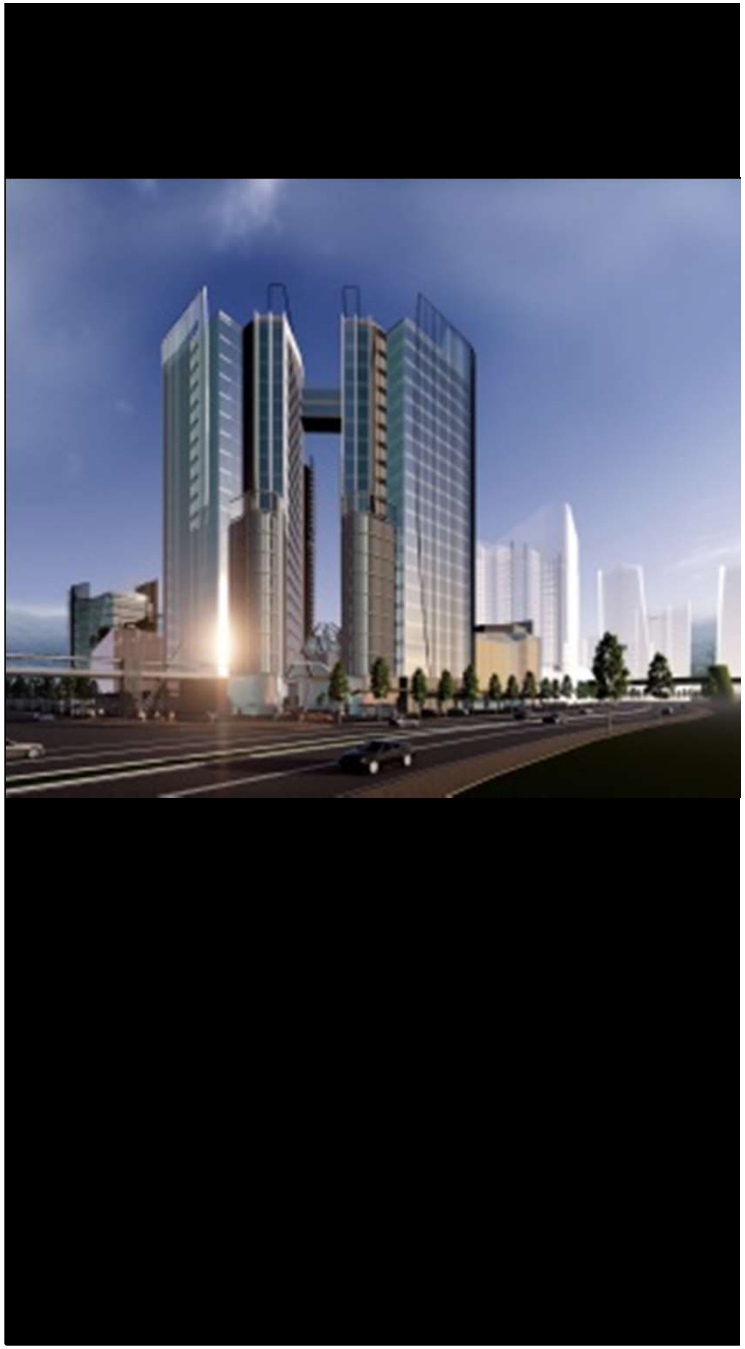
THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER



2018, Jan 26

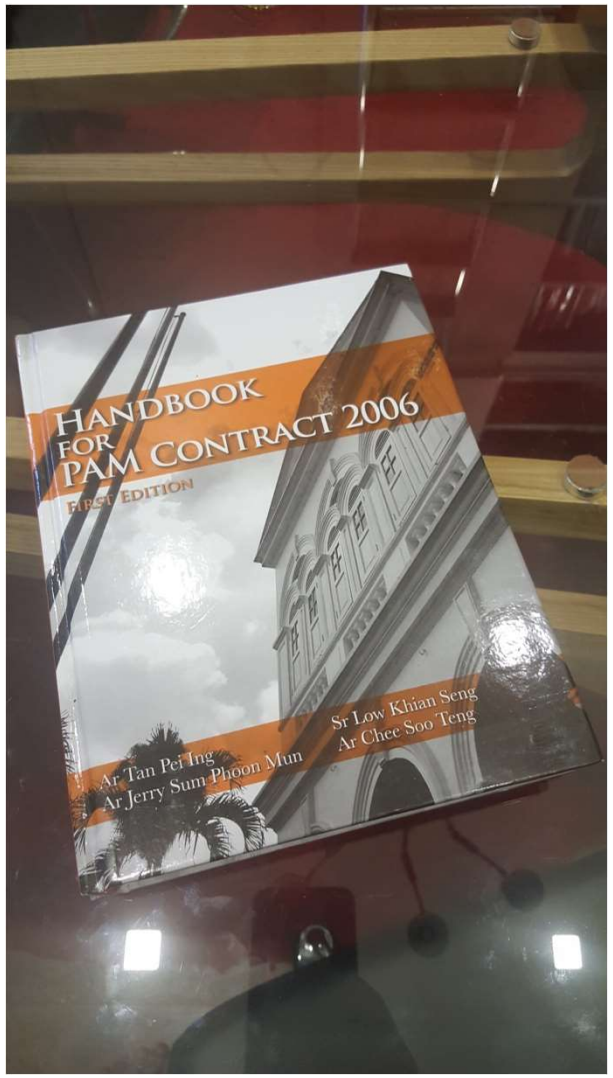
PERTUBUHAN AKITEK MALAYSIA

Ar. Loo Chee Keong
Partner at ARC PARTNERSHIP
Director of ARCALLIANCE Sdn Bhd

THIS PAPER IS NOT ABOUT THE APPLICATION OF THE **PAM** FORM

8 articles
38 clauses

NOR THE AMENDMENTS MADE IN 2018



SYPNOSIS

The Standard PAM Form of Building Contract has been revised through the years in reaction and anticipation of the common industry practices, their pitfalls and idiosyncrasies of the contract parties, context and also the wider role of the Architect as building contract administrator, certifier , quasi arbitrator and public custodian in Malaysia. This presentation highlights a few of the issues in the use of the PAM Form as the Building Contract which requires deeper thought and care; encountered in our years of practice.

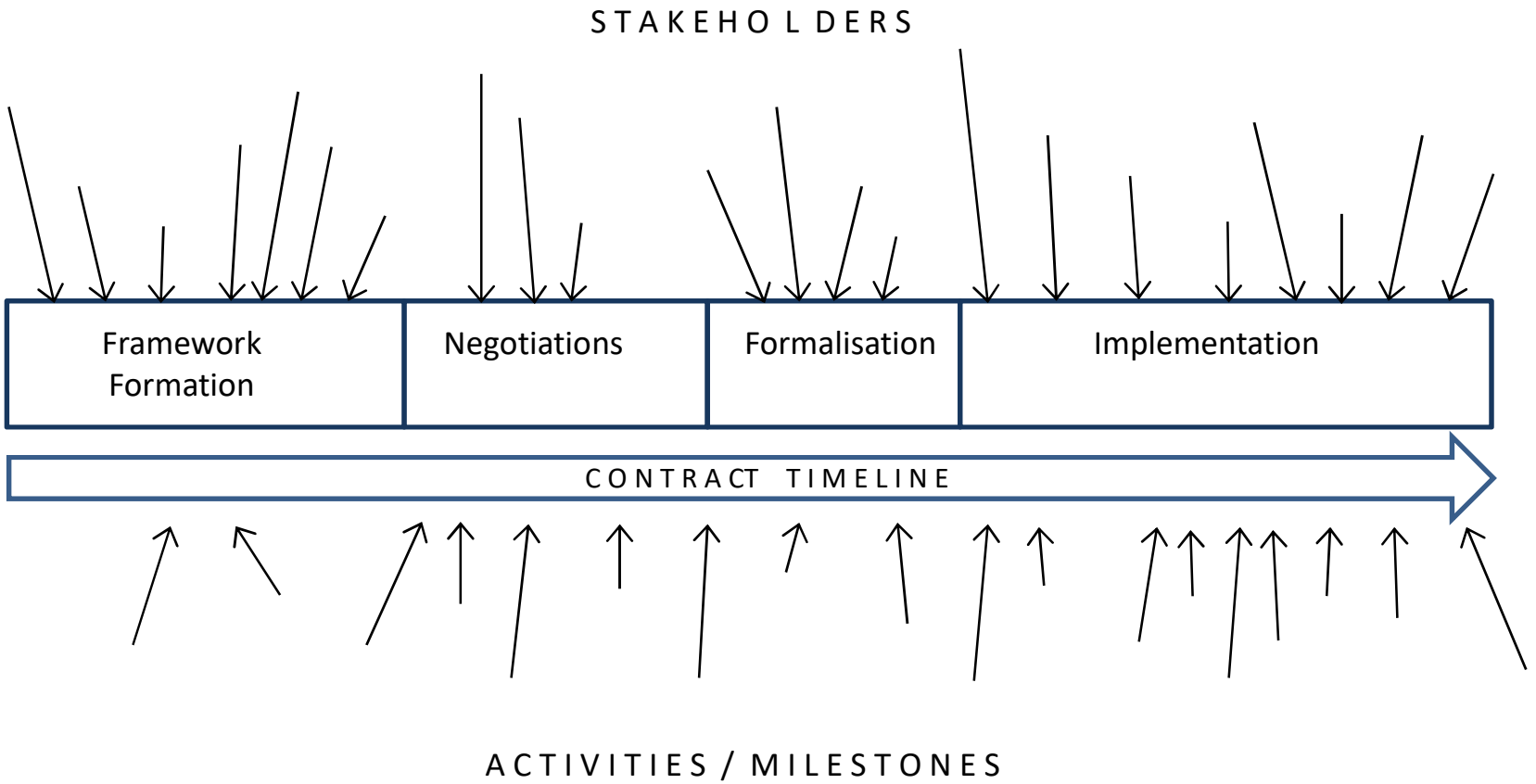
What are the 'actual' Contract conditions we are operating under?

What are the considerations of the major contractual milestones, their respective triggers and their actual relationship in the wider context?

Managing expectations of the parties of the Contract

HOW DO YOU MAKE SENSE OF A BUILDING CONTRACT AND MAKE IT EASIER TO UNDERSTAND ?

