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SAFETY CODE SERIES

SAFETY CODE FOR LAUNDRY
MACHINERY AND OPERATIONS

ASSOCIATION OF GOVERNMENTAL LABOR OFFICIALS, LAUNDRY
OWNERS' NATIONAL ASSOCIATION, AND NATIONAL ASSOCIATION
OF MUTUAL CASUALTY COMPANIES, SPONSORS

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On June 19, 1922, the American Engineering Standards Committee invited the Laundry Owners' National Association, the Association of Governmental Labor Officials, and the National Association of Mutual Casualty Companies to act as joint sponsors for a safety code for laundry machinery and operations. These associations accepted the sponsorship and according to the procedure of the Standards Committee organized a sectional committee to draft such a code.

This sectional committee consisted of the following members:

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SAFETY CODE FOR LAUNDRY MACHINERY AND OPERATIONS

INTRODUCTION

1. This code is intended to serve as a guide to State and municipal authorities and is in form to be adopted by them.
2. It may also be used to advantage by individual industrial concerns.
3. This code is one of a series which is being prepared under the procedure of the American Engineering Standards Committee.
4. From time to time revisions of this code will be made to adapt it to changing circumstances.

SECTION 1. GENERAL STATEMENT

Rule 10. Scope.—This code applies to all moving parts of equipment used in laundries and to other conditions peculiar to this industry with special reference to the point of operation of laundry machines. This does not apply to dry-cleaning operations.

Rule 11. Purpose and exceptions.—The purpose of this code is to provide reasonable safety for life and limb. It should be liberally construed and applied by enforcing authorities to secure these results, and in cases of practical difficulty or unnecessary hardship exceptions from the literal requirements may be granted so long as equivalent protection is secured. Where specific devices or methods are mentioned in this code, other devices or methods which will secure equally good results may be used, subject to the approval of the enforcing authority.

Rule 12. New and old installations.—**NEW INSTALLATIONS.**—On and after the date at which this code becomes effective all new installations shall conform to its provisions.

EXISTING INSTALLATIONS.—These rules may be modified in whole or in part, with respect to existing installations, by the enforcing authorities on the showing of adequate reasons for such action.

Rule 13. References to other codes.—The following general safety codes, whose provisions apply to nearly every industrial plant, supplement this special safety code for laundry operations:

Mechanical Power-Transmission Apparatus (see Part III, Laundry Code).
Lighting Factories, Mills, and Other Work Places.
Electrical Safety (National Electrical Safety Code).
National Electric (Fire).

In so far as similar codes on the following subjects are approved by the American Engineering Standards Committee to be American standards or tentative American standards, they shall be incorporated in the list above:

Identification of Piping Systems.
 Building Exits.
 Walkway Surfaces.
 Gas.
 Ventilation.
 Exhaust Systems.
 Power Control, Electrical.
 Industrial Sanitation.
 Floor and Wall Openings, Railings, and Toe Boards.

(NOTE.—In adapting the code to particular States insert here the procedure as laid down by the State law or industrial commission ruling to be followed in making an appeal from the ruling of an inspector.)

NOTE.—It is suggested that in cases where exceptions are requested the enforcing authorities shall consult with the Permanent Committee on Interpretations and Exceptions, care American Engineering Standards Committee, 29 West Thirty-ninth Street, New York City, and where exceptions are denied or refused the laundry owner shall notify the Permanent Committee above referred to, furnishing in detail a copy of the order and the specific reasons given for exceptions requested. Such consultation will tend to uniform application of the code and will keep the committee informed of criticisms and practical difficulties which should be considered if and when the code is revised.

SECTION 2. DEFINITIONS

Rule 20. Use of shall and should.—The word “shall” where used is to be understood as mandatory and the word “should” as advisory.

Rule 21. Laundry.—The term laundry shall mean an establishment wherein the washing, ironing, or other finishing of clothes or any other textiles is done, but excluding printing, bleaching, dry cleaning or dyeing of clothes or other textiles.

Rule 22. Marking machine.—The term marking machine shall mean a power-driven machine used for marking clothes or other textiles.

Rule 23. Washing machine.—The term washing machine shall mean a power-driven machine used for washing clothes or other textiles. It generally consists of a stationary case or shell inside of which is a revolving perforated cylinder.

Rule 24. Extractor.—The term extractor shall mean a power-driven centrifugal machine used for removing surplus moisture from clothes or other textiles.

Rule 25. Wringer.—The term wringer shall mean one or more power-driven rolls used for removing surplus moisture from clothes or other textiles.

Rule 26. Starch mixer.—The term starch mixer shall mean a power-driven machine used for mixing or processing starch.

Rule 27. Starching machine.—The term starching machine shall mean a power-driven machine used for the starching of clothes or other textiles.

Rule 28. Drying tumbler.—The term drying tumbler shall mean a machine within which clothes or other textiles are dried by air and usually consists of an inclosure inside of which is a revolving cylinder.

Rule 29. Shaker.—The term shaker (clothes tumbler) shall mean a revolving cylinder used for shaking out clothes or other textiles.

Rule 30. Drying room.—The term drying room shall mean an inclosure used for drying clothes or other textiles and connected with which there is any power-driven mechanism.

Rule 31. Dampening machine.—The term dampening machine shall mean a machine used for dampening shirts, collars, clothes, or other textiles.

Rule 32. Ironer.—The term ironer shall mean a hand or power operated machine with one or more rolls or heated surfaces in contact, used for ironing or smoothing clothes or other textiles.

Rule 33. Shaping machine.—The term shaping machine shall mean a power-driven machine used to shape, mold, or otherwise finish collars, cuffs, clothes, or other textiles; this shall also include shaping tables, stands, or shelves upon which the machine may be mounted.

Rule 34. Sewing machine.—The term sewing machine shall mean a machine used for sewing or stitching clothes or other textiles.

Rule 35. Guarded.—Means covered, shielded, fenced, inclosed, or otherwise protected by means of suitable covers or casings, barrier rails, or screens, to remove the liability of dangerous contact or approach by persons or objects.

Rule 36. Inclosed.—The term inclosed shall mean that the object or equipment or part thereof is so guarded that accidental contact at the point of danger during the regular operation of the equipment is not possible.

Rule 37. Approved.—The term approved shall mean approved by the supervising authority having jurisdiction.

Rule 38. Interlock.—The term interlock shall mean a device which will—

- (a) Prevent the operation of the machine while the cover or door is open or unlocked.
- (b) Hold the cover or door closed and locked while the basket or cylinder is in motion.

Rule 39. Moving parts.—The term moving parts shall mean all gears, sprockets, revolving shafts, clutches, belts, and pulleys, or any other revolving or reciprocating parts that are attached to or form an integral part of a machine.

Rule 40. Power transmission.—The term power transmission shall mean all equipment such as shafting, gears, belts, pulleys, or any other parts used for transmitting power to the machine and shall include prime movers.

Rule 41. Prime movers.—The term prime movers as used in this code is to include steam, gas, oil, and air engines, motors, steam and hydraulic turbines.

Rule 42. Point of operation.—The term point of operation shall be understood to mean the point or points at which clothes or other textiles are inserted or manipulated in the operation of the machine.

PART I.—POINT OF OPERATION GUARDS

SECTION 10. WASH-ROOM MACHINES

Rule 100. Marking machine.—Each power marking machine shall be equipped with a suitable trip or other type of guard that will interpose a barrier in front of the marking plunger that will prevent the operator's fingers coming in contact with the marking plunger.

Rule 101. Washing machine.—

(a) Each washing machine shall be equipped with an interlocking device that will prevent the inside cylinder moving when the outer door on the case or shell is open and also prevent the door being opened while inside cylinder is in motion.

NOTE.—This should not prevent the movement of the inner cylinder under the action of a hand-operated mechanism or under the operation of an "inching device."

