Development Bureau



PRACTICE NOTES

New Engineering Contract (NEC)
Engineering and Construction Contract (ECC)
for Public Works Projects in Hong Kong

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Practice Notes for New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) for Public Works Projects in Hong Kong

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1 EXECUTIVE SUMMARY

1.1 PURPOSE OF THE PRACTICE NOTES

1.1.1 To cater for the wider adoption of New Engineering Contract (NEC) form in public works projects in the coming years, the Development Bureau (DEVB) promulgates this Practice Notes to facilitate the Project Offices of the Works Departments (WDs) in the administration and management of NEC procurement for their projects. This Practice Notes is intended to be a living document and will be updated from time to time on a need basis. This Practice Notes aims to provide guidance, performance benchmarking and alignment of practices of the Project Offices of WDs in the preparation and administration of public works projects and consultancy agreements using the NEC form. The NEC form includes the Engineering and Construction Contract (ECC), Term Service Contract (TSC) and Professional Services Contract (PSC) which will be covered by three different Parts of this Practice Notes.

1.2 KEY TOPICS OF THE PRACTICE NOTES

1.2.1 Part A of this Practice Notes focuses on common challenges encountered by the Project Offices at pre-tender and tender stages and the practical issues in managing NEC ECC projects during construction, with due considerations to the prevailing Government guidelines and procedures. Of the comprehensive coverage in this Practice Notes, the following are key topics that warrant special attention of the Project Offices:

a. Option Selection

Considerations in the detailed evaluation of the main Options are included in Section A4.2 for reference by the Project Offices.

b. Pain/Gain Share Mechanism for Target Contracts

50:50 split of pain / gain for the first 10% of over spending (i.e. the *Employer*'s/*Client's* expenditure is normally capped at 105% of the final target cost) and for all range of under spending is recommended. Nevertheless, the Project Offices may adjust the recommended mechanism to suit their project situations as detailed in Section A4.4.

c. Cost Savings Design and Alternative Proposals

For Options C and D, the target cost should remain unchanged. Where there is any *Project Manager*'s cost or addition in future operation and maintenance (O&M) cost due to the Cost Savings Design, such costs will be deducted from the sum due to the *Contractor*. For all Options, upon Completion of the whole of the *works*, the *Contractor*'s share in the agreed construction cost savings due to the Cost Savings Design, after the deduction of the total of the *Project Manager*'s cost and any addition in future O&M cost, will be paid to the *Contractor*.

d. Preparation of Pre-tender Estimates, Contingency Sums and Provisional Sums for NEC Contracts

Guidelines on preparing pre-tender estimates (PTE), contingency sums and provisional sums for NEC contracts are outlined in Section A4.5. The guidelines try to unify the approach to derive the PTE, contingency sums and provisional sums for different main Options.

e. Facilitating Healthy Financial Management under Target Contracts

To address the potential issue of "negative cash flow" for Options C and D, NEC3 clause 11.2(29) / NEC4 clause 11.2(31) is amended by extending the period for which the *Project Manager* forecasts the total Defined Cost that will have been paid by the *Contractor* to "up to one week after the next assessment date" in the assessment of interim payments. Such estimated amount includes payments due to People, Plant and Materials, Equipment etc. (i.e. the cost components in the Schedule of Cost Components) and needs to be substantiated by proof, such as invoices at the payment application, and evidence of payment made as forecast in the following payment application. Sections A6.2.1.16 and A6.2.1.27 refer.

f. Payment Checking for Target Contracts

Sample checking for smaller value items (i.e. items less than $0.3M and not related to payment for People, insurance and subcontracts) is introduced to ensure that adequate control of payment is in place, while keeping the resource requirement from the Project Offices on payment checking to a more reasonable level. Sections A6.2.2.5 to A6.2.2.9 refer.

g. Equitable Risk Allocation and Management of Compensation Events

Grounds for compensation events, including the recommendation on whether the events should be compensated with both time and money, or time only, are included in Section A6.3.1. In general, we consider that the time and money entitlement of the default NEC principle may be adopted if appropriate, except for events such as weather events (excluding severe weather events for Options C and D), utility interference, prevention events, shortage of labour, etc. as amended in the Library of Standard Amendments in NEC ECC.

h. Building up a Partnering Culture

Good practices adopted in previous NEC projects, such as the setting up of joint site office, champion group meetings, organization of partnering workshops, etc. are introduced in Sections A4.3.1.3, A4.3.1.4 and A6.0.

i. Drafting of Tender Documents

The set of standard amendments to NEC clauses (Library of Standard Amendments to NEC ECC), *additional conditions of contract* (Z clauses), General and Special Conditions of Tender, Notes to Tenderers, and sample templates of Contract Data Part one and Part two, Grand Summary of the *activity schedule* / *bill of quantities*, General Particulars and Preambles to Specifications for the Works Information / Scope, Preambles to the *activity schedule*, General Preambles to the *bill of quantities*, Form of Tender and Articles of Agreement are posted on the DEVB's website under the heading "New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) Documents" in "Standard Contract Documents" of the "Publications" section.

j. Effective Project Management

Guidelines on project management, including management of time, cost, risks and quality, are included in Sections A6.1 to A6.4. Issues such as proactive management of project risks, assessment of NEC-compatible programme, period for reply, etc. are addressed.

k. Performance Benchmarking

The Project Offices are required to submit returns to DEVB or update the relevant parts of the Public Works Project Information System (PWPIS) regularly to provide key performance information for the purpose of benchmarking NEC performance in a longer term.

l. Effective Knowledge Sharing

The Inter-departmental Working Group on NEC Projects has been set up as a knowledge exchange platform for further development or refinement of the Practice Notes in a medium term.

m. Cost Control and Corruption Prevention for Subcontracting

There may be concerns on subcontract prices being inflated intentionally by the *Contractor* to look for financial benefits, which are addressed as in Section A6.2.1.48 to A6.2.1.51.

2 BACKGROUND

2.1 THE HISTORY OF NEC IN HONG KONG

2.1.1 In 2000, the Government of the Hong Kong Special Administrative Region (the Government) set up the Construction Industry Review Committee (CIRC) to review the condition of the construction industry for improvement comprehensively. The CIRC published a report in 2001 entitled "Construct for Excellence" which distinguished amongst others that the construction industry was highly fragmented with an adversarial culture and recommended wider adoption of partnering approach to construction projects, and the integration of partnering approach into a contractual relationship.

2.1.2 Since then, non-contractual partnering have been adopted in more public works projects to enable the delivery of projects based on cooperative working practices. In response to the recommendations in the CIRC report, the Government have also examined suitable form of contract embracing partnering approach into a contractual relationship, and have decided to try out NEC form, which has proven track record of excellent project results in the procurement of major infrastructure and building projects in overseas countries. NEC promotes co-operation, mutual trust and collaborative risk management between contracting parties. The first NEC pilot project commenced in 2009 and was completed in 2012, with satisfactory results in terms of the collaborative working, and assurance in project time and cost.

2.1.3 By early 2016, a number of public works projects have adopted the NEC form using different Options and covering a wide variety of works. The Government have had satisfactory results for those completed and ongoing pilot projects, which responded and supported the use of NEC thereafter. As an overview, NEC can generally provide a better environment for contracting parties to manage project and construction risks, and to deal with the issues in a collaborative manner for the benefit of the whole project. In this connection, the Government have extended the application of NEC in public works project procurement after 2016, in particular, the adoption of target cost Options (i.e. Options C and D) in suitable mega scale projects over HK$ 1 billion, such as tunnelling works, high speed roads, land formation works, etc. The decision and justification as to whether or not to adopt NEC in the capital works contracts should be documented and endorsed by public officers at D2 rank or above of WDs.

2.1.4 Moreover, the Corruption Prevention Department of the Independent Commission Against Corruption (ICAC) completed an assignment study in 2013 on the payment system for NEC target contracts and made some recommendations from the corruption prevention perspective.

2.1.5 To provide guidance for the Project Offices of WDs in the preparation and administration of public works projects using NEC form and to follow up with the recommendations of the assignment study by ICAC, the Government, acting through DEVB, undertook a comprehensive study to prepare a set of Practice Notes. This Practice Notes provide guidance on the use of NEC including ECC, TSC and PSC for procurement of public works projects.

2.2 DIFFERENT EDITIONS OF NEC

2.2.1. These Practice Notes were first issued in October 2016 and were prepared based on NEC3.

2.2.2. To facilitate the adoption of NEC4, these Practice Notes are revised to provide guidance for Project Offices of WDs in the preparation and administration of public works projects using NEC4.

2.2.3. In reading these Practice Notes, Project Offices are drawn to the attention of the new terminologies added or elaborated in NEC4, for example:

- "*Employer*" (NEC3) is replaced by "*Client*" (NEC4)
- "Works Information" (NEC3) is replaced by "Scope" (NEC4)
- "Risk Register" (NEC3) is replaced by "Early Warning Register" (NEC4)
- "*Employer*'s risks and *Contractor*'s risks" (NEC3) are replaced by "*Client*'s liabilities and *Contractor*'s liabilities" (NEC4) respectively.

2.2.4. Unless otherwise suggested, the term NEC refers to both NEC3 and NEC4.

3 GENERAL INFORMATION OF NEC CONTRACTS

3.1 SELECTION OF CONTRACT (ECC/TSC/PSC)

3.1.1 The current list of published NEC contracts and a brief description of each type of NEC contract are stated as below:

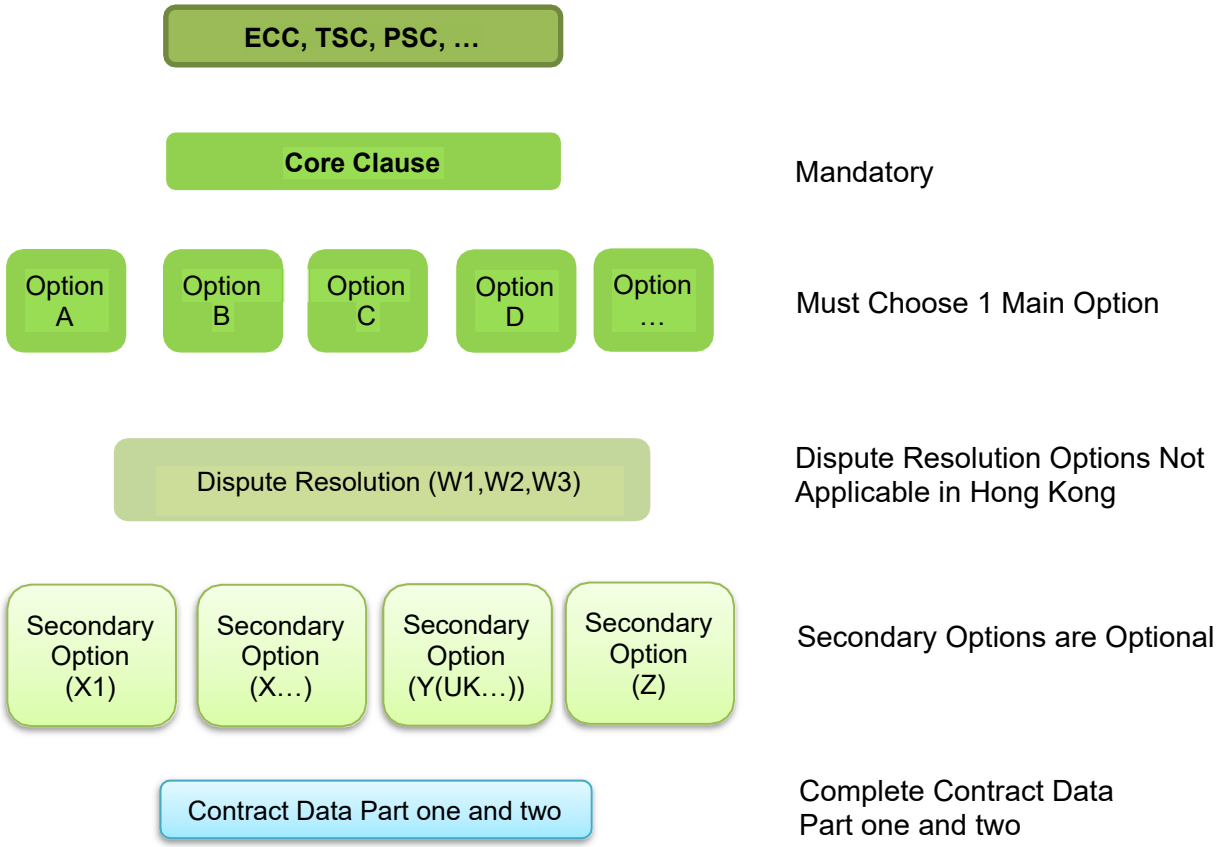
	NEC Title	Abbr.	When Should be Used
Works Contracts	Engineering and Construction Contract	ECC	For the appointment of a contractor for engineering and construction work, including any level of design responsibility
	Engineering and Construction Subcontract	ECS	For the appointment of a subcontractor for engineering and construction work where the contractor has been appointed under the ECC
	Engineering and Construction Short Contract	ECSC	As an alternative to ECC and is for use with contracts which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the employer and the contractor
	Engineering and Construction Short Subcontract	ECSS	As a subcontract to ECC or ECSC and is for use with contracts which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the contractor and the subcontractor
Term Contracts	Term Service Contract	TSC	For the appointment of a contractor for a period of time to manage and provide a service such as planned or unplanned maintenance
	Term Service Subcontract (NEC4 only)	TSS	For the appointment of a subcontractor for a period of time to manage and provide a service where the contractor has been appointed under the TSC
	Term Service Short Contract	TSSC	As an alternative to TSC and is for use with contracts which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the employer and the contractor

	NEC Title	Abbr.	When Should be Used
Consultancy Services	Professional Service Contract	PSC	For the appointment of a consultant to provide professional services
	Professional Service Subcontract (NEC4 only)	PSS	For the appointment of a subconsultant to provide professional services where the consultant has been appointed under the PSC
	Professional Service Short Contract	PSSC	As an alternative to PSC and is for use with contracts which do not require sophisticated management techniques, comprise straightforward work and impose only low risks on both the employer and the consultant
Supply	Supply Contract	SC	For procurement of goods and related services
	Supply Short Contract	SSC	As an alternative to SC and is for use with contracts which do not require sophisticated management techniques and impose only low risks on both the employer and the supplier
Others	Framework Contract	FC	For the appointment of one or more contractors to carry out construction work or to provide design or advisory services on an "as instructed" basis over a set term
	Design Build and Operate Contract (NEC4 only)	DBOC	For the appointment of a contractor for the design, construction or modification and operation of assets over a period of time
	Alliance Contract	ALC	For the appointment of a number of partners to create an alliance with the employer to design and build an asset or assets on major projects or programmes of work where longer term collaborative ways of working are to be created
	Adjudicator's Contract (NEC3) / Dispute Resolution Service Contract (NEC4)	AC / DRSC	For the appointment of an adjudicator or dispute avoidance board member to resolve disputes

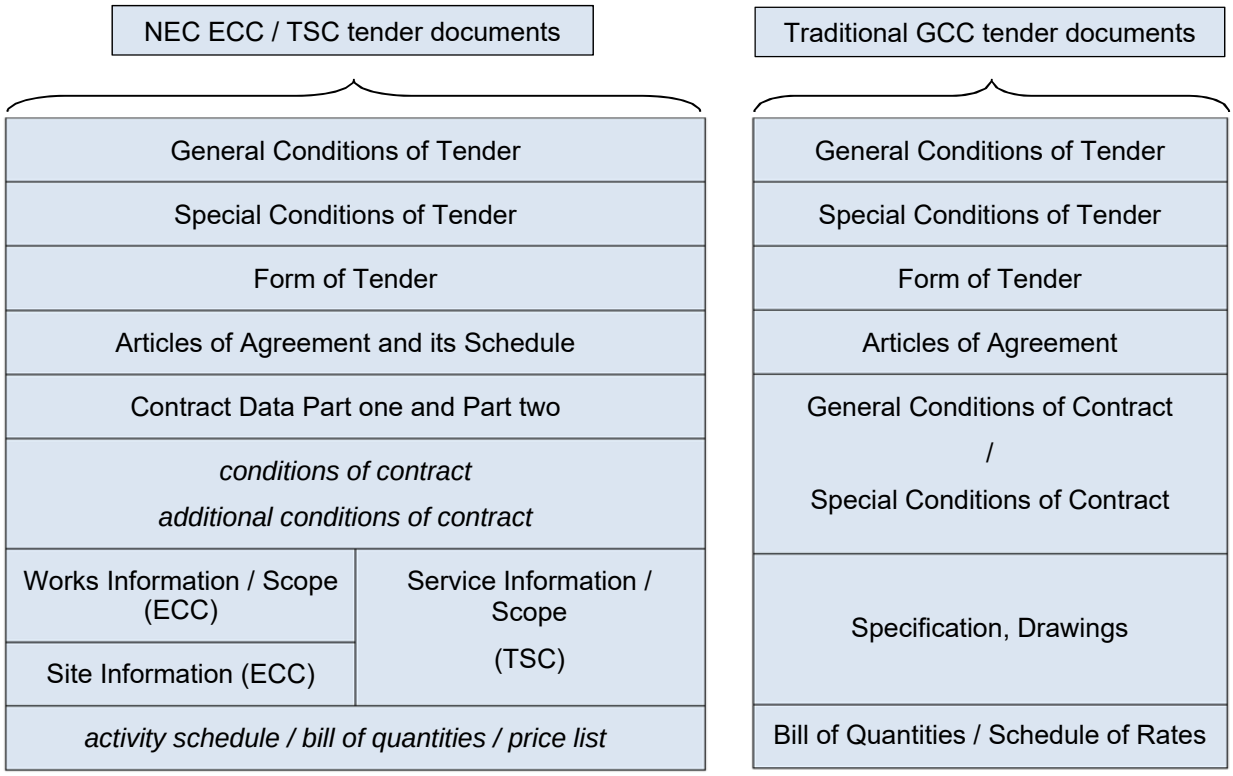
Structure of NEC contracts

3.1.2 The ECC, ECS, TSC, TSS, PSC and PSS offer a range of Options that build up the contract terms and conditions to suit individual works or services, of which the *Employer / Client* will select what he considers the most suitable Option to achieve value for money. At the heart of contract conditions are the core clauses, which will determine the essential common terms. To this, main Option should be selected and it will determine the particular payment mechanism and risk allocation between the *Employer / Client* and the *Contractor*. Then secondary Options should be chosen to combine with main Option clauses to form important parts of a contract. For DBOC and ALC, only selection of secondary Options is required.

3.1.3 A flowchart of NEC formation is as below:



3.1.4 In addition, a side by side comparison of the tender document components of ECC or TSC with traditional GCC form is shown below:



3.1.5 For short contracts (i.e. ECSC, ECSS, TSSC, PSSC and SSC), the Supply Contract, the Framework Contract and the Adjudicator's Contract (NEC3) / the Dispute Resolution Service Contract (NEC4), selection of Options is not required.

3.1.6 The aim of this Practice Notes is to assist the Project Offices in preparing and administering ECC, TSC and PSC. NEC forms other than these three types will not be covered herein. Part A of this Practice Notes focuses on ECC.

PART A – ENGINEERING AND CONSTRUCTION CONTRACT (ECC)

A4 PRACTICE NOTES FOR PRE-TENDER STAGE

A4.1 PREPARATION OF TENDER DOCUMENTS

A4.1.1 ECC Tender Documentation

A4.1.1.1 The standard amendments to the NEC clauses (Library of Standard Amendments to NEC ECC), *additional conditions of contract* (Z clauses), General and Special Conditions of Tender and Notes to Tenderers, sample template of Contract Data Part one and Part two, etc. are posted on the DEVB's website under the heading "New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) Documents" in "Standard Contract Documents" of the "Publications" section for reference. If the Project Offices wish to develop any amendments to NEC ECC standard documents, *additional conditions of contract*, or Special Conditions of Tender for their repeated use or placing in the respective library for use by others, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who may consult the Inter-departmental Working Group on NEC Projects, the Steering Committee on NEC Projects and / or the Conditions of Contract Committee where appropriate. For other non-standard amendments to NEC ECC standard documents or non-standard *additional conditions of contract* to suit specific needs of individual contracts, the Project Offices should seek ~~legal advice from LAD(W), DEVB and~~ approval from the Head of Department / Office or his delegate at D2 rank or above unless otherwise specified in this Practice Notes and may seek legal advice from LAD(W), DEVB in case of doubt. Similarly, for other non-standard Special Conditions of Tender, Notes to Tenderers, Contract Data Part one and Part two, Form of Tender, Articles of Agreement, General Particulars and Preambles to Specifications for the Works Information / Scope, General Preambles to the *bill of quantities*, Preambles to the *activity schedule*, and Grand Summary of the *activity schedule*/*bill of quantities* for individual contracts, they should seek ~~legal advice from LAD(W), DEVB and~~ approval from a public officer at D2 rank or above unless otherwise specified in this Practice Notes and may seek legal advice from LAD(W), DEVB in case of doubt. For other parts of the tender documents, approval procedures in the Project Administration Handbook for Civil Engineering Works (PAH) published by the Civil Engineering and Development Department or equivalent guidelines of the Architectural Services Department and the Electrical and Mechanical Services Department should be followed. For the avoidance of doubt, the requirements in this Practice Notes are imposed for contracts adopting NEC form without prejudice to the legal vetting requirement mentioned in DEVB's memo ref. DEVB(W) 510/30/01 dated 29 March 2019 which was promulgated following the requirement of the Stores and Procurement Regulations. In other words, if a works contract has an estimated value exceeding $500 million, the departments must send all the non-standard components of the tender documents to LAD(W), DEVB for vetting before the tender documents are issued to potential tenderers.

A4.1.1.2 While a sample Works Information / Scope (together with Specifications) is not provided in this Practice Notes, the Project Offices should bear in mind the characteristics of NEC when drafting the Works Information / Scope. In accordance with NEC3 clause 11.2(19) / NEC4

clause 11.2(16), Works Information / Scope is "information which either specifies and describes the *works* or states any constraints on how the *Contractor* Provides the Works". It should represent a complete and precise *Employer*'s / *Client*'s requirements on the *works* to be provided. More guidance on preparation of the Works Information / Scope can be found in relevant Guidance Notes / User Guides published by Thomas Telford Limited.

A4.1.1.3 Some of the important points to note in preparing the Works Information / Scope are :

(i) Clarity and effective project management

In drafting the Works Information / Scope, the Project Offices should bear in mind the need to state the requirements as clear as possible to avoid misinterpretation and unnecessary disputes. For example, the expressions such as "in the opinion of the *Project Manager*", or "to the satisfaction of the *Supervisor*" should be replaced by more definitive standards or requirements as far as possible.

(ii) Payment methodology

Specifications in conventional contracts are drafted based on a price-based contract. However, for Options C and D which are cost-reimbursable based (i.e. Defined Cost plus the Fee basis), some of the commonly used terms such as "…at the *Contractor*'s own cost", or "…deemed to be covered by the *bill of quantities*…", etc, are no longer applicable.

(iii) Time for reply

As the *Project Manager*, the *Supervisor* and the *Contractor* are required to reply within the *period of reply* unless otherwise stated in the contract according to NEC clause 13.3, the use of expressions such as "…within a reasonable time…" should be avoided.

Site Information

A4.1.1.4 Site Information forms part of the contract under the ECC. In accordance with NEC3 clause 11.2(16) / NEC4 clause 11.2(18), Site Information is "information which describes the Site and its surroundings". Examples of information to be included in the Site Information are shown in relevant Guidance Notes / User Guides published by Thomas Telford Limited.

A4.1.1.5 Regarding the site information commonly marked with "for information only" in traditional GCC form, attention should be drawn to NEC clauses 60.2 and 60.3 as further elaborated

in Sections A4.1.1.6 and A4.1.1.7 below.

A4.1.1.6 NEC clause 60.2 lists the information, including the Site Information, which the *Contractor* is assumed to have taken into account for the physical conditions within the Site for the purpose of assessing a compensation event. As such, the *Employer / Client* cannot specify in the Site Information that the information is provided "for information only".

A4.1.1.7 Furthermore, the ECC Guidance Notes[1] / User Guides[6] states that "Clause 60.3 states the 'contra proferentem' rule regarding inconsistencies in the Site Information, for which the *Employer / Client* is responsible."

A4.1.1.8 The Site Information plays an important role in assessing compensation events. In preparing tender documents, the Project Offices are reminded to include as much relevant information as possible, including geotechnical baseline report, site investigation records, existing utilities records, etc. for tenderers to prepare their tender submissions. The Site Information will form one of the basis in judging the physical conditions for the purpose of assessing a compensation event. Details will be further discussed in Section A6.3.1.

Activity Schedule / Bill of Quantities

A4.1.1.9 In accordance with the ECC Guidance Notes[1] / User Guides[6] the *activity schedule* should be prepared and priced by the tenderers under Options A and C. It is not part of the Works Information / Scope and should not be used to describe the *works*. The prices entered by the tenderers for each activity are normally lump sums, not unit rates as in the *bill of quantities*, except for those remeasurement items to suit specific needs in some contracts. To facilitate the tender assessment, the Project Offices should specify any particular key activities which the *Contractor* should include in the *activity schedule* in the guideline or sample form for the preparation of *activity schedule*. Where appropriate, the Project Offices should define principle activities (e.g. individual major parts of the structures, systems, components, etc.) and invite the tenderers to subdivide each into activities in more details, including allowance for early payment for Plant and Materials or Equipment within the Working Areas before incorporation into the *works* or using to Provide the Works to improve the *Contractor*'s cash flow under Option A. The Project Offices should also remind the tenderers to include establishment and administrative activities, safety and health activities, design activities, testing and commissioning, etc. Activity descriptions should be clear and complete so that the work included in each activity can be identified and the completion of each activity can be easily recognised. Subject to the rules in the General Conditions of Tender, the tenderers can decide how to break up their work into activities, enter and price them in the *activity schedule*.

A4.1.1.10 Since Options A and C do not require *bill of quantities* to be issued to tenderers or to be used subsequently, the tenderers have to calculate quantities from the Works Information / Scope where they need to know a quantity in order to estimate the cost of the work. For many contracts, this may be a significant task consuming the tenderers' resources. In order to reduce the cost and time involved during the tender preparation, the Project Offices may calculate quantities before inviting tenders and then issue a copy of the quantities list to all tenderers if appropriate. However, it must be made clear that the tenderers will have used the quantities and relied upon them entirely at their own risk of the inaccuracy or incompleteness of the information.

A4.1.1.11 The *bill of quantities* used under Options B and D is to be priced and extended by tenderers so as to produce the tendered total of the Prices. The Project Offices should identify the *method of measurement*, on which the *bill of quantities* is based, in the Contract Data Part one. The Project Office should subdivide the principle item(s) into different items in the *bill of quantities* for the better financing of the Plant and Materials or Equipment before they are incorporated into the *works* or used to Provide the Works.

Marking Scheme

A4.1.1.12 This section applies if the Marking Scheme Approach is adopted in accordance with DEVB Technical Circular (Works) (TCW) No. 4/2014 and 4/2014(A).

A4.1.1.13 The Project Offices should consider including an assessment criterion taking into account relevant NEC experience possessed by proposed managerial staff in Section (3) – Tenderer's technical resources where applicable.

A4.1.1.14 In addition to the relevant professional qualifications, the following requirement should be added in the contract such that relevant *key people / key persons* of the *Contractor* should possess the required experience:

> "a minimum of [*insert the number as appropriate*] years of relevant post-qualification experience and shall (i) have a minimum of [*insert the number as appropriate*] years of proven experience as Construction Manager or Site Agent in the use of NEC contracts, or (ii) be an accredited or certified NEC *Project Manager* or *Service Manager* recognised by an international or local construction-related professional institution/institute, or (iii) have successfully completed a recognised training course for NEC *Project Manager* or *Service Manager*. A recognised training course for NEC *Project Manager* or *Service Manager* refers to a training course that enables participants to be regarded as having acquired the required standard necessary to act in the respective role upon successful completion of the training course, as recognised by an international or local construction-related professional institution/institute."

The relevant experience of the concerned *key people / key persons* should be required to input in the Contract Data Part two.

Note : Subject to the Project Offices' consideration, the above requirement may be waived for works contracts with tenders invited from Group A or Group B contractors.

Programme

A4.1.1.15 If the Project Offices wish to understand more on whether the tenderers have fully understood their obligations and whether they are likely to be able to complete the work within the stated time by using their proposed methods and resources (in particular for multi-disciplinary or complex projects), they should consider requiring tenderers to submit a programme by adopting the standard Special Conditions of Tender Clause SCT 1 - Programme of *works*.

A4.1.1.16 The Accepted Programme is a crucial document for managing the contract and enabling the *Project Manager* and the *Contractor* to monitor the progress of the project and assess the effect of compensation events under the NEC.

A4.1.1.17 The *Project Manager* should pay attention to the following issues commonly identified in the management of programme under the NEC:

- There is no Accepted Programme. Therefore, the *Project Manager* assesses a compensation event using his own assessment of the programme for the remaining work.

- The programme is not updated and does not reflect the latest development of construction activities on Site. Therefore, the *Project Manager* assesses a compensation event using his own assessment of the programme for the remaining work.

- Lack of focus on planning and programming in the programme submitted by the *Contractor* which makes it difficult to understand what considerations have been taken into account in float, time risk allowances, order and timing of the operations, how he plans to do the work, the principal Equipment and other resources which he plans to use for each operation, etc.

A4.1.1.18 If a programme is required to be submitted at the tender stage, tenderers need to start the planning process and prepare a practical and carefully designed programme at an earlier stage. Where a programme may not be required and yet the Project Offices would like to ensure that the *Contractor* should be capable of identifying and managing the complexities, tenderers should be asked to submit with their tender submissions the information on how such complicated sequencing could be tackled during construction. The requirements on the programme to be submitted at tender stage may make reference to similar requirements in NEC clause 31.2 where appropriate.

A4.1.1.19 The programme submitted by tenderers, or information related to sequencing of the works, will form part of the tender submission. However, it should be noted that such programme or information should not be considered as a programme identified in the Contract Data Part two nor be regarded as the Accepted Programme under NEC clause 11.2(1) under normal circumstances. The *Contractor* should submit the first programme for acceptance by the *Project Manager* after contract commencement. As such, the standard provision in the Contract Data Part two "If a programme is to be identified in the Contract Data" is normally suggested to be deleted.

Dispute Resolution Advisor

A4.1.1.20 For NEC contracts, as they already entail partnering spirit and associated project management tools to facilitate early resolution of problems, the adoption of Dispute Resolution Advisor (DRA) System is **NOT** mandatory. It will be up to the procuring departments to adopt the DRA System in individual contracts if the engagement of DRA would offer additional merits in facilitating dispute avoidance and resolution. (Ref.: SDEV's memo ref. ( ) in DEVB(W) 510/83/03 dated 11 February 2021)

Setting of Fee Percentage

A4.1.1.21 A cap has been imposed on the *fee percentage*. This is to avoid tenderers to submit a disproportionately high percentage figure. According to the latest tender evaluation mechanism, the calculation of forecast total of the Prices including contingency sums would take into account the *fee percentage* so that any unreasonably high *fee percentage* would reflect in the tender price used in the tender evaluation.

