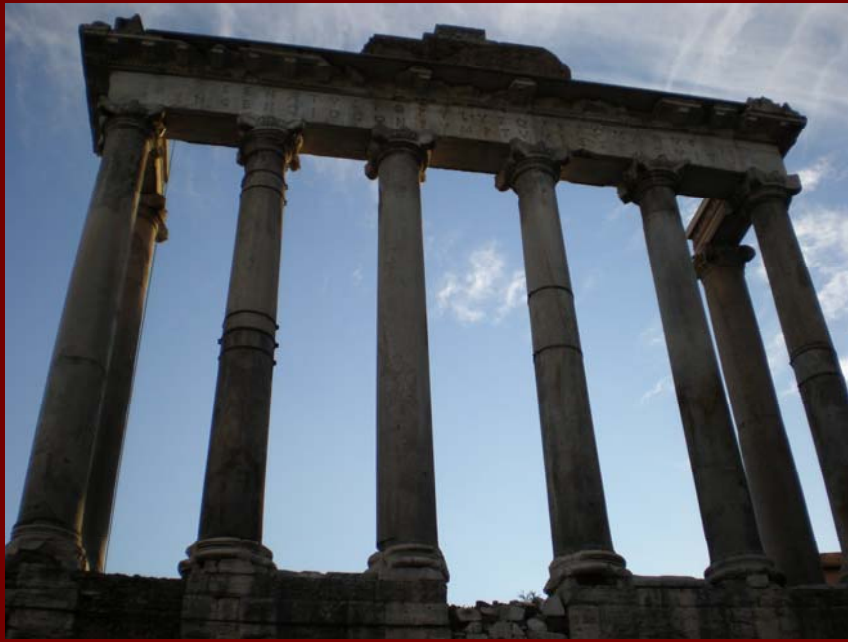


MINNESOTA ELEVATOR CODE CHANGES

Presented by Darren DeJoy
Minnesota Elevator Inc.

The History of Elevators



- One of the first elevators on record was invented by the Greek mathematician, Archimedes, in 253 B.C.

The History of Elevators



- Records also show the Romans to use such devices around 236 B.C.



The History of Elevators

- In 1203, an elevator powered by a donkey in a tread mill was installed in the abbey, Mont-Saint-Michel in France. It is still operational and the oldest elevator known to exist.



The History of Elevators



- In 1852 Elisha G. Otis invented the first elevator with a safety device. It consisted of a spring and ratchet that would hold the elevator in place in case the hoist rope would break.

The History of Elevators

- In 1854 at the New York's worlds fair in the Crystal Palace exhibition, Elisha Otis amazed a crowd when he ordered the only rope holding the platform on which he was standing cut. The rope was severed, and the platform fell only a few inches before coming to a halt.

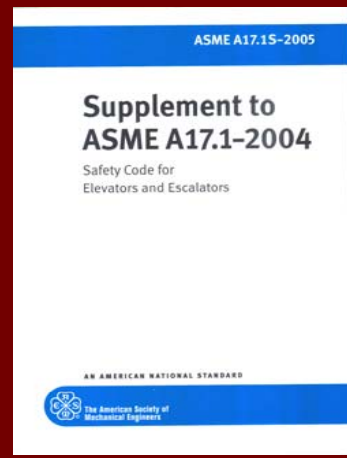
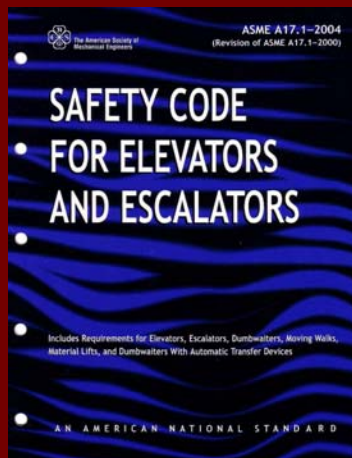
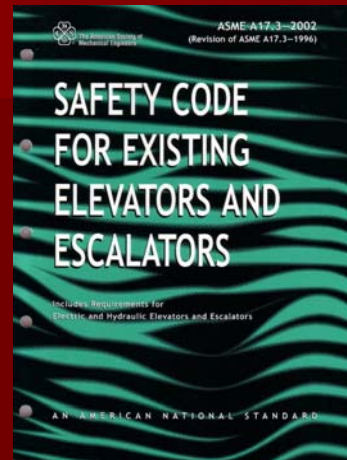
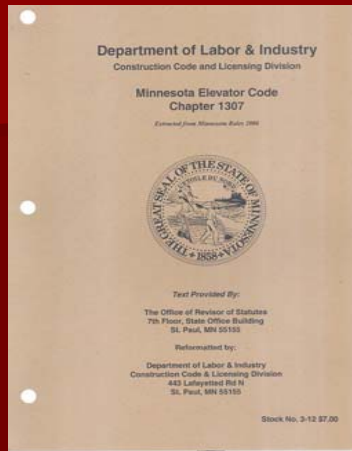


