construction costs.

[8] Guide to Best 'Fair Payment' Practices: Construction Procurement, Office of Government Commerce, 2007

4.1.2 Assessment Periods and Party-Specific Timeframes

As reflected by various stakeholders, we recommend the establishment of specific timeframes for the assessment of claims and variations to improve contract efficiency, facilitate payments at any stage of the contract lifecycle, and enable a timelier resolution of final account settlement. For this recommendation to provide fairness, this timeframe will be imposed on every party i.e. contractor and client side, and this can be made possible through different measures.

a. Specific Timeframes for Each Actionable Party and Implementation of Non-compliant Consequences

Firstly, the contract may include a clause with specified timeframes for each actionable party when a claim needs to be raised/settled, and when a VO needs to be made. Such examples would be a contractor's timely submission of quotations for instructions, timely submissions of CVIs, timely submission of notice of claims, and the timely reply by the project manager or client, which should all be stipulated clearly in contracts.

Clearer and more specific contract provisions may enhance understanding of obligations, thus preventing delays to the overall contract timeline caused by a single party. Such clauses should be equally imposed upon and be honoured by all actionable parties to be fair upon all stakeholders and ideally avoid modification through other means, e.g. omission through the use of SCC.

Furthermore, to incentivise timelier payments, a default deadline may be specified, after which default non-compliant consequences or penalties may ensue should payments not be settled on time. Reference may be taken from overseas practices. For example, regarding payment claims, the Contractor Guide to Payments published by The Queensland Building and Construction Commission in Australia advocates the entitlement to interest for late progress payments for each day the amount is unpaid[7]. This may be specified in the contract—alternatively, a penalty rate may be provided by legislation[9].

b. Clear Mechanism for Change Management Review

Alternatively, when handling variations, a clearer mechanism for change management review may be considered. Depending on the contract nature and requirements, the mechanism should detail the steps that need to be taken to create, assess and implement a VO with specific time bars set for each step and for each actionable party. Additionally, systematic change management review meetings should be held on top of regular site meetings in order for all relevant parties to resolve potential risks and avoid abortive works from an early stage.

[9] Contractor Guide to Payments: Information on the Rights and Responsibilities in the Building and Construction Industry around Contracts, Payments and Disputes, Queensland Building and Construction Commission, 2022

During the meetings, any changes to the project should be properly documented and instructed into the scope of work. A tracking system, managed by the contract administrator and accessible by all relevant parties, may be used to monitor these changes and shall be updated regularly during the meetings. While changes are inevitable, clearer understanding, planning and communication can help projects to better manage changes and resolution of disputes.

4.1.3 Alleviation of Financial Detriments

A number of stakeholders have recommended various measures to alleviate financial detriments on bonds, while maintaining a certain level of financial security for clients to expect the works will be completed. We believe that the following measures can be effective contractual means to improve the fairness and equity of risk sharing.

a. Insurance Purchased by the Contractual Party with the Best Terms

The insurance could be purchased by whichever contracting party who can obtain the best insurance terms, such as coverage and premium. In some cases, the client may be able to obtain a better quote when bundling multiple projects, while in other cases, contractors with good reputation and track records may also be able to negotiate better terms with the insurer. Determining which party to purchase the insurance based on each party's position can collectively lower insurance costs to the contract overall.

b. Clearer Criteria to Call Bond and Release Bond

The pain point regarding on-demand bond primarily stems from whether the client or upper-tier party have upheld the highest level of trust, integrity and professionalism when exercising the right to call an on-demand bond. The calling of on-demand bond should only be regarded as an ultimate measure, which should be made only upon the exhaustion of all other means and actions available under the contract against non-performance of the contractor. The purpose of requiring on-demand bond is to ensure the bonded sum can be readily available in case this ultimate measure need to be implemented. In no case should this ultimate measure be abused, such as used in a way to exert pressure on a party during a negotiation, or to steer a party to perform extra obligations etc.

To increase the confidence of main contractors and sub-contractors in regard to on-demand bonds, consideration should be given to the inclusion of provisions that may help alleviate concerns of abuse, such as a requirement for the architect or engineer to submit to the bond issuer a form of certification or written statement stating that the contractor is in material breach of his obligations under the contract as a pre-condition to payment under the bond by the issuer. In addition, the bond should have an appropriate expiry date such as the date of occupation permit or substantial or practical completion. Finally, extending the validity period of the bond beyond the date of substantial or practical completion or even the end of the defect liability period

should be avoided. These recommendations are promulgated in CIC's Procurement Alert No. 001/14 and have been included in Reference Materials – Standard Form of On-demand Performance Bond with Conditions published by CIC.

Alternatively, if circumstances allow, adopting performance bonds is a viable option to enhance the confidence of main contractors and subcontractors. This approach may lessen concerns that the bond would be called without substantial proof. At the same time, the clients' financial position remains protected, ensuring that contractual agreements are fulfilled.

For either type of bond, we recommend implementing a tiered performance warning arrangement as an escalation mechanism, ahead of the bond being called on, to give sufficient warnings to the contractor to rectify the works. Furthermore, clients and contractors may consider agreeing on a bond amount for the carrying out of the construction contract, provided the amount is acceptable by both parties.

Alternatively, contractors and clients may opt to consider a deposit of cash cheque, bank note, or equivalent assets of monetary value by the contractor to an authorised third party, with the agreement of both parties and in a situation where such an arrangement would be beneficial to both parties.

We made reference to overseas publications about bonds for construction projects and found that on-demand bonds are not preferred by Build UK[10], a leading representative organisation for the United Kingdom's construction industry, as on-demand bonds are generally provided by the contractor's bank, and as it may be considered as the borrowing of money, cause a reduction of working capital and increase the chances of insolvency.

c. Step-down Bonds with Clear Release Mechanism

In conjunction with the aforementioned recommendations regarding bond arrangements, to better balance the risk allocations on performance securities, contracts may include step-down provisions and mechanisms for bonds to release a certain amount of the bond in proportion to the project's progress. This can be facilitated by breaking down the bond into proportional phases according to the project completion percentage, so that for each project stage, a corresponding percentage of the bond can be released.

d. Use Retention Bond and Use of Segregated Account for Retention

In addition, to avoid potential cashflow issues due to retention money not being released on time, a retention bond can be stipulated in the contract to substitute the amounts that would be held as retention. Alternatively, to avoid any party failing to complete the works according to the contract requirements or default on issuing the retention money when in insolvency or liquidation or, the retention money can be held

[10] Contract Terms Recommendation - Build UK, Build UK, 2020

in a segregated account by a third party, such as a bank or solicitor. Either method, the retention bond or retention money should be broken down into different stages, such as PC and DLP, and the value of the retention bond should be reduced after the certification of PC.

To fully maximise the impact of such measures, it is vital for contracts to clearly specify such mechanisms, including the milestones for releasing the amounts and the corresponding percentages.

e. Project-based Facilitating Measures

We note that several new measures have been implemented in public works contracts to enhance the cash flow of contractors, including additional advance and special payments at the onset of projects and for materials procurement, and the introduction of more frequent interim payments or frequent milestone payments. These facilitation measures are determined on the nature and characteristics of individual projects (i.e. project-based). It is worth exploring whether the adoption of these project-based facilitating measures could be extended to non-public works contracts.

4.1.4 Third Party Involvement

Several interviewees suggested that the involvement of a neutral third-party professional could help to safeguard the fairness of contract administration and implementation. Similarly, others have also recommended that strengthened engagement of a dispute resolution advisor to handle conflicts could reduce the ambiguity and adversarial nature between the contractually bound stakeholders.

a. Contract to List as Requirement to Engage External Consultant to Monitor the Execution of the Contract

We understand that the proposed SOPL for Hong Kong offers a practical way to resolve arising disputes, and we believe that preventive measures implemented from the early stages can avoid the escalation of disputes to the point of pursuing arbitration or legal proceedings. Such measures may include the involvement of an independent consultant from the beginning of a project, jointly appointed by the client and main contractor to monitor and audit the administration of contracts, with the goal of assisting all contracting parties to be treated fairly.

The external consultant may play an active role in managing assessments of claims and variations, evaluating the fairness of contra charges, as well as preventing delayed and/or disputable payments, ultimately enforcing a timely final account settlement. They may also be appointed as a change management consultant to oversee the entire contract lifecycle, holding responsibilities similar to that of an auditor, to oversee that the contract is properly administered. This may include setting up a detailed change control mechanism as well as keeping proper records and documentation from the onset. Depending on the nature of the specific responsibilities and obligations of the third-party professional/external consultant, they must be included in the contract so that they are able to exercise their respective rights. The necessity of engaging a third-party professional/external consultant should be applied based on the project complexity, duration, and contracting parties involved.

While the project can indeed engage a third-party consultant for the above responsibilities, this role can also be an independent consultant who is responsible for project management and be clear of any conflicts of interest, with the aim of the project being delivered smoothly and contracts being fairly administered for all stakeholders whilst acting in the best interests of the client. This may represent a shift away from the deep-rooted culture within the construction industry, where the Architectural or Engineering consultants traditionally carrying the role of Project Manager in addition to their design responsibilities.

Referencing to the local industry, it is not uncommon for clients to hire an independent consultant in a Project Management role to manage medium to large projects and various technical consultants throughout the project lifecycle. The Project Management consultant typically represents the client in managing the technical consultants to deliver the project.

Overseas practices may be taken as reference in relation to the appointment of a third-party professional in balancing contracting parties' risks and responsibilities during the implementation of a contract. For example, under Clause 2.5 of the International Federation of Consulting Engineers ("FIDIC") Red Book (1999 edition) used globally, the employer can only set off sums "in connection with the contract" against certified sums, upon the engineer's approval of any amount owing to the contractor following a claim[11]. The appointed engineer, here, plays the role of a third party in enabling the settlement of claim payments. On the other hand, the employer's agent and contract administrator have long been defined roles under international contracts, including the Joint Contracts Tribunal ("JCT").

b. Engagement of a Dispute Resolution Advisor

Also playing the role of a third-party professional is a dispute resolution advisor, whose presence across the contract lifecycle could be strengthened. The contract may specify the full engagement of a dispute resolution advisor with their obligations listed, such as to be present in all review meetings, to enable a timelier resolution of disputes and thus, greater contract and payment efficiencies. The 2015 Royal Institution of Chartered Surveyors ("RICS") Guidance Note on Final Account Procedures strongly advises contracting parties to seek mediation or conciliation should resolution to the final account not be achieved, further suggesting that the presence of a third party may "enable people to put perspective on issues"[12]. Expectedly, the mandatory inclusion of a neutral third-party professional can help to ensure that contracts are administered in a fairer and more equitable way.

[11] Construction Law Terms: Set off, Abatement and Counterclaims, Morris, N., Pinsent Masons, 2023

[12] RICS Guidance Note: Final Account Procedures, 1st Edition, RICS, 2015

4.1.5 Training to Enhance Contract Administration Practices

a. Upskill Contract Administration and Cultivate Open Approach

To upskill contract personnel across the construction industry to adopt a more open and balanced approach in contract administration, training to consultants and contractors is essential as a potential mean to enhance their understanding of the contract terms and improve their ability to fairly administer the contracts. Such trainings can be provided by professional bodies and the training should include practical content on drafting and interpreting contract clauses as well as promoting a more collaborative approach when administering the contract and resolving potential disputes[13].

The training may also include project-based team building activities or interactive workshops to further cultivate a collaborative mindset. To evaluate the training's effectiveness, participants may be required to take an assessment at the end of the training session. Future training sessions may also be created to help participants refresh their knowledge. Further studies may be considered to create a structured and tailored curriculum, together with a well-defined action plan to deliver the program.

In addition, the training can share standard or good practices on contract administration, including the contract drafting, issuance, approval, and evaluation of variations, as well as raising early warnings or change management when issues arise to prevent escalating into a more severe problem. Training sessions may cater to general professionals, contractors as well as contract administrators specifically.

b. Promulgate Documentation and Record Keeping Practice

Aside from contractual related training, it is essential to have extensive and complete records to facilitate clear and informed assessments of changes, regardless of how and when the claims and variations are assessed. As such, we recommend contractors to have a dedicated team or personnel trained for excellence in record keeping (e.g. clear, concise, with record of dialogue and photos) and cultivate a proactive recording practice amongst the site team to enable concise records of verbal instructions on site or of potential claimable events, and in the event of personnel turnover, better handover and understanding for the incoming party.

[13] CPD: QSD PQSL Contract Administration Series 2022 (2) – How to Deal with Variations under the Contract properly?, Hong Kong Institute of Surveyors, 2022

4.1.6 Safety

Some stakeholders have opined on the priority placed on safety in tenders and contract awarding process, where cost and technical tend to carry more significance. We therefore recommend client bodies to consider allocating more weightage to safety and include incentives in the contract to encourage the implementation of safety measures. Clients are also recommended to include safety-related expenses as a provisional item of the tender to encourage contractors implementing necessary safety measures as supposed to allowing room for tenderers to price more competitively by reducing their commercial allowance and resources deployed for safety.

In addition, to enhance safety across the contract lifecycle, construction design management should be incorporated into contracts to cover all parties involved in the project, including the client and designers to cover the project outset, design, construction and maintenance. The incorporation of Design for Safety ("DfS") practices to contracts may also be considered. CIC has previously issued a set of Reference Materials on the Design for Safety Management System for the Hong Kong Construction Industry in November 2022[14], which may be considered for reference. It recommends the appointment of a functional role to coordinate design for safety throughout the contract lifecycle. The client may choose to either assign the role to the design team or main contractor, depending on their experience in managing health and safety, background in design, and whether they can provide sufficient support in carrying out design for safety works. The use of key health and safety documents are suggested in the Reference Materials to enable the early detection and constant monitoring of safety hazards and risks.