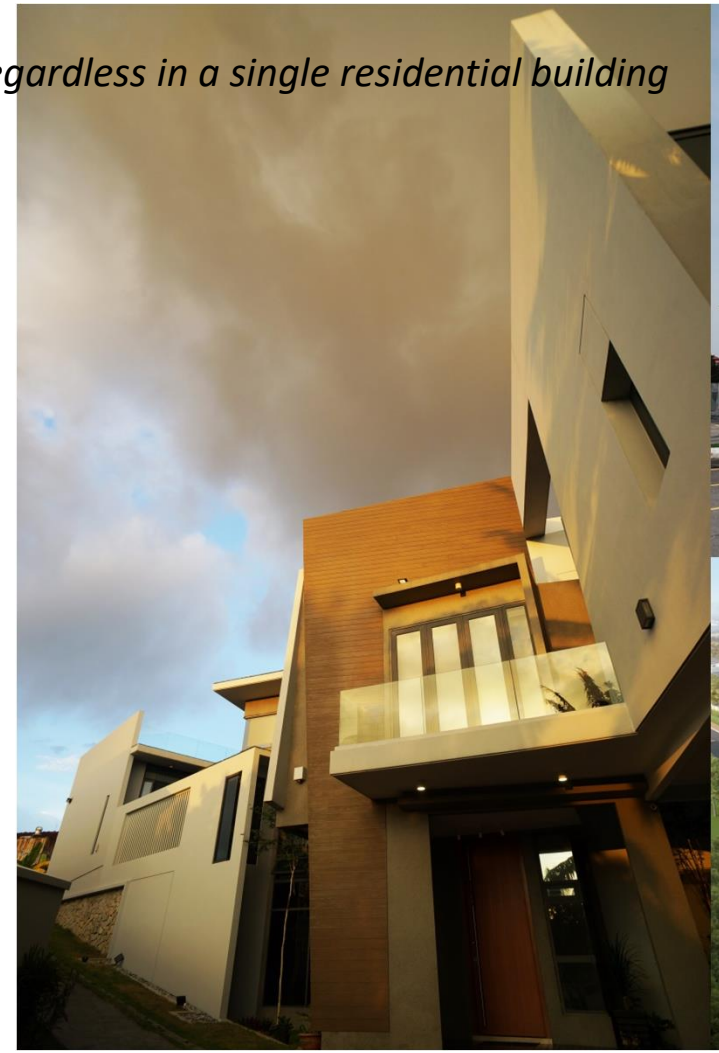
DIGESTING THE CONTRACT AS A PROCESS



THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER- *Ar LOO CHEE KEONG (2019 Jan26) PAM*

This is the basis of this paper; a summary on how we…

Regardless in a single residential building



…or a more complex one…

….or multiple units in a precinct

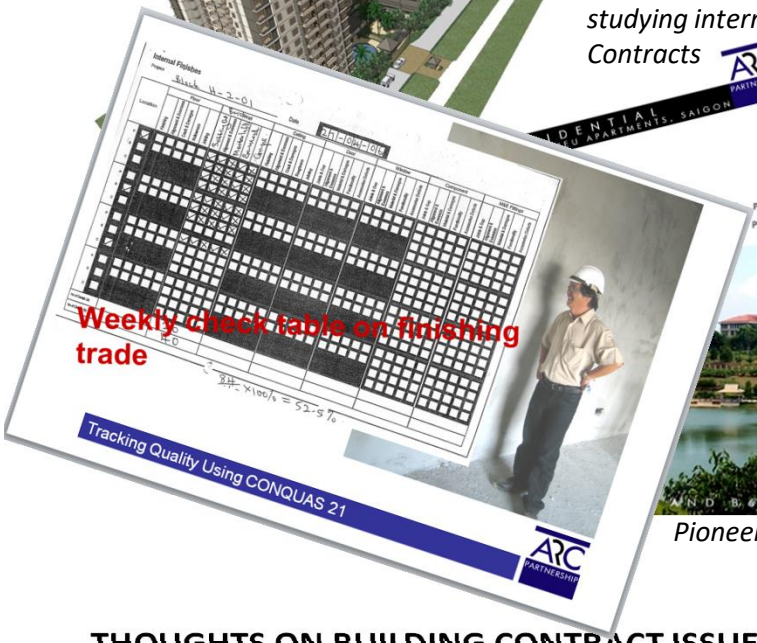
(left clockwise: house no10, KTAR Cybercentre, D'Alpinia Township)

..where the 'process' was evaluated based on the experiences gained from our active role….

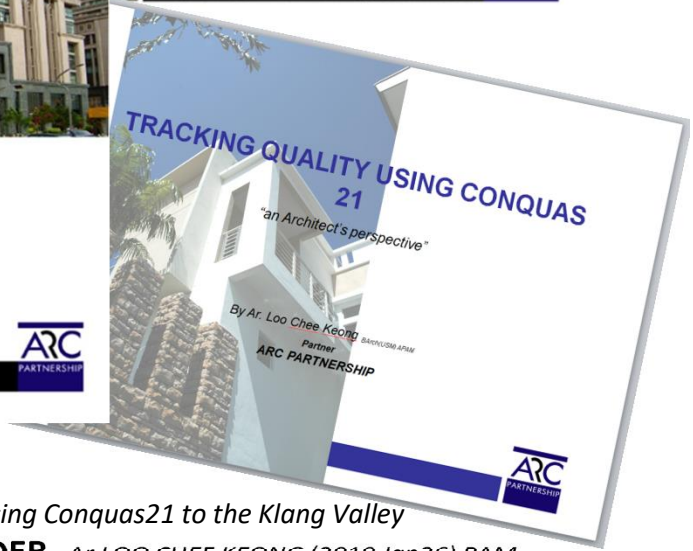
1st landed strata in KL

Active development in Gated and Guarded schemes introduction

Exporting Services and studying international Contracts



Pioneering team in Putrajaya Contracts

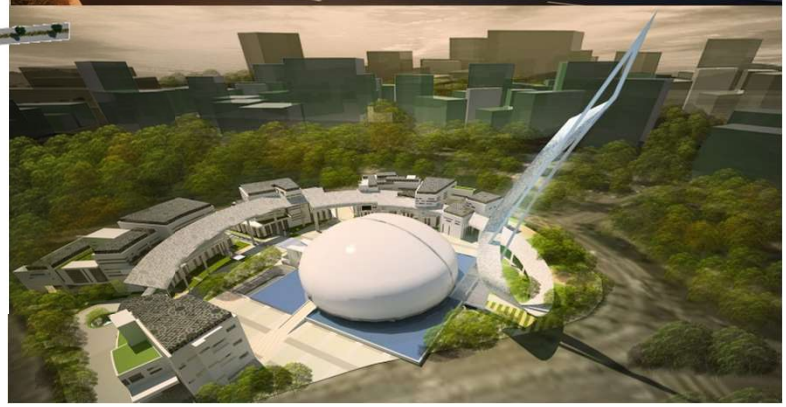


Introducing Conquas21 to the Klang Valley

THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER- *Ar LOO CHEE KEONG (2019 Jan26) PAM*

…from projects undertaken ..

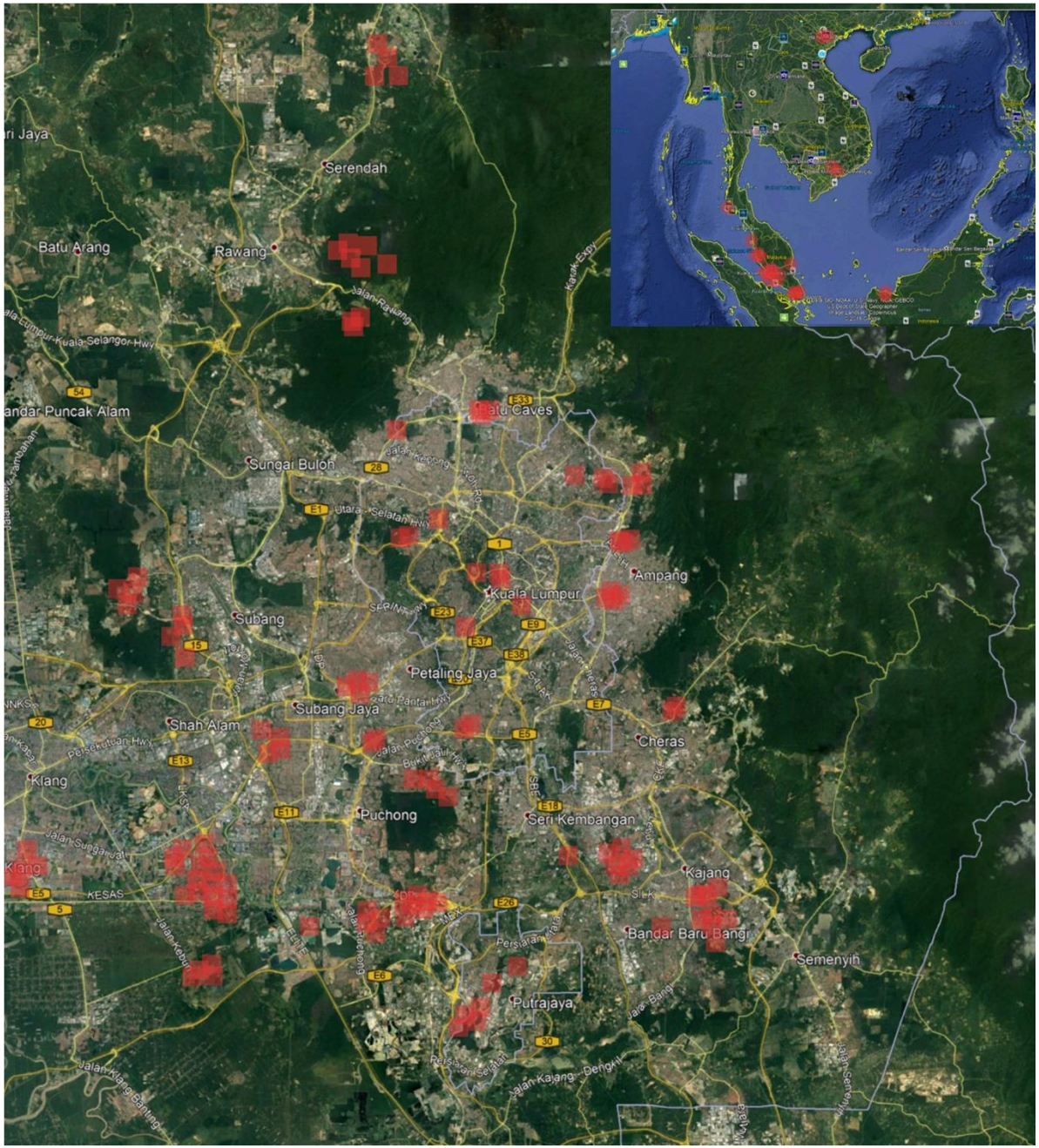
Approximately 500 Contracts with over 50,000 units of various typology and use.
Current statistics:
On time and on budget >99%
1 Contract with disputes over payment.
3 tribunal cases but all thrown out by the tribunal hearings.



