

# NEC Asia Pacific Users' Group Workshop

'Carrots and sticks in contracts' and 'Defects, Completion and take over'



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 2pm - 5pm (HKT)

 Pinsent Masons Office, Hong Kong



Carrots and Sticks  
*Construction Contracts for the Future*  
NEC Asia Pacific Users' Group Workshop

June 2024



**Mohammed Talib**

Partner at Pinsent Masons | Helping the construction industry solve disputes the right way  
2mo · Edited



Most construction contracts are set up to punish failure. And we are seeing many business and project failures in the construction industry.

Astute construction businesses are opting out of projects with harsh contract terms and low margins.

You need carrots and sticks to succeed on a project and maintain a healthy supply chain.

The construction contracts of the future will need to change to reward:

- (1) Measuring value and not just target costs.
- (2) Building partnerships, not leveraging bargaining power
- (3) Encouraging innovation and technology, not just paying it lip service
- (4) Rewarding sustainable and green building methods, not business as usual
- (5) Incentivise retaining the best and most skilled teams to the end of the project
- (6) Embedding collaboration and controlling confrontation
- (7) Underlining the need for dispute avoidance, less dispute resolution

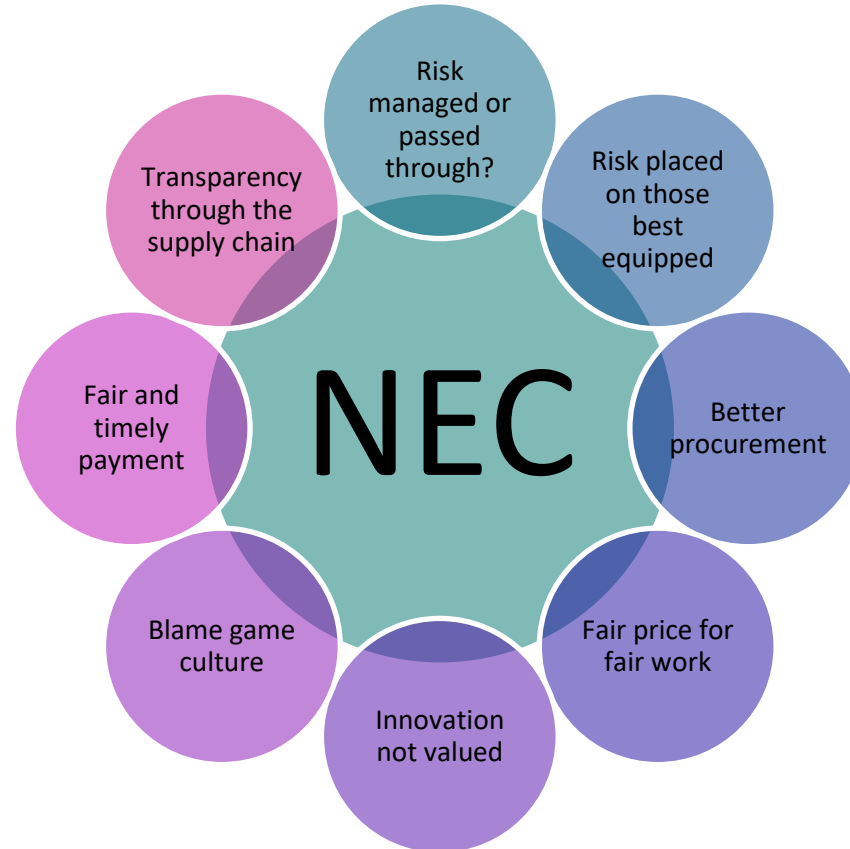
We need to break ground on a new way forward for construction contracting.

**Mohammed Talib** it's called NEC.

30 years young but still the 'construction contracts of the future'!

I think we could have a debate on this in Hong Kong and get quite strong arguments running for both sides on how much the NEC really is a contract for the future.