As an extension of this study, a set of **Special Conditions of Contract** has been drafted to improve site safety performance in construction projects. While we recommend incorporating similar measures in private contracts as those used in public contracts, such as "Pay for Site Safety" and allowing items related to the Smart Site Safety System (4S) for pricing, other measures and requirements promoted by the Construction Industry Council (CIC) are also introduced, including:

- The use of safety harnesses with double-lanyards and double-hooks;
- Conducting morning briefings to guide workers in practising dynamic risk assessments, including construction methods and associated safety concerns;
- Obtaining and maintaining 4S Labelling for construction projects

Another important aspect is the introduction of a Design for Safety (DfS) framework incorporating the "three life-saving tips" promulgated by the CIC for implementation in the construction phase.

In addition to safety, contractual measures that facilitate the adoption of Innovation and Technology are also included.

Please refer to **Appendix B** in this report for the complete set of Special Conditions of Contract.

[14] Reference Materials on the Design for Safety Management System for the Hong Kong Construction Industry: Version 1, Construction Industry Council, 2022

4.2. Long-term Recommendations

4.2.1 Industry Practice Enhancement

Based upon the identified pain points in the previous section, we can summarise that most pain points endured by the industry do not stem from flaws in contract terms, but rather the adversarial approach of the contract team and how the contract is administered. This observation was described by the majority of the interviewees.

To improve the industry's approach on how to administer contracts fairly and balance the risk allocation between contracting parties, we believe that the first step is to provide the aforementioned training to contract administrators, consultants and contractors to transform their work practices and avoid creating an adversarial relationship between contracting parties by shifting risks to opposing parties.

The shift in working relationship may not be noticeable initially, but as industry practitioners gradually embrace a less adversarial approach towards contract administration, non-contractual partnering can be pursued to fundamentally change contract participants' confrontational behaviour, where trust is built based on goodwill and cooperation, a strong personal relationship is developed among the contract team, and when potential conflict arises, it is resolved by considering the mutual gains of the whole contract team rather than a particular party.

Implementing Non-contractual Partnering

Implementing non-contractual partnering may involve the following 4 steps[15]:

1. **Partnering Charter**: The partnering charter is a non-legally binding document, and its detailed clauses vary between contracts. The charter should identify the main goal of the contract team, list out measurable objectives which are related to contract execution, such as payment, safety, environmental practices, and dispute resolution[16].

2. **Organisational Awareness / Education**: It is vital to provide training to educate the contract team on what is partnering, how to pursue an honest and open approach to practice partnering.

3. **Kick-off Partnering Workshop**: Through the facilitation of a Partnering Consultant and the participation of the project owner, main contractor and major subcontractors, the first workshop serves as the initial step for all major stakeholders of the contract to align their contract administrative practices and approaches to establish a collaborative working relationship between parties.

4. **Review Workshops**: Review workshops should be held throughout the contract cycle to continuously strengthen the partnering relationship and monitor the partnering performance by evaluating against the parameters established in the partnering charter.

[15] Guidelines on Partnering: Version 1, Construction Industry Council, 2010

[16] Contract Partnering Agreement, Construction Sector Accord, n.d.

Qualitative Benefits

From a contract level, non-contractual partnering promotes transparency and communication between clients and contractors to jointly develop better solutions for the project and resolve potential issues. For example, by negotiating a more suitable time frame or working area for front-line workers to operate, the construction progress can be more productive with a higher quality, and the overall contract completion date can be achieved. By improving the relationships between clients and contractors, when potential conflicts arise, both sides are more willing to work together on different solutions to handle disputes. This may reduce the number of claims and time needed for disputes, which potentially allows the final account to be settled more timely.

For the contract team, non-contractual partnering can foster a closer and trusted relationship, and all parties are more willing to be open to discuss challenges and work together to achieve a solution. Through adhering to the fundamental principles of collaboration, all parties are more proactive and efficient in approaching issues and coming up with a solution jointly. Hence, potential problems can be identified and raised at an earlier stage in a noncritical scenario, and by understanding the difficulties occurred by the other parties, the contract team can work together to decide on the best solution. By building up long-term trust, clients will be more confident in the contractors' work, and when emergencies, contract or business changes happen, contracting parties are more willing to communicate openly, which can facilitate escalating issues swiftly to top management to expedite the decision-making process.

Quantitative Benefits

There are various local examples where non-contractual partnering has been implemented successfully. For Mass Transit Railway's ("MTR") Tseung Kwan O Extension project, they implemented partnering for all 34 contracts of the project, including 13 civil contracts, 4 building services contracts and 17 systemwide contracts[17]. The project commenced in 1998 and was completed in 2002, with a total cost exceeding HK$18 billion. With the implementation of partnering, the project reported savings in excess of HK$1 billion, equivalent to approximately 5.5% savings. Partnering also had positive time implications, as the track access was achieved up to 10 weeks ahead of programme and access was given to the Building Service Contractors up to 8 weeks in advance. Another key achievement from effective partnering was the improvement in claims culture; as a significant number of claims were settled with an open manner, which led to issues being resolved very quickly during the construction phase. Through better communication and arrangements, the project also resolved 85% of claims six months before project completion, whereas the Airport Line, a comparable project, which did not adopt partnering, only resolved 24% claims at a similar stage.

[17] Partnering on MTR Corporation Ltd's Tseung Kwan O Extension, Bayliss. R. F., MTR Corporation Ltd., The Hong Kong Institute of Engineers, 2001

Another example is the MTR LOHAS Park Station Box Design Optimisation. The initial planning and design for LOHAS Park Station was completed in 2000[18]. However, the master layout plan (MLP) of the vicinity, namely Area 86 was subsequently modified to a great extent. The station design needed to be revised to integrate with the revised MLP. Operational enhancements implemented by MTR in the intervening years were also considered. In view of this, MTR and the design consultant worked closely as partners in the aforementioned integrated team approach in revising the design. In the revised design, the station plan was optimised, the station volume was reduced, access from the LOHAS Park was improved, passenger flow at different phases of the property development were planned to be evenly distributed. The size of the station, including its services and ventilation shafts, were designed to the minimum required size while satisfying the anticipated usage and extensive coordination amongst the design disciplines took place. The overall volume of the Station box is reduced by 23%, which has not only significantly reduced the cost of construction and maintenance, but it will also save operating costs due to the smaller air-conditioned space.

Overseas studies also support such benefits with similar figures. Amongst many sources, a report published by The Centre for Strategic Studies in Construction at the University of Reading in the United Kingdom suggests that typically, with partnering, cost savings of 2 – 10% can be achieved on capital projects[19].

[18] Integrated Team Design Process – Successful Stories of Hong Kong MTR Corporation Projects, Ping, C.S., Keung, C.N.Y., and Ramanathan, M., 2011

[19] Partnering for Construction. Centre for Strategic Studies in Construction, University of Reading, Bennet, J., Ingram, I., Jayes, S, 1996

5. Conclusion & Next Steps

This study has identified a wide array of contractual pain points through a series of contract review and extensive stakeholder engagement activities. Above all else, we have collected substantial evidence to deduce that a key source of disputes originates from contract administration practices and adversarial approach on risk sharing between contracting parties.

To alleviate the identified contractual pain points and improve the risk allocation between contractual parties, practical short to medium term strategies are formulated with associated recommendations on enhancing contract terms, such as using the core clauses of standard forms as far as possible and introducing procedural changes and training to contract administration to mutually avoid and minimise potential disputes between contracting parties. However, as mentioned in previous sections, such pain points endured by the industry are not solely caused by unclear or imbalanced contract terms, we believe that it is critical to transform the industry's approach in administering the contract conditions to achieve a shared partnership outcome.

As a long-term strategy, contracts may consider implementing mutually beneficial partnering to foster a collaboration between contracting parties. From a contract fairness perspective, we would also recommend the adoption of contract forms which promote more collaborative partnership, such as NEC contract in other sectors of the construction industry. As the construction industry gradually becomes more mature with the collaborative approach of work, the adoption of Alliance Contracts can be considered, where multiple parties all sign up to a single set of terms to act as an alliance delivery team to mutually share the risk of success or failure in the contract[20]. Such long-term measures can lead the overall construction industry to uplift contract administration practices through the below step-by-step transformation and move towards a collaborative working environment.

Roadmap to a More Collaborative Future

While the enactment of Security of Payment Legislation (SOPL) would provide safeguard and protection for contractual parties should disagreement arise, our recommendations aim to put forward proactive measures that can lead to potential improvements on contract reasonableness and equitable risk sharing.

We are cognizant of the Development Bureau's policymaking effort in widening the adoption of NEC Contracts in public works. According to the "LCQ19: Public works projects adopting "New Engineering Contract" form" released in 2023, the adoption rate in public works rose from 22% to 47% in 2022, with more than 90% of large-scale public works commencing in 2022 adopting the NEC form. The purpose includes facilitating "Equitable Risk Allocation and Management of Compensation Events" and "Building up a Partnering Culture" amongst many others as mentioned in the Practice

[20] NEC4: Alliance Contract, NEC, n.d.

Notes for New Engineering Contract ("NEC") – Engineering and Construction Contract ("ECC") for Public Works Projects in Hong Kong published in 2023.

Since the introduction of the NEC into Hong Kong's public works, feedback from industry stakeholders has been received on the effectiveness of the form in facilitating a collaborate spirit and mitigating disputes, with the increase of collaboration between stakeholders noted to be a critical factor in the successful execution of construction contracts. Cases of collaboration include: use of the NEC early warning system to notify the client of an upcoming issue and the likely impact, resulting in active discussion to agree upon an alternate method achieving timely delivery of key materials; partnering spirit to agree upon alternative solutions such as the alignment or laying method of water mains to avoid existing ground conditions whilst keeping within budget; use of the target contract mechanism to encourage and share project cost savings between the client and contractor.

Amongst the collaborative measures introduced, we also note that the positive contract and tendering options introduced by the NEC allow the implementation of positive financial measures for contractors in the form of additional advance and special payments at the onset of projects and for materials procurement, more frequent interim payments or frequent milestone payments where practical, and 'bonus scores' encouraging large contractors to form JVs with SMEs in bidding for public works projects to ease contractors' cashflow burdens.

Our proposed recommendations tie in with the government's policies and can potentially help the construction industry steer towards an increasingly collaborative future. Finally, despite our report being primarily focused on construction contracts in Hong Kong, our findings clearly indicate that the consulted stakeholders have other areas of concern that are also high priority in their opinions and would therefore require further and more detailed investigation. We believe that our analysis and collected stakeholder opinions from this report can serve as the basis for determining future works and studies that can be carried out by different industry stakeholders and policymakers. Strategically, this study will also provide some much needed insights and directions for CIC to formulate their future studies and work plan.

References

Bayliss, R. F., 2001. Partnering on MTR Corporation Ltd's Tseung Kwan O Extension. *Transactions,* 9(1).

Bennet, J., Ingram, I. & Jayes, S., 1996. *Partnering for Construction. Centre for Strategic Studies in Construction, University of Reading,* s.l.: s.n.

Build UK, 2020. *Contract Terms Recommendation - Build UK.* [Online]
Available at: https://builduk.org/priorities/improving-business-performance/contractual-terms/

Civil Engineering and Development Department, 2024. *Project Administration Handbook for Civil Engineering Works: Chapter 7 Contract Management,* s.l.: s.n.

Construction Industry Council, 2010. *Guidelines on Partnering: Version 1,* s.l.: s.n.

Construction Industry Council, 2016. *Standard Form of Domestic Sub-contract.* [Online]
Available at:
https://www.cic.hk/files/page/51/Standard%20Form%20of%20Domestic%20Sub-Contract_english_2016_final.pdf

Construction Industry Council, 2022. *Reference Materials on the Design for Safety Management System for the Hong Kong Construction Industry: Version 1,* s.l.: s.n.

Construction Industry Council, 2023. *Manpower Forecast for Hong Kong Construction Industry,* s.l.: s.n.

Construction Sector Accord, n.d. *Contract Partnering Agreement,* s.l.: s.n.

Hong Kong Construction Association, 2008. *Standard Form of Domestic Sub-contract.* 2008 ed. Hong Kong: s.n.

Hong Kong Housing Authority, 2016. *General Conditions of Contract for Building Works 2013 Edition.* version 1.1 ed. Hong Kong: Hong Kong Housing Authority.

Hong Kong Institute of Surveyors, 2022. *QSD PQSL Contract Administration Series 2022 (2) – How to Deal with Variations under the Contract properly?.* [Online]
Available at: https://www.hkis.org.hk/en/professional_cpd2.html?id=5468

Morris, N., 2023. *Construction Law Terms: Set off, Abatement and Counterclaims.* [Online]
Available at: https://www.pinsentmasons.com/out-law/analysis/construction-terms-set-off-abatement-and-counterclaims

NEC, 2023. *Ground and Risk in NEC: Using Geotechnical Baseline Reports.* [Online]
Available at: from https://www.neccontract.com/news/ground-and-risk-in-nec-using-geotechnical-baseline-reports

NEC, n.d. *NEC4: Alliance Contract.* [Online]
Available at: https://www.neccontract.com/products/contracts/nec4/alliance-contract

Office of Government Commerce, 2007. *Guide to best 'Fair Payment' practices,* s.l.: s.n.

Office of Government Commerce, 2007. *Guide to best 'Fair Payment' practices,* s.l.: s.n.

Ping, C. S., Keung, C. N. Y. & Ramanathan, M., 2011. Integrated Team Design Process – Successful Stories of Hong Kong MTR Corporation Projects. *Procedia Engineering,* 1 January, Volume 14, pp. 1190-1196.