Award Winning Schemes: NAZA Masterplan 2011 Competition, Potpurri 2018, Masjid MACAMA 2011, Tropicana Heights, Kajang

with 95% clientele retention over 28 years of practice. …

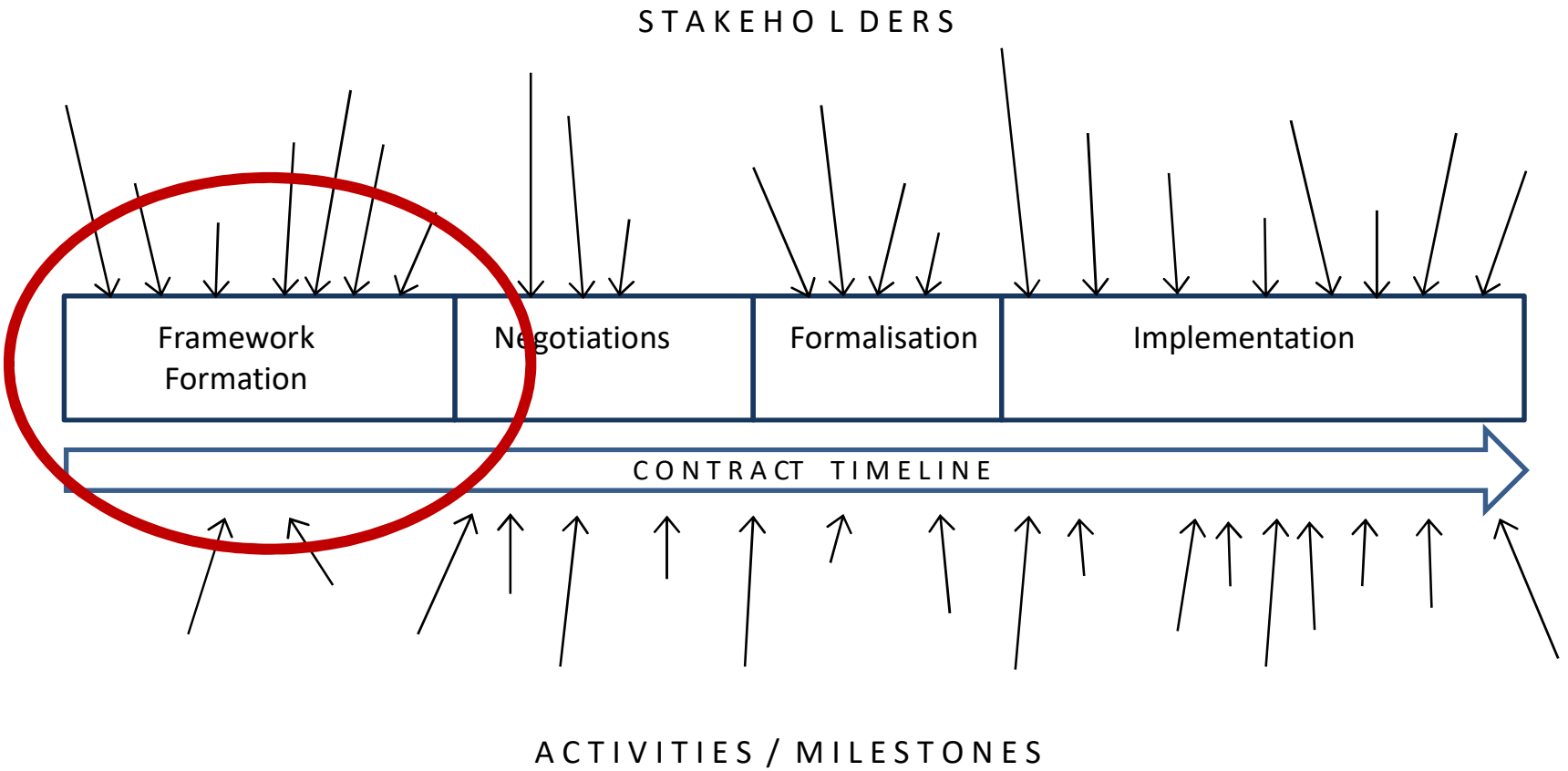
and from this…

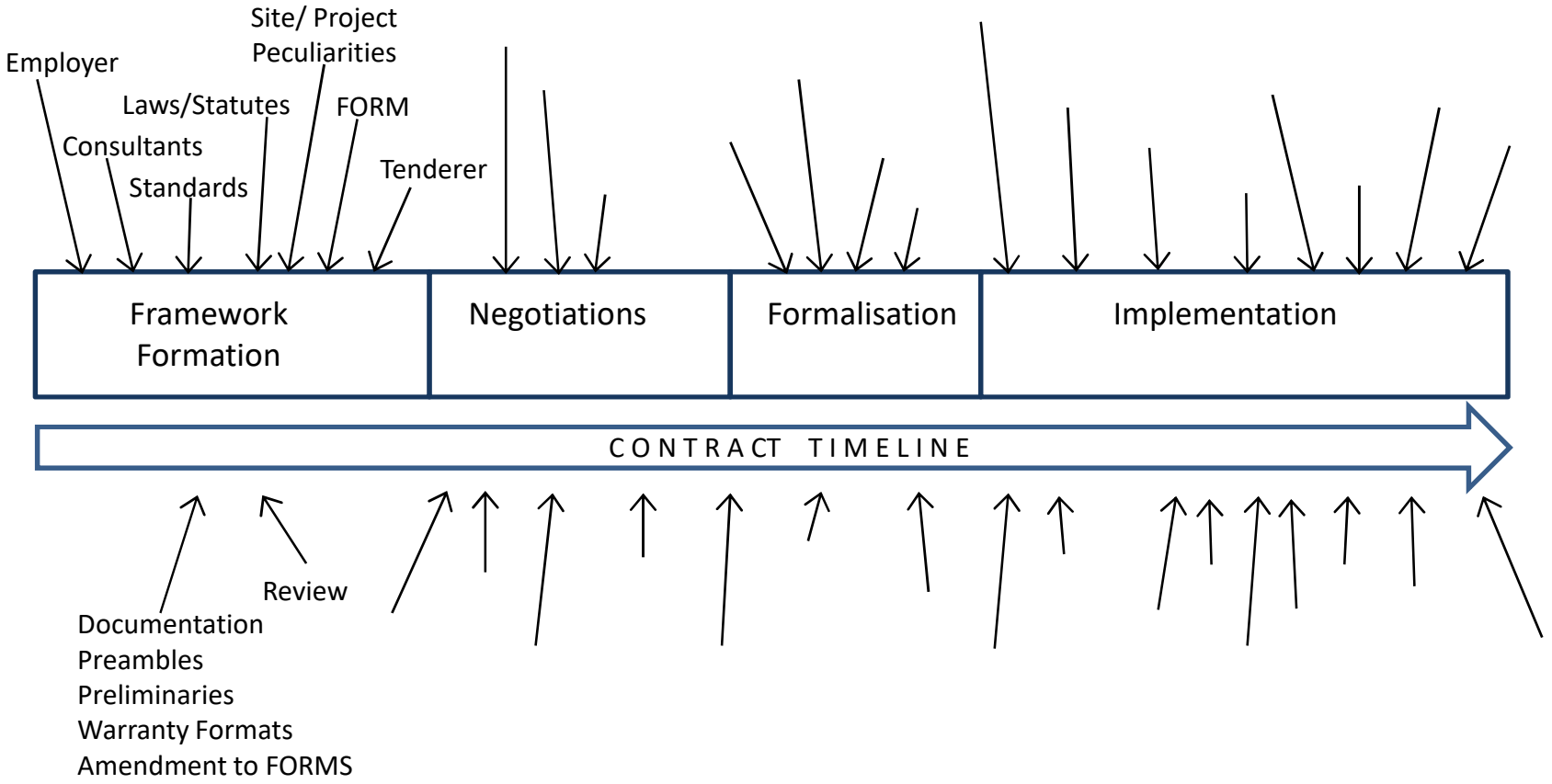


What are the actual Contract conditions we are operating under?

A lot of budding Architects are only obsessed in the understanding of the standard PAM form that they tend to overlook the crucial details during the formation of the contract documents. While the **PAM form** is generally regarded as well thought out, the impact of particular **additions and omissions** made by Clients or the Consultant QS are usually overlooked. This is also further complicated by the overlapping engagement conditions of the Architect as dictated and affecting their roles in the administration the Building Contract, as well as the multi faceted role of the Architect given to them by the laws of the land.