The History of Elevators

- This became known as the “broken rope safety” The equivalent of this type of safety device is still in use today on dumb waiters and material lifts.



Code Items



- These items are excerpts from the Minnesota Chapter 1307,
 - ASME A17.3,
 - ASME A17.1-2004
 - ASME A17.1s 2005
- “Safety Code for Elevators and Escalators”

Annual Inspections

- Earlier this year the Governor signed bill 1208, this bill will require all elevator in the State of Minnesota to have operating permits. The money generated to the State by this annual operating permit fee will facilitate funding for more inspectors. Once more inspectors are hired or subcontracted, the State will then be performing annual inspections and witnessing all safety and no-load tests, required by code.

Annual Inspections

- Note: The state will not issue annual operating permits on existing elevators that are not in compliance with Minnesota chapter 1307 or the ASME A17.3-2002 “existing code for elevators” or elevators that have outstanding issues that have not been corrected due to previous inspections by the state.

Minnesota Chapter 1307

- Chapter 1307 adopts and amends the ASME A17.1 & A17.3 "Safety Code for Elevators and Escalators". These codes and amendments were signed into State law on January 29th 2007. Some of the rules within must be complied with immediately, and others have a 5 year window for compliance.

Fire Fighters Service

- ASME A17.3-2002, 3.11.3 calls for fire fighters service to be installed on all existing elevators with 25 feet or more of travel from the designated level. This work must be completed within 60 months of code adoption to avoid the elevator from being removed from service 1/29/2012

Exception One

- Existing elevators with phase I recall installed without phase II service on original installation may remain in operation without the addition of phase II where there is a travel from the designated level of less than 35 feet.

Exception Two

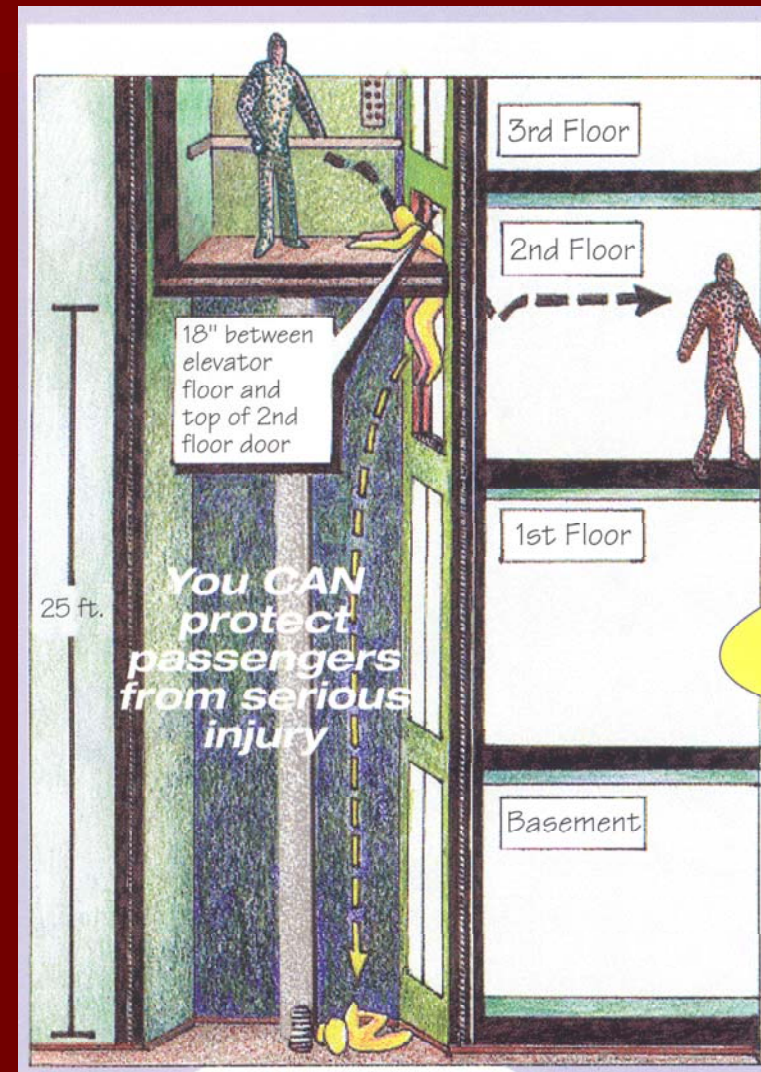
- For such elevators with a travel of more than 25 feet from the designated level, to be exempt from the requirement for phase II fire service. The recall of the elevator shall be from the smoke detector at each elevator landing, the elevator equipment room, and the elevator key switch at the designated level.

