

Safety & Health Circular No. 15/2009

Preventing Collision of Tower Cranes

Date: 15 October 2009

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Incidents involving collision of tower cranes on construction sites have caused concerns over site safety. Contractors must ensure construction workplace safety, properly supervise and carefully manage operations on site at all levels to prevent such accidents. Measures which should be borne in mind include, but are not limited to, the following:

1. Assessing site conditions thoroughly to eliminate risks before carrying out works. Risk assessment should be carried out to identify potential collision hazards. Suitable safety precautionary measures and safe method statements should be implemented and strictly adhered to by all workers.
2. Preventing tower crane collisions by developing a safe system of work comprising: precautionary measures, safe method statements, coordination among parties on arrangements of work areas and work schedules, and installation of anti-collision systems—in all cases where overlapping zones cannot be avoided.
3. Paying extra attention to the following in respect of deployment of anti-collision systems:
 - (i) For overlapping zones straddling more than one construction site, contractors involved should liaise with one another before commencing works to develop, and mutually agree upon, a safe system of work for the use of tower cranes within the overlap zone. Contractors must also ensure that anti-collision systems installed in all sites concerned are compatible with each other (e.g. issued from the same supplier).
 - (ii) Manufacturer's instructions and operating manuals must be followed including proper installation, calibration, inspection and maintenance of the anti-collision system.
 - (iii) Continuous audible and visual signals should be provided in the tower crane operator's cabin to remind the operator to slow down crane movement when approaching a zone with possible collision risks.
 - (iv) Setting of anti-collision systems should be carried out by a competent person (e.g. technician from the supplier or trained personnel on site) following any alteration of tower cranes.

- (v) Appropriate safe distances should be calculated and maintained. Moreover, the physical performance of tower cranes should be considered during setting—such as braking time and distance—to ensure they can be stopped without collision after receiving signals from the anti-collision system.
 - (vi) Detailed work plans should be developed to minimise the frequency of tower cranes entering overlapping zones—such as arranging alternative locations of lifting operations using the tower cranes.
 - (vii) An effective communicating system solely for tower cranes should be provided for the lifting operations.
 - (viii) Ensure that the anti-collision system is in use at all times. If a by-pass function is to be activated for special operations, e.g. crane testing or special operations in a protected zone—a closely supervised and monitored permit to work system should be developed for such operations. The by-pass key should not be directly controlled by the tower crane operator and should instead be kept by a responsible person on site.
 - (ix) Ensure that the anti-collision system is in good working condition at all times. Arrange regular checks of the anti-collision system by a competent person, e.g. trained mechanic, and keep records of such checks for monitoring purposes.
4. Providing sufficient information, training and supervision to ensure the safety and health of all personnel involved.
 5. Complying with relevant regulations, codes of practice and guidelines, including but not limited to, the *Factories and Industrial Undertakings (Lifting Appliance and Lifting Gear) Regulations* and *Codes of Practice of Safe Use of Tower Cranes* which can be retrieved from the Labour Department's website (<http://www.labour.gov.hk/eng/public/os/B/crane.pdf>).
 6. Complying with *Guidelines on Safety of Tower Cranes* published by the Construction Industry Council.

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