Queensland Building and Construction Commission, 2022. *Contractor Guide to Payments: Information on the Rights and Responsibilities in the Building and Construction Industry around Contracts, Payments and Disputes,* s.l.: s.n.

RICS, 2015. *RICS guidance note: Final account procedures, 1st edition,* s.l.: s.n.

Tam, V. W. Y., Shen, L. Y. & Kong, J. S. Y., 2011. Impacts of multi-layer chain subcontracting on project management performance. *International Journal of Project Management,* 29(1), pp. 108-116.

The Government of the Hong Kong Special Administrative Region, 2024. *Construction Industry Security of Payment Bill to be introduced into LegCo.* [Online] Available at: https://www.info.gov.hk/gia/general/202405/16/P2024051600346.htm?fontSize=1

Appendix A

Summary of Stakeholder Engagement Sessions

Stakeholder Engagement Session 1
REDA Private Developers (9 Aug 2024, 10:00–11:30am, Face-to-Face Meeting):

**While we general agree with the expressed views, we do bear in mind that the opinions from associations may be skewed towards their represented sectors, and that certain comments may not be suitable for including into the final report.*

General
There is an improper assumption that developers are at an advantage and contractors are unfairly treated, despite being the contract drafter. In terms of report content, the report may be regarded as slightly too generic. It does not differentiate between the contracting parties and tiers, i.e. main contract and sub-contract. The pain points have also not been categorised to particular parties.

Multi-tier Contracting
There is concern about the multi-tier sub-contracting system. Particularly, there are no terms or mechanisms to protect developers when portions of the work are sub-contracted, e.g., to regulate the selection and change of sub-contractors, to regulate sub-contractor registration in a project, and to regulate main contractors' payments to sub-contractors.

Late VO and Final Account Assessment
Late VO and lengthy final account assessment may not be developer's fault. In fact, developers wish to settle VO and final accounts speedily and pay main contractors as early as possible. On some occasions, late responses may be due to incomplete and untimely submissions from main contractors, who have to obtain information from sub-contractors to support their submissions. On the one hand, there is no timeframe for sub-contractors to submit the necessary information to main contractors. Furthermore, the QS does not process assessments until receipt of main contractors' submissions, and in processing a submission, QS either accepts or rejects the entire submission. In fact, developers are willing to give payment to main contractors based on QS's assessment, whether partial or in full, and whether main contractors have submitted the submissions. There are also some occasions where late assessments are due to personnel issues, for example consultants' and main contractors' project staff have departed, leaving the final account unsettled.

Recommendations

While some of the recommendations may be more theoretical and requires deeper considerations, e.g. third-party involvement in execution of contracts may further complicate the issue, the industry may explore the use of digital platforms to enhance transparency of processing contract submissions.

Stakeholder Engagement Session 2
HKCA Main Contractors (27 Nov 2024, 9:30–11:00am, Face-to-Face Meeting):

**While we general agree with the expressed views, we do bear in mind that the opinions from associations may be skewed towards their represented sectors, and that certain comments may not be suitable for including into the final report.*

General
The report may be too generic as it does not differentiate between public sector contracts and private sector contracts, and the coverage of public sector contracts seems inadequate. Moreover, it appears that the report has not adequately mentioned the NEC Contract. Therefore, the report findings may not be comprehensive due to differences in the definition of terms and contractual procedures, e.g., “EOT/L&E” vs. “compensation events.” Furthermore, the findings in HKCA’s report published in 2016 prepared by PolyU are not covered e.g. discrepancy of contract, change in law, etc.

Risk Sharing Pattern
Disproportionate sharing of risk through ACC / SCC to alter contract mechanism (e.g. ceiling on pain sharing by means of ACC) and deletion of grounds for EOT in private sector contracts, e.g. inclement weather has been experienced by HKCA members. It was hoped that the use of ACC/SCC shall be justified to the extent that it improves the contract, rather than altering the spirit of the contract. It is advisable that standard contract forms should be updated regularly to limit the extent of ACC/SCC clauses.

Consultancy Coverage
HKCA members felt that tendering stage is not covered by this consultancy, e.g. late addendum and pain points surrounding labour and workforce. Furthermore, lack of contract provisions to deal with employment of labour/manpower, including imported labour (e.g. sub-contractors’ default on payment of wages to its workers; wages on employment contract are not actual wages received by workers).

Inclement Weather
HKCA members noted that inclement weather is a large issue facing the industry. Whilst main contractors noted that it was fair to provide time off for workers in events of extreme hot weather, as this was encouraged by the Hong Kong government for the welfare of workers, it was said that contracts have not included means of claiming extensions of time for days/time lost for these events, or despite being in contract, it was difficult to seek approval for such claims. It was noted that stakeholders wished for inclement weather to not be excluded through means such as the SCC.

Recommendations
Some recommendations may be too theoretical and requires deeper considerations, e.g. third-party involvement in execution of contracts may further complicate the issue, e.g. not having a holistic view of the situation and lack understanding of the project background and both disputing parties, despite being the final decision-making entity.

Stakeholder Engagement Session 3
SME Contractors and Subcontractors Associations –
Hong Kong General Building Contractors Association (HKGBCA)
Hong Kong Construction Sub-Contractors Association (HKCSA)
The Hong Kong Federation of Electrical and Mechanical Contractors (HKFEMC)
The Hong Kong Electrical & Mechanical Contractors' Association (HKEMCA)
Registered Specialist Trade Contractors Federation (RSTCF)

27 Nov 2024, 14:30–16:00pm, Face-to-Face Meeting:

**While we general agree with the expressed views, we do bear in mind that the opinions from associations may be skewed towards their represented sectors, and that certain comments may not be suitable for including into the report.*

Multi-tiered Contracting
The multi-layer sub-contracting system in Hong Kong is effective and should not be insinuated as a major issue hindering the industry development.

Risk Sharing Pattern
There have been occasions where a subcontractor who was not at fault had to bear liquidated damages, partially or in full, for the responsibility of another subcontractor who committed the fault, but whether the subcontractor is aware of the legitimacy of such a deduction depends on the extent of the subcontractor's knowledge on the project. It was suggested that proper mechanisms shall be in place when exercising the right of deductions from payments to notify subcontractors and provide substantiations. Such examples of common contra charges include administration fees for accident reporting and penalties for non-compliance with house rules

Subcontractors opined that there should be transparency in contra charge items and amounts and that set-offs shall be proportionate in extent. Moreover, it was suggested that proper mechanisms shall be in place when exercising the right of deductions from payments to notify subcontractors and provide substantiations.

Bonds
SME contractors and subcontractors are concerned about whether the requirement to obtain a bond can be waived/removed. The need to obtain a bond exerts an extra burden on SME contractors' and subcontractors' cash flow, especially when they do not receive any advance payment for materials and equipment ordering. This burden is particularly challenging during economic downturns. SME contractors and subcontractors also have concerns on the use of open-end bonds instead of close-end bonds which are typically payable 6-12 months after PC. Another concern relates to the use of on-demand bonds compared to performance bonds, where on-demand bonds could be called arbitrarily. There is also an issue of duplicate bonds, where main contractors and sub-contractors must individually obtain bonds for the same project, where the costs and fees for obtaining bonds fundamentally become a portion of the total construction cost.

SME contractors and subcontractors reported that during economic downturns where property prices fluctuated, banks may require subcontractors to have 100% cash collateral backup for bonds, in particular for on-demand bond. This results in a portion of the subcontractors' cash locked up by bonds, reducing their available cash flow to sustain projects. The situation is exacerbated if they have multiple projects on hand.

SME contractors and subcontractors would additionally like to explore the possibility of advance payments, the adoption of performance bonds and lowering the bond percentage from the typical 10% to 5% of the contract/subcontract sum.

Insecurity of Payment

Subcontractors opined that the cashflow problem, such as the large lead time before repayment for project financing and by extent bond requirements have increased the insolvency risk for subcontractors in the current industry climate. Furthermore, insecurity of retention money being held by main contractors instead of being put in trust in a segregated account. There is no recourse if the main contractor defaults on the payment of retention money. Another reason for payment insecurity originates from the fact that private developers and main contractors may be shell companies, and that there is no recourse if they go out of business. In case of default of payment to NSCs, it is NSC's expectation that Clients could promptly exercise the rights of direct payment to NSC.

Cashflow Burden of Sub-Contractors

It was opined that a major portion of subcontractor's fiscal assets were invested into bonds to borrow from the bank to buy equipment and materials, and that materials on site (MOS) payment and partial interim payments would at least take 6 months to receive. According to the contract, the time bar for latest interim payment, plus another 14 days for subcontractor to receive from the contractor, further extends the time bar for subcontractors. In this scenario, subcontractors would owe 3.5 months of wages and have already committed 1/7th of project financing before the first payment.

Retention Money

Concerns were noted by stakeholders by the current developments regarding retention money, and the definition of separation in contract terms for the security of retention in event of contractor liquidation. It was suggested that improvements be considered to contract terms to enable clear separation of retention money from other accounts, such as placement of retention in an escrow account or trust in segregated accounts.

Contra Charge / Liquidated Damages

It was also stated that situations of contra charges upon subcontractors were unclear, that subcontractors were unclear on the reason for contra charges and recommended a more formalised and transparent communication methods between clients and all tiers of contractors for clearer understanding of contra charges. Subcontractors also opined that having a direct relationship between them and the client were beneficial if the situation allowed, with direct supervision and clearer communication between the client and all tiers of contractors.

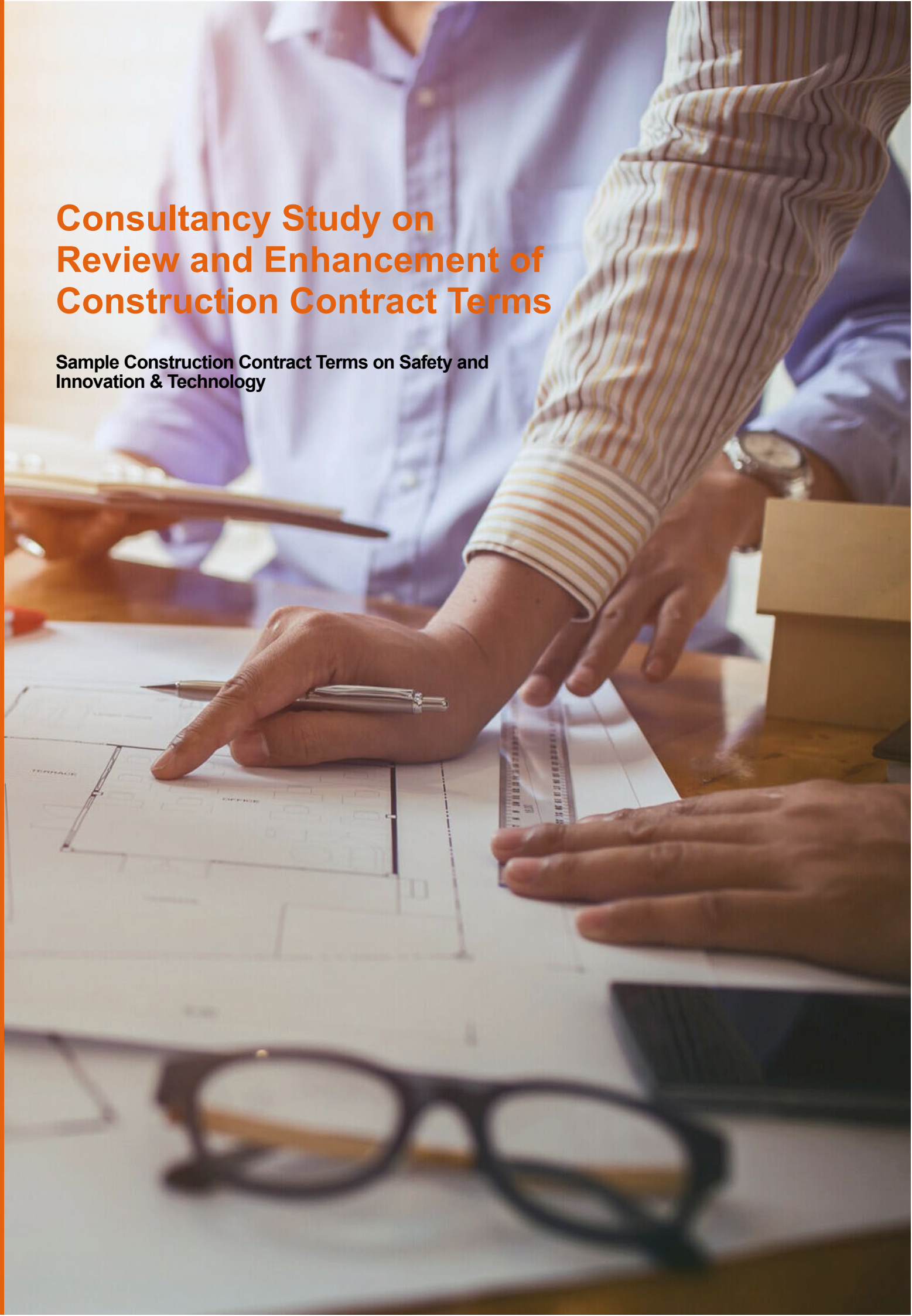
Appendix B

Sample Construction Contract Terms on Safety and Innovation & Technology

[Please refer to the enclosed document.]