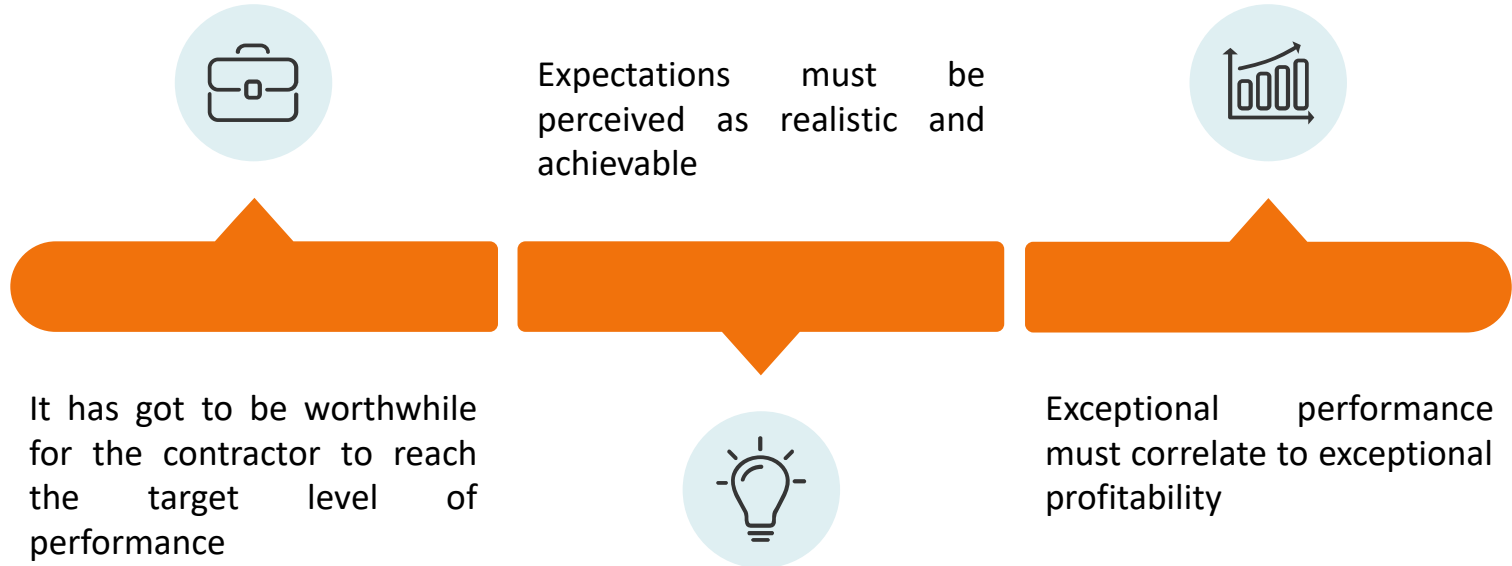
**Mohammed Talib** Lets have that conversation. The industry is broken, it is time to change from transactional to collaborative behaviours.



