

*Scaffolding and Lifts.*

## Act No. 38, 1912.

SCAFFOLDING AND  
LIFTS.

## An Act to consolidate the Acts controlling scaffolding and lifts. [26th November, 1912.]

BE it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:—

## PART I.

*Preliminary.*

Short title.

**1.** This Act may be cited as the "Scaffolding and Lifts Act, 1912," and is divided into Parts, as follows:—

PART I.—*Preliminary*—ss. 1-5.

PART II.—*Erection and regulation of scaffolding, engines, steam cranes, lifts, and gear*—ss. 6-9.

PART III.—*Lifts*—ss. 10-12.

PART IV.—*Inspection*—ss. 13-16.

PART V.—*Drivers of steam cranes*—s. 17.

PART VI.—*Penalties*—s. 18.

Repeal.  
Schedule.

**2.** (1) The Acts mentioned in the First Schedule to this Act are hereby repealed.

Officers under Acts  
hereby repealed.

(2) All persons appointed under the Acts hereby repealed and holding office at the time of the passing of this Act shall be deemed to have been appointed hereunder.

Saving clauses.  
Proclaimed districts  
under Acts hereby  
repealed.

(3) Every district proclaimed under the Acts hereby repealed shall be a district under this Act.

Regulations under  
Acts hereby  
repealed.

(4) All regulations duly made under the Acts hereby repealed, and in force at the time of the passing of this Act, shall be deemed to have been duly made under the provisions of this Act, and as if this Act had been in force when the same were made.

Notices, &c., under  
Acts hereby  
repealed.

(5) All notices, orders, and authorities duly given, and all certificates duly granted, and all acts and things duly done under the Acts hereby repealed and in force, existing, or operating at the time of the passing of this Act, shall continue to be of the same force and effect as if this Act had been in force at the time the same were respectively

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respectively given, granted, or done, and they had been given, granted, or done under the corresponding provisions of this Act, and this Act shall apply to them accordingly.

**3.** In this Act, unless the context or subject-matter otherwise requires,—

Definitions.  
No. 91, 1902, s. 3.  
No. 8, 1908, s. 2.

- (a) "Authorised attendant" means a person of sixteen years of age or upwards, certified by an inspector as competent to be placed in charge of a lift.
- (b) "Automatically controlled lift" means any lift that is certified by an inspector as being fully automatically and mechanically controlled.
- (c) "Engine" means machine, crane, boiler, or other apparatus or contrivance used in erecting, demolishing, altering, repairing, cleaning, or painting buildings or structures; and includes hand cranes, travelling cranes, and other similar apparatus or contrivance used in yards, quarries, or other places for the purpose of lifting or handling timber, iron, stone, or other materials.
- (d) "Gear" includes ladder, plank, chain, rope, fastening, hand hoist, stay, block, pulley, hanger, sling, brace, or other movable contrivance of a like kind.
- (e) "Horizontal base" means ground level: Provided that, where any scaffolding is erected upon permanent floors, with walls on all sides not less than three feet higher than the scaffold boards, then such permanent floor will be deemed the horizontal base.
- (f) "Inspector" means inspector appointed under this Act.
- (g) "Lift" means apparatus or contrivance within or attached to a building worked by any power other than hand, by which persons or goods are raised or lowered, and includes any machinery used for working a lift.
- (h) "Passenger lift" means a lift used chiefly for the conveyance of passengers, or certified by an inspector to be a passenger lift.
- (i) "Scaffolding" means—
  - (a) any structure built up and fixed to a height exceeding eight feet from the horizontal base on which it is built up and fixed for erecting, demolishing, altering, repairing, cleaning, or painting buildings or structures or ships in dock or on slips, or for the purpose of erecting or demolishing timber stacks; and

(b)

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- (b) any derrick, shearlegs, or other contrivance of a like kind used or intended to be used for any of the aforesaid purposes; and
- (c) any projecting structure of a greater height from the ground than eight feet, used or intended to be used for any of the above purposes; and
- (d) any swinging stage used or intended to be used for any of the above purposes.
- (j) "Steam crane" means steam crane, electric crane, hydraulic crane, or any other power crane or hoist used in connection with building operations, or used in any place for the purpose of lifting or handling timber, iron, stone, or other materials.

Places within which  
Act shall operate.  
No. 91, 1902, s. 2.

**4.** This Act shall have effect in the metropolitan police district, and in such other areas as the Governor, by proclamation published in the Gazette, may direct.

Such district and each such area is referred to in this Act as a district.

Appointment of  
inspectors.  
*Ibid.*

**5.** The Governor may, for carrying out the provisions of this Act, appoint inspectors for any districts.

## PART II.

*Erection and regulation of scaffolding, engines, steam cranes, lifts, and gear.*

Notice as to the  
erection of  
scaffolding, engine,  
or steam crane.  
*Ibid.* s. 5.  
No. 8, 1908, s. 2.

**6.** (1) Every person before commencing in any district to set up or build any scaffolding, engine, or steam crane, shall serve on an inspector for the district a notice in writing, under his hand, of his intention so to do by posting such notice to him, or leaving it at such address as the Minister may, by notice in the Gazette, direct, at least twenty-four hours before such scaffolding, engine, or steam crane is commenced to be set up or built.

(2) Any person who—

(a) without having so served such notice; or

(b) within twenty-four hours after service of such notice,

commences in a district to set up or build any scaffolding, engine, or steam crane, shall be liable to a penalty not exceeding twenty pounds.

(3) It shall not be necessary to allow any time to elapse after the service of the notice as aforesaid in the case of an emergency arising from damage caused by lightning, explosion, fire, or rain.

(4)

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(4) The enactments in this Act relating to the giving of notice of intention to erect, or to set up, or build scaffolding shall not apply to the case of ships in dock, or on slips, or to the case of the erection or demolition of timber stacks.

7. All scaffolding, engines, and steam cranes and all gear used in connection therewith in any district shall be of the description indicated in the regulations in the Second Schedule hereto, and shall be set up, built, maintained, and used in accordance with such regulations.

*Scaffolding, &c., to be in accordance with regulations. No. 91, 1902, s. 6. No. 8, 1908, s. 2.*

8. The regulations in the Second Schedule contained shall be the regulations under this Act, and be enforced as therein and in this Act provided, until they shall be annulled, amended, or added to; and the Governor may proclaim regulations—

*Proclamation of new regulations. Ibid. s. 3.*

(1) requiring—

(a) notice to be given of intention to erect scaffolding, lifts, engines, and steam cranes, and also as to—

(i) permits to be applied for by persons erecting or altering lifts.

(ii) the plans and descriptions to accompany such applications.

(b) notice to be given to the inspector by persons owning or using lifts existing before the commencement of this Act;

(c) notice to be given to the inspector by owners, lessees, and others, in cases where the ownership or right of control of lift has been changed by sale, transfer, or otherwise;

(d) notice to be given to the inspector by owners, lessees, and managers of lifts in cases where accidents have occurred.

(2) relating to—

(e) the proper construction and use of scaffolding, lifts, engines, and steam cranes;

(f) the certification of drivers of steam cranes;

(g) the certification, qualification, and duties of persons in charge of lifts;

(h) the qualifications, powers, and duties of inspectors;

(i) all such other matters as the Governor may deem necessary for carrying this Act into effect, and for the observance thereof;

(j) the enforcement of such regulations by penalties not exceeding twenty pounds;

(3) annulling, amending, or adding to the regulations under this Act.

*No. 91, 1902, s. 7.*

9. Every proclamation made under the preceding section shall be published in the Gazette and laid before Parliament within fourteen days after such publication, or, if Parliament is not then sitting, within fourteen days after the commencement of the session next ensuing after such publication.

*Mode of proclaiming amendments of Second Schedule. Ibid.*

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The regulations contained in any such proclamation may be disallowed by resolution of either House of Parliament, in whole or in part, within one month after the proclamation has been laid before that House, and such of the regulations as have not been so disallowed shall, at the end of such period or the last of such periods, have the force of law, and be deemed to be contained in the Second Schedule hereto.

## PART III.

*Lifts.*

Notice of erection  
of lift.  
*Ibid.* s. 8.

**10.** (1) Every person before commencing to erect a lift in a district shall serve on an inspector for the district notice in writing under his hand of his intention to commence erecting such lift at least twenty-four hours before commencing.

(2) Any person who—

(a) without having served such notice; or,

(b) within twenty-four hours after service of such notice,

commences to erect a lift in a district shall be liable to a penalty not exceeding twenty pounds.

Authorised  
attendant to be in  
charge of lift.  
No. 8, 1908, s. 4.

