DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

BUREAU OF CONSTRUCTION CODES

Filed with the secretary of state on

These rules become effective 90 days after filing with the secretary of state.

(By authority conferred on the director of the department of licensing and regulatory affairs by section 8 of the elevator safety board act, 1967 PA 227, MCL 408.808, section 3 of the elevator licensing act, 1976 PA 333, MCL 338.2153, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4 and 2011-4, 2017-1, MCL 445.2001, 445.2011, 445.2025, 445.2030, and 339.3102)

R of the Michigan Administrative Code is amended, R is added, and R is rescinded, of the Michigan Administrative Code, as follows:

MICHIGAN ELEVATOR CODE

R 408.501 Definitions.

Rule 501. (1) As used in these rules:

(a) "Barrier free lifting device" or "BFLD" means another lifting or lowering apparatus that is guided as provided in section 3 of the elevator safety board act, 1967 PA 227, MCL 408.803.

(b) "Belt manlift" means a power-driven endless belt that has steps and handholds and is used to transport persons in a vertical direction through successive floors or levels of a building or structure.

(c) "Department" means the department of licensing and regulatory affairs.

(d) "Electric powered, 1-person elevator" means an elevator that has a car platform area of not more than 5 square feet, a rated load of not more than 300 pounds, and a rated speed of not more than 100 feet per minute. It is for the exclusive use of certain designated operating and maintenance employees and is installed in any of the following structures:

(i) A grain or feed mill.

(ii) A chemical or alcohol distillery.

(iii) A cement storage tower.

(iv) A radio tower.

(v)A similar structure that is not accessible to the general public.

(e) "Elevator licensing act" means the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

(f) "Elevator safety board act" means the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824.

(g) "Examination" means a survey of the design and construction of elevators or elevator equipment by a dealer in elevators or elevator equipment or an approved insurance company.

(h) "Hand-powered, 1-person elevator" means an elevator that has a car platform area of not more

than 5 square feet, has a rated load of not more than 300 pounds, and is operated from the car only by pulling on a stationary rope that is located in the hoistway and passing through or adjacent to the car platform. The elevator is for the exclusive use of certain designated operating and maintenance employees and is installed in a grain or feed mill or a similar structure that is not accessible to the general public.

(i) “Immediate supervision “or “direct supervision” means the physical presence of an individual in the immediate area where access is allowed, or work is performed so that the individual may visually supervise all activities being performed.

(j) "Inspection" means the official determination by a general inspector of the condition of all parts of equipment on which the safe operation of an elevator depends.

(k) “Periodic maintenance” means a scheduled onsite visit in accordance with the requirements of the maintenance control program to perform a process of routine examination, lubrication, cleaning, and adjustment of parts, components, or subsystems for the purpose of ensuring proper performance pursuant to these rules.

(l) "Private residence elevator" means an elevating device installed in or at a private residence or installed in a building as a means of access to a private residence within such building, provided the elevator is installed so that it is not accessible to the general public or to other occupants in the building. The use is restricted to the owner and the owner's immediate family and nonpaying guests. All other elevating device installations must be classified as commercial.

(m) "Special elevating device" includes another lifting or lowering apparatus that is guided as provided in section 3 of the act of the elevator safety board act, 1967 PA 227, MCL 408.803.

(n) "Temporary inspection" means the inspection of a permanent elevator that is to be used on a temporary basis.

(2) Terms defined in adopted standards shall have the same meanings when used in these rules.

R 408.502 Scope.

Rule 502. These rules establish administrative and operational procedures for implementation of the elevator safety board act, 1967 PA 227, MCL 408.803 and the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160 and shall be known as the Michigan elevator code and establishes minimum safety requirements for inspection, design, construction, installation, alteration, maintenance, repair, operation and testing of elevators.

R 408.503 Applicability of national standards.

Rule 503. (1) The following standards are adopted by reference:

(a) The following standards are available from the American Society of Mechanical Engineers (ASME), 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-2900, https://www.asme.org, at a cost as of the time of adoption of these rules, as stated in this subdivision:

(i) ASME A17.1- 2022, “Safety Code for Elevators and Escalators,” except for sections, 1.2.1(b), 1.2.1(c), 2.5.1.5.3, 2.8.3.3.2, 2.8.6, 2.11.1.3, 2.11.1.4, 2.12.7.2.1(c), 2.12.7.2.2, 2.14.2.2(f), 2.14.2.6, 2.22.2, 2.27.11 to 2.27.11.6.10, 3.18.3.8.3, 3.19.5.2, 3.22.1.6, 5.3.1.15.3, 5.4.10.2, 5.12, 5.12.1, 5.12.1.1, 5.12.1.2, 5.12.1.3, 5.12.1.4, 5.12.2, 5.12.3, 8.6.1.7.1, 8.6.4.19.12 (b), 8.6.4.20.1(b), 8.6.4.20.1(b)(1), 8.6.4.20.1(b)(2), 8.6.4.20.3(a)(2), 8.6.4.20.3 (2)(b), 8.6.4.20.3 (g), 8.6.4.20.4 (b), 8.6.4.20.4 (b)(1), 8.6.4.20.4 (b)(2), 8.6.4.20.10(b), 8.6.4.20.10(b)(1), 8.6.4.20.10(b)(2), 8.6.5.8, 8.6.7.11 to 8.6.7.11.3, 8.6.7.12, 8.6.7.12.1, 8.6.7.12.2, 8.6.11.10 to 8.6.11.10.4, 8.7.2.14.5.2, 8.10.1.1.3, 8.10.1.2, 8.11.1.1, 8.11.1.1.1,

8.11.1.1.2, 8.11.5.14 to 8.11.5.16. Cost $310.00.

(ii) ASME A17.2- 2023, "Guide for Inspection of Elevators, Escalators, and Moving Walks,". Cost $265.00.

(iii) ASME A17.3-2017, "Safety Code for Existing Elevators and Escalators.," except for sections 1.3.1(c) to 1.3.1(e). per section 1.3 the department reserves the right to establish implementation timelines. Cost $195.00.

(iv) ASME A17.4 – 2015, "Guide for Emergency Personnel," Cost $38.00.

(v) ASME A17.6- 2022, "Standard for Elevator Suspension, Compensation, and Governor Systems.," except for sections 8.6.11.5 to 8.6.11.5.6. Cost $109.00.

(vi) ASME A18.1- 2023, "Safety Code Standard for Platform Lifts and Stairway Chairlifts," except for sections 2.1.2 to 2.1.2.8.7, 2.1.3 to 2.1.3.10.3, 3.10.2 to 3.10.2.4, 10.1.1.1,-10.1.3. Cost $125.00.

(vii) ASME A90.1-2023, "Safety Standard for Belt Manlifts." Cost $80.00.

(b) The following standards are available from the American National Standards Institute (ANSI) and the American Society of Safety Engineers (ASSE) at 1430 Broadway, New York, New York, 10018, ك https://www.ansi.org, at a cost as of the time of adoption of these rules, as stated in this subdivision:

(i) ANSI/ASSE A10.4-2016, "Safety Requirements for Personnel Hoist and Employee Elevators for Construction and Demolition and Operations," except for sections 24.1.2.1 and 26.4.8.1. Cost $125.00.

(ii) ANSI E1.42- 2023 edition, "Safety Standard for Entertainment Lifts," except for section 7.2.2.2. Cost $230.00.

(c) The American Society for Testing and Materials, (ASTM), ASTM F 714-2012, "Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter," 100 Bar Harbor Drive, 2 Conshohocken, Pennsylvania 19428-2959.Cost $69.00.

(d) All references to the National Fire Protection Association (NFPA) 70 mean the current Michigan electrical code. The Michigan electrical code is available for inspection at the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes 611 West Ottawa Street, Lansing, Michigan 48933, at a cost as of the time of adoption of these amendatory rules of $161.00.

(2) The standards adopted in this subrule are also available for inspection at the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes, at 611 West Ottawa Street, Lansing, Michigan 48933. Direction to order the book may be obtained from the bureau of construction codes website: www.michigan.gov/codebooks.The cost of the individual codes is noted in this subrule.

(3) The department may delay the implementation of any adopted standard provision to a future date through the publication of a compliance schedule on the department's website.

R 408.504 Registration of elevators.

Rule 504. (1) An elevator shall be registered by the certificate holder stating the location, type, capacity, name of manufacturer, and purpose for which it is used. Regardless of changes in ownership, the current certificate holder is responsible for submitting this information and updating this information. The certificate holder shall submit this information to the department in writing.ك

(2) Before transfer of ownership of an elevator is complete, the current certificate holder shall ensure that all invoices for inspections and certificates for services rendered under his or her

ownership are paid in full.

(3) Within 30 days of completion of transfer of ownership, the new owner of an elevator or the owner's elevator contractor shall notify the department on a form prescribed by the department of the change in ownership of an elevator or change in ownership of a location where an elevator is installed. Upon receipt of the ownership transfer form, a renewal certificate of operation must be issued in the name of the new owner. The renewal certificate will carry the expiration date of the certificate it is replacing.

(4) Failure to renew a certificate of operation within 30 days after the completion of transfer of ownership may subject the new elevator owner to the late renewal fee pursuant to R 408.517.

R 408.505 Certification of Operation, identification plates and tags.

Rule 505. (1) The director shall issue a certificate of operation for a capacity not to exceed the capacity named on the permit and in the acceptance inspection report.

(a) The certificate holder shall make the certificate of operation available to the public upon request.

(b) The certificate holder shall permanently attach an identification plate in an approved area or place or an engraving in the car operating panel, the type, the rated load, and the state-assigned serial number the elevator. The assignment of a serial number does not automatically make the unit safe for public operation. All units shall be inspected before use pursuant to R 408.509.

(2) One serial number tag must be furnished and permanently attached to the elevator machine controller.

(3) Identification plates shall be permanently affixed to the cab using rivets or tamper proof fasteners only. Plates shall be installed at a height not less than 60" and at height not to exceed 78" from the car floor on the same wall as the car operating panel. An engraving on the car panel shall be located within the same height requirements.

(4) Identification plates and tags are furnished by the department and remain the property of the department.

(5) A certificate of operation shall expire based upon the issuance date and required inspection under R 408.510.

(6) A certificate holder that fails to renew a certificate of operation within 60 days after the expiration date may be subject to the late renewal fee pursuant to R 408.517.

R 408.506 Incident reports.

Rule 506. The certificate holder shall notify the department within 48 hours of every incident requiring medical treatment for personal injury, or damage to the elevator that renders it unsafe or inoperable, on a form prescribed by the department. The department may inspect the elevator due to a reported incidents.

R 408.507 Responsibility for elevator operation and maintenance.

Rule 507. (1) Responsibility for the operation, maintenance, and testing of elevators is as follows:

(a) The installation or alteration permit holder is responsible for the operation and maintenance of an elevator until the certificate of operation is issued, except as provided for in R 408.511, and is responsible for all tests of new, repaired, relocated, and altered equipment until the certificate of operation is issued.