Consultancy Study on Review and Enhancement of Construction Contract Terms

Sample Construction Contract Terms on Safety and Innovation & Technology



CONTENT

1. Introduction

This document contains a set of sample construction contract terms and the associated contractual sections relating to construction safety and innovation and technology, including Special Conditions of Contract (SCC), Standard Method of Measurement and Bill of Quantities/Schedule of Rate for adoption in the private construction sector of Hong Kong.

Reference was made to existing practices in public works as below with modifications for adaptation for use in Agreement & Schedule of Conditions of Building Contract for use in the Hong Kong Special Administrative Region Private Form 2005 Edition (With Quantities) / 2006 Edition (Without Quantities) (collectively referred to as "Standard Form of Building Contracts"). The clause should be amended according to the latest version of the Standard Form of Building Contracts and project needs.

Safety Related	
Prohibition of Imposing Administrative Charges for Reporting of Site Accidents	IV:11, Library of Standard *additional conditions of contract*, available at: https://www.devb.gov.hk/filemanager/en/content_1002/ECC%20HK_ACC_20241213_clean%20v2.pdf
Safety Plan	SCC 23, Specimen Special Conditions of Contract, available at: https://www.devb.gov.hk/filemanager/en/content_805/DBAP_ANN_G12.pdf
Pay for Safety Scheme	Chapter 3, Construction Site Safety Manual, available at: https://www.devb.gov.hk/filemanager/en/content_191/Chapter3_Ver.Mar.2018.pdf Chapter 12, Construction Site Safety Manual, available at: https://www.devb.gov.hk/filemanager/en/content_191/Chapter12_Ver.Mar.2018.pdf
Design for Safety	Guidance Notes of Design for Safety, available at: https://www.devb.gov.hk/filemanager/en/content_29/Design_for_Safety_Guidance_Notes.pdf
Smart Site Safety System	Development Bureau Technical Circular (Works) No. 3/2023, available at: https://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/1393/1/C-2023-03-01.pdf

Particular Specifications on Site Safety	Appendix II to Chapter 3, Construction Site Safety Manual, available at: https://www.devb.gov.hk/filemanager/en/content_191/Chapter3_Ver.Mar.2018.pdf
Innovation and Technology Related	
Cost Saving Design	VII:2, Library of Standard *additional conditions of contract*, available at: https://www.devb.gov.hk/filemanager/en/content_1002/ECC%20HK_ACC_20241213_clean%20v2.pdf Clause 11.8 Requested Variation, Hong Kong Housing Authority General Conditions of Contract for Building Works 2013 Edition (version 1.1), available at: https://www.housingauthority.gov.hk/common/pdf/business-partnerships/resources/general-conditions-of-contract-for-capital-works/Building-GCC.pdf
Innovation and Technology	Option X30, NEC ECC HK Edition (July 2023)

In the sample Special Conditions of Contract, the clauses are numbered with the prefixes “S” and “T” to indicate whether they are pertaining to “**S**afety” or “Innovation and **T**echnology” respectively.

Appendices 1 to 4 of these Special Conditions of Contract should be periodically updated as necessary, as the publications referred to in these Appendices may change from time to time.

2. Sample Special Conditions of Contract

2.1 Safety Related Sample Special Conditions of Contract

SCC S1 Prohibition of Imposing Administrative Charges for Reporting of Site Accidents

(1) The Contractor shall not impose charges of any form on any sub-contractor or deduct any amount from the payment to which any sub-contractor is entitled, for reporting accidents and processing any claims for compensation under the Employees' Compensation Ordinance (Cap. 282) on behalf of the sub-contractor. For the avoidance of doubt, sub-contractor in this clause means all types of sub-contractors, irrespective of tiers.

(2) The Contractor shall ensure that the provisions in Appendix [A] to Annex A of Secretary for Development's memo under ref. DEVB(W) 516/80/03 dated 3 August 2022 are included mutatis mutandis in all sub-contracts entered into with its sub-contractors. The Contractor shall, if necessary, within a reasonable time enter into a supplemental agreement with its sub-contractors to comply with the requirements in this sub-clause.

(3) For sub-contracts at any lower tiers of sub-contracting, the Contractor shall take all reasonable steps to ensure that the provisions in Appendix [A] to Annex A of Secretary for Development's memo under ref. DEVB(W) 516/80/03 dated 3 August 2022 are included mutatis mutandis in all such sub-contracts. The Contractor shall take all reasonable steps to ensure that sub-contractors at any lower tiers of sub-contracting shall, if necessary, within a reasonable time enter into a supplemental agreement to include the provisions in Appendix [A] to Annex A of Secretary for Development's memo under ref. DEVB(W) 516/80/03 dated 3 August 2022 mutatis mutandis in all such sub-contracts.

(4) Upon request by the Architect, the Contractor shall provide the original documents of the sub-contracts to the Architect, for inspection.

(5) Where injury by accident arising out of and in the course of the employment is caused to any person employed to Provide the Works or in connection with the contract, the Contractor shall notify the Commissioner for Labour in such form and manner as required by the law and report the matter to the Architect in the form prescribed in this contract without delay. This sub-clause shall apply irrespective of whether the person is in the employ of the Contractor or a sub-contractor, and whether the person claims for compensation.

(6) The Contractor shall make necessary arrangements to ensure that all sub-contractors report all accidents on the Site involving their employees via their upper tier sub-contractors (if applicable) to the Contractor without delay. Such arrangement shall be incorporated in the Safety Plan and Sub-contractor Management Plan required under the Contract.

(7) The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect of or in consequence of any accident or injury to any worker or other person in the employ of the Contractor or any sub-contractors save and except an accident or injury resulting from any act or default of the Employer, his agents or employees and the Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation, save and except as aforesaid and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

(8) The compliance of this clause of these Special Conditions of Contract by the Contractor is entirely without prejudice to and do not relieve the Contractor from any of its obligations or responsibilities under the Contract, the Factories and Industrial Undertakings Ordinance (Cap. 59), the Occupational Safety and Health Ordinance (Cap. 509) and the Employees' Compensation Ordinance (Cap. 282), and all their subsidiary Legislation.

SCC S2 Safety Plan

(1) A “Safety Plan” is a document which sets out details of the safety management system that the Contractor will implement on the Site, together with any other measures and information required by the Contract to ensure safety and health in the execution of the Works. The Safety Plan shall include contents specified in Clause 3 of Particular Specifications on Site Safety in Appendix III to Construction Site Safety Manual published by Development Bureau, available at: https://www.devb.gov.hk/en/publications_and_press_releases/publications/construction_site_safety_manual/index.html

(2) The Contractor shall submit within 14 days of the date of the Employer’s letter of acceptance of the Tender a draft Safety Plan to the Architect.

(3) Within 7 days from the submission of the draft Safety Plan, the Contractor shall arrange and hold a meeting (or meetings if necessary) with the Architect and his representatives to discuss the draft Safety Plan. Where the Architect is of the opinion that the draft Safety Plan does not meet the requirements of the Contract he shall request that the Contractor rectify the deficiency prior to submitting the Safety Plan to the Architect for his formal acceptance.

(4) The Contractor shall submit within 35 days of the date of the Employer’s letter of acceptance of the Tender the Safety Plan to the Architect for his formal acceptance.

(5) The Contractor shall review the Safety Plan at monthly intervals and shall revise and update the Safety Plan if necessary.

(6) The Contractor shall comply with the Safety Plan in the execution of the Works and ensure his employees and sub-contractors of all tiers comply with the Safety Plan. The Contractor shall provide any other party working on the Site including Specialist Contractors and utility undertakings with a copy of the Safety Plan and shall request those parties comply with it. The Contractor shall report any person who fails to comply with the Safety Plan to the Architect.

(7) If the Architect is of the opinion that the Safety Plan does not meet the requirements of the Contract, the Architect may require the Contractor to revise or update the Safety Plan and the Contractor shall comply with that requirement within 7 days of the date of the notice.

(8) The Contractor shall provide all facilities, access and assistance to the Architect to periodically verify that the Safety Plan is being properly and fully implemented. If the Architect is of the opinion that the Safety Plan is not being properly and fully implemented and the failure may adversely affect the safety and health of any person or the safety of any property on or adjacent to the Site, the Architect may notify the Contractor of such

failure and the Contractor shall then take all necessary steps to rectify that failure immediately.

(9) This Special Condition of Contract shall not relieve the Contractor from any of his obligations or responsibilities under the Contract and the law.

SCC S3 Pay for Site Safety (PFSS)

(1) Task-based Pay for Site Safety (PFSS) items are included in the Contract with the aim of encouraging the Contractor to achieve better safety performance. The Contractor shall be entitled to payments for PFSS items in *Bill / Schedule No. X – Site Safety and Smart Site Safety System (SSSS)*, provided that the Contractor has complied to the extent specified for each item.

(2) The requirements for PFSS items shall be referred to:

(i) Corresponding clauses in Particular Specifications on Site Safety in Appendix III to Chapter 3 of Construction Site Safety Manual published by Development Bureau under the same headings, available at: https://www.devb.gov.hk/en/publications_and_press_releases/publications/construction_site_safety_manual/index.html

<u>Site Safety Management</u>	
Clause 5	Safety Officer
Clause 9	Site Safety Committee
Clause 10	Site Safety Management Committee
Clause 11	Weekly Safety Walk
<u>Provide safety training</u>	
Clause 8	Safety Training
<u>Site Safety Cycle</u>	
Clause 21	Site Safety Cycle
<u>Prevention of heat stroke</u>	
Clause 17	Measures for Working in Hot Weather

Clause 8 in Particular Specifications on Site Safety in Appendix III to Chapter 3 of Construction Site Safety Manual published by Development Bureau shall be modified as follows:

- **Sub-clause (7)(c)** shall be replaced by the following:

  The content of the toolbox talks shall be based on training kits published by HKCA or the publications issued by the Construction Industry Council and Occupational Safety & Health Council as listed in Appendix 3 to these Special Conditions of Contract. Where such a proposed topic is not amongst one of those in the training kits published by the HKCA or publications issued by the Construction Industry Council and Occupational Safety & Health Council as listed in Appendix 3 to these Special Conditions of Contract, the Contractor shall develop

training kits to a similar standard for approval by the Architect.

Clause 21 in Particular Specifications on Site Safety in Appendix III to Chapter 3 of Construction Site Safety Manual published by Development Bureau shall be modified as follows:

- Add **a new sub-clause 1.1.3A** after 1.1.3:

  In the PES meeting, sufficient time shall be allocated for practicing the use of safety harness with double-lanyard and double-hook. Reference shall be made to Section 3 of Reference Material on Construction Safety Assembly (December 2023) published by the Construction Industry Council, available at: https://www.cic.hk/files/page/51/J231209%20Reference%20Material-Morning%20Meeting-A5.pdf.

- **Sub-clause 1.2.3** shall be replaced by the following:

  The leader of each HIA meeting shall prepare the training materials before conduction, which shall include, but is not limited to, details of the latest Construction Phase Plan (CPP) approved by the Architect covering the specific works to be carried out that day as outlined in the CPP, including review of construction methods and sequences, hazards and control measures specific to the works or trades, special safety concerns, assurance of safety requirements and measures, reprimand of repeated irregularities and malpractice etc. Moreover, frontline supervisors and workers shall be briefed about areas of attention when conducting dynamic risk assessment throughout the process of these specific works. Reference shall be made to Section 4 of Reference Material on Construction Safety Assembly (December 2023) published by the Construction Industry Council, available at: https://www.cic.hk/files/page/51/J231209%20Reference%20Material-Morning%20Meeting-A5.pdf. Leaders of the HIA meetings shall also encourage frontline supervisors and workers to give their views in the HIA meetings. Where necessary, Site Agent, Safety Officer and/or Safety Supervisors who are more experienced in provision of training shall provide guidance and assistance to the leaders of HIA meeting before conducting the meeting. The training materials prepared for and the discussion during the HIA meeting shall be recorded in a HIA table, a sample of which is shown in Annex A. The HIA Table shall be kept in the Contractor's site office for ready inspection by the Architect's Representative or his/her staff upon request.

(3) The Contractor shall submit a Sub-contractor's Incentive Scheme for approval by the Architect, indicating how PFSS is to be cascaded down to sub-contractors. Payment items under PFSS would not be assessed by the Architect if no approved Sub-contractor's Incentive Scheme is in place or the approved Sub-contractor's Incentive Scheme is not implemented to the satisfaction of the Architect.

(4) The Contractor shall submit relevant documentary proof, records and/or reports for the Architect to assess the entitlement to the PFSS items as specified in *Bill / Schedule No. X – Site Safety and Smart Site Safety System (SSSS)*.

(5) The Architect shall assess the amounts for the PFSS items in accordance with the corresponding Measurement Rules as specified in the Preambles and notify the Contractor of the assessed amounts. The Contractor shall include the assessed amounts in the next interim statement submitted or where there is no further interim statement, in the statement of final account submitted.

(6) The Architect shall have the power to omit from any certificate the amounts for the PFSS items if he is for the time being dissatisfied with the documentary proof, records and/or reports for those items submitted by the Contractor and for that purpose, or for any other reason which to the Architect may seem proper, he may by any certificate delete, correct or modify any amounts previously certified by him in respect of the PFSS items.

(7) The Architect shall finalise the assessment of the PFSS items within the time period required by the Contract for the issue of the final payment certificate. Effect shall be given to such assessment in the calculation of the Final Contract Sum and in the payment due from the Employer to the Contractor or from the Contractor to the Employer as the case may be under the final payment certificate.

SCC S4 Design for Safety for Construction Phase

(1) Design for Safety (DfS) for construction phase involves identifying potential hazards and reducing significant health and safety risks through adequate precautionary measures throughout the construction phase.

Key aspects of DfS for construction phase shall be referred to the relevant sections in Appendix G to Guidance Notes of Design of Safety published by Development Bureau as listed below.

