

## **Qualified Supervision of Building Works<sup>1</sup> Involving Mobile Plants and Tower Cranes**

In giving this approval of plans, I hereby impose the following conditions under item 6 in section 17(1) of the Buildings Ordinance (BO):

- (a) For building works<sup>1</sup> with an estimated cost exceeding \$30 million, qualified site supervision of the building works involving the use of mobile plants<sup>1</sup> and tower cranes should be provided by the registered general building contractor (RGBC) in accordance with items (b) and (c) below to ensure that the works are carried out in such a manner that it does not cause, or is not likely to cause a risk of, injury to any person or damage to any property.
  
- (b) For the purpose of item (a) above, RGBC should ensure that the mobile plants<sup>1</sup> and tower cranes used for the building works<sup>1</sup> are equipped with automated alert systems, namely the Mobile Plant Alert System<sup>2</sup> and the Tower Crane Alert System<sup>3</sup>, under the Smart Site Safety System<sup>4</sup>. This is to effectively mitigate any potential hazards or unsafe situations that may arise during the operation of mobile plants and tower cranes. The automated alert systems should be capable to immediately alert both the plant operators and any site personnel encroaching the danger zones, where there is a potential risk of being run over or hit by the plant moving components and/or the moving load.

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<sup>1</sup> See Explanatory Notes in the Annex.

<sup>2</sup> Also known as “unsafe acts/dangerous situation alert system for mobile plant operation danger zone”. The system will alert the mobile plant operator and any site personnel encroaching the mobile plant danger zone perimeter of the risk of being run over or hit by the plant moving components. The automated warning system should include adequate number of sensors installed on the mobile plant chassis and movable superstructures to ensure full 360° coverage around the mobile plant danger zone perimeter. The danger zones of the mobile plant operation should be determined by the safety officer employed pursuant to the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations (Safety Officer) according to risk assessment but in general, the extent of the danger zones should be not less than 2 m from any part of the mobile plant.

<sup>3</sup> Also known as “unsafe acts/dangerous situation alert system for tower crane lifting zone”. The system will alert tower crane operator and any site personnel encroaching upon the tower crane loading/unloading danger zone perimeter of the risk of being hit by the moving load under the crane hook. The automated warning system should include adequate number of sensors installed on or around the tower crane to ensure full coverage of all loading/unloading areas danger zone perimeter at all floor levels involved. The loading/unloading danger zones of the tower crane operation should be determined by the Safety Officer according to risk assessment but in general, the extent of the danger zones should be not less than 7 m radius from the crane hook. The minimum clearance between the load being lifted and the loading/unloading area activating the automatic warning system should be determined by the Safety Officer according to risk assessment but in general, should be not less than 3 m.

<sup>4</sup> Smart Site Safety System (SSSS) generally comprises three components, namely smart safety devices for monitoring activities and identifying safety hazards; a communication network for transmitting data collected from smart safety devices; and a centralised management platform for providing a one-stop hub for data analysis and alerts generation, as well as facilitating follow-up actions. Reference materials on SSSS are provided in the “Guide to Smart Safety-Related Technologies for Use in Construction Works” issued by the Construction Industry Council at [https://www.cic.hk/files/page/51/RM%20Smart%20Safety%20\(Eng\).pdf](https://www.cic.hk/files/page/51/RM%20Smart%20Safety%20(Eng).pdf).

- (c) For the purposes of (a) and (b) above, the authorized signatory (AS) of the RGBC, the AS's representative and the technically competent persons (TCP) for site supervision under the RGBC stream should carry out their responsibilities and duties as follows:
- (i) The AS should prepare an implementation plan<sup>1</sup> for the adoption of the Mobile Plant Alert System<sup>2</sup> and the Tower Crane Alert System<sup>3</sup> and should ensure the implementation plan is properly executed on site;
  - (ii) The AS's representative should ensure that the implementation plan<sup>1</sup> for the adoption of the Mobile Plant Alert System<sup>2</sup> and the Tower Crane Alert System<sup>3</sup> is properly executed on site; and
  - (iii) TCP T1 and TCP T3 should check that the Mobile Plant Alert System<sup>2</sup> and the Tower Crane Alert System<sup>3</sup> are properly installed and used, and should report according to the implementation plan<sup>1</sup> for rectification whenever any malfunction is identified.

2. Under regulation 10 of the Building (Administration) Regulations, the authorized person should submit a declaration on whether the estimated cost of building works<sup>1</sup> of the project exceeds \$30 million, when applying for consent to the commencement and carrying out of the superstructure works. Failure to comply with such requirement may lead to refusal of the consent application under section 16(3)(b) of the BO.

## Annex

### Explanatory Notes

1. The “building works” to which the requirements would apply, refer to any types of building works carried out for the superstructures (i.e. all portions above foundation) before issuance of occupation permit of a development project. For the avoidance of doubt, ground investigation works, piling works, foundation works, excavation and lateral support works, site formation works and demolition works are excluded.
2. “Mobile plant” generally includes all heavy-type mobile plants, such as bulldozer, compactor, crawler crane, dumper, excavator, gantry crane, grader, loader, scraper, truck-mounted crane and wheeled telescopic mobile crane. Vehicles or mechanical equipment commonly used for conveying materials and/or personnel such as fork-lift truck, lorry, power-operated elevating work platform and truck, or plants which are stationed on site for less than one day such as concrete mixer, shotcrete truck and water pump truck are excluded. The list of mobile plants will be reviewed from time to time when more experience is gained taking into account the development of the related technology.
3. “Implementation plan” is a plan prepared by the authorized signatory (AS) of RGBC or prepared under the supervision of AS of RGBC for adoption of the mobile plant alert system and the tower crane alert system under the Smart Site Safety System to ensure that the mobile plants and tower cranes used for the building works of the development project are equipped with automated alert systems. The plan should include, but not limited to, the types of mobile plants and/or tower cranes to be used, the automated alert systems to be used, the definition of danger zones, a brief description of their operation, and the fallback measures for special circumstances (e.g. system failure).