**11.** If any person other than an authorised attendant works, operates, or interferes with the working of a passenger lift, he shall be liable to a penalty not exceeding ten pounds: Provided that this section shall not apply to the bona fide owner, lessee, or manager of the building wherein the lift is situated in case of emergency, nor to any workman engaged in inspecting, repairing, or erecting a lift, nor to any automatically controlled lift.

Name of attendant  
to be shown on lift  
*Ibid.* s. 4

**12.** The owner, lessee, or manager of any building containing a passenger lift shall cause the name of every authorised attendant working the lift to be legibly written or printed and placed and retained in a prominent part of the car of the lift. Any such owner, manager, or lessee failing to comply with the provisions of this section shall be liable to a penalty not exceeding ten pounds.

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PART IV.

*Inspection.*

**13.** An inspector shall from time to time inspect all lifts and all scaffolding, and all engines and steam-cranes and gear used in connection therewith constructed or used or in course of construction in his district, and for that purpose may, during working hours, enter any building or premises.

Entry by inspector.  
No. 91, 1902, s. 9.  
No. 8, 1908, s. 2.

**14.** Where it appears to an inspector that any person working a passenger or goods lift is careless, incompetent, or untrustworthy, the inspector may direct such person to, and he shall thereupon, cease to work, operate, or be in charge of such lift; and if any owner, lessee, or manager of any premises employs such person in connection with a lift without the authority in writing of an inspector, he shall be liable to a penalty not exceeding ten pounds.

Inspector may suspend incompetent attendant.  
*Ibid.* s. 5.

**15.** (1) Where it appears to an inspector—

- (a) that the use in his district of any lift or any scaffolding or engine or steam crane, or any gear used in connection therewith, would be dangerous to human life or limb; or
- (b) that with regard to any lift or any scaffolding or engine or steam crane or gear used in connection therewith erected or used or in course of erection in his district, the regulations in the Second Schedule hereto are not being complied with,

Inspector may give directions as to scaffolding, &c.  
No. 91, 1902, s. 10.  
No. 8, 1908, s. 2.

he may give such directions in writing to the owner of or person using such lift or the person in charge or apparently in charge of such scaffolding, engine, steam-crane, or gear as he thinks necessary in order to prevent accidents or to ensure a compliance with such regulations; and such person shall, unless notice of appeal is given as hereinafter provided, forthwith carry out such directions.

(2) Where an inspector gives any directions for any reason mentioned in subsection (1) (a), he may at the same or at any other time order any persons forthwith to cease to use the lift or to work in connection with the scaffolding, engine, steam-crane, or gear until such directions or any order on appeal therefrom has been complied with.

May order work to cease.

Any such order of an inspector may be rescinded by him.

(3) The person to whom such directions have been given, or the owner of the lift or the person in charge of the operations in respect of which the scaffolding, engine, steam-crane, or gear is erected, used, or intended to be used, may, on giving notice to the inspector within twenty-four hours after such directions have been given, appeal in person to the Government Architect, or any person deputed by the Government Architect to hear any such appeal. The said

Appeal from inspector.

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said architect or person shall hear and determine such appeal with all reasonable despatch, and shall, by order in writing delivered to the person appealing, affirm, vary, or rescind such directions.

Penalty.

(4) Any person who—

- (a) refuses or fails to comply with any direction given to him by an inspector in pursuance of this section or any order on appeal therefrom; or
- (b) refuses or fails to comply with any order given to him by an inspector in pursuance of this section to cease to use a lift or to work in connection with any scaffolding, engine, steam-crane, or gear,

shall be liable to a penalty not exceeding fifty pounds.

Obstruction of  
inspectors.  
No. 91, 1902, s. 12.

**16.** Any person who interferes with or obstructs any inspector in the execution of any power or duty conferred or imposed on him by this Act shall be liable to a penalty not exceeding four pounds.

## PART V.

*Drivers of steam-cranes.*

Driver in charge  
of crane to hold  
certificate.  
*Ibid.* s. 11.

**17.** (1) No person shall, in any district, act as driver in charge of any steam-crane used in connection with building operations unless he has obtained and holds a driver's certificate.

A driver's certificate shall be granted by the Government Architect to any person who, after inquiry and examination he considers is trustworthy and competent to act as a driver of a steam-crane. Any certificate so granted may be cancelled by the Government Architect if he considers that the holder has ceased to be trustworthy or competent as aforesaid.

Penalty.

(2) Any person who acts in a district as driver in charge of a steam-crane without holding a driver's certificate granted and in force in pursuance of this section, shall be liable to a penalty not exceeding ten pounds.

## PART VI.

*Penalties.*

Recovery of  
penalties.  
*Ibid.* s. 13.

**18.** All informations under this Act may be heard and determined, and all penalties may be recovered in a summary way before a court of petty sessions.

SCHEDULES.

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## SCHEDULES.

## FIRST SCHEDULE.

*Repeal of Acts.*

Reference to Act.	Subject or short title.
No. 91, 1902 ... ..	Scaffolding and Lifts Act, 1902.
No. 8, 1908 ... ..	Scaffolding and Lifts (Amending) Act, 1908.

## SECOND SCHEDULE.

Gazette, 5th  
December, 1903. }

## REGULATIONS.

## PART I.

## PRELIMINARY.

1. These Regulations are divided into Parts, as follows:—

PART I.—PRELIMINARY.

PART II.—ADMINISTRATION.

PART III.—SCAFFOLDING, ENGINES, STEAM CRANES, &c.

PART IV.—CONSTRUCTION AND ERECTION OF LIFTS, CRANES, WHIPS, &c.

PART V.—WORKING OF LIFTS, CRANES, WHIPS, &c.

PART VI.—MAINTENANCE OF LIFTS, CRANES, WHIPS, &c.

PART VII.—AUTHORISED LIFT ATTENDANTS' CERTIFICATES AND STEAM-CRANE DRIVERS' CERTIFICATES, &c.

## PART II.

## ADMINISTRATION.

2. (a) The officer in charge of the Scaffolding and Lifts Office shall be designated "The Chief Inspector of Scaffolding and Lifts."

(b) In the Chief Inspector of Scaffolding and Lifts is hereby vested the following powers and duties:—

(a) The regulation and supervision of the duties of the general staff of inspectors appointed under the provisions of the Scaffolding and Lifts Act, 1912.

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(b)



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- (b) The receipt of notices stating intention to erect scaffolding, lifts, engines, and steam cranes.
- (c) The issuing of permits, applied for by persons intending to erect or alter lifts, and the approval of plans and descriptions that accompany such applications.
- (d) The certification of persons in charge of lifts.
- (e) The receipt of notices from persons owning or using lifts, or in cases where ownership or right of control of lift has been changed.
- (f) The receipt of notices in cases where accidents have occurred in connection with lifts.
- (g) The suspension of careless, incompetent, or untrustworthy lift attendants, and, when deemed necessary, with the approval of the Minister, the cancellation of authorised lift attendants' certificates.
- (h) The laying of informations in cases where breaches of the provisions of the Scaffolding and Lifts Act have occurred.
- (i) Such other powers as are vested in an inspector appointed for any district, which powers may be exercised alone or in conjunction with any inspector.

## PART III.

## SCAFFOLDING, LIFTS, STEAM CRANES, &amp;c.

*Swinging Stage.*

3. To bear three times the maximum weight required.

Where the overhead needle supports are of timber they shall not be less than 6 in. x 4 in. Oregon pine, on edge, or 4 in. x 4 in. N.S.W. hardwood, for needles up to 4 feet projection.

For needles of greater projection than 4 feet, proportionally heavier timbers shall be used.

No parapet hooks will be allowed, unless the weight of the stage and workmen is fully counter-balanced on the inside of the wall parapet.

Where oil drums filled with water are used as counterbalances, they shall be fixed in position open end upwards, and if suspended it shall be by means of strong straps passing under and round drums.

Blocks to be of iron or wood, not less than 4 inches in diameter of sheaf, consisting of double and single block; all rope to be Manila, not less than  $2\frac{3}{4}$  inches circumference.

Platform to consist of 10-inch by  $1\frac{1}{2}$ -inch planking, running full length of stage, on 2 inches by  $\frac{1}{2}$  inch or 1 inch diameter wrought-iron hangers, carried round stage with loop on top to receive tackle, each hanger bolted to planking with  $\frac{3}{8}$ -inch bolts.

Platform to be not less than two planks in width, and shall be stiffened with strong cleat between the hangers. Each swinging stage, 18 feet in length, shall have two hangers, the distance between the hangers to be not more than 12 feet. Where the stage exceeds 18 feet in length, the planking shall be stiffened with a truss underneath, and other parts to be of stronger construction, as may be directed by the Inspector.