A4.1.1.22 In setting a cap on the *fee percentage*, care should be taken as to whether the *fee percentage* would cover the people cost of the site management and supervisory staff. In particular, for Options C and D, if the *fee percentage* has to include the cost of the *Contractor*'s site management and supervisory staff, it may cause a negative impact to the *Contractor*'s cash flow in the initial stage of the contract when the resulting fee would be relatively insignificant compared with the actual cost of people. Other considerations may also include but not limited to the project scale, size of site establishment, programme and duration of different site management and supervisory staff required. If Project Offices wish to cover the *Contractor*'s cost of site management and supervisory staff by the *fee percentage,* approval from a public officer at D2 rank or above should be sought and document the justifications.

A4.1.1.23 For the purpose of setting up a cap on the *fee percentage* and cost estimation, WDs should keep a database of *fee percentage* for different contracts under different main Options for reference by the Project Offices.

A.4.1.1.24 A *minimum fee percentage* of 5% should be set for NEC works contracts. If Project Offices propose to specify a *minimum fee percentage* other than 5%, DEVB's prior agreement should be sought.

Compiling Contract Documents

A4.1.1.25 According to the Licence Agreement for NEC documents which can be found in the NEC Knowledge Management Platform in the Works Group Intranet Portal of DEVB, authorised users are permitted to print out the NEC documents for their own business purposes. Nevertheless, the Project Offices are reminded to observe the provisions in the Licence Agreement when using the Licensed Materials, in particular the provisions related to copyright. Owing to the copyright of NEC documents, the Project Offices should not make copies of the NEC documents for inclusion in the tender or contract documents since the contractors may not be other authorised users as specified in the Licence Agreement.

A4.1.1.26 Further information on purchase of NEC contracts, guidelines or relevant publications can refer to www.neccontract.com.

A4.1.2 Comparison of Terminologies used in GCC and NEC

A4.1.2.1 The common terminologies used in GCC and NEC are compared in the table below.

GCC	NEC – ECC	NEC – TSC	NEC – PSC
extension of time, variations, claims, disruptions, loss and expenses	change to the Works Information / Scope	change to the Service Information / Scope	change to the Scope
Bills of Quantities / Schedule of Rates	Bill of Quantities / Activity Schedule	Price List	Activity Schedule / Task Schedule / Time Charge
Architect / Engineer / Surveyor / Supervising Officer	*Project Manager / Supervisor*	*Service Manager*	*Employer / Employer's Agent (if secondary Option X10 of NEC3 PSC is selected) or Client*
Site	Site / Working Areas	Affected Property / Service Areas	—
Contract Sum	The Prices	The Prices	The Prices
date of completion	Completion Date	Service Period	Completion Date
estimated value of works	Price for Work Done to Date	Price for Service Provided to Date	Price for Services Provided to Date
Maintenance Periods	*defects date*, *defect correction period*	—	*defects date*

A4.2 GUIDELINES FOR CHOICE OF OPTION

A4.2.1 Main Options

A4.2.1.1 The six main Options of the ECC comprise:

- Option A - Priced contract with activity schedule
- Option B - Priced contract with bill of quantities
- Option C - Target contract with activity schedule
- Option D - Target contract with bill of quantities
- Option E - Cost reimbursable contract, and
- Option F - Management contract

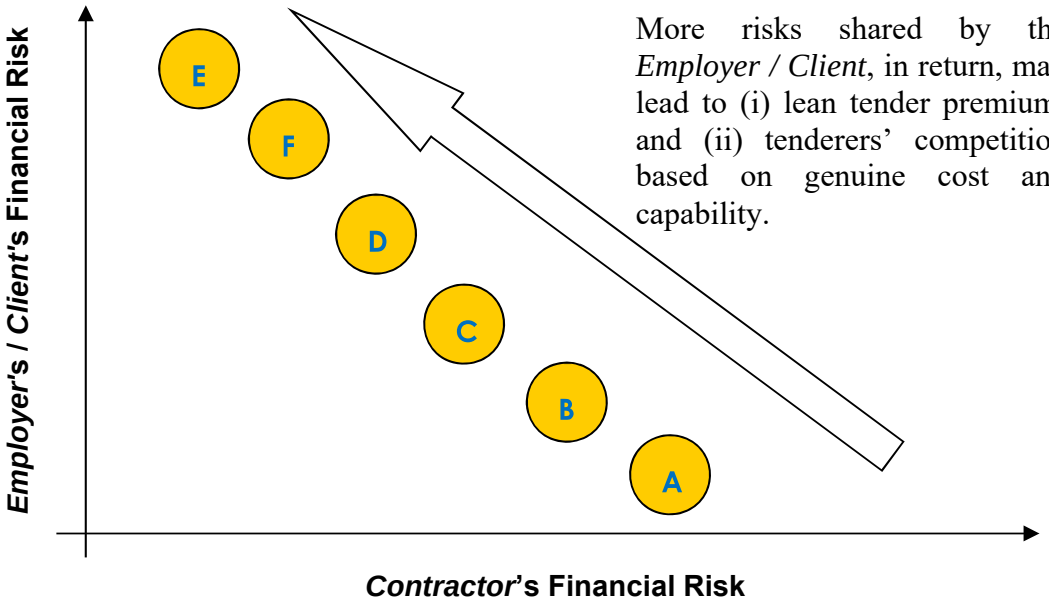
A4.2.1.2 The six main Options each:

- use a different payment arrangement; and
- allocate risk differently.

A4.2.1.3 The core clauses are used for definition of the contractual relationship. They apply to each of the six main Options and therefore do not influence the selection of the most appropriate main Option.

A4.2.1.4 Amongst those six main Options available in the ECC, at least one of them has to be selected for the payment mechanism and the risk sharing approach suitable for the project, followed by the selection of the Dispute Resolution Option (not applicable in Hong Kong) and the secondary Options.

A4.2.1.5 In general, the *Contractor* carries the greatest financial risk under Options A and B and the least under Options E and F. A graphical risk presentation showing financial risk allocated between the *Employer / Client* and the *Contractor* is shown below:



More risks shared by the *Employer / Client*, in return, may lead to (i) lean tender premium; and (ii) tenderers' competition based on genuine cost and capability.

A4.2.1.6 In selecting an~~the~~ appropriate main Option for the project, the Project Offices should always take the project specific requirements into account in addition to the general features of the main Options. This Practice Notes mainly focus on the four main Options (A, B, C and D) which have been ~~conducted with trials~~applied extensively in Hong Kong and their principle attributes are compared as follows.

A4.2.2 Option Selection Considerations

A4.2.2.1 The main Options under the ECC cover most arrangements used in engineering and building projects. The table under Section A4.2.2.3 compares the four main Options (Options A, B, C and D) commonly used in public works projects in Hong Kong in terms of risk allocation and other factors affecting the final tendered amount.

A4.2.2.2 Two of the main Options (Options A and B) are priced contracts and the other two are target contracts (Options C and D). Two of these contract forms use *activity schedule* (Options A and C) and the other two use *bill of quantities* (Options B and D).

A4.2.2.3 Time, ~~money~~ cost and risks are generally considered to be the most important factors when selecting an appropriate main Option for the project. All four main Options include ~~the~~ similar time provisions and the essential differences between them are the risk sharing and payment mechanisms. Analysis and comparison of the characteristics of these main Options contribute to the considerations for selecting the appropriate main Option. Emphasis of the analysis should be placed on the suitability of the concerned main Options to the project taking into account the factors

including but not limited to cost certainty, quantity certainty, risk allocation and sharing, completeness of design, potentials to drive more efficient project delivery and cost savings, and resources available for open book accounting for target contracts.

	Option A	Option B	Option C	Option D
Opportunity for cost savings	Less incentive is provided to the *Contractor* to submit value engineering / cost savings design proposal	Less incentive is provided to the *Contractor* to submit value engineering / cost savings design proposal	More incentive is provided to the *Contractor* to submit value engineering / cost savings design proposal	More incentive is provided to the *Contractor* to submit value engineering / cost savings design proposal
Comparison with GCC	Similar to GCC lump sum contracts as the tendered total will only be amended if changes are instructed	Similar to GCC remeasurement contract as the quantities are remeasured	Dissimilar to any GCC structure as the tendered total only provides the "target"	Dissimilar to any GCC structure as the tendered total only provides the "target" subject to the re-measurement of the *works*
Contractor is paid for	Completed activities at tendered prices	Quantities actually executed at tendered prices and / or rates	Actual cost basis to which is added the *Contractor*'s ~~f~~Fee. The total amount to be paid to the *Contractor* is subject to the *Contractor*'s share (the "pain / gain" share mechanism)	Actual cost basis to which is added the *Contractor*'s Fee. The total amount to be paid to the *Contractor* is subject to the *Contractor*'s share (the "pain / gain" share mechanism)
Financial risk	The financial risk of being able to carry out the *works* at the agreed price is largely borne by the *Contractor*	The financial risk of being able to carry out the *works* at the agreed price is largely borne by the *Contractor*	The financial risk is shared by the *Employer / Client* and the *Contractor* in an agreed proportion	The financial risk is shared by the *Employer / Client* and the *Contractor* in an agreed proportion
Risk allowance and the tendered total of the Prices	Included by the *Contractor* in his tender are paid by the *Employer / Client*	Included by the *Contractor* in his tender are paid by the *Employer / Client*	*Employer / Client* pays for risks arising as actual cost, and risks allowed in the Prices are shared under pain / gain share mechanism	*Employer / Client* pays for risks arising as actual cost, and risks allowed in the Prices are shared under pain / gain share mechanism

	Option A	Option B	Option C	Option D
Preparation of the *activity schedule* / *bill of quantities*	The *activity schedule* is prepared by the *Contractor* and the *Contractor* carries the risk of errors in quantities, missing items, etc.	The *bill of quantities* is prepared by the *Employer* / *Client* and the *Employer* / *Client* carries the risk of errors in quantities.	The *activity schedule* is prepared by the *Contractor* and the *Contractor* carries the risk of errors in quantities, missing items, etc. The "target" is not subject to adjustment for the *Contractor*'s errors.	The *bill of quantities* is prepared by the *Employer* / *Client* and the *Employer* / *Client* carries the risk of errors in quantities.
Changes to the Prices and price adjustment for inflation	Adjusted for compensation events and inflation	Adjusted for errors in quantities, missing items, compensation events and inflation	Adjusted for compensation events and inflation	Adjusted for errors in quantities, missing items, compensation events and inflation

A4.2.2.4 In choosing the main Option, a two-step approach should be adopted, with guidelines given below:

(a) Step 1 - select either a priced contract or a target contract

(i) Priced contracts are used where the extent of the *works* to be done is relatively well defined or where the level of uncertainty and risk is in a normal range. Target contracts are used where the extent of the *works* to be done cannot be fully defined or where the level of uncertainty and risk is greater. To facilitate the option selection, the Project Offices may assess the risk level[1] by performing the Estimating using Risk Analysis (ERA) as promulgated in WBTC No. 22/93[2].

(ii) The Project Offices should note that more manpower resources from the *Employer* / *Client* and the *Contractor* are required for administration of a target contract. In this connection, the Project Offices should evaluate the availability of resources, including those in the market, before deciding to adopt a target contract.

[1] As a general guideline, if the estimated total value for the risk of the proposed contract calculated by ERA is equal to or more than 20% of the estimated value of the *works* excluding provisional and contingency sums, target contracts should be used. WDs are allowed to set other thresholds for adoption of target contracts to suit the specific nature of works or to meet a policy intention as steered by DEVB. In any cases, the Project Offices should document their decision making process as set out in A4.2.3.2.

[2] Subsumed in the Project Administration Handbook for Civil Engineering Works

(iii) In cases where the estimated value of all works / items subject to pre-bid arrangement (regardless of optional or mandatory) under a target contract exceeds 40% of the estimated tendered total of the Prices as mentioned in Section A4.6, the Project Offices should carefully evaluate the effectiveness of the target contract in realising its benefits, e.g. room for achieving gains, etc. and where suitable, consider using a priced contract instead. The Project Offices should seek prior agreement from DEVB for using a target contract if they wish to allow more than 40% of the works / items for pre-bid arrangement as mentioned in Section A4.6.

(b) Step 2 - select the pricing document either in the form of *activity schedule* or *bill of quantities*

(i) If a priced contract is selected, Option A should normally be adopted for (i) design and build contracts, (ii) contracts with substantial value of the *works* to be designed by the *Contractor*, or (iii) contracts with the quantity of the *works* being relatively certain (as a reference, the value of the *works* with firm quantities exceeds 80% of the estimated value of the *works* excluding provisional and contingency sums)[3]. Option B should be adopted when it is considered suitable to allow the quantity of the *works* to be subject to re-measurement.

(ii) If a target contract is selected, Option C should normally be adopted. If Option D is proposed to be used, the Project Offices should consider additional resources required for re-measurement of the total of the Prices.

A4.2.3 Justifications and Approval for Selected Main Option

A4.2.3.1 In ~~selecting~~ choosing the main Option, considerations peculiar to the project as mentioned in A4.2.2 above ~~including cost certainty, quantity certainty, risk allocation and sharing, completeness of design, potentials to drive more efficient project delivery and cost savings, resources available for open book accounting for target contracts, etc.~~ should be thoroughly ~~taken into account and~~ evaluated.

A4.2.3.2 For the four main Options (Options A, B, C and D) commonly ~~used~~ adopted in public works projects, the Project Offices should submit their option evaluation and justifications for the selected main Option to a public officer at D2 rank or above for approval. If the Project Offices ~~wish~~ intend to conduct a trial of ~~of other contract forms~~Option E or F for ~~appropriate~~their projects, they

[3] WDs are allowed to set other thresholds for adoption of Option A to suit the specific nature of works or to meet a policy intention as steered by DEVB. In any cases, the Project Offices should document their decision making process as set out in A4.2.3.2.

should submit the~~ir~~ proposal with justifications for~~to~~ seeking approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A4.2.4 Secondary Options

A4.2.4.1 The secondary Options can generally be used with all of the main Options although there are some exceptions (e.g. Option X1 "Price adjustment for inflation" is not used with Options E and F).

A4.2.4.2 Similarly, the majority of the secondary Options may be used with one another in the same contract, although there is an exception for Option X20 "Key Performance Indicators" which is not used if Option X12 "Partnering / Multiparty collaboration" is included in the contract.

A4.2.4.3 The core clauses, which apply to all six main Options, and the main Option clauses for the main Option selected are mandatory and should be included in the contract unless express provisions are incorporated into the contract to amend or omit these clauses.

A4.2.4.4 The secondary Option clauses are included at the discretion of the *Employer / Client* and none of them may need to be included in the contract, although this situation would be very unusual.

A4.2.4.5 The following considerations should be taken into account for inclusion of any secondary Options:

- whether it should be recommended for inclusion in the contract to achieve any project objectives or suit any project situations;
- whether there is any impediment to include it with the main Option recommended;
- whether there is any impediment to it being included due to other secondary Options recommended.

A4.2.4.6 In general terms, the recommendation of secondary Options should consider the prevailing Government procedures (e.g. requirements stipulated in the Stores and Procurement Regulations, the PAH, or equivalent guidelines of the Architectural Services Department and the Electrical and Mechanical Services Department, etc.) adopted for GCC contracts (e.g. selection of X1 – Price adjustment for inflation, X7 – Delay damages and X16 – Retention, etc.) and project specific needs and current practice (e.g. selection of X5 – Sectional Completion, X15 – Limitation of the *Contractor*'s liability for his design to reasonable skill and care, and X20 – Key Performance Indicators).

A4.2.4.7 The secondary Options are designated as:

- 'W' Options
- 'X' Options
- 'Y' Options
- 'Z' Options

A4.2.4.8 The NEC provides dispute resolution procedures via options under W clauses.

A4.2.4.9 These options under the W clauses were not adopted in Hong Kong and the Government's framework of dispute resolution procedures was incorporated into the contracts as the *additional conditions of contract*. The Project Offices should continue to follow the current framework unless prior legal advice has been obtained from LAD(W), DEVB and approval has been obtained from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A4.2.4.10 The 'X' and 'Y' Options are set out in the NEC contracts but are not mandatory. They may be selected and included in the contract if appropriate. 'Y' Options are used followed by a further prefix to denote the country. Hence, Y(UK) denotes secondary Options that are applicable to the United Kingdom (UK).

A4.2.4.11 The 'Z' Options are the *additional conditions of contract*. Although there are standard UK public sector Z clauses for use with NEC contracts, they are not applicable to public works projects in Hong Kong. A Library of Standard *additional conditions of contract* (Z clauses) has been developed by DEVB and posted on DEVB's website under the heading "New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) Documents" in "Standard Contract Documents" of the "Publications" section.

'X' Options

A4.2.4.12 The common secondary Options used in the NEC contracts for public works projects in Hong Kong include:

- X1 – Price adjustment for inflation
- X5 – Sectional Completion
- X7 – Delay damages
- X11 – Termination by the *Client* (for NEC4 only)
- X16 – Retention
- X20 – Key Performance Indicators

Option X1 – Price adjustment for inflation

A4.2.4.13 This secondary Option:

- is used when the *Employer / Client* accepts the risk of inflation.

- requires a table of Schedule of Proportions to be used for calculation of the Price Adjustment Factor in the Contract Data Part two for tenderers to complete.

- is calculated in a similar manner to contract price fluctuations with reference to the "Index Numbers of the Costs of Labour and Materials used in Public Sector Construction Projects (April 2003=100)" and "Average Daily Wages of Workers Engaged in Public Sector Construction Projects as Reported by Main Contractor" compiled by the Census and Statistics Department. (Project Offices should refer to DEVB TCW No. 4/2021 for adoption of 2021-based Index Numbers).

    - For Options A and B, the amount calculated for inflation is paid to the *Contractor*.

    - For Options C and D, the amount calculated for inflation is added to the "total of the Prices" (i.e. target cost).

- the assessed value of compensation events is first adjusted to base date level (similar to the principle adopted for GCC contracts) before the price adjustment for inflation under this secondary Option. Also, some items are not subject to price adjustment for inflation.

A4.2.4.14 The Project Offices should determine whether to include this secondary Option in accordance with the prevailing Government guidelines (e.g. DEVB TCW No. 4/2021).

Option X2 – Changes in the law

A4.2.4.15 This secondary Option:

- is used when the *Employer / Client* accepts the risk of a change in the law

- provides that a change in the law of the project is a compensation event if it occurs after the Contract Date

- Requires the *Project Manager* to notify the *Contractor* of a change in the law and instruct him to submit quotations (clause X2.1 refers) as there is no compensation event listed in the core clauses for a change in the law.

A4.2.4.16 This secondary Option was not included in the projects.

A4.2.4.17 Instead, the projects included the *additional condition of contract* clause dealing with changes in the law appropriate for public works projects in Hong Kong. A compensation event should be added to the NEC clauses to accommodate this *additional condition of contract* clause. As such, inclusion of this secondary Option should not be required.

A4.2.4.18 Under this arrangement, the *Contractor* is not at risk if a material change in the law occurs and has no need to include a risk allowance in this respect in his tender when the concerned law is covered by the list of enactment, regulations, by-laws or rules in the appendix of the *additional conditions of contract*.

A4.2.4.19 This arrangement is similar to the Special Condition of Contract included in GCC contracts entitled "risk allocation with respect to changes in the law" to provide a fair allocation of risk and the accompanying appendix lists out the relevant enactments.

Option X3 – Multiple currencies

A4.2.4.20 This secondary Option:

- is used when the *Contractor* is to be paid in more than one currency and the *Employer / Client* accepts the risk of a change in the exchange rate; and

- is only used with Options A and B since under Options C and D the *Contractor* is paid in the currency in which he pays but his Fee and the share are paid in the currency of the contract unless otherwise specified in the Contract Data Part one.

A4.2.4.21 This secondary Option was not included in the projects.

A4.2.4.22 In any event the Contract Data Part one should stipulate that the *currency* of the contract is the Hong Kong Dollar and this provision has no relevance. As such, inclusion of this secondary Option should not be required.

Option X4 – Parent company guarantee / Ultimate holding company guarantee

A4.2.4.23 This secondary Option:

- is used when the *Employer / Client* requires additional security from the parent company of the *Contractor*.

A4.2.4.24 The Government has a very comprehensive technical and financial evaluation system for vetting the tenderers' capability before award of contract.

A4.2.4.25 The Project Offices are reminded to refer to the prevailing guidelines (e.g. Paragraph 9.21 of Chapter 5 of the PAH, etc.) for measures to reduce the risk of contract forfeiture.

A4.2.4.26 If the Project Offices wish to conduct trial to include this secondary Option in appropriate projects in particular for time critical contracts and / or large-scale contracts, and where the contract conditions impose a substantially higher degree of risk than normal on the *Contractor*, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X5 - Sectional Completion

A4.2.4.27 This secondary Option:

- is used when the *Employer / Client* requires any *section* of the *works* to be completed early.
- requires that *completion date* for each *section* is stated in the Contract Data Part one.

A4.2.4.28 Delay damages and bonuses for early Completion can be related to sectional completion dates.

A4.2.4.29 This secondary Option was included in the projects where sectional Completion was required. Also, this secondary Option should be included in the NEC contracts requiring sectional Completion.

Option X6 – Bonus for early Completion

A4.2.4.30 This secondary Option:

- is used when the *Employer / Client* wants Completion as early as possible and wishes to provide an additional incentive to the *Contractor* to achieve this target;
- is used for a *section* of the *works* or the whole of the *works*; and
- requires the bonus rates to be stated in the Contract Data Part one.

A4.2.4.31 This secondary Option may be used in association with Option X5 "Sectional Completion".

A4.2.4.32 If the Project Offices wish to conduct trial to include this secondary Option in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X7 – Delay damages

A4.2.4.33 Delay damages are liquidated damages paid by the *Contractor* if he fails to complete the *works* or a section of the *works* by the completion date.

A4.2.4.34 The term "delay damages" is used as there are also liquidated damages for low performance (Option X17 refers).

A4.2.4.35 The daily rate for delay damages should be stated in the Contract Data Part one. This secondary Option may be used in association with Option X5 "Sectional Completion".

A4.2.4.36 This secondary Option is similar to GCC clause "Liquidated damages for delay" and therefore the inclusion of this secondary Option should be required. If the Project Offices wish to conduct trial to include this secondary Option covering special damages as well in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X11 – Termination by the *Client (for NEC4 only)*

A4.2.4.37 This secondary Option is used to cover termination by the *Client* for a reason not specified in NEC clause 91.

A4.2.4.38 The Project Offices should refer to the Library of Standard Amendments to NEC ECC for adoption of this Option.

Option X12 – Partnering / Multiparty collaboration

A4.2.4.39 This secondary Option is used for partnering between more than two parties who are all not in contract with each other.

A4.2.4.40 It is anticipated that majority of public works projects will mainly involve two Parties, the *Employer / Client* and the *Contractor*, in the contract. This being the case this secondary Option is normally not required.

A4.2.4.41 If this secondary Option is adopted, the *Client's (NEC3) / Promotor's (NEC4)* objective, the Partnering information and the preliminary Schedule of Partners and Schedule of Core Group Members should be included in the Contract Data Part one. The Schedule of Partners and the Schedule of Core Group Members, like the Activity Schedule and other schedules referred to in the Contract Data, may change from time to time.

A4.2.4.42 If the Project Offices wish to conduct trial to include this secondary Option in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X13 – Performance bond

A4.2.4.43 This secondary Option:

- is used when the *Employer / Client* requires additional security on the *Contractor*'s performance;
- is generally used when the contract stipulates desired tolerances or includes a performance specification (e.g. the output of an electricity generating station).

A4.2.4.44 The provision of a performance bond would have a cost implication and this additional cost would not be recoverable if the *Contactor* achieved the necessary performance.

A4.2.4.45 This secondary Option is anticipated to be included in time critical contracts and / or large-scale contracts, and where the contract conditions impose a substantially higher degree of risk than normal on the *Contractor*. Similar to the use of Option X4 "parent company guarantee / ultimate holding company", the Project Offices should refer to the prevailing guidelines (e.g. paragraph 9.21 of Chapter 5 and Appendixes 7.62 and of Chapter 7 of the PAH, etc.) for the measures (e.g. performance bond) to reduce the risk of contract forfeiture and the bond required for off-site manufacture of major prefabrication items.

A4.2.4.46 If the Project Offices wish to conduct trial to include this secondary Option in appropriate projects, they should submit their proposal with justifications on performance bond amount to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X14 – Advance payment to the *Contractor*

A4.2.4.47 This secondary Option has been used for arrangement of special advance payment to assist the construction industry amidst the epidemic situation e.g. SDEV's memo ref. DEVB(W) 510/33/02 dated 5 March 2021.

A4.2.4.48 If the Project Offices wish to conduct trial to include this secondary Option for advance payment to the *Contractor* for other purposes in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X15 – Limitation to the *Contractor*'s liability for his design to reasonable skill and care / The *Contractor*'s design

A4.2.4.49 Except for design and build contracts, since promulgation of DEVB TCW No. 3/2014, the Project Offices have implemented in the tendering process for invitation of alternative designs for those parts of the *works* where opportunities for value for money or buildability enhancement exist. Tenderers' designs have also been invited for those parts of the *works* where the Project Offices consider the contractors are better placed to undertake the design. In addition, alternative designs for achieving further cost savings or better value for money are also permissible when situation warrants after contract award.

A4.2.4.50 DEVB TCW No. 3/2014 states that in respect of the *Contractor*'s Designs and Alternative Designs the *Contractor* shall warrant that:

> "where the *Employer* has relied upon the *Contractor* to select equipment, plant, materials and goods required by the *Contractor*'s Design to be incorporated in the *works* the *Contractor* shall ensure that all such equipment, plant, materials and goods are reasonably fit for the purpose for which they are intended and of good quality"
>
> "subject to sub-clause (1)(a)(i) above and without prejudice to the generality of the warranty of the *Contractor* referred to in the second paragraph of this sub-clause (l)(a) in no circumstances shall the *Contractor* be obliged to ensure that the *Contractor*'s Design is fit for the purpose for which it is intended"

A4.2.4.51 The same requirement is applied to the *Contractor*'s Cost Savings Designs.

A4.2.4.52 With the inclusion of such requirement under Section F of the Library of Standard *additional conditions of contract*, inclusion of this secondary Option for the *Contractor*'s Designs, including alternative designs, or Cost Savings Design is not required.

Option X16 – Retention

A4.2.4.53 This secondary Option operates in a similar way to GCC clause "Interim and final payments, Retention Money and interest" and therefore that the inclusion of this secondary Option is normally required in the NEC contracts for public works projects subject to the requirements in other Government guidelines. The *retention percentage* and *retention free amount* should be stated in the Contract Data Part one.

A4.2.4.54 The ECC Guidance Notes[1] / User Guides[7] highlighted that this secondary Option does have an effect on the *Contractor*'s cash flow, which he will make allowances for his tendered Prices (for Options A and B), or his Fee (for other Options). However, it should have no effect on the cash flow until the Price for Work Done to Date exceeds the *retention free amount*. The effect on the *Contractor*'s cash flow will also depend upon the amount of work he subcontracts. The *Contractor* will normally hold an equivalent retention on his Subcontractors, thus improving his cash flow. In order to ensure there is no double-deduction of retention, the Defined Costs for Options C and D are calculated using the gross payment made to Subcontractors, i.e. before deduction of their retention (see NEC3 clause 11.2 (23) / Item 41 of the Schedule of Cost Component (NEC4)). Also, this secondary Option is not normally required where Option X13 "Performance bond" is used.

A4.2.4.55 The *retention free amount* has been set as "Nil" in the projects. If the Project Offices wish to conduct trial to include this secondary Option with a non-zero retention free amount in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X17 – Low performance damages

A4.2.4.56 This secondary Option:

- is used when the contract includes a performance specification and liquidated damages are stated for degrees of under-performance;
- applies low performance damages to the *Contractor* when a Defect listed in the Defects Certificate shows low performance with respect to a performance level stated in the Contract Data;

A4.2.4.57 This secondary Option was not included in the projects. However, if the Project Offices wish to conduct trial to include this secondary Option in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Option X18 – Limitation of liability

A4.2.4.58 Generally the Government does not accept any limitation of the *Contractor*'s liability and it is not anticipated that this secondary Option will be used in the NEC contracts for public works projects.

A4.2.4.59 This secondary Option was not included in the projects.

Option X20 – Key Performance Indicators

A4.2.4.60 This secondary Option:

- is used to monitor and measure the *Contractor*'s performance against the Key Performance Indicators (KPIs) in the Incentive Schedule;
- is intended to incentivize the *Contractor* to meet the *Employer*'s / Client's objectives;
- This secondary Option is not used when Option X12 is used since Option X12 includes "KPI".

A4.2.4.61 This secondary Option has been used for "Pay for Safety Performance Merit Scheme (PFSPMS)" in the projects and this practice should continue in appropriate NEC contracts for public works projects according to the Government guidelines. The incentive payments do not count towards the Price for Work Done to Date. If the Project Offices wish to conduct trial to include this secondary Option for other new KPIs in appropriate projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Other 'X' Options included in NEC4

A4.2.4.62 There are other 'X' Options available for selection in NEC4 contracts. These Options includes:

- X8 – Undertakings to the *Client* or Others
- X9 – Transfer of rights
- X10 – Information Modelling
- X21 – Whole life cost
- X22 – Early *Contractor* Involvement (for options C and E)

A4.2.4.63 For secondary Options X8, X9, X10 and X22, if the Project Offices wish to conduct trial for inclusion of these Options, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A4.2.4.64 With the inclusion of the requirement under Section F of the Library of Standard *additional conditions of contract*, inclusion of the secondary Option X21 is not required.

'Z' Options

A4.2.4.65 Further details on the 'Z' Options – *additional conditions of contract* are available in the Library of Standard *additional conditions of contract* posted on DEVB's website under the heading "New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) Documents" in "Standard Contract Documents" of the "Publications" section. If the Project Offices propose to use new *additional conditions of contract* not shown in the standard library, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and comments / consent from DEVB if appropriate.

A4.3 ORGANISATION / SET-UP OF THE TEAM FOR NEC CONTRACTS

A4.3.1 Roles and Responsibilities

A4.3.1.1 NEC sets out the roles and responsibilities of the *Employer / Client*, *Project Manager*, *Supervisor* and *Contractor*.

A4.3.1.2 The duties of these parties are subject to amendments due to alternations or additions to the default contract provisions made in various parts of the contract documents, e.g. Schedule to the Articles of Agreement, *additional conditions of contract* (Z clauses), etc.