Lets revisit this PROCESS





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Too often, clients in their desire to safeguard their interests, be it in their appointment of the Architect or the running of a building Contract will **inevitably introduce conditions which will jeopardise the smooth running**, interpretation and spirit of the PAM form **"to create a fair and balanced set of conditions"**. Amongst others, these can be summarised in the form of:

Restriction of/ Negating the Architect's duty as an independent certifier *Requiring ARCHITECT to obtain approval before granting EOT*

Expansion of the Architect's role beyond the defined certifier, specifier, quasi arbitrator, administrator, assessor role

Requiring Architects to endorse as-built drawings

Expanding the Employer's role in supplanting the Architect's duties

Employer demanding right to determine if works is done to their satisfaction

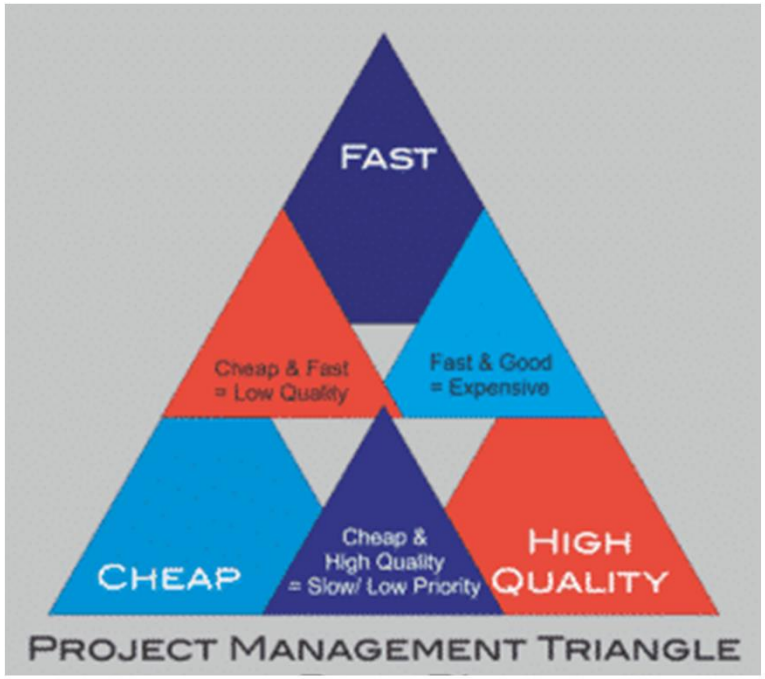
Inclusions or exclusions rendering considerations and remedies of contract clauses and intentions untenable

Omission of EOT clauses

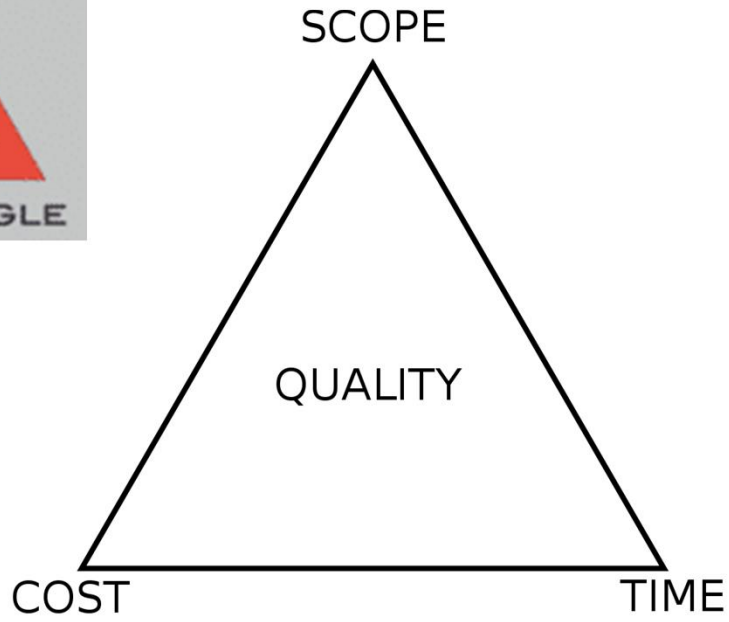
A few common examples that can **jeopardise** the intent for a **tenable and fair contract** are:

1) A Preamble condition detailing the requirement for compliance of a particular ISO condition that requires EOT approvals by the Employer (effect on **TIME** compromised by a contracting party)
2) Conditions imposing acceptance of workmanship and quality of works by the Employer (effect of **QUALITY** compromised by a contracting party)
3) Imposition of variation cost requiring Employer's approvals before valuation of works. (effect on **COST** compromised by a contracting party)
4) Requirement for the Architect to endorse as-builts prepared by Contractors per clause 3.10 (effect on line of responsibility)

Understanding that these major elements will be affected by the changes will be necessary


FAST
Cheap & Fast
= Low Quality
Fast & Good
= Expensive
CHEAP
Cheap &
High Quality
= Slow/ Low Priority
HIGH
QUALITY
PROJECT MANAGEMENT TRIANGLE

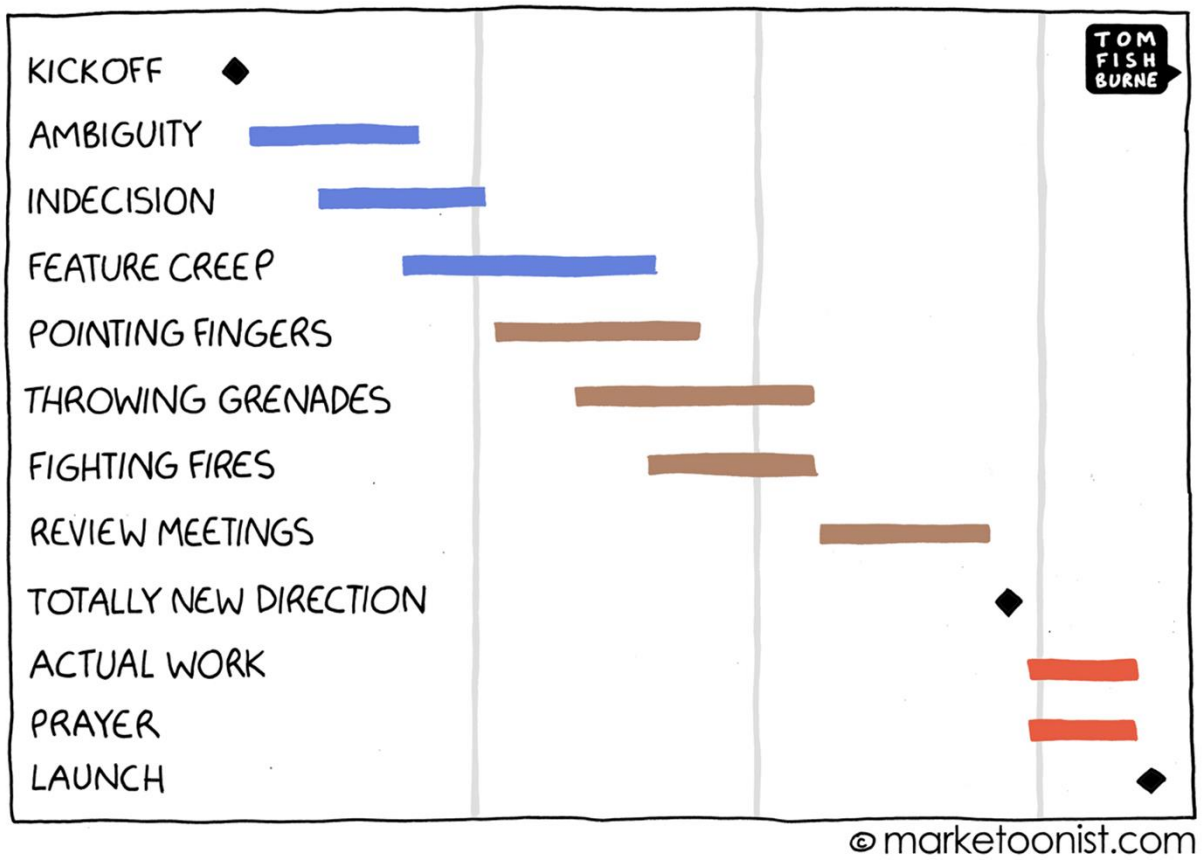

Time
Cost
Quality


SCOPE
QUALITY
COST
TIME

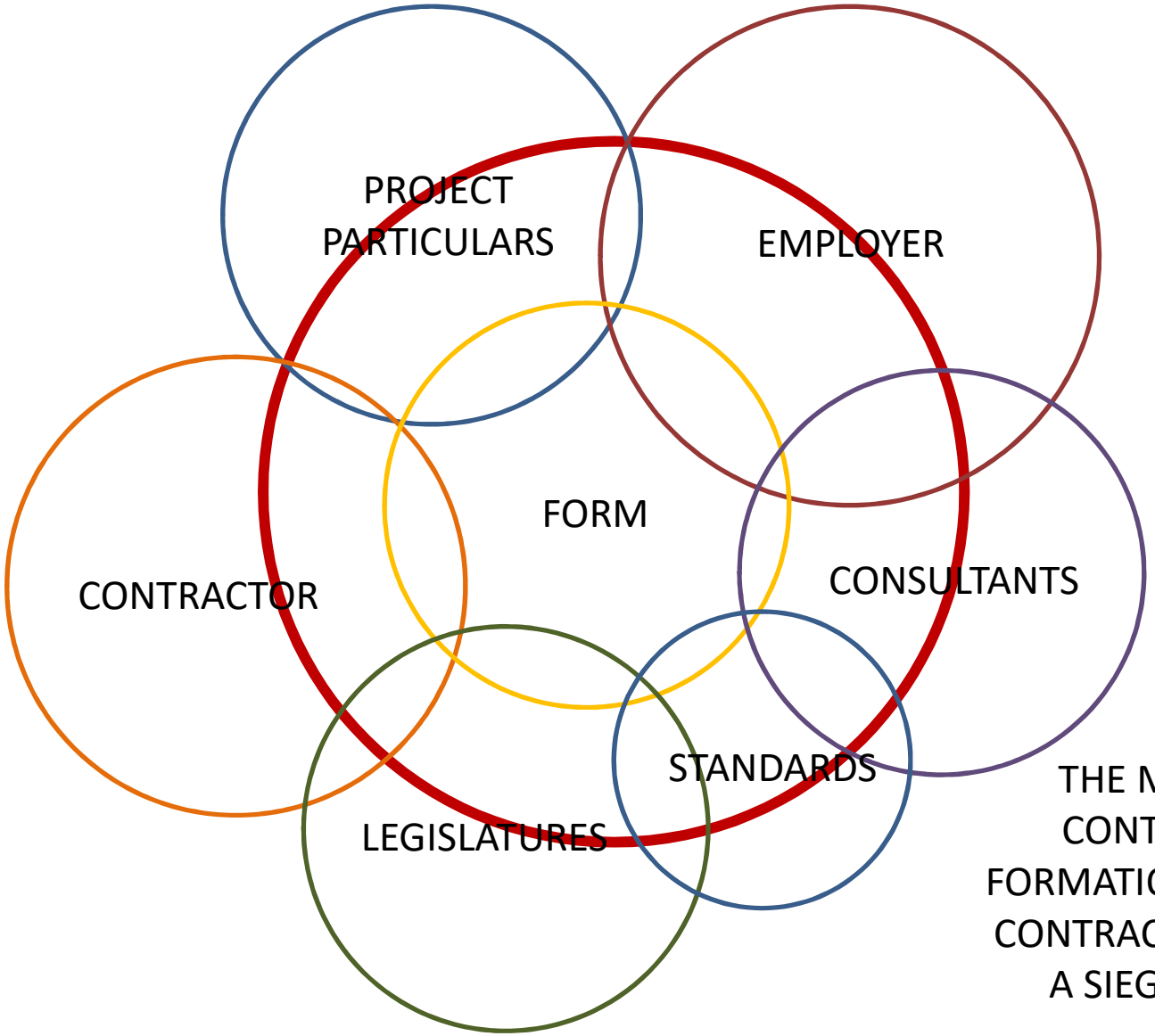
CHANGES AFFECTING THE ADMINISTRATOR'S ROLE AND POWERS

The role of the Architect and the **powers** they operate under, in the Building Contract, in the use of the PAM form is **defined by the clauses within**. The PAM form is not sacrosanct nor is it perfect. The intent "of wanting to produce a fair and balanced form" while maintaining a "compromise of aspirations" is a very complicated enterprise and easily upset. While it tries to capture all the scenarios likely to happen in a building contract and offers remedies, solutions and defines the effects of events, ***the role of the Architect in carrying out their role professionally and completely will be altered with additions and alterations to these contract clauses***.