(b) The certificate holder is responsible for the safe operation and proper maintenance and repair

of the elevator; including, but not be limited to, all periodic inspections, maintenance, repairs, and tests by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, initiating the request for inspection and securing the renewal of the certificate of operation, including the timely compliance with violation notices.

(c) The elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, holding a temporary certificate of operation is responsible for the safe operation, maintenance, repair, replacement, testing, and fees of the elevator during the period that the temporary certificate is in force.

(2) Safety tests must be performed by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

R 408.508 Examinations by elevator and equipment dealers and insurance companies.

Rule 508. Nothing in the act shall prevent the examination of elevators by dealers in elevators or elevator equipment or an approved insurance company. Such examination shall not be considered an inspection within the provisions of the act.

R 408.509 New, altered, or relocated elevators; use.

Rule 509. (1) A new, altered, or relocated elevator shall not be placed into service unless it has been inspected, and tested in the presence of a general inspector, except as authorized by the department. Specific alterations as authorized by the department may be allowed to be returned to service, 1 time, for a period not to exceed 30 days, provided the following conditions are met:

(a) All fees are paid to the department, and the appropriate emergency permit has been issued.

(b) A final inspection is scheduled with a general inspector within 30 calendar days.

(c) A written request to return the elevator to service from the permit holder is received by the department, along with a copy of all required in-scope testing pursuant to the permit, performed by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

(2) Failure to complete the required final inspection within 30 calendar days may result in the elevator being sealed out of service and appropriate fees assessed.

(3) A condition pursuant to the installation, alteration, or relocation of the elevator not explicitly covered by code shall be reviewed and decided by the department.

(4) During the construction, installation, or alteration of an elevator, the permit holder shall restrict access to the elevator hoistway, machine room, control room, pit, or car top to individuals authorized under section 5 of the elevator licensing act, MCL 338.2155, and shall implement measures necessary to prevent entry by others. Failure to maintain the required access restrictions under this rule may result in enforcement action under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

R 408.510 Periodic inspections.

Rule 510. The certificate holder is responsible for renewing a certificate of operation by initiating the inspection process pursuant to the following schedule:

(a) Passenger, freight, inclined, limited-use or limited application, special purpose personnel, and rooftop elevators, permanent personnel hoists, material lifts, BFLD’s, escalators, moving walks, belt manlifts, and special elevating devices shall be inspected at least once every 12 months.

(b) Stage lifts, dumbwaiters, stairway chairlifts, 1-person elevators, hand-powered; 1-person elevators, electric-powered; platform lifts; and power sidewalk elevators shall be inspected at least

once every 24 months.

(c) Personnel hoists installed temporarily shall be inspected at least once every 90 days.

(d) Elevating devices in private residences shall be inspected upon installation. Further inspections are at the discretion of the department.

(e) Private residence inclined elevators installed under the requirements of the act for use by multiple residences shall be inspected at least once every 24 months.

(f) A certificate of operation can only be issued after the required service, testing, and maintenance has been completed under R 408.523, all required fees have been paid, and a compliant inspection has been recorded by a general elevator inspector.

R 408.511 Temporary use of permanent elevators during construction.

Rule 511. (1) An elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, may request a temporary certificate of operation to permit the use of a passenger or freight elevator before its completion. The passenger or freight elevator must not be used until it has been approved by a general inspector, the required fee has been paid, and a temporary certificate of operation has been obtained. This certificate must be issued for a period not to exceed 90 calendar days. Renewals under this subrule may be granted at the discretion of the department as follows:

(a) Permanent passenger or freight elevators used temporarily during construction to move workers, authorized personnel, and materials must have maintenance performed every 30 calendar days by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160. These elevators must be inspected by a general inspector employed by the department every 90 calendar days.

(b) Periodic inspections may be conducted by a general inspector every 30 calendar days. The fees are cited in R 408.517 and may be assessed at the discretion of the department based upon the frequencies in this rule.

(2) An elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, may also request an inspection and temporary certificate of operation to allow the use of a passenger or freight elevator by the public before its completion. This elevator must not be used until it is inspected by a general inspector; the required fee, listed in R 408.517, is paid; and a temporary certificate of operation is issued by the department to the elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824. The certificate must be issued for a period not to exceed 90 calendar days. Renewals under this subrule may be granted at the discretion of the department as follows:

(a) Permanent passenger or freight elevators used temporarily by the public must have maintenance performed by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, every 30 calendar days.

(b) Periodic inspections may be conducted by a general inspector every 30 calendar days and the appropriate fees assessed at the discretion of the department.

R 408.512 Personnel hoists used during the construction or demolition of a building.

Rule 512. An elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, may request a certificate of operation to allow the temporary use of a personnel hoist used during the construction or demolition of a building. The hoist must not be used until it has been approved by a general inspector, the required fee has been paid, and a temporary certificate of operation has been obtained. This certificate must be issued for a period

not to exceed 90 calendar days. Renewals under this subrule may be granted at the discretion of the department as follows:

(a) A personnel hoist used temporarily during construction or demolition to move workers, or authorized personnel, or materials must have maintenance performed every 30 calendar days by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160. These elevators must be inspected by a general inspector employed by the department every 90 calendar days.

(b) Periodic inspections may be conducted by a general inspector every 30 calendar days at the discretion of the department, and fees cited in accordance with rule R 408.517 may be assessed based upon the frequencies in this rule.

R 408.513 Sealing out of service.; revocation of a certificate of operation void.

Rule 513. (1) After a thorough onsite inspection, the department may seal an elevator out of service until conditions are remedied, after notification to the certificate holder. The department may only initiate this action for conditions as provided in section 19 of the elevator safety board act, 1967 PA 227, MCL 408.819 or any of the following conditions:

(a) The certificate holder fails to report an accident incident as required by these rules.

(b) The elevator has been constructed, installed, altered, maintained, or repaired by a person, firm, or corporation not approved licensed by the department.

(2) After notice and opportunity for a hearing, the department may revoke a certificate of operation for an elevator that has been sealed out of service.

R 408.514 Inspection reports.

Rule 514. (1) A general inspector shall provide a report to the department of each inspection stating the condition of the elevator within 2 business days of the inspection.

(2) The director shall issue a certificate of operation for a capacity not to exceed the capacity named in the inspection report.

R 408.515 Violation notices.

Rule 515. If the certificate holder has not repeatedly complied with these rules, then the general inspector shall issue to the certificate holder a high violation notice stating corrections required and a time limit within which the certificate holder must comply with the violation notice. The certificate holder shall notify the department in writing as soon as they have complied with the corrections stated in the violation notice and full compliance is affected.

R 408.516 Special elevating devices.

Rule 516. (1) Special elevating devices within the scope of the act shall meet the requirements established by the department and rules promulgated.

(2) The devices specified in subrule (1) of this rule shall receive special consideration from the department as to the safety features incorporated into them before they may be approved for installation. A permit to install a special elevating device shall be obtained from the department in accordance with section 15 of the elevator safety board act, 1967 PA 227, MCL 408.815.

R 408.517 Fees.

Rule 517. (1) All fees are subject to a 3% increase per annum at the discretion of the department. All fee amounts are in effect as of the effective date of these rules and are

approved for 1 calendar year. After this first calendar year, the department must issue and enforce an updated fee schedule each calendar year. Fees must be paid in accordance with the following schedule:

Installation permits fees

Application fee all devices (nontransferable and nonrefundable) .....$100.00.
Installation permit extension fee.....$500.00.
Base permit fee for the following devices: ..... $300.00.
Passenger elevator
Freight elevator
Inclined elevator
Limited-use/limited application elevator
Private residence elevator
Private residence inclined elevator
Special purpose personnel elevator
Stagelifts
Dumbwaiter
Material lift
Power sidewalk elevator
Rooftop elevator
Belt manlift
Special elevating device
Personnel hoist

For these installations, an additional amount of $50.00 is charged for each hoistway opening or for each floor traveled without a hoistway opening, or both.

Base permit fee: escalators and moving walks .....$360.00.
Base permit fee: private residence platform lift and private residence stairway chairlift..... $250.00.
Base permit fee: platform lift and stairway chairlift.....$100.00.

Alteration, replacement, and dormant elevator permit fees

Application fee: all devices, excluding emergency permits, nontransferable and nonrefundable$100.00.
Alteration permit extension…..……$250.00.
Alteration personnel hoist..... $150.00.
For the specified alteration fees, an additional amount is charged for each additional alteration and or personnel hoist tower rise at $75.00.
Dormant elevator ..... $100.00.
For alterations, replacements, excluding personnel hoist, and dormant elevators, an additional amount of $25.00 is charged for each hoistway opening or for each floor traveled without a hoistway opening, or both.
Emergency permit fee, maximum 2 items and not applicable for installations. $500.00.

Certificate of operation

Biennial and annual certificate of operation ..……$60.00.
Temporary certificate of operation … .....……$250.00.
Late renewal fee ….....……$100.00.

Inspection by general inspector

Biennial inspection for devices complying with R 408.510.....$125.00.

Annual and biennial inspection for all other devices.....$175.00.

The items listed under "Inspection by general inspector" also have an additional amount of $25.00 that will be charged for each hoistway opening or for each floor traveled without a hoistway opening, or both.

Temporary certificate of operation inspection.....$200.00.

The temporary certificate of operation inspection has an additional amount of $35.00 that will be charged for each hoistway opening or for each floor traveled without a hoistway opening, or both.

Reinspection or violation notice follow-up for all other devices .....……$125.00.
Reinspection or violation notice follow-up for all other devices… .....……$175.00.
Reinspection or violation notice follow-up for all other devices… .....……$175.00.

Appeals
Nonrefundable fee ….....……$250.00.

Variance Request
Nonrefundable fee ….....……$200.00.

Product Acknowledgment Review
Product acknowledgment application fee … ……$150.00.

(2) A final inspection fee is included in the installation and alteration permit fee. If a scheduled final inspection is canceled without 24 hours' notice to the department, or if the elevator is not complete in the judgment of the general inspector, then an additional fee must be charged to the elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, as follows:

(a) $450.00 for private residence elevator, dumbwaiter, platform lift, or stairway chairlift.

(b) $750.00 for all other devices.

(3) An issued installation permit shall be valid for a period of 3 years from the issuance date. A permit extension may be granted when an extension letter is received by the department, and the appropriate extension fee has been paid to the department.

(4). An issued alteration permit shall be valid for a period of 1 year from the issuance

date. An extension may be granted when an extension letter is received by the department, and the appropriate extension fee has been paid to the department.

(5) It is a condition to obtain a permit, temporary car, or overtime request that all fees and fines owed to the department are paid, including but not limited to, current and previous permit fees, inspection fees, plan review fees, and administrative fines.

(6) Permit applications may be placed on hold or denied if the applicant has unpaid fees or fines.

