

with the further addition of one penny in respect of each three months of the second year of currency, and two pence for each three months of the remaining five years of currency."

2. In the application of the Principal Regulations to Certificates issued on or after the second day of August, 1932, references in those Regulations to the twelfth anniversary of the date of purchase shall be construed as references to the seventh anniversary of the date of purchase.

3. These Regulations may be cited as "the Ulster Savings Certificates (Amendment) Regulations, 1932," and shall be construed as one with the Principal Regulations and the Ulster Savings Certificates (Amendment) Regulations, 1931.

Sealed with the Official Seal of the Ministry of Finance for Northern Ireland this twenty-fifth day of July, 1932, in the presence of—

(L.S.)

G. C. Duggan,
Assistant Secretary.

FACTORY AND WORKSHOP.

Dangerous and Unhealthy Industries.

THE BUILDING (AMENDMENT) REGULATIONS (NORTHERN IRELAND), 1932, DATED SEPTEMBER 30TH, 1932, MADE BY THE MINISTRY OF LABOUR FOR NORTHERN IRELAND UNDER SECTION 79 OF THE FACTORY AND WORKSHOP ACT, 1901 (1 EDW. 7. C. 22), IN RESPECT OF CRANES AND OTHER HOISTING AND LIFTING APPLIANCES USED IN CERTAIN BUILDING OPERATIONS.

1932. No. 102.

In pursuance of Section 79 of the Factory and Workshop Act 1901, the Government of Ireland Act, 1920, and the several Orders made thereunder, the Ministry of Labour for Northern Ireland (hereinafter referred to as "the Ministry") hereby makes the following Regulations amending the Building Regulations (Northern Ireland), 1926, (a) made under the said section on the 10th November, 1926, and directs that they shall apply to all premises on which machinery worked by steam, water or other mechanical power is temporarily used for the purpose of the construction of a building, or for the purpose of any addition to the structure of an existing building. Provided that nothing in these Regulations shall apply to premises on which the only machinery worked by steam, water or other mechanical power consists—

- (a) of machinery which is not used for hoisting purposes and is outside the area of the building under construction, or
- (b) of portable tools such as drills or rivetters.

(a) S. R. & O. of N. I., 1926 (No. 116).

Provided also that if the Chief Inspector of Factories is satisfied in respect of any crane or other hoisting appliance or plant that, owing to the special conditions of work or otherwise, any of the requirements of the Regulations can be suspended or relaxed without danger to the persons employed, he may by certificate in writing authorise such suspension or relaxation for such period and under such conditions as he may think fit. Any such certificate may be revoked by the Chief Inspector at any time.

These Regulations shall come into force on the 1st November, 1932, as from which date Regulations numbered 32 to 42 and Regulation 44 of the Building Regulations (Northern Ireland), 1926, shall be revoked.

These Regulations may be cited as the Building (Amendment) Regulations (Northern Ireland), 1932, and the Building Regulations (Northern Ireland), 1926, as amended by these Regulations may be cited as the Building Regulations (Northern Ireland), 1926 and 1932.

*Definitions.**

In these Regulations "*prescribed*" means prescribed for the time being by the Ministry of Labour for Northern Ireland.

"*Safe working load*" means either (a) the safe working load of a crane specified in the certificate required by Regulation 5, 6, or 7 or (b) in the case of a crane, machine or appliance not covered by (a) the safe working load marked on such crane, machine or appliance in accordance with Regulation 8 or 13.

In these Regulations a crane manufactured before or after a specified date means a crane the manufacture of which was completed before or after the said date as the case may be.

Duties.

It shall be the duty of every contractor and employer of workmen who by himself or his agents erects, installs, works or uses any crane, machine or other appliance or plant to which these Regulations apply to observe the requirements in Part I of these Regulations.

It shall be the duty of every person employed to observe Part II of these Regulations and to co-operate with the employers in carrying out Part I of these Regulations.

Part I.—Duties of Employers.