A4.3.1.3 Under the spirit of NEC, these parties are encouraged to work in a collaborative way. An effective communication channel has to be established as it is fundamental to joint and prompt problem solving when matters arise. Therefore, the *Project Manager* may consider drawing up a joint project organization chart with the *Contractor* at the beginning of the contract, with continuous updating by all parties, so that all project staff can identify easily the right person of the other parties whom he / she can discuss with when problems arise. Such practice can enhance the cooperation of the project team, and improve the efficiency in tackling problems.

A4.3.1.4 In addition, it may be desirable to combine the site accommodation for the *Project Manager* / *Supervisor* and the *Contractor* if such arrangement is reviewed to suit the project needs and situations. This has been proved to be a successful arrangement in some projects in which project team members of different parties could communicate with each other directly, and could realize the benefits of joint problem solving more easily, which turns out to be an effective means to build up trusting relationship. For more information, the Project Offices may refer to the details in the following video on the first NEC pilot project in Hong Kong:

https://www.youtube.com/watch?v=3-S-GgZM4T4

A4.3.2 In-house Contract

A4.3.2.1 Project teams are set up to stimulate good management and to deliver projects effectively and efficiently.

A4.3.2.2 For target contracts (Options C and D) managed by in-house resources, the Project Offices should review whether suitable in-house quantity surveying staff would be available for conducting checking on payments, which may require relatively more resources compared with priced contracts (Options A and B) during the contract stage.

A4.3.2.3 For some in-house projects adopting Options C and D, quantity surveying consultants have been appointed for the contracts after reviewing the availability of in-house quantity surveying staff. The Project Offices may consider engaging quantity surveying consultants to take up the appropriate duties if in-house quantity surveying staff is not available for the projects.

A4.3.2.4 With regards to the *Project Manager,* the *Supervisor* and their delegates, it is recommended that they should be aware of the difference between GCC form and NEC form well before they take up the respective roles for administering the contract. In particular, they should have a good understanding on the characteristics of NEC, that the contract focuses on partnering, and that the contract itself sets out effective project management tools for managing risks, changes, programme and costs.

A4.3.2.5 For target contracts (Options C and D), site supervisory staff will be required to conduct checking on the ownership of Equipment (for identifying the item under the Defined Cost which payment should be made), People working within the Working Areas, Plant and Materials delivered for the *works*, percentage of completed work for checking reasonableness of the amount of payment due to Subcontractors and determining any Disallowed Cost, etc. which they may not have such experience in conventional contracts. It is therefore recommended that site supervisory staff should be given adequate NEC training, including site visits to suitable target contracts, to enhance their understanding on the characteristics and the points to note for running such contracts.

A4.3.2.6 Another issue is that the *Project Manager* has to make quick decisions according to the time for reply in the contract. For matters involving variation of contracts as specified in Section 520 and Appendix V(B) of the Stores and Procurements Regulations (SPR), the *Project Manager* needs to seek the approval from the appropriate rank of public officers or authority before replying to the *Contractor* for making such commitment. Please refer to Section A6.1.1.11 for points to note on achieving the requirement of the period for reply.

A4.3.3 Consultant-administered Contract

A4.3.3.1 Similar to in-house contracts, the *Project Manager,* the *Supervisor* and / or their delegates employed by the consultants should have a good understanding on the characteristics of NEC as discussed in Section A4.3.2 above. For resident site staff (RSS), they are encouraged to go through NEC training before working for the contracts adopting NEC.

A4.3.3.2 For target contracts (Options C and D), considerations should be given on whether appropriate quantity surveying staff should be included in the RSS establishment in order to take up the duties of checking of payments which may require more resources than priced contracts (Options A and B).

A4.3.3.3 Taking into account the characteristics of NEC form, the Project Offices should determine suitable notional RSS establishment prior to the invitation of technical and fees proposals for the consultancy agreements. Before the commencement of NEC contracts, the consultants should propose the appropriate scale of RSS establishment to the departmental RSS establishment committee (RSSEC) or equivalent for approval. WDs should establish a database of RSS establishment for NEC contracts with different project nature and scale for reference by the Project Offices.

A4.3.3.4 For consultants-administered contracts, the consultants taking up the roles of the Project Manager, the Supervisor and / or their delegates should obtain the prior approval of the Director's Representative (DR) for any variation of the contract or other expenditure commitment exceeding the sum (normally $800,000) as specified in the consultancy brief, or the estimated final Price for Work Done to Date exceeding the recommended forecast total of the Prices specified in the tender report. Please refer to Section A5.2.6 for the details of the recommended forecast total of the Prices in the tender report. Subject to the authorisation in Section 520 and Appendix V(B) of the SPR, the DR may consider to further delegate his power to the rank of senior professional and / or public officers at D1 rank for vetting and approval of such submissions if appropriate.

A4.3.3.5 Please refer to Section A6.1.1.11 for points to note on achieving the requirement of the period for reply.

A4.3.4 Delegation and Replacement of Personnel

A4.3.4.1 NEC clause 14.2 requires the *Contractor* to be notified before the *Project Manager* or the *Supervisor* delegates any of their actions if necessary.

A4.3.4.2 It is recommended to notify the effective period of time in which the action is delegated.

A4.3.4.3 Delegation needs to be in compliance with the prevailing Government guidelines (e.g. WBTC No. 20/92). A sample delegation letter can be found in the NEC Knowledge Management Platform in the Works Group Intranet Portal of DEVB, and the Project Offices should make necessary amendments to the sample delegation letter to suit the specific project needs.

A4.4 GUIDELINES FOR DETERMINATION OF PAIN/GAIN SHARE MECHANISM OF TARGET CONTRACTS

A4.4.1 Share Range and *Contractor*'s Share Percentages

A4.4.1.1 The completed and on-going projects have adopted a simple 50:50 split for gain share and pain share allocation of the respective under spending and over spending for the *share range* up to 110% of the final target cost. For the *share range* less than or equal to 110%, the *Employer / Client* inserted 50% into each of the *Contractor*'s *share percentages* in the Contract Data Part one which results in every unit of under / over spending being equally shared between both Parties. This method is chosen if the *Employer / Client* intends to share the risk of under / over spending equally between both Parties.

A4.4.1.2 The sliding scale of percentages model can be done by altering the simple 50:50 model whereby the *Employer / Client* allocates increasing percentages of pain share / gain share between the Parties. There can be a number of different versions of this model. The most common is for the *Employer / Client* to split the first 10% of over and under spending equally between the parties, and then alter the allocation above and below these percentages. Normally the *Employer / Client* will increase the *Contractor*'s pain share percentage in the bands above 110% of the final target cost to give the *Contractor* a greater share of the overspent, and similarly, the *Employer / Client* will increase or decrease the *Contractor*'s percentage gain share in the bands below 90% of the final target cost depending on the *Employer*'s / *Client's* incentive approach in sharing the cost savings with the *Contractor*.

A4.4.1.3 Some employers have reversed this approach and have actually increased their exposure to pain share in increasing overspend brackets (i.e. over 110% of the final target cost). This is unusual but the rationale is that some larger employers are better capable of bearing the financial risk of overspent against the target cost and so would rather carry this risk than allocate it to the *Contractor*, who will seek to cover this risk somewhere in their target cost and / or *fee percentage*. However, since further review and more experience are required, this "reversed" approach is not recommended for the time being.

A4.4.1.4 The commonly adopted 50:50 split for gain share and pain share allocation of the respective under spending and over spending for the *share range* up to 110% of the final target cost is considered a fair approach. The advantages of the 50:50 model with pain *share range* cap at 110% of the adjusted final target cost are:

- Limited financial risk for the *Employer / Client*;
- Greater incentive for the *Contractor* to mitigate costs due to the final pain cap;
- More incentive is thus provided for the *Contractor* to innovate and to achieve more gain share.

A4.4.1.5 Nevertheless, the Project Offices may adjust the recommended *share percentages* and / or the *share ranges* to suit their project needs. For any proposed pain / gain share mechanism deviating from the recommended 50:50 split with pain *share range* cap at 110% of the final target cost, the Project Offices should submit their proposal with justifications to seek approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A4.4.1.6 Below is a worked example of the 50:50 split with pain *share range* cap at 110% of the final target cost. No Cost Savings Design is assumed in this example.

Worked Example

The relevant information in the Contract Data Part one is extracted below.

Contractor's share ranges and share percentages:

share range	*Contractor's share percentage*
less than or equal to 110%	……50…… %
greater than 110%	……100…….. %

The total of the Prices (after taking into account all compensation events) at the Completion of the whole of the *works* is assumed as **HK$100K.** The *Contractor*'s share and final amount due for different scenarios are illustrated as follows:

a) Final PWDD	**= HK$75K**	
Saving under the total of the Prices	= HK$25K	
Comprising one increment:		
75K to 110k	= 25K @ 50%	= HK$12.50K
Contractor's share (paid **by** *Employer*)	= **HK$12.5K**	
Final amount due	**= HK$87.5K**	

b) Final PWDD	**= HK$95K**	
Saving under the total of the Prices	= HK$5K	
Comprising one increment:		
95K to 110K	= 5K @ 50% = HK$2.50K	
Contractor's share (paid **by** *Employer*)	= **HK$2.5K**	
Final amount due	**= HK$97.5K**	

c) Final PWDD	**= HK$115K**	
Excess over the total of the Prices	= HK$15K	
Comprising two increments:		
100K to 110K = 10K @ 50%	= HK$5.0K	
Greater than 110K = 5K @100%	= HK$5.0K	
Contractor's share (paid **to** *Employer*)	= **HK$10.0K**	
Final amount due	**= HK$105K**	

A4.5 PRE-TENDER ESTIMATE (PTE) AND CONTINGENCIES

A4.5.1.1 Similar to conventional contracts, it is necessary to derive the PTE for NEC contracts based on the rates of previous similar contracts and other relevant market information. As most of the previous contracts adopt conventional contract form, the Project Offices may need to make necessary adjustments in the PTE to consider that the Prices may be allowed to be changed for compensation events such as severe weather conditions (for Options C and D) and unforeseen physical conditions under NEC (subject to amendments in individual contracts). In conventional contracts, contractors may have included in the tender prices the risk allowance for some of such events.

A4.5.1.2 Likewise, in estimating the contingencies for NEC contracts, the Project Offices may need to take into account the difference in allocation of financial risks for the above-mentioned events between conventional contracts and NEC.

A4.5.1.3 For the three completed NEC pilot projects adopting Option C, the amount of compensation events due to weather events ranges from 2% to 4% of the original target cost. For compensation events due to unforeseen physical conditions, the amount may differ considerably due to the project nature. The Project Offices should make reference to the relevant information and take into account the project circumstances when estimating the contingencies for their projects.

A4.5.1.4 Unlike conventional contracts, the default NEC does not have any term about "contingency sum" and "provisional sum".

A4.5.1.5 There are three different figures when preparing the PTE for NEC contracts:

"Pre-tender estimate using conventional approach" :	It is derived using rates of previous similar contracts and other relevant market information as in conventional contract form.
"Pre-tender estimate for tendered total of the Prices" :	It is the "Pre-tender estimate using conventional approach", with adjustment made for difference in treatment of compensation events under NEC compared with conventional contract form, and excluding estimated "contingency sums" and "provisional sums".
"Pre-tender estimate for forecast total of the Prices" :	It is the "Pre-tender estimate for tendered total of the Prices", plus estimated "contingency sums" and "provisional sums".

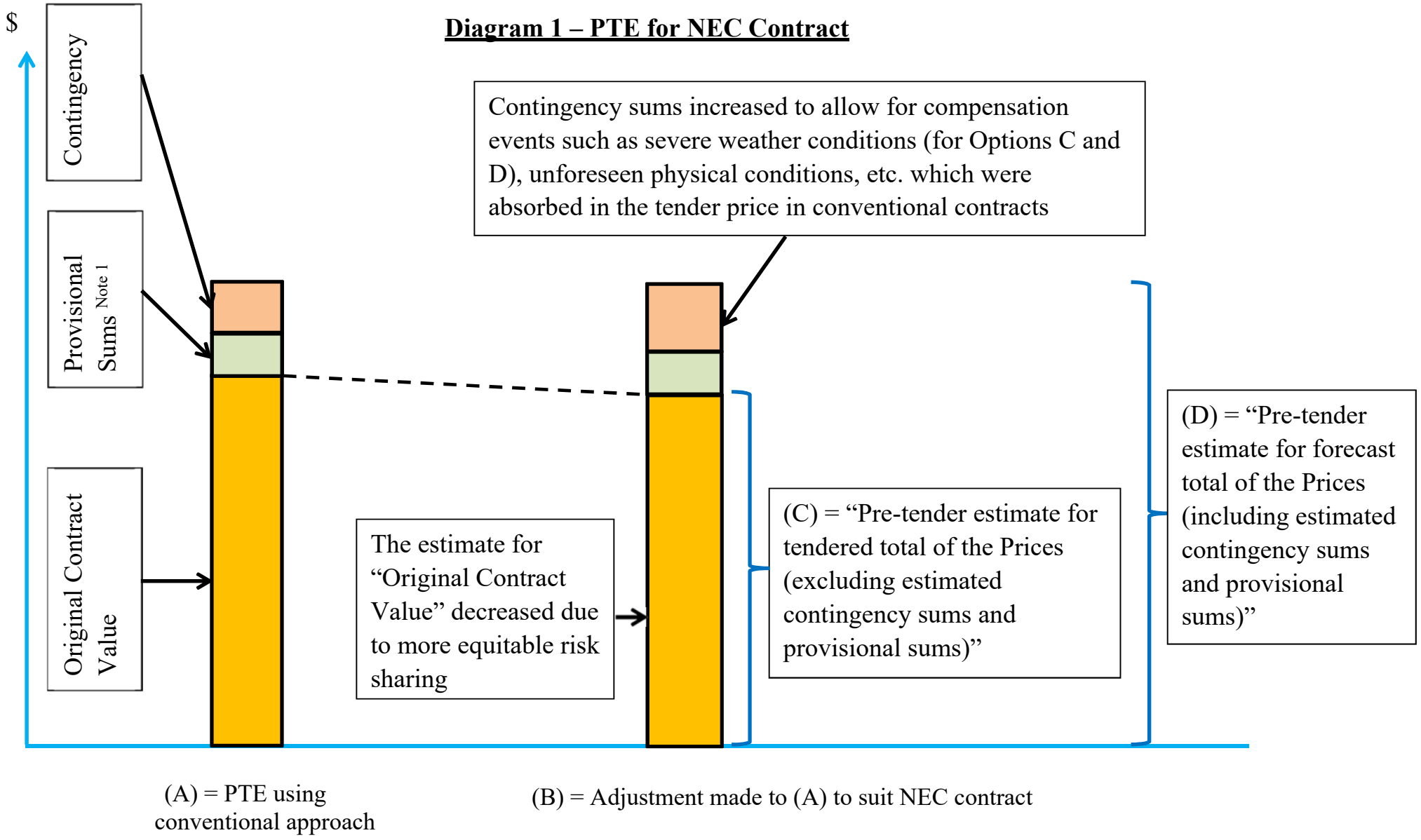
A4.5.1.6 The "Pre-tender estimate for tendered total of the Prices" and "Pre-tender estimate for forecast total of the Prices" shall be subject to vetting by the departmental committee for vetting project estimates as in conventional contracts. While the "Pre-tender estimate using conventional approach" may contain some reference figures for deriving the "Pre-tender estimate for tendered total of the Prices", these figure may serve the purpose of comparison between the estimated prices using rates in conventional contracts and the tender return prices procured using NEC form.

A4.5.1.7 A diagrammatic representation of the above figures is shown on the following page.

A4.5.1.8 It is noted that, in some of the projects adopting Options A and B, the Project Offices have introduced the terms "contingency sums" and "provisional sums" to the NEC contracts, so as to align with the current practice stipulated in the Stores and Procurement Regulations to enhance the administrative efficiency and to take into account *fee percentage* inserted in the Contract Data Part two (which would have impact on the future assessment of compensation events) to improve the tender evaluation process.

A4.5.1.9 However, for the projects adopting Options C and D, such terms were not introduced to the contracts so as to encourage the parties to behave more proactively and collaboratively in mitigating risks under the partnering approach, albeit the contingencies (including contingency sums and provisional sums) were still generally allowed in the approved project estimate (APE). Enhancement to introduce the terms "contingency sums" and "provisional sums" for project administration and tender evaluation as well as unification of approaches for different main Options are proposed in Section A5.2.

Diagram 1 – PTE for NEC Contract



Note 1: It may include price adjustment for inflation, performance-tied payment item under Pay for Safety Performance Merit Scheme , etc.

A4.6 PRE-BID ARRANGEMENT UNDER TARGET CONTRACTS

A4.6.0 Generally, for subcontracting of works / items under target contracts, the *Project Manager* and the *Contractor* should follow the tender requirements stipulated in clause C9 of the standard *additional conditions of contract*. For some target contracts, Project Offices may introduce pre-bid arrangement such that the Subcontractors / suppliers for certain works / items can be firmed up at the tender stage. Depending on the need of the projects, optional or mandatory pre-bid arrangement can be used.

A4.6.1 Optional Pre-bid Arrangement

A4.6.1.1 When Project Offices consider it beneficial, in respect of time and cost certainty, better coordination, etc., to allow flexibility for tenderers to propose their Subcontractor(s) / supplier(s) at the tender stage for certain works / items, Project Offices may include optional pre-bid arrangement in the tender documents for such works / items.

A4.6.1.2 Under the optional pre-bid arrangement, tenderers may elect to propose Subcontractor(s) / supplier(s) at the tender stage but it is not mandatory for the tenderers to make such proposal.

A4.6.1.3 Examples of works / items that warrant the adoption of optional pre-bid arrangement may include:

- Ground investigation and laboratory testing;
- Tree survey;
- Site clearance;
- Procurement of insurance as required by the contract;
- Provision of digitisation of construction site supervision system;
- Provision of site accommodation;
- Provision of temporary traffic arrangement; and
- Laying of pipes by trenchless method.

A4.6.2 Mandatory Pre-bid Arrangement

A4.6.2.1 When Project Offices consider it necessary to request tenderers to propose their Subcontractor(s) / supplier(s) at the tender stage for certain works / items, so as to ensure the security of services / materials supply or continuous engagement of key Subcontractor(s) at the construction stage, Project Offices may include mandatory pre-bid arrangement in the tender documents for such works / items.

A4.6.2.2 Under the mandatory pre-bid arrangement, each tenderer shall propose Subcontractor(s) / supplier(s) to undertake the works / items concerned in their tenders unless they opts to undertake such works / items by himself[4].

[4] Where a tenderer indicates in the tender that the work(s) / item(s) subject to pre-bid arrangement is/are to be undertaken by himself, he shall provide evidence to demonstrate that he meets the qualification / experience requirements as specified in the tender documents.

A4.6.2.3 Examples of works / items that warrant the adoption of mandatory pre-bid arrangement may include:

- Design work of Design & Build contract;
- Design work associated with alternative design, if alternative design is invited in the tender under standard Special Conditions of Tender clause SCT 2;
- Design work associated with tenderer's design, if tenderer's design is invited in the tender under standard Special Conditions of Tender clause SCT 3; and
- Design work for temporary works, if temporary works design is invited in the tender under standard Special Conditions of Tender clause SCT 4.

A4.6.3 Points to Note for Pre-bid Arrangement

A4.6.3.1 Project Offices should critically review the scope of works / items subject to pre-bid arrangement, which shall be clearly defined in the tender documents and covered by specified works / items in the *activity schedule / bill of quantities.* The scope of works / items subject to pre-bid arrangement and the qualification / experience requirements of the Subcontractor(s) / supplier(s) concerned shall be endorsed by an officer at D2 rank or above. As a good practice, Project Offices can conduct market sounding to determine the scope of works / items subject to pre-bid arrangement.

A4.6.3.2 If Project Offices wish to include works / items subject to mandatory pre-bid arrangement other than those mentioned in A4.6.2.3 above in appropriate projects, the endorsing officer as mentioned in A4.6.3.1 above should be satisfied that it is necessary to firm up the Subcontractor(s) / supplier(s) for the works / items concerned at the tender stage.

A4.6.3.3 For projects involving engagement of designers as Subcontractors as mentioned in A4.6.2.3 above, Project Offices shall adopt the mandatory pre-bid arrangement for the design work concerned unless DEVB's prior agreement is obtained.

A4.6.3.4 As a general requirement, the estimated value of all works / items subject to pre-bid arrangement (regardless of optional or mandatory) under a contract should not exceed 40% of the estimated tendered total of the Prices. If Project Offices wish to adopt a higher percentage of works / items subject to pre-bid arrangement, they shall seek prior agreement from DEVB. In this connection, DEVB may consult the Inter-departmental Working Group on NEC Projects or the Steering Committee on NEC Projects.

A4.6.3.5 Project Offices should be careful in setting the qualification / experience requirements of Subcontractor(s) / supplier(s), particularly for works / items subject to mandatory pre-bid arrangement. In general, if the works / items subject to pre-bid arrangement are required to be undertaken by contractors / specialist contractors / suppliers on the List of Approved Contractors for Public Works or the List of Approved Suppliers of Materials and Specialist Contractors for Public Works (Approved Lists), such requirement should be stipulated in clause C3 of the standard *additional conditions of contract.* Where there is no need to engage contractors / specialist / suppliers

on the Approved Lists, Project Offices are free to set the qualification / experience requirements of Subcontractor(s) / supplier(s) that suit the nature of works / items subject to pre-bid arrangement, but such requirements should not be discriminatory and overly restrictive. Project Offices are also reminded to observe the requirements of WTO GPA and avoid imposing requirements that may arouse bid challenges. In case of doubts, Project Offices may consult DEVB and/or LAD(W) for advice.

A4.6.3.6 Pre-tender meetings should be organised to facilitate tenderers' understanding of the submission requirements related to the pre-bid arrangement. Project Offices should also allow sufficient time for tenderers to prepare their tenders.

A4.6.3.7 For works / items subject to pre-bid arrangement, be it undertaken by the Subcontractor(s) / supplier(s) or by the *Contractor* himself in the case of mandatory pre-bid arrangement, the *Contractor* is not allowed to alter its pre-bid proposals made at the tender stage after the commencement of the contract unless they are accepted by the *Project Manager*. In assessing such alterations proposed by the *Contractor*, the *Project Manager* should assess the *Contractor*'s justifications with due regard to the impact of the proposal on the time, cost and quality of the project.

A5 PRACTICE NOTES FOR TENDER STAGE

A5.1 BRIEFING TO POTENTIAL TENDERERS

A5.1.1 Tender briefings have been held in some projects to facilitate tenderers' understanding of the NEC contracts, and points to note when preparing tenders.

A5.1.2 Tender briefings should be organized to facilitate tenderer's understanding of the submission requirements and the key features for the NEC contracts if considered appropriate. At the tender briefings, tenderers' attention should be drawn to:

- How to fill in tender submissions;
- Points to note in the pricing documents (*bills of quantities* or *activity schedule*);
- Tender documentation;
- For target contracts, what the target cost and the fee are to cover;
- Tender evaluation methodology.

A5.2 POINTS TO NOTE FOR TENDER ASSESSMENT

Tender Correction Rules

A5.2.1 For Option A with *activity schedule* for all project types, the tendered total of the Prices stated in the Form of Tender should normally remain unchanged irrespective of any corrections made. If there is a discrepancy between the amount in "words" and in "figures" for the tendered total of the Prices in the Form of Tender, the one that agrees with the figure stated in the Grand Summary of the *activity schedule* should be taken as the tendered total of the Prices. If neither one agrees with the figure stated in the Grand Summary, the amount in "figures" should be taken as the tendered total of the Prices. Where either the amount in "words" or the amount in "figures" is left blank or illegible, the remaining one should be taken as the tendered total of the Prices. If the amount in "words" and the amount in "figures" for the tendered total of the Prices in the Form of Tender are both left blank or illegible, the tender is invalid. Subject to the conditions above-mentioned, the tendered total of the Prices stated in the Form of Tender should take precedence over the tendered total of the Prices stated in the Contract Data Part two and the Grand Summary and the same figure should be correctly reinstated in the latter two documents for any discrepancy. Specific tender correction rules similar to those for conventional lump sum contracts have been developed in the previous projects adopting this main Option.

A5.2.2 For most previous engineering projects adopting Options B, C and D, the tender correction rules followed those adopted for conventional remeasurement contracts. However, the tender correction rules similar to those for conventional lump sum contracts might be preferred for building projects adopting these main Options after reviewing the resources involved in the correction of tender errors by some Project Offices.

A5.2.3 For cases where the *fee percentage* inserted in the tender submission exceeds the pricing limit, the *fee percentage* inserted in the tender submission should be corrected to the pricing limit. Where there is no or illegible *fee percentage* inserted or the *fee percentage* inserted is a negative figure or lower than the *minimum fee percentage* as stated in the General Conditions of Tender / Contract Data Part two, the *fee percentage* would then be corrected as the *minimum fee percentage*. ~~If the Project Offices wish to propose other correction rules, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.~~

A5.2.4 A library of standard correction rules for tender errors for different contract types with reference to Appendix A to the Environment, Transport and Works Bureau Technical Circular (Works) No. 41/2002 and characteristics of NEC contracts in Hong Kong has been developed by DEVB and available in the NEC Knowledge Management Platform in the Works Group Intranet Portal of DEVB. If the Project Offices wish to propose correction rules not in the standard library, they should ~~submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate. The decision and justifications to adopt certain correction rules for a particular contract should be documented and endorsed by a public officer at D2 rank or above.~~seek approval from a public officer at D2 rank or above unless otherwise specified in this Practice Notes and may seek legal advice from LAD(W), DEVB in case of doubt. In cases where the proposed correction rules deviate from the policy promulgated under the aforementioned technical circular, the Project Offices should seek approval from DEVB who may consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Preparation of Tender Report

A5.2.5 In preparation of the tender report, it should be noted that the forecast total of the Prices taking into account the tendered total of the Prices, contingency sums and provisional sums should be used for tender evaluation purpose.

A5.2.6 Referring to the standard tender report format in Appendix III(I) of the Stores and Procurement Regulations, the Project Offices should note the following when preparing the tender report :

"Recommended tendered total of the Prices"	The original field "Recommended tender sum" is renamed as "Recommended tendered total of the Prices".
"Contingencies specified in the tender recommended for acceptance and allowed for the operation of the contract terms"	This is a new field which is equal to the total of the contingency sums and the provisional sums specified in the concerned tender.

"Recommended forecast total of the Prices"	This is a new field which is equal to the total of the recommended tendered total of the Prices, the contingency sums and the provisional sums specified in the concerned tender.

"Sum allowed for this contract in the approved project estimate" :	It should include the "Pre-tender estimate for forecast total of the Prices including estimated contingency sums and provisional sums" plus any other allowances for the contract within the APE as appropriate.
"Pre-tender estimate for tendered total of the Prices"	The original field "Pre-tender estimate" is split into two separate for "tendered total of the Prices" and "forecast total of the Prices" for clarity.
"Pre-tender estimate for forecast total of the Prices"	The original field "Pre-tender estimate" is split into two separate for "tendered total of the Prices" and "forecast total of the Prices" for clarity.

A5.2.7 When conducting tender price assessment, the Project Offices should take the "forecast total of the Prices" as the "tender price" when adopting the Formula Approach and the Marking Scheme Approach promulgated in DEVB TCW No. 4/2014 and 4/2014(A) and assessing the competitiveness ofthe tenders.

A5.2.8 Sample template of Grand Summary of the *activity schedule / bill of quantities* in tender documents and a worked example for deriving the "forecast total of the Prices" for NEC contracts is illustrated below:

Sample Format of Grand Summary in Tender Documents

Page	Description	Amount
…	…	
	Sub-total of above (A)	
	Tendered total of the Prices = (A) **(To be carried to the Form of Tender and the Contract Data Part two subject to the correction rules for tender errors as set out in Clause GCT11 of the General Conditions of Tender)**	
	Contingency sum for Defined Cost for compensation events* (B)	*Insert by project office before tender invitation*
	Contingency sum for Fee for compensation events* (C) = (B) x *fee percentage* inserted by the tenderer in Contract Data Part two	
	Provisional sum for price adjustment for inflation under secondary Option X1* (D)	*Insert by project office before tender invitation*
	Provisional sum for provision of Assistant Clerical Officer (Labour Relations)* (E) (if applicable)	*Insert by project office before tender invitation*
	Provisional sum for performance-tied payment item under Pay for Safety Performance Merit Scheme (PFSPMS) under secondary Option X20* (F) (if applicable)	*Insert by project office before tender invitation*
	Sub-total of all contingency sums and provisional sums above* (G) = (B) + (C) + (D) + (E) + (F)	To be completed by the *Project Manager* designate after receipt of tender
	Forecast total of the Prices **for tender evaluation purpose*** **(H) = (A) + (G)**	To be completed by the *Project Manager* designate after receipt of tender

Remarks:

* All contingency sums and provisional sums are regarded as "contingencies" for the purpose of internal administration of the *Employer / Client* under the Stores and Procurement Regulations only. The forecast total of the Prices is included for tender evaluation purpose only and will not affect the tendered total of the Prices which shall remain contractually binding. All contingency sums, provisional sums and the forecast total of the Prices shall not form part of the contract. The *Contractor* shall not rely on any information supplied to him on the contingency sums, provisional sums or forecast total of the Prices as the estimated changes to the Prices due to the effect of compensation events and other estimated payments under the contract.

Worked Example for deriving the "forecast total of the Prices"

	Description	Value ($M)
Pre-tender estimate for NEC contract (Referring to Diagram 1)		
(a)	Pre-tender estimate for tendered total of the Prices (excluding estimated contingency sums and provisional sums)	100.00
(b)	Estimated provisional sums	12.00
(c)	Estimated contingency sums	15.00
(d)	Pre-tender estimate for forecast total of the Prices (including estimated contingency sums and provisional sums)	127.00
Calculation of forecast total of the Prices		
(e)	Tendered total of the Prices	95.00
(f)	Contingency sum for Defined Cost for compensation events	12.00
(g)	*fee percentage*	20%
(h)	Contingency sum for Fee for compensation events	2.40
(i)	Provisional sums for price adjustment for inflation, performance-tied payment item under Pay for Safety Performance Merit Scheme	11.50
(j)	**Forecast total of the Prices for tender evaluation purpose**	**120.9**

A6 PRACTICE NOTES FOR CONTRACT STAGE

A6.0 BUILDING UP A PARTNERING TEAM

A6.0.1 Under NEC, parties are required to work in mutual trust and collaborative manner. Good partnering spirit of the project team has to be built up gradually during construction through joint efforts in resolving site problems and developing ideas for the project. This is the most difficult yet an essential element for a project to succeed.