(7) The department may provide, upon written request, special services that are not otherwise covered in the fee structure. The charge for this service is $165.00 per hour including travel time, overnight accommodations, or special traveling needs, such as flights, if required.

(8) A rate of $100.00 per hour may be charged for product acknowledgment review. The total charges are determined on an hourly basis for the review upon completion. An acknowledgement may not be granted until full payment of these services has been received.

R 408.518 Violations; penalties.

Rule 518. A person, firm, or corporation who shall refuse to comply with, or who shall assist in the violation of the provisions of these rules, or who, hinders, obstructs, resists, prevents, causes unreasonable delay, or interferes with the inspectors in the performance of duty herein imposed, or shall refuse to permit such inspectors to perform their duty by refusing them entrance at reasonable hours to buildings or places for the purpose of enforcement of these rules, shall be subject to the fines and penalties as provided by the act.

R 408.519 Appeals.

Rule 519. An elevator contractor, or elevator journeyperson licensed under this act, or a certificate holder, or person aggrieved by a decision of the department, may file an appeal. The appeal must be filed on a form prescribed by the department within 30 calendar days of the decision. An appeal must specify the reasons and the relief sought. As prescribed in R 408.517, a nonrefundable fee must be made to the department at the time the appeal is filed.

R 408.520 Variance requests and appeals.

Rule 520. (1) An elevator contractor, an elevator journeyperson licensed under this act, a certificate holder, or a person aggrieved by a decision of the department, may request a variation of the requirements of the rules when it is clearly evident that exceptions or variations are necessary to prevent undue hardship or when existing conditions prevent compliance with the requirements of the act and these rules. The request must be on a form prescribed by the department. A person, firm, or corporation shall specify on the form the reasons for the variance and the relief sought. The form must be submitted to the department for review.

(2) As prescribed in R 408.517 a nonrefundable fee must be paid to the department at the time the variance request is filed.

R 408.521 Product acknowledgement.

Rule 521. (1) All elevating devices, equipment, systems, subsystems, components, and functions must be reviewed for compliance with the current elevator requirements and approved by the department before use in this state. An initial nonrefundable application fee

must be made to the department at the time of application as prescribed in R 408.517.

(2) All product acknowledgement requests must be made in writing to the department and accompanied by a compliance document that reflects compliance with the corresponding requirements and supporting documents, including, but not limited to, make, model, and wiring diagram; factor of safety calculations; certifications; drawings detailing top, side, front, and orthographic views of equipment, including detailed documentation specific to affected systems, parts, assemblies and devices; and other information the department finds necessary for the specific review.

(3) A letter on the manufacturer's letterhead, signed by an engineer who is employed by the manufacturer, must accompany the documentation. The letter must state that when installed per manufacturer specifications, the unit will comply with the applicable standards or codes, or both, that are adopted by reference in R 408.503. Equipment not covered by codes and standards in accordance with R 408.503 must not be installed until approved in accordance with this rule.

R 408.522 Applicability of rules and manual.

Rule 522. Elevators that were installed before the effective date of this code edition must comply with this state's elevator laws and rules in effect at the time of installation. The alteration of elevators installed before the effective date of this code must comply with the state's elevator laws and rules in effect at the time of alteration. All other approved existing features or components of the elevator must comply with these rules and be maintained as described in section 8.6 of ASME A17.1 and comply with the requirements of ASME A17.3, "Safety Code for Existing Elevators and Escalators," which is adopted by reference in R 408.503.

R 408.523 Maintenance of power elevators; frequency; exceptions.

Rule 523. (1) The certificate holder for a power elevator, except a private residence elevator, private residence inclined elevator, private residence platform lift, or private residence stairway chairlift, must have service and maintenance performed be maintained at least once every 90 days by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, except for the following devices, which must be service and maintained at least once every 180 days:

(a) Dumbwaiters.

(b) One-person elevators, electric and hand powered.

(c) Stage lifts.

(d) Platform lifts and stairway chairlifts in buildings other than private residences.

(e) BFLD.

(f) Private residences inclined elevators installed under the requirements of the act for use by multiple residences.

(2) An ongoing written record of all maintenance, repairs, replacements, inspection, callbacks, and testing must be kept in the machine room or on-site if a machine room does not exist.

(3) Maintenance logs for alterations, repairs, replacements, periodic maintenance, call backs and testing shall include the following information in clear legible print:

(a) Time and date of work performed.

(b) Name of company performing work.

(c) Name of an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, 338.2151 to 338.2160, performing work.

(d) Michigan license number of journeyperson performing work.

(e) Signature of elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, performing work.

(4) Maintenance control programs of a machine room less elevators shall be kept onsite in an area accessible to all elevator personnel, other than the car top or pit. Instructions for locating the maintenance control program shall be posted on or immediately adjacent to the entrance frame that houses the controller.

CHAPTER 2. ALL ELEVATORS

R 408.524 Disconnecting means for new and altered elevators.

Rule 524. (1) The disconnecting means for all elevators and escalators that have 208 volts alternating current (VAC) nominal, shall be a heavy-duty type means and feature a dual cover interlock or a circuit breaker capable of being locked in the open position.

(2) Disconnecting means shall provide a dedicated grounding conductor.

R 408.525 Elevators operated from car only.

Rule 525. All existing or new elevators operated from the car only shall be provided with an approved means of opening the landing door, from the landing side, when the car is in the unlocking zone.

R 408.526 Buffers and bumpers.

Rule 526. Buffers of the spring, oil, elastomeric or equivalent type shall be installed under cars and counterweights of all elevators. Bumpers or solid stops are prohibited.

R 408.527 Dormant elevators.

Rule 527. (1) An elevator, escalator, or moving walk that is inactive for 1 year must be classified as dormant and placed out of service in compliance with section 8.11.1.4(b) of the ASME A17.1 code.

(2) A permit must be obtained, and the elevator inspected by a general inspector to ensure conformance to these rules. The unit serial shall be updated to reflect a dormant status.

(3) Power feed lines to disconnects of all elevators that are made dormant shall be de-energized.

(4) A platform lift or stairway chairlift that is inactive for 1 year must be classified as dormant and placed out of service as follows:

(a) The device must be lowered and a suspension means removed.

(b) The power feed lines must be disconnected from the machine disconnect switch ensuring all circuit parts or conductors are deenergized. The platform lift or stairway chairlift must comply with section 10.1.6 of the ASME A18.1 code, as adopted by reference in R 408.503.

(c) All landing entrances must be secured in a closed position from inside the runway or hoistway.

(d) Folding type devices must be secured against movement.

(5) Before a dormant elevating device may be placed in service, an alteration permit must be applied for and approved by the department. The dormant elevating device must be inspected by

the department and conform to these rules and the applicable section of the standard.

R 408.528 Elevator and escalator remote monitoring, interaction, testing.

Rule 528. (1) All elevators and escalators may be monitored from a remote location. Monitoring must consist of passing information from the elevator control to a remote location for the collection of information. Any information collected must be made available to the department upon request.

(2) Remote devices or operation shall not have the capability to adjust, alter, change, or reset any switch, parameter, or system of the elevator control from any location except the corresponding car, hoistway, machine room, lobby panel, or fire command center. A system related to the operation of an elevator or escalator that interfaces and communicates with the device and any other device must also comply with this rule.

(3) Remote testing shall be limited to tests that are initiated by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, onsite and in view of the device being tested for the entirety of the tests being performed.

(4) Remote connections found to be in violation of the above requirements must be removed and prohibited from future use.

R 408.529 Existing BFLD's.

Rule 529. Existing BFLD's shall comply with the ASME A17.3, except for sections 3.10.12, and 3.11.3. Emergency communication means shall be of an ADA compliant device that complies with the requirements of ASME A17.1 code sections 2.27.1.1.1, 2.27.1.1.2, and 2.27.1.1.5 only.

R 408.530 Automated equipment utilizing elevator.

Rule 530. (1) Not more than 1 elevator in a bank may be occupied by an automated device at any 1 time. If a single elevator, in a bank of two or more is selected due to normal power supply loss, automated devices may not utilize that car. General public passenger cars may not be used to transport automated devices.

(2) A maintenance program for devices must be instituted by the certificate holder and be available to the requestor upon request.

(3) Devices that utilize multiple carts must be tested annually with all possible variations of carts. Records must be kept onsite and be available to the requestor upon request.

(4) All circuitry and controllers must be kept out of elevator machine rooms and control spaces.

(5) Proper signage must be posted at each elevator connected to the automated devices. Signs must include both of the following language:

(a) Do not enter or use elevator if automated carts are entering, exiting, or on the car.

(b) Service elevator interfaced with automated carts, "Stand clear!"

(6) Any interfacing must comply with R 408.528.

CHAPTER 3. ASME A17.1 MODIFICATIONS

R 408.531 Guards between adjacent pits.

Rule 531. Section 2.2.3 of the ASME A17.1 code is amended to read as follows:

(a) 2.2.3.1 Guards must be provided between adjacent pits. The guard must be of noncombustible material. The guard, if of openwork material, must reject a ball 25 mm (1 inch) in diameter. The

guard must be supported such that when subjected to a force of 450 N (100 lbf) applied over an area of 100 mm by 100 mm (4 inches by 4 inches) at any location, the deflection must not reduce the clearance between the guard and the adjacent pit below 25 mm (1 inch). Guards must extend not less than 2000 mm (79 inches) above the level of the higher pit floor. Where a ladder is installed adjacent to a guard, the guard must extend not less than 2000 mm (79 inches) above the top rung or rungs used as handgrips. A single horizontal structural element at the top of a pit ladder, used to stabilize the vertical side rails, is not considered a rung or handgrip.

(b) 2.2.3.2 Where access to pits of elevators in a multiple hoistway is by means of a separate pit access door (see 2.2.4.5) and not by a pit access ladder, adjacent pits must:

(c) Be guarded as required by 2.2.3.1.

(d) The guards may be omitted if the clearance between the bottom of the car or counterweight, including any equipment attached thereto, while resting on a fully compressed buffer and the bottom of the pit is not less than 2,130 mm (84 inches)

R 408.532 Machinery space, machine rooms, control spaces, and control rooms.

Rule 532. Section 2.7 of the ASME A17.1 code is amended to read as follows:

2.7. A machinery space outside the hoistway containing an electric driving machine and an elevator controller shall be a machine room. The electric driving machine shall be located in a machinery space within the elevator hoistway or outside the hoistway in an elevator machine room.

R 408.533 Drains and sump pumps.

Rule 533. Section 2.2.2.4 of the ASME A17.1 code is amended to read as follows:

2.2.2.4 Drains and sump pumps, where provided, shall comply with the Michigan plumbing code, R 408.40701 et seq. and shall be provided with a positive means to prevent water, gases, and odors from entering the hoistway. Subsoil drains shall not be connected or discharged to elevator pits or sumps.