Guard-rail to be of 3-inch Manila rope, 1-inch pipe, or 3-inch by 2-inch timber, securely fastened to hangers not less than 2 ft. 6 in. from floor; also fender board not less than 6 inches by  $1\frac{1}{4}$  inch on outside and both ends.

*External Scaffold for Bricklayers.*

4. Standards to be not more than 9 feet apart, and, if hardwood, not less than 4 inches diameter at butt, and  $2\frac{1}{2}$  inches at tip; if sawn pine timber, they shall not be less than 16 inches sectional area. Standards to be embedded 12 inches in ground, or in barrels filled with solid material.

If cart entrance between standards is necessary, the spacing shall be not more than 10 feet.

In no instance must brick blockings be used to a greater height than 5 feet from the horizontal base.

Ledgers to be not less than 12 inches sectional area hardwood—or 15 inches sectional area, minimum depth 5 inches, if pine timber—and to be tied or bolted to standards at spaces of not more than 6 feet apart. First ledger may be fixed at not more than 10 feet from the ground, where circumstances require it.

Putlogs to be of hardwood; where the span does not exceed 5 feet in the clear, the sectional area shall be not less than 9 inches, spaced not more than 6 feet apart, and to have not less than  $4\frac{1}{2}$  inches bearing in wall; all putlogs to be securely wedged in position.

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Scaffold boards to be closely laid, and of sound timber, not less than  $1\frac{1}{2}$  inch thick, laid butting or lapping; but where lapped, the laps to be not less than 9 inches. Scaffolds to have 9-inch by  $1\frac{1}{2}$ -inch fender board on all working stages secured to standards; also guard-rail, not less than 3 feet high, of scaffold poles or timber, not less than 6 inches sectional area, lashed or bolted to standards or  $3\frac{1}{2}$ -inch Manila rope. Openings through guard-rail and fender board allowed alongside landings only.

Bracing to be not less than 9 inches sectional area, hardwood poles or sawn pine timber, and placed to the Inspector's satisfaction.

Scaffolds to be secured by Manila rope not less than  $1\frac{3}{4}$  inch in circumference and 15 feet long, or bolts not less than  $\frac{5}{8}$ -inch diameter, fitted with washers. All lashings to be kept properly wedged, and bolts properly tightened up.

Foot-planks not exceeding 16 inches in height may be used subject to approval by the Inspector.

*Internal Scaffold for Bricklayers.*

5. Internal scaffolds shall be constructed in a similar manner to the external scaffolds, and with timber of a similar section; trestles approved by the Inspector may be used in place of standards. Where the rooms do not exceed a height of 20 feet, the guard-rail may be omitted.

The standards may be omitted when the internal or divisional walls form sufficient bearing for ledgers; the distance between such bearing shall not exceed 8 feet.

Foot-planks not exceeding 16 inches in height may be used, subject to approval by the Inspector.

*External Scaffold for Plasterers.*

6. Where an external scaffold is to be used for plasterer's work only, the standards may be spaced not more than 10 feet apart, and, if hardwood, not less than 4 inches diameter at butt and  $2\frac{1}{2}$  inches at tip; if sawn pine timber they shall not be less than 16 inches sectional area. Standards to be embedded 12 inches in ground, or in barrels filled with solid material,

Ledgers to be not less than 4 inches diameter butt, and  $2\frac{1}{2}$  in. taper end, or 12 inches sectional area, and spaced to suit the particular class of work, such spacing to be to the satisfaction of the Inspector. Bracing to be not less than 6 inches sectional area.

Putlogs to be of hardwood. Where the span does not exceed 5 feet in the clear the sectional area shall be not less than 9 inches, spaced not more than 6 feet apart, and to have not less than  $4\frac{1}{2}$  inches bearing in wall. All putlogs to be securely wedged in position.

Scaffold boards to be closely laid, and of sound timber not less than  $1\frac{1}{2}$  inch thick, laid butting or lapping, but, where lapped, the laps to be not less than 9 inches. Scaffolds to have 9 in. x  $1\frac{1}{2}$  in. fender board on all working stages secured to standards; also guard-rail, not less than 3 feet high, of scaffold poles or timber, not less than 6 inches sectional area, lashed or bolted to standards, or  $3\frac{1}{2}$ -inch Manila rope. Openings through guard-rail and fender board allowed alongside landings only.

Scaffolds to be secured by Manila rope not less than  $1\frac{3}{4}$  inch in circumference and 15 feet long, or bolts not less than  $\frac{5}{8}$ -inch diameter, fitted with washers. All lashings to be kept properly wedged, and bolts properly tightened up.

*Internal Scaffold for Plasterers, Painters, Ceiling-fixers, &c.*

7. Scaffolds up to 15 feet in height shall have standards, if Oregon pine, of not less than 9 inches sectional area, spaced not more than 10 feet apart. Properly framed trestles may be used in lieu of standards.

Ledgers, if poles, to be similar to those for external scaffold, and, if pine timber, not less than 12 inches sectional area, with a minimum depth of 4 inches.

Where the height of the scaffold exceeds 15 feet it shall be constructed of hardwood standards of not less than 4 inches diameter at the butt and  $2\frac{1}{2}$  inches at taper end, or 12 inches sectional area if sawn pine timber, to be spaced not more than 9 feet apart. Ledgers to carry the platform of scaffolds to be of 12 inches sectional area if sawn timber; if of round timber, to be of similar section to the standards, bolted to standards with  $\frac{5}{8}$ -inch bolts, or properly secured with  $1\frac{3}{4}$  inch Manila rope. Guard rail to be provided, and to be of 3-inch Manila rope, 1-inch pipe, or 3 in. x 2 in. timber securely fastened to hangers not less than 2 ft. 6 in. from floor; also fender board not less than 9 in. x  $1\frac{1}{2}$  in. on outside and both ends on all working stages. Openings through guard-rail and fender board allowed alongside landings only

*Generally.*

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*Generally.*—Putlogs to be of hardwood; where the span does not exceed 5 feet in the clear the sectional area shall be not less than 9 inches, spaced not more than 6 feet apart, and to have not less than  $4\frac{1}{2}$  inches bearing in wall. All putlogs to be securely wedged in position.

Scaffold boards to be closely laid, and of sound timber not less than  $1\frac{1}{2}$  inch thick, laid butting or lapping, but, where lapped, the laps to be not less than 9 inches.

Bracing to be not less than 6 inches sectional area, hardwood poles or sawn pine timber, and placed to the Inspector's satisfaction.

Scaffolds to be secured by Manila rope not less than  $1\frac{3}{4}$  inch in circumference and 15 feet long, or bolts not less than  $\frac{5}{8}$ -inch diameter, fitted with washers. All lashings to be kept properly wedged, and bolts properly tightened up.

Where the scaffold is used in connection with ceiling work, the openings between scaffold boards must not be greater than 3 inches. Scaffold boards to be secured in position, to prevent spreading.

*External Scaffold (Iron) for Bricklayers and Plasterers.*

8. Standards to be not more than 9 feet apart, and to be not less than  $1\frac{3}{4}$  in. x  $1\frac{3}{4}$  in. x  $\frac{1}{4}$  in. angle iron, or 2 in. x  $\frac{1}{4}$  in. channel iron. Standards and ledgers are to be formed of sufficient lengths of angle or channel iron to suit the height or length of scaffolding required, and to be lap-jointed with a minimum length of lap of 12 inches, or butt-jointed with a fish-plate, not less than 18 inches long, lap-joint to have not less than two  $\frac{1}{2}$  in. bolts, and butt-joint not less than four  $\frac{1}{2}$  in. bolts.

Feet of standards to rest upon a sole plank, and to be provided with cleats to keep standards in position.

Ledgers to be not less than  $1\frac{1}{2}$  inch sectional area, minimum depth  $2\frac{1}{2}$  inches. Ledgers must be firmly bolted or otherwise fixed to standards, and must not be more than 6 feet apart; the first ledgers may be fixed at not more than 10 feet from the ground where circumstances require them so.

Putlogs, in length, not more than 5 feet in the clear, to be 2 in. x  $\frac{1}{2}$  in. iron on edge, bolted or otherwise fixed to standards; putlogs must be wedged in the wall or fastened otherwise in a manner to the Inspector's approval. Intermediate putlogs to be placed where required by the Inspector.

No bolt to be less than  $\frac{1}{2}$  inch diameter.

Extension bars, of same section as putlogs, may be used for runs, subject to the Inspector's approval.