THIS IS NOT WHAT YOU WANT YOUR CONTRACT ADMINISTRATION PROGRAMME TO LOOK LIKE IF YOU MESS WITH IT TOO MUCH WITHOUT PROPER UNDERSTANDING



THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER- *Ar LOO CHEE KEONG (2019 Jan26) PAM*



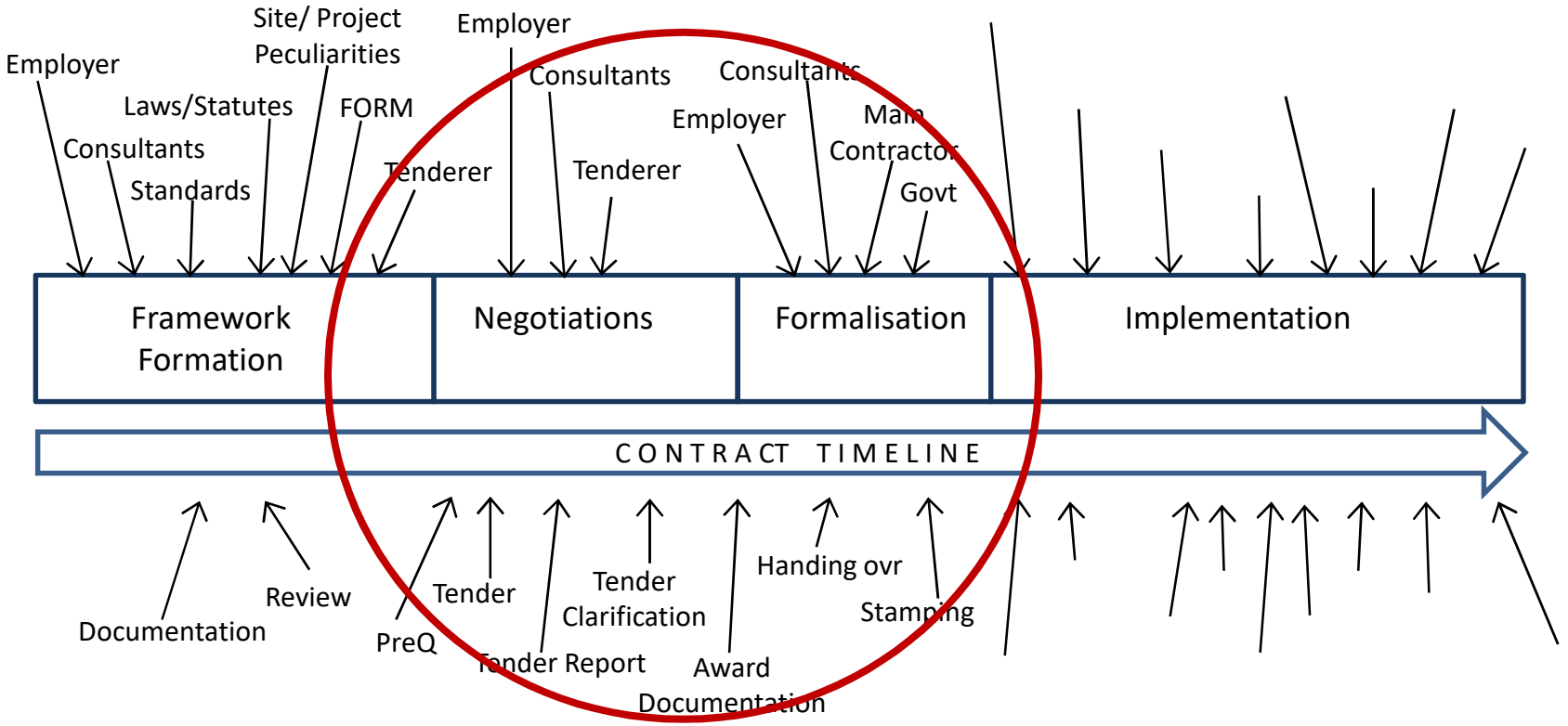
THE MATRIX OF WHAT CONTRIBUTES TO THE FORMATION OF THE BUILDING CONTRACT LOOKS MORE LIKE A SIEGE IN A MEDIEVAL CASTLE

THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER- *Ar LOO CHEE KEONG (2019 Jan26) PAM*

ITS NOT ONLY THESE AMENDMENTS THAT WILL AFFECT YOUR ROLE AS YOU UNDERSTAND IT

Another area where the Architect's role can be influenced is the matrix of responsibility we operate under in Malaysia. Whilst the PAM form has **clear expressed conditions detailing the role of the Architect**, the Architect is also reminded that the **protection of the profession** by virtue of the Street and Drainage Act and Architect's Act also means more responsibilities in our role during Contract administration which is **not explicitly mentioned but required**. The carrying out of these duties can affect the manner in which the Contract will need to be run. Care is needed to ensure that the Contractor is informed of these processes required during tender

Issues of this nature should rightly be highlighted in the formation of at the latest at the negotiation stages of the contract to reduce potential impact eventually.



These include:

a) **Performance required but not explicitly defined in Contract Definition**

Eg: as the General Responsible Person in related statutory requirements: The general duties of the Architect as defined in DOSH guideline to ensure safety measures are implemented per OSHA 1995(Act 514) and FMA 1967 (Act 139) are clear examples. Most of these checking procedures and requirements to operate under will be required to be amplified in the front end of the tender documents and when implemented, becomes part of the duties to perform by the Contractor. Once there is a duty to perform, payment comes into play and valuation and certification of such works comes into effect giving the Architect an indirect responsibility to ensure that these works are carried out in their complete sense.

There will be many instances that the Contractor will have statutory duties to perform, and Architects have to be aware to safely certify completion for release of Preliminaries monies

7.3 Every main contractor, contractor, and sub-contractor shall make an arrangement during operation, handling, transport, storage of plant and substance, to ensure the safety and health to the employees and public. *(Section 15(2)(b), Occupational Safety and Health Act 1994)*

7.4 Every developer, main contractor, contractor and sub-contractor shall ensure that all workers are properly informed of the hazards of their respective occupations and the precautions necessary and adequately supervise to avoid accidents, injuries and risk to health, and in particular that young workers, newly engaged workers, illiterate and foreign workers. *(Section 15(2)(c), Occupational Safety and Health Act 1994)*

7.5 Every developer, main contractor, contractor and sub-contractor shall provide sufficient allocation for ensuring that provisions to ensure the public and his employees safety and health are implemented and maintained.

7.6 Every owner, developer, main contractor, contractor and, sub-contractor shall take adequate steps to develop and promote safety and health programs to ensure not only the safety and health of his employees but also members of the public.

8.0 GENERAL DUTIES OF ARCHITECTS, ENGINEERS AND DESIGNERS

8.1 At the planning stage of any proposed building or civil engineering works, specific consideration should be given, by those responsible for the design and the construction, to the safety of the workers and the public who will subsequently be affected by the plant associated with the process of the erection of such structures.

8.2 Architects, engineers and other professional persons, not to include anything in the design that would necessitate the use of unwarrantably dangerous structural procedures and undue hazards, which could be avoided by design modifications, should exercise care.

8.3 Architects, engineers and other professional persons should exercise with care not to include anything in the design that would necessitate the use of unsafe construction procedures and create undue hazards. These should be avoided by means of design modifications where necessary.

8.4 It is also of the greatest importance that engineers should take into account the safety problems associated with the subsequent maintenance of plant where this would involve hazards.

8.5 Safety and health facilities should be included in the design for such work to be performed with the minimum of risk.

8.6 Measures should be taken to ensure that all the necessary safety and health program are efficiently implemented and properly maintained.

Example of General Duties defined in a lot of laws requiring Architects to perform:

OSHA
Housing Development Act
Strata Titles Act
Etc…

b) **Expended Duties** as defined in the Housing Development Act (stage completion claims certification) if applicable may not be consistent with the **Main Contractor's sequence of works in their work Programme**. Any instructions contrary to this without prior set requirements during tender can invite a claim on cost and time. Often at times, works on a particular stage may be at a very advanced stage without meeting a single trigger of a particular stage certificate. (note: impact on clause 1.2)

LEMBAGA ARKITEK MALAYSIA

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E-Mel: info@lam.gov.my, web: www.lam.gov.my

GENERAL CIRCULAR NO. 3/2008

GUIDELINES ON THE THIRD SCHEDULE [CLAUSE 4(1)] OF THE STANDARD SALE AND PURCHASE AGREEMENT FOR LAND AND BUILDING
[Schedule G of the Housing Development (Control and Licensing) Regulations 1989]

GUIDELINES ON THE THIRD SCHEDULE [CLAUSE 4(1)] OF THE STANDARD SALE AND PURCHASE AGREEMENT FOR SUB-DIVIDED BUILDING
[Schedule H of the Housing Development (Control and Licensing) Regulations 1989]

The Ministry of Housing and Local Government had, on 17 June 2008, gazetted the Housing Development (Control and Licensing) (Amendment) Regulations 2008 which shall be deemed to have come into operation on 1 December 2007. The recent Regulation was gazetted to rectify the error in the previous Housing Development (Control and Licensing) (Amendment) Regulations 2007.