(i) Design for Safe Construction

(ii) Design for Traffic Management

(iii) Design for Temporary Traffic Management

(iv) Design for Work in Confined Spaces

(v) Design for Manual Handling

(vi) Design for Machinery

(vii) Design for Hazardous Material

(viii) Design for Human Factors

(ix) Design for Working at Height

(x) Design for Excavation

(xi) Design for Ladders, Steps and Stairways

(xii) Design for Workplace Housekeeping

(xiii) Design for Utilities

(xiv) Design for Temporary Works

Guidance Notes of Design for Safety is available at: https://www.devb.gov.hk/filemanager/en/content_29/Design_for_Safety_Guidance_Notes.pdf

The enhanced Design for Safety practices listed in Appendix 1 to these Special Conditions of Contract shall be suitably implemented to enhance the safety standard during construction phase to the satisfaction of the Architect.

(2) To implement DfS during construction phase, the Contractor shall designate throughout the contract period:

(a) * at least one DfS Coordinator for builder works; and/or

(b) * at least one DfS Coordinator for building service/MEP works,

[Delete where appropriate]*

[Note: Contract drafters may consider including an item for DfS Coordinator(s) in the Preliminaries for pricing by the Contractor.]

The qualification requirements for personnel to be designated as a DfS Coordinator shall be referred to in Appendix 2 to these Special Conditions of Contract.

(3) The appointed DfS Coordinator shall be responsible for implementing a DfS management system for construction phase in respect of works of the Contractor and its sub-contractors, including nominated sub-contractors, through the following:

(i) Engaging, coordinating and cooperating with the Contractor's project team and its sub-contractors, from site management level to frontline level, to diligently deliver the key aspects of DfS for construction phase.

(ii) Planning ahead of all processes and activities relevant to the works under the contract, including all site works, site logistics arrangements as well as all other processes and activities pertinent to the works. Identify, evaluate and assess the risks and hazards of these processes and activities and devise appropriate construction methods, work sequences, etc., in combination with appropriate mitigation measures, based on most effective way of hierarchy of controls according to Part 5.11 of Code of Practice on Safety Management (Second Edition) published by the Labour Department in February 2024 to minimise such risks and hazards at large. Such information shall be detailed in a Construction Phase Plan (CPP) which shall be endorsed by the appointed DfS Coordinator(s) of the relevant trade(s).

(iii) Arranging and attending regular DfS meetings with the Architect at an interval agreed with the Architect, typically not less than bi-weekly. The purpose of the DfS review meeting is to review, discuss, evaluate and assess:

(i) Details of CPP;

(ii) Implementation status of approved CPP;

(iii) Any actual or potential changes of site conditions and situations which may necessitate further updates of approved CPP;

The DfS meeting could be incorporated with any other regular site meetings. Additional DfS meetings shall be arranged upon the instruction of the Architect or request by the Contractor when deemed necessary.

(iv) Presenting the details of the draft CPP for the forthcoming works in a DfS meeting for review and comment by the Architect before submission to the Architect. All comments and concerns from the Architect shall be incorporated into the finalised CPP for submission.

(v) Submitting the finalised CPP to the Architect for approval before commencement of any such works as detailed in it. If the submitted CPP is not accepted and a resubmission is required, the revised CPP should address all comments and concerns from the Architect.

(vi) Monitoring, managing and ensuring the construction methods, work sequences, mitigation measures, etc. as detailed in the approved CPP have been effectively and strictly implemented. The approved CPP shall be active until completion of all processes or activities so detailed in the approved CPP. The effectiveness of its implementation shall be regularly reviewed and monitored in DfS meetings.

(vii) Implementing the “three life-saving tips” promulgated by the Construction Industry Council as part of the DfS management system, which shall include:

(i) Maintaining effective communication with site staff, including frontline supervisors and workers, through appropriate channels to convey information detailed in the approved CPP, including the construction methods, work sequences, mitigation measures, etc. to them to follow.

(ii) Requiring frontline supervisors and workers to perform dynamic risk assessment throughout each process of work and, in case of any deviations from the approved CPP or sudden changes in site conditions or situations rendering the works unsafe or dangerous as identified through dynamic risk assessment, suspend work.

(iii) Establishing a reporting mechanism for frontline supervisors and workers to report to the DfS Coordinator in case of any unsafe or dangerous circumstances arising from deviations from the approved CPP or sudden

changes in site conditions or situations, regardless of whether the conditions or situations are due to the Contractor's faults.

(viii) Implementing the Frontline Personnel Safety Performance Recording System to establish a high standard of safety performance and cultivate safety awareness as part of the DfS management system. Details shall be referred to Clause S6(3) of these Special Conditions of Contract.

(ix) Monitoring and reviewing the latest site conditions and situations while the approved CPP is active. In case of actual or potential deviations from the approved CPP or changes in site conditions and situations rendering any parts of the approved CPP not applicable or potentially not applicable (e.g. due to scope or design changes), update the CPP to address these deviations or changes. In the updated CPP, changes in risks and hazards shall be identified, evaluated and assessed and the corresponding changes in construction methods, work sequences, mitigation measures, etc. shall be indicated and elaborated. Submit the updated CPP to the Architect for approval as if submitting a new CPP. Before submitting an updated CPP, report all changes in a DfS meeting for review and comment by the Architect.

SCC S5 Implementation of Smart Site Safety System (SSSS)

(1)(a) The Contractor shall provide and maintain "Smart Site Safety System" (SSSS) components as itemised in *Bill / Schedule No. X – Site Safety and Smart Site Safety System (SSSS)* during the continuance of the works to enhance site safety management. The Contractor shall provide and maintain all necessary materials and services for the implementation of SSSS, including but not limited to telecommunication network(s), power supply, computer hardware/software, data storage facilities, automation/remote sensing devices, operation system, accessories and corresponding services and license. The proposed SSSS components shall be well proven and shall not infringe any copyrights.

The Contractor shall, preferably, assign a person who shall have completed and obtained a Professional Certificate in Smart Site Safety System (SSSS) Planning and Implementation awarded by the Hong Kong Institute of Construction (HKIC) to oversee and be responsible for the implementation the Smart Site Safety System throughout the continuance of the Works. If not, the Contractor shall strive to arrange such personnel to enrol for the soonest course offered by HKIC to obtain a Professional Certificate in Smart Site Safety System (SSSS) Planning and Implementation.

Furthermore, the Safety Supervisor(s) of the Works shall, preferably, have completed and obtained a Certificate in Safety Supervision with Smart Site Safety System (SSSS) awarded by the HKIC. If not, the Contractor shall strive to arrange such personnel to enrol for the soonest course offered by HKIC to obtain a Certificate in Safety Supervision with Smart Site Safety System (SSSS).

[Note: Contract drafters shall refer to Annex A to the Construction Industry Council's Application Guide for Smart Site Safety System Labelling Scheme when selecting a suitable package of SSSS components for adoption in the works.]

(1)(b) The Contractor shall acquire a 4S Label under the Smart Site Safety System Labelling Scheme (4S Labelling Scheme) established jointly by the Development Bureau and the Construction Industry Council (CIC) and renew the label annually, as itemised in *Bill / Schedule No. X – Site Safety and Smart Site Safety System (SSSS)*.

[Note: Contract drafters shall determine the times of renewal depending on the project duration.]

(2) The operation and collection of all data of SSSS and all its components shall comply with the Personal Data (Privacy) Ordinance (Cap. 486).

(3) The Contractor shall ensure that the Centralized Management Platform (where applicable), telecommunication network or each component of

SSSS is functional during working hours and at any other time when the Contractor is working, or other time as advised by the Employer. Malfunctioning of any of the SSSS components shall be rectified in a short period of time.

(4) The implementation, delivery and technical requirements shall be referred to the following publications:

(i) Annex A to Development Bureau Technical Circular (Works) No. 3/2023 dated 27 February 2023, available at https://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/1393/1/C-2023-03-01.pdf under the following headings:

Implementation and Delivery	
Clause 2	Implementation Plan for SSSS
Clause 3	Delivery of SSSS
Technical Requirements	
Clause 4	Site Telecommunication Network
Clause 5	SSSS Components
Clause 6	Safety Training with Virtual Reality Technology
Note:	
(1)	"**Contractor* / Contractor" shall be construed to mean "Contractor".
(2)	"**Project Manager* / Engineer / Surveyor / Supervising Officer / Service Manager / Maintenance Surveyor" shall be construed to mean "Architect".

(ii) Guide to Smart Safety-Related Technologies for Use in Construction Works (Version 1) published by the Construction Industry Council in November 2022, available at: https://www.cic.hk/files/page/51/RM%20Smart%20Safety%20(Eng).pdf

(iii) CIC Beginner's Guide on Construction Digitalisation - Smart Site Digital Platform published by the Construction Industry Council in 2022, available at: https://www.bim.cic.hk/en/resources/publications_detail/135

SCC S6 Other Requirements on Site Safety

(1) The Contractor shall implement the **"P" and "N" Caring Programme** in accordance with Guidelines on the Implementation of "P" and "N" Caring Programme (March 2015) published by the Construction Industry Council, available at: https://www.cic.hk/cic_data/pdf/about_cic/publications/eng/V10_6_e_V00_20150305.pdf

(2) Upon the instruction of the Architect, the Contractor shall arrange or assist to arrange a **Lunch Box Safety Talk** which shall last for around one hour during lunch time. The speaker(s), topics and attendees of the Lunch Box Safety Talk shall be agreed with the Architect. The Contractor shall arrange frontline supervisors and workers to attend the Lunch Box Safety Talk. The cost, if any, of the speaker(s), if being a person outside the project team, and lunch boxes shall be deemed to be a variation under the Contract. The Contractor shall submit quotations for agreement by the Architect prior to the Lunch Box Safety Talk. The Contractor will not be entitled to any extension of time and other variations except for the incurred costs as mentioned above for arranging the Lunch Box Safety Talk.

(3) The Contractor shall implement the Frontline Personnel Safety Performance Recording Scheme in accordance with the relevant reference materials and demonstration materials published by the Construction Industry Council, which are available at: https://safetyrecording.cic.hk/en/resources. The Contractor shall designate appropriate personnel to be the project-in-charge and rating staff of this recording scheme. When the demerit points of the frontline personnel have reached the specified threshold, the Contractor shall be responsible at its own cost for arranging such frontline personnel to attend Safety Performance Improvement Courses offered by the Hong Kong Institute of Construction.

[Note: Contract drafters may consider including suitable items in the Preliminaries for pricing by the Contractor to implement the Frontline Personnel Safety Performance Recording Scheme.]

SCC S7 Particular Specifications on Site Safety

(1) Publications on the list in Appendix 4 to these Special Conditions of Contract, whether or not mentioned elsewhere in these Special Conditions of Contract, shall collectively form the Particular Specifications on Site Safety. If there are inconsistencies of any site safety requirements in these publications, the most stringent requirements shall take precedence. The Contractor shall be deemed to have considered this when pricing the tender and shall not be entitled to any variations for compliance with the site safety requirements.

[Note: Contract drafters may consider including suitable items in the Preliminaries for pricing by the Contractor.]

2.2 Innovation and Technology Related Sample Special Conditions of Contract

SCC T1 Cost Savings Proposal

(1) The Contractor may at any time during the continuance of the works submit to the Architect writing a cost savings proposal to propose an alternative design in respect of a part of the works with sufficient details and justifications to show the contract sum can be reduced by an amount of a lump sum according to the valuation of variation rules specified in the Contract. In such an event, the Contractor's liability for providing the works is not prejudiced and the proposal shall be of benefit to the Employer.

(2) Any cost savings proposal shall clearly state that it is submitted for consideration by the Employer under this clause and includes the following:

(a) Omissions for deduction from the contract sum according to the valuation of variation rules specified in the Contract.

(b) An estimate of the cost of the carrying out the alternative design proposed in the cost savings proposal with detailed breakdown.

(c) An estimate of any addition in future operation and maintenance cost.

(3) The Architect shall not be bound to accept the cost savings proposal and shall convey the Employer's decision to accept or reject the cost savings proposal to the Contractor within 4 weeks from receipt of the proposal or a longer period to which the Contractor has agreed, and neither the acceptance nor rejection of such proposal by the Employer shall vitiate the contract. If the proposal is rejected, the Contractor shall not be entitled to any variation, loss and/or expense or extension of time arising from its submission to the Architect of the proposal and the Employer shall bear its own cost for considering the proposal submitted by the Contractor under this clause.

(4) If the cost savings proposal is accepted by the Employer, the Employer shall issue a Memorandum of Agreement which shall state or include the following in order to have effect:

(a) The contract sum is reduced by the agreed lump sum deduction of the contract sum as assessed by the Employer for the part of the works.

(b) The Completion Date is adjusted as agreed between the Employer and the Contractor.

(c) Details of the cost saving proposal and references of documents that are relevant or applicable to the cost saving proposal.

(d) Any other documents or information as may be required by the Employer, including but not limited to the following undertakings from the Contractor to the acceptance of the Employer:-

(i) Types of warranties to be submitted by the Contractor, his sub-contractors and/or suppliers;

(ii) Types and limits of indemnity of professional indemnity insurance; and

(iii) Technical checking/audit by an independent qualified checker/auditor.

SCC T2 Proposal on Innovation and Technology (I&T)

(1) For the purpose of this Clause, the following words and phrases shall have the meaning given below:

(a) **"I&T Proposal"** means a proposal to adopt an innovation or technology which:

(i) is additional to or more advanced than the requirements in the scope; and

(ii) could enhance site safety, site supervision efficiency, decarbonisation.