Sufficient bracing must be provided, and to be securely fastened at intersections of standards and ledgers.

Scaffold boards to be of sound timber, not less than 9 in. wide and  $1\frac{1}{2}$  in. thick, laid butting or lapping, but where lapping, the laps to be not less than 9 inches; scaffolds to have 9 in. x  $1\frac{1}{2}$  in. fender board on all working stages, secured to standards, also guard-rail not less than 3 feet high, of timber not less than 6 inches sectional area, or  $3\frac{1}{2}$  inches Manila rope, securely attached to standards.

Openings through guard-rail and fender board allowed alongside landings only.

No scaffold to be less than 5 feet wide.

Where iron scaffolding is to be used for plasterers' work, the standards may be spaced not more than 10 feet apart, and the whole generally as described for bricklayers' external scaffold.

*Brackets for Plasterers, Painters, Tuckpointers, Carpenters, and Plumbers.*

9. Wood brackets, strapped with iron at angles, or iron brackets, approved by the Inspector, may be used for painters, plasterers, tuckpointers, carpenters, and plumbers.

The manner in which brackets are fixed in position will be to the Inspector's approval.

No brackets depending upon a wall solely for support will be allowed to be fixed to green brickwork or hollow walls.

*Fastenings for External or Internal Wood or Iron Scaffolding.*

10. Fastenings for external or internal scaffolding may be made with Manila rope not less than  $1\frac{3}{4}$  inch circumference,  $\frac{5}{8}$  inch iron bolts, or iron clamps approved by the Inspector.

*Tower Gantries.*

11. All tower gantries of a height not exceeding 50 feet, for a steam crane with a lifting capacity of less than 5 tons, shall be constructed to the approval of the Inspector.

Tower

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Tower gantry not exceeding 100 feet high for a steam crane to lift a weight of 5 tons, and not exceeding 10 tons, to be constructed as follows: Tripod gantry towers to be not less than 6 ft. x 6 ft., and to be constructed with 7 in. x 7 in. corner posts, extending the full height of the gantry, properly fishplated and bolted at junctions; corner posts to be firmly tied together by 9 in. x 3 in. horizontal ties at 10 feet centres, and each side of the tower to be properly braced with 7 in. x 3 in. diagonal braces, firmly bolted to the corner posts; each tower to have a centre post 10 in. x 10 in.; these posts to extend the full height, and to be firmly fishplated at junctions, and to be stiffened at intervals with 5 in. x 3 in. stays to the corner posts of each tower.

The towers to be constructed by means of horizontal braces 9 in. x 3 in., spaced not less than 20 feet apart. Each side of gantry to be braced with diagonal braces of 9 in. x 3 in., firmly bolted to the timbers of the towers, and at intersections; the towers to rest on 9 in. x 9 in. sleeper plates, and to be tied together at top by 9 in. x 9 in. kerb; all bolts for gantries to be not less than  $\frac{3}{4}$  in. diameter. The back stays of the crane to be tied to the 10 in. x 10 in. centre post by means of two 4 in. x 1 in. wrought-iron straps extending over the back stay of the crane and down each side of the centre post. The length of the strap to be 9 feet, and to be firmly bolted to the centre post and to the timbers of the crane by 1 inch bolts. The ends of the straps to be also turned and mortised into centre post  $1\frac{1}{2}$  inch. Each centre under the back stays of the crane shall have a platform at the bottom formed of 9 in. x 3 in. timber firmly bolted to the centre post and to the sides of the tower, and each tower shall be loaded with a weight equal to three times the weight the crane has to lift.

Ladders extending to at least 5 feet higher than the gantry top platform, must be provided on the inside of at least one tower, the platform to be sufficiently close boarded.

The construction of a tripod gantry not exceeding 100 feet high for a crane to lift from 10 tons to 15 tons to be similar in all respects to the foregoing, with the exception that the corner posts of the tower shall be 8 in. x 8 in.

Where circumstances necessitate a gantry exceeding 100 feet in height, it shall be constructed to the approval of the Government Architect.

*Lift Boxes.*

12. Lift boxes to carry up to 3 tons to be made of 2 inch Oregon properly framed together, each box to have two carrying straps made of 3 in. x  $\frac{5}{8}$  in. iron passing under the bottom of the box and up each side, and secured to the timber with  $\frac{5}{8}$  in. bolts. Eyelet holes to be formed on top to receive box chains; boxes for lighter loads may be of proportionately lighter construction.

*Ladders.*

13. Ladders for bricklayers, plasterers, and painters shall be of clean Oregon with hardwood rungs set in centres; batten ladders to be constructed of 3 in. x 2 in. stiles and 3 in. x 1 in. battens partly sunk into stiles and firmly nailed or screwed. In no instance shall batten ladders exceed 14 feet in length. Batten ladders otherwise shall not be allowed, with the exception of roof ladders and gantry ladders on any building or structure upon which the work is being carried on.

All ladders must extend at least 5 feet above the highest level served, and proper close covered landings alongside ladders to be provided.

*Hand Cranes.*

14. The load of any hand crane, other than a test load, must not at any time exceed that which the crane is designed to lift.

Each back-stay of any crane shall be loaded with a weight equal to at least three times that which the crane has to lift.

Every hand crane shall have marked in a prominent position the maximum load which the crane is designed to lift.

All pawls must be provided with efficient locks to prevent pawls inadvertently getting out of engagement.

Faces of ratchets, clutches, gearlocks, and collars to be kept square.

Band-brake to be kept in efficient condition.

All handles to be kept in position with nuts, proper pins, or cottars.

Wheels and pinions to be kept in good condition, properly keyed up and in correct gear relation.

Wheels and pinions with broken teeth to be discarded and replaced; pegs or dovetailed teeth will not be allowed.

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All spliced eyes to be round thimbles, and to have not less than three full tucks.

Sole-plate of crane to be properly bedded level, and precaution to be taken against skidding.

*Generally.*—The gland irons, derricking, and hoisting ropes must be kept in good condition and closely looked over as often as possible. Where ropes show signs of bunching, stranding, excessive wear, or breaking of wires they must be at once discarded.

*Steam Cranes and Steam Hoists.*

15. The boilers of steam cranes and steam hoists must be provided with the following fittings, which must be to the approval of the Inspector:—Safety valve, stop valve (fitted either directly to a seating upon the boiler shell or to safety-valve casting), 2 test cocks, approved pressure gauge, water gauge, blow-off cock, injector or inspirator or feed pump, and a fusible plug fitted to the furnace crown.

16. All pawls must be provided with efficient locks, to prevent pawls inadvertently getting out of engagement.

Faces of raskets, clutches, gearlocks and collars, to be kept square, and locks engaging collars to be kept a good fit.

Metal band-break to be kept in efficient condition.

All handles to be kept in position with nuts or proper pins or cottars, and clutch levers to be locked in position in or out of engagement.

Wheels and pinions to be kept in good condition, properly keyed up and in correct gear relation.

Wheels and pinions with broken teeth to be discarded and replaced; pegs or dovetailed teeth will not be allowed.

All spliced eyes to be round thimbles and to have not less than three full tucks.

Sole-plate of crane to be securely and properly bedded level.

No load, at any time, excepting a *bonâ fide* test load, must exceed that which the crane is designed to lift.

No crane that is primarily intended for hand power will be allowed to operate by mechanical power, unless the speed is kept within the maximum speed that could be obtained under ordinary conditions by hand; the load under any circumstances not to exceed that for which the crane was designed.

The gland-irons, derricking and hoisting ropes must be kept in good condition and closely looked over as often as possible.

Where ropes show signs of bunching, stranding, excessive wear, or breaking of wires they must be at once discarded.

17. The hoist-well in any building in course of erection, shall upon all floors, be enclosed with rails 2 ft. 6 in. in height; should a car or platform be in use in such well, the rails must be placed not less than 12 in. back from the edge of the well.

18. No person shall ride upon the car or platform of any contractor's lift or hoist, unless the car of such lift or hoist is provided with an efficient safety gear, and the sides enclosed to a height of not less than 5 ft. 6 in. with gates or doors not less than 5 ft. 6 in. in height, or rails fitted 12 in. back from the edge, on the front and back.

*Derricks.*

19. All single mast derricks shall be provided with not less than three guys; "Yankee Derricks," or other similar contrivances, shall have not less than one front guy and two back guys. All guys must be securely attached to top of derricks and fastened to substantial anchorages.

*General.*

20. Where buildings exceed two stories in height, immediately after the joists or girders are laid, a temporary covering of close boarding shall be laid on the joists or girders directly above where men are working.