Amongst the corrections made by the Ministry of Housing and Local Government were the substitution of the word "Building" with the word "Parcel" under item 2(b) in the Third Schedule of the Sale and Purchase Agreement under SCHEDULE H.

Following the aforesaid rectification, the Board have amended its Guidelines on the Third Schedule[Clause 4(1)] of the Standard Sale and Purchase Agreement for Sub-divided Building (SCHEDULE H).

In order to avoid confusion among members, the whole Guidelines are reissued for ease of reference.

For any Sale and Purchase Agreement signed prior to 1 December 2007, General Circular No. 4/2003 (Revised 2005) is still applicable.

All Professional Architects are advised to be familiar with and abide strictly to these Guidelines before certifying works in respect of housing projects undertaken in West Malaysia. In respect of housing projects in Sabah and Sarawak, works should be undertaken in accordance with the relevant laws. In the absence of any specific guidelines in respect of works in Sabah and Sarawak with regard to details of works that must be completed, Professional Architects should refer to the attached Schedules.

This General Circular replaces the current General Circular No. 2/2008 pertaining to the above Guidelines.

Thank you.

By Order of the Board of Architects Malaysia,

(Ar. ZURAINA LEILY AWALLUDIN)
Registrar

27 November 2008

SCHEDULE H

GUIDELINES ON THE THIRD SCHEDULE (CLAUSE 4 (1)) OF THE STANDARD SALE AND PURCHASE AGREEMENT FOR SUB-DIVIDED BUILDING

[SCHEDULE H OF THE HOUSING DEVELOPMENT (CONTROL AND LICENSING) (AMENDMENT) REGULATIONS 2007]

Schedule of Payment of Purchase Price under the Third Schedule of the S & P Agreement	Description of Construction Work That Must Be Completed For Certification	Description of Construction Work That Need Not be Completed For Certification
2(c) **The walls of the said Parcel with door and window frames placed in position** (10%)	* All non-structural walls within the said Parcel * All party walls inclusive of wall stiffeners * Timber door and window frames where there are no subframes * All frameworks for dry partitioning excluding lining of partition	* Metal frames * Installation of door leaves, windows (fixed or openable) or louvres * Parapet walls, boundary walls and fence walls * Closing up of temporary openings left in walls for constructional purposes * Timber door and window frames where sub-frames are provided
2(d) **The roofing, electrical wiring, plumbing (without fittings), gas piping (if any) and internal telephone trunking and cabling to the said Parcel** (10%)	* Roof framings, roof coverings and flashings to the said Parcel (if any) * Bare soffits of the floor slab to the Parcel above * All electrical wirings within the said Parcel * All water pipings including bends and joints within the said Parcel * All sanitary pipings including bends, joint and traps within the said Parcel * Gas pipings (if any) including joints and valves within the said Parcel * Telephone trunkings (if any) and cablings (if any) within the said Parcel	* Ceiling boards or panels * Switch boxes, socket outlets, switches and electrical fixtures and fittings (if any) * Sanitary fittings including sinks, taps, basins, bath tubs and shower heads * Hot water heaters * Water tanks Rain water downpipes and gutters * Window hoods

THOUGHTS ON BUILDING CONTRACT ISSUES YOU MIGHT NEED TO CONSIDER- *Ar LOO CHEE KEONG (2019 Jan26) PAM*

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	* Permanent roads around the Building containing the said Parcel * Entrance culverts serving the Building * Kerbs (if any)	
(3) **On the date the Purchaser takes vacant possession of the said Parcel with water and electricity supply ready for connection** (12.5%) *Professional Architect does not need to issue any certificate for this Stage but before the Developer can effect vacant possession, the Certificate of Completion and Compliance shall have been issued by the Professional Architect as the Principal Submitting Person*	* All other works inclusive but not limited to all items not completed in Stage 2(a) to 2(h). * External works including fencings, gates and turfing (if any) * Electrical wirings, water and sanitary piping services completed and ready to receive supply * Water and electricity supply available and ready for connection for tapping into the said Parcel * The TNB sub-station should be energised or alternative electricity supply by TNB is provided. * All external electrical cablings from sub-station to the unit must be completed with supply * Sewerage treatment plant shall be serviceable * Water reservoir (if applicable) is operational * Closing up of temporary openings for construction purposes.	* Electrical, water, sanitary and other loose fittings and fixtures *(Refer to Para 8 of Supplementary Notes)* * Minor defects * Electrical and water meters

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c) **Alterations due to changes in law**: Eg: Release of retention sum for services rendered in the period of GST will affect the actual cautionary note for period of honouring of payment certificates which should only trigger upon the release of the tax invoice. (The actual amount taxable is the function of the Accountants. Let them earn their keep)

d) **Requirements to operational compliance by Employer**. Clause 4.1 defines the compliance to statutory laws in respect to the **execution** of the Works and may not properly address the need to comply for CCC or operational needs of the Employer. (eg: for compliance of the lift under JKKP and the issuance of the PMA number is an **operational requirement** and not for works execution. It would be deemed unreasonable to fault the Main Contractor for delay on their part for scopes beyond their contractual role in securing the endorsement).

Architects needs to understand the complete matrix of the tender documents to properly appreciate the role and powers given to them to act in the awarded Contract. When additions and inclusions are made, the assumptions, understanding and intent of the PAM form will not remain the same. **This does not mean that the PAM form is rendered ineffective, but rather it will operate under a different raison d'etre.** Early caution to the Employer is prudent with proper discussions made with the entire Consultant team if this is the direction needed.

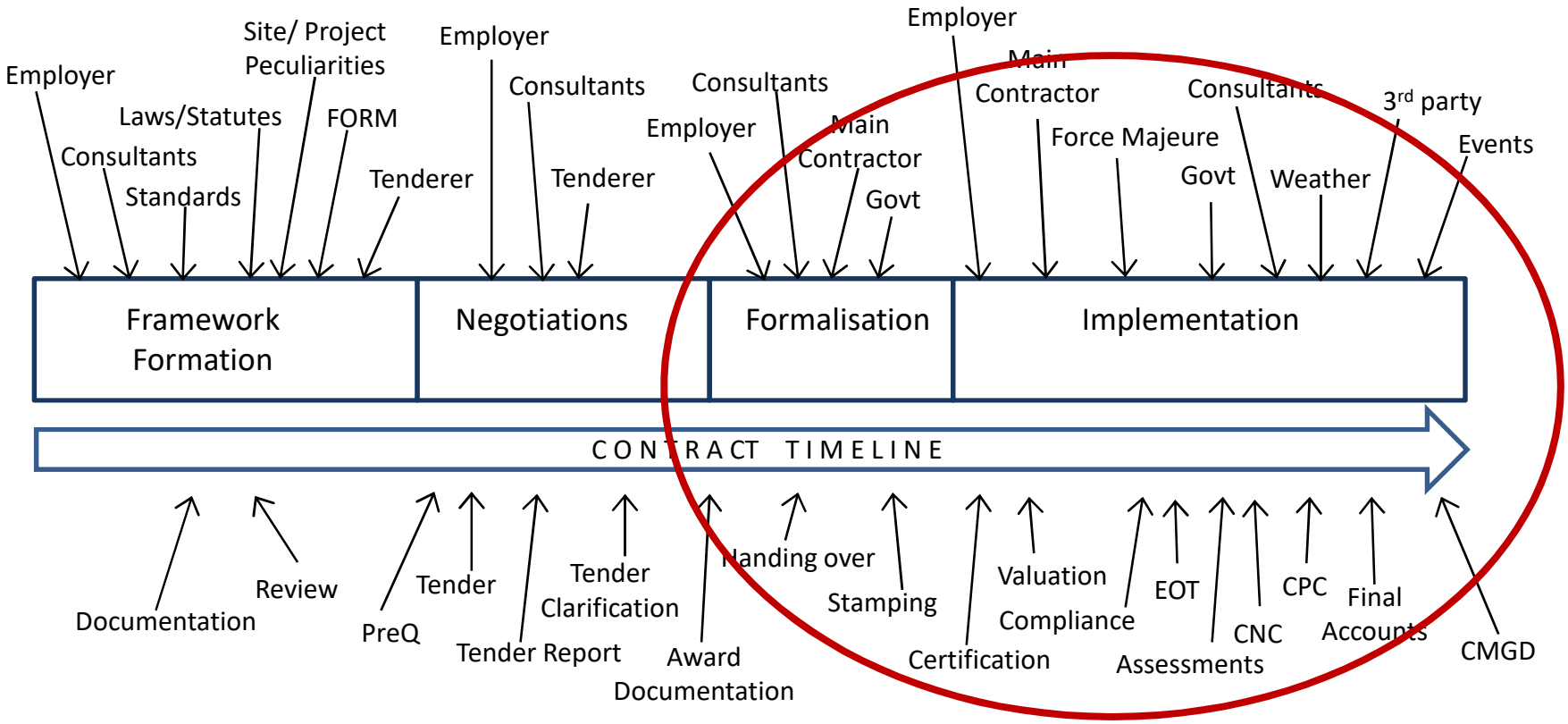
What are the considerations of the major contractual milestones, their respective triggers and their actual relationship in the wider context?

There are some common items which can be overlooked when it comes to something as simple as Contract milestones. We explore some of the main milestones issues we have encountered most frequently for :

Contract starts

Completion certification

Non completion certification



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C**ontract starts**

The start date of a contract is a rather straightforward item. You define a date in the Letter of Award as the **site handing over date** and assume all is well.

A letter of award is sent to the Main Contractor. He studies it and signs it back. You file it without checking the dates of endorsement.

A Letter of award's endorsement signing dates including endorsements in Contract drawings and Bills as required by the Contract, if post dated the handing over of site can create ambiguity in the actual acceptance date. When then is the actual start date? Similarly, the absence of Building Approvals can immediately render a contract at large as **no Contract can be recognised for illegal activities**. Sites which have encumbrances cannot be handed over if they are still parties holding interest in the sites. Work overlaps for ID fitout works or external landscape works in ongoing sites are notorious for Contract complications of such nature. While the current PAM forms allows for EOT consideration for delay of handing over, the arguments to frustrate a Contract at inception can still exist.