(b) **"Innovation and Technology Register"** is a register of I&T Proposals which includes I&T initiatives proposed by the Contractor and is continuously updated by the Contractor.

(2) The Architect may by written notice request the Contractor to make I&T Proposals with cost estimation and cost breakdown. The Contractor shall record the I&T Proposals in an Innovation and Technology Register and submit it to the Architect within four weeks of the written notice.

(3) The Architect shall instruct the Contractor to attend an innovation and technology meeting within 14 days of the receipt of the Innovation and Technology Register from the Contractor.

(4) At an innovation and technology meeting, the Architect and the Contractor shall co-operate in the following:

(a) Considering each I&T Proposal in the Innovation and Technology Register, including but not limited to exploring the potential benefits as well as cost and time implications of adopting each I&T Proposal.

(b) Deciding on the I&T Proposals to be adopted.

(c) Deciding which I&T Proposals can be removed from the Innovation and Technology Register.

(5) The Architect shall revise the Innovation and Technology Register to record the decisions made at each innovation and technology meeting and issue the revised Innovation and Technology Register to the Contractor within one week of the innovation and technology meeting.

(6) If the Architect's decision in an innovation and technology meeting entails variations to the scope, the Architect shall issue an instruction to cover for the variations correspondingly.

2.3 Appendices to Sample Special Conditions of Contract

Appendix 1 to
Special Conditions of Contract

Enhanced Design for Safety Practices

Item in Clause SCC S4(1)	Design for Safety Aspect	Enhanced Practices
(iv)	Design for Work in Confined Spaces	Implement smart site safety system (SSSS) to adopt digitalised permit-to-work system and confined spaces monitoring system for confined space work and electronic lock and key for confined space access control to enhance confined space work safety in accordance with the Contract.
(vi)	Design for Machinery	Implement smart site safety system (SSSS) to oversee the operation of heavy plants, e.g. mobile plant operation danger zone, tower crane lifting zone, digitised tracking system for site plants, etc. in accordance with the Contract.
(ix)	Design for Working at Height	• Provide safer temporary working platforms to enhance work at height safety as far as practicable, e.g. use of metal scaffolding over bamboo scaffolding. • Provide a full-body harness with double hooks and double lanyards to ensure continuous attachment to an anchorage point while changing positions.
(xi)	Design for Ladders, Steps and Stairways	Provide working platforms that are suitable for specific working environments, such as staircases and narrow spaces.
(xiv)	Design for Temporary Works	Adopt a temporary works management system as promulgated in Reference Material: Temporary Works Management Plan published by the Construction Industry Council in March 2023, available at: https://www.cic.hk/files/page/51/20230315%20Temporary%20Works%20Management%20Plan%20(Final)%20(F).pdf

Appendix 2 to
Special Conditions of Contract

Qualification Requirements for Designation as a Design for Safety Coordinator

(I) Design for Safety Coordinator for Building Works

(a) (i) Holder of a bachelor's degree in architecture, civil/structural/building engineering, building surveying, construction or related disciplines from a recognised institution; or

(ii) Hold a membership of recognised professional institutions in the field of architecture, civil/structural/building engineering, building surveying or construction; and

(b) Have a minimum of 5 years relevant work experience in built environment; and

(c) Individual who has satisfactorily completed CIC Master Class on Design for Safety (Management Personnel) with an award certificate is preferred. If not completed, individual should strive to enrol for the soonest CIC Master Class Course upon appointment.

(II) Design for Safety Coordinator for Building Services/MEP Works

(a) (i) Holder of a bachelor's degree in building services engineering, electrical engineering, mechanical engineering or related disciplines from a recognised institution; or

(ii) Hold a membership of recognized professional institutions in the field of building services engineering, electrical engineering or mechanical engineering; and

(b) Have a minimum of 5 years relevant work experience in built environment; and

(c) Individual who has satisfactorily completed CIC Master Class on Design for Safety (Management Personnel) with an award certificate is preferred. If not completed, individual should strive to enrol for the soonest CIC Master Class Course upon appointment.

Appendix 3 to
Special Conditions of Contract

Publications of the Construction Industry Council and Occupational Safety & Health Council Suitable for Use as Training Kits for Toolbox Talks

Practical Tips for Frontline Personnel - Working on Bamboo Scaffolding (July 2024)	https://www.cic.hk/files/page/51/20240729%20%E6%A3%9A%E6%9E%B6%E4%B8%8A%E5%B7%A5%E4%BD%9C%E5%AE%89%E5%85%A8%E5%B0%8F%E8%B2%BC%E5%A3%AB.pdf
Practical Tips for Frontline Personnel - Electrical Work (May 2024)	https://www.cic.hk/files/page/51/PracticalTips%20Electrical%20Work%20(issue)%20(20240531).pdf
Lifting Safety Handbook (November 2020)	https://www.cic.hk/files/page/51/Lifting%20Safety%20Handbook%20%E5%90%8A%E9%81%8B%E5%AE%89%E5%85%A8%E6%89%8B%E5%86%8A.pdf
Work-at-height Safety Handbook (July 2019)	https://www.cic.hk/files/page/51/J190303%20WAH%20Booklet-Final%20version%202.pdf
Safety Posters published at Construction Industry Council's website	https://www.cic.hk/eng/main/safety-corner/posters/
Safety Alerts / Messages published at Construction Industry Council's website	https://www.cic.hk/eng/main/safety-corner/alerts/
Articles with topics related to construction safety in "Green Cross" published by Occupational Safety & Health Council	https://www.oshc.org.hk/eng/main/osh_info/publications/green_cross/index.html

Appendix 4(a)
List of Safety Related Publications Issued by Government Authorities

Development Bureau	
Particular Specifications on Site Safety in Appendix III to Chapter 3 of Construction Site Safety Manual published by Development Bureau	https://www.devb.gov.hk/en/publications_and_press_releases/publications/construction_site_safety_manual/index.html
Hong Kong Housing Authority	
Site Safety Handbook (2017 Edition) - Volume 1	https://www.housingauthority.gov.hk/mini-site/site-safety/common/resources/handbook/201603/HB_res_tcen.pdf
Site Safety Handbook (2017 Edition) - Volume 2	https://www.housingauthority.gov.hk/mini-site/site-safety/common/resources/handbook/201603/HB_res_tcen.pdf
Site Safety Handbook for Maintenance and Improvement Works (Second Edition December 2018)	https://www.housingauthority.gov.hk/mini-site/site-safety/common/resources/handbook/EMD/safety_handbook_en.pdf
The Good Practice Promotion Kit — Lifting Operation of Tower Crane (First Edition July 2010)	https://www.housingauthority.gov.hk/mini-site/site-safety/common/resources/article/pdf/publications/safety-handbooks-and-booklets/Publications-03e.pdf
Practical Guide to Working at Height: Ensuring Safe Work Practices (First Edition December 2011)	https://www.housingauthority.gov.hk/mini-site/site-safety/common/resources/article/pdf/publications/safety-handbooks-and-booklets/Eng_web_version.pdf
A Guide to Safety in Lift Addition and Lift Modernisation Works (February 2014 Revised Edition)	https://www.housingauthority.gov.hk/common/pdf/public-housing/estate-maintenance-and-improvement/lift-modernisation/Safety_Guide.pdf

Appendix 4(b)
List of Safety Related Publications Issued by the Construction Industry Council

Scaffolding / Work at Height	
Standard and Guide on Scaffolding Safety (August 2024)	https://www.cic.hk/files/page/51/Standard%20and%20Guide%20on%20Scaffolding%20Safety%20(August%202024).pdf
Guidelines on Planking Arrangement for Providing Working Platforms on Bamboo Scaffolds (Version 2 - September 2017)	https://www.cic.hk/files/page/50/Guidelines%20on%20Planking%20Arrangement_Work%20Platforms_Bamboo%20Scaffolds-V2-e.pdf
Guidelines on Safety Enhancement of and Notification Arrangement for Truss-out Bamboo Scaffolds (September 2021)	https://www.cic.hk/files/page/50/Guidelines%20Enhancement%20Bamboo%20(Eng).pdf
Reference Materials on Hole Management (November 2022)	https://www.cic.hk/files/page/51/RM%20Hole%20Management%20(Eng).pdf
Work-at-height Safety Handbook (July 2019)	https://www.cic.hk/files/page/51/J190303%20WAH%20Booklet-Final%20version%202.pdf
Work above Ground	
Guidelines on Work-Above-Ground Safety (November 2016)	https://www.cic.hk/files/page/50/Guidelines%20on%20Work-above-ground%20Safety_e.pdf
Plant / Vehicle / Lifting Operation	
Guidelines on Safety of Site Vehicles and Mobile Plant (June 2008)	https://www.cic.hk/files/page/50/Site_Vehicales_and_Mobile_Plant.pdf
Guidelines on Safety of Tower Cranes (Version 2 - July 2010)	https://www.cic.hk/files/page/50/Guidelines%20on%20Safety%20of%20Tower%20Cranes%20%28Version%202%29%20July%202010%20-%20e.pdf
Reference Material on Fatal Zone Management (November 2022)	https://www.cic.hk/files/page/51/RM%20Fatal%20Zone%20Management%20(Eng).pdf
Standard and Guide on Lifting Operation (January 2024)	https://www.cic.hk/files/page/51/Standard%20and%20Guide%20on%20Lifting%20Operation%20(Jan%202024).pdf

Lifting Safety Handbook (November 2020)	https://www.cic.hk/files/page/51/Lifting%20Safety%20Handbook%20%E5%90%8A%E9%81%8B%E5%AE%89%E5%85%A8%E6%89%8B%E5%86%8A.pdf
Temporary Works	
Reference Material on Temporary Works Management Plan (March 2023)	https://www.cic.hk/files/page/51/20230315%20Temporary%20Works%20Management%20Plan%20(Final)%20(F).pdf
Lift Shaft Works	
Guidelines on Safety of Lift Shaft Works: Volume 1 - During Construction Stage and Before Handing Over to Lift Installation Contractor (July 2010)	https://www.cic.hk/files/page/50/Guidelines%20on%20Lift%20Shaft%20Works%20%28Vol%201%29%20May%202012%20e.pdf
Guidelines on Safety of Lift Shaft Works: Volume 2- During Lift Installation Stage until Issue of Occupation Permit and Handing Over to Developer (January 2012)	https://www.cic.hk/cic_data/pdf/about_cic/publications/eng/V10_6_e_V00_20120106_.pdf
Guidelines on Safety of Lift Shaft Works: Volume 3 – Throughout the Occupation Stage of Building (Version 2 - August 2019)	https://www.cic.hk/files/page/50/201910_Guidelines%20on%20Safety%20of%20Lift%20Shaft%20Works%20Volume%203%20–%20Throughout%20the%20Occup.pdf
Guidelines on Safety of Lift Shaft Works: Volume 4 – Builders' Lift within Lift Shaft (December 2016)	https://www.cic.hk/files/page/50/Guidelines%20on%20Builders%20Lift%20%28Vol%204%29_e.pdf
Safety Roles and Responsibilities	
Reference Material on Safety Roles and Responsibilities of Key Stakeholders in the Hong Kong Construction Industry (January 2022)	https://www.cic.hk/files/page/51/Reference%20Material%20on%20Safety%20Roles%20and%20Responsibilities_Eng.pdf
Reference Material on Safety Roles and Responsibilities of Key Stakeholders in the Hong Kong Construction Industry (Practical Reference Guidance on Work-above-ground Operation) (November 2022)	https://www.cic.hk/files/page/51/RM%20PRG%20Work%20above%20ground%20operation%20(Eng).pdf
Reference Material on Safety Roles and Responsibilities of Key Stakeholders in the Hong Kong Construction Industry (Practical Reference Guidance on Erection and Dismantling of Scaffold or Platform) (November 2022)	https://www.cic.hk/files/page/51/RM%20PRG%20Scaffold_Platform%20(Eng).pdf

Reference Material on Safety Roles and Responsibilities of Key Stakeholders in the Hong Kong Construction Industry (Practical Reference Guidance on Lifting Operation) (November 2022)	https://www.cic.hk/files/page/51/RM%20PRG%20Lifting%20Operation%20(Eng).pdf
Reference Material on Safety Roles and Responsibilities of Key Stakeholders in the Hong Kong Construction Industry (Practical Reference Guidance on Electrical Work) (November 2022)	https://www.cic.hk/files/page/51/RM%20PRG%20Electrical%20Work%20(Eng).pdf
Others	
Guidelines on Site Safety Measures on Working in Hot Weather (Version 4 - April 2022)	https://www.cic.hk/files/page/50/J220401%20Guidelines%20Booklet%20(Eng)-4.pdf
Reference Materials on Construction Site Facilities for Workers (May 2024)	https://www.cic.hk/files/page/51/20240527%20%E5%B7%A5%E5%9C%B0%E8%A8%AD%E6%96%BD%E5%8F%83%E8%80%83%E8%B3%87%E6%96%99_May2024_ENG_527.pdf
Building Services Safety Handbook (Version 3 - Sep 2024)	https://www.cic.hk/files/page/51/%E5%B1%8B%E5%AE%87%E8%A3%9D%E5%82%99%E5%B7%A5%E7%A8%8B%E5%AE%89%E5%85%A8%E6%89%8B%E5%86%8A%20Building%20Services%20Safety%20Handbook%20%EF%BC%88%E7%AC%AC%E4%B8%89%E7%89%88%20-%202024%E5%B9%B49%E6%9C%88%EF%BC%89.pdf
Guidelines on the Implementation of “P” and “N” Caring Programme (March 2015)	https://www.cic.hk/cic_data/pdf/about_cic/publications/eng/V10_6_e_V00_20150305.pdf