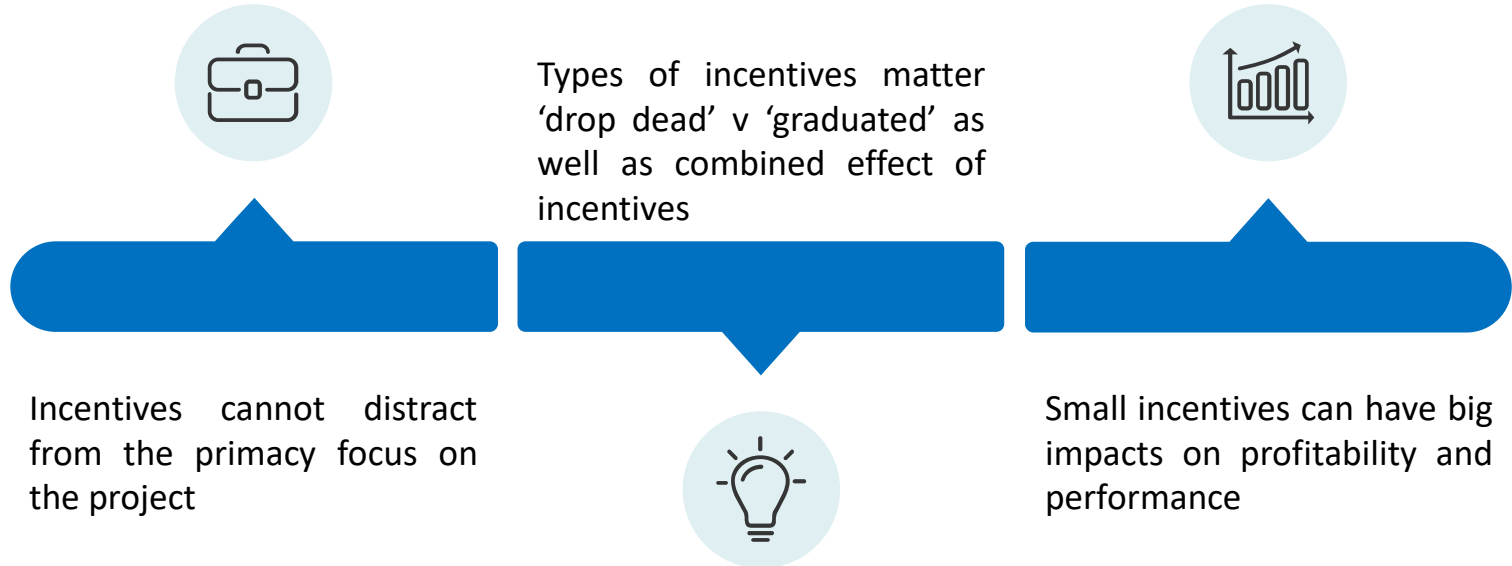
## **The Point of All Carrots**

Incentives align more closely the motivations of the contractor, consultant or supplier to those of the client, so that by working for the success of their individual organisation, they directly work for the success of the project from the client's perspective.

## Expectations of All Carrots



## Expectations of All Carrots





**How do we use NEC to provide ‘carrots’ and not just ‘sticks’**

- 1. Maximising Use of KPIs (X12 and X20)**
- 2. Rewarding Green Construction (X29)**
- 3. Early Contractor Involvement (X22)**
- 4. Information Modelling (X10 and NEC BIM Protocol)**



# Maximising Uses of KPI X20

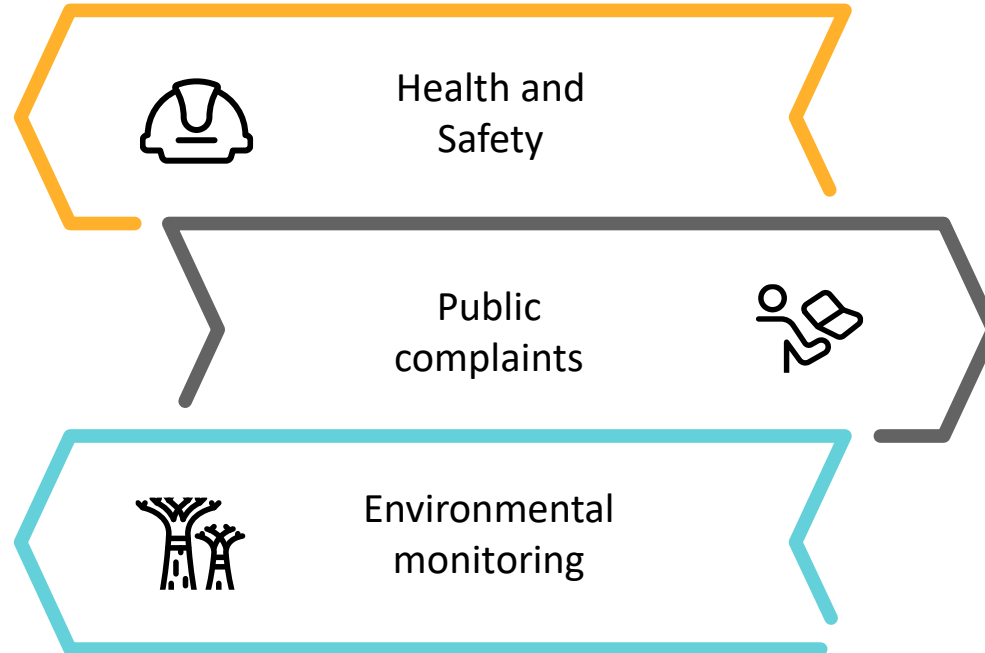
## A Simple Summary of X20

1. X20.1 – Establishes the Incentive Schedule
2. X20.2 – Requires the Contractor to report against the KPIs
3. X20.3 – Requires the Contractor to propose how it will achieve the KPIs if they might not be met
4. X20.4 – Payment of the KPI when the target has been improved upon or achieved
5. X20.5 – Allows the Client to add new KPIs (but not delete or reduce them)

## A quick nod to X12.4

1. X12 – Establishes multiparty collaboration between parties
2. X12.4 – A partner is paid when a KPI is improved upon or achieved and the Promoter can add KPIs (but not delete or reduce them)

