

# Tower Crane Erection and Use



Tower cranes are an important and essential tool in industry, especially in construction. They are designed and built to operate safely when erected and operated by competent persons for their intended use. Their purpose is to lift and transport material on site, making these tasks much easier for the workers. However, they can be the cause of serious accidents if misused. The following are obligations to be fulfilled by those involved in the erection, dismantling and operation of the tower crane.

1. The employer<sup>1</sup> has the duty to ensure that the site where the crane is to be erected can withstand the weight of the crane and its maximum loads and the selected location would allow the crane to be operated with the least risk to workers and third parties. For this purpose, the employer shall appoint a *perit* to inspect the site and certify it as being safe for the crane to be erected on it and ensure that no material changes occur before the actual erection of the tower crane. Any required permits, for example local council permit, should be obtained prior to start of erection.
2. All required safety precautions, including use of the required personal protective equipment (safety shoes, safety helmets, gloves, high visibility vests, safety harness) and suitable vehicular and pedestrian traffic management systems, are to be taken during erection (and dismantling) of the tower crane. The employer shall ensure that once the tower crane is erected at a new location, it is inspected before first being put into service, by a competent person<sup>2</sup>, to ensure that the crane is installed correctly and is operating safely. Periodic inspections are to be carried out by a competent person at least once in every period of twelve months; in the case where the tower crane or its attachment is used to lift persons, it shall be examined at least once in every period of six months, in accordance with local legislation<sup>3</sup>.
3. The employer shall ensure that all chains, ropes and lifting tackle in use shall be thoroughly examined by a competent person at least once in every period of six months. All hooks shall be fitted with a safety latch.

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<sup>1</sup> The employer is the person who employs the employee (crane operator) who operates the tower crane or the self employed person who operates the tower crane himself.

<sup>2</sup> "competent person" means a person possessing adequate qualifications, suitable training and sufficient knowledge, experience and skill for the safe performance of the specific task or work required. (L.N. 293/2016)

<sup>3</sup> Work Equipment (Minimum Safety and Health Requirements) Regulations, 2016; L.N. 293/2016 (S.L. 424.35)





4. Tower cranes should only be erected on gradients within limits specified by the manufacturer. Tower cranes should only be erected at a safe distance from power lines, excavations and ditches as recommended by the competent person.
5. The electrical installation supplying the tower crane must be certified by a competent person
6. It should be ensured that the correct counterweights are secured in place as indicated in the manufacturer's manual, especially those attached to the counter jib.
7. Adequate lighting and proper signage, including but not limited to indication of the use of overhead equipment, safe passage way for third parties, emergency contact number are to be installed.
8. Adequate hoarding should be installed to prevent unauthorized access to the crane.
9. No loads are to be left attached to the hook on the tower crane when the crane is not in use.
10. The tower crane, if not otherwise instructed in writing by the competent person is to be left in free slew when not in use. This allows the crane to turn with the direction of the wind (weathervane) so that the crane is not subjected to excessive loads which could damage the brakes or even cause it to collapse.
11. Every effort should be made so that no loads are lifted over roads or third parties. If this is unavoidable, a site specific risk assessment has to be carried out, appropriate procedures must be laid down and applied. In any case, loads shall not be lifted over unprotected workers or other persons.



12. All documentation is to be kept available for inspection.
13. Where the operating zones of two or more tower cranes overlap, or where it is unavoidable that the operating zones of a tower crane and other equipment overlap:
  - a) the equipment shall be positioned so that all crane operators<sup>4</sup> have a clear view of the other equipment operating in the overlapping areas; and
  - b) written work and communication procedures to prevent collisions between tower cranes and other equipment with overlapping work zones shall be established and communicated to all affected workers. In view of this, a site specific risk assessment shall be also carried out.
14. The employer shall ensure that the crane operator has received adequate training, is fully competent to carry out his duties and is supervised to ensure the safe use of the tower crane.
15. The employer shall ensure that regular maintenance, repairs, renewals or alterations on the tower crane are carried out by competent persons. It is recommended that printed or electronic records of such works are kept and made available when requested by a competent authority.
16. The crane should be equipped with the necessary alarms and cut out switches so as to ensure that the safe working load is not exceeded.
17. Crane operations should be halted when meteorological conditions deteriorate to the point where the crane cannot be operated safely according to the manufacturer's specifications.
18. If the operator of the tower crane cannot observe the full path of the load, either directly or by means of auxiliary equipment providing the necessary information, a competent person (banksman) must be in communication with the operator to guide him. If hand signals are used, both the operator and the competent person should be proficient in the use of signs and hand signals as in L.N. 45/2002<sup>5</sup>.

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<sup>4</sup> The crane operator is the person operating the tower crane.

<sup>5</sup> Work Place (Provision of Health and, or Safety Signs) Regulations (S.L.424.16)



19. When tower cranes are operated from cabs at high levels, only persons who are capable and trained to work at heights should be employed as crane operators. The employer should ensure that crane operators are medically certified to work as such.
20. The tower crane should be dismantled when its use on site is not required any more.

Besides the employer's responsibilities, the crane operator has the duty to safeguard one's own health and safety and that of other persons. The operator should wear the required personal protective equipment (e.g. high visibility vest if standing in the road), ensure that loads are adequately secured during lifts and that lifting operations do not pose unwarranted risks to workers or other persons who may be affected by the work activity. In particular, the safe working load shall not be exceeded, loads shall not be dragged on the ground and sudden movements which could cause the load to swing should be avoided.

Documentation required to be in possession of the employer:

- a) Report of inspection after assembly at a new site or in a new location by a competent person, to ensure that the crane has been installed correctly and is operating properly.
- b) Periodic Examination report of crane (crane is safe for use). A copy of the last examination report shall be available on site for inspection.
- c) Report of crane base by *perit* (base is able to withstand crane plus maximum load).
- d) Proof of training of operator.
- e) Risk assessment including the lifting plan (risks from crane operations, travel path of load, protection of workers and third parties, falling loads, banskman, etc.).

Every effort has been made to ensure that the information in this document is correct and provided in good faith according to current best practice - it is also strongly recommended that one should consider all relevant regulations related to this subject.