Where pole or trestle scaffolding is erected from open floor joists or girders, the joists or girders must be temporarily close covered for a width of at least 5 feet from the outside edge of scaffolding.

All well-holes and similar openings in floors to be effectively guarded.

All runs, gangways, or similar means of communication between different portions of the building or scaffolding shall be of sufficient width to ensure safety, and shall have a thickness of not less than 2 inches.

Gangways or runs of two or more planks shall be cleated or otherwise fastened together to prevent unequal sagging.

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The pitch of any run or gangway shall not be greater than 1 in 6.

Trestles where used shall have the legs spread all ways, and all trestles or slipheads shall be properly framed together.

All working platforms above the height of 8 feet shall be at least 18 inches wide, and where practicable to have a guard rail not less than 2 ft. 6 in. above platform.

*Stages in Use upon Ships in Dock or upon Slips.**Large Stages for Cleaners and Painters.*

21. Planking for large stages to be not less than 12 in. x 3 in. Oregon pine, and if the length between supporting stage ropes exceeds 18 feet, an intermediate stage rope must be provided.

Stage ropes to be of steel not less than  $1\frac{3}{4}$  inch circumference, and to have a long eye spliced in one end to go round planks, eye to be not less than 4 ft. 6 in. in length, a short eye to be spliced in other end, to take tail rope. All splices to have at least three and a half tucks, and if in steel rope to be properly served. Tail ropes to be not less than  $2\frac{3}{4}$  inch circumference, Europe or Manila. Guys to be sufficient in number to secure the proper steadiness of stages.

Guys to be made of not less than  $1\frac{1}{4}$  inch wire rope, with not less than 2 inch circumference Manila tail rope. Guy and tail ropes to be attached by means of spliced eyes, properly made with at least  $3\frac{1}{2}$  inch tucks.

All steel rope splices to be served.

All stages to be provided with a life-line rope of not less than  $2\frac{1}{2}$  inch circumference, Europe rope, and to be properly secured to stage ropes at a height of not less than 2 ft. 6 in. from planks, by means of  $1\frac{1}{4}$  inch Europe or Manila rope lanyards.

Staging planks to lap at least 4 feet, and staging ropes to be attached to planks, in middle of laps, with one full turn of the large eye.

All stages to be provided with satisfactory end guys.

*Flying Stages.*

22. Flying stages to be of 12 in. x 2 in. Oregon planking 14 feet long. Staging to be suspended by means of 2 inch tail ropes, Europe or Manila, attached to 1 inch circumference stage ropes (steel) by means of eyes spliced in ends of ropes.

Stage ropes to be attached to planks by means of one full turn round plank, ropes to be seized beneath planks and stapled in position to sides of plank.

Flying stages to be provided with spars securely fixed to planks, and sufficiently long to ensure effective working conditions.

Where it is necessary for workman to stand to their work upon flying stages an efficient life-line must be provided.

*Stages for Engineers or Boilermakers.*

23. All hanging stages shall be of sufficient strength to bear not less than three times the weight to be put upon them. Stages must be suspended from overhead cat-heads or needles properly lashed in position or otherwise securely fixed.

Planks to be not less than 12 in. x 3 in. Oregon pine, free from knots or shakes. Single planks to be used only when the nature of the work requires the workman to sit to it.

All planks to be supported by means of steel ropes not less than  $1\frac{3}{4}$  inch circumference. The distance between the supports not to exceed 14 feet; supporting ropes to be carried round cat-heads or needles and bearers for planks. Bearers for platforms of two or more planks in width to be not less than 6 in. x 6 in. Oregon pine.

Where the use of life-lines would not interfere with the working operations, and the workmen have to stand upon stages, life-lines must be provided of not less than  $2\frac{1}{2}$  inch circumference Europe rope, properly lashed to the supporting ropes by means of  $1\frac{1}{2}$  inch Europe or Manila rope lanyards.

All staging planks to lap at least 4 feet.

Guys to be of sufficient strength and number to secure the proper steadiness of staging.

Trestles where used shall have ample margin of strength, and must be properly framed with trestle legs spread all ways.

*Scaffolds,*

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*Scaffolds, Runs, and Stagings for erecting or demolishing Timber Stacks.*

24. All runs over 8 feet in height shall be made with planks not less than 12 in. x 3 in. Oregon pine, if supported by projecting timbers (not strutted), the sectional area of the projecting pieces shall not be less than 16 inches for projections not exceeding 3 feet. If struts are used they shall not be less than 16 inches sectional area up to 16 feet in length; all struts shall be in one length, and must be properly secured in position. Where the length exceeds 16 feet, the sectional area must be increased proportionally.

Where the height of runs exceeds 16 feet, they shall be of 16 in. x 4 in. Oregon planks, and if supported by projecting timbers the sectional area of the supports must not be less than 36 inches. Where struts are used they shall be continuous in length and of sufficient section to ensure rigidity. All struts to be properly secured in position.

In cases where the length between end supports exceeds 18 feet with a 12 in. x 3 in. run, and 28 feet with a 16 in. x 4 in. run, intermediate supports must be provided.

Where runs are two or more planks in width they shall be effectively cleated to prevent unequal sagging.

All bearers between stacks shall not be less than 6 in. x 6 in. Oregon pine where the distance between stacks does not exceed 20 feet.

Return runs shall be constructed in a similar manner to carrying runs.

The pitch of any run shall not be greater than one in six.

Stacking platforms shall be constructed by means of trestles or projecting timber, with a sectional area of not less than 16 inches, spaced not more than 5 feet apart.

Planks to be not less than 12 in. x 1 in. Oregon pine, and the minimum distance between the face of the stack and the outer edge of the plank shall not be less than 16 inches.

All trestles to have ample margin of strength, and to be properly framed; trestle legs to spread all ways.

Runs, bearers, platforms, planks, and trestles shall be of sound timber, free from knots, shakes, &c.

*Instructions to Steam-crane Drivers.*

25. The following instructions and suggestions for the guidance of steam-crane drivers shall be kept affixed in some conspicuous position in every place where a boiler is in use in connection with such steam cranes or steam hoists:—

*Getting up Steam.*

Before lighting fires for the purpose of raising steam, be sure there is plenty of water in the boiler; examine all mountings, pressure-gauge, water-gauge, glass cocks, test cocks, blow-off cock, &c., and see that they are all working freely and in good order. Raise steam slowly; do not on any account force the fires of a cold boiler.

*Firing.*

In firing be careful to see that the fuel is evenly distributed over the whole of the grate surface, and not thrown on in patches. When the steam has been raised to the working pressure, the firing should be so regulated that the pressure may be kept as uniform as possible. When cleaning fires, be careful to pull out all ashes, dirt, and clinkers clear of boiler plates; never on any account allow damp ashes to be against them.

*Feed Water.*

Keep your water-level in the gauge-glass as nearly uniform as possible, regulating your feed to suit the demands being made upon the boiler. Pay strict attention to your feed check-valve, see that it is at all times tight on the face, and that no water is being forced back through it. Every time the boiler is blown down, the feed-check should be looked at, and, if necessary, the valve ground in.

*Water-gauge Glass.*

The water-gauge glass should be blown out two or three times daily, or oftener, if there is any doubt about the water-level. At least once a day close the top cock and blow from the bottom one, then close the bottom cock, and blow from the top one. When the cocks are closed the water should come up in the glass quickly; if it is slow in coming to its proper level, there is an obstruction somewhere which must be found and at once removed. The test cocks should be regularly attended to, and care taken to keep them in working order.

*Pressure-gauge.*

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## Pressure-gauge.

Look well after the pressure-gauge, see that it is at all times working freely and registering correctly, or it may happen you will be carrying a pressure of steam much different from that shown on the dial.

## Safety-valves.

The safety-valves should be eased once or twice every day to make sure they are in working order. This is a duty that should never be neglected, as many very serious accidents have occurred through these valves having been allowed to get fast in their seats. A safety-valve can only be relied upon when kept in good working order.

## Blow-off cock.

Examine the blow-off cock every time the boiler is cleaned, see that it is always tight and not passing any water into the pipe. Keep it and its surroundings free from all dirt, damp, and ashes.

## Priming.

Should priming of the water in the boiler occur, ease firing, open the engine drain-cocks, and slow down until the water settles, then gradually open your steam-valve till the engine is again running at its normal speed, then close the drain-cocks and open the damper. If the priming has been caused by too high a water-level, blow down a few inches.