Completion Milestones

CPC in most cases does not only mean Physical Completion. CPC in most current contracts now involve submission of as-builts, handing over documents, final warranties, and other form of submittals and documentation like Handing Over Manuals, etc . (If only highlighted mid Contract during implimentation may arise in EOT claims) Complications on this milestone trigger will also arise with the introduction of other compliance procedures not defined in the Contract (like CCC) or the introduction of external Quality assessors (eg Qlassic trigger which is post CPC) but yet Contractor still given payable duties to perform (like maintaining protection works in the preliminaries..etc). To make conditions like these effective, clear revisions need to be made to allow the Architect to issue AIs which are not limited to Making Good Defects issues only, post CPC. You will soon appreciate that, this open ups a whole Pandora Box of problems and best be avoided.

One common question is the relationships and dos and don’ts in the issuance of CPC ,CCC and VP. What are the actual restrictions*?

The fundamentals are;
CPC is building contract bound between Contracting Parties
CCC is completion per authority submission compliance between the submitting parties (Consultant and Employer)
VP (in context of housing projects) is a milestone completion to comply to the SPA.

The most important feature is that a VP, cannot be triggered without CPC and CCC as a Developer cannot hand over a property without first taking back control of said property. However a CCC can be triggered without CPC as CCC functions may be incorporated a part of a Building Contract.

(applies to units sold by Developers to Purchasers. Projects where Employers are end users have different operating restrictions and issues)

Non Completion

The status for Non Completion is often a very unwanted scenario. The Employer demands an immediate declaration once the project surpasses the completion date, the Contractor desperately puts in their EOT. The issuance of the Non Completion Certificate will automatically trigger the right for Liquidated Damages. If there are no valid reasons for EOT, the scenario is straightforward. What happens if the Contractor puts in an EOT claim and circumstances are such that this is a valid claim? How can you approach this if the details are inadequate for a proper assessment nor is the event ended to determine the actual applicable EOT? (say TNB delay in laying cables but not able to predict the actual date of completion…).

The options available , and not limited to these 3, are:

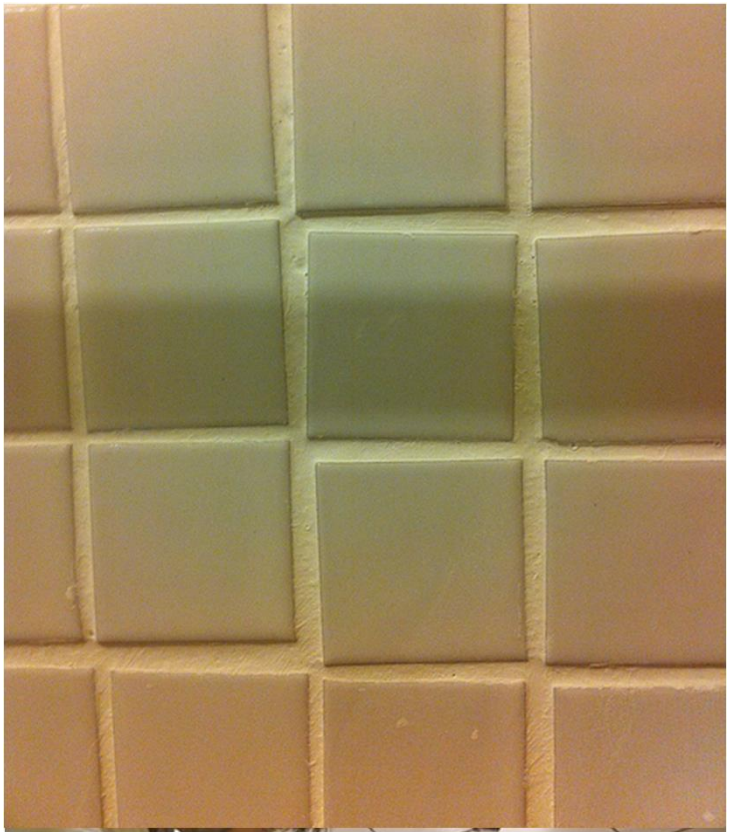
1) Issue the CNC (the QS will subsequently start calculating LD in the next valuation of payment regardless of EOT claims in process of assessment)
2) Issue a letter warning that there is an EOT claim and not issue CNC. (QS and Employer will argue that this can frustrate the Contract)
3) Issue a CNC but recommend no LD to be imposed as EOT is under assessment. Give due notice to all parties on the possible position when assessment is done and EOT granted.

These 3 options will project the different approaches available. Some will argue option 1 is pro Employer, Option 2 is pro Contractor and option 3 is the middle ground. Regardless of whichever option you choose, the issue is not where you "compassion' lies but rather it should be based on what your empowerment is.

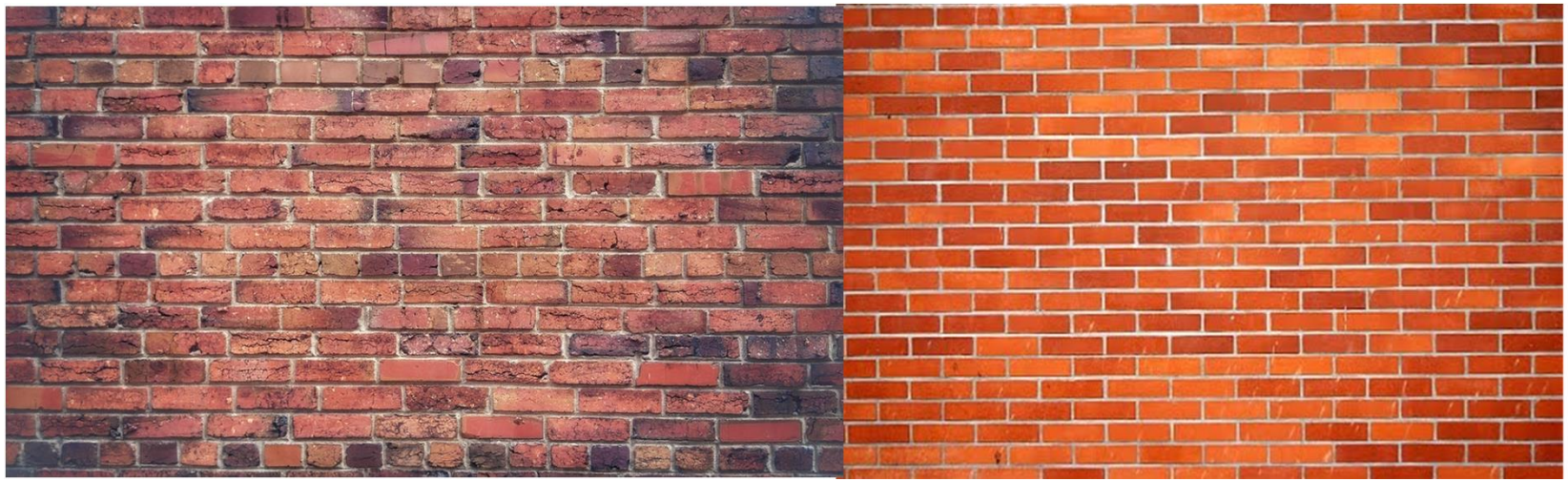
Managing expectations of the parties of the Contract

The Quality Question

Perhaps the most challenging part of the role of the Architect is in the evaluation, certifying or approving works of an intangible nature and without a proper yardstick to define their actual completeness to a level defined as ‘satisfactorily complete’. (to what level is a ’tiling works’ perfect?)



It then becomes useful for the Architect to establish a fair system to evaluate the works with the full appreciation and understanding of the stakeholders involved in the works, be it the Contractor, Employer and also the Consultant. The indirect parties who will also affect the Contract are the inspecting approving 'Authorities' and 'service providers'. These issues MUST be deliberated and mitigated during the tender documentation stage to avoid impact on the Contract during implementation which can result in variations.



A little bit of knowledge is a dangerous thing……..

While most adopted standards (be it BS, ES, , MS or other common standards) will lay down specifications based on a perfect work method and intent, in a lot of instances, empirical value to these level of perfection is not defined. (A simple example is when a wall is to be constructed true, straight and plumbed). The most notorious condition you may find in your contract is "**best of its kind in Malaysia**'. It will be rather impossible to elaborate that when the Contractor requests a definition from you.

Conquas21

The ‘fit for purpose’ yardstick has often been used as the criteria in deciding completeness in the absence of tangible and measurable yardsticks. In the last decade or so, introduction of quality assessment tools like Conquas and Qlassic have given a point of reference as to what is defined as acceptable works quality. There is however a clear danger in adopting these assessment standards as many overlook the fact that these are assessment tools with a scoring format. A quick example is the ‘tile hollowness test’.

	Item*		Standards
2	**Internal Walls**		
2a	**General Requirements**	1)	**Finishing** • No stain marks • Consistent colour tone • No rough / patchy surface
		2)	**Alignment & Evenness** • Evenness of surface (not more than 3mm per 1.2m) • Verticality of wall (not more than 3mm per m) • Walls meet at right angles (not more than 4mm over 300mm) • Edges to appear straight and aligned
		3)	**Crack & Damages** • No visible damage / defects
		4)	**Hollowness / Delamination** • No hollow sound when tapped with a hard object • No sign of delamination
		5)	**Jointing** • Straightness of corners and joints
2b	**Plaster Finish**	1)	Surface evenness (not more than 3mm over 1.2m)
		2)	No hollow sound when tapped with a hard object.
		3)	Surfaces should not be unduly rough or patchy esp no brush / trowel marks
2c	**Tiled Finish**	1)	Tile joints aligned and with consistent joint size
		2)	No hollow sound when tapped with a hard object
		3)	Consistent and neat pointing
		4)	Lippage between 2 tiles should not be more than 1mm
2d	**Cladding**	1)	Proper anchorage for panels
		2)	Joints aligned and with consistent joint size
		3)	Sealant material compatible with cladding
		4)	Consistent spacing and within allowable tolerance

In its most simplistic representation, it is now becoming a norm to interpret that any hollowness detected in the tiling works will automatically mean that the works are inferior to the point that it should be rejected and not 'fit for purpose'. To what level this becomes the authority must be carefully considered as there are disputing existing standards to the contrary.