## Typical Uses of X20





*“Have you come across more creative uses of X20?”*

# Maximising Uses of KPI – X20

Key Performance Indicator Number	Aspect of performance	Key performance indicator description	Target performance	Amount the contractor is paid if the target is improved upon or achieved
KPI-1.1	Programme acceptance	Number of days since last acceptance by the project manager of a revised programme.	Maximum 31 days	HKD [ ]
KPI-1.2	Programme acceptance	For the last accepted programme, the number of days between submission of the revised programme and acceptance of the programme by the project manager.	Maximum 7 days	HKD [ ]
KPI-1.3	Time (terminal float)	Number of weeks that planned completion is in advance of the completion date.	Remains constant or increases	HKD [ ]
KPI-1.4	Time (progress)	Price for work done to date as a fraction of expected price at current date based on first accepted programme (this is designed as a simple measure and does not try to allow for compensation events).	More than one day	HKD [ ]
KPI-2.1	Early warnings	Number of days since last early warning meeting (target to be set based on the period stated in the contract data).	Maximum 28 days	HKD [ ]
KPI-2.2	Early warnings	Number of early warnings notified in the period.	-	HKD [ ]

# Maximising Uses of KPI – X20

Key Performance Indicator Number	Aspect of performance	Key performance indicator description	Target performance	Amount the contractor is paid if the target is improved upon or achieved
KPI-2.3	Early warnings	Cumulative number of early warnings notified.	-	HKD [ ]
KPI-3.1	Compensation events	Number of compensation events notified in the period.	-	HKD [ ]
KPI-3.2	Compensation events	Cumulative number of compensation events notified.	-	HKD [ ]
KPI-3.3	Compensation events	Cumulative value of delay to completion date in quotations for compensation events that have not been implemented.	-	HKD [ ]
KPI-3.4	Compensation events	Cumulative value of change to the prices in quotations for compensation events that have not been implemented.	-	HKD [ ]
KPI-3.5	Compensation events	Average time between original notification of quotation and implementation of the compensation event.	Maximum 14 days	HKD [ ]





# Delivering Green Projects X29

# Delivering Green Projects – X29

Organisation	Interim Commitment	Long term Commitment
HK Government	50% reduction from 2005 levels by 2035	Carbon neutral by 2050
PRC Government	Emissions peak by 2030	Carbon neutral by 2060
China State Construction	Reducing carbon intensity by 25% by 2025	Carbon neutral by 2060
Gammon	By 2033: (1) reduce energy related emissions by 55% (2) reduce indirect emissions by 30%	



*“Is your business committed to achieving carbon neutrality? By when?”*

## A Simple Summary of X29

1. X29.1 – Establishes Climate Change Requirements and the Performance Table with adjustments to payment for higher / same / lower performance
2. X29.3 – Early warning if you will not meet a CCR
3. X29.4 – Requires a Climate Change Plan to meet the CCR
4. X29.7 to X29.10 – Compensation Events which only affect the Performance Table and changes to the Performance Table

## A Simple Summary of X29

5. X29.12(1)– Contractor reports its performance against the Performance Table.
6. X29.12(2) - If not achieving, or forecast not to achieve, it proposes how it will achieve them.
7. X29.13(3) –
  - If at the relevant date relevant performance **is not met**, then Contractor pays the amount in the Performance Table.
  - If at the relevant date relevant performance **is met or exceeded**, then Contractor is paid the amount in the Performance Table.

## Interesting features of X29

1. Climate change is a technical issue addressed in the Scope
2. Climate change is seen as a key issue at every point in the life of an asset
3. The Performance Table can be used to set targets for anything, so not just confined to Climate Change
4. Argued to be an incentive to consider whole-life cost rather than just capital cost.
5. This would sit alongside or in replacement of X21: Whole Life Cost

## Interesting features of X29

6. Unlike X20, Performance Table allows:
  - Performance requirements and low performance damages
  - KPIs where these are offered with a performance bonus
- X29.12 specifies that information in the Performance Table is not scope – so excludes Cl 45 (amending scope to accept a Defect)
- X29.13 excludes any sums paid by the Contractor as counting as part of the limitation of liability under X18

## Operating X29

- 1** Considerable knowhow and judgment on the part of client, consultants and contractors needed to define CCR and calibrate the Performance Table
- 2** Climate goals may need changes beyond X29's scope such as Early Contractor Involvement / appropriate pricing / right technology
- 3** Guidance suggests it should not be used with either X20 or X17 in the same contract