Restrictors

- Restrictors shall be installed on all existing passenger elevators per the A17.3 - 2.2.7 This work must be completed within 60 months of the code adoption date. Failure to comply will result in the elevator being removed from service.

Restrictors

- Restrictors are devices that lock the car doors when the elevator is away from the floor. People have fallen down elevator shafts climbing out of elevators that they are stuck in. Elevators installed prior to 1990 may not have these devices installed.



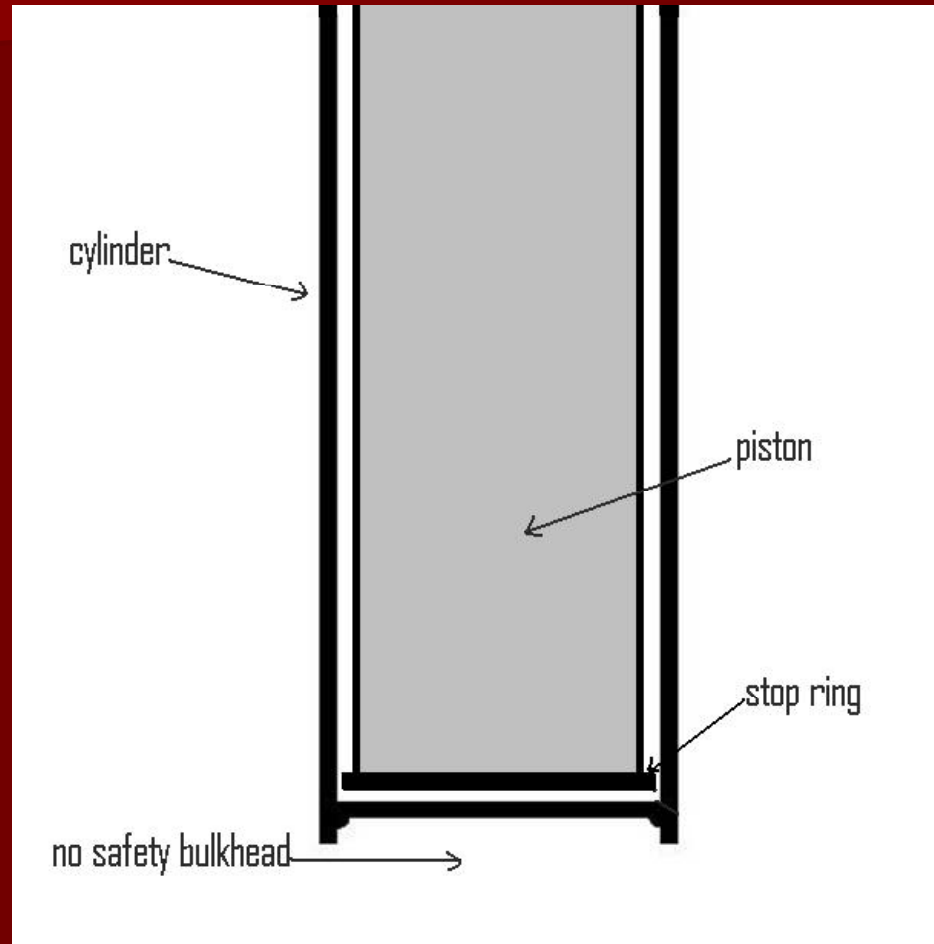
Cylinder Replacement

- A17.3 – 2002, 4.3.3 requires all hydraulic cylinders buried in the ground that do not have a double cylinder or safety bulk head to be replaced.
- Exception: To provide protection against unintended movement of the car as a result of uncontrolled fluid loss (Piston gripping device)