CIS 7:2014 ON QUALITY ASSESSMENT SYSTEM FOR BUILDING CONSTRUCTION WORK

The standard was developed by the Technical Committee on Quality Assessment in Construction, with the assistance of Construction Industry Development Board Malaysia (CIDB).

CIS 7:2014 is an improved and updated version of the **CIS 7:2006** standard.

There are **four category** of building assessed using QLASSIC as follows:

i. Category A (Landed housing) – Detached, semi-detached, terrace and cluster houses.
ii. Category B (Stratified housing) – Flats, apartments, condominiums, service apartments, small office home office (SOHO) and town houses.
iii. Category C (Public/commercial/industrial buildings without centralised cooling system) – Office buildings, schools, factories, warehouses, workshops, hangers, small office flexible office (SOFO), small office virtual office (SOVO), religious buildings, stadiums, community halls, hospitals, airports, universities, colleges, police stations, etc.
iv. Category D (Public/commercial/industrial buildings with centralised cooling system) – Office buildings, schools, factories, warehouses, workshops, hangers, small office flexible office (SOFO), small office virtual office (SOVO), religious buildings, stadiums, community halls, hospitals, airports, universities, colleges, police stations, etc.

Building and Construction Authority

CONQUAS 21

2.2 The Weightages

In CONQUAS 21, the weightages for Structural, Architectural and M&E works are allocated according to four categories of buildings as follows:

Components	CAT A Commercial, Industrial, Institution & others	CAT B Commercial, Industrial, Institution & others	CAT B Private Housing	CAT C Public Housing	CAT D Landed Housing
Structural Works	25%	30%	25%	35%	30%
Architectural Works	55%	60%	65%	60%	65%
M&E Works	20%	10%	10%	5%	5%
CONQUAS Score	100%	100%	100%	100%	100%

Note : In general, projects with central cooling system having cooling tower, chiller system, etc are classified under CAT A. Otherwise, it will be classified under CAT B. Appendix 5 provides a guides with listing of buildings under the various categories.

The weightage system, which is aimed at making the CONQUAS score objective in representing the quality of a building, is a compromise between the cost proportions of the three components in the various buildings and their aesthetic consideration.

The CONQUAS score of a building is the sum of points awarded to the three components in each category of buildings.

Guide to Standards and Tolerances

3.3 Bed Joints and Perpends

Where masonry matching is no longer appropriate a practical approach may be adopted in the case of renovations and or additions.

TABLE 11.1
AS 3700 - 2001 – TOLERANCES IN MASONRY CONSTRUCTION

	Item	Structural Tolerance	Non-Structural Facework Tolerance
A	Horizontal position of any masonry element specified or shown in plan at its base or at each storey level	±15mm	±15mm
B	Relative displacement between load-bearing walls in adjacent storeys intended to be in vertical alignment	±10mm	±10mm
C	Maximum deviation from plumb within a storey from a vertical line through the base of the member	The lesser of ±10mm per 3 m of height or 0.05 times the thickness of the leaf	±10mm
D	Maximum deviation from plumb in the total height of the building (from the base)	±25mm	±25mm
E	Maximum horizontal or vertical deviation of a surface from a plane surface (bow) when measured as described in Clause 11.5.2	±5mm	±3mm
F	Deviation (step) of any exposed brick surface from any adjacent exposed brick surface. The bow provision of Item (E) above also applies	Not applicable	2mm
G	Deviation of bed joint from horizontal, or from the level specified or shown in elevation	±10mm in any 10 m length, ±15mm in total	±10mm in any 10 m length, ±15mm in total
H	Deviation from specified thickness of bed joint	±3mm	±3mm
I	Minimum perpend thickness	5mm	5mm
J	Deviation from specified thickness of perpend	+10mm maximum	±5mm average
K	Maximum difference in perpend thickness in any wall	No limit	8mm
L	Deviation from specified width of cavity	±15mm	±15mm

Notes:

1. Items H, I, J & K are not applicable to thin-bed mortar joints.
2. Items I & J are not applicable when perpend joints are not filled with mortar as is the case with some horizontally cored masonry that is not required to resist horizontal bending.

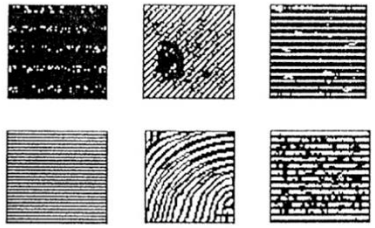
See Appendix B for diagrams explaining content of above table.

3.4 Masonry Facing

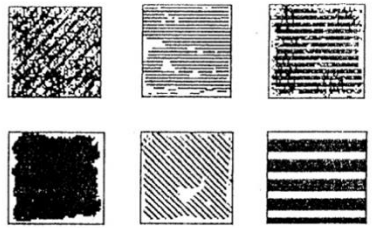
Bricks shall generally be laid with true brick face outwards. Brick faces shall be cleaned and free of excess mortar unless otherwise specified.

When bricks in batches supplied from manufacturers vary in colour, they shall be mixed/distributed in accordance with manufacturers recommendations unless otherwise specified.

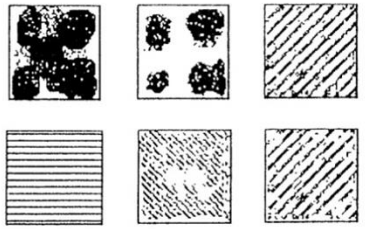
Expressing contact coverage as a percentage alone presents some problems. For example, 80% coverage on a floor tile which leaves 20% of one edge of the tile without any adhesive is not generally acceptable. To assist, in the absence of the specific instructions from the adhesive manufacturer, Figure 5.6 sets out a guide for contact coverage. Figure 5.6(a) shows examples which would normally be considered satisfactory for both floors and walls. Figure 5.6(b) shows examples that would probably be satisfactory for walls, but not floors as the 'missing' areas or low overall coverage could lead to failure from impact. Figure 5.6(c) shows examples of unsatisfactory coverage, mainly because of large 'missed' areas or low overall cover.



(a) Satisfactory—Floors and walls



(b) Satisfactory—Walls only



(c) Unsatisfactory

FIGURE 5.6 EXAMPLES OF ADHESIVE CONTACT COVERAGE ON 150 mm × 150 mm TILES

Queensland Standards vs Australian Standards

The practice of introducing mock up samples across all trades in the building process will assist tremendously as a comparative tool to manage the expectations of the contracting parties. When dealing with large projects with many different gangs, it is better to establish individual samples with similar characteristics before actual works starts so that the actual workers on site are also familiar with the expectations required. We have also found it useful to establish a tolerance range (where allowable) to all works on site. This is not dissimilar in concept in the recognition that tolerance exist in the construction realm as present in sales of built up in our standard SPA where a 2% value will not trigger any compensation action. (does that roughly mean a 1.41% on a single plane; ie a 3000mm length has a 42mm allowable tolerance?)

	Item*		Standards
2	**Internal Walls**		
2a	**General Requirements**	1)	**Finishing** • No stain marks • Consistent colour tone • No rough / patchy surface
		2)	**Alignment & Evenness** • Evenness of surface (not more than 3mm per 1.2m) • Verticality of wall (not more than 3mm per m) • Walls meet at right angles (not more than 4mm over 300mm) • Edges to appear straight and aligned
		3)	**Crack & Damages** • No visible damage / defects
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		5)	**Jointing** • Straightness of corners and joints
2b	**Plaster Finish**	1)	Surface evenness (not more than 3mm over 1.2m)
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		3)	Surfaces should not be unduly rough or patchy esp no brush / trowel marks
2c	**Tiled Finish**	1)	Tile joints aligned and with consistent joint size
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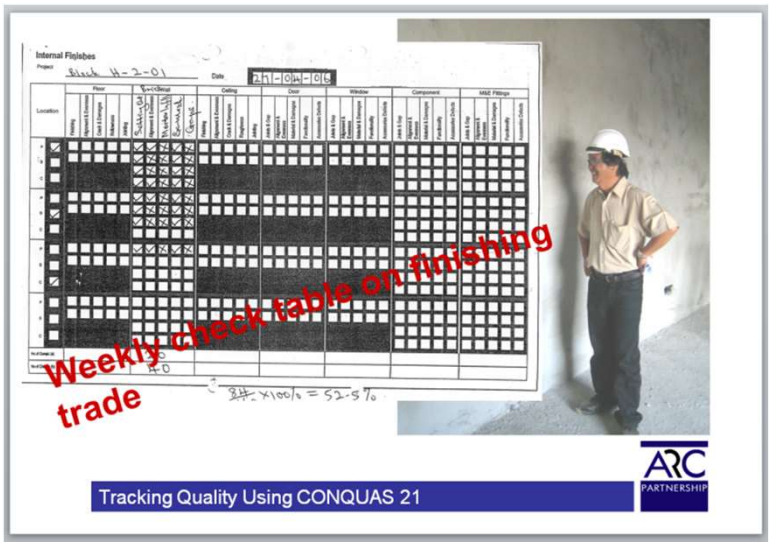
		2)	Joints aligned and with consistent joint size
		3)	Sealant material compatible with cladding
		4)	Consistent spacing and within allowable tolerance



Short notes on some major management tips

1) **Pre-empt possible disputes before a milestone**: eg: Always allow the Employer to have an opportunity to offer an opinion based on the EOT assessment which you may have arrived at. This is to mitigate the likelihood that they are in possession of facts that you may not be aware of; Warn before CMGD date.
2) **Clear or minimise doubt from both Contracting parties at the start**. If possible , table and present all construction details that you have proposed to the Employer to avoid claims of undue surprise. Ensure that tenderers respond that they have understood all details during the tender clarification period.
3) **Establish expectations.** Set up an inspection of the end product to establish a cut off list prior to CPC. Such list will be useful to establish a 'mutually acceptable' baseline to trigger CPC once acted upon totally.
4) **Avoid interference**. There is no reason to accept counteroffers by Contractors for materials and construction methods as it calls into question your original specifications unless there is an advantage to the project or circumstances at hand
5) **Be fully aware**. Read and understand your contract document from cover to cover.

IN SUMMARY

These notes are just a collection of thoughts and approach that we have adopted and concentrated on to make the contract administration more manageable and effective. Ultimately the Building Contract tries to balance the **burden of risk** to the Contracting Parties and other active parties and **TO CONTROL SAID RISKS**. In no means are these the only way to manage the contracts but they have served us very well in the last 3 decades.

THANK YOU