## Shortness of water.

If by any means the water gets out of sight in the water-gauge glass, and below the bottom cock, smother the fire with wet sand, slack, or ashes; if the fire is too heavy to smother, draw part of it and smother the rest. Do nothing further until the fire is out and the plates cooled down. The boiler must be inspected before it is again set to work.

## Cleaning the boiler.

When cleaning the boiler, examine all the plates inside and outside where possible; if any sign of pitting or corrosion is observable it should be reported at once, and an examination of the place be made by the Inspector.

It is good practice to blow out a few inches of water every morning before setting away the fires.

## Care of machinery.

Before starting any engine, examine it carefully; see that all nuts and other fastenings are tight and in their proper places; see that all drain-cocks are full open before turning on the steam, and turn it on slowly. Keep the bearings properly adjusted: keep the steam-glands tight, and pay strict attention to your oiling arrangements. All engines should be warmed up for some time every morning before starting; by doing this there is far less chance of blowing off cylinder covers or doing other damage when the steam is turned on.

## Generally.

Take a pride in keeping the boiler and all the machinery that may be under your charge clean and bright within and without; you will be well repaid for your labour, and your employer's property will be all the better for the care bestowed upon it. See that all mountings, either boiler or engine, and joints are kept tight: allow no leakage of any kind to continue, attend to it at the first opportunity. Never tamper with the safety-valve; if it blows a little, do not hang extra weights on the lever or screw it down in hope of making it tight; never start an engine unless you are sure everything is clear.

As often as possible inspect the main lifting rope, derricking rope, splices, gland-irons, and leg straps; should any weakness of wear be shown the owner and Chief Inspector should be at once notified.

## PART IV.

## CONSTRUCTION AND ERECTION OF LIFTS, CRANES, WHIPS, &amp;c.

*General.*

26. (a) No lift shall be erected, re-erected, or materially altered or repaired, or additions made thereto, without first obtaining a permit, in the form "A" annexed, from the Chief Inspector of Scaffolding and Lifts

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(b) The applicant for a permit to erect or re-erect a lift must submit a plan showing the proposed location of the lift-well on the ground-floor of the building; drawings of the lift and its enclosure, together with a full description of the lift machine and the enclosure must also be submitted. The said plan, drawings, and description will be filed in the Scaffolding and Lifts Office.

(c) No permit will be issued to erect a lift, which comprises a platform or car, in any thoroughfare where it is necessary for persons to pass under the platform or car.

27. Efficient means are to be provided for lubricating all working parts of machines.

Proper platform, handrail, and ladder must be provided to enable the attendant to oil and tend to all parts of the machinery without risk of accident.

At the top of the well of any suspended lift there shall be built a substantial platform or grating, immediately under the overhead sheaves. Means of access from outside the lift-well to the overhead platform or grating must be provided.

28. (a) Every suspended passenger or goods lift shall be provided with not less than two metallic lifting ropes. Each such rope, when new, shall have a breaking strain of not less than five times the load to be put upon it.

If more than two ropes are used, their total factor of safety shall be not less than 10.

Where one rope only is provided, as in the case of whips, cranes, or service lifts, the factor of safety shall be not less than 10.

Balance-weight ropes must have a similar proportion of strength to load.

(b) Any suspended lift existing at the time of these Regulations coming into force that is provided with lifting chains, may, subject to an Inspector's directions, retain such lifting chains until renewal is necessary, when metallic ropes shall be fitted in lieu of chains.

(c) The minimum diameter of any pulley or sheave shall be not less than fifteen times the circumference of the rope to be used upon it.

29. All overhead construction of any description shall be of sufficient strength and stability to bear four times the load to be put upon it, and to the approval of the Inspector.

30. Where flying counterbalance is used, the weights shall be arranged to operate between suitable guides.

31. (a) All cars shall be carried from girders placed underneath. The superstructure of cars to be to the approval of the Inspector, and those passenger cars with more than one entrance shall have all such other entrances fitted with approved gates or doors.

In cases where enclosure gates on upper floors do not close down to floors, a substantial top must be fitted to the car.

(b) Safety gear to be provided for all lifts excepting direct-acting lifts, and service lifts, in which no person travels.

The gear must be automatic and positive in action, and must be such that it will securely hold the car or platform in position, should the suspension ropes break at any part, or become detached, also that the possibility of the car falling is obviated, should the hoisting machinery become deranged or broken.

All lifts with a greater travel than 30 feet shall be provided with speed-governing devices operating upon the safety gear.

The safety gear to be tested in such manner as the Inspector may direct.

(c) Every lift comprising a platform or car, excepting automatically controlled lifts and service lifts, shall be provided with signal bells or other similar apparatus that can be operated from any floor, to work in conjunction with an indicator in the car.

32. All lifts operated by means of a hand-rope or lever must be provided with a safe lock engaging the controlling apparatus. If the lift is operated from the car, the lock must be in the car, and if operated from the floor, a lock must be provided upon every floor the lift serves. Hydraulic control valve levers must be counterbalanced, and both ends of all hand-ropes connected to the valve levers or wheels.

33. (a) The enclosure doors or gates of any lift shall be arranged to close and lock automatically when the car is 15 inches from any floor level: Provided, this shall not apply to any lift, the control of which interlocks, electrically or mechanically, with the enclosure doors or gates.

Interlocks to be of such description that the control is inoperative if an enclosure door or gate is open.

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*Scaffolding and Lifts.*

(b) The enclosure doors or gates of passenger lifts and goods lifts must be provided with efficient inside fastenings. The fastenings may be provided with keys on the outside ; such key is not at any time to be left in any door. Enclosures, doors, or gates of passenger or goods lift other than on top floors, which will be to the Inspector's approval, must in no instance be less than 5 feet 6 inches in height. The lift-well on the side of any car entrance of either goods or passenger lifts in which any person travels shall be enclosed throughout the travel of the car to within 3 inches of the edge of the lift-well, otherwise an approved gate or door must be provided at car entrance.

(c) All service lifts shall be enclosed to the approval of the Inspector.

(d) In the case of goods lifts an opening of not more than 1 foot will be allowed above or below any enclosure gate or door, but only when in the opinion of the Inspector circumstances necessitate such opening.

(e) All cars, lift-wells, except for service lifts, and machinery, to be effectively lighted.

(f) All machinery and well-holes to be enclosed, to the Inspector's approval. In case of whip hatches, floors to or from which goods are delivered or discharged, they shall be provided with hand-holds and flaps, or rolling-platforms, approved by the Inspector.

34. All lifts, cranes, and whips shall be periodically inspected, and the owners of, or persons using any such lifts, cranes, or whips, shall take such measures as the Inspector may direct to facilitate any inspection. If everything is considered satisfactory a certificate will be issued by the Inspector.

35. Any lift which is designed and constructed for the purpose of carrying either goods or passengers shall have a prominent notice stating the maximum load such lift is to carry in goods, or the number of passengers, if a passenger lift.

*Hydraulic Lift, Crane, and Whip Regulations.*

36. All cylinders, rams, pipes, valves, or other apparatus subject to hydraulic pressure shall be tested to three times the proposed working pressure per square inch, and a certificate under the maker's hand, that they have been successfully tested to stand that pressure, shall be furnished to the Chief Inspector before they are put into use.

The whole of the above machinery to be tested to twice the working pressure in the presence of the Inspector, after erection, before being put into commission. The Inspector will give a certificate to the owner if everything is satisfactory. This regulation will apply to any substantial alteration in addition to, or reinstatements of, existing machinery and pipes.

37. (a) All hydraulic machinery having rams working in cylinders shall be provided with permanent stops (or other approved means) by which the rams will be prevented from being forced out of the cylinders quite independent of any valves or tappet gear.

(b) An independent screw-down pressure stop-valve and exhaust cock shall be fitted to every machine.

A back-pressure valve, non-return valve, or other similar apparatus of approved kind, shall be fitted to every service pipe. This valve to be placed as near the inlet to the building as possible.

A relief valve, loaded to lift when the pressure in the service pipe exceeds 10 per cent. increase of pressure over the ordinary working pressure, to be fitted in all cases where the service pipe exceeds 1 inch in diameter, unless sufficient evidence is given the inspector that such provision is otherwise provided.

(c) All hydraulic cylinders are to be fitted with air and drain pipes.

Ample provision to be made so that cylinders can be efficiently drained and washed out. Means must also be provided for preventing water syphoning out of the cylinders.

(d) Only piping made specially for hydraulic pressures shall be used ; in no case will ordinary steam or water piping be allowed for pressure work. Standard flanges to be screwed on and seated for jointing material ; a tee piece to be provided for testing purposes.