R 408.534 Sumps and sump pumps.

Rule 534. Section 2.2.2.6 of ASME A17.1 is amended to read as follows:

Sumps and sump pumps in pits, where provided, must be covered. Covers must be secured and level with the pit floor and be either a recessed grate type or solid. If solid, it must have means to permit water flow to comply with section 2.2.2.5 of ASME 17.1.

Surface mounted pumps shall;

Be clearly marked as a tripping hazard and shall comply with applicable sump pump electrical, mechanical and plumbing requirements.

Be securely mounted and guarded against the intake of foreign debris. Pans and grating shall be allowed pursuant to flow requirements.

Not be allowed in pits of a hydraulic machine unless an oil or water separator capable of containing the hydraulic system capacity is present.

R 408.535 Enclosure of machine rooms and machinery spaces.

Rule 535. Section 2.7.1 of the ASME A17.1 code is amended to read as follows:

2.7.1. Machines, control equipment, sheaves, and other machinery may not be exposed to the weather. Machine room, control room, and machinery-space enclosures must conform to section 2.7.1.1 or 2.7.1.2 and also conform to 2.7.1.3 of the ASME A17.1 code, as applicable.

Machine rooms and control rooms must be located at a hoistway landing associated with the equipment within the room. Elevator machine and control rooms may be located overhead, adjacent to, underneath the hoistway, or at a remote location. The entrance to the machine room or control room may be not more than 25 feet, clear unobstructed walking pathway from the elevator hoistway door. The distance from the machine room door to the hoistway door may be over 25 feet when the machine room is located directly above the hoistway in a conventional layout. Pit and hoistway access doors may not be a direct access between a hoistway enclosure and machine room or control room.

Elevators installed without a machine room or control room must locate the required disconnecting means outside of the hoistway in a separate dedicated control space that is readily accessible and adjacent to the control space that contains the control.

All entrances to machine rooms, control rooms, pits and hoistways shall be clearly marked, "Elevator Machine/Control Room Authorized personnel only." Letters shall be a minimum of 1 inch in height.

The disconnecting means must be in a single dedicated space or dedicated room, intended with or without full body entry, at a distance not to exceed 25 feet from the landing that contains the elevator control, inspection, or test panel. The disconnecting means must be secured so that only an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, and qualified personnel may gain access. If the controller is within an entrance assembly, signage must be placed at or near the frame with the specific location of the disconnecting means.

Access to machine rooms, control rooms, machine spaces, or control spaces may not be through restrooms, lavatories, locker rooms, or associated vestibules. Where enclosed ceilings are required or provided, they must be of a solid type with no access panels. Drop type ceilings are not permitted. Machine rooms, control rooms, machinery spaces, and control spaces may not be used as a pass through or for access to other areas. Building access panels or doors are prohibited in these areas.

R 408.536 Working areas in the car or on the car top.

Rule 536. Section 2.7.5.1.1 of the ASME A17.1 code is amended to read as follows:

2.7.5.1.1 If maintenance or inspection of the elevator driving-machine, driving-machine brake, emergency brake, or of elevator motion controllers or motor controller is from inside the car or from the car top, a means to prevent unintended movement shall be provided.

R 408.537 Location of equipment.

Rule 537. Section 2.7.6.3.2 of the ASME A 17.1 code is amended to read as follows:

2.7.6.3.2 The motor controller must be located in a machinery space within the hoistway, a machine room, ~~or~~ control room or control space. A motor controller may not be located outside the specified rooms or spaces. Regardless of location, temperature and humidity requirements shall be maintained by natural or mechanical means. Illumination of 19 foot candles, must be provided where controller work is to be performed.

R 408.538 Illumination of cars and lighting fixtures.

Rule 538. Section 2.14.7.1.4 of ASME A17.1 is amended to read as follows:

2.14.7.1.4 Each elevator must be provided with at least 2 electric light fixtures and a ground fault circuit interrupter duplex receptable on the car top. The 2 light fixtures combined must provide an

illumination level of not less than 10 foot candles at any point on the car top. The light fixtures must be permanent and be of the fixed or portable type and be equipped with guards.

R 408.539 Overloading of freight elevators.

Rule 539. Section 2.16.6 of the ASME A17.1 code is amended to read as follows:

2.16.6 Freight elevators shall not be loaded in excess of their rated load as specified on the capacity plate required by section 2.16.3 of the ASME A17.1 code.

Exceptions:

(a) Static loads on elevators loaded and unloaded by industrial trucks as noted on capacity or separate plate shall comply with sections 2.16.2.2.3 and 2.16.3.2.1(b) of the ASME A17.1 code.

(b) Elevators designed and installed in compliance with section 2.16.7 of the ASME A17.1 code to carry 1-piece loads exceeding their rated load.

If the department determines that safe operation requires it, a load-weighing device shall be installed. The load weighing device shall prevent operation of the elevator in the down direction only when the load on the platform is in excess of 125% of the rated load as determined by the requirements of section 2.16.3 of the ASME A17.1 code. Such devices shall prevent operation of the elevator in the up direction when the load on the car is in excess of the rated load.

R 408.540 Emergency or standby power.

Rule 540. Section 2.27.2.1 of ASME A17.1 code is amended to read as follows:

2.27.2.1 The emergency or standby power shall be capable of operating the elevators with rated load (see 2.16.8), at least one at a time, unless otherwise required by the building code. Emergency or standby power shall also be capable of operating;

(a) Machine, mechanical, and control room lighting, heating and cooling devices, and service receptacles.

(b) Pit and hoistway lighting, heating and cooling devices, sump pumps, and service receptacles.

(c) Fire alarm initiating devices and monitoring panel specific to the elevator and the functionality of fireman’s service phase 1.

R 408.541 Phase I emergency recall operation.

Rule 541. Section 2.27.3.1.5 of the ASME A17.1 code is amended to read as follows:

All “FIRE RECALL” switches must be provided with an illuminated visual signal. The visual signal must be 1 of the symbols shown in Fig.2.27.3.1.6(h) to indicate when Phase I Emergency Recall Operation is in effect.

R 408.542 Machinery spaces, machine rooms, control spaces, and control rooms.

Rule 542. Sections 3.7 and 3.7.1 of the ASME A17.1 code is amended to read as follows:

3.7. A machinery space outside the hoistway containing a hydraulic machine and an elevator controller must be a machine room. The hydraulic machine must be located in the hoistway or outside the hoistway in an elevator machine room. Hydraulic machines being installed in the line of movement of an elevator car or where an affected person is required to perform maintenance, repairs, replacements, adjusting, inspection, or testing on the hydraulic machine in the line of movement of an elevator car must be prohibited. The elevator controller must be accessible only from a machine room, control room, or hoistway.

3.7.1. Hydraulic machines, control equipment, sheaves, and other machinery may not be exposed to the weather. Machine room, control room, and machinery-space enclosures must conform to the

requirements of sections 2.7.1 to 2.7.7 and 2.7.9 of the ASME A17.1 code and the following:

Machine rooms and control rooms must be located at a hoistway landing associated with the equipment within the room. Elevator machine and control rooms may be located overhead, adjacent to, underneath the hoistway, or at a remote location. The entrance to the machine room or control room must be not more than 25 feet, clear unobstructed walking pathway from the elevator hoistway door. The distance from the machine room door to the hoistway door may be over 25 feet when the machine room is located directly above the hoistway in a conventional layout. Pit and hoistway access doors may not be for direct access between a hoistway enclosure and machine room or control room. Regardless of location, illumination of 19 fc (foot candles), meaning foot candles, must be provided where controller and machinery work is to be performed.

All entrances to machine rooms, control rooms, pits and hoistways shall be clearly marked, "Elevator Machine/Control Room Authorized personnel only." Letters shall be a minimum of 1 inch in height.

Elevators installed without a machine room or control room must locate the required disconnecting means outside of the hoistway in a separate dedicated control space, readily accessible and adjacent to the control space that contains the control.

The disconnecting means must be in a single dedicated space or dedicated room, intended with or without full body entry, at a distance not to exceed 25 feet from the landing that contains the elevator control, inspection, or test panel. The disconnecting means must be secured so that only an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, and qualified personnel may gain access. If the controller is within an entrance assembly, signage must be placed in plain view, at or near the controller, and state the location of the disconnecting means.

Access to machine rooms, control rooms, machine spaces, or control spaces may not be through restrooms, lavatories, locker rooms, or associated vestibules. Where enclosed ceilings are required or provided, they must be of a solid type with no access panels. Drop type ceilings are not permitted. Machine rooms, control rooms, machinery spaces, and control spaces may not be used as a pass through or for access to other areas. Building access panels or doors are prohibited in these areas.

R 408.543 Fire extinguishers.

Rule 543. Section 8.6.1.6.5 of ASME A17.1 is amended to read as follows: In jurisdictions not enforcing the National Building Code of Canada, Class "ABC" fire extinguishers must be provided in elevator machine rooms, control rooms, and control spaces outside the hoistway intended for full bodily entry, and walk-in machinery spaces and control rooms for escalators and moving walks; and they must be located convenient to the access door.

For machine-room-less (MRL) installations, Class "ABC" fire extinguishers must be conspicuously located where they are readily accessible outside of the elevator hoistway within 21 feet (6.4m) of the centerline of each elevator entrance associated with the controller. In the event of side or rear elevator entrance assemblies a Class "ABC" fire extinguisher must be conspicuously located in accordance with this rule.

R 408.544 Car safeties.

Rule 544. Section 3.17.1 of the ASME A17.1 code is amended to read as follows: 3.17.1 Car safeties shall be provided for roped-hydraulic elevators and shall be permitted to be provided for direct-acting hydraulic elevators.

When provided, car safeties shall comply with section 2.17 and sections 3.17.1.1 to 3.17.1.3 of the ASME A17.1 code.

Car safeties shall be installed if the department determines they are necessary for safe operation.

R 408.545 Cylinder protection.

Rule 545. Section 3.18.3.8.1 of the ASME A17.1 code is amended to read as follows:

3.18.3.8.1 Cylinders not completely exposed above ground shall be monitored by an approved means and protected from corrosion due to galvanic or electrolytic action, salt water, or other underground conditions. An outer protective cylinder casing of high-density polyethylene (HDPE) or poly vinyl chloride (PVC) is required on a new hydraulic elevator or where a cylinder is being replaced. PVC protective casings shall be a minimum of schedule 40 and comply with ASTM D 2667, HDPE casings shall be a minimum of DR 32.5 and comply with ASTM F 714. The bottom of the protective casing shall be sealed with a cap of the same material and schedule, and shall be properly installed, and water removed.

Where the cylinder is being replaced and an existing casing will allow, a jack liner or other approved cylinder protection system may be used.

The casing and monitoring system shall be installed by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160. The company installing the cylinder and monitoring system shall provide to the owner the specific monitoring procedures and log. A copy of the monitoring procedure and log shall be maintained in the elevator machine room. At any time, it is determined the HDPE or PVC protective casing is damaged or leaking, it shall be removed and replaced.