## APPENDIX A – EXAMPLE PERFORMANCE TABLE

Performance Table

Ref	Subject / Issue to be addressed	Target	Units	Date when performance is to be measured	If performance does not meet the target stated in the Performance Table, the Contractor pays the amount stated (sum or rate)	Limit on sum to be paid by the Contractor (if any)	If performance exceeds or meets the target stated in the Performance Table, the Contractor is paid the amount stated (sum or rate)	Limit on sum to be paid to the Contractor (if any)	Reporting frequency (weekly/ monthly/ at completion)
						<i>[For a per target limit]</i>		<i>[For a per target limit]</i>	
	Total limit on sum to be paid					<i>[When an overall limit will apply]</i>		<i>[When an overall limit will apply]</i>	(weekly/ monthly/ at completion)

The method and rules used to compile the Performance Table are



# Early Contractor Involvement X22

- **Extract X22.2(5):** *The **Contractor prepares forecasts** of the Project Cost in consultation with the Project Manager and submits them to the Project Manager. Forecasts are prepared at the intervals stated in the Contract Data from the starting data until Completion of the whole of the works. An explanation of the changes made since the previous forecast is submitted with each forecast.*
- **Extract X22.5(3):** *If a notice to proceed to **Stage Two** is issued, the **Project Manager changes the Prices, the Access Dates, the Key Dates and the Completion Date** accordingly and accepts the revised programme.*
- **Extract X22.7(1):** *If a notice to proceed to Stage Two is issued and the **final Project Cost is less than the Budget, the Contractor is paid the budget incentive**. The budget incentive is calculated by multiplying the difference between the Budget and the final Project Cost by the percentage stated in the Contract Data.*

- Benefits of ECI
  - Reduction of project costs
  - Better project management
  - Improve project quality by receiving the contractor's input right from the start
- How to unlock the values of ECI
  - Adopt two stage bespoke procurements
  - **How does it work:** Stage One completed at the time when programme and pricing matters are complete (or almost complete) for the works relating to the “whole” contract
  - **Application:** Employer uses two stage procurement under NEC3



*“Have you ever been in a situation where a project risk could have been avoided if there had been ECI?”*

- Can we craft KPIs around ECI?
  - Technical knowhow (how to develop designs or enhance constructability?)
  - Strengthen project management and risk assessment (extra-early Early Warnings?)
  - Willingness to co-operate and minimize risks (more mutual, more trust?)



# Enhancing use of Technology X10

- **Extract X10.1(2):** *Project Information is information provided by the Contractor which is used to create or change the Information Model.*
- **Extract X10.2:** *The Contractor collaborates with other Information Providers as stated in the Information Model Requirements.*
- **Extract X10.4(4):** *The Contractor provides the Project Information in the form stated in the Information Model Requirements and in accordance with the accepted Information Execution Plan.*
- **Extract X10.6:** *The Client **owns** the Information Model and the Contractor's **rights over Project Information** except as stated otherwise in the Information Model Requirements. The Contractor **obtains from a Subcontractor equivalent rights for the Client over information prepared by the Subcontractor**. The Contractor provides to the Client **the documents which transfer these rights to the Client**.*





*“Have you come across the use of Option X10 in the past? If yes, have you unlocked the full benefits of BIM?”*

## What needs to be done differently?

- Existing standard form construction contracts may need adjustment:
  - Designed around **physical deliverables** and **not software deliverables**
  - **Do not provide sufficient provisions** around information exchange
  - Give relatively **low priority** to **protecting and licensing IPR**
- **Accepted solution** - incorporate special conditions or BIM Protocol:
  - **Priority of Agreement** – BIM Protocols ought to be put in a **proper place in the contractual hierarchy**.
  - **Scope of Services** – BIM Protocol obligations to be **carved out from the scope of services** under the contract and to be **excluded in the fees paid**.

## How to unlock the value of BIM?

- **Step down provisions** – consider whether it is always appropriate for **obligations to be stepped down** and **who has responsibility** to ensure that stepped down obligations can be delivered.
- **Role Definition** – **separate access and preparation related roles** for others in the BIM.
- **Enhanced loss of documents cover** – insurance for reconstituting, replacing documents etc. Need to **adhere to storage and back up requirements** for electronic documents.
- **Hosting BIM environments** – existing PI arrangements may not be sufficient. There may be a need for **specific technology policy**.