A6.0.2 At the commencement of contract, the Project Offices are encouraged to arrange with the *Contractor* a joint partnering workshop for establishing an effective communication channel, and setting up project common objectives. During the workshop, parties may also suggest some cost savings or innovative ideas to achieve the project objectives, making it another suitable occasion for adding value to the project, albeit other value management workshops may have been conducted in planning / design stage as per ETWB TCW No. 35/2002 (now subsumed under Section 1.4.2 of Chapter 1 of PAH).

A6.0.3 In order to monitor and maintain the partnering relationship throughout the course of contract, parties may also set up a "Champion Group", comprising members of management level of the project team, to regularly review the working relationship of their staff, and to propose improvement measures if any problem is identified.

A6.0.4 Good communication is the key to build up trust and teamwork. It is considered a good practice that the project team members consisting of the working level staff from the *Project Manager*, *Supervisor*, *Contractor*, and perhaps the Subcontractors of key subcontract packages, can have frequent discussions on site conditions, works progress, and foreseeable problems. This enhances cooperation among the team and can be a quick way to resolve site problems with all relevant parties sitting together.

A6.0.5 The partnering workshops are normally covered by the services of consultancy agreements (including NEC advisory services). For in-house projects without engaging separate NEC consultants, the Project Offices may charge the cost of partnering workshops shared by the *Employer / Client* to the project vote subject to funding availability. The costs incurred for organising the partnering workshops (e.g. engagement of facilitator, provision of catering service, etc. unless otherwise specified in the contract) should normally be equally shared between the *Employer / Client* and the *Contractor*. The Project Offices should prevent excessive and unjustified payments of expenditures and avoid over-socializing with the staff of the *Contractors* / Subcontractors for partnering activities from corruption prevention viewpoint.

A6.0.6 Pursuant to ACC D15 on "Ethical Commitment", the *Contractor* is required to take action to prevent and stop "Corrupt Act" of its Subcontractor and supplier which it is or should be aware of. The *Contractor* may contact the Corruption Prevention Advisory Service of ICAC for advice on procedural corruption prevention controls. The *Contractor* could report corruption through one of the following means –

- by phone to ICAC hotline : 24 hours a day 2526 6366;
- by letter to The Commissioner, Independent Commission Against Corruption, GPO Box 1000, Hong Kong; or
- in person to the ICAC Report Centre : 24 hours a day at G/F, 303 Java Road, North Point, Hong Kong, or ICAC Regional Offices (Address of the Regional Offices can be found at http://www.icac.org.hk/en/crd/struct/ro).

A6.1 CONTROL OF TIME

A6.1.1 Guidelines for NEC Project Management in Time and Risk

Communications

A6.1.1.1 NEC has a discrete provision (clause 13) that defines the requirements on communication. Key points on the related requirements are given below:

(a) Each communication which the contract requires is communicated in a form which can be read, copied and recorded. Writing is in the *language of the contract*.

(b) In essence, the use of mobile instant messaging ("MIM") can be recognized in NEC contracts if it is so expressly specified in the Scope (clause 13.2). However, as the authenticity and integrity of the communication are crucial for public works projects, the policy intent is not to accept MIM as a valid form of communication under public works contracts. In case Project Offices wish to accept MIM as a valid form of communication, they should seek policy support from DEVB and legal advice from LAD(W), DEVB. In handling daily contract administration and management work, Project Offices and their consultants should be careful in using MIM (e.g. WhatsApp) as a communication means with the *Contractor* so as to avoid the situation that the messages conveyed to the *Contractor* by MIM are taken as formal instructions from the *Employer/Client* or *Project Manager* by conduct. To prevent unnecessary disputes, any important messages (e.g. messages with time and cost implications, acceptance/rejection of works, etc.) conveyed to the *Contractor* by MIM should be followed by formal records in writing.

(c) A communication has effect when it is received.

(d) To ensure timely responses to a communication by the *Project Manager*, the *Supervisor* or the *Contractor,* the parties are required to reply to a communication within the *period for reply* unless otherwise stated in the contract. This requirement will be further addressed in the "Period for Reply" section below.

(e) A notification or certificate which the contract requires is communicated separately from other communications. Under the ECC Guidance Notes[1] / User Guides[7], the intent for separated notification is to avoid overlooking of important information and easy tracking of the communication.

Correspondence

A6.1.1.2 All communications are to be as clear and concise as possible. To avoid loss or confusion regarding written correspondence, all letters, faxes, reports, etc, should be referenced chronologically. They should be dated and addressed for the attention of an identified individual. Sub-titles identifying the subject of the correspondence are to be used as appropriate.

A6.1.1.3 Notification which the contract requires is communicated separately from other communications (NEC clause 13.7). Thus, the project team is encouraged to develop proformas for communication (e.g. instructions and notifications). The project team is reminded to state relevant NEC clauses in the communication, so that the recipient would be able to understand at once the context and authority under the contract for the action to be taken.

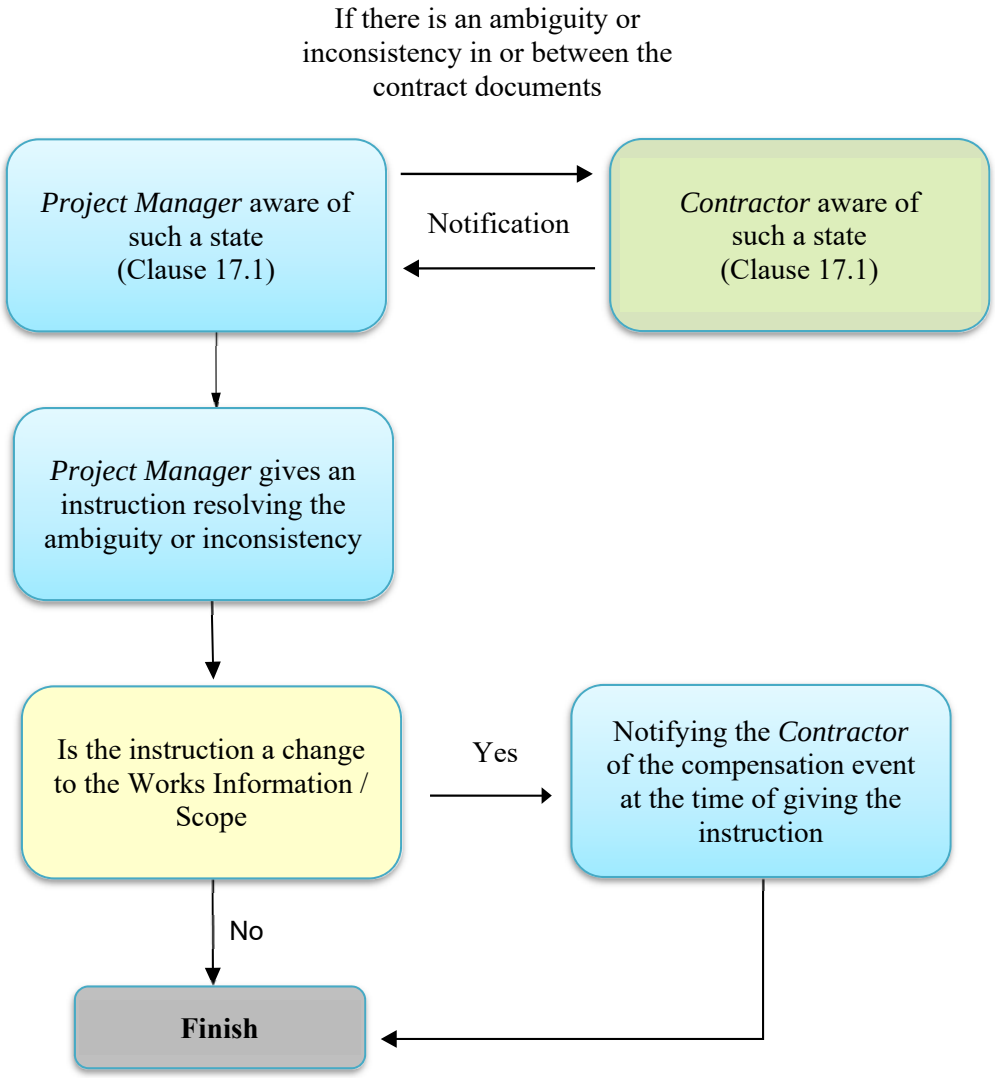
A6.1.1.4 Generally, all project correspondence should be retrievable and should be filed using a comprehensive filing register and be electronically backed up.

Ambiguities and Inconsistencies

A6.1.1.5 There is no stated precedence of documents under NEC. If there are any ambiguities or inconsistencies in or between the contract documents, the *Project Manager* or the *Contractor* should notify the other as soon as possible. The *Project Manager* has the responsibility of resolving the ambiguity or inconsistency in the documents (NEC clause 17.1).

A6.1.1.6 The *Project Manager* may instruct a change to the Works Information / Scope to resolve the ambiguity or inconsistency. Such an instruction is a compensation event provided it is covered by NEC clause 60.1(1).

A6.1.1.7 The process for resolving ambiguities and inconsistencies is summarised below.



Period for Reply

A6.1.1.8 To ensure timely communication, NEC has requirements on the response time from the parties.

A6.1.1.9 Under NEC clause 13.3, if the contract requires the *Project Manager*, the *Supervisor* or the *Contractor* to reply to a communication, he replies within the *period for reply* unless otherwise stated in the contract. Each party shall be aware of the *period for reply* as specified in the Contract Data Part one as such requirement cover types of communication stipulated under NEC clause 13.1, unless there is a specific response time stated in the contract including the amendments made in the Schedule to the Articles of Agreement and the *additional conditions of contract* clauses to suit the specific need of the project.

A6.1.1.10 Under NEC clause 13.4, the *Project Manager* replies to a communication submitted or resubmitted to him by the *Contractor* for acceptance. If his reply is not an acceptance, the *Project Manager* states his reasons and the *Contractor* resubmits the communication within the *period for reply* taking account of these reasons. A reason for withholding acceptance is that more information is needed in order to assess the *Contractor*'s submission fully. The *Project Manager* may withhold acceptance of a submission by the *Contractor*. Withholding acceptance for a reason stated in the contract is not a compensation event (NEC clause 13.8).

A6.1.1.11 The Project Offices should establish an effective communication channel in advance if they foresee the review or acceptance process for certain contract obligations would likely to exceed the response time stipulated in their contracts. Some of the typical examples would be meeting the time requirements under the contract (i) to reply to the *Contractor* on validity of the notified compensation event (NEC clause 61.4) and (ii) to reply to quotations submitted by the *Contractor* (NEC clause 62.3). For (i), the *Project Manager* may need to allow extra time for obtaining the *Employer*'s / *Client*'s confirmation on the validity of the notified compensation event after initial review by the *Project Manager* and / or his delegates. For (ii), the *Project Manager* may need to allow extra time in seeking the view of the *Employer / Client* and / or appropriate ranks of public officers or authority on the assessment of compensation events that have time and / or cost implications, particularly for cost significant compensation events (e.g. for consultant-administered contracts, any variation of the contract or other expenditure commitment exceeding the sum (normally $800,000) as specified in the consultancy brief, or the estimated final Price for Work Done to Date exceeding the recommended forecast total of the Prices specified in the tender report. The Project Offices should set reasonable period of reply for such scenarios in the amendment to NEC ECC for NEC clauses 61.4 and 62.3.

A6.1.1.12 For urgent compensation events which any delay of implementing it would inevitably affect the project time and cost, the Project Offices are reminded to accord priority to it and to alert the senior management the time frame requirements under NEC when seeking views / obtaining approvals of such compensation events.

A6.1.1.13 Where necessary, the *Project Manager* may extend the *period for reply* to a communication if the *Project Manager* and the *Contractor* agree to the extension before the reply is due. The *Project Manager* shall notify the *Contractor* of the extension which has been agreed (NEC clause 13.5). The parties should also be aware of the provision on extension of time allowed for responses in individual sections, such as reply to quotations submitted by the *Contractor* under NEC clause 62.5.

Early Warning

A6.1.1.14 Early warning mechanism is one of the key procedures in the NEC to stimulate good project management. It encourages both the *Project Manager* and the *Contractor* to raise any event which may cause an impact to the project to the other party as soon as it is noticed. The successful implementation of the early warning mechanism hinges on the trusting relationship, and openness developed within the project team, which drive the parties to achieve their common project goals. If followed properly, the early warning mechanism gives an early opportunity for all parties to devise mitigation measures jointly and to select the best option.

A6.1.1.15 When risks are identified, either party shall alert another by giving an early warning. The processes begin and instead of fault-finding, the parties shall focus on resolving the risk, and take appropriate follow-up actions after risk reduction / early warning meeting. The question as to the responsibility or owner of the risk, which should be adequately set out in the contract, should not be the focus of discussion during the meeting. The contract mechanisms have been designed to ensure that:

(i) The project team actively takes forward rigorous risk management, and
(ii) The parties are financially motivated to manage risks successfully.

The general procedure of risk management under NEC is set out below.

Start-up of Risk Management Procedure

A6.1.1.16 Before executing the contract, both Contract Data Part one and Part two have to be completed by the *Employer / Client* and *Contractor* respectively. A section within both Contract Data Part one and Part two require a list of matters to be identified, that will be included in the Risk Register / Early Warning Register.

A6.1.1.17 The matters will be collated by the *Project Manager*, who will in turn transfer these onto the Risk Register / Early Warning Register. It is from this initial Risk Register / first Early Warning Register that all parties should proactively seek to manage and update should issues arise throughout the duration of the project.

Early Warning Notice

A6.1.1.18 Under NEC3 clause 16.1 / NEC4 clause 15.1, either the *Contractor* or the *Project Manager* may give an early warning notice as soon as either becomes aware of any of the following:

(i) An increase of the total of the Prices,
(ii) A delay to Completion,
(iii) A delay in meeting a Key Date or
(iv) An issue that might impair the performance of the *works* in use.

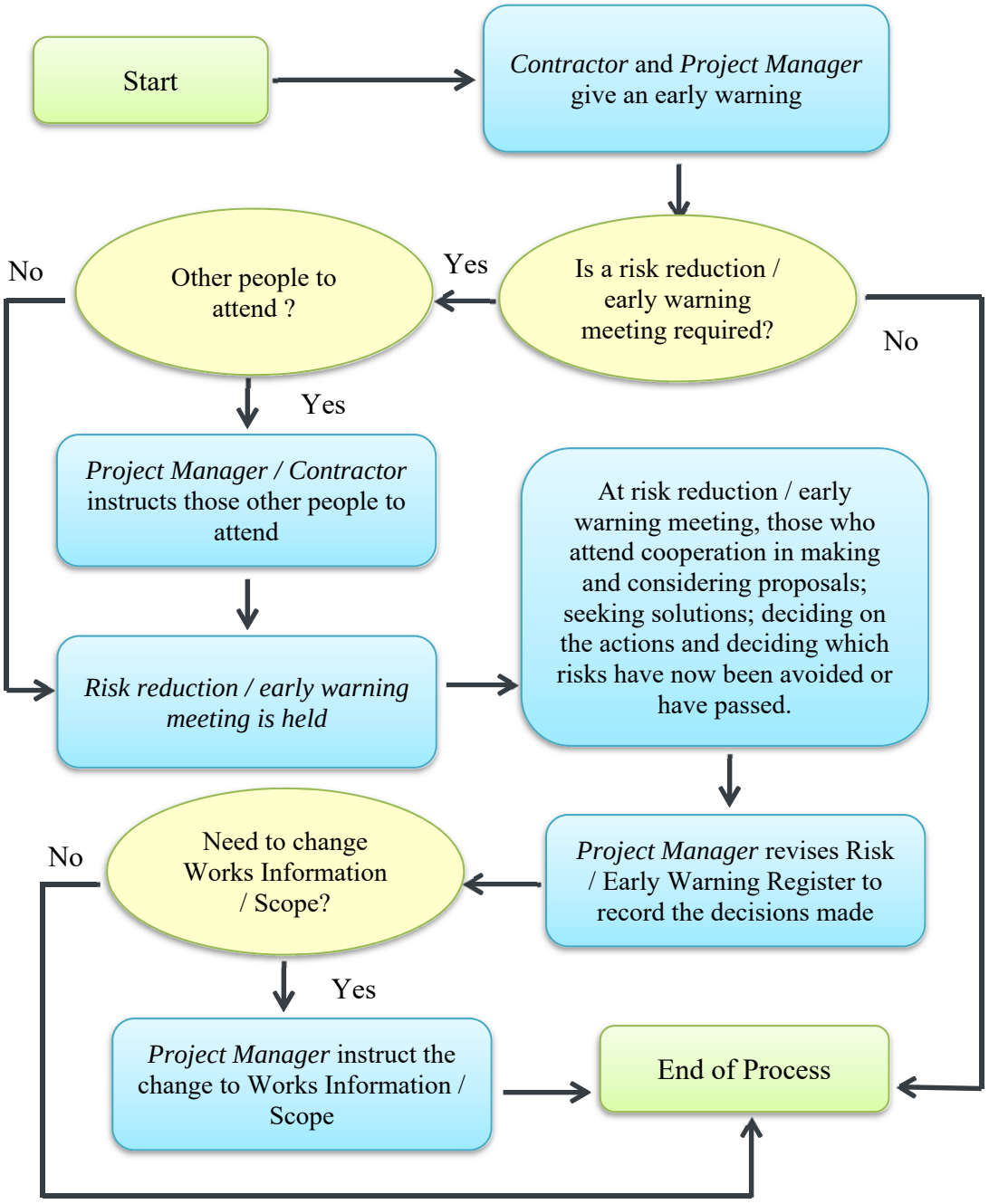
The *Contractor* may also give an early warning on any other matter which could increase his total cost.

A6.1.1.19 The purpose of the early warning is to maximize the time available for both the *Contractor* and the *Project Manager* to consider the implication of the matter and to take necessary actions to mitigate any potential consequences.

A6.1.1.20 It is important to note that an early warning notice is a contractual requirement. In accordance with the ECC Guidance Notes[1]/ User Guides[7], early warnings may allow actions to be taken to reduce costs and save time. Should the *Contractor* fail to comply with this requirement, the *Project Manager* should notify the *Contractor* his decision that the early warning should have been given (NEC clause 61.5) so that the *Contractor* knows the correct basis for his assessment including the sanction imposed for his failure to give early warning under NEC3 clause 63.5 / NEC4 clause 63.7. For Options C and D, the *Project Manager* may, at his discretion, disallow the cost which the *Project Manager* decides it was incurred because the *Contractor* did not give an early warning which the contract required him to give (NEC3 clause 11.2(25) / NEC4 clause 11.2(26)).

A6.1.1.21 Under any compensation event, if the *Project Manager* decides that the *Contractor* failed in giving an early warning that he could have given, the *Project Manager* informs the *Contractor* of his decision when he instructs the *Contractor* to submit quotations (NEC clause 61.5). The *Project Manager* will assess the compensation event as if the *Contractor* had given early warning (NEC3 clause 63.5 / NEC4 clause 63.7). This is to ensure that the *Contractor*'s failure in not notifying an early warning matter does not prejudice the *Project Manager* in his management of the project.

A6.1.1.22 After receipt of an early warning notice, the *Project Manager* may respond according to the process map shown as below:



Risk Reduction Meeting / Early Warning Meeting

A6.1.1.23 NEC3 clause 16.2 / NEC4 clause 15.2 states either the *Project Manager* or the *Contractor* may instruct the other to attend risk reduction meeting / early warning meeting (except the first early warning meeting). Each may instruct other people to attend if the other agrees.

A6.1.1.24 Depending on the potential consequence of the risks, the risk reduction meeting / early warning meeting will be chaired by the *Project Manager* or his delegates and the attendees will include the *Contractor*'s representatives and other people, who may be able to assist in solving the problem, agreed by both parties.

A6.1.1.25 If a decision needs a change to the Works Information / Scope, the *Project Manager* instructs the change at the same time as he issues the revised Risk Register / Early Warning Register (NEC3 clause 16.4 / NEC4 clause 15.4). If an early warning notice is considered to be a compensation event, the *Project Manager* will notify the *Contractor* of a compensation event and instruct the *Contractor* to submit a quotation, unless the event arises from a fault of the *Contractor* or the quotation has already been submitted (NEC clause 61.1).

Risk Register / Early Warning Register

A6.1.1.26 NEC3 clause 16.4 / NEC4 clause 15.4 states that the *Project Manager* revises the Risk Register / Early Warning Register to record the decisions made at each risk reduction meeting / early warning meeting and issues the revised Risk Register / Early Warning Register to the *Contractor*. The Risk Register / Early Warning Register is both a specified component of the NEC contractual framework and an output of risk management process.

A6.1.1.27 The Risk Register / Early Warning Register typically summarises the following key matters in tabular form:

(i) Identified risks;

(ii) Mitigating measure(s); and

(iii) Action party.

A6.1.1.28 The Risk Register / Early Warning Register is a "live" working document, used as a tool to manage the project pro-actively with a view to minimising the impact of risks on the project objectives. It is intended to be updated continually throughout the life of the project. This updating includes both the inclusion of new risk items and the review of previously identified risks. Risk items shall be reviewed periodically and in every risk reduction meeting / early warning meeting, and they should be marked as "closed" if they have been removed or resolved or marked as "open" if agreed actions are being carried out. New risk items are added to the Risk Register / Early Warning Register by the *Project Manager* when the *Project Manager* or the *Contractor* give early warning of a potential risk event in accordance with NEC3 clause 16.1 / NEC4 clause 15.1 each time.

A6.1.1.29 The Risk Register / Early Warning Register is an important tool for all the members of the project team as it affords all relevant parties an opportunity to make informed decisions on the project and make appropriate decisions on events which may have time and / or cost implications.

A6.1.1.30 To ensure the effective use of the Risk Register / Early Warning Register, it should be regularly reviewed and updated through the participation of all parties.

A6.1.1.31 The following illustrates a sample format of an NEC risk register:

Item No.	Date of Receipt	Issued by	Date of Risk Reduction Meeting(s)	Potential Problem(s) and the Risk(s)	Action to be taken to avoid/reduce the risk(s)	Action taken	Action by	Status (Open / Closed)

Proactive Risk Management

A6.1.1.32 NEC encourages early identification of problem and resolution of it in a collaborative manner. Therefore, the Project Offices should take a proactive approach in working with the contractors when risks are identified. Below sets out some recommended practices for proactive risk management :

- The parties should embrace the spirit of mutual trust and co-operation in dealing with early warnings. As long as the matter falls under the four bullet points described in NEC3 clause 16.1 / NEC4 clause 15.1, the *Contractor* and the *Project Manager* should deal with the early warning in a collaborative manner;
- In addition to being called following notification of early warning in respect of any newly identified risks, risk reduction meeting / early warning meeting should be held on a regular basis (frequency to be adjusted to suit the specific project situations) to check whether risks can be closed or re-rated, and to review the status of mitigation measures or risk treatment action plans. During such meetings, subcontractors and other stakeholders, such as utility undertakers, can also be invited to join, as the parties may capitalise on subcontractors' expertise in tackling site problems identified and minimizing the impact of the risks;
- The parties should bear in mind that during risk reduction meeting / early warning meeting, they should focus on discussing viable solutions to avoid/reduce the risk, and to assign suitable party to carry out follow-up actions as required. To ensure good monitoring and timely completion of these follow-up actions, the parties should agree in the meeting a tentative action completion date;
- If the early warning leads to a change to the Works Information / Scope, the *Project Manager* should notify the *Contractor* of a compensation event if covered by NEC clause 60.1(1) and instruct the *Contractor* to submit a quotation, unless the event arises from a fault of the *Contractor* or the quotation has already been

submitted; and

- The parties should maintain a clear line of communications, and establish a highly efficient communication channels, such as the use of common mobile communication applications, so that risks or problems can be communicated in an effective way and solved as early as possible.

A6.1.2 Programme

Information to be included in the programme

A6.1.2.1 NEC makes programme a significant document in the contract that imposes contractual obligations upon the parties to follow. The *Contractor* needs to include information on the programme as required under NEC clause 31.2.

A6.1.2.2. The *Contractor* should provide sufficient information to allow the *Project Manager* to make a decision whether to accept the programme. The *Project Manager* should exercise his own discretion in vetting the *Contractor*'s programme thoroughly and in a pragmatic manner.

A6.1.2.3 Notwithstanding the above, it is recommended that discussion between the *Project Manager* and the *Contractor* should be facilitated before submission of programme by the *Contractor*. As a result, the parties will be aware of the key elements to be included in the submitted programme and will work collaboratively in the programme submission and acceptance processes.

Programme Submission and Acceptance

A6.1.2.4 The Accepted Programme is either (i) the programme identified in the Contract Data Part two or (ii) the latest programme accepted by the *Project Manager* (NEC clause 11.2(1)).

A6.1.2.5 When Marking Scheme Approach is adopted for tender assessment, it may be useful to require the tenderers to submit a programme / sequence of works for tender assessment. However, it should be noted that such programme should normally not be regarded as the Accepted Programme under NEC clause 11.2(1). The *Contractor* is obliged under NEC clause 31.1 to submit a first programme to the *Project Manager* for acceptance. The programme submitted under tender may be made reference to when the *Contractor* prepares the first programme.

A6.1.2.6 The *Contractor* should within the period required under the Contract Data Part one submit a first programme for acceptance and the *Project Manager* should either accept the programme or notify the *Contractor* of his reasons for not accepting it (NEC clause 31.3). The *Project Manager* should note that a non-acceptance of the programme for reasons other than those listed in NEC clause 31.3 is a compensation event under NEC clause 60.1(9).

A6.1.2.7 If no programme is submitted, one quarter (25%) of the Price for Work Done to Date is retained in assessments of the amount due until the *Contractor* has submitted a first programme to the *Project Manager* for acceptance (NEC3 clause 50.3 / NEC4 clause 50.5). This clause is only applicable to the first programme. Great care must be exercised in accepting a programme which fall short of the information required and the *Project Manager* should ensure that he is satisfied with all relevant aspects of the programme before accepting a programme.

A6.1.2.8 If the programme does not satisfy the requirements under the contract, the *Project Manager* should refuse to accept the programme for reasons stated in NEC clause 31.3. The information required to be shown on each programme is extensive, comprehensive and generally acknowledged to be onerous. It is very common to note the following pitfalls regarding the process of submission and vetting of a programme:

1. The *Contractor*'s submitted programme is not up to the requirements in the contract; and
2. The time allowed for the *Project Manager* to assess the programme may not be adequate for him to make the decision, even if the submitted programme satisfies NEC clause 31.2.

A6.1.2.9 If, after several rounds of correspondence, the programme is still considered to be substandard, this would become an issue to project management as an Accepted Programme is not in place. To deal with this, the *Project Manager* may:

- Arrange joint meeting or workshop among the key staff who prepare and assess the programme. In the meeting or workshop, the key requirements in the programme should be highlighted, and the logic or sequencing of the programme should be elaborated to enhance understanding by the other party. The definitions of terms namely "float" and "time risk allowances" and their provisions in the programme should also be elaborated to ensure mutual understanding of their importance.
- Carry out the assessment of the programme with due consideration to the stages of the *works*. In large projects spanning across a considerable period of time, or complicated projects which design input from the *Contractor* may be required, it may not be practical for the *Contractor* to schedule a detailed plan and submit his "statements of how he plans to do the work" for all activities, especially those in the later stage which the subcontracting package or the design is yet to be prepared. In this case, the *Project Manager* or his delegates may take a pragmatic approach in assessing the programme. The *Project Manager* may request for a sub-programme showing detailed planning and programming of activities for a period, say, for coming three months to a year, and with other later activities shown with a minimum required level of details. If such sub-programme is considered practicable and realistic, the *Project Manager* may accept this sub-programme with condition(s) for separate submission and acceptance of detailed planning and programming of later activities and the full programme may be accepted first and taken as an Accepted Programme if no major observation is identified.

- Identify certain key changes in an updated programme. For instance, if the programme is updated for compensation events having time impact only, information relevant to time aspects (i.e. planned Completion, float, time risk allowances, etc.) as required under NEC clause 31.2 would become essential changes to the programme. If there is a new compensation event having both time and cost impact, in addition to information on time listed under NEC clause 31.2, the programme has to cover more detail on how the *Contractor* plans to do the work that includes resources planned to be used.

A6.1.2.10 It should be noted that acceptance of a programme does not mean an acceptance of the quotation of a compensation event. For non-implemented compensation events, the *Contractor* should also show any effect due to these events in the programme. The *Contractor* may revise the planned Completion due to such non-implemented compensation events, and the *Project Manager* assesses whether the *Contractor*'s programme is realistic or practicable. Acceptance by the *Project Manager* of the programme is not construed as the acceptance of the change to the Completion Date and / or the Key Date(s), which can only be changed after implementation of the said compensation events.

A6.1.2.11 It should also be noted that, without an Accepted Programme, the *Project Manager* will assess a compensation event by his own assessment as per NEC clause 64.2.

A6.1.2.12 If the *Project Manager* chooses not to accept the programme for reasons not listed under NEC clause 31.3, or if he does not reply within the stipulated time frame, then that would become a compensation event under NEC clause 60.1(9) or 60.1(6).

Programme Register

A6.1.2.13 As a good practice, it is recommended to develop a programme register for the project to record all programmes submitted by the *Contractor* during the course of the contract, the changes to Planned Completion and the Completion Date, and the approval status. It is primarily used for recording purposes and does not represent any formal acceptance or rejection of the programme.

Acceleration

A6.1.2.14 The *Project Manager* may instruct the *Contractor* to submit a quotation for an acceleration to achieve Completion before the Completion Date (NEC3 clause 36.1). This is a mechanism under the contract that will bring the Completion Date forward. Under NEC4 clause 36.1, both the *Project Manager* and the *Contractor* may propose to the other an acceleration.

A6.1.2.15 The *Contractor* should submit the quotation or give his reasons for not doing so within the *period for reply* (NEC3 clause 36.2). Under NEC4 clause 36.1, the *Project Manager* should notify the *Contractor* on whether the quotation is accepted or not within three weeks.

A6.1.2.16 There is no remedy if the *Contractor* does not produce such quotation or if the *Contractor*'s quotation is unacceptable. Acceleration cannot be imposed on the *Contractor* without his agreement or consent. Unlike compensation event, the *Project Manager* cannot ask the *Contractor* to submit a revised quotation or make his own assessment of the *Contractor*'s acceleration quotation.

A6.1.2.17 If the *Project Manager* wishes to bring a delayed Completion Date (due to compensation events) forward, the *Project Manager* should request the *Contractor* to submit quotation for compensation event and acceleration separately and assess the quotations in two-stages:

(i) Assess the *Contractor*'s compensation event quotation based on the reasonable additional resources and time to complete the work under the compensation event. The *Contractor* is obliged to mitigate the effect of a compensation event, e.g. to reschedule work at no cost or inefficiency to himself to optimise planned Completion, but not to accelerate. The *Project Manager* should make his own assessment for compensation event quotation as per NEC clause 64.