R 408.546 Cylinders buried in the ground

Rule 546. Section 3.18.3.8.2 of the ASME A17.1 code is amended to read as follows:

3.18.3.8.2 The methods specified in 3.18.3.8.1 shall be considered acceptable, provided that they meet all the following:

(a) Are designed and installed with means for monitoring and maintaining them in accordance with recognized industry standards applicable to the methods.

(b) Are effective for specific conditions where the cylinder is installed.

(c) Provide means for checking ongoing compliance with 3.18.3.8.1.

R 408.547 Shutoff valves; gauge snaps; underground piping; tags.

Rule 547. Section 3.19.4.1 of the ASME A17.1 code is amended to read as follows:

3.19.4.1 A shutoff valve must be provided on a new or altered hydraulic elevator and be installed in the pressure piping within the elevator machine room. If the hoistway is remotely located from the machine room, then a shutoff valve must also be provided in the elevator pit.

R 408.548 Pressure gauge fittings.

Rule 548. Section 3.19.4.5 of the ASME A17.1 code is amended to read as follows:

3.19.4.5 A new hydraulic machine must be provided with the necessary permanent pressure gauge snap-on fittings or permanent gauges, with a shut off valve to allow pressure readings at each pump for checking operating pressures. The gauge or fitting must be located on the jack side of the check valve or immediately adjacent to the hydraulic control valve.

R 408.549 Overspeed valves.

Rule 549. Section 3.19.4.7 of the ASME A17.1 code is amended to read as follows:

3.19.4.7 Overspeed valves shall be provided on all roped hydraulic jacks, either cable or chain, and when provided their connections and attachments shall conform to 3.19.4.7.1 through 3.19.4.7.6.

R 408.550 Underground piping.

Rule 550. Section 3.19.5.1 of the ASME A17.1 code is amended to read as follows:

3.19.5.1 Underground piping in connection with a new hydraulic elevator is prohibited. If a cylinder is replaced on an existing hydraulic elevator, then the corresponding piping, if underground, is prohibited unless approved by the department.

R 408.551 Car safeties.

Rule 551. Section 4.3.15 of the ASME A17.1 code is amended to read as follows:

4.3.15 Elevators shall be provided with a car safety, attached to the underside of the car frame, capable of stopping and sustaining the car with rated load.

The car safety device is not required to be operated by a speed governor and may be of the instantaneous type operated as a result of the breaking or slackening of the suspension members.

Where the rise exceeds 12.5m (40 ft), driving machines having hand-operated brakes shall also be equipped with an automatic speed retarder.

R 408.552 Capacity.

Rule 552. Section 5.3.1.11.1 of the ASME A17.1 is amended to read as follows:

5.3.1.11.1 The inside net platform area shall be determined at a point 1000 mm (39 inches) above the floor and inside of any panels or wall surfaces, but exclusive of any handrails and space for doors or gates as shown in Figure 216.1.1 for horizontal sliding car doors or as shown in Figure 5.3.1.11.1 for other car doors or gates. To allow for variations in car designs, an increase in the maximum inside net area not exceeding 5% shall be permitted.

The maximum inside net platform area shall not exceed 1.7m^2 (18 ft^2). The minimum rated load shall be not less than the following:

(a) For net platform areas up to and including 1.1 m^2 (12 ft^2), the rated load shall be not less than 195 kg/m^2 (40 lb/ft^2) or 159 kg (350 lb), whichever is greater.

(b) For net platform areas greater than 1.1 m^2 (12 ft^2), the rated load shall be based upon 305 kg/m^2 (62.5 lb/ft^2).

R 408.554 Rupture or overspeed valve.

Rule 554. Section 5.3.2.2.2 of the ASME A17.1 code is amended to read as follows: A pressure switch must be provided to remove power from the pump motor and the control valve unless there is positive pressure at the control valve.

A rupture or overspeed valve must be provided on all roped hydraulic jacks, either cable or chain, to stop the flow of fluid and arrest the descent of the car in the event of line or pipe rupture.

R 408.555 Buffers.

Rule 555. Section 5.4.10.1 of the ASME A17.1 code is amended to read as follows:

5.4.10.1 For rated speeds not exceeding 0.25 m/s (50 ft/min), spring, elastomeric or equivalent type buffers are required. Bumpers or solid stops shall not be permitted.

R 408.556 Type of operation.

Rule 556. Section 5.4.15.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.1. The inclined elevator shall be operated by weatherproof constant pressure key switches or constant pressure switch or button at each landing and on the car. Key-operated switches shall be of the spring-return type and shall be operated by a cylinder type lock having not less than 5-pin or 5-disk combination with the key removable only when the switch is in the off position. Constant pressure switches and buttons shall be hand operated and controlled by an adjacent on-off key switch with the key removable only when the key is in the off position. The key shall be group 4 security in compliance with section 8.1 of the ASME A17.1 code.

R 408.557 Electrical equipment and wiring requirements.

Rule 557. Section 5.4.15.5.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.5.1. All electrical equipment and wiring shall conform to the requirements of the Michigan electrical code and ASME A17.1 sections 5.3.1.18.4, 5.3.1.18.5 and 5.3.1.18.6. A fused disconnect switch or a circuit breaker shall be installed within the machine enclosure and connected to the power supply line to each electric motor. A hoisting motor shall have a manually reset type of electrical overload device.

R 408.558 Skirt deflector devices.

Rule 558. Section 6.1.3.3.10 of the ASME A17.1 code is amended to read as follows:

6.1.3.3.10 Deflector devices are permitted. Where provided, deflector devices must extend from skirt panels parallel to the escalator path of travel. Means to secure these deflector devices may be on the exposed surface of the skirt. All fasteners must be of steel with machine screw threads. Any exposed fastener heads shall be of the tamper-resistant type and flush to within 1 mm, or 0.04 inch.

(1) Rigid elements must comply with the following conditions:

(a) Horizontal protrusions extending above the step must be 18 mm, or 0.75 inch maximum. Corners or changes in profile must be rounded or beveled.

The exposed surfaces of such elements must be smooth and permanently treated with a low-friction material.

(b) On the incline, the area of any protrusion must lie entirely offset outward from a line beginning on the vertical portion of the skirt panel measured 25 mm, or 1 inch vertically above the step nose line. The lower surface must be beveled not less than 10 degrees upward and the upper surface must be beveled not less than 15 degrees downward in compliance with Figure 6.1.3.3.10 of the ASME A17.1 code.

(c) At the upper and lower landing, any protrusion must lie entirely above a line beginning on the vertical portion of the skirt panel 50 mm, or 2 inches, above the step nose line. The lower surface must be beveled not less than 10 degrees upward and the upper surface must be beveled not less than 15 degrees downward. Any rigid elements at the landings must smoothly blend into the rigid elements along the incline in accordance with the radius of curvature of the transition zone.

(d) If attached to the skirt, rigid elements must withstand a force of 900 N (200 lbf) perpendicular to the line of attachment of the element without detachment or permanent deformation. The force shall be applied to an area of 645 mm^2 (1 $inch^2$).

(2) Flexible elements must comply with the following conditions:

(a) The horizontal protrusion extending from the skirt surface above the step must be 50 mm, or

2 inches, maximum.

(b) Must be capable of deflecting to an angle of 10 degrees or greater above the horizontal protrusion.

(c) Noncontinuous flexible elements are allowed to deflect to allow a maximum of 9.5 mm, or 0.375 inch interference with any point on the step surface.

(d) Continuous flexible elements may not deflect such that they can contact the steps.

R 408.560 Listed and certified devices.

Rule 560. Section 8.6.3.7.2 is amended to the ASME A17.1 code to read as follows:

8.6.3.7.2 Where a listed or certified device or component is replaced, the replacement shall be manufactured to the specifications at the time the device or component was originally certified, engineering tested or type tested in accordance with section 8.3 of the ASME A17-1 code. Upon request, the contractor shall provide the department supporting documentation of compliance with the original specifications. Documents shall be signed and sealed by a licensed professional engineer acting within his or her discipline.

R 408.561 Record of oil usage.

Rule 561. Section 8.6.5.7 of the ASME A17.1 code is amended to read as follows:

8.6.5.7. For systems where part of the cylinder or piping, or both, are not exposed for visible inspection, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room. If the quantity of hydraulic fluid loss cannot be accounted for, then the test specified in section 8.6.5.15.3 of R 408.561 shall be done.

R 408.562 Periodic test.

Rule 562. Section 8.6.7.4.1 of the ASME A17.1 code is amended to read as follows:

8.6.7.4.1. (1) Private residence inclined elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.4.14 to 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.4. Any additional requirements for this equipment should also be checked during these tests.

(2) Private residence inclined elevators installed under the requirements of the act for use by multiple, shall be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 to 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.4. Any additional requirements for this equipment shall also be checked during these tests.

R 408.563 Firefighters' emergency operation.

Rule 563 Section 8.6.11.1 of the ASME A17.1 code is amended to read as follows:

8.6.11.1. All elevators provided with firefighters' emergency operation shall be subjected quarterly to phase I recall by use of the key switch, and a minimum of 1-floor operation on phase II. Deficiencies shall be corrected. An accessible written record of test results shall be maintained in the machine room.

R 408.564 Firefighter’s emergency operation periodic testing.

Rule 564. Section 8.6.4.19.6 of the ASME A17.1 code is amended to read as follows:

8.6.4.19.6. Fire-fighter’s Emergency Operation (phase I and phase II) functionality shall be tested to determine conformance with the applicable requirements. Phase I recall shall be tested by

individually activating the fire alarm initiating device at each landing, machine room, control room, hoistway or pit, and the three-position key switch at the designated landing, and, where provided, the two-position key at the building fire control station and any auxiliary fire key switch.

When applicable, during the annual fire systems test, the certificate holder shall coordinate the required simultaneously testing between elevator journeypersons licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, and appropriate fire alarm system testing personnel.

R 408.565 Applicability of alteration requirements.

Rule 565. Section 8.7.1.1 of the ASME A17.1 code is amended to read as follows:

8.7.1.1 (1) If an alteration is performed to the elevator or any of its subsystems, regardless of any other requirements of section 8.7 of the ASME A17.1 code, then the alteration, at a minimum, must conform to both of the following requirements:

(a) This state's elevator laws and rules at the time of installation.

(b) This state's elevator laws and rules for the alteration at the time of any alteration.

(2) A permit must be obtained, and the elevator may not be placed into service until it has been inspected and tested in the presence of a general inspector, except as provided in section 15 of the act of the elevator safety board act, 1967 PA 227, MCL 408.815.

R 408.566 Bottom car clearances.

Rule 566. Section 2.15.9.2(c) of ASME A17.1 is amended to read as follows:

2.15.9.2(c). Where the installation is the result of replacement or alteration utilizing an existing hoistway and pit, the toe guard may be reduced in length utilizing an existing hoistway and pit, provided the car speed does not exceed 150 feet per minute. The toe guard may be reduced in length proportionate to the maximum length the pit depth will allow complying with section 2.4.1.5. At no time may the toe guard be shorter than the leveling or truck zone plus 75mm, or 3 inches. Collapsible toe guards are not permitted.

R 408.567 Cylinders.

Rule 567. Section 8.7.3.23.3 of the ASME A17.1 code is amended to read as follows:

8.7.3.23.3. Where a cylinder is installed, replaced, or altered, it shall conform to section 3.18.3 of the ASME A17.1 code. Sleeving of a cylinder shall not be permitted. If the plunger is not equipped with a stop ring conforming to section 3.18.4.1 of the ASME A17.1 code, the installation shall also conform to sections 3.18.1.2 and 3.18.2 of the ASME A17.1 code.

R 408.568 Escalator electrical protective devices.

Rule 568. Section 6.1.6.3 of the ASME A17.1 code is amended to read as follows:

6.1.6.3. Electrical protective devices must be provided pursuant to 6.1.6.3 through 6.1.6.3.16 and be the manually resetting type. Automatic resetting of a safety device within these codes is prohibited.

R 408.569 Moving walk electrical protective devices.

Rule 569. Section 6.2.6.3 of the ASME A17.1 code is amended to read as follows:

6.2.6.3. Electrical protective devices must be provided pursuant to 6.2.6.3.1 through 6.2.6.3.12 and be the manually resetting type. Automatic resetting of a safety device within these codes is prohibited.

R 408.570 Escalator handrail speed-monitoring device.

Rule 570. Requirement 6.1.6.4 of the ASME A17.1 code is amended to read as follows:

A handrail speed monitoring device must be provided that will cause the activation of the alarm required by 6.1.6.3.1(b) without any intentional delay, whenever the speed of either handrail deviates from the step speed by 15% or more. The device must also cause electric power to be removed from the driving-machine motor and brake when the speed deviation of 15% or more is continuous within a 2 s to 6 s range. The device must be of the manual reset type. Automatic resetting of a safety device within these codes is prohibited.

R 408.571 Moving walk handrail speed-monitoring device.

Rule 571. Requirement 6.2.6.4 of the ASME A17.1 code is amended to read as follows:

A Handrail Speed Monitoring Device must be provided that will cause the activation of the alarm required by 6.2.6.3.1(b) without any intentional delay whenever the speed of either handrail deviates from the treadway speed by 15% or more. The device must also cause electric power to be removed from the driving-machine motor and brake when the speed deviation of 15% or more is continuous within a 2 s to 6 s range. The device must be of the manual reset type. Automatic resetting of a safety device within these codes is prohibited.

R 408.572 Acceptance inspection and tests.

Rule 572. Section 8.10.1.1.1 of the ASME A17.1 code is amended to read as follows:

8.10.1.1.1. The acceptance inspection shall be made by an inspector employed by the authority having jurisdiction. All parts of the installation shall be inspected for conformity with the requirements of the Michigan elevator laws and rules and section 8.10 of the ASME A17.1 code. ASME A17.22023, guide for inspection of elevators, escalators, and moving walks which is adopted by reference in R 408.503, is recommended as a guide in making the inspection. Balance load and maximum normal speeds with maximum rated load and no load shall be determined and recorded on forms furnished by the department.

R 408.573 Test tags.

Rule 573. Section 8.10.1.1.1 of the ASME A17.1 code is amended to read as follows: 8.10.1.1.1. The acceptance inspection must be made by an inspector employed by the authority having jurisdiction. All parts of the installation must be inspected for conformity with the requirements of this state's elevator laws, these rules, and section 8.10 of the ASME A17.1 and ASME 17.2. An approved paper tag must be installed in the machine room or machine space for all periodic tests.

R 408.573a Periodic category testing schedule.

R 573a. (1) Section 8.6.1.7 shall be amended to read as follows:

(a) Category 1 periodic testing shall be done at intervals not to exceed 12 months.

(b) Category 3 periodic testing shall be done at intervals not to exceed 36 months.

(c) Category 5 periodic testing shall be done at intervals not to exceed 60 months.

(2) Any unique or product specific testing requirements that do not align with this schedule shall be documented in the maintenance control program and tested in accordance with the manufacturer standards by a licensed elevator journeyman licensed under the elevator licensing act, 1976 PA

333, MCL 338.2151 to 338.2160. Testing procedures shall be kept per the requirements of ASME A17.1 sections 8.6.1.2.2 and the records and results shall be kept of all testing per section 8.6.1.4.1.

R 408.574 Three-year inspection and test requirements.

Rule 574. Section 8.6.5.15.3 is added to the ASME A17.1 code to read as follows:

8.6.5.15.3. (1) Cylinders must be tested at intervals of not more than 36 months.

(2) Three-year inspection and test requirements are as follow:

(a) The relief valve setting must comply with section 3.19.4.2 of the ASME A17.1 code. The relief valve must be resealed if the relief valve setting is altered or if the seal is broken.

(b) Test the relief valve setting by first inching the empty car upward to engage the plunger stop ring or to engage other suitable blocking provided and then apply pressure
from the pump to check the setting. A copy of test forms must be maintained on site in the machine room or space available to elevator personnel pursuant to section
8.6.1.4.1 of ASME A17.1. Procedures for set test are as follows:

Put rated load in the car and locate it at any convenient level.

(i) Open the disconnect switch and locate the elevation of the platform with respect to a convenient reference.

(ii) For cylinders that are not completely exposed, after not less than 2 hours, note the position of the platform with respect to the chosen reference. For cylinders that are completely exposed, after not less than 30 minutes, note the position of the platform with respect to the chosen reference. A change in the car position during a cylinder test that cannot be accounted for by visible oil leakage or temperature change of the oil indicates a failure of some type requiring further inspections, tests, or repairs. An accessible written record of all oil levels and all oil added must be maintained in the machine room.

(3) Hydraulic cylinders as stated in subdivision 2(b)(ii) of this rule and those installed and accepted in conformance with R 408.545 and R 408.546 do not require a 2-hour static load test provided:

(a) All required records document 24 months of system integrity.

(b) Oil logs do not indicate an unexplainable oil loss in the past 24 months.

R 408.575 Private residence elevators and private residence inclined elevators.

Rule 575. Section 8.11.5.2 of the ASME A17.1 code is amended to read as follows:

8.11.5.2. (1) Private residence elevators should be subject to the periodic inspections specified in 8.11.2 and 8.11.3. The inspection requirements shall apply to the corresponding requirements in 5.3 and 5.4. Any additional requirements for this equipment should also be checked during these inspections.

(2) Private residence inclined elevators installed under the requirements of the act for use by multiple residences, shall be subject to the periodic inspections specified in 8.11.2 and 8.11.3. The inspection requirements shall apply to the corresponding requirements in 5.3 and 5.4. Any additional requirements for this equipment shall also be checked during these inspections.

CHAPTER 5. ASME A18.1 MODIFICATIONS

R 408.577 Runway enclosure.

Rule 577. Section 2.1.1.1 of the ASME A18.1 code is amended to read as follows:

2.1.1.1 The runway shall be guarded by a solid enclosure extending from the lowest landing to a height at least equal to the height of the platform enclosure above the uppermost landing, in no case less than 42 inches (1067 mm) above the uppermost landing. The enclosure shall withstand, without permanent deformation, a force of 125 lbf (556 n) applied on any 4 inch (102 mm) by 4 inch (102 mm) area. The interior of the runway enclosure shall present a smooth surface.

R 408.578 Runway entrance.

Rule 578. Section 2.1.1.2 of the ASME A18.1 code is amended to read as follows:

2.1.1.2 The runway entrance must be guarded at the upper landing by a door of unperforated construction not wider than the platform plus 1 inch, or 25.4 millimeters. The door must be self-closing or power operated and guard the entire opening to a height equal to or higher than the height of the platform enclosure. The openings created in the runway by these doors must provide a minimum vertical clearance of 6 feet 8 inches. The doors must guard the entire area of the openings except for space necessary for operation. Space necessary for operation must reject a ball 12 mm, or 0.5 inches, in diameter. The lift side of the landing doors and sill must present a smooth surface located not closer than 10 mm, or 0.375 inches, or more than 20 mm, or 0.75 inches, from the platform floor.

R 408.579 Relocatable and temporary vertical platform lifts.

Rule 579. Section 2.1.5.1 of the ASME A18.1 code is amended to read as follows:

2.1.5.1 Relocatable or temporary vertical platform lifts may only be installed for temporary use and shall meet all of the following conditions:

(a) The relocatable or temporary platform lift may only be in place and in use for a maximum of 14 days. The 14 days begin on the date of the approval, which is given at the time of the installation inspection by the elevator safety division. The lift shall be removed from the site on or before the 16th day. In special situations a 1 time renewal may be granted by the department.

(b) The lift shall be attendant-operated in accordance with the requirements of 2.10.2.

(c) A key operated switch shall be provided at the operator station which will allow the up and down control switches to become effective only when the key is in the on position. The key operated switch shall be operated by a lock having 5-pin or 5-disk combination with a key removable only in the off position. Anytime the lift is not being operated, the key switch shall be in the off position and the key shall be removed.

(d) The platform lift shall be positioned to prevent lateral movement during use.

(e) Site specific drawings, which clearly show the location of the lift with regards to the area to be accessed, shall be submitted with the permit application.

R 408.580 Guarding.

Rule 580. Section 5.1.1.2 of the ASME A18.1 code is amended to read as follows:

5.1.1.2 A smooth vertical fascia of unperforated construction shall be provided from the top terminal landing sill and any intermediate landing sill to the level of the bottom terminal landing sill. Openings necessary for operation shall reject a ball 12 mm (0.5 in.) diameter. The fascia shall be equal to or stronger than 1.5 mm (0.0598 in.) sheet steel and guard the full width of the platform. The surface shall not be permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area.

R 408.581 Periodic maintenance inspections.

Rule 581. Section 10.1.1 of the ASME A18.1 code is amended to read as follows:

10.1.1 Periodic maintenance and inspections shall be conducted by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

R 408.582 Periodic category testing.

Rule 582. Section 10.1.2.1 of the ASME A18.1 code is amended to read as follows:

10.1.2.1 Periodic tests shall be conducted by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

R 408.583 Inspection and test requirements for altered installations.

Rule 583. Section ~~10.5~~10.1.5 of the ASME A18.1 code is amended to read as follows:

~~10.5~~10.1.5 (1) If any alteration is performed, regardless of any other requirements of the standard, then the installation, at a minimum, shall conform to the requirements of the Michigan elevator laws and rules and the applicable code requirements.

(2) The alteration shall not begin until a permit is obtained from the department and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general ~~elevator~~ inspector, except as provided in section 15 of the act.

CHAPTER 6. ASME A90-1 MODIFICATIONS

R 408.584 Applicability of national standard and rules.

Rule 584. (1) This rule applies to manlifts, as described in the ASME A90.1-2009, which is adopted by reference in R 408.503, that are used only to carry plant personnel in granaries, flour mills, parking garages, and similar buildings or occupancies. Belt manlifts shall not be used by the public and, if located in buildings to which the public has access, shall be located in an enclosure that is protected by self-closing, spring-locked doors. Keys to the doors shall be available to employees. The use of belt manlifts during construction is prohibited.

(2) The hoistway enclosure shall comply with the Michigan building code, R 408.30401 to R 408.30547, and shall maintain the fire rating of the structure.

(3) The travel of any single belt manlift installed after February 14, 1968 shall not exceed 100 feet.

CHAPTER 7. ANSI/ASSE A10.4 MODIFICATIONS

R 408.585 Location.

Rule 585. Section 5.4.8 of the ANSI A10.4 standard is amended to read as follows:

5.4.8.(1) A personnel hoist must be installed not less than 10 feet from any other lifting or lowering apparatus except other personnel hoists.

(2) A hoistway may not be located either partially or wholly over sidewalks or passageways.

(3) If tower cranes or any other lifting or lowering apparatus are installed such that the boom,

load, or trolley may go over or into the 10-foot restricted area, then the personnel hoist must be unoccupied anytime the boom, or trolley passes over the restricted area. The evacuation of the personnel hoist must be the responsibility of the crane operator and the general contractor.

R 408.586 Hoistway doors and gates.

Rule 586. Section 6.2.2 of the ANSI A10.4 standard is amended to read as follows:

6.2.2 (1) Each hoistway door shall be equipped with an approved interlock.

(2) Sliding doors and gates shall be constructed of metal and shall be of a design which will reject a ball 1-1/2 inches in diameter.

R 408.587 Car enclosure tops.

Rule 587. Section 17.7 of the ANSI A10.4 standard is amended to read as follows:

17.7 Tops of car enclosures shall be so designed and installed to be capable of sustaining a load of 300 pounds (136 kg) on any square area 2 feet (0.6 m) on a side and 100 pounds (45 kg) applied at any point. Simultaneous application of these loads is not required. The personnel hoist shall have overhead protection equivalent to 2-inch plank. The planks shall be secured.

The exit cover shall be hinged and locked and open outward.

R 408.588 Use of winding drum machines.

Rule 588. Section 22.2 of the ANSI A10.4 standard is amended to read as follows:

22.2 Winding drum machines may be used irrespective of car travel if the drums are grooved for hoisting wire rope. Grooves shall be machine finished and shall be of the helical or parallel type. Only 1 layer of rope may be on the drum.

R 408.589 Car speed.

Rule 589. Section 22.3 of the ANSI A10.4 standard is amended to read as follows:

22.3 The rated speed shall not be more than 300 feet per minute.

R 408.590 Emergency stop switch.

Rule 590. Section 24.2.4 of the ANSI A10.4 standard is amended to read as follows:

24.2.4 An emergency stop switch shall be provided in the car and located in or adjacent to the car operating panel. When opened, the switch shall cause the electric power to be removed from the hoist driving-machine motor and brake. Emergency stop switches shall have all of the following characteristics:

(1) Manually opened and closed type.

(2) Red operating handles or buttons.

(3) Conspicuously and permanently marked "stop."

(4) Positively opened mechanically and the opening shall not be solely dependent on springs.

(5) Capability of being locked out of use when the operator leaves the car.

(6) Operation of the emergency stop switch shall not require manual resetting of the control panels.

R 408.591 Voltages permitted in hoistway or on car.

Rule 591. Section 24.3.1 of the ANSI A10.4 standard is amended to read as follows:

24.3.1 The maximum system or circuit potential permitted on any equipment in the hoistway or on the car shall be not more than 600 volts. If the potential exceeds 120 volts, then either a

grounding conductor shall be incorporated in the traveling cable or a separate grounding conductor shall be installed. A visual indicator shall be included in the grounding circuit, so arranged as to indicate continuously the continuity of the grounding conductor. The type and size of the grounding conductor and the grounding fastening means shall conform to the requirements of the Michigan electrical code. The grounding circuit shall include a device which will interrupt the electric circuit to the load if a ground fault occurs.

R 408.592 Rated load safety test.

Rule 592. Section 26.4.8 of the ANSI A10.4 standard is amended to read as follows:

26.4.8 A rated load safety test, as required by section 26.2.1.1 of the ANSI A10.4 standard, must be performed by an elevator contractor licensed under the elevator safety board act, 1967 PA 227, MCL 408.801 to 408.824, in the presence of a general inspector every 90 days. Periodic inspections may be conducted every 30 days and the appropriate fees assessed at the discretion of the department.

R 408.593 Operation.

Rule 593. Section 30 of the ANSI A10.4 standard is amended to read as follows:

30 Hoists shall be operated in compliance with the manufacturing specifications, rules and recommendations, and with the governing authority. This shall consist of items, functions, and criteria pertaining to the hoist use and shall be a part of an operational maintenance and inspection log. Either of the following signal systems shall be provided:

(a) An approved signal device to enable persons on each landing to signal the operator to stop and an emergency bell to signal the operator to return to the bottom landing.

(b) An approved type voice communication system between the car and landings and the project manager or job site superintendent's office.

R 408.594 Authorized uses.

Rule 594. Section 30.1 of the ANSI A10.4 standard is amended to read as follows:

30.1 (1) Only workers and other authorized personnel associated with the work being done may ride on a personnel hoist.

(2) A personnel hoist may be used for carrying materials if it is designed and installed for the type of load to be used and if no passengers are carried during the time materials are being carried except those necessary to handle the materials.

(3) The load on a personnel hoist shall not exceed the maximum rated load established by the department.

(4) Hoists shall be operated by competent, qualified, and authorized personnel using manual operating devices of the continuous pressure type located inside the hoist car only.

R 408.595 Operators.

Rule 595. Section 30.3 of the ANSI A10.4 standard is amended to read as follows:

30.3 The responsible party shall assign and ensure that the operators are properly trained, knowledgeable and capable of performing the required duties as outlined in the manufacturers operating manual, and are capable of recording such activity in their log. A list certifying the training of any operator must be kept in the on-site documentation. Only authorized and trained personnel listed in that document may operate the lift.

CHAPTER 8. STAGE LIFTS

R 408.596 Conflicting equipment.

Rule 596. Section 5.2.6 of ANSI E1-42 is amended to read as follows:

5.2.6 No other equipment or building systems shall be installed or stored in the space under the lift platform or in the pit.

R 408.597 Lift Control.

Rule 597. Section 6.6.6 of ANSI E1-42 is amended to read as follows:

Lift movement shall only be possible after unlocking the control equipment. The locking means shall be that of a key that is only removeable in the OFF position. The key switch shall be permanently marked to clearly indicate the Run and Off positions. The key shall not be left in the control, and shall be securely stored separately from it.

R 408.598 Emergency Stop Switch.

Rule 598. Section 7.2.2.1 of ANSI E1-42 is amended to read as follows:

An emergency stop switch shall be provided at each end of the pit area and on or adjacent to each controller. Locations shall be visibly marked.

When open (“STOP” position), this switch shall cause the electric power to be removed from the lift driving-machine motor and brake, stopping the movement of the lift.

Emergency stop switches shall be as follows:

(a) Be of the manually opened and closed type.

(b) Have red operating handles or buttons.

(c) Be conspicuously and permanently marked “STOP,” and shall indicate the “STOP” and “RUN” positions.

R 408.599 Installation.

Rule 599. Section 8.1.3 of ANSI E1-42 is amended to read as follows:

The installation shall be performed or supervised by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160.

R 408.600 Acceptance Inspection and Compliance testing.

Rule 600. Section 8.2 of ANSI E1-42 is amended to read as follows:

An acceptance inspection and compliance testing shall be completed after the installation is complete.

Acceptance and compliance testing shall verify conformance with the manufacturer’s engineered drawings, engineering data, operational criteria and these rules.

A compliant acceptance inspection shall be completed prior to turnover.

R 408.602 Periodic Testing.

Rule 602. Section 8.11 of ANSI E1-42 is amended to read as follows:

Periodic testing shall be performed or supervised by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, every 5 years, or sooner as

otherwise recommended by the manufacturer. Test shall include all items in sections 8.3 through section 8.11 of the E1.42 standard.

Testing on stage lifts with hydraulic cylinder lifting mechanisms shall be tested every 36 months.

Form shall include the following:

(a) State Serial number

(b) Speed and Capacity

(c) Name of Company and the elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, performing or supervising test.

(d) Journeypersons licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160, signature and license number.

(e) A copy shall be kept in the maintenance records on site.

R 408.603 Repairs and Alterations

Rule 603. Section 9.5.1.2 of ANSI E1-42 is amended to read as follows:

Alterations, maintenance, replacements or repairs shall be performed by an elevator journeyperson licensed under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160. Manufacturers trained and authorized personnel may perform these tasks under the direct supervision of an elevator journeyperson licensed under the act.

A permit shall be obtained from the department prior to the commencement of any alteration.

CHAPTER 9. SEWER LIFT STATION PERSONNEL ELEVATORS

R 408.604 Applicability.

Rule 604. The rules in this subpart apply to electric powered elevators used in sewage lift stations.

R 408.605 Public access.

Rule 605. A sewage lift station personnel elevator shall not be accessible to the general public and shall be limited to use by employees only.

R 408.606 Location, counterweights, and speed.

Rule 606. (1) The elevator may be installed in the entrance well.

(2) When counterweights and buffers are provided, the applicable rules shall apply.

(3) The rated speed of a car shall not exceed 35 feet per minute.

R 408.607 Guarding exposed equipment.

Rule 607. Exposed gears, sprockets, tape or rope sheaves, drums of selectors, floor controllers, signal machines and the ropes, chains or tapes for driving them shall be guarded to protect against accidental contact.

R 408.608 Supports and foundations.

Rule 608. (1) Machines, machinery, and sheaves shall be supported and maintained in place so as to prevent any part from becoming loose or displaced.

(2) Supporting beams shall be of steel. Beams are not required under machines, sheaves and machinery, or control equipment which are supported on floors provided that the floors are designed and installed to support the load imposed on the floor.

R 408.609 Distance from car platform to floor level.

Rule 609. The distance from the top of a car platform at the lowest landing shall be not more than 20 inches above the floor level. The means of descent from the car platform shall not constitute a hazard.

R 408.610 Car and counterweight clearances.

Rule 610. (1) If a car platform is level with the lowest landing, then the car buffer striker plates shall not be in contact with the buffers.

(2) If the car is at its extreme limit of normal travel, then there shall be not less than 6 inches between the top of the car crosshead and the nearest obstruction.