1. The stage for every crane shall be built of sound material and shall be of good mechanical construction having regard to its height and position, and to the lifting and reaching capacity of the crane. The platform shall be of sufficient area for the driver or operators and signaller, and, in the case of each guy derrick crane,

* Terms to which defined meanings are given are printed throughout in italics.

for the operator of the slewing mechanism. The platform shall be close-planked or plated, securely fenced and provided with safe means of access.

Every fixed crane shall be securely anchored or adequately weighted to ensure stability.

2. On every stage, gantry or other place on which a crane moves, an unobstructed passageway of at least 2 feet in width shall be maintained at every position of the crane between the cab or any other part of the crane and the edge of such stage, gantry or place, and between the cab or any other part of the crane and any iron-work, steelwork or other material placed near the crane or crane track.

Provided that if at any time it is impracticable to maintain such a passageway at any place or point, all reasonable steps shall be taken to prevent the access of any person to such place or point at such time.

3. All rails on which a travelling crane moves shall (a) be of adequate section and have an even running surface, (b) be jointed by fishplates or double chairs, (c) be securely fastened to sleepers.

The whole track, whether resting on the ground or raised above it, shall be properly laid and any supports shall be of sufficient strength, and maintained in good condition.

Provided that requirements (b) and (c) of this Regulation shall not apply to an overhead crane on bridge rails.

4. The working gear and the anchoring and fixing appliances of every crane, crab and winch and of all other hoisting machines and tackle shall (a) be of good mechanical construction, sound material, adequate strength and substance and free from patent defect, (b) be kept in good repair and in good working order, (c) as far as the construction permits be examined in position at least once in every week by the driver or other competent person. The results of every such examination shall be entered forthwith in the *prescribed* Register.

5. The requirements of this Regulation shall, except as otherwise specified, apply to all Scotch Derrick, Guy Derrick and Tower Derrick Cranes and to such cranes only—

(a) No crane manufactured after 30th September, 1932, shall be used unless it conforms to the standards of strength, stability and safety specified in the British Standard Specification No. 327 of 1930, for Derrick Cranes or subsequent amendments thereof, and unless a certificate in the *prescribed* form has been obtained from the makers of the crane certifying that the crane after being tested in accordance with the requirements specified in such Specification or subsequent amendments thereof conforms to the said standards. Every such certificate shall specify the *safe working loads* at various radii of the jib.

Provided that for the purpose of this Regulation any amendment made to the British Standard Specification No. 327 of 1930 requiring a higher standard of strength or stability than is required by the Specification aforesaid shall not apply to any crane manufactured before or within 6 months after the said amendment has been made and published by the British Engineering Standards Association.

- (b) No crane manufactured before 1st October, 1932, shall be used unless it has been tested and examined by a competent person and a certificate of such test and examination in the *prescribed* form specifying the *safe working loads* at various radii of the jib, including the maximum radius at which the jib can be worked, has been obtained from the person who made the test and examination. The *safe working load* so specified at any radius shall be not more than eighty per cent. of the maximum load which the crane has stood at that radius during the application of the test.
- (c) No crane manufactured before 1st October, 1932, other than a crane having any timber structural member, shall be used after 31st December, 1936, unless it has been brought up to or brought as near as is reasonably practicable to the standards of strength, stability and safety specified in the British Standard Specification No. 327 of 1930 for Derrick Cranes either by strengthening the working parts or reducing the *safe working loads* or by such other means as may be most suitable in the particular case, and unless a certificate in the *prescribed* form specifying the *safe working loads* has since been obtained in the manner indicated in Regulation 5 (b).
- (d) No crane which after the date of these Regulations has been converted from a hand crane to a power crane shall be used unless it has been brought up to or brought as near as is reasonably practicable to the standards of strength, stability and safety specified in the British Standard Specification No. 327 of 1930 for Power-driven Derrick Cranes either by strengthening the working parts or reducing the *safe working loads* or by such other means as may be most suitable in the particular case, and unless after such conversion it has been tested and examined by a competent person and a certificate of such test and examination in the *prescribed* form specifying the *safe working loads* has been obtained in the manner indicated in Regulation 5 (b).
- (e) No crane which has any timber structural member shall be used after the 31st December, 1932, unless (i) it has been examined thoroughly by a competent person within the previous 14 months, (ii) the timber stress-