(b) Each washing machine shall be provided with approved means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.

Rule 102. Extractor.—

(a) Each extractor shall be equipped with a metal cover.

(b) Each extractor shall be equipped with an interlocking device (see definition) that will prevent the cover being opened while basket is in motion and also prevent the power operation of the basket while cover is open.

NOTE.—This should not prevent the movement of the basket by hand to insure an even loading.

(c) Each extractor shall also be effectively secured in position on the floor or foundation so as to eliminate unnecessary vibrations, and shall not be operated at a speed greater than the manufacturer's rating which shall be stamped on the inside of basket where easily visible, in letters not less than one-quarter ($\frac{1}{4}$) of an inch in height. The maximum permissible speed shall be given in revolutions per minute.

(d) Each engine individually driving an extractor shall be provided with an approved engine stop and speed limit governor.

(See Part IV. Discussion.)

Rule 103. Power wringer.—Each power wringer shall be equipped with a bar or other approved guard across the entire front of the feed or first pressure rolls, so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine.

SECTION 11. STARCHING AND DRYING MACHINES

Rule 110. Starching machine (cylinder or box type).—Each starching machine, cylinder or box, shall be inclosed or guarded so as to prevent operator or other person coming into accidental contact with cylinder or box while the machine is in motion.

(See Part IV. Discussion.)

Rule 111. Drying tumbler.—

(a) Each drying tumbler shall be equipped with an interlocking device that will prevent the inside cylinder moving when the outer door on the case or shell is open and also prevent the door being opened while inside cylinder is in motion.

NOTE.—This should not prevent the movement of the inner cylinder under the action of a hand-operated mechanism or under the operation of an “inching device.”

(b) Each drying tumbler shall be provided with approved means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.

Rule 112. Drying room.—Each drying-room fan, any part of which is within seven (7) feet of floor or working platform, shall be guarded with wire mesh or screen of not less than No. 16 gauge, the openings of which will reject a ball one-half ($\frac{1}{2}$) inch in diameter. Refer to Mechanical Power Transmission Apparatus Code for variation in gauge or mesh depending on distance.

Rule 113. Shaker (clothes tumbler, single-cylinder type).—Each shaker or clothes tumbler of the above type shall be equipped with a device that will automatically prevent the tumbler moving while the door is open. The tumbler shall also be inclosed or guarded so as to prevent accidental contact by the operator or other person while the machine is in motion.

Rule 114. Shaker (clothes tumbler, double-cylinder type).—

(a) Each shaker or clothes tumbler of the above type shall be equipped with an interlocking device that will prevent the inside cylinder moving when the outer door on the case or shell is open and also prevent the door being opened while inside cylinder is in motion.

NOTE.—This should not prevent the movement of the inner cylinder under the action of a hand-operated mechanism or under the operation of an “inching device.”

(b) Each shaker or clothes tumbler of the above type shall be provided with approved means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.

SECTION 12. FINISHING MACHINES

Rule 120. Dampening machine.—Each roll-dampening machine shall be so equipped that the rolls will be entirely inclosed and so arranged as to prevent the fingers of the operator or other person being caught between the rolls. This may be accomplished by—

(1) A slot or hopper.

(2) A rod or strip located directly in front of the feed and extending the full length of the rolls.

(See Part IV. Discussion.)

Rule 121. Ironer (flat-work type)—

(a) Each flat-work or collar ironer shall be equipped with a bar or other approved guard across the entire front of the feed or first pressure rolls, so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine.

(b) The pressure rolls shall be covered or guarded so that the operator or other person can not reach into the rolls without removing the guard. This may be either a vertical guard on all sides or a complete cover. If a vertical guard is used, the distance from the floor or working platform to the top of guard shall be not less than six (6) feet.

Rule 122. Ironer (body type).—

(a) Each body ironer, roll or shoe type, including sleeve and band ironers, shall be equipped with a bar or other approved guard across the entire length of the feed roll or shoe, so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine.

(b) The hot roll or shoe shall also be covered in such a way that the operator or other person can not come in contact with the heated surfaces.

Rule 123. Ironer (rotary-body type).—

(a) Each combined rotary bosom and coat ironer shall be equipped with a bar or other approved guard across the entire length of the feed roll or shoe, so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine.

(b) The hot roll or shoe shall also be covered in such a way that the operator or other person can not come in contact with the heated surfaces.

Rule 124. Ironer (press type).—Each ironing press (excluding hand or foot power) shall be equipped with an approved guard or means that will prevent the fingers of the operator or other person being caught between the ironing surfaces.

SECTION 13. MISCELLANEOUS MACHINES AND EQUIPMENT

Rule 130. Sewing machine.—Each sewing machine shall be equipped with an approved guard, permanently attached to the machine, so that the operator's fingers can not pass under the needle. It shall be of such form that the needle can be conveniently threaded without removing the guard.

Rule 131. Exhaust or ventilating fan.—Each exhaust or ventilating fan within seven (7) feet of floor or working platform shall be completely covered with wire mesh of not less than No. 16 gauge and with openings that will reject a ball one-half ($\frac{1}{2}$) inch in diameter. Refer to Mechanical Power Transmission Apparatus Code for variation in gauge or mesh depending on distance.

Rule 132. Steam pipes.—All steam pipes within seven (7) feet of floor or working platform that are exposed to contact shall be covered with a heat resistive material or otherwise properly guarded. (See Part IV. Discussion.)

Rule 133. Starting and stopping devices.—Each power-driven machine shall be provided with approved means of disconnection from source of power. All starting and stopping devices for machines shall be so located as to be operable from the front of the machine and so constructed as to allow proper guarding of belts and pulleys.

PART II.—OPERATING RULES

SECTION 20. MECHANICAL DIVISION

Rule 200. Safety guards.—

(a) No person or persons shall remove or make ineffective wholly or in part any safeguard, safety appliance, or device attached to or forming an integral part of any machinery except for the purpose of immediately making repairs or adjustments, and any person or persons who remove or make ineffective any such safeguard, safety appliance, or device for repairs or adjustments shall replace same immediately upon the completion of such repairs or adjustments.

(b) No machine shall be operated until such repairs and adjustments have been made and the machine is in good working condition.

Rule 201. Steam pressure apparatus.—

(a) All steam valves to flat-work ironers, collar ironers, boilers, and other steam pressure chambers shall be opened gradually.

(b) All cylinder-type machines shall first be placed in motion before steam is admitted.

(c) Steam machines shall not be operated above manufacturer's pressure rating as shown on name plate. If supplied from steam source higher than the manufacturer's rating, stop valve, reducing valve, pressure gauge, and safety valve shall be used in order named from source. The safety valve shall be located in a nonhazardous place.

(d) Steam machines shall be thoroughly drained before steam pressure is supplied.

(See Part IV. Discussion.)

Rule 202. Machine adjustments.—

No moving parts of any machine shall be oiled, cleaned, adjusted, or repaired while said machine is in operation or in motion.

Exception. In covering machines unequipped with hand-power means the rolls shall be operated at slowest available speed with an operator constantly at starting mechanism and employing exceptional care.

Rule 203. Extractors.—

(a) Special care shall be taken to load the extractor evenly so that the basket will always be in fair balance.

(b) Each extractor shall be inspected by dismantling at least once a year and be repaired if necessary.

NOTE.—Overdriven extractors if provided with handholes through which basket and rings can be inspected need not be dismantled.

SECTION 21. GENERAL DIVISION

Rule 210. Floors (wash rooms).—The floors of every room or place in a laundry, or any room in connection therewith used for washing purposes, shall be properly constructed of cement, tile, or similar

construction. The floors shall be water tight, free from projections, crevices, or dangerous gradients, and shall be maintained in good repair and so drained that there is no measurable depth of water.

Rule 211. Floors (other than wash rooms).—The floors of every room or place (except wash rooms) shall be constructed of hardwood or any impervious material, free from protruding nails, splinters, or loose boards, and shall be maintained in a safe condition.

Rule 212. Table tops, shelves, and machine woodwork.—Table tops, shelves, and machine woodwork shall be constructed of materials properly surfaced, finished free from splinters and so maintained.

Rule 213. Markers.—Markers and others handling soiled clothes shall be warned against touching the eyes, mouth, or any part of the body on which the skin has been broken by a scratch or abrasion; and they shall be cautioned not to touch or eat food until the hands have been thoroughly washed.

Rule 214. Ventilation.—Where artificial ventilation is necessary to the maintenance of comfortable working conditions an adequate ventilating system shall be installed.

Rule 215. Instruction of employees.—All employees shall be properly instructed as to all hazards of their work and be educated in safe practices by bulletins, printed rules, and oral instructions.

PART III.—MOVING PARTS

SECTION 30. MACHINE GUARDING (Other than Point of Operation)

Rule 300. Machine moving parts.—All moving parts of machines such as gears, sprockets, belts, pulleys, shafts, and other moving parts shall be guarded in accordance with the Tentative American Safety Code for Mechanical Power Transmission Apparatus.

SECTION 31. PRIME MOVER GUARDING

Rule 310. Prime movers.—All moving parts of prime movers such as fly wheels, cranks and connecting rods, tail rods, or extension piston rods, governor balls, and other moving parts shall be guarded in accordance with the Tentative American Safety Code for Mechanical Power Transmission Apparatus.

EXPLANATORY NOTE FOR INTERPRETING PART III

In applying Rules 300 and 310 it should be borne in mind that the Tentative American Safety Code for Mechanical Power Transmission Apparatus may be revised from time to time. In the 1923 edition of that code the following sections and rules are those most frequently required for reference in connection with laundry machinery operation:

- Shafting, section 20, rule 201 (a) and (c).
- Pulleys, section 21, rule 210.
- Belts and ropes, section 22, rule 220 (a) and (b); rules 221, 222, 223, 224, and 225.
- Gears, sprockets, and chains, section 23, rules 230, 231, and 232.
- Friction drives, section 24, rule 240.
- Keys, set screws, bolts, and other projections, section 25, rule 250.
- Collars and couplings, section 26, rules 260 and 261.
- Fly wheels, section 10, rule 100.
- Cranks and connecting rods, section 10, rule 101.
- Tail rods or extension piston rods, section 10, rule 102.
- Governor balls, section 10, rule 103.

PART IV.—DISCUSSION

It is required by rule 102, section 10, that the basket of the extractor shall not be operated at a speed greater than the manufacturer's rating, which shall be stamped on the inside of the basket. This is necessary because of the danger of centrifugal explosion when operating the basket at a higher speed than that for which it was originally built. The note appearing under (b) of this rule enables the operator to move the basket by hand after the basket has been stopped. This, of course, is to facilitate the even and easy loading of the basket.

The guarding of the roll-type starching machine is not specified in rule 110, as this type of machine does not appear to present a point of operation hazard.

The hydraulic-plunger type of dampening machine is not mentioned in rule 120, as this type of machine does not appear to present a point of operation hazard.

The covering of all steam pipes within seven (7) feet of floor or working platform is required by rule 132, section 13. Contact with hot steam pipes has caused many minor burns that have often resulted in infections. This rule does not specifically include steam pipes directly under machines and which are not easily accessible.

The gradual opening of steam valves is required by rule 201. All pressure vessels or chambers should be gradually warmed by allowing only a small quantity of steam to enter the container at first. A sudden rush of steam in a pressure chamber, such as an ironing roll, causes unequal expansion which may result in an explosion.

It is advisable to install a separate clutch or other power controlling device on each floor where transmission shafting is used. This will enable the machines on any floor to be stopped immediately in case of accident without stopping the machines of any other floor.

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