(e) No direct-acting lift, with a cast-iron ram, is to be fitted with flying balance-weights. All hydraulic or other type of balance to be approved by the Inspector.

(f) The controlling valve must be of an efficient type, and tested, and shall cut off automatically at either limit of travel. The valve must also be made to shut off the water in the case of breakage of the handline. Provision must be made to prevent any material passing to the plunger, and jamming in the holes thereof ; also, that will preclude any possibility of the plunger blowing out should it become parted, if in the opinion of the Inspector such an occurrence is possible.

*Electric*

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*Scaffolding and Lifts.*


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*Electric Lift, Crane, and Whip Regulations.*

38. (a) The location of the electric apparatus shall be such that it shall not be subject to moisture or dampness of any description.

The whole of the electrical attachments and apparatus shall be entirely and thoroughly insulated from body or earth in an efficient manner, to the approval of the Inspector.

(b) Electrical tests effected and approved by the Electrical Inspectors of the Municipal Council of Sydney or the Fire Underwriters' Association of New South Wales will be deemed sufficient and satisfactory.

(c) The supply main shall be suitably insulated and fixed, and shall be of sufficient sectional area to carry the maximum current permissible under the rules of the Fire Underwriters' Association of New South Wales.

(d) The Inspector shall see and test the whole of the machinery and other apparatus it is intended to be used before such is put into use. This regulation shall also apply to any substantial alterations or additions to or reinstatements of existing machinery. If everything is satisfactory, a certificate will be issued by the Inspector.

39. At the nearest point of entrance into a building the supply mains must be connected to suitable and efficient double pole-fuses, or circuit-breakers, and double pole quick-break switch. These fuses, or circuit-breakers, are to be guaranteed to break the circuit should the current exceed the normal carrying capacity of the main cables by 50 per cent. The capacity of these fuses, or circuit-breakers, shall be accurately determined to secure this result, which is most important.

40. (a) Sufficient space for the over-running of the cage shall be provided at the top and bottom of the lift well to the approval of the Inspector, and such space at the top shall be not less than 3 feet, measuring from the top of the car beam to the underside of the overhead girders or ceiling joists.

(b) An automatic stop, which will instantly break the circuit should the over-run of the car exceed 6 inches, shall be fitted to every goods or passenger lift where the Inspector so directs. This stop must be made to actuate from the car.

(c) All electric lifting apparatus shall be provided with limit stops, or other approved means, to prevent overwinding; these stops must be attached to the lift machine, in drum-winding gears, and must operate by the car in friction-driven gears.

(d) The electrical controlling gear must be to the approval of the Inspector, and must be of an efficient type, and shall automatically slow down and cut off at either limit of travel. It must operate in a satisfactory manner without causing excessive strain in any part of the apparatus. The electric controls must so operate as to obviate any excessive and deleterious sparking, and must be provided with locks or other means that will hold the controls in the "stop" position.

(e) All electric lifts operated by means of a winding drum shall have the drum grooved in such a manner as to conveniently embrace the lifting-ropes, or arranged to obviate any tendency of over-riding or jamming of the ropes.

In positively-driven gear, with the ropes permanently attached to the drum, the anchoring of the ropes shall be performed in an efficient and approved manner, and shall be such that not less than one and a half turns of each rope shall be round the drum when the lift cage is at the top or bottom limit.

(f) All such lifts, except service lifts, in which no person travels, shall be fitted with an automatic device so arranged that should the lifting-ropes from any cause whatsoever become slack, the current shall be immediately and automatically cut off.

(g) All counterbalance weights must be landed as the Inspector may direct,

(h) All lift machines shall be provided with an efficient brake gear, operated in a manner approved by the Inspector.

(i) If automatic door switches are used, they shall be constructed in such a manner as to comply with the requirements of the Inspector.

*Belt-driven, or other Power, Lift, Crane, and Whip Regulations.*

41. (a) All belting, pulleys, worm gear, spur gear, or friction gear shall be to the approval of the Inspector.

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(b) Any such lift shall be fitted with efficient brake gear, to operate on the worm shaft automatically, when the machine is stopped. Where the angle of any worm is more than the angle of reversibility, efficient provision shall be made to prevent rotation, so that any tendency of the car to descend, except under power, is obviated. All lifts shall be provided with two limit stops, one being controlled by the band-ropes, and one an integral part of the lift gear.

(c) In no instance will the use of direct spur-gearing or direct friction drive be allowed where it is intended that an attendant or passengers are to travel in the car.

(d) The striking or reversing gear shall operate by means of one hand-rope or rod, and shall be such as to preclude any possibility of two belts being on the fast pulley simultaneously, with provision made for maintaining the belts in their several proper positions.

(e) In the case of drum-winding lifts in which any person travels, it shall be provided with gear, so that should the lifting ropes by any means become slack, the machine shall automatically stop.

42. (a) Sufficient space for the over-running of the cage shall be provided at the top and bottom of the lift-well, to the approval of the Inspector; and such space at the top shall not be less than 3 feet, measuring from the top of the car-beam to the underside of the overhead girders or ceiling joists.

(b) All lifts operated by means of a winding drum shall have the drum grooved in such a manner as to conveniently embrace the lifting ropes, or arranged to obviate any tendency of over-riding or jamming of the ropes.

(c) In positively-driven gears, with the ropes permanently attached to the drum, the anchoring of the ropes shall be performed in an efficient and approved manner, and shall be such that not less than one and a half turns of each rope shall be round the drum when the lift-cage is at the top or bottom limit.

(d) All counterbalance weights must be landed as the Inspector may direct.

## PART V.

## WORKING OF LIFTS.

43. (a) The indiscriminate working or operating of lifts, except those automatically controlled by the general staff of employees in any building wherein a lift is situated, is prohibited.

No person other than those specifically empowered to do so by their employer, shall operate any goods lift except such lift is automatically controlled.

(b) The name of the persons empowered to work or operate any goods lift shall be posted in the car of the lift, and in the case of cranes, whips, &c., alongside the control.

(c) It shall be unlawful for any person, other than a workman engaged in erecting, repairing, or inspecting the lift, to work or operate any lift that comprises a car operated by means of a rope in the well, from any floor or any other place than the car, or to work or operate any electric lift from the control board.

All automatically controlled lifts shall be operated in a proper manner, by means of the car or floor control button switches, and no person shall operate such lift in an improper manner by means of the enclosure gate contacts or fastenings.

(d) No attendant in charge of any lift shall move the car from any floor unless the enclosure doors or gates upon the floor and car are closed and fastened.

(e) No attendant shall load or unload a car nor take in or let out passengers, unless the power is absolutely shut off the machine; and if it is necessary for the attendant to remove his hand from the control, the control must be locked in the "stop" position or the switch handle removed.

(f) No person other than the one at the time operating the lift shall interfere with the machinery or the controlling mechanism, nor with any enclosure, door, gate, or fastening. This does not apply to any *bonâ fide* workman engaged in inspecting, erecting, or repairing a lift, or in case of emergency.

(g) If an accident occurs in connection with any lift, from any cause whatsoever, it shall be necessary for the person at the time in charge of the building where the lift is situated, to forthwith notify in writing the Chief Inspector of Scaffolding and Lifts of such accident and the circumstances surrounding its occurrence.

(h) No lift shall be loaded in excess of the maximum load which the lift is designed to take; this applies to both lifting or lowering.

(i)

*Scaffolding and Lifts.*

(i) A copy of Part V of these Regulations and the following extract from the Scaffolding and Lifts Act, 1911, shall be placed and retained in the car of every passenger or goods lift, and alongside the ground-floor control of every service lift, crane, whip, &c.—

[Extract from the Scaffolding and Lifts Act, 1911.]

*Passenger Lifts.*

11. If any person other than an authorised attendant works, operates, or interferes with the working of a passenger lift, he shall be liable to a penalty not exceeding ten pounds: Provided that this section shall not apply to the bona-fide owner, lessee, or manager of the building wherein the lift is situated, in case of emergency, nor to any workman engaged in inspecting, repairing, or erecting a lift, nor to any automatically controlled lift.

12. The owner, lessee, or manager of any building containing a passenger lift, shall cause the name of every authorised attendant working the lift to be legibly written or printed, and placed and retained in a prominent part of the car of the lift. Any such owner, manager, or lessee failing to comply with the provisions of this section shall be liable to a penalty not exceeding ten pounds.

14. Where it appears to an inspector that any person working a passenger or goods lift is careless, incompetent, or untrustworthy, the inspector may direct such person to, and he shall thereupon, cease to work, operate, or be in charge of such lift; and if any owner, lessee, or manager of any premises employs such person in connection with a lift, without the authority, in writing, of an inspector, he shall be liable to a penalty not exceeding ten pounds.