Appendix 4(c)
List of Safety Related Publications Issued by the Occupational Safety and Health Council

Plant / Lifting Operation	
Safe Lifting	https://www.oshc.org.hk/oshc_data/files/HotTopic/safe_lifting_booklet.pdf
LALG Training Kit - Trainer Manual	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1370C.pdf
LALG Training Kit - Student Manual	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1369C.pdf
Confined Spaces	
Working in Confine Spaces	http://www.oshc.org.hk/oshc_data/files/books/2016/CB329E.pdf
Repair, Maintenance, Alteration and Addition Works	
Safety for Renovation and Maintenance Work	https://www.oshc.org.hk/oshc_data/files/books/2016/Maintainance_booklet.pdf
Safety Hints for Renovation Workers	https://www.oshc.org.hk/oshc_data/files/books/2016/CB945C.pdf
Building Services/Electrical and Mechanical Works	
Electrical & Mechanical Health & Safety Guidebook	https://www.oshc.org.hk/oshc_data/files/books/2016/CB017C.pdf
OSH for Building Services Work	https://www.oshc.org.hk/oshc_data/files/books/2016/CB098C.pdf
Safety at Work in E&M Engineering	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1271C.pdf
Safety at Repair and Maintenance Works in Lift Industry	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1272C.pdf
Others	
Safety Guide on Use of Light-duty Working Platform and Mobile Working Platform	https://www.oshc.org.hk/oshc_data/files/books/2017/CB1488C.pdf
Guidelines for the Use of Personal Protective Equipment	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1293E.pdf
Safety Guide for Hand Tools and Power Tools	https://www.oshc.org.hk/oshc_data/files/books/2016/CB427C.pdf

A Guide to Safety and Health for Gas Welding and Flame Cutting	https://www.oshc.org.hk/oshc_data/files/books/2016/CB079E.pdf
Safety Hints on Safety Precautions during Long Holiday	https://www.oshc.org.hk/oshc_data/files/books/2016/CB241C.pdf
Safety Guidelines for Demolition of Building Structures	https://www.oshc.org.hk/oshc_data/files/books/2016/CB1398E.pdf

3. Sample Preambles

METHOD OF MEASUREMENT

SITE SAFETY (ALL PROVISIONAL)

Preambles

1.01 Rates appearing in this Section of Method of Measurement, whether pre-fixed or inserted by the Contractor, shall be deemed to allow for the value of work in connection with meeting all statutory and contractual obligations in the upkeeping of safety and health in the execution of the Works and any other related obligations, liabilities, risks and profit. In the event that the rates have been insufficient or where there are any aspects where the methods provided hereunder do not measure any item or exclude the measurement of any item or part thereof, the difference in value shall be deemed to have been included in the rates inserted elsewhere in the * Bills of Quantities / Schedules of Rates.

1.02 The provision under the Hong Kong Standard Method of Measurement of Building Works – Fourth Edition Revised 2018 Incorporating Corrigenda 1 – Section II Clause 11 shall apply to all items including those referred to under the "item coverage" parts in this section of Method of Measurement.

PROVIDE SAFETY OFFICER

Units

1.03 The unit of measurement shall be:

(i) provide Safety Officer .....……. number-month

Measurement

1.04 The measurement for "provide Safety Officer" shall commence from the date of appointment of the Safety Officer as approved by the Architect or the date on which the Safety Officer commences his duty on the Site whichever is the later. No measurement shall be made for any Safety Officer employed by the Contractor over and above the number of Safety Officers required under the Specification.

1.05 No measurement shall be made after the date for the completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect.

1.06 No measurement shall be made for any period of time in which the Safety Officer fails to discharge any of his duties.

Provide Safety Officer

1.07 The item for "provide Safety Officer" shall include for:

Item Coverage

(a) submission of the qualifications and experience of the proposed Safety Officer to the Architect for approval;

(b) provision of sufficient number of Safety Officers in accordance with the Specification and supporting staff to the Safety Officers;

(c) ensuring the fulfillment of the duties by the Safety Officer(s) in accordance with the Specification to the satisfaction of the Architect or his Representative; and

(d) maintenance of the safety diary.

ATTEND SITE SAFETY MANAGEMENT COMMITTEE AND SITE SAFETY COMMITTEE

Units

1.08 The units of measurement shall be:

(i) attend Site Safety Management Committee.... month
(ii) attend Site Safety Committee ……..…… month

Measurement

1.09 The measurement shall commence from the date of the first meeting of the relevant Committee until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect.

1.10 No measurement shall be made for any month in which the Contractor fails to attend any of such Committee meetings or hold the Site Safety Committee meetings in accordance with the Contract, or fails to deal with any of the matters associated with such Committees in a satisfactory manner.

Attend Site Safety Management Committee

1.11 The item for "attend Site Safety Management Committee" shall include for:

Item Coverage

(a) attendance of the Site Safety Management Committee meetings and complete the agenda of the meeting for the month;

(b) arranging inspection of the Site by members of the Site Safety Management Committee before the meeting for the month;

(c) providing necessary assistance for the proper functioning of the Site Safety Management Committee; and

(d) submission of monthly safety report for consideration at the meeting.

Attend Site Safety Committee

1.12 The item for "attend Site Safety Committee" shall include for:

Item Coverage

(a) establishment of the Site Safety Committee;

(b) arranging and giving adequate notice to relevant parties of the Site Safety Committee meeting to be held for the month;

(c) attendance of the Site Safety Committee meetings; and

(d) completion and distribution of minutes of meetings.

ARRANGE AND ATTEND WEEKLY SAFETY WALK

Units

1.13 The unit of measurement shall be:

(i) arrange and attend weekly safety walk ..... number

Measurement

1.14 Only those safety walks conducted in accordance with the Specification during the period from the date of commencement of the Works until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect are qualified for measurement.

1.15 No payment shall be made for the weekly safety walk when any one of the following events occurs during that week:

(a) The Contractor has received Improvement Notice or Suspension Notice issued by the Labour Department under the Occupational Safety and Health Ordinance in respect of any activities on the Site;

(b) The Architect has suspended the progress of the Works or any part thereof due to any reason caused by any default on the part of the Contractor in failing to ensure safety and health;

(c) The Architect has given written notification to the Contractor requiring the Contractor to rectify any failure in the proper and full implementation of the Safety Plan, and the Contractor has failed to rectify the deficiency within a reasonable time; or

(d) The Contractor has failed to rectify the defects and deficiencies identified in the weekly safety walk within the agreed time.

Arrange and Attend Weekly Safety Walk

1.16 The item for “arrange and attend weekly safety walk” shall include for:

Item Coverage

(a) arranging and giving adequate notice to relevant parties of the weekly safety walk;

(b) using a comprehensive checklist during the walk to identify any deficiencies noted in the safety provisions, recording the deficiencies in the summary table, and rectifying such deficiencies subsequently within the agreed time;

(c) preparation of reports on safety walks and safety inspections conducted;

(d) implementation and upkeeping of all measures stipulated in Particular Specification on Site Safety and the Safety Plan, and maintaining the effectiveness of all such provisions for the duration of the Contract;

(e) conducting safety inspections including, but without limitation to, the following:

(i) scaffolding and safe access,

(ii) temporary electrical supply,

(iii) site cleanliness; and

(f) implementation of the decisions and recommendations made by the Site Safety Management Committee on matters of safety and health.

PROVIDE SAFETY TRAINING

Units

1.17 The units of measurement shall be:

(i) provide safety training in the form of safety training for specified trade workers ……..…..… number

(ii) provide safety training in the form of site specific induction training ……. month

(iii) provide safety training in the form of toolbox talks ……..…… month

Measurement

1.18 The measurement for "provide safety training in the form of safety training for specified trade workers" shall be on a per worker basis subject to the production of a Specified Trade Safety Training Certificate ('Silver Card') issued by the Construction Industry Council as evidence in accordance with the Specification. Payment shall be made for a worker attending Safety Certificate for Specified Trade Workers Course or its revalidation. No measurement will be made if:

(a) the person who claims to attend the safety training for the specified trade workers for the first time had attended the same course for the same trade previously and was issued with a Specified Trade Safety Training Certificate; or

(b) the course is attended before the skilled worker starts works on the Site; or

(c) the course is attended after the skilled worker has left the Site.

1.19 The measurement for “provide safety training in the form of site specific induction training” shall be made for those within the period from the date of commencement of the Works until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect.

1.20 The measurement for “provide safety training in the form of toolbox talks” shall be made for those within the period from the date of commencement of the Works until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect.

1.21 No measurement for the items on “provide safety training” in the form of site specific induction training or toolbox talks will be made if the Architect or his Representative is dissatisfied with the frequency, arrangements, numbers certified, relevance or quality of such training and the Contractor cannot provide any justification acceptable to the Architect’s Representative. No measurement shall be made if the number of individual workers who have attended the toolbox talks is less than 70% of the average number of workers working at the Site in that month. For the avoidance of doubt, the average number of workers working at the Site in a month shall be the quotient of the total number of man-days worked for the Contract in that month divided by the number of working days within that month.

Provide safety training in the form of safety training for specified trade workers

1.22 The item for “provide safety training in the form of safety training for specified trade workers” shall include for:

Item Coverage

(a) arrangement of skilled workers to attend Safety Training Course for Construction Workers of Specified Trade organised by the Construction Industry Council;

(b) payment of the token allowance to skilled workers;

(c) preparation of training programme and records, and submission of certified monthly statements to the Architect; and

(d) administration in connection with (a), (b) and (c) above.

Provide safety training in the form of site specific induction training

1.23 The item for “provide safety training in the form of site specific induction training” shall include for:

Item Coverage

(a) site specific induction training talks conducted

(b) the necessary facilities, trainers and demonstration equipment for complying with (a) above;

(c) preparation of the training programme and records, and submission of certified monthly statements to the Architect; and

(d) administration in connection with (a), (b) and (c) above.

Provide safety training in the form of toolbox talks

1.24 The item for "provide safety training in the form of toolbox talks" shall include for:

Item Coverage

(a) toolbox talks conducted;

(b) providing necessary training to Safety Supervisors, foremen or gangers to conduct such talks;

(c) basing such talks on kits published by the Hong Kong Construction Association Ltd., Occupational Safety and Health Council, or kits of comparable standard approved or advised by the Architect;

(d) preparation of training programme and records, and submission of certified monthly statements to the Architect; and

(e) administration in connection with (a), (b), (c) and (d) above.

ARRANGE AND HOLD PRE-WORK ACTIVITIES OF SITE SAFETY CYCLE

Units

1.25 The unit of measurement shall be:

(i) arrange and hold Pre-work Activities of Site Safety Cycle …… month

Measurement

1.26 Subject to clauses 1.27 to 1.28 below, the measurement for "arrange and hold Pre-work Activities of Site Safety Cycle" shall be made for those within the period from the date of commencement of the Work until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect, with the set of the following Pre-work Activities performed:

(i) Pre-work Exercise and Safety (PES) meetings;

(ii) Hazard Identification Activity (HIA) meetings; and

(iii) Pre-work Safety Checks.

1.27 No measurement shall be made for the Pre-work Activities in a month if the Architect or his Representative is dissatisfied with the content and/or the arrangement of the Pre-work Activities.

1.28 No measurement shall be made for the Pre-work Activities in a month if the number of individual persons who have attended the Pre-work Activities to the satisfaction of the Architect or his Representative within that month is less than 70% of the average number of persons working at the Site in that month. For the avoidance of doubt, the average number of persons working at the Site in a month shall be the quotient of the total number of man-days worked for the Contract in that month divided by the number of working days within that month.

Arrange and Hold Pre-work Activities of Site Safety Cycle

1.29 The item for "arrange and hold Pre-work Activities of Site Safety Cycle" shall include for:

Item Coverage

(a) arranging and holding PES meetings, HIA meetings and Pre-work Safety Checks;

(b) providing training to leaders of the PES or HIA meetings; and

(c) attendance by workers.

PREVENTION OF HEAT STROKE AT WORK IN A HOT ENVIRONMENT

Units

1.30 The unit of measurement shall be:

(i) prevention of heat stroke at work in a hot environment …… month

Measurement

1.31 The measurement shall be made for each hot summer month (from May to September) during the period from the date of commencement of the Works until the date for completion of the Works or extended date for completion of the Works or an earlier or later date notified by the Architect.

1.32 No measurement shall be made for the prevention of heat stroke at work in a hot summer month if the Architect or his Representative is dissatisfied with the measures adopted for the prevention of heat stroke at work.

Prevention of Heat Stroke at Work in a Hot Environment

1.33 The item for "prevention of heat stroke at work in a hot environment" shall include for:

Item Coverage

(a) providing measures for working in hot summer months to the satisfaction of the Architect.

SMART SITE SAFETY SYSTEM (ALL PROVISIONAL)

Preambles

2.01 Rates appearing in this Section of the Method of Measurement shall be deemed to allow for the value of work in connection with meeting all statutory and contractual obligations in the upkeeping of safety and health in the execution of the Works, providing and maintaining "Smart Site Safety System" (SSSS) during the continuance of the Works and any other related obligations, liabilities, risks and profit. In the event that the rates have been insufficient or where there are any aspects where the methods provided hereunder do not measure any item or exclude the measurement of any item or part thereof, the difference in value shall be deemed to have been included in the rates inserted elsewhere in the *Bills of Quantities / Schedule of Rates.

2.02 The provision under the Hong Kong Standard Method of Measurement of Building Works – Fourth Edition Revised 2018 Incorporating Corrigenda 1 – Section II Clause 11 shall apply to all items including those referred to under the "item coverage" parts in this section of Method of Measurement.