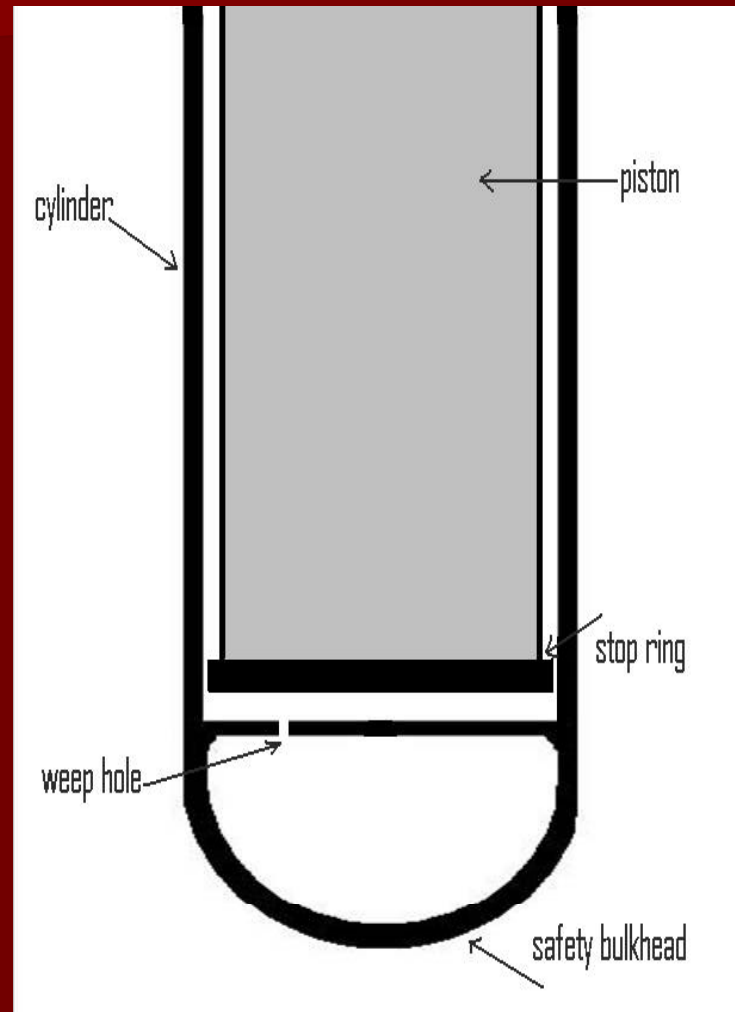
Safety Bulkhead

- All single bottom jacks are require to be replaced. Work must be completed within 60 months. Failure to complete will result in elevator being removed from service.
- Starting 12 months after adoption, until the elevator is in compliance, the owner must annually submit a notarized statement that an oil usage log is being utilized and it has successfully passed the annual tests.

Single Bulkhead Jack



Safety Bulkhead Jack



Single Bulkhead Failure



General Requirements 2.12.6.2.5

- 1307.0067 subpart 5 amends to read
 - The unlocking-device keyway and locked panel if provided, shall be located at a height not greater than 83 inches above the landing and all keyways, shall have key plugs installed with the key for those plugs kept in the box as defined in subpart 9

Hoistway Unlocking Plug Lock



Lunar Key & Locking Plug



Firefighters Key Box



Continued

- Where applicable, group 1, 2 and 3 security keys shall be provided in a separate black trimmed key box approved by the AHJ. The box shall be labeled "Elevator Personal Only" located in machine room or a location specified by the AHJ. Keys shall be tagged and labeled. The lock cylinder shall be uniformly keyed throughout the state. The key number is "Minnesota 4176"

EPO Lock Box



Existing Installations

■ 1307.0090 subpart 2

- All existing installations of equipment governed by A17.1-2004, A17.3-2002, and A90.1-2003 may be continued in service as long as they are properly maintained and are, in the opinion of the AHJ, installed and maintained in safe condition. The AHJ shall order the installation of the following basic safety devices: automatic non-contact door reopening devices; top of car, under car lights, and pit lights, with GFI outlets; pit ladder; emergency door unlocking device;