(j) In any case where the ownership or right of control of any lift has been changed by sale, transfer, or otherwise, then the person buying, leasing, or otherwise acquiring such ownership or right of control shall, within seven days, give notice to the Chief Inspector of Scaffolding and Lifts in the Form B annexed.

## PART VI.

## MAINTENANCE OF LIFTS.

44. (a) All lifts in commission shall be maintained in conformity with the Regulations contained in Part IV, and in proper working conditions. Damaged or broken enclosures, gates, or fastenings must be at once repaired.

(b) The rams of hydraulic lifts must be kept in such condition that the gland does not allow water to pass; and this without unduly pinching the ram.

(c) The controlling mechanism must be kept in such condition that creeping is impossible.

(d) Safety gears must be kept in full working order.

(e) The lift machine, safety gear, and all other parts must be kept clean, and free from accumulations of rubbish, dust, or dirt.

(f) Controlling, lifting, or balance-weight ropes that show indications of excessive wear, splintering, stranding, or bunching, must be at once discarded and replaced by new ropes.

## PART VII.

## AUTHORISED LIFT ATTENDANT'S CERTIFICATES, AND STEAM-CRANE DRIVERS' CERTIFICATES, &amp;c.

*Authorised Lift Attendants' Certificates.*

45. (a) A certificate may be granted by the Chief Inspector of Scaffolding and Lifts to any person of the requisite age who, after inquiry and examination, he considers is competent and trustworthy to act as an attendant in charge of a passenger lift.

(b) A candidate for an authorised lift attendant's certificate must be, at the date of examination, a person of sixteen years of age or upwards. Should any doubt exist as to the age of the candidate, he will be required to produce a certificate of birth or other satisfactory evidence.

(c) Testimonials from employers or other responsible persons as to carefulness, trustworthiness, sobriety, good conduct, experience, and ability will be required of all candidates; and, without producing them, no candidate will be examined. The testimonials must show sobriety and good conduct for a period of at least six months preceding the date of examination.

(u)

*Scaffolding and Lifts.*

(d) Every candidate must satisfy the Chief Inspector of Scaffolding and Lifts that neither his eyesight or hearing, or that any infirmity he may be subject to is likely to interfere with the efficient discharge of his duties as an authorised lift attendant.

(e) The candidate must have had not less than two weeks' continuous experience in the practical working of lifts.

He must have a general idea of the manner in which the lift works, also of the operating and safety devices.

He must have an intimate knowledge of the correct and safe method of operating lifts, and must be able to determine when his car has its full load.

In case of loss of power he must know what the result would be, and be able to explain what action he would take.

(f) If a candidate fail to pass the examination prescribed, he may not present himself for re-examination until a lapse of two weeks.

(g) Candidates for examination must fill up the proper form of application, which, together with testimonials, and copies of same, must be lodged with the Chief Inspector of Scaffolding and Lifts, who will return testimonials upon the completion of the examination.

(h) Every person applying for a certificate as authorised lift attendant shall do so in the Form C annexed.

*Steam-Crane Driver's Certificate.*

46. (a) A certificate may be granted by the Government Architect, under section 17 of the Act, to any person who, after inquiry and examination, he considers is trustworthy and competent to act as driver of a steam crane.

*Testimonials.*

(b) Testimonials from employers as to character, sobriety, good conduct, experience, and ability will be required of all candidates, and without producing them no person will be examined. The testimonials must show sobriety and good conduct for at least the twelve months preceding the date of examination.

*Experience and ability.*

(c) The candidate must have had not less than one year's experience in the practical working of steam engines and boilers, and be able to describe and explain the principal parts of a steam-crane, including the various gauges, cocks, valves, connections, feed pump, slide valve, gear for lifting, lowering, slewing, topping jib, &c., and how the steam does its work in the engine.

He must be able to give a practical explanation how to correct defects, and as to what action is necessary in the ordinary emergencies which may arise in connection with such engines, boilers, and gearing as are used in steam cranes.

He must also pass a creditable test in actual steam-crane driving.

*Failure.*

(d) If a candidate fail to pass the examination prescribed, he may not present himself for re-examination until after a lapse of two weeks.

*How to apply.*

(e) Candidates for examination must fill up the proper form of application, Form D annexed, which, together with testimonials and copies of same, must be lodged with the Government Architect, who will return testimonials upon the completion of the examination.

*Penalties.*

47. Except and unless where otherwise provided by the Act, any person who—

- (a) Contravenes any of the provisions of the preceding regulations ; or
- (b) Prevents, hinders, or obstructs the Chief Inspector or any Inspector, either in carrying out the provisions of the said regulations or in lawfully performing his duty ; or
- (c) Neglects or refuses to comply with the lawful directions of the Chief Inspector or any Inspector, shall be liable to a penalty not exceeding twenty pounds and not less than ten shillings.

*Scaffolding and Lifts.***Form A.****SCAFFOLDING AND LIFTS REGULATIONS.***Permit under Regulation 26 (a).*

<sup>1</sup>Erection, re-erection, &c., as the case may be. I HEREBY authorise the<sup>1</sup> of a lift at<sup>2</sup>  
<sup>2</sup>Locality. subject to the following directions :—

Chief Inspector of Scaffolding and Lifts,  
 Department of Public Works, Sydney.

To whom issued, Date 19  
 In what capacity,

**Form B.****SCAFFOLDING AND LIFTS REGULATIONS.***Notice where Ownership or Right of Control of a Lift has been changed by Sale, Transfer, or otherwise.*

[See Regulation 43 (j).]

NOTICE is hereby given that the ownership or right of control of the Lift within or attached to the premises situated has been changed, particulars whereof are hereunder set out.

Name of late owner or lessee, &c.	Name of fresh owner or lessee, &c.	Date of sale, transfer, &c.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 19 .  
 \* Person buying, leasing, or otherwise acquiring ownership or right of control. (Signature)\*  
 (Address)  
 The Chief Inspector of Scaffolding and Lifts,  
 Department of Public Works,  
 Sydney.

**Form C.**

[This form must be filled up in the Applicant's own handwriting.]

**SCAFFOLDING AND LIFTS REGULATIONS 45 (h).***Application for Authorised Lift Attendant's Certificate.*

Particulars to be furnished by applicant :—

Name in full—  
 Age last birthday, and date of birth—  
 Place of birth—  
 Length of residence in New South Wales—  
 Have you ever been employed as a passenger lift attendant? If so, how long, and by whom?  
 If never employed as a passenger lift attendant, what experience have you had in the working of lifts?  
 If you are in employment as a lift attendant, state name and address of employer. If out of employment, give name and address of last employer for whom you worked as a lift attendant, and state cause of leaving such employment.  
 Are you suffering from defective sight, hearing, or from other infirmity likely to interfere with the satisfactory discharge of duties as an authorised lift attendant—  
 State names and addresses of two responsible persons to whom reference can be made as to character.  
 Particulars of testimonials attached.

(Date) \_\_\_\_\_ 19 .  
 (Signature)  
 (Address)

The Chief Inspector of Scaffolding and Lifts,  
 Department of Public Works,  
 Phillip-street, Sydney.

ANY statements as to capabilities, or other information the Applicant wishes to communicate, may be made here—

(Date) \_\_\_\_\_ (Signature)

**Form**

*Scaffolding and Lifts.*

**Form D.**

[This form must be filled up in the Applicant's own handwriting.]

SCAFFOLDING AND LIFTS REGULATIONS, 46 (c).

*Application for Steam-crane Driver's Certificate.*

Particulars to be furnished by Applicant.

Name (in full) .....	
Age (last birthday), with date of birth .....	
Place of birth .....	
Length of residence in New South Wales .....	
Have you ever been employed as a steam-crane driver; if so, how long, and by whom? .....	
If never employed as a steam-crane driver, what experience have you had in the practical working of steam-engines and boilers?...	
If you are in employment as a steam-crane driver, state name and address of employer. If out of employment, give name and address of last employer under whom you worked as a steam-crane driver, and cause of leaving such employment?.....	
Are you suffering from defective sight, hearing, or from other infirmity likely to interfere with the efficient discharge of duties as a steam crane driver? .....	
Particulars of Testimonials attached. (Note.—Copies only should be submitted with this Application. The originals will be required before examination) .....	
State names and addresses of two responsible persons to whom reference can be made as to character.....	

(Signature)

(Address)

(Date)

19 .

The Government Architect.

Any statements as to capabilities or other information the applicant wishes to communicate may be made here.

(Signature)

(Date)

19