(ii) Assess the *Contractor*'s acceleration quotation. The *Project Manager* could only accept or reject the *Contractor*'s quotation for acceleration. If the quotation is accepted, the Prices, the Completion Date and the Key Dates will be changed accordingly as per NEC clause 36.3.

A6.2 CONTROL OF COST

A6.2.0 NEC promotes effective project management, and one of the key aspects is on project cost. Common problems in administering the project cost, including payment to the *Contractor*, assessment of payment for target contracts, management of the Price of Work Done to Date and the total of the Prices throughout the contract stage, would be discussed in the following sections.

A6.2.1 Payment to the *Contractor*

Options A and B

A6.2.1.1 Under the regime of Option A, the payment made to the *Contractor* is based on the lump sum prices for each of the activities on the Activity Schedule which is the *activity schedule* priced by the *Contractor* unless later changed in accordance with the contract [NEC3 clause 11.2(20) and (30) / NEC4 clause 11.2(21) and (32)]. The payment under Option A is similar to milestone payment for each of the activities on the Activity Schedule. The Prices can be changed in accordance with the contract (e.g. compensation events and Option X1 - Price adjustment for inflation).

A6.2.1.2 Option B is a re-measurement contact. The payment made to the *Contractor* is based on the items in the Bill of Quantities which is the *bill of quantities* priced by the *Contractor* as changed in accordance with the contract to accommodate implemented compensation events and for accepted quotations for acceleration [NEC3 clause 11.2(21) / NEC4 clause 11.2(22)]. The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities [NEC3 clause 11.2(31) / NEC4 clause 11.2(33)].

A6.2.1.3 In accordance with NEC3 clause 50.2 / NEC4 clause 50.3, the amount due is:

- the Price for Work Done to Date,
- plus other amounts to be paid to the *Contractor*,
- less amounts to be paid by or retained from the *Contractor*.

A6.2.1.4 For Option A, as defined in NEC3 clause 11.2(27) / NEC4 clause 11.2(29), the Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activities which is not in a group.

A6.2.1.5 Payment will only be made if the activity is completed. Unless there is an individually itemised activity in the Activity Schedule, part payment for an activity would not be made under this main Option, except for materials on site when optional clause 50.2A in the Library of Standard Amendments to NEC4 ECC is adopted. For the avoidance of doubt, payment for materials on site is also allowed if provisions similar to the aforementioned optional clause 50.2A is adopted in NEC3 ECC. In case of part payment for materials on site, the *Project Manager* shall document the assessment of apportionment of the work with justification.

A6.2.1.6 For Option B, as defined in NEC3 clause 11.2(28) / NEC4 clause 11.2(30), the Price for Work Done to Date is the total of

- the quantity of the work which the *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and

- a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed.

A6.2.1.7 Similar to item A6.2.1.5, save for lump sum priced item in the Bill of Quantities, part payment for an item of work would not be made under this main Option, except for materials on site when optional clause 50.2A in the Library of Standard Amendments to NEC4 ECC is adopted.

Options C and D

A6.2.1.8 Option C is a target contract and the *Contractor* is paid based on a cost reimbursable approach with a pain / gain share mechanism. The manner in which the pain / gain share will be split is outlined in the Contract Data Part one.

A6.2.1.9 The Activity Schedule is used to establish the total of the Prices (i.e. target cost) but is not used for payment. The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with the contract (e.g. the compensation events and Option X1 - Price adjustment for inflation). Payment is based on Defined Cost plus Fee.

A6.2.1.10 Similar to Option C, Option D is also a target contract and the *Contractor* is paid based on a cost reimbursable approach with a pain / gain share mechanism. However, instead of using an Activity Schedule, the Total of the Prices (i.e. target cost) is established based on the Bill of Quantities. The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities. Payment is based on Defined Cost plus Fee. At completion of the contract, the quantities of the work should be remeasured to obtain the final Total of the Prices (i.e. final target cost) for final assessment of the *Contractor*'s share.

A6.2.1.11 The fact that the *Contractor* shares in both the pain and the gain of any movement of the target cost is purported to encourage effective management control of the final Price for Work Done to Date relative to the final target cost. The project team shall endeavour to control the Defined Cost in order to maximise the gain share.

A6.2.1.12 In accordance with NEC3 clause 50.2 / NEC4 clause 50.3 as amended by the Library of Standard Amendments to NEC ECC, the amount due is:

- the Price for Work Done to Date;
- plus other amounts to be paid to the *Contractor*;
- less amounts to be paid by or retained or deducted from the *Contractor*; and
- less the *Project Manager*'s interim assessment of the *Contractor*'s share.

A6.2.1.13 In assessing the amount due, the *Project Manager* should follow the requirement under NEC3 clause 50.4 / NEC4 clause 50.2. If the *Project Manager* disallows part of the applied costs, he should provide explanation on why and on what basis [quoted reasons for Disallowed Cost under NEC3 clause 11.2(25) / NEC4 clause 11.2(26)] such costs are disallowed. Examples which might lead to Disallowed Cost in some projects are listed as follows:

- No supporting payment records
- Duplicate or overlapping invoices
- Incorrect cost data
- Maintenance / modification cost of the *Contractor*'s owned Equipment
- Equipment, Plant and Materials not used to Provide the Works (after allowing reasonable availability and utilisation for Equipment and reasonable wastage for Plant and Materials)
- Loss of damage of Equipment
- Repair cost to third party property solely due to the *Contractor*'s default

A6.2.1.14 The *Contractor* should provide further substantiation for any Disallowed Cost in the next payment application for consideration by the *Project Manager* should he disagree with it.

A6.2.1.15 In relation to the last bullet point at Section A6.2.1.12 above, the purpose of the interim assessment of the *Contractor*'s share is to avoid overpayment by specifying the *Project Manager*'s right to deduct the *Contractor*'s pain share assessed during the contract period.

A6.2.1.16 For Options C and D, the Price for Work Done to Date is the total Defined Cost which the *Project Manager* forecast will have been paid by the *Contractor* before the next assessment date plus the Fee [NEC3 clause 11.2(29) / NEC4 clause 11.2(31)]. In the previous projects, this has been amended to "the *Project Manager* assesses the *Contractor* has paid at each assessment date plus the Fee", thus the *Contractor* only gets paid when he has demonstrated that he paid the amount. This may put the contractors to the state of "negative cash flow". In view of the above and making reference to the "estimated work done" approach in assessing interim payment under conventional contracts, the definition of "Price for Work Done to Date" is modified such that the assessment is based on the actual payment by the *Contractor* made at each assessment date, plus an estimated amount due to the *Contractor* for the cost of components in the Schedule of Cost Components which will have been paid by the *Contractor* up to one week after the next assessment date. Please refer to the Library of Standard Amendments to NEC4 ECC. For the avoidance of doubt, the "estimated work done" approach can also be adopted in NEC3 ECC if provisions similar to the "estimated work done" approach aforementioned is incorporated in the contract. If the Project Offices wish to further amend the payment terms in the standard library, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter- departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A6.2.1.17 The Defined Cost under both Options C and D is generally considered to be the substantiated cost paid and the estimated amount as mentioned in Section A6.2.1.16 above by the *Contractor* for the work which includes:

- the cost itemized in clause 11.2(23) (NEC3)
- the cost components in the Schedule of Cost Components (NEC4)
- less Disallowed Cost.

A6.2.1.18 Disallowed Cost in the context of the NEC contracts is generally applicable when the *Project Manager* decides the cost is not justified in accordance with the conditions listed under NEC3 clause 11.2(25) / NEC4 clause 11.2(26).

A6.2.1.19 Disallowed Cost is not meant to be used as a restrictive measure on the *Contractor* but as a method to encourage the *Contractor* to operate the contract and carry out the *works* in a pro-active manner.

Payment Application

A6.2.1.20 In assessing the amount due, the *Project Manager* considers any application for payment the *Contractor* has submitted on or before the assessment date pursuant to NEC3 clause 50.4 / NEC4 clause 50.2 as amended by the Library of Standard Amendments to NEC ECC.

A6.2.1.21 For Options C and D, apart from the payment application statement showing the breakdown of the payment applied, the *Contractor* is required to attach supporting documents (e.g. payroll, subcontract payment receipts, material delivery notes, invoices for cost components in the Schedule of Cost Components to be paid before the next assessment date, evidence that relevant cost components paid between the last and current assessment dates, etc.) to the payment application statement. In terms of the *Contractor*'s payment submission requirements, please refer to Section A6.2.2 for details**.**

A6.2.1.22 In addition, the *Contractor* shall certify that all submitted photocopies of invoices, receipts and the like are true and correct copies of the originals.

Assessment and Certification of Payment

A6.2.1.23 The first assessment date is determined by the *Project Manager* (NEC clause 50.1), preferably after discussion with the *Contractor*. As amended by the Library of Standard Amendments to NEC ECC, the *Contractor* is required to submit to the *Project Manager* a draft statement (NEC3) / payment application (NEC4) 14 days before each assessment date. Under NEC clause 51.1, the *Project Manager* certifies payment within two weeks of each assessment date (as amended by the Library of Standard Amendments to NEC ECC) and the assessment of payment takes place at each assessment date. Then each certified payment should be made within three weeks of the assessment date in accordance with NEC clause 51.2. Based on the experience on projects using NEC, the timeframe for certification of payment would be tight for the *Project Manager*. The *Project Manager* should allow sufficient time and resources to fulfil such contract requirement.

A6.2.1.24 In accordance with the prevailing guidelines (e.g. Section 7.2 of Chapter 7 of the PAH), the payment to the *Contractor* has to be effected by the *Project Manager* within 25 calendar days from the date of receipt of interim payment application. The 25-day rule should be counted from the assessment date for NEC contracts.

A6.2.1.25 As stated in Section A6.2.1.23 above, the *Contractor* should submit the payment application 14 days ahead of the assessment date. Further submission by the *Contractor* beyond the assessment date may not be considered by the *Project Manager* according to NEC clause 50.4.

A6.2.1.26 The payment application by the *Contractor* shall comprise the following:

- Actual costs incurred by the *Contractor* up to each assessment date; and
- Estimated costs to be incurred by the *Contractor* up to one week after the next assessment date after the *Contactor* submitted their payment application (for those contracts adopting "estimated work done" approach in the Library of Standard Amendment to NEC4 ECC)

A6.2.1.27 For actual costs incurred by the *Contractor* (first bullet point above), the *Contractor* needs to provide supporting documents (i.e. receipts) to show actual spending on claimed items. For estimated costs to be incurred by the *Contractor* (second bullet point above), the *Contractor* needs to provide supporting documents (i.e. invoices) that demonstrates the costs are to be incurred up to one week after the next assessment date (the date when payment is to be made as stated in the contract or the Accepted Programme). For further details on invoices, please read this in conjunction with Section A6.2.2.33.

A6.2.1.28 For Options C and D, to mitigate the risk of late certification by the *Project Manager*, the *Project Manager* and the *Contractor* shall work in a collaborative way in undertaking the assessment.

A6.2.1.29 The day(s) or week(s) under the context of NEC are referred to as calendar day(s) or week(s) which include weekends and public holidays.

Late Payment and Corrected Payment

A6.2.1.30 Interest will be paid to the *Contractor* if there is late payment (NEC clause 51.2).

A6.2.1.31 Under NEC clause 51.4, interest is basically calculated on a daily basis at the *interest rate* and is compounded annually. Amendments have been made in the Library of Standard Amendments to NEC ECC in relation to how interest should be calculated. As such, interest should be calculated at a simple interest rate according to the current practice.

A6.2.1.32 As amended by the Library of Standard Amendments to NEC ECC, the first bullet point of NEC clause 51.3 should be deleted so that interest will not be paid for any corrected amount in a later certificate due to compensation events or other reasons.

Price Adjustment for Inflation

A6.2.1.33 Under NEC, contract price fluctuation is a secondary Option X1 – Price adjustment for inflation that gives the flexibility to the *Employer / Client* whether to allocate the risk of inflation to the *Contractor*.

A6.2.1.34 As in GCC form, the operation of contract price fluctuation should be referred to ETWB TCW No. 21/2003. For Options A, B, C and D, "Index Numbers of the Costs of Labour and Materials used in Public Sector Construction Projects (April 2003 = 100)" and "Average Daily Wages of Workers Engaged in Public Sector Construction Projects as Reported by Main Contractor" compiled by the Census and Statistics Department should be used for calculating the fluctuation. (Project Offices should refer to DEVB TCW No. 4/2021 for adoption of 2021-based Index Numbers).

Options A and B

A6.2.1.35 The amount for price adjustment is calculated in accordance with NEC3 clause X1.4 / NEC4 clause X1.3, and it covers the total amount in respect of price adjustment up to the date of each assessment.

Options C and D

A6.2.1.36 The principles in NEC3 clause X1.5 / NEC4 clause X1.4 for Options C and D are outlined below.

A6.2.1.37 Each time the amount due is assessed, an amount for price adjustment is added to the total of the Prices which is the sum of

- the change in the Price for Work Done to Date since the last assessment of the amount due multiplied by (PAF / 1+PAF) where PAF is the Price Adjustment Factor for the date of the current assessment and

- correcting amounts, not included elsewhere, which arise from changes to indices used for assessing previous amounts for price adjustment.

A6.2.1.38 The price adjustment for inflation in target contracts is taken into account in the target cost which is the total of the Prices for Option C or the Total of the Prices for Option D.

A6.2.1.39 It should be noted that under NEC3 clause X1.3 / NEC4 clause X1.5, for compensation events, except for agreed rates in the Contract Data, the "current" Defined Cost including actual and forecast Defined Cost (NEC clause 63.1) assessed for the compensation events will be adjusted to base date level by dividing by one plus the Price Adjustment Factor for the last assessment of the amount due. For Options A and B, the amount due to compensation events will be all on base date level and will then be adjusted under NEC3 clause X1.4 / NEC4 clause X1.3. Meanwhile, for compensation events under Options C and D, the target cost will be adjusted for price adjustment for inflation under NEC3 clause X1.5 / NEC4 clause X1.4.

Payment Arrangement for Pre-Priced or Provisional Items

Options A and B

A6.2.1.40 Under Options A and B, the payment arrangement for pre-priced or provisional items (such as safety, environmental management, site cleanliness, payment in relation to Assistant Clerical Officer (Labour Relations), etc.) is similar to the conventional contracts and will be paid in accordance with the pre-priced rates or stipulated mechanisms in the relevant schedule(s) in the Activity Schedule or bill(s) in the Bill of Quantities containing such items.

A6.2.1.41 Due to the fact that the payment for such items may deviate from the general principles of Option A (i.e. payment based on completed activities) or Option B (i.e. payment based on completed work), a preamble for such items needs to be prepared and incorporated into the contract to elaborate the breaking down of such items and associated payment mechanism.

Options C and D

A6.2.1.42 Unlike Options A and B, for Options C and D, payment arrangement for pre-priced items such as safety, environmental management, site cleanliness, etc. are generally paid on a reimbursable basis.

A6.2.1.43 Not Used.

A6.2.1.44 Although the payment is based on actual spending, corresponding section(s) within the pricing document (i.e. Activity Schedule or Bill or Quantities) still need to be set up so as to allow for pricing of these items in the target cost.

Shorter/Short Schedule of Cost Components

A6.2.1.45 The Shorter/Short Schedule of Cost Components is a simpler form of the Schedule of Cost Components. Although payments are generally based on the Activity Schedule and Bill of Quantities respectively, Options A and B may use the Shorter/Short Schedule of Cost Components for assessment of compensation events.

A6.2.1.46 Under Options A and B, if the Defined Cost plus the resulting Fee approach is adopted for assessment of compensation events, the Defined Cost refers to the cost of the components in the Shorter/Short Schedule of Cost Components under NEC3 clause 11.2(22) / NEC4 clause 11.2(23). It articulates regardless of amounts for the *Contractor* or Subcontractors, assessment for compensation events need to follow the Shorter/Short Schedule under these two main Options.

A6.2.1.47 In NEC3, the Shorter Schedule of Cost Components can be used for assessment of compensation events for Options C and D if the *Project Manager* and *Contractor* agree, though it is usually deleted in the projects adopting Option C or D.

Cost Control and Corruption Prevention on Subcontracts for Target Contracts

A6.2.1.48 Under NEC clause 52.1, it lays down the principle that the Defined Cost includes only amounts calculated using rates and percentages stated in the Contract Data and other amounts "at open market or competitively tendered prices" with deductions for all discounts, rebates and taxes which can be recovered. There may be concern as to whether the subcontract prices will be inflated intentionally by the *Contractor*. To address this concern, the *Project Manager* should check whether the tender prices and rates of the subcontracts and supply contracts submitted by the proposed Subcontractors and suppliers are competitively tendered or open market prices or rates, without activities or items which are substantially over or under-priced, or erratically priced, before acceptance of the proposed Subcontractors or suppliers.

A6.2.1.49 The tender price for the main contract (i.e. target cost) is obtained through a competitive process. The *Employer / Client* and the *Contractor* share the financial risk under a pain / gain share mechanism. Such mechanism incentivizes the parties to strive for cost savings, such that the gain share can be maximised or the pain share can be minimised. It thus drives the *Contractor* to procure subcontracts at competitive prices, and not to inflate the subcontract prices, in which case the *Contractor* may likely face a higher chance of pain share.

A6.2.1.50 At contract completion, while it may in general be seen as a success if gain share is achieved, a project with pain share should not be necessarily regarded as a failure, provided that both the *Employer / Client* and the *Contractor* have acted in accordance with the contract. In any case, the Government's interest will not be put in an unfavourable position due to the following reasons:

- The pain *share range* is capped at 110% of the final target cost and the final total payment to be borne by the *Employer / Client* is normally capped as 105% of the adjusted final target cost; and

- Payment to the *Contractor* is on cost reimbursable basis plus a fee percentage. If the prices of a subcontract are not competitive or are inflated, it would hardly bring benefits to the *Contractor* except a higher fee, which is comparatively secondary.

A6.2.1.51 If the possibility of the *Contractor* colluding with their Subcontractors to look for financial benefits from an inflated subcontract price submitted at the pre-contract stage may still be real, such risk continues to be controlled by the pain / gain share mechanism. Ultimately, such malpractice is subject to enforcement actions under relevant law and regulations.

A6.2.2 Auditing, Financial Control and Supervision System (Options C and D)

A6.2.2.1 In accordance with the payment application and procedures as stipulated in NEC clause 50 (as amended by the Library of Standard Amendment to NEC ECC), the payment checking arrangement commences once the *Contractor* submits the payment application statement and it needs to be compliant with the requirements for accounts and records under the contract, in particular NEC3 clause 52.2 and 52.3 / NEC4 clause 52.2 and 52.4 of the contract and the relevant provisions of the Works Information / Scope.

Information Required for Monthly Payment Assessment

A6.2.2.2 The *Contractor* is required to provide the relevant information which should be listed in the Works Information / Scope. The information related to the Defined Cost may include but not limited to the following:

Subject	*Contractor*'s Submission Requirements
People	– Daily reports summarising the total daily hours for the People employed within the Working Areas and the operational activities – Payroll summaries together with banks records – All one-off costs relating to the People employed within the Working Areas to be presented separately – Sick leave and annual leave records relating to the People employed within the Working Areas – Time-sheet of part-time employees – Amendments to the attendance record of the People with justifications certified by the Site Agent of the *Contractor*
Equipment	– Cross-referenced documentation, invoices, credit notes, discount vouchers, delivery notes, requisitions and so on in respect of all Equipment utilised and for which payment is applied – Other records required on the Equipment with regard to the economic utilisation, details of delivery to and taken away from the Working Areas, standing time, proof of competitively tendered or open market rates, minimum hire charges, etc. – Procedures to monitor and ensure reasonable availability and utilisation of the Equipment and relevant site records checked against the allowable threshold(s), including how the allowable thresholds are worked out.
Plant and Materials	– Cross-referenced documentation, invoices, credit notes, discount vouchers, delivery notes, requisitions and so on in respect of all Plant and Materials supplied and for which payment is applied – Other records required on the Plant and Materials with regard to the economic utilisation, details of delivery to and taken away from the Working Areas, proof of competitively tendered or open market rates, etc. – Procedures to monitor and minimize wastage of the Plant and Materials and relevant site records checked against the maximum allowable wastage percentage(s)

Subject	*Contractor*'s Submission Requirements
Charges	– Cross-referenced documentation, invoices, credit notes, discount vouchers, delivery notes, requisitions and so on in respect of all charges and for which payment is applied – Other records required on the charges with regard to the economic utilisation, details of delivery to and taken away from the Working Areas, proof of competitively tendered or open market rates, etc.
Insurance	– Cross-referenced documentation, invoices, credit notes, discount vouchers, requisitions and so on in respect of the relevant insurance premium and for which payment is applied – Other records such as proof of competitively tendered or open market rates
Subcontractor Management Plan	– Record of cost of work in meeting all contractual obligations regarding the Subcontractor Management Plan and for which payment is applied
Subcontracts	– Cross-referenced documentation, invoices, credit notes, discount vouchers, delivery notes, requisitions, relevant subcontract documents and so on in respect of all subcontract work undertaken and / or completed by Subcontractors and for which payment is applied – Other records such as proof of competitively tendered or open market rates for variations, full details of particulars with justifications for additional payment for claims, final account, etc.

A6.2.2.3 If any further records are required, the Works Information / Scope should be updated accordingly. As already stated under NEC3 clause 52.3 / NEC4 clause 52.4, the *Project Manager* does not need to give the *Contractor* any notice of his intention to audit the *Contractor*'s accounts and records, but generally he will notify the *Contractor* of the areas that he wishes to concentrate on in order for the *Contractor* to make the accounts and records available and save time.

A6.2.2.4 The following are the payment procedures and items that the *Project Manager* should be aware of when checking the above submissions from the *Contractor*:

Payment Checking Mechanism

A6.2.2.5 The extent of cost checking very much depends on the scale of the project and the resources available from the project team for checking. Normally, full checking is preferable.

A6.2.2.6 If there are staff constraints in conducting full checking of the applied payments for target contracts after reviewing the project situations, the Project Offices may propose to adopt a payment checking mechanism to allow selective checking of applied payments which is subject to the approval of a project officer at D2 rank or above. Such payment checking mechanism shall be able to deter and detect abuse and other irregularities which might be arisen under a cost reimbursable payment basis.

A6.2.2.7 A suggested framework for the payment checking mechanism is illustrated below. The concerned payment checking requirements should be incorporated in the Works Information / Scope. If the Project Offices wish to propose any deviation from this framework, they should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects and seek approval from DEVB where appropriate.

- For the first 6 monthly payment, full check on the *Contractor*'s submission has to be undertaken. From the 7th interim payment onwards, sample check can be considered;

- All high-value items exceeding $300,000 as well as all payment items related to People, insurance and subcontracts shall be subject to full check, and the remaining items shall be subject to sample checking;

- Of the total claimed value of all remaining items subject to sample checking, the total value of sampled items for checking should not be less than a prescribed percentage, say 20% to 50%, depending on the project nature;

- Of the total number of all remaining items subject to sample checking, the total number of sampled items selected should not be less than a prescribed percentage, say 20% to 30%, depending on the project nature (rounded up to the nearest integer);

- Sampling of items should be on a random basis to ensure unpredictability in selection of items;

- If the amount of irregularities exceeds a certain percentage of the total claimed value by the *Contractor* (say 5% to 10%, exact percentage to be determined by the Project Offices), the *Project Manager* shall increase the checking percentages (both on "value" and on "number") up to 100% checking for that particular payment application and the subsequent payment application in the next month.

A6.2.2.8 Where appropriate, the *Contractor*'s management should be informed of any poor performance in payment application. The *Project Manager* should also reflect the *Contractor*'s performance regarding the level of accuracy of applied amounts for Defined Cost in the Report on *Contractor*'s Performance (e.g. items 6.14 "Attention to records" and 6.15 "Attention to submission of accounts/valuations" where appropriate) as appropriate.

A6.2.2.9 For consultants-administered projects, checking of interim payments in accordance with the above payment checking mechanism should be conducted by the consultants. Subject to availability of in-house resources, the Project Offices may select some of the items for conducting further spot checking. WDs should keep a database of payment checking mechanism for different contracts for reference by the Project Offices.

Start-up Procedures – Preparatory Work before the First Payment Application

A6.2.2.10 Before preparation of the first interim payment, agreements have to be made between the *Project Manager* and the *Contractor* on the following:

(i) Format and presentation of the *Contractor*'s payment application
(ii) Types of account or records as required by NEC clause 52.2 and the Works Information / Scope.
(iii) Set up procedures and site record template for frontline staff (*Project Manager* / *Contractor* / Subcontractor's site representative) to agree on assessing payment, e.g.
  a. employee attendance records
  b. material in-out record
  c. equipment record
  d. actual works done so far
  e. record of works to be covered up and
  f. other relevant site record for payment purpose

(iv) Verification procedures of Defined Cost
(v) Cost coding system (for quick and easy identification of cost element to facilitate payment audit)
(vi) Authorization of the *Contractor*'s personnel to verify, certified true copy and amend the payment records
(vii) Authorization of the *Project Manager*'s personnel to access the *Contractor*'s confidential and personal data
(viii) Declaration and undertakings by officers involved in preparing tender documentation including tender specifications and assessing tenders for subcontracts and supply contracts

Project team members are suggested to conduct spot checks on compliance with the agreed payment application procedures and accuracy of the records on site with such checks properly documented.

Format and presentation of the *Contractor*'s payment application

A6.2.2.11 NEC has no express requirements on the format of the payment application but it is desirable to set up the format by using the Cost Components (i.e. People, Equipment, Plant and Materials, etc.). The *Project Manager* should coordinate with the *Contractor* on the format and the presentation before the first payment application is made.

Records available from the *Contractor* for checking

A6.2.2.12 Subject to the requirements under NEC clause 52.2 and the Works Information / Scope, the *Project Manager* needs to agree with the *Contractor* on the type and the depth of the information available for the *Project Manager* for checking.

A6.2.2.13 In terms of records on time such as daily records, the personnel who is authorised to record and amend the daily records should be determined in advance of the start of the work.

A6.2.2.14 The *Contractor* should submit the original or certified true copies of the payment documents to facilitate the *Project Manager*'s assessment of payment. Nevertheless, the *Project Manager* may decide to check photocopies of the payment documents if he considers it is not feasible for the *Contractor* to obtain the original or the certified true copies for checking. If so, the *Contractor* should submit a statement confirming that all submitted photocopies of invoices, receipts and the like are true and correct copies from the originals.

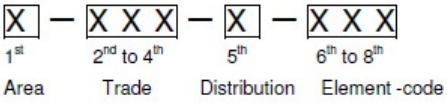
Cost coding system

A6.2.2.15 Cost coding system is recommended for payment documents (i.e. receipts, invoices, etc.) to enable efficient payment auditing by easy identification of relevant payment records and to avoid making mistakes in payment assessment if any payment record itself involves multiple payment items and cost components.

A6.2.2.16 The reference cost code can be either stamped or remarked by pen on the supporting document to identify the corresponding cost component. The documents can then be categorised and filed in accordance with the assigned cost code (e.g. Documents related to item 11 of the Schedule of Cost Components for wages, salaries and amounts paid by the *Contractor* for people can be filed in the box file for People costs).

A6.2.2.17 Each project can develop its own cost coding system. One possible way is to develop cost codes for payment records with reference to the items of the Schedule of Cost Components.

A6.2.2.18 For more complex project that involves considerable amount of payment information or the *Contractor* has a specific cost coding / accounting system to follow, in order to minimise administrative efforts by the *Contractor*, the project team can consider to adopt the *Contractor*'s internal cost coding system as long as the cost coding system enables the standardisation and uniqueness of indexing. The *Project Manager* and the *Contactor* should agree and fine-tune the *Contactor*'s cost coding system to suit peculiarity of each project. For instances, some projects have included references to area, trade, etc. Below is an example:



(a) Area Code – is used to identify the area or location of works in a project, or particular concern for certain scope.

(b) Trade Code – is used to identify the trade of the works shall belong to. (e.g. code 201 refers the costs belong to Concretor trade.)

(c) Distribution Code – is used to link with the same kind of cost of the company's distribution code.

Code	
0	All
1	Administration Costs
2	Subcontract Costs
3	Material Costs
4	Plant Costs
5	Manpower and Labour Costs
6	Nomination Subcontract Costs
7	Nominated Supply Contract Costs
8	Not Used
9	Not Used

Element Code – is used to identify different work type, material type, plant type, etc.

A6.2.2.19 However, the Project Offices are reminded that the above example on cost coding system is only for reference as to how it can be developed but not an pre requisite requirement on what should be included in the cost code system. As long as the cost coding system developed by the project team can meet the objectives of efficient payment auditing by easy identification of relevant payment records and mitigating mistakes in payment assessment, the project team is allowed to develop their own sets of cost codes that suit their project specific needs.

Arrangement to check the *Contractor*'s sensitive payment information

A6.2.2.20 It is not uncommon that some payment information may not be readily available for checking. People cost is one of the typical examples. The *Contractor* may have his own in-house policies or concerns in disclosing the employment agreements and the amount paid for their People including both staff and labour to the *Project Manager*.

A6.2.2.21 To enable verification to take place, the *Project Manager* should communicate with the *Contractor* on the arrangement to check the relevant costs. If these documents are only available within the *Contractor*'s head office, the *Project Manager* can arrange his delegates, which should be in a rotation basis, to the *Contractor*'s head office to check the payment information. The checking records should be signed and certified correct by the concerned delegates.

Guidelines in Checking Payment Applications

A6.2.2.22 It is proposed that verification of payment applications should be carried out by the *Project Manager* as follows:

Payment Check for People

A6.2.2.23 When checking applied items on People, the *Project Manager* needs to:

- Check the *Contractor*'s submission on the People employed within the Working Areas containing the total daily hours for the People employed and the operational activities as stated in the relevant clause of the Works Information / Scope against:
    - the site personnel records verified by the Site Agent of the *Contractor*;
    - where there exists ambiguity, check against the *Project Manager*'s daily records and site diaries for clarification and for the corresponding period, and where necessary, seek agreement by *Project Manager* and the *Contractor* on any discrepancy identified among the records checked; and
    - cross-check the number of man-days for the *Contractor* reported by the *Contractor* each month.
- Check amendments, if any, made to the *Contractor*'s daily records on the people employed within the Working Areas which had been made with justification stated by the authorised personnel of the *Contractor* (e.g. Site Agent).

A6.2.2.24 The daily records of all People employed within the Working Areas should be maintained by the *Contractor*. This record should identify, for each People, the following:

(i) Name of each People
(ii) Trade or job
(iii) Hours worked per day (or night)
(iv) Rate per hour (shift or week)
(v) Whether the concerned People is a direct employee or self employed
(vi) Activities employed upon
(vii) Location of work

A6.2.2.25 For the amount of payment, the amount paid for People under item 11 in the Schedule of Cost Components should be checked against the *Contractor*'s wage records. And in relation to the amount of payment under item 12, 13 and 15 in the Schedule of Cost Components, due care has to be taken to ensure that there is no duplication in payment between direct costs (amount under item 11) and payroll burdens (e.g. travel, medical examinations, etc.). Relevant daily records and employment terms of the employees should be inspected.