Questions



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works | services | supply



nec4 | Streamlining  
processes

## Defects, Completion and take over



# Speaker

## **Robert Gerrard BSc(Hons), FRICS, FCInstCES, NECReg Senior NEC Consultant and NEC Users' Group Secretary**

- 41 years' experience in setting up and managing contracts, 29 of those using NEC
- Based in Hong Kong
- NEC Users' Group Secretary since 2006
- Published NEC3 and NEC4 Compared, NEC2 and NEC3 Compared; joint author NEC4 Avoiding and Resolving Disputes, NEC4 Practical Solutions, NEC3 Practical Solutions
- Accredited Mediator and Dispute Resolution Adviser
- Honorary Advisor to the Hong Kong Adjudication Centre
- Senior Certified Adjudicator at the International Dispute Resolution & Risk Management Institute



# Let's discuss.....

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- Defects,
- Completion and
- Take over....
- ....in relation to the NEC4 Engineering and Construction Contract (ECC)





FLOW CHARTS

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June 2017

# Defects

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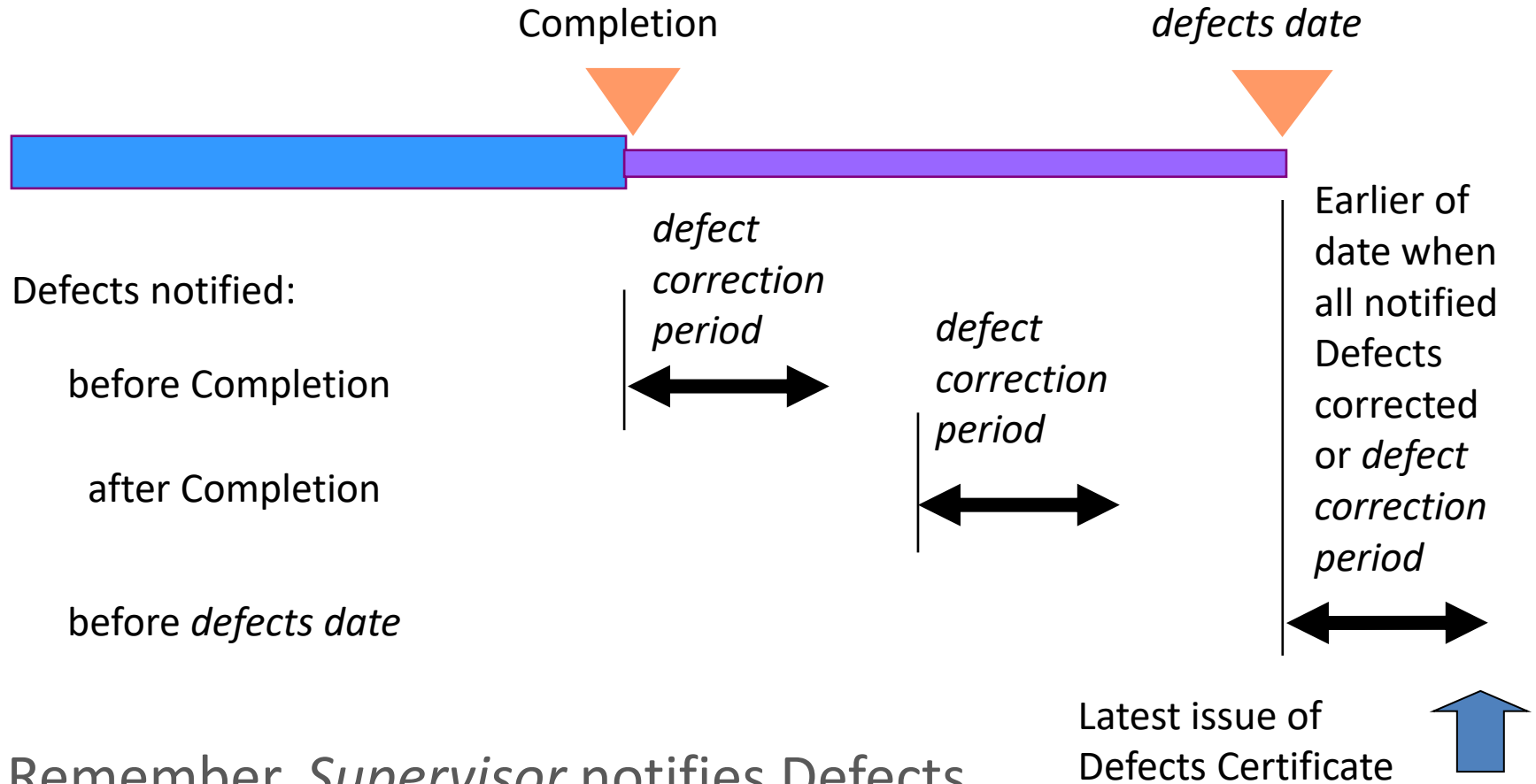
# What is a Defect?

