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18 December 2020

Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central
Hong Kong

For the attention of Hon. LUK Chung-hung, JP
Chairman of LegCo Manpower Committee
and all LegCo Manpower Committee Members

Dear Sirs,

Recommendations to Improve Health and Safety on Construction Sites

Further to our letter dated 11 December 2020 we would like to reiterate and highlight some of the issues and recommendations we consider will improve the construction safety environment in Hong Kong.

1. Mandate Construction and Design Management (“CDM”) for all Construction Projects

As we noted in our letter, safety is a shared responsibility for all industry stakeholders and not just the contractor. Safety starts with responsible owners and developers setting reasonable construction periods, designers and consultants incorporating safety into their designs before they are put out to tender. Contractor's and sub-contractors must submit a safe working method statement for the works and must provide an adequate supervision plan. Workers must work professionally and must stop work if methods are unsafe.

For these reasons the Government should encourage the participation of all stakeholders to work towards improved safety standards so that all have equal legal liabilities when they do not fulfil their duties. A comprehensive scheme from the Government should be established to encourage all organisations (including training institutes and universities) as well as industry stakeholders to make long-term investments in building a safety culture for Hong Kong that is sustainable and lasting.

CDM has been successfully adopted in some other jurisdictions and we can fine tune it to suit the Hong Kong context. It is a shame that having issued CDM Guidance Notes in 2006 the Government has not followed through and implemented CDM regulations, unlike in Singapore and the UK, where the benefits of design for safety are being harnessed. It remains the case that if a design itself is unsafe, the Construction process becomes vulnerable to hazards despite all the safety protections that might be in place.



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One of the very real benefits of CDM is that it sets out the duties of all parties and therefore all parties receive training on their responsibilities and, for example, CDM is a module in all courses from degrees to apprenticeships. This can be contrasted with the situation in Hong Kong where a civil engineering degree course does not include any modules on safety.

Even if CDM is not to be implemented the Government should impose design for safety requirements on all parties involved from property development, architectural design management and construction design management. This will largely eliminate the need for constant design changes by owners and developers during the construction period, which is a major source of hazards. Evidence from the industry shows that frequent changes easily lead to miscommunication, oversight and errors, and they increase workers' chances of making mistakes and committing unsafe acts.

This focus on design for safety is also shared in the Development Bureau's ("DevB") Construction 2.0 report, where design for buildability is encouraged.

2. Procurement Methods

A step change is needed in how we procure our built environment. Currently the industry remains inefficient, confrontational and fragmented in its procurement processes. There remains a disproportionate emphasis on price at the expense of quality, safety, the environment, energy and sustainability, as well as community considerations. Many current procurement processes also stifle innovation. While there are some enlightened customers who are more open to modern procurement processes, such as DevB, MTRC, AA, and WKCD who promote risk sharing / NEC contracts, they are still in the minority throughout the industry in Hong Kong.

The construction Industry needs to shift towards an approach that standardises the allocation of the typical set of project risks to the maximum extent, whilst taking a bespoke approach to project specific risks. This means there needs to be a greater adherence to the principle of allocating risk to the party that is best capable of managing a particular risk.

When it comes to tender assessments, greater transparent effort and weight need to be put into the technical marking schemes to influence project awards and embrace innovation. The practice in some Singapore tenders of dismissing the lowest and the highest tenders has real risk management benefits that ought to be considered in Hong Kong.

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Within the supply chain, security-of-payment legislation, the removal of “pay when paid” clauses and the timely payment of interim and final accounts would protect in particular those who suffer most at the lower, but no less essential, levels of project delivery and would also improve safety performance by removing financial pain from the supply chain.

Overall, the goal must be to develop integrated procurement practices that are equitable to all in the supply chain.

3 Design for Manufacture and Assembly (“DfMA”)

DfMA is having an increasing impact on the global construction industry. In certain overseas jurisdictions this technology has been proven to reduce costs and improve productivity and performance in safety, quality and sustainability. There is no reason why these results cannot be replicated in Hong Kong. In McKinsey’s 2019 Modular Construction report they estimated that modular construction could deliver construction cost savings of up to 20 percent.