Payment Check for Equipment

A6.2.2.26 For the purpose of auditing the Defined Cost for Equipment, the following procedures should be followed by the *Project Manager*:

- Check if the Equipment is used to provide the *works*;
- Exclude from the Price for Work Done to Date any applied amount for item not qualified as Equipment as defined in NEC3 clause 11.2(7) / NEC4 clause 11.2(9). Such may include any equipment owned or hired by a Subcontractor or Plant and Materials to be included in the *works*;
- Check if the actual time for which the Equipment required in the assessment period is substantiated by suitable records;
- Check if the *Contractor*'s hire or rental rate for the Equipment qualified for Defined Cost under item 21 of the Schedule of Cost Components had been obtained through competitively tendered prices with deductions for all discounts, rebates and taxes that could be recovered in accordance with NEC clause 52.1;
- Check if the applied amount for the Defined Cost for Equipment components under item 22 of the Schedule of Cost Components (e.g. Equipment owned or purchased by the *Contractor*) was priced by open market rates (Please refer to Section A6.2.4.13 on determination of open market rates.);
- Check if the applied amount for the Defined Cost for Equipment components under item 23 of the Schedule of Cost Components is based on the sale price or the open market sale price in the change in value calculation and whether the criteria as stated in Section A6.2.4.9 are met (Please refer to Section A6.2.4.14 for the use of item 23 of the Schedule of Cost Components in the contract.);
- Where the applied amount is for the purchase of an Equipment under item 25 of the Schedule of Cost Components, check if the Equipment had been fully consumed as confirmed by the *Contractor* and audited by the *Project Manager*;
- Check further supporting information, where applicable, as stated in the relevant clause of the Works Information including:
    - cross-referenced documentation;
    - invoices;
    - credit notes;
    - discount vouchers;
    - delivery notes; and
    - requisitions.

A6.2.2.27 A continuous record of all Equipment should be maintained by the *Contractor*. The record should identify, for each item of mechanical Equipment, the following:

(i) Type of Equipment
(ii) Make of Equipment
(iii) Size / rating of Equipment
(iv) Date on site
(v) Location of work
(vi) Brief descriptions of work (activity)
(vii) Date off site
(viii) Rate per hour / day / week
(ix) Ownership, purchase / hire record, maintenance records
(x) Daily record of hours worked / standing

A6.2.2.28 For non-mechanical Equipment the same information shall be recorded, except that it will not be necessary to keep daily record of hours worked/standing.

A6.2.2.29 Any internal hire rates applied under item 22 of the Schedule of Cost Components should be compared to commercial plant hire rates. If an internal rate is found to be excessive, the *Contractor* should be asked to either reduce his internal rate or to replace the item of Equipment with a hired-in-item under item 21 of the Schedule of Cost Components unless there are exceptional circumstances which justify using the *Contractor*'s own Equipment.

A6.2.2.30 The *Project Manager* should coordinate with the *Contractor* and ensure that, in general, only Equipment which is required on site actually stays on site unless the *Contractor* chooses to retain it on site without charge to the contract.

A6.2.2.31 Staff vehicles may be charged through the site management costs. Other site vehicles may be chargeable as Equipment. The *Project Manager* should ensure that no vehicle is charged through both systems.

Payment Check for Plant and Materials

A6.2.2.32 For the purpose of auditing the Defined Cost for Plant and Materials, the following procedures should be followed by the *Project Manager*:

- Check if the applied amount had been calculated from the prices obtained from a competitive process for selection of suppliers for Plant and Materials accepted by the *Project Manager* in accordance with the *additional conditions of contract* clause "Tender requirements for suppliers of Plant and Materials, Equipment and Insurance";

- Exclude from the Price for Work Done to Date any applied amount for item not qualified as Plant and Materials as defined in NEC3 clause 11.2(12) / NEC4 clause 11.2(14) (e.g. Plant and Materials not intended to be included in the *works* or Equipment);

- Check the delivered quantities covered by the applied amount against the relevant delivery notes;

- Check further supporting information, where applicable, as stated in the relevant clause of the Works Information / Scope including:

    - invoices;
    - credit notes;
    - discount vouchers;
    - delivery notes;
    - requisitions; and
    - records of wastage, whether the wastage is within the allowable wastage percentage as agreed by the *Project Manager* and the *Contractor*.

Invoices for Equipment, Plant and Materials

A6.2.2.33 According to NEC clause 50.1 (as amended by the Library of Standard Amendments to NEC ECC), in addition to payment evidence (i.e. receipts) that substantiates costs incurred, the *Contractor* would also submit invoices to substantiate his estimated amount for Equipment, Plant and Materials due by the *Contractor* before the next assessment date. These invoices are to be filed monthly and shall in general include the following information:

(i) Name of supplier
(ii) Description of supply – (type, size, class etc.)
(iii) Quantity supplied
(iv) Delivery address/location
(v) Date of delivery/hire
(vi) Delivery note number
(vii) Quantity returned
(viii) Bought in or hire in
(ix) Date returned for hire continuing
(x) Off hire records
(xi) Invoice number
(xii) Date of invoice
(xiii) Order number
(xiv) Unit rate / price
(xv) Net invoice cost
(xvi) Cost code
(xvii) Storage and / or permanent location
(xviii) Whether the invoices are to be settled in full or in part under subcontracting / supply agreement

A6.2.2.34 Ideally the invoices should be supported by copies of quotations, purchase orders and signed delivery tickets together with signed time sheets where applicable.

A6.2.2.35 The *Project Manager* can consider paying the Equipment, Plant and Materials delivered on site but yet to be installed if relevant invoices are presented and such costs are forecasted to be incurred by the *Contractor* up to one week after the next assessment date. Then the *Project Manager* can assess such amount as estimated amount under NEC clause 50.1 up to one week after the next assessment date. The *Contractor* shall submit the evidence in the payment application on the next assessment date that the payments have been made according to the forecast. Otherwise, such cost should be disallowed in accordance with the first and / or second bullet point(s) of NEC3 clause

11.2(25) / NEC4 clause 11.2(26) in the payment application on the next assessment date. The *Contractor*'s management should be informed of any poor performance in such aspect. The *Project Manager* should also reflect the *Contractor*'s performance regarding the level of accuracy of applied amounts for Defined Cost in the Report on *Contractor*'s Performance (e.g. items 6.14 "Attention to records" and 6.15 "Attention to submission of accounts / valuations" where appropriate) as appropriate.

Payment Check for Subcontractors

A6.2.2.36 When checking applied items on Subcontractors, the *Project Manager* should consider the following:

- The *Contractor* should keep a copy of all awarded subcontracts at site office to allow inspection by the *Project Manager*.

- The Subcontractor's payment applications, which should be on an accumulative basis, should have the work done record duly signed by the Site Agent or the *Contractor*'s other personnel with high authority as far as practicable.

- Each Subcontractor should provide receipts of payment received stating clearly his Subcontract number, amount received and invoice reference and payment number.

- The *Contractor* should provide full copies of the Subcontractors' payment assessments and payment receipts marked with designated cost codes from the *Contractor*'s cost accounting system with unique reference number for identification of each invoice.

- All copies should be certified true and correct from the originals by the Site Agent or the *Contractor*'s other personnel with high authority as far as practicable.

- Upon receiving each payment application from the *Contractor*, the *Project Manger* should:

    - review the reasonableness of each Subcontractor's work done certified by the *Contractor*;
    - liaise with the Assistant Clerical Officer (Labour Relations) on any matter of arrear of wages paid by the Subcontractors;
    - identify from the above any Disallowed Cost; and
    - filter out the identified Disallowed Cost from the Price for Work Done to Date.

- The *Project Manager* should provide explanation to the *Contractor* for all Disallowed Cost identified. The *Contractor* should provide further substantiation for any Disallowed Cost in the next payment application for consideration by the *Project Manager* should he disagree with it.

- Check if the Subcontractor has been accepted by the *Project Manager*, if not, the applied amount should be disallowed.

- Check the applied items against the following items whereby any negative answer constitute a Disallowed Cost including:

    - Whether proof of the payment to the accepted Subcontractor is available;
    - Payment made for work, service or Plant and Materials supplied [NEC3 clause 11.2(17) / NEC4 clause 11.2(19)] for providing the *works*; and
    - Payment made based upon the conditions of the subcontract including without limitation to the timing and method of valuation of payments for the subcontracted works (including variations and claims, if any) to the Subcontractor.

- Check if the applied amount has taken account of any deduction in accordance with NEC3 clause 11.2(23) / Item 4 of the Schedule of Cost Components in NEC4.

- plus any further information as may be required to verify the Defined Cost such as:

    - site notes/measurements;
    - measurements from drawings;
    - build-ups for new rates; and
    - subcontract final accounts.

A6.2.2.37 The extent of checking of Subcontractors' accounts depends on the type of subcontracts. Most subcontracts are likely to have been let on lump sum or remeasurement basis. In these cases, checks should be made on the *Contractor*'s payment applications in respect of the following:

(i) Validation of the amount claimed against invoices.
(ii) Confirmation that the works / services have been executed satisfactorily.
(iii) Measurement of the completed work claimed (if on re-measurement basis, not lump sum).
(iv) Variations, claims and other payment arrangements under conditions of subcontracts.

A6.2.2.38 However, there may be occasions when the subcontract itself is let on a cost reimbursable basis. In these cases, the same checks may be applied to the Subcontractor's invoiced amounts as would be applied to the *Contractor*'s own payment application. For this, access to the Subcontractor's accounts and records must be permitted to the *Project Manager* under the terms of the subcontract.

A6.2.2.39 Not used.

A6.2.2.40 Not used.

A6.2.2.41 Upon completion of each subcontract, the *Contractor* should prepare a draft final account of the subcontract, which should be submitted to the *Project Manager* for comments. The *Project Manager* should review the submitted draft final account and provide comments, if any, to the *Contractor* for consideration before the *Contractor* should proceed to settle the final account with the Subcontractor. Also, the *Project Manager* should check whether the *Contractor* has released the retention under the respective subcontracts to the Subcontractors upon finalization of the subcontracts if appropriate.

A6.2.2.42 Upon settlement of the final account and release of final payment to the Subcontractor, the *Contractor* should adjust the Price for Work Done to Date accordingly with the agreed final account of the subcontract in his payment application for certification by the *Project Manager*.

A6.2.2.43 The *Contractor* should keep a copy of all agreed final accounts of the Subcontracts at site office to allow inspection by the *Project Manager*.

Payment Auditing for Charges

A6.2.2.44 For the purpose of auditing the Defined Cost for Charges, the following procedures should be followed by the *Project Manager*:

- Check if the applied amount has been calculated from the prices obtained from open market or competitively tendered prices in accordance with NEC clause 52.1.

- Exclude from the Price for Work Done to Date any applied amount for items not qualified as components of the cost of charges in the Schedule of Cost Components;

- Check the delivered quantities, if applicable, covered by the applied amount against the relevant delivery notes or payment receipts;

- Check the applied amount against the following items whereby any negative responses will constitute a Disallowed Cost:

    - whether proof of the payment to the supplier is available;
    - payment made for the charges which had been used for providing the *works*; and
    - payment made based on the conditions of the supply contract, if any;

- Check further supporting information, where applicable, as stated in the relevant clause of the Works Information including:

    - cross-referenced documentation (e.g. supply contract);
    - invoices and / or receipts.

Payment Check for Insurance

A6.2.2.45 While checking the Defined Cost for insurance, the *Project Manager* should be aware of the amendment made in the Library of Standard Amendments to NEC ECC in relation to payment for premiums for insurance. In contrast to the unamended NEC that all premiums for

insurance are covered under the Fee, the current amendment in the Library of Standard Amendments to NEC ECC make the cost of premiums for insurance reimbursable under item 7A and 8A of the Schedule of Cost Components for NEC3 and NEC4 respectively. The purpose of this amendment is to assist cashflow of the *Contractor* in procuring the required insurances. The Project Offices should conduct assessment in accordance with the systematic risk management (SRM) process promulgated in ETWB TCW No. 6/2005 and other relevant guidelines to determine the types and coverage of the insurances required for the contract and update the list under item 7A or 8A of the Schedule of Cost Components accordingly. The following are the potential types of insurances to be included in the list.

- insurance against loss of or damage to the *works*, Plant and Materials;
- insurance against loss of or damage to Equipment;
- insurance against liability for loss of or damage to property (except the *works*, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with the contract;
- professional indemnity insurance related to the *Contractor*'s Designs and / or Cost Savings Design; and / or
- insurances against liability for death of or bodily injury to employees of the Contractor and its subcontractors arising out of and in the course of their employment in connection with the contract.

A6.2.2.46 The cost of premium for appropriate insurance would be reimbursed to the *Contractor* as Defined Cost and the premiums are normally submitted or covered under the *Contractor*'s All Risk Insurance or other separate insurance(s) as appropriate.

A6.2.2.47 In addition to the above requirement, the *Project Manager* needs to check across the requirement under item 7 and 8 of the Schedule of Cost Components for NEC3 and NEC4 respectively as follows:

- Check if the following amounts have been deducted from the Price for Work Done to Date:
    - the cost of events for which the contract requires the *Contractor* to insure;
    - other cost paid to the *Contractor* by insurers; and
    - premiums for insurances taken out by the *Contractor* except for the premiums stated under item 7A or 8A of the Schedule of Cost Components.

A6.2.2.48 If the Project Offices wish to propose further amendments to the Library of Standard Amendments to NEC ECC on trial basis to suit their projects, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

Checking of the Fee

A6.2.2.49 For the purpose of auditing the Fee, the following procedures should be followed by the *Project Manager*:

- Check if there are any amendments in the contract that make payment items to be covered by the Fee;
- Check if the Defined Cost for item 13 in the Schedule of Cost Components in respect of payment made in relation to People has been deducted from the total Defined Cost, as appropriate, before multiplying the fee percentage if relevant amendment has been made in the Schedule to the Articles of Agreement; and

Check of the Retention (Option X16)

A6.2.2.50 For the purpose of auditing the retention, the following procedures should be followed by the *Project Manager*:

- Check the correctness of the retention being the retention percentage applied to the excess of the Price for Work Done to Date above the *retention free amount*; and
- Check the release of the retention in accordance with the timeframes set out in NEC clause X16.2 (as amended by the Library of Standard Amendments to NEC ECC).

A6.2.3 Forecast of Prices for Work Done to Date (PWDD) for Target Contracts

A6.2.3.1 Under NEC clause 20.4, the *Contractor* prepares forecasts of the total Defined Cost for the whole of the *works* in consultation with the *Project Manager* and submits them to the *Project Manager*. Forecasts are prepared at the intervals stated in the Contract Data Part one from the starting date until Completion of the whole of the *works*.

A6.2.3.2 The forecast should comprise the following:

- Defined Cost incurred for subcontracted works
- Estimate of subcontracted works to be incurred
- Defined Cost incurred for the cost of components in the Schedule of Cost Components
- Estimate cost of components in the Schedule of Cost Components to be incurred
- Estimated Fee

A6.2.3.3 In the Library of Standard Amendments to NEC ECC, a new clause 53.2A (NEC3) / 54.2A (NEC4) is introduced as follows:

> "The *Project Manager* makes interim assessments of the *Contractor*'s share on each *share assessment date* using his / its forecast of the final Price for Work Done to Date and his / its forecast of the final total of the Prices. The *Project Manager* informs the *Contractor* of his interim assessments of the *Contractor*'s *share deduction*."

A6.2.3.4 The purpose of this amendment is to avoid overpayment to the *Contractor* by deducting the amount paid to the *Contractor* at interim assessments during the contract period if the *Project Manager* is aware of the occurrence of pain share to be borne by the *Contractor*.

A6.2.3.5 In addition, NEC requires the *Project Manager* to make a preliminary assessment of the *Contractor*'s share at Completion of the whole of the *works* using his forecasts of the final Price for Work Done to Date and the final total of the Prices. The share is included in the amount due following Completion of the whole of the works. (NEC3 clause 53.3 / NEC4 clause 54.3)

A6.2.3.6 Some NEC contracts in UK may require such preliminary assessment to be undertaken at the end of the contract. However, by doing this on a regular basis, it would allow the *Employer / Client* to monitor the project cost more closely.

A6.2.3.7 The forecast of the final total of the Prices is the estimate of the final target cost by adding adjustments to the original target cost, such as price adjustment for inflation and compensation events.

A6.2.3.8 The forecast of the final total of the Prices consists of the following:

(i) the tendered total of the Prices;
(ii) estimated adjustment due to implemented and notified but not implemented compensation events;
(iii) estimated price adjustment for inflation (Option X1);
(iv) any other estimated adjustments expressly provided under the contract (such as acceleration under NEC clause 36); and
(v) deduction of amount for construction cost savings due to the Cost Savings Designs proposed by the *Contractor* and accepted by the *Project Manager* as described in Section A6.6 and other amounts of reduction in the Prices assessed in accordance with the contract terms.

A6.2.4 Reimbursement Method for Equipment

A6.2.4.1 NEC3 clause 11.2(7) / NEC4 clause 11.2(9) defines Equipment as items provided by the *Contractor* and used by him to Provide the Works and which the Works Information / Scope does not require him to include in the *works*. In the *additional conditions of contract* clause "Hired and Hire-purchase Construction Plant", it enhances to clarify the meaning of "Constructional Plant" which falls into the category of "Equipment".

A6.2.4.2 Attention should be drawn to payment for Equipment under the Schedule of Cost Components since Equipment may be procured via ownership of the *Contractor*, purchase or hire for the project under NEC. In accordance with *additional conditions of contract* clause "Tender requirements for suppliers of Plant and Materials, Equipment and Insurance", the *Project Manager* should ensure the selection of Equipment is based on a competitive process which aligns with the NEC requirements under NEC clause 52.1.

A6.2.4.3 The cost of Equipment is generally paid under item 2 of the Schedule of Cost Components.

A6.2.4.4 Not used.

A6.2.4.5 The preamble to item 2 of the Schedule of Cost Components requires the "Equipment" to be used within the Working Areas. The default provision reads:

> "The following components of the cost of Equipment which is used within the Working Areas (including the cost of accommodation but excluding Equipment cost covered by the percentage for Working Areas overheads)."

A6.2.4.6 Below are explanations on key provisions under item 2 of the Schedule of Cost Components:

A6.2.4.7 Item 21 of the Schedule of Cost Components refers to the Equipment rented or hired from sources external to the *Contractor* or his parent company. Subject to the requirement under NEC clause 52.1, the *Project Manager* should be mindful whether the rates applied by the *Contractor* are on a competitively tendered basis or open market rate basis.

A6.2.4.8 Item 22 of the Schedule of Cost Components covers the Equipment that is owned from the *Contractor* or hired by the *Contractor* from a subsidiary or from a member company of the *Contractor*'s group. Such Equipment is assessed on the basis of open market rates to avoid risk of intercompany charges from the *Contractor*.

A6.2.4.9 Item 23 of the Schedule of Cost Components covers the purchased Equipment and the assessment of such cost would be based on the change in value which is the difference between the purchase price and either the sale price or the open market sale price at the end of the period for

which the Equipment is required. The *Project Manager* will only consider to pay the *Contractor* under item 23 instead of item 22 if the following conditions are met:

- Equipment is specifically purchased for the project;
- the *Contractor* is able to provide evidence on deposit or front payment of the Equipment;
- Procured from external source.

A6.2.4.10 The *Project Manager* should assess the purchase price and the sale price on the basis of requirements under NEC clause 52.1. Below is an example:

A6.2.4.11 Assume the purchase price of an Equipment is HKD 1,000,000, its notional sale price of HKD 400,000 and requirement period of 3 months:

First payment in month 1:
Change in value = HKD 600,000 (HKD 1,000,000- HKD 400,000)

Second payment in month 2:
Change in value = HKD 600,000 – HKD 600,000 (less previously paid)
= HKD 0

Last payment in month 3:
Change in value = HKD 600,000 – HKD 600,000 (less previously paid)
= HKD 0 or

Change in value = HKD 1,000,000 – HKD 300,000 (Actual sale price at the end of month 3) – HKD 600,000 (previously paid amount)
= HKD 100,000

A6.2.4.12 Item 25 of the Schedule of Cost Components covers consumables for Equipment including fuel, oil, lubricants, etc.

A6.2.4.13 For item 22 of the Schedule of Cost Components, although NEC is silent on how open market rates are established, the common benchmarking practice adopted in Hong Kong is to obtain at least 3 up-to-date quotations (excluding the rates from subsidiary or member company of the *Contractor*'s group). Nevertheless, since the procurement for subcontracts, Equipment, Plant and Materials are more transparent and made known to the *Project Manager* under respective subcontracts or supply contracts, the *Project Manager* can make reference to these rates in deriving open market rates when undertaking assessment provided that such rates are up-to-date. If the parties find it difficult or impossible to obtain 3 quotations and the *Project Manager* and the *Contractor* agree, the parties may consider making reference to other published rates agreed by the parties with justification recorded.

A6.2.4.14 Item 23 of the Schedule of Cost Components should be normally deleted in public works projects in Hong Kong since this item will empower the *Contractor* to make his own decision on purchase or hire of Equipment at the contract stage. However, the Project Offices can evaluate and decide whether it is more desirable to allow the *Contractor* to purchase certain Equipment for the project. Their evaluation may cover:

(i) estimated purchase price and sale price of the Equipment
(ii) estimated usage of the Equipment in the project
(iii) whether the Equipment is re-usable or just one-off in the project;
(iv) risks associated with performance and maintenance of the Equipment
(v) frequency of maintenance and the availability of maintenance facilities
(vi) availability of the Equipment in the market
(vii) storage area for the Equipment on site
(viii) outcome of value for money test in which whether it is more economical to purchase the Equipment or not given the estimated usage time

A6.2.4.15 If the Project Offices wish to adopt item 23 of the Schedule of Cost Components in their projects on a trial basis, they should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate. The concerned Equipment to be purchased should be listed in the Contract Data Part two for the *Contractor* to propose the respective purchase prices, sale prices and time-related charges if appropriate and such prices and charges should be well incorporated in the tender price assessment as far as possible in order to avoid erratic pricing.

A6.2.4.16 Item 23 of the Schedule of Cost Components does not stipulate how the open market sale price to be established. One approach may be the depreciation approach where certain depreciation standards are applied, such as the Hong Kong Accounting Standard 16 Property, Plant and Equipment (HKAS 16), for assessing depreciation. Based on the latest HKAS 16 revised in December 2021, there are three depreciation methods recommended which are (i) straight-line method, (ii) the diminishing balance method and (iii) units of production method. For details, please refer to paragraph 62 of the latest HKAS 16.

A6.2.4.17 If special Equipment is anticipated, they should be listed in the Contract Data Part two for the Contractor to price the respective rates if appropriate and such prices and / or charges should be well incorporated in the tender price assessment as far as possible in order to avoid erratic pricing. Payment will be made in accordance with item 24 of the Schedule of Cost Components. The Project Offices should submit their proposal with justifications to seek legal advice from LAD(W), DEVB and approval from DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate.

A6.2.5 Determination on Allowable Wastage Percentages for Plant and Materials

A6.2.5.1 Pursuant to NEC3 clause 11.2(25) / NEC4 clause 11.2(26), for Options C and D, Disallowed Cost includes the cost of Plant and Materials not used to Provide the Works (after allowing for reasonable wastage) unless resulting from a change to the Works Information.

A6.2.5.2 Normally, allowable wastage should be less than 10% subject to project requirements and conditions and the nature of the material itself.

A6.2.5.3 The *Project Manager* should agree the preliminary wastage percentage for different Plant and Materials with the *Contractor* from the beginning and keep reviewing the allowable wastage percentage as the project develops. With the common goal to save costs under the target contracts, both the *Project Manager* and the *Contractor* should work together to reduce wastage as far as possible. Taking the concreting of the underground storage tank of the Happy Valley Underground Stormwater Storage Scheme project as an example, the *Project Manager*'s team had worked closely with the *Contractor* to arrive at a more accurate daily concrete demand, such that the concrete wastage was kept at a low level. Subject to the pain / gain share mechanism, the actual cost saved by a reduced wastage percentage may then be shared by both Parties. Below are the steps on wastage checks that the *Project Manager* should consider to be undertaken:

Step 1 - List of Plant and Materials

A6.2.5.4 The *Contractor* should prepare and update a list of Plant and Materials accompanied with his estimated quantities to be directly procured by him.

A6.2.5.5 The *Contractor* should agree with the *Project Manager* which Plant and Materials are subject to wastage check and the maximum allowable wastage percentage for each of these identified items. Each maximum allowable wastage will be subject to periodic review based on the prevailing site conditions, methods of construction or other justified reasons. The selection criteria for wastage check is subject to nature and specific requirements of the project, for instance, pipes, concrete, reinforcement bars, paving blocks and sheet piles are expected from a normal drainage project. WDs should keep a database of maximum allowable percentage for different Plant and Materials for reference by the Project Offices.

Step 2 -Wastage Check of Plant and Materials

A6.2.5.6 The *Contractor* should provide a list of items identified in Step 1 above showing the following:

a) Work done to date;

b) Un-used Plant and Materials on Site; and

c) Scrap Plant and Materials on Site,

A6.2.5.7 The *Contractor* should assess the wastage percentage of each identified items in Step 1 above and update his forecast of Price for Work Done to Date. The *Contractor* should also adjust his applied Price for Work Done to Date to take into account the corresponding Disallowed Cost

accordingly if the actual wastage percentage is higher than the maximum allowable wastage percentage as agreed in accordance with Step 1 above.

A6.2.5.8 The *Project Manager* should check the *Contractor*'s assessment and make necessary adjustment to the Price for Work Done to Date for certification. The *Project Manager* should provide explanation to the *Contractor* for all Disallowed Cost identified. The *Contractor* should provide further substantiation for any Disallowed Cost in the next payment application for consideration by the *Project Manager* should he disagree with it.

A6.2.5.9 The *Contractor* should prepare, and update on a monthly basis, a summary of used or un-used quantities of Plant and Materials.

A6.2.5.10 The *Project Manager* should undertake a half-yearly interim audit on wastage of the identified items under Step 1 above and should make necessary adjustment to the Price for Work Done to Date accordingly if these identified items have already been paid by the *Employer*. The *Project Manager* should provide explanation to the *Contractor* for all Disallowed Cost identified. The *Contractor* should provide further substantiation for any Disallowed Cost in the next payment application for consideration by the *Project Manager* should he disagree with it.

A6.2.6 Handling of Residual Equipment and Plant and Materials

The Project Offices may take into account the following considerations in handling residual Plant and Materials, and Equipment:

Handling of Residual Plant and Materials

Notice to be given

A6.2.6.1 The *Contractor* should give advance notice to the *Project Manager* preferably at least 1 day before delivery or removal of any Plant and / or Materials to or from the Site and other part(s) of the Working Areas. The *Contractor* should obtain the *Project Manager*'s prior permission before removal of any Plant and / or Materials, save and except for any urgent case where wavier from *Project Manager* is to be obtained.

Stock Management Record

Records of Plant and Materials

A6.2.6.2 The *Project Manager* and the *Contractor* should agree on the records of the Plant and Materials delivered to or removed off Site or removed from/to other part(s) of the Working Areas.

A6.2.6.3 The *Contractor* should provide the delivery or removal notes of any Plant and / or Material upon delivery or removal.

A6.2.6.4 The *Contractor* should include an updated stock list of Plant and Materials in each Monthly Progress Report.

Records of Residual Plant and Materials

A6.2.6.5 The *Contractor* should prepare records of residual Plant and Materials on Site and other part(s) of the Working Areas for agreement by the *Project Manager* when:

a) Disposal of Plant and Materials off Site or other part(s) of the Working Areas is required; or

b) At Completion of the contract.

A6.2.6.6 If sale of the residual Plant and Materials is not required, the *Contractor* should keep the residual Plant and Materials purchased by him and already paid as Price for Work Done to Date. The *Contractor* should agree with the *Project Manager* the adjustment to the Price for Work Done to Date based on open market rates of the residual Plant and Materials. The residual Plant and Materials should then become the property of the *Contractor*.

A6.2.6.7 If sale of the residual Plant and Materials is required, the *Contractor* should arrange for sale of the residual Plant and Materials purchased by him and already paid as Price for Work Done to Date based on competitive means. The Price for Work Done to Date should then be adjusted accordingly with credit values from the sale of the residual Plant and Materials.

Handling of Residual Equipment

Notice to be given

A6.2.6.8 The *Contractor* should give advance notice to the *Project Manager* preferably at least 1 day before delivery or removal of any Equipment to or from the Site or other part(s) of the Working Areas), save and except for any urgent case where wavier from the *Project Manager* is to be obtained.

A6.2.6.9 The *Contractor* should provide delivery or removal notes of any Equipment upon delivery or removal.

Records of Equipment

A6.2.6.10 The *Project Manager* and the *Contractor* should agree on the records of the Equipment delivered to or removed off Site or removed from / to other part(s) of the Working Areas.

A6.2.6.11 The *Contractor* should provide and update a summary record of all Equipment:

a) rented / hired / purchased by the *Contractor*; and

b) owned by the *Contractor*

A6.2.6.12 The *Contractor* should label all Equipment within the Working Areas except for the Equipment hired / owned by the Subcontractors not subject to payment as Defined Cost. Equipment hired/owned by the Subcontractors should be labelled by the respective Subcontractors in accordance with the safety procedures stipulated in the Safety Management Plan.

A6.2.6.13 The *Contractor* should conduct regular check and quarterly joint inspection with the *Project Manager* on stock of Equipment within the Working Areas.

A6.2.6.14 The *Contractor* should include an updated stock list of Equipment in each Monthly Progress Report. The *Project Manager* should monitor any deployment of unnecessary Equipment by the *Contractor* to the Working Areas from the regular checks and the Monthly Progress Reports and disallow the associated cost in accordance with NEC3 clause 11.2(25) / NEC4 clause 11.2(26).

Disposal / Removal of the Equipment upon Completion of Contract

A6.2.6.15 Upon Completion of the contract, the *Contractor* should prepare a stock list of Equipment on Site and other part(s) of the Working Areas for agreement by the *Project Manager*.

A6.2.6.16 Where disposal or removal of the *Equipment* purchased by the *Contractor* is required during the course of the *works* or upon Completion of the contract:

a) If sale of Equipment is not required (e.g. the sale price has been input in the Contract Data Part two), the *Contractor* should keep the Equipment purchased by him and already paid as Price for Work Done to Date. Such Equipment should then become the property of the *Contractor*.

b) If sale of Equipment is required, the *Contractor* should arrange for sale of the Equipment purchased by him based on competitive means. The Prices for Work Done to Date should then be adjusted accordingly with credit values from the sale of the Equipment.