(3) If the counterweights are resting on their buffers, then there shall be not less than 3 inches between the top of the car crosshead and the nearest obstruction.

(4) If the car is resting on its buffers there shall be not less than 3 inches clearance between the top of the counterweights and the nearest obstruction.

(5) The clearances between the car and the hoistway enclosure, hoistway sill, or any obstruction shall be not less than 3/4 inch.

(6) The clearance between the car platform sill and hoistway edge shall be not more than 5 inches.

(7) The underside of a projection into the hatch shall be beveled at an angle of not less than 75 degrees with the horizontal unless protected by a safety device to stop the ascending car.

(8) The top of the lower landing entrance shall be provided with a safety device to stop the ascending car if for any reason an overhanging obstruction on the car comes in contact with a shear hazard.

R 408.611 Landing openings.

Rule 611. (1) If an upper landing side entrance door is provided, then the entrance shall be not less than 6 1/2 feet in height.

(2) The top of the hoistway shall be provided with an overlapping, self-locking hinged cover designed to lock the closed side entrance door when the lift station is unoccupied.

R 408.612 Locking devices.

Rule 612. (1) The hinged cover and the upper landing side entrance door, when provided, shall be provided with a mechanical latch and an electrical contact designed to be operated from inside the hoistway.

(2) A locking device shall be provided to prevent the top hinged cover from locking the upper landing side entrance door when the lift station is occupied.

R 408.613 Guide rails.

Rule 613. (1) A car and counterweight shall be provided with guide rails of steel.

(2) A guide rail shall be securely fastened with through bolts or clips of strength, design, and spacing as follows:

(a) A guide rail and its fastenings shall not deflect more than 1/4 inch under normal operations.

(b) A guide rail and its fastenings shall withstand the application of the safety when stopping the

car with a rated load or when stopping the counterweights.

(c) A guide rail shall rest on supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rail if the car or the counterweight travels beyond the terminal landings.

R 408.614 Frames, enclosures, platforms, capacity, and final limits.

Rule 614. (1) A car frame and platform shall be of metal. Frame members shall be securely bolted and braced. The factor of safety shall not be less than 4 with a uniformly distributed rated load.

(2) The car shall be enclosed to the extent necessary to afford reasonable protection.

(3) The platform area shall not exceed 5 square feet.

(4) The rated capacity shall be not less than 300 pounds.

(5) The limit of travel for the elevator shall be not more than 50 feet.

R 408.615 Emergency exits.

Rule 615. A car shall be provided with an emergency exit giving egress from the car to an emergency ladder from any location in the hoistway and shall be provided with electrical contacts to prevent movement of the car while the emergency exit is open.

R 408.616 Safeties and governors.

Rule 616. (1) A car shall be provided with a car safety capable of stopping and sustaining the car with a rated load.

(2) The car safety shall be of the inertia or other type approved by the department, operated as a result of the breakage of the hoisting mechanism or by a speed governor. A governor of the speed-governor type shall operate to set the safety at a speed of not more than 175 feet per minute and on breakage of the suspension means. The safety shall operate without appreciable delay and independently of the governor speed action.

(3) If a speed governor is used, then it shall be located where there is sufficient space for full movement of the governor parts and where the governor cannot be struck by the car or counterweight in case of overtravel.

(4) A safety operated switch shall be provided to open the motor-control circuit and the brake-control circuit before or at the time the safety applies.

(5) A governor rope shall be of iron, steel, Monel Metal, or phosphor bronze not less than 1/4 inch in diameter. Tiller-rope construction shall not be used for a governor rope.

(6) An elevator of the winding-drum type or roller chain drive type shall be provided with a slack-rope device of the manually reset type which will remove the power from the motor and brake if the car is obstructed in its descent and the hoisting chain or rope slackens.

(7) A car safety device which depends upon completion of maintenance of an electric circuit for application of the safety shall not be used. A car safety shall be applied mechanically.

(8) Cast iron shall not be used in construction of any part of a car safety, the breakage of which would result in failure of the safety to function to stop and sustain the car.

(9) A test of a car safety shall be made with a rated load in the car before the elevator is put into service. Governor operation of an instantaneous-type safety shall be tested at rated speed by tripping the governor by hand. A safety operated as the result of the breaking of the hoisting mechanism shall be tested by obtaining the necessary slack rope to cause it to function.

(10) An overspeed governor shall be provided for a traction machine.

R 408.617 Driving machines and sheaves.

Rule 617. (1) A sprocket, winding drum, traction sheave and overhead and deflecting sheave shall be of cast iron or steel. The diameter of a sheave shall not be less than 30 times the diameter of the wire hoisting rope. The rope grooves shall be machined, except where 8 x 19 steel ropes are used.

Where 8 x 19 steel ropes are used, the diameter of drums and sheaves may be reduced to 21 times the diameter of the rope.

(2) The factor of safety, based on the static load, that is, the rated load plus the weight of the car or chains, ropes and counterweights, to be used in the design of a driving machine and sheave, shall be not less than either of the following:

(a) Eight for wrought iron and steel.

(b) Ten for cast iron, cast steel, and other material.

(3) A set screw fastening shall not be used instead of a key or pin if the connection is subject to torque or tension.

(4) A friction-gearing or clutch mechanism shall not be used for connecting the sprockets, drum, or sheaves to the main driving gear.

(5) Worm gearing having cast-iron teeth shall not be used.

(6) A driving machine shall be equipped with an electrically released spring-applied brake.

(7) A single ground or short circuit, a counter-voltage, or a motor field discharge shall not prevent the brake magnet from allowing the brake to set when the operating device is placed in the stop position.

R 408.618 Terminal stopping devices.

Rule 618. (1) Upper and lower normal terminal stopping devices operated by a car shall be provided and shall be set to stop the car at, or near, the upper and lower terminal landings. Upper and lower final terminal stopping devices operated by the car shall also be provided and shall be set to stop the car before it strikes either the overhead or obstruction at the lower floor level. A final terminal stopping device shall be provided on and operated by the driving machine of the winding drum type.

(2) The final terminal stopping device shall act to prevent movement of the car in both directions of travel. The normal and final terminal stopping devices shall not control the same switches on the controller unless 2 or more separate and independent switches are provided, 2 of which shall be closed to complete the motor and brake circuit in each direction of travel.

R 408.619 Operation and operation devices.

Rule 619. (1) The operation at top and bottom landings shall be of the constant pressure type.

(2) The car operating device shall be of the constant pressure push button type with the face of the button not to project beyond the face of the button plate. The device shall be of the 2-hand control type.

(3) An emergency stop switch shall be provided on or adjacent to the car operating panel. A stop switch shall be of the manually opened and manually closed type with a red handle or button and conspicuously marked "Stop." Spring failure shall not prevent opening of the switch where springs are used.

R 408.620 Control and operating circuits.

Rule 620. The design and installation of the control and operating circuits shall conform to all of the following:

(a) A control system which depends on completion or maintenance of an electric circuit shall not be used for any of the following:

(i) Interruption of the power and application of machine brake at the terminals.

(ii) Stopping of the car when the emergency stop switch in the car is opened or when any of the electrical protective devices operate.

(iii) Stopping the machine when the safety applies.

(b) A spring used to actuate a switch, contactor, or relay to break the circuit to stop a car at the terminal shall be of the compression type.

(c) The failure of a single magnetically operated switch or relay or contactor to release or operate in the intended manner, or the occurrence of a single accidental ground, shall not permit the car to run.

R 408.621 Hoisting cables.

Rule 621. (1) Only iron, low carbon steel, or steel wire cables with fibre cores, having the commercial classification "elevator wire cable," shall be used for suspension of an elevator car and counterweights. The wire material for a cable shall be manufactured by the open-hearth or electric furnace process or their equivalent.

(2) Suspension means shall be not less than 2 iron or steel wire cables having a diameter of not less than 1/4 inch.

(3) The factor of safety of the suspension means shall be not less than 7.

(4) The arc of contact of a wire rope on a traction sheave shall be sufficient to produce adequate traction under all load conditions.

(5) A wire rope anchored to a winding drum shall have not less than 1 full turn of rope on the drum when the car or counterweight has reached its limit of possible overtravel.

(6) A car or counterweight wire rope shall not be lengthened or repaired by splicing.

(7) The winding-drum end of a car and counterweight wire rope shall be secured by a clamp on the inside of the drum.

(8) The car or counterweight end of a wire rope shall be fastened by return loop, by individual tapered babbitted sockets, or by an alternate method approved by the department. A clamp of the U-bolt type shall not be used.

R 408.622 Hoisting chains.

Rule 622. (1) Only roller chain made of high quality alloy, heat treated steel with the following characteristics is acceptable for hoisting chains:

(a) Prestressed.

(b) Shot peened.

(c) In-line blanking.

(d) Deep case hardening of pins and bushings.

(2) Suspension means shall not be less than 2 separate roller chains, each chain having a tensile strength of not less than 3,500 pounds.

(3) The factor of safety of the suspension means shall be not less than 7.

(4) A chain shall have not less than 6 inches of chain available beyond the normal stopping point when the car has reached its extreme limits of travel.

(5) A chain end shall be fastened by standard master links.

R 408.623 Wiring and lighting.

Rule 623. (1) Electric wiring shall be in rigid metal conduit or electrical metallic tubing.

(2) A traveling cable used between the car and hoistway wiring shall be in compliance with the Michigan electrical code.

(3) A fused disconnect main line switch externally operated shall be provided adjacent to the controller.

(4) Hoistway lighting shall be provided.

R 408.624 Inspection and tests.

Rule 624. (1) An existing installation and a new elevator installation, after being placed in service, shall be subjected to maintenance inspections and tests.

(2) Maintenance inspections and tests of elevator car and counterweight safeties and governors shall be made at intervals of not more than 12 months.

(3) The certificate holder shall have maintenance inspections and tests made by a person licensed as a journeyperson under the elevator licensing act, 1976 PA 333, MCL 338.2151 to 338.2160. When the required tests are made, the person or firm conducting the tests shall do both of the following:

(a) Maintain a copy of the required testing and results onsite for a period not to exceed 5 years.

(b) Attach to the governor rope a tag marked to show the date of the test and the name of the person and firm who conducted it.

(4) The distance between any 100 continuous links of roller chain, measured from centerline of pin, shall not be more than + or - 1% of the rated pitch of the chain being tested. For example, 100 links of standard series single strand #40 roller chain, which has a pitch length of 1/2 inch shall not be more than 50 1/2 inches or less than 49 1/2 inches.

(5) The inspection of chain links shall be made at not less than 3 points picked at random.

R 408.625 Reshackling of hoisting ropes of drum-type machines.

Rule 625. The hoisting ropes of a power elevator having a drum-type driving machine with 1-to-1 roping shall be reshackled at the car ends at intervals not more than 24 months for a machine located below or at the side of the hoistway.