The DevB’s Construction 2.0 report focusses on Modular Integrated Construction (“MiC”), which is a form of DfMA and it is clear that this technology is ideal for Hong Kong’s local conditions. In Singapore DfMA is required to contribute 40% to new construction projects and similar percentages are being used in many Mainland cities.

In Hong Kong major benefits are anticipated in construction activities related to residential housing and accommodation, hospitals and healthcare facilities and other built-assets involving multi-level repetitive design form. Gammon has demonstrated this with the Penny’s Bay Quarantine Centre that was completed in record time this year.

4. Eliminate Bamboo Scaffolding

The record of fatalities over the past 10 years in Hong Kong shows that a high percentage were attributable to bamboo scaffolding. By utilizing the DfMA / MiC technologies discussed above, it is possible to eliminate external scaffolding all together by using external climbing forms and screens , such that in high rise construction there is no need for either bamboo or steel scaffold. This should be the goal that we are striving as an industry to achieve.

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We are on this journey already and acknowledge that in recent years, some enlightened customers such as CLPP, WKCDA, MTRC, AA, and Swire Properties have specified the use of steel scaffolding in their contracts. However, this is still a minority of owners and developers in Hong Kong. The industry culture is still price driven, using the cheapest solutions, and we need to change the mindset. Our view is that steel scaffolding should be mandatory, unless it cannot meet the express purpose of a project taking account of bamboo's benefits of flexibility.

5. Electrical Safety

The key issue with electrical safety is around the competence of the Registered Electrical Workers ("REW") and the trade practice of having 4 or 5 untrained 'assistants' helping the REW. These 'assistants' invariably develop confidence and then undertake tasks that they do not necessarily have the competence to perform. Effectively the REW is just competing all the paperwork at the end and 'overseeing testing'. This loophole must be addressed with a limit on the number of assistants per REW as well as mandatory basic electrical training for assistants. The Government registers 'Electrical Contractors' yet this loophole exists and the main contractor has responsibility to tackle this on site with the challenge of multi-layered sub-contracting.

6. Fully Skilled Workers

Construction 2.0 stresses the need to enhance professionalism and performance across a wide range of activities to achieve improvements in the quality of built assets, reduced frequencies and severity of project accidents and failures, as well as lower levels of cost and time overruns on projects.

The existing safety training courses need to be revamped as most are still knowledge-based rather than mindset-based. The current training courses do not address the issues relating to workers' attitudes, assumptions, beliefs and behaviours. In addition, we need to equip frontline supervisors with the skills to enforce the safety commitments and standards on site.

In addition, the Construction Industry Council ("CIC") should shift its current direction of producing a large supply of semi-skilled workers to developing more fully skilled workers to meet project demand. Skill level directly affects safety as semi-skilled workers may not have the full confidence and competence to handle varied and complex tasks that could expose them to risks they are not even aware of.

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This issue also links back to a lack of CDM and safety training, that we have referred to above, so that we are missing the opportunity to fully integrate safety management in basic training.

7. Embrace the Digital Revolution

As with the move to DfMA and MiC, the industry is also seeing other digital innovations being harnessed, such as Building Information Modelling (“BIM”) and the use of sensors and the Internet of Things (“IoT”). The Hong Kong Government has embraced this move with BIM being mandated on all Government capital works projects.

These digital innovations together with DfMA and MiC can lead to reductions in site activities with high labour intensity and thus reduced safety incidents and fatalities.

8. Conclusion

We believe that the time is right to reinvent our industry to address these age-old problems:

- We are not safe enough.
- We are not doing enough to build in an energy-efficient and environmentally responsible manner.
- We do not procure enough of our projects in an efficient manner.
- We are not productive enough.
- We do not have a sustainable workforce.
- We do not have long-term, coordinated industry workloads commensurate with human and physical resources.
- We have no clearly articulated vision, with goals and timescales.

Construction 2.0 provides many of the answers to these problems and is a good road map for the way forward in our industry.

It also notes that safety should be placed at the core of the industry and that this will instill greater confidence in workers, their families and the next generation of talent. We agree and support the conclusion that this will lead to reduced incidents and fatalities along with knock-on benefits in respect of higher performance, motivation, employee pride and retention.

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We encourage the Government to fully implement the recommendations of Construction 2.0 rather than simply attempting to penalize the lowest common denominator. We all owe the industry a constructive answer.

Thank you for your attention.

Yours sincerely,



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