IMPLEMENTATION PLAN FOR SMART SITE SAFETY SYSTEM

Units

2.03 The units of measurement shall be:

(i) complete Implementation Plan for Smart Site Safety system ……..…… item

(ii) review, update and implement Implementation Plan for Smart Site Safety system ……..……... month

Measurement

2.04 The item "complete Implementation Plan for Smart Site Safety System" shall be measured once for the whole Contract when the Implementation Plan for SSSS is approved by the Architect.

2.05 The measurement of the "review, update and implement Implementation Plan for Smart Site Safety System" shall be the period of time commencing from the date of approval of Implementation Plan for SSSS by the Architect until the date for completion of the whole of the Works or an earlier or later date notified by the Architect.

2.06 No measurement and payment shall be made for the item "review, update and implementation of Implementation Plan for SSSS" for any month during which the Contractor fails to discharge any of his contractual obligations in respect of –

(a) reviewing, revising or updating the Implementation Plan for SSSS; and

(b) delivering and implementing all components of SSSS as stated in the Contact and the Implementation Plan for SSSS.

Itemisation 2.07 Separate items shall be provided for "Implementation Plan for Smart Site Safety System" in accordance with the following:

Group	Feature
I	1. Complete Implementation Plan for Smart Site Safety System 2. Review, update and implement Implementation Plan for Smart Site Safety System

Complete Implementation Plan for Smart Site Safety System 2.08 The item for "complete Implementation Plan for Smart Site Safety System" shall include for:

Item Coverage

(a) prepare and develop the Implementation Plan for SSSS taking into account the comments made on the Implementation Plan for SSSS by the Architect and any other parties including but not limited to members of Site Safety Management Committee; and

(b) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.

Review, update and implement Implementation Plan for Smart Site Safety System 2.09 The item for "review, update and implement Implementation Plan for Smart Site Safety System" shall include for:

Item Coverage

(a) review, update and revise the Implementation Plan for SSSS taking into account the comments made on the Implementation Plan for SSSS by the Architect and any other parties including but not limited to members of Site Safety Management Committee;

(b) implementation of the decisions and recommendations made by the Site Safety Management Committee on matters relating to implementation of SSSS; and

(c) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.

SITE COMMUNICATION NETWORK

Units 2.10 The units of measurement shall be:

(i) provide site communication network …… month

Measurement

2.11 The measurement of the item "provide site communication network" shall be the period of time commencing from the date of operation of the first component of SSSS until the date on which last component of SSSS under the Contract ceases to operate, or an earlier or later date notified by the Architect.

2.12 No measurement and payment shall be made the item "provide site communication network" when the site communication network does not fulfil the uptime requirement specified, does not have adequate data transmission speed, capacity, coverage, connectivity, stability and cybersecurity to support uninterrupted, reliable and effective real-time data transmission any of the components of SSSS.

Itemisation

2.13 Separate items shall be provided for "Implementation Plan for Smart Site Safety System" in accordance with the following:

Group	Feature
I	1. Provide site communication network

Provide site communication network

2.14 The item for "provide site communication network" shall include for:

Item Coverage

(a) provide site telecommunication network systems which shall support mobile communication, fulfilling uptime requirements specified, with adequate data transmission speed, capacity, coverage, connectivity, stability and cybersecurity to ensure uninterrupted, reliable and effective real-time data transmission, including any video / audio signals, from any automation / remote sensing devices to their targeted operators / receivers / monitors / data storage devices for efficient implementation of the proposed SSSS components as required by the Contract;

(b) all necessary measures and installations for ensuring the accessibility and compatibility among multiple telecommunication network systems with the corresponding SSSS components as required by the Contract;

(c) provide all necessary power supply and associated infrastructures for the site telecommunication network systems; and

(d) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.

COMPONENTS OF SMART SITE SAFETY SYSTEM

Units 2.15 The units of measurement shall be:

(i) Centralized Management Platform ………………. month

(ii) digitized tracking system for site plants, powered tools and ladders ……………………………………………….. month

(iii) digitalized permit-to-work system for high risk activities ……………………………………………….. month

(iv) hazardous areas access control by electronic lock and key system ……………………………………………….. month

(v) unsafe acts / dangerous situation alert for mobile plant operation danger zone………………………………... month

(vi) unsafe acts / dangerous situation alert for tower crane lifting zone ………………………………………………. month

(vii) Smart monitoring devices for workers and frontline site personnel ……………………………………………. month

(viii) Safety Monitoring System using Artificial Intelligence ……………………………………………... month

(ix) Confined Space Monitoring System …………….. month

Measurement 2.16 The measurement for the items “Centralized Management Platform”, “digitized tracking system for site plants, powered tools and ladders”, “digitalized permit-to-work system for high risk activities”, “hazardous areas access control by electronic lock and key system”, “unsafe acts / dangerous situation alert for mobile plant operation danger zone”, “unsafe acts / dangerous situation alert for tower crane lifting zone”, “Smart monitoring devices for workers and frontline site personnel”, “Safety Monitoring System using Artificial Intelligence” and “Confined Space Monitoring System” shall be the period of time commencing from the date of uninterrupted operation of the first respective component of SSSS until the date on which the last respective component of SSSS ceases to operate under the Contract, or an earlier or later date notified by the Architect.

2.17 No measurement and payment shall be made for the respective items “Centralized Management Platform”, “digitized tracking system for site plants, powered tools and ladders”, “digitalized permit-to-work system for high risk activities”, “hazardous areas access control by electronic lock and key system”, “unsafe acts / dangerous situation alert for mobile plant operation danger zone”, “unsafe acts / dangerous situation alert for tower crane lifting zone”, “Smart monitoring devices for workers and frontline site personnel”, “Safety Monitoring System using Artificial Intelligence” and “Confined Space Monitoring System” when the respective SSSS components do not fulfil the uptime

requirement or fulfil the requirements on the respective SSSS components as required by the Contract during the month.

Itemisation 2.18 Separate items shall be provided for "Components of Smart Site Safety System" in accordance with the following:

Group	Feature
I	1. Centralized Management Platform 2. Digitized tracking system for site plants, powered tools and ladders 3. Digitalized permit-to-work system for high risk activities 4. Hazardous areas access control by electronic lock and key system 5. Unsafe acts / dangerous situation alert for mobile plant operation danger zone 6. Unsafe acts / dangerous situation alert for tower crane lifting zone 7. Smart monitoring devices for workers and frontline site personnel 8. Safety Monitoring System using Artificial Intelligence 9. Confined Space Monitoring System

Smart Site Safety System 2.19 The items for components of Smart Site Safety System shall include for:

Item Coverage

(a) provide all necessary submissions, plant, materials, installation, infrastructures, hardware, software, power supply, personnel, training, effort and take all necessary precautions and security measures to ensure continuous operation of all components of SSSS as required by the Contract and for compliance of all requirements related to SSSS as required by the Contract;

(b) replacement of worn out, defective or broken down parts, hardware and software of all components of SSSS as required by the Contract;

(c) review and implement all necessary audits, security controls and measures to protect the confidentiality, integrity and availability of all data and information obtained, stored, processed or transmitted for the implementation and delivery of SSSS for compliance of all requirements related to SSSS as required by the Contract;

(d) prepare report on implementation of SSSS components to Architect for discussion in the Site Safety Management Committee meetings as required by the Contract; and

(e) implement all necessary measures to ensure the operation and collection of data of SSSS and its

components complying with the Personal Data (Privacy) Ordinance (Cap. 486).

SAFETY TRAINING WITH VIRTUAL REALITY TECHNOLOGY

Units

2.20 The unit of measurement shall be:

(a) safety training with Virtual Reality technology …… number

Measurement

2.21 The measurement and payment for the item "safety training with Virtual Reality technology" shall be made on a per person per talk basis. No measurement and payment shall be made for this item if the attendees of the safety training with Virtual Reality technology has attended the safety training with Virtual Reality technology held by the Contractor under the Contract in the past half-year interval.

2.22 No measurement and payment for the items "safety training with Virtual Reality technology" shall be made if the Architect or his Representative is dissatisfied with the frequency, arrangements, relevance or quality of such training and the Contractor cannot provide any justification acceptable to the Architect's Representative.

Itemisation

2.23 Separate items shall be provided for "safety training with Virtual Reality technology" in accordance with the following:

Group	Feature
I	1. Safety training with Virtual Reality technology

Item Coverage

(a) provide safety training with Virtual Reality technology to workers engaging in the high risk activities specified in Clause [6] of Annex A to Development Bureau Technical Circular (Works) No. 3/2023 dated 27 February 2023, available at: https://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/1393/1/C-2023-03-01.pdf;

(b) the necessary training of personnel to conduct such talks;

(c) the necessary facilities, personnel and demonstration equipment for complying with (a) above;

(d) preparation and submission of training programme and records, submission of certified monthly statements to the Architect; and

(e) all necessary administration to arrange workers to participate in safety training with Virtual Reality technology.

4S LABELLING SCHEME FOR SMART SITE SAFETY SYSTEM

Units

2.25 The unit of measurement shall be:

(a) obtain 4S Label under 4S Labelling Scheme as instructed by the Architect …… number

(b) annual renewal of 4S Label as instructed by the Architect ……... number

Measurement

2.26 The item "obtain 4S Label under 4S Labelling Scheme as instructed by the Architect" shall be measured once only (in number) upon first approval of the application for the 4S Label. To qualify for measurement and payment, the first granted 4S Label must remain effective until the first renewal of the 4S Label.

2.27 No measurement and payment for the items "obtain 4S Label under 4S Labelling Scheme as instructed by the Architect" shall be made if the Contractor fails to obtain the 4S Label or the 4S Label is revoked before the first renewal of the 4S Label.

2.28 The item "annual renewal of 4S Label as instructed by the Architect" shall be measured once (in number) upon each successful renewal of the 4S Label. To qualify for measurement and payment, the renewed 4S Label must remain effective until the next renewal or substantial completion of the Works, as appropriate.

2.29 No measurement and payment for the items "annual renewal of 4S Label as instructed by the Architect" shall be made if the Contractor fails to renew the 4S Label or the renewed 4S Label is revoked before the next renewal of the 4S Label or before substantial completion of the Works.

Itemisation

2.30 Separate items shall be provided for "Smart Site Safety System (4S) Labelling Scheme" in accordance with the following:

Group	Feature
I	1. Obtain 4S Label under 4S Labelling Scheme as instructed by the Architect
	2. Annual renewal of 4S Label as instructed by the Architect

Item Coverage

2.31 The items for 4S Labelling Scheme for Smart Site Safety System shall include for:

(a) prepare and submit the application or renewal for 4S Labelling Scheme together with all required document for application or renewal; and

(b) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.

4. Sample Bill of Quantities / Schedule of Rates

Note:

@ Contract drafters shall only include the payment items for the components of Smart Site Safety System included in the Contract.

$ The quantities are to be determined by the contract drafters depending on circumstances.

Pre-priced rates (Reference could be made to Clause 12.2 in Chapter 12 of Construction Site Safety Manual published by the Development Bureau when determining the pre-priced rates)

^ To be priced by the Contractor

Item	Description	Quantity	Unit	Rate ($)	Amount ($)
	BILL / SCHEDULE NO. XX SITE SAFETY AND SMART SITE SAFETY SYSTEM (SSSS) (ALL PROVISIONAL)				
	SECTION A **SITE SAFETY**				
	Site Safety Management				
1.	Provide Safety Officer	$	nr-month	#	
2.	Attend Site Safety Management Committee	$	month	#	
3.	Attend Site Safety Committee	$	month	#	
4.	Arrange and attend weekly safety walk	$	nr	#	
	Provide safety training in the form of:				
5.	Safety training for specified trade workers:				
	(a) 1 day course (for 1st attendance)	$	nr	#	
	(b) 1/2 day revalidation course	$	nr	#	
6.	Site specific induction training	$	month	#	
7.	Toolbox talks	$	month	#	
	Site Safety Cycle				
8.	Arrange and hold Pre-work Activities of Site Safety Cycle	$	month	#	
	Prevention of heat stroke				
9.	Prevention of heat stroke at work in a hot environment	$	month	#	
				Carried to Collection:	

Item	Description	Quantity	Unit	Rate ($)	Amount ($)
	BILL / SCHEDULE NO. XX SITE SAFETY AND SMART SITE SAFETY SYSTEM (SSSS) (ALL PROVISIONAL) **SECTION B** **SMART SITE SAFETY SYSTEM (SSSS)**				
10.	Complete Implementation Plan for Smart Site Safety System	-	item	^	
11.	Review, update and implement Implementation Plan for Smart Site Safety System	$	month	^	
12.	Provide site communication network	$	month	^	
13.	Centralized Management Platform@	$	month	^	
14.	Digitized tracking system for site plants, powered tools and ladders@	$	month	^	
15.	Digitalized permit-to-work system for high risk activities@	$	month	^	
16.	Hazardous areas access control by electronic lock and key system@	$	month	^	
17.	Unsafe acts / dangerous situation alert for mobile plant operation danger zone@	$	month	^	
18.	Unsafe acts / dangerous situation alert for tower crane lifting zone@	$	month	^	
19.	Smart monitoring devices for workers and frontline site personnel@	$	month	^	
20.	Safety Monitoring System using Artificial Intelligence@	$	month	^	
21.	Confined Space Monitoring System@	$	month	^	
22.	Safety training with Virtual Reality technology@	$	nr	^	
23.	Obtain 4S Label under 4S Labelling Scheme as instructed by the Architect	$	nr	^	
24.	Annual renewal of 4S Label as instructed by the Architect	$	nr	^	
				Carried to Collection: