STATE OF RHODE ISLAND

ELEVATOR SAFETY CODE

ORIGINALLY PROMULGATED
AND EFFECTIVE
OCTOBER 12, 1947

SAFETY CODE RELATING TO:

Construction, Inspection and Maintenance of:

Elevators, Dumbwaiters, Escalators, Moving Walks,

Personnel and Material Hoists, Vertical Reciprocating

Conveyors and also, Vertical Wheelchair Lifts

FORWARD & EXPLANATION OF CODE

This State code consists of six sections, each covering a specific subject. They are as follows:

Section I - New Installations

Section II - Existing Installations

Section III - Personnel Hoists

Section IV - Material Hoists

Section V - Vertical Wheelchair Lifts

Section VI - Vertical Reciprocating Conveyors

Sections I and V of this State of Rhode Island Elevator Safety Code are mainly an adoption of the American National Safety Code for Elevators and Dumbwaiters (Often referred to as ASME A 17.1). Specific exceptions to that national organization's model code have been adopted as the Rhode Island State Code, and they appear herein in their respective parts.

Section II (Existing Installations) is different from the other five sections. It does not depend exclusively upon the national recommendations for existing elevators and escalators often referred to as ASME A17.3 SAFETY CODE FOR EXISTING ELEVATORS AND ESCALATORS. It shall, however, be in addition to those requirements. Additionally, the following national standards, ASME A17.2.1, A17.2.2, and A17.2.3 commonly referred to as Inspectors' Manuals shall also be utilized and/or referenced as a part of Section II.

Where any rule from the national standards ASME A17.2.1, A17.2.2, or A17.2.3 is cited, the national standard designation shall be utilized.

Section VI (Vertical Reciprocating Conveyors) is different from the other five sections. It is mainly an adoption of the American National Standard for Conveyors and Related Equipment ANSI/ASME B20.1. The rules as they appear in Section VI are in addition to that organization's recommendations.

Sections III and IV are also different from the other five sections. The specific codes pertaining to these devices are used as a basis for the installation, construction and operation of this equipment. The scope of these specific Codes is stated at the beginning of the respective Section within this Code. The rules as they appear within these Sections are in addition to any rules contained within those specific Codes.

PURPOSE FOR CODE

The purpose of these rules and regulations is to provide safety standards for the installation, construction, operation, repair or use of elevators and related equipment. Where compliance would be impracticable, the Director of Labor and Training and/or the Chief Elevator Inspector may issue an exemption from the requirements of these rules and regulations and permit the use of other devices and/or methods, but only when it is established by clear and convincing evidence that safety is reasonably assured.

ACCIDENT REPORTS

RULE 1.0

Each elevator, dumbwaiter or escalator accident, or each hoistway collision, or each equipment failure resulting in an injury to a person, or in damage to the installation shall:

(A) Be reported by the owner or his authorized agent within twenty-four (24) hours to the Department of Labor and Training, Division of Occupational Safety. ANY ACCIDENT RESULTING IN A FATALITY SHALL BE REPORTED TO SAID OFFICE IMMEDIATELY.

(B) Summarily revoke the operating certificate or permit until the Department of Labor and Training shall have inspected and/or shall have again made valid the operating certificate or permit of the subject installation.

(C) Failure to report any accident within the prescribed time, shall be a violation of Rhode Island General Law 23-33-20(a) and as such, subject to the penalty provided therein.

(D) No person shall remove from the premises any part of the damaged installation or operating mechanism or any other part of the equipment subject to the provisions of Rhode Island General Law 23-33, until permission to do so has been granted by the Chief Elevator Inspector.

ELEVATOR SAFETY CODE

SECTION I NEW INSTALLATIONS

Rule 1.0

(a) The American National Standard Safety Code for Elevators and Dumbwaiters (ASME A17.1), which also includes escalators and moving walks, shall govern the installation, modernization, inspection and testing of new, or relocation of, such elevators and other devices with the following exceptions:

(b) REVISION:

303.4(a) Supply Line Shutoff Valve.

A manually operated shut-off valve shall be provided between the hydraulic machines and hydraulic jack and shall be located in the pit on all hydraulic elevators.

(c) ADDITION:

A complete and accurate set of wiring diagrams shall be provided to the owner, who shall cause the diagrams to be permanently maintained within the machine room/space of any new or modernized elevator, escalator or other device subject to the provisions of Rhode Island General Laws 23-33. Any and all wiring changes shall be marked in permanent red ink. These diagrams shall be considered a required part of the machine room and as such, shall not be removed, damaged, destroyed or altered except where wiring changes are necessitated.

(d) DELETION: ASME A17.1 PART XX
Rule 2000.10a - Key operation
Rule 2001.10a - Key operation
Rule 2002.10a - Key operation

(e) REVISION:

Key operation of accessibilty devices within public buildings shall be provided only on those devices where security is necessitated.

(f) DELETION: ASME A17.1 PART XXI
Rule 2100.10a - Key operation
Rule 2101.10a - Key operation
Rule 2102.10a - Key operation

(g) REVISION:

Key operation of accessibility devices located within a private residence shall be provided only on those devices where security is necessitated.

SECTION II EXISTING INSTALLATIONS

Rule 2.0

Section II of the Rhode Island Elevator Safety Code shall govern existing elevators, escalators, and other devices, except as otherwise provided within.

Rule 2.1 DEFINITIONS:

CAPACITY-RATED LOAD means the load which the equipment is designed and installed to lift at the rated speed.

DECOMMISSIONING refers to the requirements that any cable suspended elevator or other device being placed out of service, or has been out of service for more than six (6) months shall have the car and/or counterweights landed in the pit and all hoist cables removed. Also, that hydraulically operated units shall be lowered into the pit, all oil or hydraulic fluid removed and a section of the oil supply line removed from the premises.

DUMBWAITER means a lifting and lowering mechanism with a floor area not exceeding nine (9) square feet, with a car top not more than four (4) feet above the car floor, the capacity not to exceed five hundred (500) pounds, which is used exclusively for carrying freight. No persons are permitted to ride on, in, or to step into the car.

ELEVATOR means a hoisting and lowering mechanism capable of carrying passengers and authorized personnel, equipped with an elevator car which moves in fixed guides and serves two (2) or more fixed landings.

(1) ELEVATOR-PASSENGER means an elevator used primarily to carry persons other than the operator and persons necessary for loading and unloading.

(2) ELEVATOR-FREIGHT means an elevator primarily used for carrying freight and on which only the operator and the persons necessary for loading

and unloading the freight are permitted to ride.

(3) ELEVATOR-SIDEWALK means a freight elevator, the upper landing of which is located either partially or wholly outside the building, and which has no opening into the building at its upper terminal landing.

(4) ELEVATOR-PLATFORM means an elevator the platform of which is directly supported at four or more points by suspension members which are relied upon to maintain the platform substantially level and giving service within one story.

(5) ELEVATOR-POWER means an elevator utilizing energy other than gravitational, (or manual to move the car).

(a) ELEVATOR-ELECTRIC means a power elevator where the energy is applied by means of an electric driving machine.

(b) ELEVATOR-HYDRAULIC means a power elevator where the energy is applied by means of a liquid under pressure, in a cylinder equipped with a plunger or piston.

ELEVATOR-HAND means an elevator energized by manual power.

ESCALATOR means a power driven, inclined, continuous stairway used for raising and lowering passengers.

HOISTWAY DOOR INTERLOCK means a device having two related and interdependent functions which are:

(a) To prevent the operation of the driving machine by the normal operating device unless all hoistway doors are locked in the closed position, and

(b) To prevent the opening of any hoistway door from the landing side unless the car is within the landing zone and is either stopped or being stopped.

NOTE: (Hoistway Door Interlock): These functions are subject to modifications specified in Rule 111.3a of the A17.1.

LICENSED COMPANY means a company licensed by the Division of Occupational Safety to perform installations, construction, service, repairs, modernizations, decommissioning, removal, and maintenance of elevators and other devices subject to the provisions of this code and Rhode Island General Laws 23-33.

LICENSED INDIVIDUAL means an employee of a licensed company who by reason of competency is authorized to perform any and

all work within the scope as issued.

MOVING WALK means a type of passenger-carrying device on which passengers stand or walk, and in which the passenger-carrying surface remains parallel to its direction of motion and is uninterrupted.

SPEED-RATED means the maximum velocity of the car in feet per minute (fpm), with rated load in the car, traveling in an upward direction.

Rule 2.2 GENERAL PROVISIONS

(a) All parts of elevators, dumbwaiters and escalators, including machines, cars, hoistways, hoistway landing opening protective devices, hoisting ropes or cables, etc., and all appurtenances shall be maintained in a structurally sound, firmly secured, and satisfactory condition to perform safely the work which they are intended to do.

(b) Whenever this code conflicts with the State Building Code, regarding the materials to be used for construction purposes and/or the type of construction to be employed, the requirements of Rhode Island General Laws shall prevail.

(c) All electric wiring and apparatus shall comply with the requirements of the National Electrical Code.

(d) No section of these rules and regulations is intended to be or shall be construed to be more stringent than the rules and regulations governing similar devices or applications on new elevators, new dumbwaiters, new escalators and new moving walks, except as noted in Section I.

(e) Floating platform type of construction shall not be permitted for elevator cars.

Rule 2.3 CAPACITY

(a) Passenger elevators shall have a capacity of not less than the platform area indicated in Figures 2.1, 2.2. A metal plate shall be provided which shall be fastened in a conspicuous place in the car, with letters and figures not less than one quarter inch (l/4") high, bearing the words CAPACITY_____PERSONS.

(b) A freight elevator may be used to transport employees only upon written authorization from the Administrator of the Division of Occupational Safety, and provided that the following provisions are complied with: Rules 2.4b, 2.5c, 2.20, 2.21, 2.25, 2.33, 2.34, 2.37, 2.38, 2.39, 2.50c.

(c) Freight elevators shall be provided with a conspicuous plate, with letters and figures not less than one inch (1") high, indicating the capacity of the elevator and the type of loading permitted. If the freight elevator is to be used for employee transportation, said plate shall also indicate CAPACITY _____ PERSONS. The number of persons shall be the capacity divided by one hundred fifty (150).

(d) No loads greater than the capacity load shall be carried on any elevator, unless the elevator is equipped with a special locking device which will hold the car at any landing independently of the hoisting cables while the excessive load is being loaded or unloaded, and the elevator car platform, frame, sheaves, shafts, cables, safeties, machinery, supports and counterweights are designed or altered to support the excessive load.

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RULE 2.4 ALTERATIONS

(a) Where an elevator is altered, all alterations shall be designed, manufactured and constructed in compliance with the requirements of Part XII of the ASME A17.1 known as Section I of this Code.

(b) Alteration shall mean any change or changes in the classification, speed, capacity, or total rise of an elevator and also, any physical change or changes in the elevator machinery, car hoistway landing opening protection devices, etc., car clearances, car safety devices, car operating devices, or characteristics of the electrical service of an elevator.

EXCEPTION:
Where worn or defective parts are being replaced with exact type of replacement parts.

(c) Where any elevator is altered, by the addition of either car tops, car doors or gates, car sidings, or any appurtenances thereof, or any combination of the foregoing features, the capacity of the elevator shall be reduced to compensate for the weight added thereto, unless all parts of the equipment affected thereby are designed or altered to adequately handle the altered car and the capacity load simultaneously. Departmental approval is mandatory in all such cases.

(d) Relocation. When an existing elevator is relocated, it shall comply with Section I of this Code.

(e) Demolition or removal of any device subject to the provisions of Chapter 23-33 of the Rhode Island General Laws shall be performed only by individuals licensed by the Division of Occupational Safety pursuant to Rhode Island General Laws Section 23-33-2.3, except where a building is being destroyed in its entirety.

(f) All elevators having travel of twenty five (25) feet or

more shall be provded with Phase I and Phase II Fire Service subject to the provisions of ASME A17.3 Rule 3.11.3 a standardized key switch for the activation of fire service shall be required. This key shall be an ADAMS PART NUMBER AKC-0054A [KEY CODE WD01].

(g) The key required to activate fire service shall be accessible to fire department personnel, qualified mechanics and compliance inspectors only.

RULE 2.5 CABLES, CAR AND COUNTERWEIGHT

(a) Cables for power elevator cars and counterweights shall be of iron or steel.

(b) Wherever cables are renewed, a metal tag shall be attached to the new cables at their fastenings. On this tag shall be stated the diameter, rated ultimate strength and material of the cables, and the date of the cable installation, and also the name of the concern installing the cables.

(c) Hoist cables, when replaced, shall be replaced by the same number, size, type and approximate strength as the original design.

(d) No winding drum elevator shall be used for passenger service unless it is equipped with two (2)) or more hoisting cables.

(e) The tension on all cables performing one operation shall be maintained substantially equal.

(f) No cable shall be lengthened or repaired by splicing.

(g) Whenever car or counterweight cables are replaced, the car and/ or counterweight top clearances shall not be reduced below the requirements of Rule 2.45d.

(h) Where cables pass through floors outside of the hoistway enclosure, such cables shall be guarded to a height of not less than seven (7) feet with metal cable guard enclosures.

(i) Hoist cables shall be replaced when damaged or deteriorated due to rust, wear or excessive crown wire breakage and tagged as in 2.5b.

(j) Hoist cables shall be properly maintained and free of excessive lubrication material.

RULE 2.6 CABLES, SPEED GOVERNOR

(a) Cables for speed governors, when such cables are replaced, shall be of iron, steel, metal or phosphor bronze only.

(b) Speed Governor Cables shall be not less than three-eights (3/8)) inch in diameter.

(c) Tiller rope may be used only for the portion of the governor cables wound on the safety drum.

(d) When speed governor cables are replaced, they shall be tagged as in Rule 2.5b.

(e) Speed governor cables shall run clear of governor jaws during normal operation of the car and the center of the speed governor cables shall be located not more than one-eighth (1/8) inch either side of the common center line of governor jaws.

(f) Wherever the diameter and/or material of a speed governor cable is changed, approval of the proposed change shall be obtained from the Department of Labor and Training and the car safety shall be retested with the altered governor cables in use before the elevator is reactivated.

(g) Speed governor cables shall be replaced when damaged or deteriorated due to rust, wear or excessive crown breakage and tagged as in 2.5b.

(h) Speed governor cables shall be properly maintained and free of excessive lubrication material.

(i) Any governor using any type of cable other than that specified in Rule 2.6a shall be replaced with an approved type.

RULE 2.7 CABLE CONNECTIONS

(a) When cables are replaced, they shall be fastened to the car and/or to the counterweight either by individual tapered babbitted sockets or rope wedge clamps.

(b) All cables anchored to a winding drum shall have not less than one (1)) complete turn of cable left on the drum when the car or counterweight has reached the extreme limit of its overtravel.

(c) The winding drum ends of car and counterweight cables shall be secured to the winding drum by clamps on the inside of the drum or as in Rule 2.7a.

(d) The hoisting rope of power elevators having drum-type driving machines with one-to-one (1:1) roping shall be reshackled, at the car ends at intervals not longer than: (1) Twelve (12)) months for machine located over the hoistway. (2) Twenty-four(24) months for machines located below or at side of the hoistway.

(e) A metal tag, in addition to the tag required in Rule 2.5b, shall be provided when hoist ropes are reshackled. Said tag shall state the date of the reshackling, and also the name of the concern performing the reshackling.

RULE 2.8 MACHINES AND MACHINE SAFETIES FOR POWER ELEVATORS

(a) No set screw fastenings shall be used in lieu of keys or pins on connections subject to torque or tension.

(B) No friction gearing or clutch mechanism shall be used for connecting the drum sheaves to the main driving gear of power elevators.

(c) No worm or gear having cast-iron teeth shall be used for replacement purposes on a worm and gear driving machine.

(d) No power elevator machine, except hydraulic machines, shall be operated without electrically released and mechanically applied brakes.

(e) No belt or chain driven machine shall be used for any passenger elevators.

(f) Winding drum machines and roped hydraulic elevators shall be equipped with a slack cable device located on the machine or on the car to apply the brake and stop the machine if the car should be obstructed while descending.

(g) Slack cable switches shall be of the enclosed type and shall be manually reset.

(h) Flat belts or chain drives for machines shall be replaced by multiple "v" belt drive with a minimum of three 5/8 inch belts, or directly connected.

(i) the use of flat belt drive which would shift to control the direction of the elevator car travel is prohibited.

(j) Drive machine sheaves shall be recut due to slippage or loss of traction.

(k) Drive machine sheaves shall be replaced due to excessive wear.

RULE 2.9 HYDRAULIC MACHINES

(a) Cylinders of hydraulic-elevator machines shall be provided with a means for releasing air or other gas.

(b) Each pump connected to the tank of a hydraulic elevator shall be equipped with a relief valve (or valves) so installed that it cannot be shut off. The relief valve shall be of sufficient size and so located as to pass the full capacity of the pump at full speed without exceeding the safe working pressure of the pump, tank or piping.

(c) Elevator pumps, unless equipped with pressure regulators which control the motive power, shall be equipped with automatic bypass.

(d) Pressure tanks, piping, pumps, valves, cylinders, pistons, and packings of a hydraulic elevator shall be maintained to withstand successfully a hydrostatic test wherein the maximum testing pressure is 50% over the

normal working pressure.

(e) Each pressure tank shall be equipped with a water-gauge glass, having brass valves and fittings attached directly to the tank and so located as to show the level of the water when the tank is more than half-filled.

(f) Each pressure tank shall be provided with a correctly indicating pressure gauge having a capacity of not less than one and one half (1 1/2) times the normal working pressure allowed in the tank.

(g) Discharge tanks shall be adequately covered, or screened.

(h) All packings used in connection with a hydraulic elevator shall be maintained to prevent any uncontrolled movement of the elevator.

(i) Hydraulic elevators operated from pressure tanks where the fluid pressure is obtained by directly admitting steam, air or other gas to the tank, shall comply with all the rules covering hydraulic elevators.

(j) The water level in a pressure tank shall be maintained at about two thirds (2/3) of the capacity of the tank.

(k) Flexible hoses and fitting assemblies shall be of the approved type, and shall be replaced if damaged, or at least changed every six (6) years, and tagged as in Rule 2.5b., with the replacement date.

(l) Machine drive belts shall be replaced with a full, matched set when damaged or deteriorated due to excessive wear or breakage.

(m) New or replacement hydraulic cylinders shall be installed within a PVC liner inside of the casing.

(n) Every hydraulic elevator pump unit shall be provided with an appropriate sized valved connection equipped with an AEROQUIP 5602-4-4S male connector for attaching an inspector's test gauge.

(o) every hydraulic elevator shall be subject to a static load test every three (3) years. as part of this test, the working pressure of the pump unit shall be tested and recorded as well as the relief valve setting. A metal plate shall be attached to the hydraulic tank of all such elevators indicating (1) the working pressure, (2) the relief valve setting, (3) the amount and type of fluid used in the hydraulic system.

(p) All hydraulic elevators equipped with an APOLLO BALL VALVE (Part number 70-108-01) located in the oil supply pipe shall have this valve replaced with an equivalent valve of a different manufacturer.

RULE 2.10 PENTHOUSES AND MACHINE ROOMS

(a) Safe access to penthouses and machine rooms shall be provided and maintained.

(b) Elevator machine rooms and penthouses shall not be used as thoroughfares.

(c) Doors to machine rooms shall be provided with spring type locks and closers. These doors shall be kept locked and the locks shall be so arranged as to permit the doors to be opened from within the machine room without keys. The key for the machine room door shall not operate any other lock in the building, nor shall the key be part of a master, grand master or construction master key system.

(d) Elevator machines not located in elevator machine rooms shall be enclosed and locked as in Rule 2.10c. This enclosure shall be at least seven (7) feet high and be of substantial fire resistant construction.

(e) Permanent, adequate, artificial light shall be provided in machine rooms and penthouses. The light switch shall be within easy reach of the machine room entrance.

(f) Elevator disconnect switches, of the approved type, lockable, manually operated, and of the multiple pole type, shall be located on the lock jamb side of the entrance to the machine room and shall be accessible from the machine location on all elevators. No device shall be permitted which closes this disconnect switch from any other part of the building.

(g) Machine rooms shall be provided with a floor. If metal bar grating is used for flooring, the flooring shall reject a three-quarter (3/4) inch round ball. If perforated sheet steel is used for flooring, the openings shall reject a ball one and one-eighth (1 1/8) inch in diameter.

(h) Machine rooms shall not be utilized as storage space for any non-elevator related items.

(i) Each elevator machine located above floor level shall be provided with a working platform and shall be enclosed by permanent, standard guard rails and toe boards.

(j) Access into the machine room from the hoistway is expressly forbidden.

(k) Machine room floors shall be maintained substantially free of oil, grease and debris.

(l) Machine rooms for hydraulic elevators shall be provided with a curbing between the machine room door jambs which shall be hydraulically sealed to the floor and to the door jambs.

(m) Machine rooms for hydraulic elevators shall be located adjacent to the hoistway (with ten (10) feet). The machine room access shall be within sight of the

elevator hoistway landing.

RULE 2.11 PIPES AND WIRING

(a) All exposed live parts of electric apparatus in or on elevator cars or shaftways shall be enclosed.

(b) All machine frames, controller frames, control ropes, and metal conduits shall be effectively grounded.

(c) The maximum circuit voltage or rated system permitted in the operating devices of power elevators shall be three hundred (300) volts A.C. for automatic operation elevators having operating devices in the car and at the landings and seven hundred fifty (750) volts D.C., or six hundred (600) volts A.C., for other types of operating devices.

(d) Power elevator machine motors operated by polyphase alternating current shall be equipped with a reverse phase relay.

(e) No wire or other current-carrying device shall be substituted for the proper fuse or circuit-breaker in an elevator circuit.

(f) An approved type emergency stop switch shall be provided in all areas of moving machinery or sheaves and in all levels of multi level machine rooms or spaces.

(g) The use of temporary "jumpers' or wires used temporarily for troubleshooting circuits shall be allowed only while such work is being performed by a qualified mechanic. No such device shall be left attached or connected within any controller or operating panel for any reason without the mechanic being physically upon the premises engaged in repairs.

RULE 2.12 COUNTERWEIGHTS, DRUM AND /OR CAR

(a) Broken or cracked sections of counterweights shall be replaced.

(b) Counterweight hanger rods and/or tie rods or other acceptable means shall firmly support and secure the counterweight sections in place.

(c) Counterweights shall run in guide rails or guide boxes and these guides shall confine the counterweights to a definite lane of travel in the elevator hoistway. Counterweight guide boxes outside the elevator hoistway shall be prohibited.

(d) Cables extending through counterweights shall be guarded by metal or fiber sleeves attached to the cables.

(e) Counterweight or compensating chains or cables shall be replaced when damaged or deteriorated due to rust, wear, or excessive crown wire breakage.

(f) Counterweight cables shall be so maintained as to provide proper clearance between the counterweight and the counterweight buffer.

RULE 2.13 HOISTWAYS - CAR

(a) All hoistways shall be of at least two (2) hour fire resistant rated construction unless written permission of the fire authorities is provided to the Division indicating a lesser rated construction is permitted by that authority.

(b) All non-fire resistant hoistways shall be prohibited. Fire safety code violations are to be referred to the state Fire Marshall's Office, or the local fire authorities.

(c) All landing openings shall be equipped with at least one and a half (1 1/2) hours, "B" label fire resistant doors.

(d) No non-fire resistant materials shall be installed within any hoistway.

(e) Hoistway enclosures shall have substantially flush surfaces on the hoistway side subject to the following:

(1) On Sides for Loading and Unloading. Landing sills, hoistway doors, door tracks and hangers may project inside the general line of the hoistway.

(2) On Sides Not Used for Loading and Unloading. Recesses except those necessary for installation of elevator equipment shall not be permitted. Beams, floor slabs or other building construction shall not project more than two (2)) inches inside the general line of the hoistway unless the top surface of the projection is beveled at an angle of not less than seventy-five (75)) degrees from the horizontal. Where setbacks occur in the enclosure wall, the top of the setback shall be beveled at an angle of not less than seventy-five (75)) degrees from the horizontal. Separator beams between adjacent elevators are not required to have bevels.

(f) There shall be no thoroughfares through a hoistway.

(g) There shall be no thoroughfares under the hoistway of any elevator or dumbwaiter unless all of the following conditions exist: (1) Adequate buffers are provided. (2) The car is provided with speed governor operated safeties. (3) The counterweight is provided with speed governor operated safeties. (4) There shall be a structure under the hoistway strong enough to withstand without failure the impact of the car with contract load or counterweight when either is descending at contract speed or at governor tripping speed where a governor operated safety is used.

(h) There shall be no thoroughfare under the hoistway of a

dumbwaiter or its counterweight unless there is a structure under the hoistway sufficiently strong to withstand without failure the impact of the car with contract load, or the impact of the counterweight when either is dropped freely in its guides from the upper limit of overtravel; provided that for cars or counterweights equipped with governor operated safeties the impact shall be computed at governor tripping speed. Where broken rope safeties are used the impact of the car or counterweight shall be computed for a free drop of the car or counterweight from one-third of its travel.

(i) Hatch covers shall be prohibited. EXCEPTION: Sidewalk elevators with hinged or vertical lift type covers which shall be able to support a uniformly distributed load of three hundred (300) pounds per square foot.

(j) Hoistways shall not be used for the installation of telecommunication, HVAC control wiring, burglar or fire alarm wires, except where completely enclosed within an approved raceway.

RULE 2.14 HOISTWAYS - COUNTERWEIGHT

(a) Hoistways for counterweights located outside of the elevator hoistway shall be kept enclosed for the full height of the shaftway. EXCEPTION: If such counterweight hoistway are located outside of the building, the shaftway for the counterweight shall be guarded to a height of seven (7) feet above ground.

(b) Counterweight hoistways located in the enclosed shaftway of power elevators shall be guarded from a point one (1) foot above the pit floor to a point seven (7) feet above the floor of its own pit or above the floor of an adjacent pit.

(c) Doors leading to the counterweight hoistway shall be labeled, "Danger - counterweight Hoistway", these doors shall be kept locked and shall be electrically contacted to interrupt the operation of the equipment.

(d) Counterweight guards shall be constructed of a non-combustible material.

RULE 2.15 GUIDE RAILS

(a) Where guide rails are sufficiently worn to cause any material reduction in the clearances as mentioned in Rules 2.45 a, b, c, the guide rails shall be replaced.

(b) Guide rails for the car and/or counterweight hoistway shall extend the full length of the travel plus the overtravel.

(c) Where guide rails are deteriorated or damaged, they shall be replaced.

RULE 2.16 OVERHEAD SHEAVES

(a) Overhead sheaves in the hoistway which are suspended beneath their structural supports shall be guarded by a substantial cradle or floor constructed beneath such sheaves.
EXCEPTIONS:
(1) Sidewalk Elevators.
(2) Dumbwaiters.

RULE 2.17 TERMINAL LIMIT SWITCHES AND STOPPING DEVICES

(a) Normal terminal limit switches or stopping devices (directional limits) shall be provided on all elevators, and shall be arranged to automatically stop the car and to function independent of the operation devices and also independent of such final terminal limit switches or stopping devices as are required by Rule 2.17b.

(b) Final terminal limit switches or stopping devices shall be provided on all elevators in addition to the normal terminal limits or stopping devices and shall be arranged to automatically prevent all movement of the car by the operating devices, and to stop the car independent of the normal terminal limit switches or stopping devices, and, further, shall, when traveling at any speed attained during normal operations, bring the car to rest within the overtravels but the buffers may be compressed.

(c) Normal and final terminal limits or stopping devices on all elevators may be located on the car or in the hoistway, if operated by the movement of the car, or they may be located in the machine room if mounted on and operated by a stopping device automatically connected to the car with no dependence on friction as a driving means provided on winding drum machine equipped elevators. (1) If operated by polyphase alternating current, the final stopping devices shall be in the machine room and operated by a machine automatic stopping device, and shall open the elevator service circuit. EXCEPTION: Machines with direct-current brakes and direct-current main line switches in the hoistway.

(d) The cam or cams for operating limit switches shall be of sufficient length and alignment to hold the switches in the open position when the car is in contact with the overhead structure or is resting on the fully compressed buffers.

(e) All elevators operated in excess of one hundred (100) f.p.m. shall have independent control contactors for both normal and final terminal limits or stopping devices.

RULE 2.18 ELEVATOR PITS

(a) There shall be a pit underneath every elevator. This pit shall be not less than three (3) feet deep, and adequately illuminated. EXCEPTION: Sidewalk elevators,

hand elevators, and dumbwaiters.

(b) Elevator pits shall be kept clean and dry. Water or other liquid which may accumulate in the pit shall be pumped out. Floor drains in elevator pits shall not be permitted.

(c) Elevator pits shall not be used for storage space.

(d) Elevator pits shall be provided with a permanently attached, securely mounted ladder of non-combustible material which extends a minimum of 42 inches above the sill of the lower terminal landing and is within reach of the access landing sill.

(e) Sump pump pits shall be covered in the elevator pit with a cover of non-combustible material of either solid or bar type grating which shall be level with the pit floor.

(f) Walk-in pit doors shall be provided with a properly operating electrical contact to prevent operation of the elevator when the pit door is in the open position.

RULE 2.19 SPRING OR OIL BUFFERS

(a) There shall be a spring or oil buffer in the pit underneath each elevator car and counterweight, conforming to good engineering practice. EXCEPTION: Platform elevators, hand elevators, sidewalk elevators, Private residece elevators, limited use/application elevators (LULA) and dumbwaiters.

(b) All buffers shall be maintained in a vertical position and directly under the buffer striker plates affixed to the car or counterweights. The pit striker plate shall be kept centered under the buffer in cases where the inverted buffer is attached to the counterweight.

(c) Oil buffers shall be kept filled with oil to the level indicated on the reservoir.

(d) Whenever oil is added, oils equivalent to those recommended by the buffer manufacturer for use in the buffer shall be used.

RULE 2.20 HOISTWAY DOORS FOR POWER PASSENGER ELEVATORS

(a) No fire door shall lock any landing opening in the shaftway enclosure nor any exit leading from any hoistway landing to the outside of the building.

(b) Landing openings in a hoistway shall be protected by solid, fire/rated, horizontally sliding, or combination sliding and swinging doors, or by swinging doors. Hoistway doors shall guard the full width and full height of the landing opening.

(c) For automatic operation of elevators the distance between the hoistway side of the hoistway door and the edge of the landing threshold shall be not more than two and one-half (2 1/2) inches. (See also Rule 2.37 d.)

(d) All hoistway doors for power passenger elevators shall be provided with door interlocks.

(e) Hoistway doors for hydraulic passenger elevators shall be provided with a door closer, and shall be equipped with a re-leveling device which will compensate for the creeping of the car away from the landing opening while the hoistway doors are opened.

(f) Hoistway doors shall be arranged to be opened by hand from the shaftway side, except when locked "out of service". Top, main exit and bottom terminal hoistway doors shall not be locked "out of service" while the elevator is in service.

(g) Hoistway door interlocks shall be arranged to prevent the opening of the hoistway doors from the landing side unless the car is within the landing zone. EXCEPTION: With the use of special tools the hoistway doors may be opened for maintenance and emergency purposes.

(h) Power closed hoistway doors in elevators employing a type of operation which does not require an operator in the car, shall be driven by a mechanism so designed and set that the force necessary to prevent the closing of the door shall not exceed thirty (30) pounds and further, that the hoistway door, plus the car doors, plus all parts rigidly connected thereto shall not develop a kinetic energy in excess of seven (7) foot pounds, computed for the average closing speed or shall be provided with other suitably protecting measures.

(i) Glass vision panels, where provided shall be kept glazed. One-quarter (1/4) inch clear wire glass shall be used for replacements. The vision panel opening shall reject a six (6) inch ball, and shall not exceed one hundred (100) square inches in area.

RULE 2.21 HOISTWAY DOORS FOR FREIGHT ELEVATORS

(a) Each landing opening in a freight elevator hoistway shall be continuously equipped with properly operating doors and interlocks. EXCEPTION: The upper landing of sidewalk elevators.

(b) Hoistway doors shall be located within three (3) inches of the edge of the landing threshold.

(c) Hoistway doors of the sliding type shall operate in guides or rails.

(d) Each landing opening in a freight elevator hoistway shall be protected by solid, fire-rated doors of either the vertically bi-parting or swing type which shall protect the full height and width of the landing

opening.

(e) Hoistway doors provided with vision panels shall have the openings protected with one quarter inch (1/4") thick clear wire glass and shall reject a six inch (6") ball.

(f) Vertical bi-parting doors shall be provided with fire resistant, non-shearing, non-crushing safety asragals on the upper panel.

(g) Rigid members which overlap the meeting edge, and center latching devices are prohibited.

RULE 2.22 HOISTWAY DOORS FOR HAND AND POWER DUMBWAITERS

(a) All landing openings in dumbwaiter hoistway enclosures shall be equipped with fire-rated doors.

(b) All landing doors of power dumbwaiters shall be equipped with mechanical locks and contacts or electrical/ mechanical interlocks.