- Definition, 11.2(6)
  - a part of the *works* which is not in accordance with the 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
- What about works not yet started?
- If not sure, instruct a search (43.1)
- Let the *Contractor* say it's compliant with Scope before notifying as Defect, unless i.e. obviously wrong

## What happens next?

- It is notified (43.2/13.1/13.7)
- By the *Supervisor* or *Contractor*
- As soon as they are aware
- *Contractor* corrects (44) unless a deal is done to accept the Defect (45)
- If not, may delay Completion (may lead to delay damages) or may lead to monies deducted under clause 46 (uncorrected Defects)
- Advice to *Contractor*....records, records, records....

# Defects timetable



- Remember, *Supervisor* notifies Defects

# Defects Certificate

- This is issued by the *Supervisor* at
  - the *defects date* if there are no notified Defects or
  - the earlier of the last *defect correction period* and the date when all notified Defects have been corrected
- This is the duty of the *Supervisor*, but it is suggested that the *Project Manager* ensures this is logged as an action. Very often this could be a year (52 weeks) or 2 years (104 weeks) after Completion and may be forgotten
- Note that the *defects date* runs from “Completion of the whole of the *works*” (Contract Data part one)
  - it does not run from any sectional Completion or take over



## Uncorrected Defects

- Linking back to the Defects Certificate, the *Project Manager* will need to assess any Defects that remain that the *Contractor* was given access to but did not correct (clause 46.1)
- The *Project Manager* will also need to assess any Defects that remain to which the *Contractor* was not given access (clause 46.2)
- These are valued differently
  - under clause 46.1 it is the cost of other people correcting Defects (generally anticipated to be higher than if the *Contractor* corrected them)
  - under clause 46.2 (as they were not given access) this is the cost of the original *Contractor* correcting Defects (generally anticipated to be a lower cost than clause 46.1)



# Completion

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# Thinking about Completion - Scope

## Example Scope structure

The numbering system used below is indicative.

SECTION	SCOPE (CLIENT'S)
S 100	Description of the works
S 200	General constraints on how the Contractor Provides the Works
S 300	Contractor's design
S 400	Completion
S 500	Programme
S 600	Quality management
S 700	Tests and inspections
S 800	Management of the works
S 900	Working with the Client and Others
S 1000	Services and other things to be provided
S 1100	Health and safety
S 1200	Subcontracting
S 1300	Title
S 1400	Acceptance or procurement procedure (Options C, D, E and F)
S 1500	Accounts and records (Options C, D, E and F)
S 1600	Ultimate holding company guarantee (Option X4)
S 1700	Undertakings to the Client or Others (Option X8)
S 1800	Transfer of rights (Option X9)
S 1900	Information modelling (Option X10)
S 2000	Performance bond (Option X13)
S 2100	Advanced payment to the Contractor (Option X14)
S 2200	The Contractor's design (Option X15)
S 2300	Retention (Option X16)
S 2400	Low performance damages (Option X17)
S 2500	Early Contractor involvement (Option X22) (Options C and E)
S 2600	Climate change (Option X29)
S 2700	Project Bank Account (Option Y(UK)1)
S 2800	Client's work specifications and drawings

CHECKLIST	EXPLANATION
S 205 General constraints	Restrictions on: <ul style="list-style-type: none"> <li>• Use of the Site.</li> <li>• Access to the Site.</li> <li>• Deliveries.</li> <li>• Noise and vibrations.</li> <li>• Working hours.</li> <li>• Parking.</li> <li>• Use of cranes.</li> <li>• Use (or non use) of explosives.</li> <li>• Restrictions on the use of hazardous materials.</li> <li>• Storage of fuel and chemicals.</li> <li>• Pollution, ecological or environmental impacts.</li> <li>• Archaeological requirements.</li> <li>• Interfaces between the works and existing things.</li> <li>• Occupied premises and users.</li> <li>• Client specific policies and procedures.</li> <li>• Constraints imposed to meet requirements of Others (for example funders).</li> </ul>
S 210 Confidentiality	Confidentiality and publicity restrictions, and any acceptance procedures.
S 215 Security and protection of the Site	Security requirements for the Site and protection of the public.
S 220 Security and identification of people	Security, vetting and identification of people working on or visiting the Site.
S 225 Protection of existing structures, services and other things	Specific requirements for the protection of existing structures, services, trees and other plant life. Requirements for maintenance of existing services. Procedures for working on existing structures and services.  Refer to Site Information for location of existing things to be protected or procedures for identifying them.
S 230 Protection of the works	Specific requirements for the protection of the works against damage.