bearing members embedded in metal parts have been completely exposed and examined, and the gland irons have also been examined, by a competent person within the previous two years or such other period as the person who made the last such examination may have directed, and (iii) a certificate of every such examination in the *prescribed* form has been obtained from the person who made the examination.

No such crane shall be used after the 31st December, 1940.

- (f) The maximum radius at which the jib may be worked shall be clearly indicated on the crane and when at this radius there shall be not less than two dead turns of rope on the derricking drum. These requirements shall not apply to a crane which conforms to the British Standard Specification No. 327 of 1930 for Derrick Cranes or subsequent amendments thereof.
- (g) The jib of a Scotch Derrick crane shall not be erected between the back stays of the crane.
- (h) Where the guys of a Guy Derrick crane cannot be fixed at approximately equal spacing, such other provisions shall be made as will ensure the safety of the crane.
- (j) The whole of the appliances for the anchorage of a crane shall be examined on each occasion before erection, and the erection shall be supervised by a competent person.
- (k) (i) Each crane shall after erection on a building site and before use be tested *in situ* for anchorage, by a competent person, by the imposition on each anchorage of the maximum uplift or pull exerted either by a load of 25 per cent. above the maximum load to be lifted on the site by that crane or by a less load arranged to exert an equivalent pull on the anchorage, and an entry of the *prescribed* particulars of the test shall be made forthwith in the *prescribed* Register, and (ii) after each re-erection of the crane and before it is again used on the same building site the anchorages of the crane shall be examined by the person responsible for the re-erection.

If the maximum load which the person making such test or examination considers may safely be lifted by that crane as anchored is less than the *safe working load* of the crane, a loading diagram appropriate to the crane anchorage must be affixed in a position where it can readily be seen by the crane driver.

- (l) The crane driver's cab shall, where reasonably practicable, before the crane is put into general use, be com-

pletely erected, or other adequate provision made for the protection of the driver from the weather.

- (m) During cold weather the cabin of each power-driven crane in use shall, where reasonably practicable, be adequately heated by suitable means.

6. No travelling jib crane shall be used unless it has been tested and examined by a competent person and a certificate of such test and examination in the *prescribed* form specifying the *safe working loads* at various radii of the jib, including the maximum radius at which the jib can be worked, has been obtained from the person who made the test and examination. The *safe working load* so specified at any radius shall be not more than eighty per cent. of the maximum load which the crane has stood at that radius during the application of the test.

7. No jib crane shall be used after alteration or substantial repair to any part involving the strength of the part or stability of the crane, unless it has since such alteration or repair been tested and examined by a competent person and a certificate of such test and examination in the *prescribed* form specifying the *safe working load* (or, in the case of a crane fitted with a derricking jib, the *safe working loads* at various radii of the jib, including the maximum radius at which the jib can be worked) has been obtained from the person who made the test and examination. The *safe working load* so specified at any radius shall be not more than eighty per cent. of the maximum load which the crane has stood at that radius during the application of the test.

8.—(a) Every crane shall have the *safe working load*, or, in the case of a crane fitted with a derricking jib, the *safe working loads* at various radii of the jib, plainly marked upon it.

(b) Every crab, winch and pulley block used in the hoisting or lowering of any load, and every derrick pole or mast used in the hoisting or lowering of any load weighing three tons or more, shall have the maximum *safe working load* plainly marked upon it.

9.—(a) No crane whether having a fixed jib or a derricking jib shall be used unless it is fitted with an automatic indicator of a type approved in writing by the Chief Inspector of Factories, which shall indicate clearly to the driver or person operating the crane when the load being moved approaches the *safe working load* of the crane at any inclination of the jib and shall also give an efficient sound signal when the load being moved is in excess of the *safe working load* of the crane at any inclination of the jib. This requirement shall not apply—

(i) until the 1st January, 1934, in the case of a crane manufactured before the 1st January, 1903 ;

(ii) until the 1st January, 1935, in the case of a crane manufactured after the 31st December, 1902, and before the 1st January, 1913 ;

(iii) until the 1st January, 1936, in the case of a crane manufactured after the 31st December, 1912, and before the 1st January, 1923 ;

(iv) until the 1st January, 1937, in the case of a crane manufactured after the 31st December, 1922, and before the 1st January, 1933 ;

(v) to any Guy Derrick crane ;

(vi) to any hand crane which is being used solely for erecting or dismantling another crane ; or

(vii) to a crane having a maximum *safe working load* of thirty hundredweight or less ;

provided that in all such cases a Table showing the *safe working loads* at various radii of the jib shall be kept attached to the crane.

For the purposes of this Regulation "Guy Derrick crane" means a crane of which the mast is held upright solely by means of wire ropes with the necessary end fittings and tightening screws.

(b) Every crane having a derricking jib shall be provided with an effective inter-locking arrangement between the derricking clutch and the pawl sustaining the derricking drum, except where the hoisting drum and the derricking drum are independently driven or the mechanism driving the derricking drum is self-locking.

(c) The lever controlling the link-motion reversing gear of every steam crane shall be provided with a suitable spring-locking arrangement.

10.—(a) Every crane, crab and winch shall be provided with an efficient brake or brakes.

(b) Every part of the framework of every crab or winch, including the bearers, shall be of metal.

11.—(a) Every hoisting or derricking rope or chain shall be securely fastened to the barrel of the crane, crab or winch with which it is used.

(b) Each temporary attachment or connection of a rope, chain or other appliance used in the erection or dismantling of a crane shall be secure.

(c) No rope shall be used over a pulley block if its diameter exceeds the width of the grooves of the pulley or pulleys in the block.

12.—(a) A crane, crab, winch or any other hoisting appliance, or any part of such lifting gear shall not be loaded beyond the *safe working load*.

Provided that for the purpose of making tests of a crane or other hoisting appliance or gear the *safe working load* may be exceeded by such amount as the competent person appointed to carry out the tests may authorize.

(b) A crane shall not be used otherwise than for the direct lifting or lowering of a load unless its stability is not thereby endangered.

(c) The following precautions to prevent overloading or instability of any lifting appliance shall be taken in all cases where applicable—

- (i) The weight shall be clearly marked on every single unit load of 3 tons and over. Provided that this shall not apply in the case of a crane fitted with an automatic indicator as specified in Regulation 9 (a).
- (ii) No load which lies in the angle between the back stays of a Scotch Derrick crane shall be moved by that crane.
- (iii) Where more than one crane or winch is required to lift or lower one load, the machinery, plant and appliances used shall be so arranged and fixed that no such crane or winch shall at any time be loaded beyond its *safe working load* or rendered unstable in the hoisting or lowering of the load.

13. Every chain, ring, hook, shackle and swivel for hoisting or lowering shall :—

- (a) have been tested ;
- (b) be inspected by the foreman or other responsible person immediately before each occasion on which it is used in hoisting or lowering, unless it has been so inspected within the preceding three months ;
- (c) if made of iron and if in general use, be annealed once at least in every 14 months, unless it has been subjected to such other treatment as the Ministry may sanction, and
- (d) be legibly marked in plain figures and letters with an identifying number or description and with the *safe working load*.

Steel chains, rings, hooks, shackles, swivels, straps and gland irons shall be suitably heat treated after manufacture and before use.

The *prescribed* particulars of every such chain, ring, hook, shackle and swivel shall be entered into or attached to the *prescribed* Register.

Provided that the above requirement (c) as to the periodical annealing of iron parts shall not apply to the undermentioned parts :—

Hooks, shackles or swivels having screw threaded parts or ball bearings, or any hook permanently attached to a block or pulley.

Bordeaux Connections.

14. Every hook used for hoisting or lowering shall either be provided with an efficient catch to prevent the displacement of

the sling or load from the hook or shall be of such a shape as to reduce as far as possible the risk of such displacement.

15.—(a) Where double or multiple slings are used for hoisting or lowering purposes the upper ends of the slings shall be connected by means of a shackle or ring and not be put separately into a lifting hook. This requirement shall not apply when the total load lifted or lowered is less than one half of the *safe working load* of the hook.

(b) No chain which has a knot tied in it shall be used for hoisting or lowering any load.

(c) Every chain sling used for hoisting or lowering a load shall be securely attached to the hook of the crane or other lifting appliance by means of a ring, shackle, link or hook. A chain which is attached by wrapping round the lifting hook shall be deemed not to be securely attached.

16. No load shall be left suspended from a crane, crab or winch unless there is a competent person actually in charge whilst the load is so suspended.

17. Every crane driver shall be properly qualified. No person under 18 years of age shall be employed to give signals to a crane driver.

18. When any hoisting or lowering is performed by means of a crane and the crane driver or person operating the crane is unable to see the load in all its positions, one or more look-out or signal men shall be stationed so as to see the load in its starting and landing positions and give the necessary signals to the crane driver or person operating the crane. Provided that this requirement shall not apply to deep well sinking.

19. Every signal for hoisting or lowering shall be such as can be readily heard or seen, and shall be distinctive in its meaning to the person who has to act upon it. Where a sound signal is used, the signal shall be made by an efficient gong, whistle or electric apparatus or other efficient means. Every signal wire shall be protected from accidental interference.

20. Every box used for hoisting bricks or other loose material shall be closed in, except on one side. One or more of the sides may be hinged or securely slotted.

21. Every certificate required by these Regulations, and the Registers of particulars required by Regulations 5 (k) and 13, shall be kept on the premises to which the Regulations apply or at the head office of the employer of persons using the crane or appliances referred to in the certificate or Register ; and the Register required by Regulation 4 shall be kept on the premises to which the Regulations apply except that an employer whose workmen are employed

intermittently on the said premises and who has no office or other suitable place for keeping a Register on the said premises may keep such Register at his head office. Each Register and Certificate required by these Regulations shall at all reasonable times be open to inspection by any of the Inspectors of Factories and the employer shall send to the Ministry such extracts therefrom as the Ministry may from time to time require.

Part II.—Duties of Workmen.

22. Every person employed shall co-operate with the employers in carrying out Part I of these Regulations, and shall report to the employer or foreman any defect he may discover in the plant or appliances.

23. No person employed shall interfere with, take away, or destroy any of the plant or safeguards required by these Regulations without the authority of the employer or his responsible foreman.

24. No person employed shall be lifted or carried by a crane (except on the driver's platform) or ride in a barrow hoist, or in a hod hoist, or adopt other unsafe means of getting about the building, but every such person shall use the gangways, ladders or staircases or other safe means provided for the purpose.

Provided that it shall be permissible for a person to ride in a skip, bucket or other suitable receptacle which is fenced or of adequate depth so as to ensure safety, if suitable means are taken to prevent the spinning of the receptacle and if an efficient overwinding device is fitted to the hauling rope and an efficient system of signalling is used.

25. A person employed in lowering a load by means of a crab not operated by mechanical power (or, where such lowering is performed by a gang, the person in immediate charge of such gang) shall see that the descent of the load is checked by the use of the rotating handle or handles and not by means of the brake alone.

(L.S.)

Stormont,
Belfast,

30th September, 1932.

H. Conacher,

Secretary,

Ministry of Labour for Northern
Ireland.