RULE 2.23 HOISTWAY DOORS FOR HAND-PASSENGER ELEVATORS

(a) Hoistway doors for hand-powered elevators shall guard the full hoistway opening.

(b) The word "Elevator" shall be conspicuously displayed on the landing side of the door.

RULE 2.24 HOISTWAY DOOR INTERLOCKS

(a) Electrically released, gravity or spring applied rope gripper or locks to prevent the movement of the operating rope or rod shall be prohibited.

(b) The interlocks for the hoistway doors shall function so that the doors shall be in a closed and locked condition before the car may be operated by the operating device to move the car away from the landing.

(c) Interlock contacts shall be positively opened and the functioning of the interlock to prevent movement of the car by the operating devices shall not be solely dependent on the action of a spring or springs, nor gravity, nor upon the closing of an electric circuit. If an electric circuit is used, its interruption shall prevent the movement of the car by the operating devices.

(d) Interlocks shall be so located as to be normally inaccessible from the landing side of the closed hoistway doors.

(e) Electro-mechanical interlocks or combination mechanical locks and electric contacts shall be of the approved type.

(f) Hoistway door interlocks shall be provided with covers

for the electrical contacts at all times.

RULE 2.25 HOISTWAY DOORS (FOR CARS EQUIPPED WITH INCHING DEVICES)

(a) Hoistway doors for power elevators with a contract speed not in excess of one hundred (100) fpm may have the interlock service arranged to permit the car to be operated away from the landing a distance of not over twelve (12) inches before the locking operation takes place, provided the following requirements are met:

1) If the locking operation fails to take place as specified, further movement of the car will open the operating circuit. 2) The car cannot be started by the operating devices until the hoistway door is closed. 3) The car platform is equipped with a substantial vertical face flush with its outer edge and extending at least fifteen (15) inches below the car platform.

(b) On existing power opened and/or closed hoistway doors equipped with door closer, hoistway doors shall be considered in the closed position and the car may be started only when the door is within three-quarter (3/4) inch of the "lock" jam (or the edge of the opposite door if bi-parting doors are provided).

RULE 2.26 EMERGENCY RELEASES: Emergency releases which by-pass an interlock or contact circuit are prohibited.

RULE 2.27 FREIGHT ELEVATOR HOISTWAY DOOR LOCKING DEVICES

(a) For automatic or continuous pressure operation power elevators, Hoistway doors shall be equipped with properly operating interlocks.

RULE 2.28 CAR GATE OR HOISTWAY DOOR COUNTERWEIGHTS

(a) All car gate or hoistway door counterweights shall operate in guides or boxes from which they cannot be dislodged. The bottoms of all guides or boxes shall be constructed to retain the counterweight if the counterweight suspension means breaks. Car door or gate counterweight guides shall be guarded on their enclosure side.

(b) Car gate or hoistway door counterweight cables or ropes shall be replaced with steel cable when renewed. Said cable shall have a minimum diameter of one eighth inch (1/8").

(c) Car gate or hoistway door counterweight cables shall replaced when damaged or deteriorated due to rust, wear or excessive crown wire breakage.

RULE 2.29 LANDING THRESHOLDS- FOR PASSENGER AND FREIGHT ELEVATORS

(a) Landing thresholds, and ramps leading to landing thresholds, shall be maintained so that persons will not readily slip or trip thereon.

(b) All tracks on a landing thresholds shall have the tops of the rails substantially flush with the landing threshold.

RULE 2.30 SERVICE KEYS AND EMERGENCY KEYS FOR HOISTWAY DOORS

(a) Service keys, where provided, shall be available to authorized persons only and shall open any hoistway doors which are arranged to be opened by the service key, only when the car is within the landing zone.

(b) Emergency keys, where provided, shall be kept by the superintendent or person in charge of the building in a location where they are not accessible to unauthorized persons.

(c) Emergency keys, where provided, shall be of a type not readily duplicated and shall open any hoistway doors which are arranged to be opened by the emergency key, regardless of the position of the car in the hoistway.

(d) Hoistway access shall be provided for the upper and lower terminal landings for all elevator by the use of emergency keys as provided in Rule 2.30c.

RULE 2.31 ELEVATOR CAR SLINGS AND ELEVATOR FRAMES

(a) Elevator car slings shall be substantially level and rectangular. Platform frames shall be substantially level. All power elevators shall be constructed with metal slings and platform frames.

RULE 2.32 ELEVATOR CAR FLOORS

(a) Elevator car floors shall be safely maintained and free from hazardous conditions.

(b) Where tracks are located on an elevator car floor, the tops of the rails shall be substantially flush with the general surface of the car floors.

Rule 2.33 ELEVATOR CAR SIDES

(a) Elevator car sides of solid construction shall be provided on all sides of passenger or freight power elevators which are not used for loading or unloading.

(b) All power elevator car sides shall extend to the top of the car.

(c) When elevator car sides are replaced, they shall be of metal construction.

RULE 2.34 POWER ELEVATOR CAR TOPS

(a) Each power elevator shall be equipped with a metal, solid or openwork car top. Openwork shall reject a one and one-half (1 1/2) inch ball.

(b) Car tops of a car enclosure shall be so designed and installed as to be capable of sustaining a load of seventy-five(75) pounds per square foot.

RULE 2.35 POWER OPERATED SIDEWALK ELEVATORS

(a) Power operated sidewalk elevators shall be provided with either flat metal tops or metal frames or arched metal bows of sufficient strength to open the hatch covers, or be provided with a device that will stop the car before a person riding on the car platform could be injured, if the hatch should fail to open.

RULE 2.36 DOUBLE COMPARTMENT POWER ELEVATORS

(a) All double compartment power elevators shall meet the requirements of ANSI A17.1.

RULE 2.37 CAR DOORS OR GATES FOR POWER PASSENGER ELEVATORS

(a) Car doors or gates shall be provided with car door or gate electric contacts which shall protect each entrance of power passenger elevators; and shall be of the horizontally sliding type, and shall be arranged to guard the full width and height of the opening.

(b) Car gates of the scissors or pantograph type on automation operation elevators shall not be opened under power.

(c) Power closed doors or gates, in elevators employing a type of operation which does not require an operator in the car, shall be driven by a mechanism so designed and set that the force necessary to prevent the closing of the door or gate shall not exceed thirty (30) pounds, and further, that the car door or gate plus the hoistway door or gate, plus parts rigidly connected thereto shall not develop a kinetic energy in excess of seven (7) foot pounds computed for the average closing speed, or shall be provided with other protecting measures.

(d) For automatic operation, passenger elevators having automatically released, self-closing doors or gates, and manually closed or self-closing hoistway doors, the closing of the car door or gate shall be prevented unless the hoistway door is closed in a position to be locked.

(e) For automatic operation or continuous-pressure operation, the maximum clear space between the car doors or gates and the hoistway doors shall not exceed five (5) inches. Where this distance is exceeded the hoistway doors shall be altered to comply with Rule 2.20c.

(f) Collapsible Car Gates shall be constructed to reject a

three (3) inch ball, when the gates are in a extended position.

(g) Sliding car doors or gates shall be of solid construction. Vision panels shall be used where required. Clear wire glass, not less than one-quarter (l/4) inch thick shall be used for glass vision panels. The vision panel opening shall reject a six (6) inch ball, and shall not exceed one-hundred (l00) square inches in area.

RULE 2.38 CAR DOORS OR GATES FOR POWER FREIGHT ELEVATORS

(a) A car door or gate shall be provided at each entrance to a power freight elevator, and shall be equipped with an electric contact.

(b) Car doors or gates for power freight elevators shall be of the horizontally or vertically sliding type, shall guard the full width of the car opening and shall extend from within two (2) inches of, and at least six (6) feet above the car platform flooring.

(c) Collapsible Car Gates for power freight elevators shall reject a four and one-half (4 1/2) inch ball when the gates are fully extended.

(d) Sliding car doors or gates may be solid, or may be provided with glass or grille vision panels. Grilles, bars, or vision panels may extend the full height of the door or gate panel. Clear wire glass, not less than one-quarter (l/4) inch thick shall be used for glass vision panels. The vision panel opening shall reject a six (6) inch ball, and shall not exceed one-hundred (l00) square inches in area.

RULE 2.39 CAR DOOR OR GATE ELECTRIC CONTACTS

(a) Car door or gate electric contacts shall be arranged to prevent the starting of the car by the operating device unless the car door or gate is within two (2) inches of full closure. EXCEPTION: (1) The contact, when the car door or gate is opened, shall not prevent the movement of the car only within the leveling zone by the car leveling device.

(b) Car door or gate electric contacts shall be positively opened and the functioning of the contact to prevent the starting of the car shall not be solely dependent upon the action of a spring or springs nor upon gravity nor upon the closing of an electric circuit, and its interruption shall prevent the starting of the car by the operating device.

RULE 2.40 ELEVATOR CAR EMERGENCY EXIT

(a) Every elevator car shall be provided with a car top emergency exit.

(b) Top emergency exit openings, shall be not less than

sixteen (l6) inches by twenty-two (22) inches.

(c) Top emergency exits shall open outward and shall be hinged or otherwise attached to the car top and so arranged that the exit cover can be opened from the top of the car only.

EXCEPTION: Elevators required to meet seismic conditions must have emergency exits in compliance with ANSI A17.1-1993 Rule 2406.1.

(d) Side Emergency Exit Panels, where provided, shall be bolted in a closed position. Use of side emergency exits shall be prohibited.

(e) All emergency car exits shall be equipped with electric contacts to prevent the movement of the car if the exit door or panel is in the open position.

RULE 2.41 CAR LIGHTING

(a) Elevator car interiors shall be adequately illuminated at all times. Passenger elevator interior illumination shall be not less than five (5) foot candles. Freight elevator interior illumination shall be not less than two and one-half (2 1/2) foot candles. All elevators shall be provided with emergency lighting.

(b) Elevator lighting circuit switches shall be located in the car, and shall be operated by a key switch.

(c) The elevator car top exterior shall be equipped with adequate lighting.

(d) Every elevator shall be provided with a separate electrical circuit and approved disconnect switch in the machine room for each elevator car lighting circuit.

RULE 2.42 GLASS IN ELEVATOR CARS

(a) No piece of glass, unless laminated or clear wire glass not less than one-quarter (1/4) inch thick, and conforming to ANSI Z97.1 shall exceed one (1) square foot in area when located in the cab of the car.

RULE 2.43 TOE GUARDS FOR ELEVATOR CARS EQUIPPED WITH CAR LEVELING DEVICES OR INCHING DEVICES

(a) Elevator cars equipped with car leveling devices or inching devices that operate the car when the hoistway doors are open shall have the car platform provided with a toe guard extending a sufficient distance below the car platform so that no horizontal opening in the hoistway occurs when the car is moved by the car leveling devices or inching devices.

RULE 2.44 GUIDE SHOES

(a) When guide shoes or roller guides are excessively worn, they shall be replaced.

RULE 2.45 CLEARANCE BETWEEN CARS, COUNTERWEIGHTS AND SHAFTWAYS

(a) There shall be maintained a clearance of not less than three-quarter inch (3/4) between the sides of the car and the shaftway enclosure and not less than one inch (1") clearance between the car and its counterweights.

(b) There shall be maintained a clearance of not less than one-half inch (1/2") between car platforms and landing thresholds for elevators using steel guide rails with side-post construction, and three fourths inch (3/4") for elevators with wood guide rails or corner post construction. This clearance shall be maintained so as not to exceed one and one half inches (1 1/2").

(c) The clearance between the shaftway enclosure and the open edges of the car platform shall not exceed five (5) inches.

(D) Overhead Clearances

1) The distance between the top of the elevator car sling and any obstruction directly above it when the car floor is level with the top landing shall be equal to or be greater than the sum of the following.

a: The bottom counterweight runby,
b: The maximum stroke of the counterweight buffer,
c: Six inches (6").

2) The distance between the top of the counterweight and any obstruction directly above it when the car is level with the bottom landing shall be equal to or greater than the sum of the following:

a: The distance between the top of the buffer and its striker plate on the car,
b: The maximum stroke of the car buffer,
c: Six inches (6").

3) For cars traveling faster than 200 feet per minute, add this item to each of the above sums:

a: the stroke of the buffer corresponding to the governor tripping speed of the car, less

NOTE: This item may be omitted if provision is made to eliminate the jump of the car or counterweight if its top clearance is being considered, at buffer engagement.

(e) No structure or apparatus shall be installed either on the top of the car, or extending upwards above the top of the car, or extending downwards from the top of the hoistway which would reduce the overtravel clearances;

unless prior to installation an investigation is made and permission is given by the Department of Labor and Training.

RULE 2.46 SIGNAL SYSTEMS FOR POWER ELEVATORS

(a) Each power freight or passenger elevator, or each grouping of elevators shall be provided with a signal system by means of which signals can be given from any landing whenever an elevator is desired at this landing.

RULE 2.47 EMERGENCY SIGNAL

(a) Every elevator shall be equipped with an emergency signal that can be operated from within the elevator car with the signal clearly audible from outside the hoistway, at a designated location.

RULE 2.48 PLATFORM ELEVATORS

(a) No person shall ride a platform elevator.

(b) Platform elevators with a travel in excess of fifteen (15) feet shall meet all requirements of a freight elevator.

RULE 2.49 OPERATION AND CONTROL

(a) Power elevators operated mechanically by wire ropes, rods or any other devices shall have these operating devices made inaccessible from the outside of the hoistway, and be of a non-combustible material.

(b) Wheel or lever operating devices shall be provided with "up" and "down" position indicators on the operating device.

(c) Sheaves for wire hand ropes shall be equipped with guards to prevent the ropes from leaving the sheaves or the hand type cable tension shall be automatically maintained. Overhead tension weights for hand-ropes shall be secured by cables or chains fastened to the weights and to a suitable anchorage. Wire hand ropes shall be kept smooth, clean, free of oil or grease, and without projecting wires. Reversing switch shall be grounded.

(d) All car switch operating devices shall automatically return to the "stop" position when pressure is released.

(e) Elevators equipped with more than one (1) operating system shall have the operating systems interlocked to allow the use of only one operating system at a time.

(f) All elevators shall be provided with an emergency "stop" switch in the car, and this switch shall be of a type in which the contacts are mechanically opened and not solely spring opened.

(g) Defective contacts shall be replaced.

(h) No circuit breaker operated automatically by a fire alarm system shall render an elevator inoperative.

(i) Automatic operation elevators shall conform with the following: 1) If the car has started from a given landing, no impulse can be given to send the car in the reverse direction. EXCEPTION: Elevator cars equipped with firemens service. 2) The car can not be started by the operating devices unless the car door gate is closed and is equipped with a contact as provided in Rule 2.39a, and all hoistway doors are in a closed position and are equipped with interlocks.

(j) Continuous pressure operation shall not be used for passenger elevators unless they are provided with all the safety devices required for automatic operation.

(k) If an overload circuit breaker is used, the opening of the motor circuit and the opening of the brake circuit shall occur simultaneously.

(l) All electric elevators, except electro-hydraulic elevators shall be equipped with electrically released brakes.

(m) Electric elevators equipped with electric brakes and operated by hand ropes, levers, or wheel operating devices, shall be provided with car emergency switches, a car door or gate electric contact where required, door interlocks and have the operating and control circuits equipped with a sequence relay.

(1) All hand rope operated elevators shall be provided with a constant pressure switch which must be activated after the hand rope is operated to enable the elevator to be activated. This means of operation shall not override the sequence relay

(n) A pit switch and a crosshead switch shall be installed and connected in the emergency circuit. These switches shall be of a type in which the contacts are mechanically opened and not solely spring opened.

RULE 2.50 CAR AND COUNTERWEIGHT SAFETIES AND SPEED GOVERNORS

(a) Each elevator suspended by cables shall be equipped with a mechanically applied car safety (or safeties) located in a steel safety plank beneath the car capable of stopping and sustaining the car and its contract load.

(b) Private residence elevators, roped hydraulic, and limited use/application elevators may have broken rope actuated car safeties.

(c) All elevator cars regardless of speed which are suspended by cables shall have car safeties in conformity with Rule 2.50d, applied by speed governor

devices.

(d) Safety car devices shall be located in the safety plank beneath the car platform. Five (5) types of safeties are acceptable: (1) Type I (Instantaneous) which should be limited to a capacity speed not in excess of one hundred (100) f.p.m., but shall, on unaltered cars, be limited to a capacity speed not in excess of one hundred fifty (150) f.p.m. (2) Type W.C.(Wedge Clamp) with constant retarding force. (3) Type G.W.C.(Gradual Wedge Clamp) with gradually increasing retarding force. (4) Type F.G.C.(Flexible Guide Clamp) with constant retarding force. (5) Type C (combination instantaneous and oil buffer) rated speed shall not exceed 500 fpm and shall comply with the requirements of ANSI A17.1.

(e) Pawl type safeties applying to a rack guide rail are permitted only on hand freight elevators and only on power freight elevators where the capacity speed is not in excess of fifty (50) f.p.m. where also, the capacity is not in excess of two thousand (2,000) pounds; and where also, no person other than the operator is permitted to ride.

(f) Car safeties shall be kept well lubricated and operating freely.

(g) Car safeties shall be adjusted to operate simultaneously and the application of the safeties shall not cause the car platform to become out of level more than three-eights (3/8) inch per foot measured in any direction.

(h) Speed governors shall be set to apply either at not less than fifteen (l5) percent over capacity speed or at not more than forty (40) percent over capacity speed except that no speed governor shall be set to apply at less than one hundred seventy-five (l75) f.p.m.

(i) Car safeties shall be arranged to release by raising the elevator car however, when the car safeties are applied no decrease in the tension of the governor cable or motion of the car in the descending direction shall release the car safeties.

(j) Safety devices for stopping the car while ascending shall not be permitted, however, counterweight safeties, where required shall be installed to stop a descending counterweight.

(k) Governors shall be located where their full movement is unobstructed and nothing shall be stored or be permitted to remain near the governor which might interfere with their operation.

(l) Every car safety and its speed governor devices shall be tested in the presence of a State Elevator Inspector or an authorized inspector at least once every twelve (12) months that the elevator is in service. NOTES: (1) Broken rope type safeties shall be tested by obtaining a minimum of (5') of slack which will cause them to

function when the supports are abruptly removed. (2) Speed governor applied type safeties shall be applied at capacity speed by tripping the governor by hand. (3) Capacity safety load test is required once every five (5) years. (4) Each over speed governor shall be calibrated every five (5) years.

(m) Operating mechanisms of speed governors and car safeties shall not be painted and shall be maintained in proper working order.

(n) Where car safeties are required by these rules, traction type power elevators shall have cars which are equipped with governor operated safeties.

(o) Where governor mechanisms are replaced, they shall be tested and calibrated in the presence of a State Elevator Inspector.

RULE 2.51 DUMBWAITERS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING RULES:

(a) Rules: 2.1, 2.2, 2.5, 2.11a & b, 2.12, 2.13c & d & h, 2.17a, 2.22a & b, and 2.24c,d,f.

RULE 2.52 ESCALATORS

(a) Escalator balustrades shall be maintained in a smooth condition.

(b) Escalator treads, risers, combs and landings shall be kept smooth, the treads and landings shall afford a secure foothold and the combs shall set into the corrugation on the treads, with a maximum (3/l6") clearance.

(c) Escalator "stop" buttons, speed limit switches, starting switches, reversing switches, broken chain switches and any other safety switch shall be maintained continuously in proper operating order.

(d) Escalator machine spaces shall be equipped with adequate, permanent lighting, an access ladder, and also, there shall be an emergency stop switch located in all machine spaces and pits of all escalators and moving walks.

(e) Escalator motors, machinery and running gear shall be kept properly lubricated.

(f) Escalators shall be operated at a speed of not more than one hundred twenty-five (l25) feet per minute.

(g) Drip pans, undersides of steps, trusses and the interior of the escalator shall be free of dirt, debris oil and combustible material.

(h) Escalators shall be provided with caution and use signs, placed in a conspicuous location at each end

Rule 2.53 EXCEPTIONS AS STATED AT THE BEGINNING OF THIS SECTION II

This Section II of the Rhode Island State Code of Safety Standards shall govern existing elevators, escalators, and moving walks except the following:

(a) Manlifts within the scope of ANSI A90.1.

(b) Powered platform and equipment for exterior and interior building maintenance within the scope of ANSI A120.1.

(c) Cranes, derricks, hoists, hooks, jacks and slings within the scope of ANSI B30.

(d) Industrial Trucks within the scope of ANSI B56.

(e) Line jacks, false cars, shafters, moving platforms and similar equipment used for installing an elevator.

(f) Tiering or piling machines used to move material to and from storage located and operating entirely within one story.

(g) Equipment for feeding or positioning material at machine tools, printing presses, etc.

(h) Skip or furnace hoists.

(i) Wharf ramps.

(j) Amusement devices.

(k) Lift bridges.

(i) Railroad car lifts or dumpers.

(m) Mechanized parking garage equipment.

(n) Mine elevators not located in or adjacent to a building or structure.

(o) Material hoists within the scope of ANSI A10.5, which however, shall be covered by Section IV.

(p) Personnel hoists which, however, shall be governed by Section III

(q) Scissor lifts Subject to ANSI MH29.1 and dock leveling devices subject to ANSI MH30.1.

SECTION III

PERSONNEL HOISTS

Rule 1.0

(a) ASME/ ANSI - A10.4 shall govern the design,

construction, installation, operation, inspection, testing, maintenance, alterations and repair of structures and hoists which are not a permanent part of the buildings, and are installed inside or outside buildings and other structures during construction, alteration, demolition or other temporary usage and are used to raise and lower workers and other persons engaged in the project. The hoist may also be used for transportation of materials. These devices are subject to the provisions of Chapter 23-33 of the Rhode Island General Laws.

Rule 2.0

The following additions shall be part of the within Code:

(a) Installation of said devices shall be subject to the permit procedures required under the provisions of Rhode Island General Laws Section 23-33-17. Said devices are subject to the licensing provisions set forth in Rhode Island General Laws Sections 23-33-2.2 and 23-33-2.3. Said devices shall be erected, installed, repaired, maintained, serviced and/or operated only by persons licensed by the Division of Occupational Safety.

(b) Car Door & Gate Electric Contacts. Car doors and gates shall be provided with electric contacts to prevent the operation of the driving machine if the doors or gates are in the open position.

(c) Car top exit covers, when in the open position, shall prevent the operation of the drive machine at all times.

(d) Rack & Pinion drives shall be so affixed as to prevent the disengagement of the pinion from the rack.

(e) Manually operated drum and/or sheave machines are prohibited.

SECTION IV

MATERIAL HOISTS

Rule 1.0

(a) ANSI A10.5 shall govern the design, construction, installation, operation, inspection, testing, maintenance, alterations and repair of structures and hoists which are used to raise or lower materials during construction, alteration or demolition of a building. These devices may be installed inside or outside of a building or other structure. This section is not applicable to the temporary use of permanently installed passenger elevators as material hoists. These devices are subject to the provisions of Chapter 23-33 of the Rhode Island General Laws.

Rule 1.1

(a) Installation of these devices shall be subject to the permit procedures required under the provisions of Rhode Island General Laws Section 23-33-17. The devices are subject to the licensing provisions set forth within Rhode Island General Laws Sections 23-33-2.2 and 23-33-2.3. These devices shall be erected, installed, repaired, maintained, serviced and/or operated only by individuals licensed by the Division of Occupational Safety except where an Operating Engineer is required to operate only, the said device.

RULE 2.0

(a) All deletions and revisions refer to National Standard Rules contained within ANSI A10.5.

(1) DELETION:

(a) RULE 6.4 HOIST TOWER ENCLOSURES. Hoist towers may be used with or without an enclosure on all sides. However, whichever alternative is chosen, the applicable conditions in 6.4.1 through 6.4.3 shall be met.

(2) REVISION:

(a) HOIST TOWER ENCLOSURES. Hoist towers shall be enclosed on all sides in accordance with Rule 6.4.1.

(3) DELETION:

(a) RULE 6.5 HOISTWAY ENTRANCES. All entrances to hoistways shall be protected by substantial gates or bars, which shall guard the full width of the landing entrance.

(4) REVISION:

(a) HOISTWAY ENTRANCES. All entrances to hoistways shall be protected by substantial gates, which shall guard the full width of the landing entrance.

(5) DELETION:

(a) RULE 6.5.2 Bars shall be not less than 2x4 inch wooden bars or the equivalent and shall be located 2 feet from the hoistway line. Bars shall be located not less than 36 inches nor more than 42 inches above the floor.

SECTION V

WHEELCHAIR LIFTS / STAIRWAY CHAIRLIFTS

Rule 1.0

(a) All wheelchair lifts or stairway chairlifts installed in locations other than a private residence, shall be installed and maintained in

accordance with Part XX of the ANSI A17.1 Code.

Rule 1.1

(a) Each wheelchair lift installed within a public building shall be provided with a signal system by means of which signals can be given from any landing to summon assistance whenever operation of the conveyance is desired and the required key is not available.

Rule 1.2

(a) All wheelchair lifts or stairway chairlifts installed in or at a private residence shall be installed and maintained in accordance with Part XXI of the ANSI A17.1 Code.

SECTION VI

Vertical Reciprocating Conveyors

RULE 1.0

(a) ASME/ANSI-B20 shall govern permanently installed vertical reciprocating conveyors used strictly for the movement of material in or at a building and is not part of a continuous conveyor system. All personnel are expressly forbidden to ride on these units. In addition, the following shall apply.

Rule 1.1

(a) Vertical Reciprocating Conveyor hereinafter (VRC) means a non portable lifting device for material only which moves in fixed guides and serves two (2) or more fixed landings, traveling vertically or at an incline, with a load carrying unit furnished with flooring of a type which provides safe footing (platform) for a person to load or unload material for transport.

Rule 1.2

(a) The only permissible use of the VRC is as material width. It shall not carry an operator or any passengers. Each VRC shall have a metal plate securely attached to the hoistway doors at each landing stating in letters at least one half inch (1/2") in height: "Material Only - No Riders."

Rule 1.3

(a) All components of the VRC shall be maintained in a structurally sound, firmly secured, and satisfactory condition to perform safely the work which they are intended to do.

Rule 1.4

(a) All materials and methods used for construction and installation of these units shall comply with the requirements of the State Building Code and the State Fire Code.

Rule 1.5

(a) All electrical wiring and apparatus shall comply with the requirements of the State Building Code and the State Fire Code.

Rule 1.6

(a) Operation of a VRC shall only be from the outside of the hoistway with its controls located no less than four (4) feet from the hoistway door.

(b) All operating controls of the VRC shall be of the constant pressure type or, in the alternative, of the momentary pressure type so long as an emergency stop switch is incorporated with the operating control station at each landing serviced by the VRC.

(c) Each landing opening in the conveyor hoistway shall be equipped with a gate that is no less than six (6) feet in height and guards the full width of the landing opening. It shall at all times be equipped with a properly operating interlock to prevent movement of the carriage with a gate or door in the open position.

(d) Gates shall be mechanically locked by the interlock until the conveyor carriage is at the landing.

Rule 1.7

(a) Each cable or chain operated conveyor shall be equipped with a mechanically-applied safety device ("backstop device") attached to the carriage frame with a capacity for stopping and sustaining the carriage and the contract load in a reasonable level position.

(b) The "backstop device" shall be set for release by only raising the carriage.

Rule 1.8

(a) Hydraulically operated conveyors shall be equipped with a relief valve installed in such a way that it cannot be shut off. The relief valve shall be of sufficient size and located so as to pass the full capacity of the pump at full speed without exceeding the safe working pressure of the pump tank or piping. The machine relief valve shall be tested every three (3) years with the platform at the extreme limit of its overtravel. Pipe rupture valves shall be provided on all hydraulically operated conveyors.

(b) All packings used in connection with a hydraulic

conveyor shall be properly maintained to prevent any uncontrolled movement of the platform.

Rule 1.9

(a) No conveyors shall be installed above any space or work area capable of occupancy without prior approval by the Building Official, certifying that the floor or other structure under the hoistway is of sufficient strength to safely withstand the impact of the carriage with the contract load when dropped freely in the guides from the upper limit of overtravel.

Rule 1.10

(a) Normal terminal limit switches or stopping devices shall be provided on each VRC and shall be arranged to automatically stop the platform and to function independently of the operation devices.

(b) Final terminal limit switches or stopping devices shall be provided on all VRC's in addition to the normal terminal limits or stopping devices. They shall be arranged so that the operation devices shall automatically prevent movement of the car and stop the car's movement independently of the normal terminal limit switches or stopping devices.

Rule 1.11

(a) Deteriorated or damaged guide rails or guide shoes shall be replaced.

APPENDIX A

PERMITS FOR INSTALLATION AND/OR MODERNIZATION

RULE 1.0

(a) No elevator, escalator, dumbwaiter, moving walk or other device subject to the provisions of Chapter 22-33 of the Rhode Island General Laws shall be installed, constructed or modernized within the limits of this state without a permit issued by the Division of Occupational Safety, Elevator Unit.

(b) All applications for a permit to install, modernize or construct, shall include duplicate sets of data sheets and complete and accurate plans and/or drawings of the device, hoistways, machine rooms, landings and appurtenances. These plans shall also show the device location and machine room relation within the structure. All information as required by ANSI A17.1 shall be included within these plans. The use of "stock" or computer drawn plans shall be allowed provided that all required information is provided for each unit or device. A permit to install shall be issued when the above required plans and appropriate fee are submitted and approved. No person, firm or corporation shall

install, construct, modernize or relocate, or attempt to install, construct, modernize or relocate any device subject to the provisions of Chapter 23-33 of the Rhode Island General Laws without having first obtained this permit.

APPENDIX B

LICENSE REQUIREMENTS

RULE 1.0 COMPANY LICENSE:

(a) An annual license is required under the provisions of Rhode Island Section 23-33-2.2 for any business entity engaged in the construction, servicing, maintenance, modernization, removal or repair of any device subject to the provisions of this code or the provision of Chapter 23-33 of the Rhode General Laws. The annual initial and renewal fee for company licenses shall be $200.00.

RULE 2.0 REQUIREMENTS

The following conditions shall be met prior to the issuance of a company license:

(a) Registration with the Rhode Island Secretary of State indicating that the company does business within this State of Rhode Island;

(b) Shall register the name and business address of the individual owner with the names and business addresses of the corporate officers with the Rhode Island Department of Labor and Training;

(c) Shall register a list of the types of equipment installed, constructed, maintained, repaired, or serviced with the Rhode Island Department of Labor and Training;

(d) Register a list of any other current state or municipal licenses held and description of same with the Rhode Island Department of Labor and Training;

(e) Coverage by a liability insurance policy or self insurance in an amount not less than $500,000; proof of insurance or adequacy of self-insurance shall be filed at the time of initial license or renewal application;

(f) Licensure by all employees of said business entities as required by R.I.G.L. Section 23-33-2.3 and filing of said employees' names and license types and numbers with the Chief Elevator Inspector;

(g) For companies created after July 1, 1992 at least (1) owner or (1) corporate officer shall have a minimum of ten (10) years experience in the installation, construction, servicing, maintenance, modernization, removal or repair of any device subject to the provisions of this code or of Chapter 23-33 of the Rhode Island General Laws.

RULE 3.0 INDIVIDUAL LICENSES:

(a) An annual license is required under the provisions of Rhode Island General Laws Section 23-33-2.3 for any person employed in the installation, construction, maintenance, modernization, removal or repair of any device subject to the provisions of this Code or of Chapter 23-33 of the Rhode Island General Laws requirements for individual license.

RULE 4.0 REQUIREMENTS

The following conditions shall be met prior to the issuance of an individual license;

(a) Employment by a licensed company and licensed by the Division of Occupational Safety, and pass a written examination with a score of not less than 70%; filing all information, forms and payment of the appropriate fees for examinations, initial and annual renewal of licenses.

(b) A minimum of (3) years field experience as a helper/apprentice under supervision with a licensed mechanic prior to said examination.

(c) Direct and continuous supervision of all helpers/ apprentices;

(d) Annual registration of all helpers and/or apprentices with the Division of Occupational Safety for three (3) years; the fee of said registration shall be $25.00;

(e) All helpers and/or apprentices shall be examined after (3) years of such employment for additional licensure; the fee of said examination shall be $50.00;

(f) Licenses issued by any foreign licensing authority shall not authorize work on an elevator or other device subject to the provisions of this Code or Chapter 23-33 of the Rhode Island General Laws within the State of Rhode Island;

(g) Examinations for individual licenses shall be given every February, May, August and November on the first Tuesday of said months;

(h) Company licenses shall be subject to suspension or revocation after a hearing before the Director of Labor and Training, and upon a finding by a preponderance of the evidence that a licensee has violated the terms and provisions of within Rules and Regulations or the provisions of Chapter 23-33 of the Rhode Island General Laws. Individual Licenses may be suspended by the Chief until a hearing before the Director is held to determine if the suspension is to be lifted or the license is revoked.