Existing Installations Continued

- And emergency lock box complying with part 1307.0067, subpart 9.
- All hand powered elevators and hand powered dumbwaiters must be equipped with a broken rope safety device. Elevator machine room lighting must meet the requirements of ASME A17.1-2004 2.7.5.1 to provide 19 foot-candles of illumination at floor level. The installation of these safety devices dose not require compliance with ASME A17.1-2004

Damaged Installations

- 1307.0090 subpart 3
 - Any installation, whether new or existing, which becomes damaged, defective, or worn, by fire, water, or other causes including ordinary wear to the extent that, in the opinion of the AHJ it is dangerous to life , limb, or adjoining property, such installations shall be repaired or rebuilt in conformity with applicable ASME code and its associated state amendments.

Unsafe Conditions

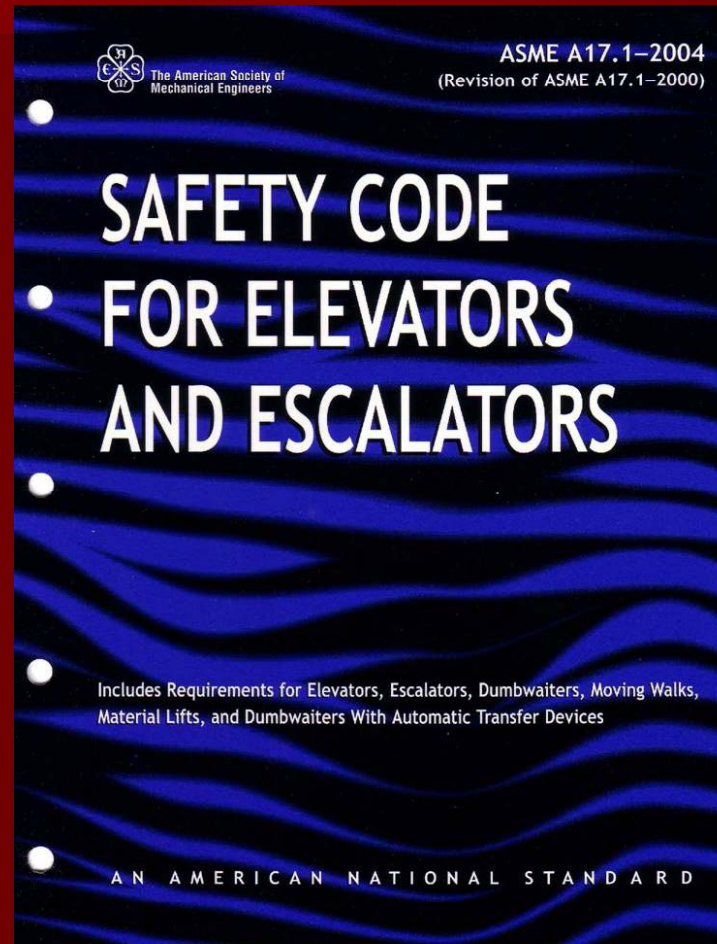
- 1307.0090 subpart 4
 - This rule gives the inspector the authority to shut down and red tag any piece of equipment that they feel is unsafe. The inspector must immediately file with the owner and the AHJ's supervisor, a full and true report of the inspection and the unsafe condition.

Chapter 30 of the IBC

■ 3002.5 Prohibited doors

- Doors, other than hoistway doors, and smoke control doors, when required shall be prohibited at point of access to an elevator car.
- Smoke control doors shall be:
 - Held open during normal operation by a "hold open" device that is activated for closure by fire or smoke sensing devices located in the elevator lobby
 - Readily open-able from the car side without a key, tool, special knowledge, or effort when closed

ASME A17.1-2005



Key Groupings

- 8.1.2 Group 1: Restricted
- 8.1.3 Group 2: Authorized Personnel
- 8.1.4 Group 3: Emergency Operation
- 8.1.5 Group 4: Other

SECTION 8.6 MAINTENANCE, REPAIR, AND REPLACEMENT

- Requirement 8.6 applies to maintenance, repairs and replacements.

NOTE See 8.7 for alteration requirements.