A6.2.6.17 The *Contractor* shall obtain prior permission by the *Project Manager* before removing the Equipment that has already been paid as the Price for Work Done to Date by the *Employer*.

A6.3 COMPENSATION EVENTS

A6.3.1 Grounds for Compensation Events

A6.3.1.1 Compensation events are events which may trigger the reassessment of the Prices, Completion Date and / or Key Dates.

A6.3.1.2 Under default NEC, the compensation events listed under clause 60.1 allows both time and monetary entitlement to the *Contractor*. As stated in the following sections, time and monetary entitlement or time entitlement principles should be applied in different scenarios in public works projects in Hong Kong. Nevertheless, the Project Offices may take into account project specific needs and propose amendments to the contract provisions. For such cases, the Project Offices should seek the endorsement of DEVB who may consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects for the proposed deviations if appropriate. Amendment in NEC3 clause 63.4 / NEC4 clause 63.6 should also be made to exclude rights by the parties to change the Prices under such types of "time only" compensation events.

(a) Weather Events

A6.3.1.3 Under clause 60.1(13) of default NEC, the *Contractor* is entitled to both time and cost compensation for weather events with an occurrence frequency less than once in ten years. Taking into account the cost uncertainty brought about by weather risks and contract administration consideration in public works projects in Hong Kong, in general, the weather events should be provided with time compensation only for Options A and B. Meanwhile, for Options C and D, severe weather conditions as listed below under item (i) to (iii) should be provided with time and monetary compensation but time compensation only for item (iv) and (v). The Project Offices are allowed to exclude any of the items listed below from or add new item(s) to the severe weather conditions after reviewing their specific project situations and such proposal or other amendments should be endorsed by DEVB. The relevant amendment in the Library of Standard Amendments to NEC ECC should be adopted in the NEC contracts accordingly.

(i) Hoisting of tropical cyclone warning signal No. 8 or above;
(ii) Black Rainstorm Warning;
(iii) Red Rainstorm Warning;
(iv) Amber Rainstorm Warning; and
(v) Inclement Weather

(b) Unforeseen Physical Conditions

A6.3.1.4 Under clause 60.1(12) of default NEC, the *Contractor* is entitled to both time and cost compensation for unforeseen physical conditions. This clause should be read in conjunction with clause 60.2 in terms of information to be taken into account for the purpose of assessing the compensation event. To form a reliable basis for assessment, it is important to incorporate sufficient site investigation information into the Site Information during the tender stage.

A6.3.1.5 In respect of assessment**,** the *Project Manager* has to consider NEC clause 60.1(12) and 60.2. Only the difference between the physical conditions encountered and those for which it would have been reasonable to have allowed is taken into account in assessing a compensation event.

A6.3.1.6 In judging a physical condition, the *Contractor* is assumed to have taken into account information as listed in NEC clause 60.2.

A6.3.1.7 The Project Offices should include as much relevant information as possible, including site investigation records, existing utilities records, etc., for tenderers to prepare their tender submissions so as to allow reasonable risk of potential physical conditions to be encountered during the contract.

A6.3.1.8 Some examples may include provision of explanation on the borelog or other site investigation information and data provided (e.g. assumed rock head profile, ground water level, estimated locations and quantity of soft materials, anticipated thickness of various soil layers, etc.). Furthermore, geotechnical baseline report should be prepared and incorporated in the Site Information as far as possible so as to better demarcate the risk allocation and facilitate the potential assessment of compensation events for those contracts with high risk of unforeseen physical conditions, such as tunnels, caverns, subsea pipelines, etc.

A6.3.1.9 While assessing the impact, the *Project Manager* should request any documentation on risk allowance from the *Contractor* and assess the reasonableness of such allowance.

A6.3.1.10 NEC clause 60.3 states the "contra proferentem" rule regarding inconsistencies in the Site Information, for which the *Employer / Client* is responsible (i.e. interpretation against the party responsible for drafting the document).

(c) Shortage of Labour

A6.3.1.11 For compensation events which arise from shortage of labour, the *Contractor* can be compensated through NEC3 clause 60.1(21) / NEC4 clause 60.1(22). The *Contractor* is only entitled to time compensation as amended by the Library of Standard Amendments to NEC ECC. The *Contractor* should provide the supporting information including but not limited to the evidence on recruitment difficulties, unemployment rates and labour shortage statistics (any material change from tendering period to contract period) of concerned trades for such compensation events.

(d) Utility Interference

A6.3.1.12 Utility interference, which in conventional contract entitles the *Contractor* extension of time only, is a compensation event with both time and money compensation under default NEC.

A6.3.1.13 Taking into account the cost uncertainty brought about by utility interference and contract administration consideration in public works projects in Hong Kong, the events associated with utility interference should be provided with time compensation only. The relevant amendment in the Library of Standard Amendments to NEC ECC should be adopted in the NEC contracts accordingly.

A6.3.1.14 If utility undertakings do not work within the times shown in the Accepted Programme or the conditions stated in the Works Information, the *Contractor* may be entitled to compensation in accordance with the first or second bullet point of NEC clause 60.1(5).

A6.3.1.15 For unchartered underground utilities without previous record in the Site Information, its diversion not stated in the Works Information may lead to interruption of the *works* and it may be dealt with under the third bullet point of NEC clause 60.1(5).

A6.3.1.16 If the *Project Manager* decides to change the design to get around the utility interference that leads to a change to the Works Information, it should be dealt with through NEC clause 60.1(1).

(e) Change in Law

A6.3.1.17 For compensation event which arise from Change in Law, the *Contractor* will be compensated with both time and money through NEC3 clause 60.1(20) / NEC4 clause 60.1(21) (as amended under the Library of Standard Amendments to NEC ECC). Following the current practice in which only changes in the ordinances and regulations given in the list attached to *additional conditions of contract* clause A1 are subject to compensation events, the Project Offices should be reminded that Change in Law as a compensation event is exercised under NEC clause 60, rather than adopting the secondary Option X2.

(f) Prevention Events

A6.3.1.18 For prevention events, the *Contractor* can be compensated through NEC clause 60.1(19). The *Contractor* is only entitled to time compensation as amended by the Library of Standard Amendments to NEC ECC.

(g) Change to the Works Information / Scope

A6.3.1.19 NEC clause 60.1(1) deals with instruction changing the Works Information / Scope which is similar to variation order as defined in conventional contracts.

A6.3.1.20 The ECC Guidance Notes[1] / User Guides[7] explains that "Variations to the *works* are made by a *Project Manager*'s instruction to change the Works Information / Scope. A variation may comprise deletion or addition of work or alteration to work. It may include changes to the *Employer*'s */ Client's* design, to design criteria or to performance requirements for the *Contractor*'s design. Issue of a revised drawing or specification is a compensation event."

A6.3.1.21 Omitted work is a change to the Works Information / Scope and hence is a compensation event. The Prices are reduced if the effect of such compensation event is to reduce the total Defined Cost and the event is a change to the Works Information / Scope (NEC3 clause 63.10 / NEC4 clause 63.12 for Options A and B and NEC3 clause 63.11 / NEC4 clause 63.13 for Options C and D).

A6.3.1.22 Furthermore, clarification of previously issued drawings or specification which leads to a change to the Works Information / Scope is compensation event although not all of them will

lead to additional time or monies. On the other hand, instruction to change the Works Information / Scope after acceptance of the *Contractor*'s quotation for accepting a Defect is dealt with under NEC3 clause 44.2 / NEC4 clause 45.2 rather than as a compensation event under NEC clause 60.1(1).

A6.3.1.23 A change to the Works Information / Scope provided by the *Contractor* for his design which is made either at his request or to comply with other Works Information / Scope provided by the *Employer / Client* is not a compensation event (NEC clause 60.1(1)). Such change refers to any change to the *Contractor*'s design submitted with his tender and is different from the *Contractor*'s proposed change to the Works Information / Scope provided by the *Employer / Client* as stated in NEC3 clause 63.11 / NEC4 clause 63.13 (for Options C and D).

(h) Correction to an Assumption of a Compensation Event

A6.3.1.24 As explained in the ECC Guidance Notes[1] / User Guides[7], if there is considerable uncertainty over the effect of a compensation event, the *Project Manager* can decide, in consultation with the *Contractor* where appropriate, to limit this uncertainty by stating the assumptions the *Contractor* is to base his quotation on. This should be read together with NEC clause 61.6, that if the *Project Manager* decides that the effect of a compensation event are too uncertain to be forecast reasonably, he states assumption about the event in his instruction to the *Contractor* to submit quotation. Any correction to the *Project Manager*'s assumption is an entitled ground for a compensation event for the *Contractor* (NEC clause 60.1(17)). It should however be noted that such assumptions in this context can only be stated by the *Project Manager* but not the *Contractor*.

A6.3.1.25 After the *Project Manager* has stated assumptions when instructing the *Contractor* to submit quotations, the assessment is then made based on the stated assumptions, which will be corrected if the assumptions are later found to be incorrect. To facilitate the agreement of the quotations for compensation events with uncertainties, the *Project Manager* should make use of this provision and state suitable assumptions.

(i) Delay by the *Employer / Client* or Others

A6.3.1.26 As part of the programme submission requirements listed under NEC clause 31.2, the *Contractor* should show the dates when the *Contractor* will need access to the Site and the order and timing of the work of the *Employer / Client* and Others in the programme. The *Project Manager* should note that once the programme together with these information in the programme are accepted, any delay by the *Employer / Client* or Others will be a compensation event under NEC clauses 60.1(2) or 60.1(5) as appropriate. Therefore, the *Project Manager* should reasonably assess if the *Contractor*'s proposed programme is reasonable and the time required for the *Employer / Client* or Others to action is achievable. Similar to the utility interference and prevention events, the compensation events under NEC clause 60.1(5) should be provided with time compensation only. The relevant amendment in the Library of Standard Amendments to NEC ECC should be adopted in the NEC contracts accordingly.

(j) *Project Manager*'s Failure to Respond to a Communication or Withhold an Acceptance

A6.3.1.27 The *Project Manager* should be aware of failure to respond to a communication or withholding an acceptance that will lead to compensation event under NEC clause 60.1(6) and 60.1(9) respectively. Below are some examples showing the effects of the *Project Manager*'s failure to respond to a communication or withholding an acceptance:

- Late acceptance of the *Contractor*'s design which prohibit the *Contractor* to proceed with the relevant work will constitute a compensation event;

- Late response on the proposed Subcontractors which will prevent the orders to be placed will affect the progress and constitute a compensation event.

(k) Change in Quantities (Options B and D)

A6.3.1.28 Both Options B and D are on a re-measurement basis and NEC clause 60.4 to 60.6 are compensation events applicable to these two main Options.

A6.3.1.29 In short, the adjustment principles for Options B and D are generally the same except that the adjustment to Option D would be reflected to the Prices (i.e. target cost).

A6.3.1.30 The *Contractor* should provide remeasurement records for approval once the work is completed and these records should be counter-signed by the *Project Manager*.

A6.3.1.31 The style and format of these re-measurement records should be agreed between the *Project Manager* and the *Contractor* in advance.

(l) Assessment of Prolongation Costs

A6.3.1.32 Project delay leads to prolongation and results in increased cost. Unlike the GCC form which has express provisions on additional payment which is the loss and / or expense provision, the assessment for compensation events under default NEC deal with time and money effect resulting from prolongation.

A6.3.1.33 The assessment of compensation events includes the assessment of the associated prolongation costs and need to consider any additional costs due to project delay resulting from relevant events listed in NEC clause 60.1, subject to the amendments in the Library of Standard Amendments to NEC ECC. The evaluation of the additional costs is made by reference to the period when the effect of the compensation events was felt, not by reference to the end of the contract and the progress of the *works* on the critical path is hindered by the listed compensation events. NEC requires assessment to be undertaken in a prospective manner whereas GCC allows assessment to be undertaken retrospectively.

A6.3.1.34 The *Contractor* shall consider the effect of prolongation with the quotation. Prolongation cost normally includes the *Contractor*'s extended use of time-related resources.

A6.3.1.35 It is advisable for both the *Project Manager* and the *Contractor* to establish the methodology in assessing prolongation cost on compensation events with time and money entitlement in early contract stage to facilitate timely agreement of such cost later.

A6.3.2 Response Timeframe

Notifying Compensation Events

A6.3.2.1 Notification of compensation event is dealt with under NEC clause 61.

A6.3.2.2 Both the *Project Manager* and the *Contractor* should notify potential compensation event to each other based on NEC clause 61.1 and 61.3.

A6.3.2.3 NEC clause 61.1 is a clear instruction to put the work "into effect" and the *Project Manager* instructs the *Contractor* to provide quotation at the same time. The *Contractor* should undertake the work that has been requested. Acceptance of quotation is not a prerequisite for the *Contractor* to undertake the work under the compensation event.

A6.3.2.4 NEC3 clause 61.2 / NEC4 clause 65.1 is not a compensation event but an instruction to provide a quotation as the *Contractor* does not put the instruction into effect. The *Project Manager* can know the time and cost effect of the proposed instruction before he notifies a compensation event.

***Project Manager*'s Instruction on Quotations**

A6.3.2.5 When the *Project Manager* considers issuing an instruction or changing a decision but wishes to know its effect on time and cost first, he may instruct the *Contractor* to submit quotations for the proposed instruction or proposed changed decision which will not be put into effect (NEC3 clause 61.2 / NEC4 clause 65.1).

Notification of Compensation Event by the *Contractor*

A6.3.2.6 If the *Contractor* believes that the event is a compensation event but the *Project Manager* has not notified the event to the *Contractor*, the *Contractor* should notify the *Project Manager* a compensation event within eight weeks of becoming aware of the event. Otherwise, the *Contractor* will not be entitled for any compensation unless the event arises from the *Project Manager* or the *Supervisor* giving an instruction, issuing a certificate, changing an earlier decision or correcting an assumption (NEC clause 61.3).

A6.3.2.7 After the *Contractor* submits the notification of compensation event, the *Project Manager* should decide if there are any changes to the Prices, the Completion Date and the Key Dates and notify the *Contractor* according to NEC clause 61.4 after applying the following tests:

(i) whether the event arises from the fault of the *Contractor*;

(ii) whether the event has happened and is expected to happen;

(iii) whether the event has any effect upon Defined Cost, Completion or meeting a Key Date;

(iv) whether the event is one of the compensation events stated in the contract;

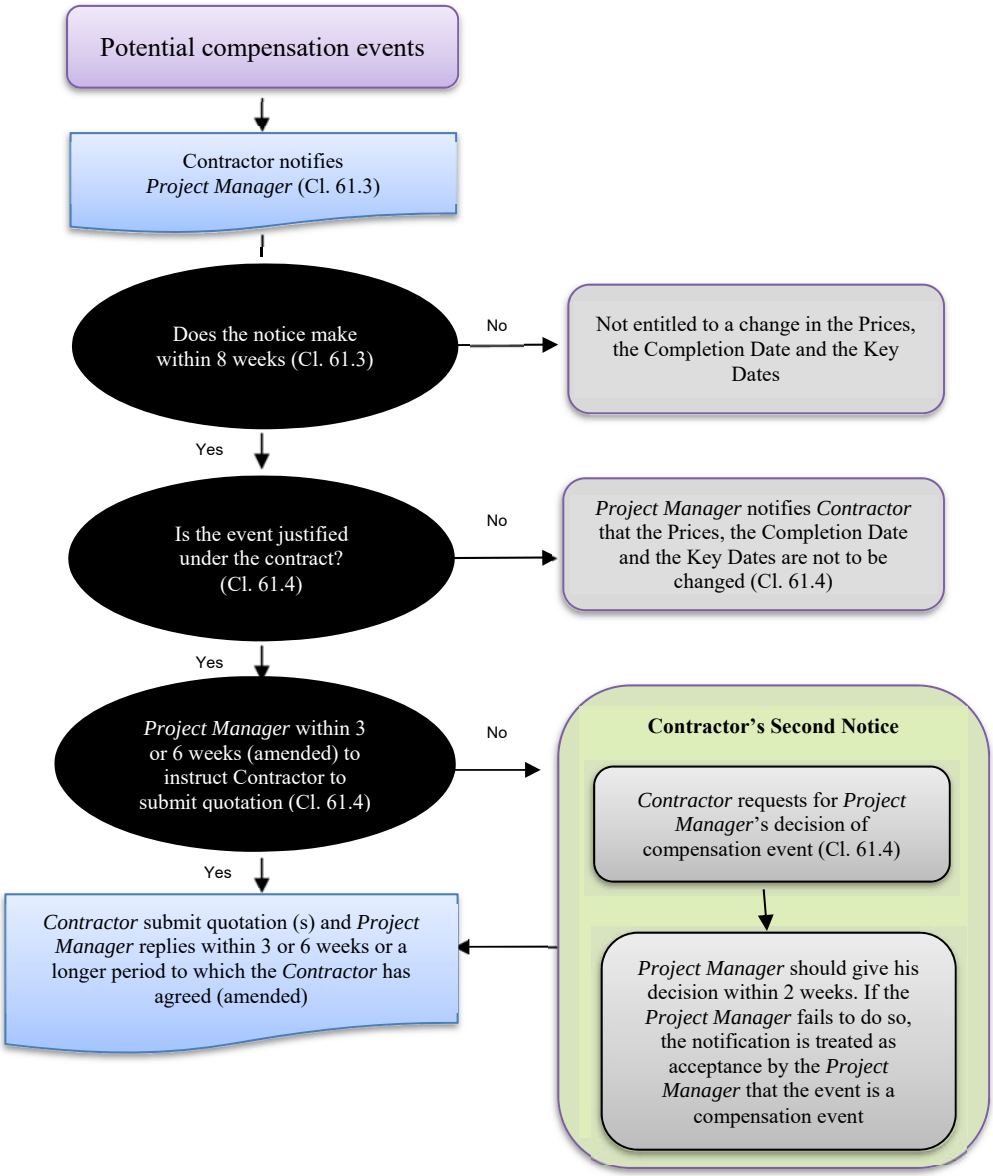
(v) whether the event has been notified within the timescale set out in these *conditions of contract*.

A6.3.2.8 If the *Project Manager* considers the event is not a compensation event, the *Project Manager* should give brief explanation of his decision. If the *Project Manager* considers the event is a compensation event, the *Project Manager* notifies his decision to the *Contractor* and, if his decision is that the Prices, the Completion Date or the Key Dates are to be changed, request the *Contractor* to submit quotation for the work in relation to the compensation event.

A6.3.2.9 If the *Project Manager* does not notify his decision to the *Contractor* within six weeks for events requiring to obtain confirmation of no objection from the *Employer / Client* in accordance with clause B1 of the *additional conditions of contract* or three weeks for other events (as amended by the Library of Standard Amendments to NEC ECC) of the *Contractor*'s notification or a longer period to which the *Contractor* has agreed, the *Contractor* may notify the *Project Manager* of his failure. The *Project Manager* should notify his decision to the *Contractor* within further two weeks of that notification or if not, be deemed to have accepted by his silence (NEC clause 61.4).

A6.3.2.10 It is advisable for the *Contractor* to indicate the order (not exact quantum) of time and cost implication in his notification for compensation event in order to facilitate the *Project Manager* to seek the *Employer / Client*'s agreement if the cost estimate for the compensation event to be issued is over his assigned authority, the *Contractor* should clearly state his ground in his notification for compensation event or discuss with the *Project Manager* before issuing the notification to avoid time-consuming exchange of correspondences

A6.3.2.11 A process map showing the procedures in notifying compensation event is shown in the diagram below:



Grouping Compensation Events

A6.3.2.12 Although default NEC recommends compensation event to be assessed separately, it may be practical to lump relevant minor issues in one compensation event.

A6.3.3 Assessment of Cost

A6.3.3.1 The monetary implication from compensation events is determined by the Defined Cost plus the resulting Fee basis which is further elaborated below:

A6.3.3.2 Under NEC clause 63.1, the changes to the Prices are assessed as the effect of the compensation event upon:

- actual Defined Cost of the work already done;
- forecast Defined Cost of the work not yet done; and
- the resulting Fee.

A6.3.3.3 While assessing the cost, the *Project Manager* should be aware of the requirement under NEC3 clause 63.6 / NEC4 clause 63.8 that assessment of the effect of a compensation event includes risk allowances for cost and time for matters which have a significant chance of occurring. As such, the *Project Manager* has to assess whether the risks allowed by the *Contractor* are appropriate. If it is assessed as appropriate and the quotation is subsequently accepted, the Prices, Completion Date, and / or Key Dates will be adjusted and could not be changed afterwards even if the risks allowed for have not been materialized. Based on the experience in certain projects, pre-pricing by the *Contractor* for a compensation event was not easily done, as the *Contractor* might be reluctant to bear additional risks during the course of the work and prefer to value the events retrospectively when the actual impact was known. However, this is against the prospective approach adopted by NEC in assessment of compensation events.

Options A and B

A6.3.3.4 Under these two main Options, assessment of the cost for the compensation events is based on the Defined Cost which refers to the cost of the components in the Shorter/Short Schedule of Cost Components under NEC3 clause 11.2(22) / NEC4 clause 11.2(23). The Subcontractor's cost would also need to be prepared and assessed on the basis of the Shorter/Short Schedule of Cost Components.

A6.3.3.5 If the *Project Manager* and the *Contractor* agree, rates and lump sums may be used to assess compensation events, instead of adopting the Defined Cost plus the resulting Fee basis (NEC3 clause 63.14 for Option A, NEC3 clause 63.13 for Option B and NEC4 clause 63.2). Assessment for changed Prices for compensation events are in the form of changes to the Activity Schedule (NEC3 clause 63.12 / NEC4 clause 63.14) and Bill of Quantities (NEC3 clause 63.13 / NEC4 clause 63.15) for Option A and Option B respectively.

A6.3.3.6 The Project Offices should note that there are standard optional amendments for assessment of the monetary effect of the compensation events based on the rates and lump sums in the Activity Schedule or the Bill of Quantities first, rather than on the Defined Cost plus the resulting Fee basis, in the Library of Standard Amendments to NEC ECC. The assessment based on rates or lump sums in the Activity Schedule or the Bill of Quantifies is not subject to adjustment of the *fee percentage*.

Options C and D

A6.3.3.7 For these two main Options, assessment of the cost impact for the compensation events is based on the Defined Cost which is defined under NEC3 clause 11.2(23) or NEC4 clause 11.2(24).

A6.3.3.8 Unless the *Project Manager* and the *Contractor* agree, rates and lump sums may be used to assess compensation events, instead of adopting the Defined Cost plus the resulting Fee basis (NEC3 clause 63.14 for Option C, NEC3 clause 63.13 for Option D and NEC4 clause 63.2). Payment to the Subcontractors will be based on payment evidence.

A6.3.3.9 Implemented compensation events will adjust the Prices (i.e. target cost), rather than the Prices for Work Done to Date (i.e. actual payment) and affect the sharing of pain/gain by the Parties from a cost perspective.

A6.3.3.10 The Project Offices should note that there are standard optional amendments for assessment of the monetary effect of the compensation events based on the rates and lump sums in the Activity Schedule or the Bill of Quantities first, rather than on the Defined Cost plus the resulting Fee basis, in the Library of Standard Amendments to NEC ECC. The assessment based on rates or lump sums in the Activity Schedule or the Bill of Quantifies is not subject to adjustment of the *fee percentage*.

Quotations for Compensation Events

A6.3.3.11 A quotation is the *Contractor*'s assessment of the time and monetary effects of a compensation event (NEC clause 62.2).

A6.3.3.12 There are three instances in which the *Project Manager* may instruct the *Contractor* to submit quotations in relation to compensation events:

- The *Project Manager* instructs the *Contractor* to submit quotations for a compensation event at the same time he notifies the compensation event under NEC clause 61.1.
- The *Project Manager* instructs the *Contractor* to submit quotations for a compensation event once he has decided that an event notified by the *Contractor* has passed the tests under NEC clause 61.4.
- The *Project Manager* instructs the *Contractor* to submit a revised quotation for a compensation event under NEC clause 62.4.

A6.3.3.13 Quotations for compensation events comprise (NEC clause 62.2):

- proposed changes to the Prices;
- any delay to the Completion Date and Key Dates;
- details of the *Contractor*'s assessment; and
- alterations to the Accepted Programme if applicable.

A6.3.3.14 The *Contractor* should submit quotations for compensation events within three weeks upon receipt of the *Project Manager's* instruction (NEC clause 62.3).

A6.3.3.15 The *Contractor* always gets the first chance at assessing the compensation events. Only under the circumstances listed under NEC clause 64.1, the *Project Manager* will assess a compensation event.

A6.3.3.16 Under NEC clause 64.2, the *Project Manager* assesses a compensation event using his own assessment of the programme of the remaining work if

- there is no Accepted Programme or
- the *Contractor* has not submitted a programme or alterations to a programme for acceptance as required by the contract.

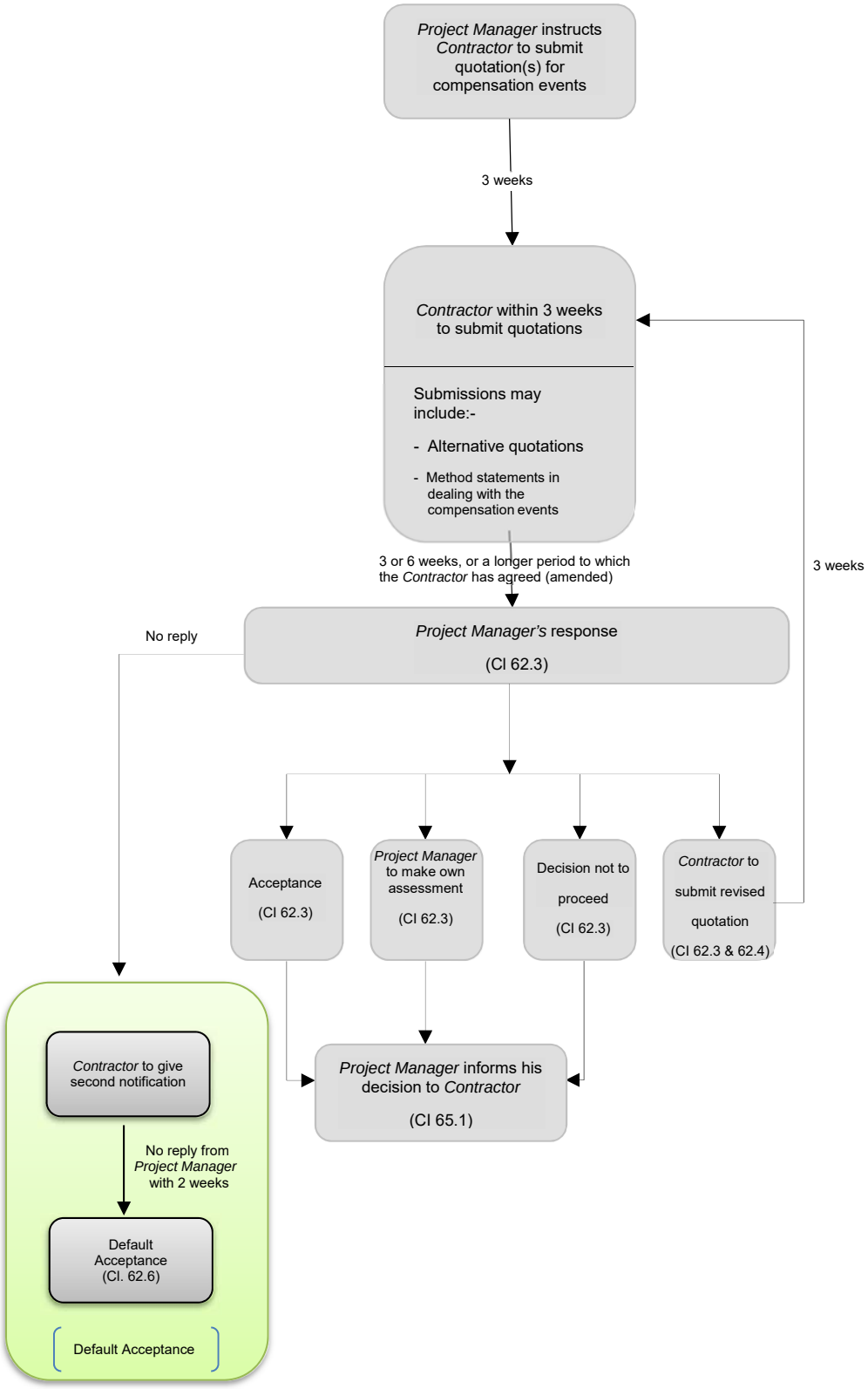
A6.3.3.17 Pursuant to NEC clause 64.3, the *Project Manager* notifies the *Contractor* of his assessment of a compensation event and gives him details of it within the period allowed for the *Contactor*'s submission of his quotation for the same event. This period starts when the need for the *Project Manager*'s assessment becomes apparent. The ECC Guidance Notes[1] / User Guides[7] explains that this clause provides for the *Project Manager* to have the same time to make his assessment as the *Contractor* was allowed for this.

A6.3.3.18 If the *Project Manager* does not reply to a quotation within the time allowed, the *Contractor* has to write the "second notification" highlighting the failure of the *Project Manager* to respond to the first notification. If the *Project Manager* fails to respond to the "second notification", the quotation is treated as acceptance by the *Project Manager* (NEC clause 62.6).

A6.3.3.19 For consultants-administrated contracts, compensation events with estimated value over the sum (normally $800,000) as specified in the consultancy brief or causing exceedance in the recommended forecast total of the Prices specified in the tender report would require sufficient lead time for the consultants acting as the *Project Manager* or his delegate to seek the *Employer/Client*'s agreement in accordance with the consultancy requirements as appropriate. Both direct and indirect costs (e.g. preliminary / administration, charges and prolongation cost for potential extension of time which may affect the Completion Date and Key Dates) should be included in the estimate.

A6.3.3.20 The *Project Manager* should properly document his assessment of the *Contractor*'s quotations or his own assessment for compensation events and submit the documents to the Project Offices for auditing purpose.

A6.3.3.21 The process map of evaluation of quotations for compensation events is shown below:



Implementation of Compensation Events

A6.3.3.22 The implementation of compensation events represents the formal conclusion of the administrative process. Implementation of compensation events takes place when (NEC3 clause 65.1 / NEC4 clause 66.1):

(a) the *Project Manager* notifies his acceptance of the *Contractor*'s quotation;

(b) the *Project Manager* notifies the *Contractor* of his own assessment; or

(c) the *Contractor*'s quotation is treated as having been accepted by the *Project Manager*.

A6.3.3.23 Once the compensation event is implemented, the Prices (e.g. target cost for Options C and D) should be updated and / or the Completion Date and Key Dates should be updated in programme. The changes to Prices, Completion Date and / or Key Dates due to an implemented compensation event may be changed due to change of assumptions stated by the *Project Manager* in the compensation events later under NEC clause 61.6.

A6.3.4 Assessment of Time

A6.3.4.1 NEC stresses the contractual importance of the Accepted Programme and requires the *Contractor* to show the requirements under NEC clause 31.2 for acceptance by the *Project Manager*. Attention shall be drawn to the following provisions while assessing compensation events with time effect:

- NEC3 clause 63.3 / NEC4 clause 63.5 - A delay to the Completion Date is assessed as the length of time that, due to the compensation event, planned Completion is later than planned Completion as shown on the Accepted Programme.

- NEC3 clause 63.6 / NEC4 clause 63.8 - Assessment of the effect of a compensation event includes risk allowances for cost and time for matters which have a significant chance of occurring and are at the *Contractor*'s risk under the contract.

Programme Update

A6.3.4.2 If the programme for remaining work is altered by a compensation event, the *Contractor* should include the alterations to the Accepted Programme in his quotation for the *Project Manager*'s consideration (NEC clause 62.2) and any necessary adjustment to the Completion Date and / or Key Dates will be notified by *Project Manager* (NEC3 clause 65.4) / adjusted accordingly when it is implemented (NEC4 clause 66.2).

Changes to the Activity Schedule

A6.3.4.3 If the *Contractor* changes a planned method of working so that the activities on the Activity Schedule do not relate to the operations on the Accepted Programme, the *Contractor* should submit a revised Activity Schedule to the *Project Manager* for acceptance (NEC3 clause 54.2 / NEC4 clause 55.3). For Option A, the payment will follow the adjusted Activity Schedule. For Option C, the changed Activity Schedule, which takes account of the effect of the compensation event, is used for the assessment for changed Prices (NEC3 clause 63.12 / NEC4 clause 63.14).

A6.4 CONTROL OF QUALITY

A6.4.1 *Contractor*'s Performance Report

A6.4.1.1 With regard to the *Contractor*'s Performance Report, the standard proforma and its Appendices are included in the Contractor Management Handbook published by DEVB.

A6.4.2 Defects and Rectification

A6.4.2.1 NEC3 clauses 40 to 45 / NEC4 clauses 41 to 46 set out the basic obligations of the parties and the role of the *Supervisor* in relation to tests and inspections. Below are brief descriptions of some clauses related to Defects and their rectification.

Defects

A6.4.2.2 As defined in NEC3 clause 11.2(5) / NEC4 clause 11.2(6), a Defect is

- a part of the *works* which is not in accordance with the Works Information / Scope or
- a part of the works designed by the *Contractor* which is not in accordance with the applicable law or the *Contractor's* design which the *Project Manager* has accepted.

A6.4.2.3 Essentially it refers to the defects which are in some way the fault of the *Contractor* and for which the *Contractor* is contractually responsible. Completion may still occur even when there are Defects that have been notified to the *Contractor* provided that these notified Defects would not prevent the *Employer / Client* from using the *works* and Others from doing their work according to NEC clause 11.2(2). Also, for the state of Completion, the Project Offices should consider to state in the Works Information / Scope all the work necessary to be completed for the *Employer / Client* to use the *works* and for Others to do their work so as to better define the state of Completion.

Defects Date

A6.4.2.4 In the conventional contracts, there is usually a maintenance period, such as twelve months after Completion, and NEC arrives at a similar position by reference to its *defects date*. It is a date to be determined from a period entered by the *Employer / Client* in the Contract Data Part one. It is normally set at twelve months after Completion.

Defect Correction Period

A6.4.2.5 The term "*defect correction period*" as used in NEC has a wholly different meaning from the phrases such as "defects liability period" and "maintenance period" used in other standard forms of contract. It is a period (or periods) of time entered in the Contract Data Part one to indicate how long the *Contractor* is given to rectify notified Defects. It begins at Completion for Defects notified before Completion and when the Defect is notified for other Defects.

Searching for and Notifying Defects

A6.4.2.6 NEC3 clause 42.1 / NEC4 clause 43.1 empowers the *Supervisor* to instruct a search for a Defect with reason until the *defects date*. The *Supervisor* cannot instruct a general search and is discouraged from requesting a search which is not necessary. In addition, where a search is instructed and no Defect is found, this will be a compensation event under NEC clause 60.1(10) unless the search was needed only because the *Contractor* gave insufficient notice of doing work, thereby obstructing a required test or inspection. NEC3 clause 42.2 / NEC4 clause 43.2 requires the *Supervisor* and the *Contractor* to notify each other of each Defect as soon as they find it to enable Defects to be identified as soon as possible and be dealt with promptly.

Correcting Defects

A6.4.2.7 As required under NEC3 clause 43.1 / NEC4 clause 44.1, the *Contractor* is responsible for correcting all Defects, whether notified or not. The *Employer / Client* may specify in the Contract Data Part one different lengths of *defect correction period* referred to in NEC3 clause 43.2 / NEC4 clause 44.2 for different types of Defects if he wishes.

A6.4.2.8 The *Supervisor* is required to issue a Defects Certificate according to NEC3 clause 43.3 / NEC4 clause 44.3. NEC3 clause 43.4 / NEC4 clause 44.4 covers the *Contractor's* entitlement to access to and use of the *works* after they are taken over in order to correct Defects. The *defects correction period* begins when these have been provided.

A6.4.2.9 The *Project Manager* has to be aware that, under Options C and D, cost of rectifying Defects before Completion is reimbursable to the *Contractor*. The only exception to this is the fourth and fifth main bullet points of NEC3 clause 11.2(25) / NEC4 clause 11.2(26) that the Defects are corrected after Completion and the Defects are caused by the *Contractor* not complying with a constraint (e.g. good practice requirements, quality procedures, tests and inspections required, etc.) on how he is to Provide the Works stated in the Works Information / Scope. One point to note is that these provisions are intended to incentivize the parties to search for Defects and correct them before Completion. For the Disallowed Cost for the cost of correcting Defects after Completion, this may be considered as a trade off in risk between the *Contractor*'s responsibility for correcting any Defects at his own cost and the *Contractor* being relieved of responsibility for delay damages under Option X7 after Completion.

Accepting Defects

A6.4.2.10 Although a Defect may be minor in some cases, its correction may be costly to the *Contractor* and may delay Completion. Its correction may also cause inconvenience to the *Employer / Client* out of proportion to the benefits gained. NEC3 clause 44.1 / NEC4 clause 45.1 allows accepting a Defect in these circumstances. NEC3 clause 44.2 / NEC4 clause 45.2 details the procedure for the acceptance of a Defect. Both the *Contractor* and the *Project Manager* can make such proposal. Acceptance of such proposal will then result in a reduction in the Prices (e.g. target cost for Options C and D).

Uncorrected Defects

A6.4.2.11 NEC3 clause 45.1 / NEC4 clause 46.1 states the procedure if the *Contractor* fails to correct a Defect having been given the necessary access, while NEC3 clause 45.2 / NEC4 clause 46.2 states the procedure if the Defect has not been corrected due to the lack of access. In brief, if the *Contractor* fails to rectify a notified Defect within the *defect correction period* he must pay the costs to the *Employer / Client* of engaging third parties to do so, but if the *Employer / Client* fails to allow the *Contractor* to rectify the Defect, the *Employer's / Client's* damages will be limited to the *Contractor's* rectification costs.

A6.5 SUBCONTRACTING

A6.5.0 The *Project Manager* and the *Contractor* should follow clause C9 of the standard *additional conditions of contract* on the tender requirements for subcontracting for Options C and D and for compensation events assessed on the Defined Cost plus the resulting Fee basis under Options A and B. Meanwhile, NEC clause 26 with amendments under the Library of Standard Amendments to NEC ECC should be followed for all main Options.

A6.5.1 Subcontract Conditions

A6.5.1.1 The *Contractor* is not allowed to subcontract all the *works* required to Provide the Works (clause C2(1) of the standard *additional conditions of contract*). The *Contractor* is allowed to subcontract part of the *works*, either on the basis of the provision by the Subcontractor of labour and materials or of the provision of labour (clause C2 (1) of the standard *additional conditions of contract*).

A6.5.1.2 The *Contractor* is required to submit the following information related to the subcontracting to the *Project Manager* for acceptance:

(i) name of the proposed Subcontractor (NEC clause 26.2);

(ii) proposed conditions of contract for the subcontract unless the *Project Manager* has agreed that no submission is required (NEC clause 26.3 and amended under the Library of Standard Amendments to NEC ECC);

(iii) relevant information of the subcontract, including but not limited to the tender prices, pricing documents and other tender information obtained from the tenderers (clause C9 of the standard *additional conditions of contract*); and

(iv) declaration by the *Contractor* on any linkage with the tenderers for the subcontract (clause C9 of the standard *additional conditions of contract*).

A6.5.1.3 The *Project Manager* will not accept the *Contractor* for appointing a Subcontractor if (NEC clauses 26.2 and 26.3 and amended under the Library of Standard Amendments to NEC ECC):

- The subcontract conditions will not allow the *Contractor* to Provide the Works.
- Under the subcontract, there is no statement that the proposed Subcontractor shall act in a spirit of mutual trust and cooperation.
- The proposed Subcontractor does not comply with the relevant subcontracting requirements set out in the *additional conditions of contract* or in the Works Information / Scope.

In this connection, the *Project Manager* should pay attention to whether the relevant subcontracting requirements in the contract have been incorporated into the subcontract.

A6.5.1.4 The *Project Manager* is also entitled to disallow the cost of any Subcontractor if the approval for appointment has not been granted by the *Project Manager* in accordance with the contract.

A6.5.1.5 It is important to note that the *Project Manager* should not prevent the appointment of any proposed Subcontractor on unreasonable grounds as this action may prevent / delay the ability of the *Contractor* to Provide the Works in the manner which he has planned.

A6.5.2 Tender Requirements for Subcontracting

A6.5.2.1 For Options C and D and for compensation events assessed on the Defined Cost plus the resulting Fee basis under Options A and B, the *Contractor* should follow clause C9 of the standard *additional conditions of contract* on tender requirements for subcontracting. The following requirements are highlighted:

General

- This clause sets out the minimum number of quotations required for each of the specified range of values of subcontract work. The Project Offices may amend such values to suit the project nature. The Project Offices should seek approval from DEVB who should consult the Interdepartmental Working Group on NEC Projects and / or the Steering Group on NEC Projects where appropriate before making adjustments to the specified range of values.

- The *Contractor* should review and submit the proposed detailed subcontracting procedures for acceptance by the *Project Manager* before the tendering process commences.

- When the *Contractor* subcontracts the work by inviting tenders, the tender invitations should indicate clearly the address and telephone number of the office from which tender documents and further particulars could be obtained, the exact location of the tender box in which tenders should be deposited and the closing date and time for the receipt of tenders. The tender box should be located in the common area within the joint site office of the *Project Manager* / *Supervisor* and the *Contractor*'s site staff or another location as directed by the *Project Manager*. Late tender or tenders submitted to other places other than the designated tender box shall not be considered.

- The *Contractor* should propose the minimum qualification and experience of the tenderers and submit a list of the potential tenderers for acceptance by the *Project Manager*.

- All tenders for the subcontracts should be in sealed envelopes. Joint tender opening should be conducted by the *Project Manager*'s staff and the *Contractor*'s staff.

Pre-tender meeting

- For specialist / complex subcontract work, pre-tender meeting should be conducted by the *Contractor* with the attendance of the *Project Manager*'s staff. Potential tenderers should be encouraged to attend the pre-tender meetings, in which they may familiarize themselves with the scope of the subcontract work, including any potential for alternative designs, innovative construction methods or request for deduction of particular items from the subcontracts (i.e. for the provision of particular plant and materials or equipment), and raise questions accordingly. The *Contractor* should issue the responses to tender queries (including all questions raised in the pre-tender meetings) and the revised tender documents to all potential tenderers to ensure fairness and transparency of the tender exercise, irrespective of whether or not they attended the pre-tender meetings.

Post-tender interview [where clause ACC C9A is adopted]

- If two stage selection process, i.e. Stage 1 – first submission and Stage 2 – post-tender interview is proposed by the *Contractor* and accepted by the *Project Manager*, the detailed procedures including but not limited to the following should be pre-determined before the commencement of the tender exercises for acceptance by the *Project Manager* and clearly described in the tender documents:

  (i) submission requirements for Stage 1 and Stage 2;

  (ii) list of items allowing alternative designs / innovative construction methods with corresponding minimum conditions;

  (iii) stringent triggering criteria for post-tender interview;

  (iv) shortlisting criteria for post-tender interview, such as bids are within a competitive range; and

  (v) how the pre-tender meetings and post-tender interviews are to be conducted.

- Pre-tender meetings should be held as far as practicable to help tenderers understand clearly the tender and contract requirements.

- For Stage 1 – first submission, the tenderers shall submit their tenders as required.

- In case the triggering criteria for post-tender interview are met, the tenderers fulfilled the shortlisting criteria will be invited to the post-tender interview.

- During the post-tender interviews, the shortlisted tenderers may be invited to demonstrate their good knowledge on the subcontract work, the programme and the required standards. It is likely that tenderers may raise questions on ambiguities or inconsistencies in the design drawings and specifications, and propose alternative designs, innovative construction methods or deduction of particular items from the subcontracts. The *Contractor* should seek clarification from the *Project Manager* for such ambiguities and inconsistencies identified and no

objection in-principle of any proposed alternative designs, innovative construction methods or deduction of particular items from the subcontracts.

- The *Contractor* should issue the responses to all questions raised in the post-tender interviews to all tenderers to ensure fairness and transparency, irrespective of whether or not they attended the post-tender interview. Tenderers invited for the post-tender interview shall then be invited to submit a revised tender price.

- Or, if substantial change to the design or specifications is necessary, the tender documents are revised after the post-tender interview, re-tendering of the subcontracts is needed.

- The acceptance of tender offers for subcontracts involving cost savings designs with alternative designs or innovation construction methods or change to the Works Information will be further subject to the requirements in the relevant NEC clauses, *additional conditions of contract* clauses and approval procedures in the Stores and Procurement Regulations.

- The Project Offices should check with the departmental representative of the Inter-departmental Working Group on NEC Projects on the latest corruption prevention measures if two stage selection process involving tender interviews are proposed.

- The *Contractor* should ensure that the tender prices and rates of the subcontracts are competitively tendered or open market prices or rates, without activities or items which are substantially over or under-priced, or erratically priced. Upon request by the *Project Manager*, the *Contractor* should submit the relevant information of the subcontracts, including but not limited to the tender prices, pricing documents and other tender information obtained from the tenderers, for the *Project Manager*'s consideration. All tenders for the subcontracts should be assessed on an equal basis unless otherwise accepted by the *Project Manager*.

Declaration

- The *Contractor* should declare any linkage with the tenderers for the subcontracts. If the *Contractor* proposes their associated companies[1] to be allowed to participate in the tender exercises for the subcontracts, he should submit full justifications for acceptance by the *Project Manager* and two stage selection process should not be adopted. In all tender exercises, each of the staff of the *Contractor* involved in preparing subcontract tender document, assessing the subcontract tenders, or conducting post-tender interview(s) shall also declare to the *Project Manager* whether the staff have any actual, potential or perceived conflict of interest. All

[1] "associated company" or "associated companies" in relation to the *Contractor* means any company which is the holding company or subsidiary company or sister company of the *Contractor*. A "sister company" means a company which is a subsidiary of or otherwise belongs to the same holding company as the *Contractor*. The existence of a holding-subsidiary relationship shall be determined in accordance with the provisions in sections 13 to 15 of the Companies Ordinance (Cap. 622)

tenders for the subcontracts should be assessed on an equal basis unless otherwise accepted by the *Project Manager*.

Qualification and clarification

- The *Contractor* should state in the tender documents for the subcontracts that any qualification may cause the tender to be disqualified. A tender may, however, be qualified inadvertently owing to different interpretation of particular statements or remarks made by the tenderer. Subject to acceptance by the *Project Manager*, the *Contractor* may approach a tenderer in seeking clarification on the purpose or meaning of particular statements or remarks in his tender, reminding him of possible disqualification of his tender and seeking an unequivocal withdrawal of any qualifications by a reasonable deadline.

A6.5.2.2 If the number of tenders received for any subcontract is less than the minimum number specified in the contract, the *Project Manager* should decide within three weeks if it is justified that more tenders cannot be obtained and should inform the *Contractor* whether to select the conforming tender for the subcontract with the lowest tender price amongst the tenders submitted. In case that very few tenders are received (e.g. only one tender returned) and if the *Project Manager* considers that the returned tender prices are not at open market price, re-tendering of the subcontract should be considered. In this case, the tenderer list should be further expanded to include more eligible tenderers in the market.

A6.5.2.3 If the *Contractor* proposes to select a conforming tender which does not offer the lowest tender price with full justifications, the *Project Manager* should decide within three weeks if it is acceptable and notify the *Contractor* whether to select that conforming tender which does not offer the lowest tender price.

A6.5.2.4 To ensure a smooth and proper process of subcontract procurement, the Project Offices should take note of the following practices in some projects:

- The *Contractor* should be asked to submit the proposed subcontracting procedures once the contract commences, so that the *Contractor* can start procuring subcontract packages as early as practicable.

- The *Contractor* should be encouraged to invite as many tenderers as possible to ensure that the subcontract price would be at open market or competitive tender price. After the list of potential tenderers is submitted by the *Contractor*, the *Project Manager* may also suggest some other suitable tenderers into the list taking into other available information such as the "List of Approved Contractors for Public Works" and "List of Approved Suppliers of Materials and Specialist Contractors for Public Works".

- The *Project Manager* and the *Contractor* should be reminded to declare any conflict of interest with the tenderers on the proposed list of tenderers to be invited for the subcontracts (e.g. whether the *Contractor*'s associated companies are on the tenderers list). Upon receipt of the declaration forms from the *Contractor*, *Contractor*'s staff and the *Project Manager*'s staff, the *Project Manager* should

review and record the result of assessment. In case of any actual / potential conflict of interest identified, the *Project Manager* should record the follow up actions taken and provide the justifications.

- The *Project Manager* may discuss with the *Contractor* on the planned programme for procurement of subcontracts (e.g. planned date for submission, planned date for issuing invitation, etc.) which needs to be updated regularly, such that both parties can prepare and allow for suitable resources in handling subcontract procurement beforehand. The *Project Manager* should consider the latest development of the site situation before tendering out the other interrelated subcontracts. For example, the contract award dates of building services contracts should be postponed if the civil contracts were delayed. In addition, should there be any potential compensation events, the *Project Manager* may also alert the *Contractor* in advance for his planning of subcontract packages.

- The *Project Manager* may discuss with the *Contractor* on the packaging of subcontract work. Attention should be paid to issues which may affect the programme of the *works*, such as foreseeable difficulties in interfacing between different Subcontractors. For example, the *Project Manager* should be aware of the consistency of the construction method and planned programme between different subcontracts at the interfacing boundaries.

- If there are Key Date(s) in the contract, it is advisable to check if such Key Date(s) have also been stated as a condition in the relevant subcontracts. Where considered appropriate, it may be desirable to include an activity schedule or a bill of quantities in the subcontracts even for those on lump sum basis to facilitate tender preparation and assessment of potential compensation events which may arise for the subcontract work but attention should be paid to erratic pricing issue.

- For sizeable subcontracts, the *Project Manager* should provide comments on the draft tender documents for the subcontracts, mainly on the scope of the subcontract work and back-to-back provisions in the subcontracts, so as to avoid potential disputes after the award of subcontracts, and on items with high uncertainty which the *Contractor* may need to state clearly in the subcontracts in order to obtain a realistic tender price (e.g. if any operations beyond normal working hours are expected, an item on overtime allowance may need to be included in the bill of quantities or the activity schedule.).

- The latest edition of the Standard Form of Domestic Sub-contract published by the Hong Kong Construction Association (HKCA) should be used in the subcontracts where appropriate.

- The *Project Manager* should be vigilant in assessing subcontract prices to ensure they are open market prices, especially for those without going through a competitive bidding process.

- The *Project Manager* should critically scrutinise *Contractor*'s proposed scope of subcontracts to prevent splitting up of subcontract work to circumvent the tender requirement.

The *Project Manager* may consider various approaches to verify if they are open market prices, such as referencing recent subcontracts, reaching out to alternative subcontractors or suppliers in the market for cross referencing, or requesting the *Contractor* to provide quotations as supporting evidence.
(updated in March 2024)

- If a tender evaluation mechanism involving the assessment of technical proposal, i.e. the *Contractor* selects the conforming tender with the highest tender evaluation score, is adopted, the *Contractor* submits such tender evaluation mechanism to the *Project Manager* for acceptance in accordance with ACC Clause C9(6). The *Project Manager* can refer to the relevant part of Section 6 of Project Administration Handbook Chapter 6 when reviewing the submission. (updated in November 2024)

A6.5.2.5 Though more effort by the *Project Manager* is required, it is noted that such active involvement in subcontracting can help improve the understanding of the Subcontractors for the *works*, and reduce disputes or abortive work during construction by early identification of ambiguities or deficiencies. In addition, during tender interviews in two stage selection process, the *Project Manager* and the *Contractor* may also be benefited from the knowledge and experience of the Subcontractors, which may add value to the construction.

A6.5.2.6 During the construction, the Subcontractors may be invited to join the regular meetings between the *Contractor* and the *Project Manager* to enhance collaborative working among all parties. For example, the Subcontractors may be invited to join the risk reduction / early warning meetings to facilitate prompt action to be taken in dealing with project risks identified. If the *Subcontractor* provides full justifications that minor assistance from the *Contractor* to facilitate their construction operation is required during the construction, subject to acceptance by the *Project Manager*, such request should be handled under the relevant provisions of the contract and the subcontract, provided that no double payment to the *Contractor* would occur and such minor deviation would not cause any disadvantageous effect to the contract and the *Employer / Client*.

A6.5.2.7 Upon completion of the subcontract work, the *Contractor* should be asked to finalize the subcontracts as soon as possible to avoid delay of finalization of the contract.

Subcontracting for Work due to Compensation Events

A6.5.2.8 For any work due to the compensation events, the *Contractor* should decide whether such work is to be conducted by his own resources, the current Subcontractor(s), or to procure a new subcontract for whole / part of the said work and submit his proposal with full justifications for acceptance by the *Project Manager*. The *Project Manager* should discuss with the *Contractor* to identify the most cost effective way for delivering the work due to the compensation events before offering his decision. Unless otherwise accepted by the *Project Manager*, for any work for the compensation events to be procured via new subcontracts, the *Contractor* should follow clauses C9 and C11 of the standard *additional conditions of contract* on the tender requirements for subcontracting, for Options C and D and for those to be assessed on the Defined Cost plus the resulting Fee basis under Options A and B.

A6.6 COST SAVINGS DESIGN

A6.6.1 The relevant clauses F3 and F4 in the Library of Standard *additional conditions of contract* deal with the Cost Savings Design. For Options A and B, the agreed construction cost savings due to the Cost Savings Design should be equally shared between the *Employer / Client* and the *Contractor*, which is the same as the arrangement in conventional contracts.

A6.6.2 For Options C and D, the Prices (i.e. target cost) should remain unchanged. Upon Completion of the whole of the *works*, the *Contractor*'s share due to the Cost Savings Design, after the deduction of the total of the *Project Manager*'s cost and any addition in future operation and maintenance cost for a design life in net present value, shall be assessed in accordance with NEC3 clause 53 / NEC4 clause 54. If situation warrants, the Cost Savings Design proposal can include the *Contractor*'s proposal on relevant key Subcontractor, including Designer of Cost Savings Design, to be accepted in accordance with ACC F4(d).

A6.6.3 For situations where the Cost Savings Design would incur the *Project Manager*'s cost and / or addition to the future operation and maintenance (O&M) costs in all main Options, such *Project Manager*'s cost and addition in future O&M cost for a design life in net present value should be deducted from the *Contractor*'s share in the agreed construction cost savings due to the Cost Savings Design. The net payment should be made to the *Contractor* upon Completion of the whole of the *works*. The design life of the concerned works should be well defined in the Cost Savings Design for determination of the net present value of any increase in the associated O&M costs. The Project Offices should consult the maintenance authority and other relevant Government Bureau / Department for any case involving increase in future O&M cost before acceptance of the Cost Savings Design. Normally, the *Employer*'s / *Client's* decision to accept or reject the Cost Savings Design should be conveyed to the *Contractor* in writing by the *Project Manager* within six weeks or a longer period to which the *Contractor* has agreed in accordance with clause F4 in the Library of Standard *additional conditions of contract*.

A6.7 PROPOSAL ON INNOVATION AND TECHNOLOGY

A6.7.1 For each Proposal on Innovation and Technology (I&T Proposal), before giving any instruction to change the Works Information / Scope, the *Project Manager*, should carry out thorough review on the potential benefits, cost-effectiveness, availability of funding, impact on the programme, etc. Project teams should exercise professional judgement in assessing each I&T proposal to ensure that it is soundly justified. The project team should also ensure the issuance of relevant instructions and approving authorities comply with applicable rules / criteria set out in the Stores and Procurement Regulations, as well as other applicable cost control mechanisms.

A6.7.2 For administrative convenience, the innovation and technology meetings for discussing the I&T Proposal may be arranged alongside any routine site meetings in place as appropriate, such as monthly progress meetings, early warning meetings, other liaison meetings.

A6.7.3 For decarbonisation efforts, focus areas may include:

(i) reducing the use of timber/wood for packaging/formwork,
(ii) reducing the production of waste through efficient sorting/recycling/reuse,
(iii) wider use of EV, electrical site machineries and battery energy storage system (BESS),
(iv) eliminating the use of diesel fuel,
(v) using more renewable energy on site, and
(vi) other areas that the *Project Manager* considers relevant.

A6.~~7~~8 NEC PERFORMANCE MONITORING

A6.8~~7~~.1 Standard forms have been designed by DEVB for the Project Offices to input the data of the NEC contracts in respect of cost and time aspects. Regular return will be called by DEVB on a quarterly basis to collect data for monitoring the performance of NEC contracts. The concerned data will be input and retrieved through the Public Works Project Information System (PWPIS) after completion of system upgrade in early 2017 tentatively.

A6.~~7~~8.2 The Project Offices are encouraged to use suitable software or application to facilitate the contract administration, improve the management efficiency and enhance the project cost control if appropriate. The key functions of the software or application should include but not limited to registration and monitoring of risk register, early warnings, prevention events and the *Project Manager*'s instructions, monitoring and processing of programme updates, interim payment applications and notifications and quotations for compensation events, keeping and processing of site diary and other site records, etc. The software or application should facilitate the communications amongst the *Employer / Client*, the *Project Manager*, the *Supervisor* and the *Contractor*. The software or application should allow a function to generate real time management reports regarding the project cost, covering but not limited to the latest forecast final total of the Prices, current and estimated final Price for Work Done to Date, Defined Cost, Fee and Disallowed Cost, implemented compensation events and outstanding quotations for compensation events, price adjustment for inflation, other expenditure (e.g. the *Contractor*'s share, incentive payments, delay damages), etc. The software or application should enable data export, backup and recovery, and have access right control and data security functions. Relevant requirements should be specified in the Works Information / Scope.

A6.9~~8~~ RISKS / LIABILITIES AND INSURANCE

A6.9~~8~~.1 The respective risks/liabilities and insurance obligations for the *Employer/Client* and *Contractor* are set out in NEC clauses 80 and 81.

A6.9~~8~~.2 For NEC4, *Contractor*'s liabilities are more elaborately defined in the Library of Standard Amendments to NEC4 ECC clause 81.

A7 KNOWLEDGE SHARING AMONG NEC USERS

A7.1 At present, there are several committees in DEVB / WDs in relation to the adoption of NEC in public works projects:

- Steering Committee on NEC Projects (meeting on need basis) :
  To oversee the implementation and steer the direction (chaired by PAS(W)4, DEVB)

- Inter-departmental Working Group on NEC Projects (meeting on need basis) :
  To co-ordinate and advise WDs on matters relating to NEC (chaired by CAS(W)7, DEVB)

- Departmental NEC Working Group or equivalent (meeting regularly / on need basis) :
  To support the use of NEC within individual departments. Members involve staff from the Project Offices adopting NEC (chaired by D1 / D2 / D3 officers in WDs)

A7.2 In view of the extensive upcoming NEC contracts, it would be beneficial if knowledge sharing could be done in a coordinated manner to facilitate WDs' preparation for NEC contracts, and to ensure a more consistent approach for all NEC contracts. In addition, after issuing this Practice Notes, feedbacks or comments from users are expected. To this end, the Inter- departmental Working Group on NEC Projects is proposed to be a knowledge exchange platform for further development or refinement of this Practice Notes in a medium term.

A7.3 The Practice Notes takes into account the relevant General Conditions of Tender, Special Conditions of Tender, Notes to Tenderers and Special Conditions of Contract for the GCC form promulgated under various technical circulars and circular memoranda issued by DEVB and updates them to suit the NEC form. The tender and contract provisions promulgated under the Practice Notes replace those provisions appearing in these publications to the extent that the latter are relevant to the NEC contracts. For any ambiguity, the Project Offices should address to DEVB who should consult the Inter-departmental Working Group on NEC Projects and / or the Steering Committee on NEC Projects where appropriate. The Practice Notes are living documents which will be updated from time to time when new technical circulars are promulgated or the existing works policies are fine-tuned which may affect the contents of the Practice Notes.

REFERENCE

1. Thomas Telford Ltd. (2013), NEC3 Engineering and Construction Contract Guidance Notes

2. Thomas Telford Ltd. (2013), NEC3 Engineering and Construction Contract Option A: Priced contract with activity schedule (April 2013)

3. Thomas Telford Ltd. (2013), NEC3 Engineering and Construction Contract Option B: Priced contract with bill of quantities (April 2013)

4. Thomas Telford Ltd. (2013), NEC3 Engineering and Construction Contract Option C: Target contract with activity schedule (April 2013)

5. Thomas Telford Ltd. (2013), NEC3 Engineering and Construction Contract Option D: Target contract with bill of quantities (April 2013)

6. Thomas Telford Ltd. (2017), NEC4 User Guide – preparing an engineering and construction contract

7. Thomas Telford Ltd. (2017), NEC4 User Guide – managing an engineering and construction contract

8. Thomas Telford Ltd. (2017), NEC4 Engineering and Construction Contract Option A: Priced contract with activity schedule (June 2017)

9. Thomas Telford Ltd. (2017), NEC4 Engineering and Construction Contract Option B: Priced contract with bill of quantities (June 2017)

10. Thomas Telford Ltd. (2017), NEC4 Engineering and Construction Contract Option C: Target contract with activity schedule (June 2017)

11. Thomas Telford Ltd. (2017), NEC4 Engineering and Construction Contract Option D: Target contract with bill of quantities (June 2017)