The User Guide volume 2 is extremely useful. It explains the contractual significance, how to draft Scope and has a suggested structure

# Certifying Completion

- Definition (11.2(2))
  - **Completion is when the *Contractor* has .....done all the work which the Scope states is to be done by the Completion Date and.....**
- **Examples**
  - if the Scope specifically requested a register of assets, then the *Project Manager* would not certify Completion until obtained
  - further examples could include staff training and the completion of operational and maintenance manuals

CHECKLIST	EXPLANATION
S 405 Completion definition ECC 11.2(2)	Work to be done by the Completion Date. If required, state which parts of the works can remain incomplete.
S 410 Sectional Completion definition ECC 11.2(2) ECC X5.1	As above for each Sectional Completion.
S 415 Training	Training required for the <i>Client</i> or Others and associated timescales.
S 420 Final clean	Details of final clean, removal of Equipment, temporary structures, materials, protection and tools.
S 425 Security	Details of security arrangements and handover at Completion.
S 430 Correcting Defects	Procedures for access for the correction of any Defects and procedure for liaison with the <i>Project Manager</i> and <i>Client</i> .
S 435 Pre-Completion arrangements	Requirements for preparing for take over.
S 440 Use of the works ECC 35.2	<p>Identify parts of the works that the <i>Client</i> requires to use prior to Completion without taking it over. Details to include:</p> <ul style="list-style-type: none"> <li>• What is being done.</li> <li>• When it is being done and for how long.</li> <li>• Location or parts of the works effected.</li> <li>• Reasons for use.</li> </ul> <p><i>Contractor's</i> access provision during period of use.</p> <p>For example this maybe necessary for process plant type works where it is typical for the <i>Client</i> to start using parts of the works to enable the <i>Contractor</i> to run tests that are needed before Completion.</p>

The *Project Manager* needs to check what the Scope states and ensure Completion has been achieved. The status of the asset is typically key to most *Clients*

# Certifying Completion

- Back to the definition.....
  - **and corrected notified Defects which would have prevented the *Client* from using the *works* or Others from doing their work**
- Which of these examples fails the above test?
  - the fire alarm system in a new school does not work
  - security shutters in the newly refurbished bank do not work
  - incorrect ornamental landscaping works in car park

# Certifying Completion

- Back to the definition.....
  - If the work which the *Contractor* is to do by the Completion Date is not stated in the Scope, Completion is when the *Contractor* has done all the work necessary for the *Client* to use the works and for Others to do their work
  - So, there is a fallback position
  - Which is far from ideal!



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engineering and  
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June 2017

# Take over

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## Take over

- If stated in Contract Data part one, the *Client* need not take over the *works* before the Completion Date (clause 35.1)
- Otherwise, the *Client* takes over within 2 weeks of Completion (clause 35.1)
- The *Client* also has the authority to use any part of the *works* before Completion is **certified** (clause 35.2)
- ‘Use’ defines when take over occurs (clause 35.2), the *Project Manager* then certifies within 1 week (clause 35.3)
- If using part of the *works* for
  - a reason stated in the Scope or
  - to suit the *Contractor's* method of workingthen this is not classed as take over (clause 35.2)

## Take over

- Take over is a compensation event if this effects time and/or cost (clause 60.1(15))
- However, clause 60.1(15) states “.....**before both Completion and the Completion Date.**”
- This means that take over before Completion but after the Completion Date, so the *Contractor* is in delay (planned Completion is after the Completion Date), is not a compensation event
- The *Client* could therefore start using the *works* in this period of *Contractor* delay without it being a compensation event. This could further delay and/or increase the *Contractor's* costs





# Summary

- Defects
- Completion
- Take over
- Who would be a *Contractor*?!

# NEC ASIA PACIFIC CONFERENCE 2024

 Thursday 28th November

 Cordis Hotel, Hong Kong

**SAVE THE DATE**



# Engage with NEC4.....



Further training



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**NEC4 Engineering and Construction Contract (ECC) Project Manager Accreditation**  
3rd August | Classroom

**NEC4 Design Build and Operate Contract (DBOC) Service Manager Accreditation Extension**  
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