8.6.1.1 Maintenance, repair and Replacement

8.6.1 General Requirements

8.6.1.1.1 Equipment covered within the scope of this Code shall be maintained in accordance with 8.6.

8.6.1.1.2 Maintenance, repairs and replacements shall conform to 8.6 and the:

(a) Code at the time of the installation

8.6.1.1 Maintenance, repair and Replacement

(b) Code Requirements at the time of any alteration

(c) ASME A17.3 if adopted by the authority having jurisdiction

- 8.6.1.1.3 It is not the intent of 8.6 to require changes to the equipment to meet the design, nameplate or performance standard other than those specified in 8.6.1.1.2, unless specifically stated in 8.6.

8.6.1.2 General Maintenance Requirements

- 8.6.1.2.1 A written Maintenance Control Program shall be in place to maintain the equipment in compliance with the Requirements of 8.6.

(a) The Maintenance Control Program shall consist of but not limited to

(1) examinations, maintenance and test of equipment at scheduled intervals in order to ensure that the installation conforms to the Requirements of 8.6.

8.6.1.2 General Maintenance Requirements

The maintenance procedures and intervals shall be based on

- (a)* equipment ages, condition and accumulated wear
- (b)* design and inherent quality of the equipment
- (c)* usage
- (d)* environmental conditions
- (e)* improved technology

8.6.1.2 General Maintenance Requirements

(2) cleaning , lubricating, and adjusting applicable components at regular intervals and repairing or replacing all worn or defective components where necessary to maintain the installation in compliance with the requirements of 8.6.

(b) The instructions for locating the Maintenance Control Program shall be provided in or on the controller along with

8.6.1.2 General Maintenance Requirements

instructions on how to report any corrective action that might be necessary to the responsible party.

(c) The maintenance records required by 8.6.1.4 shall be kept at a central location.

(d) The maintenance Control Program shall be accessible to the elevator personnel and shall document compliance with 8.6.

8.6.1.2 General Maintenance Requirements

8.6.1.2.2 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

8.6.1.3 Maintenance Personnel. Maintenance, repairs and replacements shall be performed only by elevator personnel (see 1.3).

8.6.1.4 Maintenance Records

8.6.1.4.1 Maintenance records shall document compliance with 8.6 of the Code and shall include records on the following activities:

(a) description of maintenance task performed and dates.

(b) description and dates of examinations, tests, adjustments, repairs and replacement.

8.6.1.4 Maintenance Records

(c) description and dates of call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken

(d) written record of the findings on the firefighter's service operation required by 8.6.10.1.

8.6.1.4.2 Record Availability

The maintenance records shall be available to the elevator personnel.

8.6.1.6.5 Fire Extinguishers

- A Class “ABC” fire extinguishers shall be provided in elevator electrical machinery and control spaces, walk-in machinery and control rooms for escalators and moving walks, and shall be located convenient to the access door.

8.6.11 Special Provisions

- 8.6.11.1 Firefighters' Emergency Operation.
- All elevators provided with firefighters emergency operation shall be subjected monthly to Phase I recall by use of the key switch, and a minimum of one-floor operations on Phase II.

8.6.11.1 Firefighters' Emergency Operation.

- Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.

SECTION 8.11

PERIODIC INSPECTION AND TESTS

- Requirement 8.11 covers periodic inspections and testing of existing installations.

NOTE: Compliance with certain requirements is verifiable through review of design documents, engineering, or type tests.

8.11.1.1 Persons Authorized to Make Periodic Inspections and Tests

- The inspector shall meet the qualification requirements of the ASME QEI-1. Inspectors and inspection supervisors shall be certified by an organization accredited by ASME in accordance with the requirements of ASME QEI-1.

8.11.1.1.1 Periodic Inspections

- Periodic inspections shall be made by an inspector employed by the authority having jurisdiction or by a person authorized by the authority having jurisdiction.

8.11.1.1.2 Periodic Tests

- *(a)* Periodic tests shall be witnessed by an inspector employed by the authority having jurisdiction, or by persons authorized by the authority having jurisdiction.
- *(b)* The owner or the owner's authorized agent shall have all the tests required by 8.11.2, 8.11.3, 8.11.4, and 8.11.5 made by person qualified to perform such service in the presence of the inspector specified in 8.11.1.1.2(a)

THE END

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Questions?