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DOI INVESTIGATION REVEALS COMMUNICATION FAILURES AND A BROKEN SAFETY DEVICE IN FATAL 2015 NYCHA ELEVATOR ACCIDENT
--Investigation also exposes broader systemic safety problems--

Today, Mark G. Peters, Commissioner of the New York City Department of Investigation ("DOI"), issued a detailed Report documenting the findings of a systemic review of elevator safety in NYCHA buildings, spurred by DOIs investigation into two incidents in the Bronx – one fatal – involving elevators at New York City Housing Authority ("NYCHA") public housing developments. The Report found numerous failures by NYCHA, including the failure to respond appropriately to a resident's report of a hazardous, malfunctioning elevator and a failure to comply with a 2014 revision to the City Building Code. DOI's post-incident review also included discovery that of the 1,080 NYCHA elevators that are equipped with brake monitors, 80 brake monitors, or 7.4%, were not functioning properly. A copy of the Report is attached to this release and can be found at the following link: http://www.nyc.gov/html/doi/html/doireports/public.shtml

DOI Commissioner Mark G. Peters said, "The more than 400,000 New Yorkers living in NYCHA's public housing developments should expect that elevators operate safely with all proper protocols in place to protect from dangerous conditions. DOI's investigation demonstrates just how quickly events can turn tragic when there are significant breakdowns in communication, lax enforcement and improper compliance with the law. However, once DOI made NYCHA aware of the failures, the agency swiftly accepted the recommendations DOI made and began to aggressively pursue reform of its elevator services for the safety of its residents."

According to the investigation, on December 24, 2015, a resident of NYCHA's Boston Road Plaza senior building in the Bronx called NYCHA's Customer Contact Center ("CCC") to report a "very dangerous" malfunctioning elevator. An hour and a half later, 84-year-old resident Olegario Pabon attempted to enter the elevator, which drifted upwards catching his leg and hand and ultimately led to Pabon falling out of the raised elevator. Three days later Pabon died from his injuries. DOI discovered over the course of its investigation that NYCHA did not take immediate action to put the elevator out of service after receiving the CCC call, which could have prevented Pabon's accident. NYCHA senior management did not learn of and investigate the incident until four days later. Less than a month earlier, according to DOI's examination, a similar accident at NYCHA's Morris Houses, also in the Bronx, trapped a resident's foot in the elevator door for over an hour until the man was rescued by FDNY first responders.

DOI's investigation revealed that the elevators involved in the accidents at both Boston Road Plaza and Morris Houses were equipped with fail-safe devices known as "brake monitors," which identify when an elevator's brakes are malfunctioning, and safely shut down or reset the elevator, a function that might have prevented the incidents in the Bronx. However, in both Bronx cases the brake monitors were not operational. DOI also found that although NYCHA has an expert representative on the committee that proposes City elevator safety laws, at the time of the accidents NYCHA was not in compliance with a 2014 revision to the City Building Code that requires property owners to install physical tags to document

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annual inspection and maintenance of elevator braking systems – established a full year earlier. Staff later admitted that they had "missed the boat" concerning this tagging and documentation of annual elevator brake inspections.

This investigation led to NYCHA improving its protocols for inspecting elevators and brake monitors and ensuring prompt compliance with City Building code changes.

In addition to technical failures, DOI identified numerous communication lapses and missteps by NYCHA staff that contributed to the fatal Boston Road accident, including that NYCHA's computerized complaint intake system did not provide an accurate problem code to describe and prioritize the elevator problem. The condition was designated a "Priority 5," requiring correction within 48 hours, as compared to various emergency elevator codes that are assigned "Priority 9," requiring response within 1 hour. Also, several NYCHA staff failed to appropriately communicate about and respond to the elevator malfunction and subsequent accident.

This investigation led to NYCHA retraining its staff who intake complaints and to a review and improvement of NYCHA's priority codes regarding elevator complaints.

DOI made 14 recommendations to NYCHA to strengthen protocols and enhance safety. NYCHA has accepted all of DOI's recommendations and has already begun implementation. Recommendations include, among others:

- NYCHA should ensure full compliance with the NYC Building Code;
- Better identify and respond to potentially dangerous elevators in NYCHA's portfolio of over 3,000 elevators citywide;
- Train elevator staff about operation and maintenance of brake monitors and other safety devices;
- Conduct monthly inspections and operability testing of brake monitors;
- Evaluate whether to install additional emergency braking systems;
- Enable CCC operators to escalate reports of dangerous conditions, and supplement their training; and
- Improve the chain of communications from an initial report of an elevator hazard to an appropriate response by NYCHA.

DOI will continue to monitor NYCHA's progress with these safety measures. In addition, DOI has referred NYCHA's Elevator Services and Repair Department Director and nine other employees to NYCHA for appropriate disciplinary action.

DOI Commissioner Peters thanks NYCHA Chair and Chief Executive Officer Shola Olatoye and her staff for their cooperation and assistance on this investigation.

This investigation was conducted by DOI's Office of the Inspector General for NYCHA, specifically First Deputy Inspector General Pamela Sah, Deputy Inspectors General Doug Schneider and Gregory DeBoer, and Inspector General Ralph M. Iannuzzi, under the supervision of Associate Commissioner James J. Flaherty, Deputy Commissioner/Chief of Investigations Michael Carroll, and First Deputy Commissioner Lesley Brovner.

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New York City Department of Investigation

Elevator-Related Accidents and Fatality at NYCHA Public Housing

MARK G. PETERS
COMMISSIONER

March 2016

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EXECUTIVE SUMMARY

Following an elevator fatality in December 2015, the Department of Investigation (DOI), Office of the Inspector General for the New York City Housing Authority (NYCHA), conducted a systemic review of elevator safety in NYCHA buildings. This review revealed numerous failures within NYCHA to communicate and respond appropriately to a resident's report of a hazardous malfunctioning elevator, which may have contributed to the fatality. In addition, DOI discovered that, contrary to NYC Department of Buildings (DOB) policy, a fail-safe elevator "brake monitor" device that might have prevented the fatal accident was not operational, and furthermore that numerous brake monitors installed on NYCHA elevators were not functioning properly. DOI's findings are detailed in this report.

On December 24, 2015, at 2:38 p.m., a concerned resident at NYCHA's Boston Road Plaza senior building in the Bronx called NYCHA's Customer Contact Center (CCC) concerning a "very dangerous" condition. She reported that the elevator was "going up and down by itself" while its door remained open, and that when the door did close, "it slams real hard." Despite this warning, NYCHA did not respond and take the elevator out of service. An hour and a half later at 4:05 p.m., 84-year-old resident Olegario Pabon attempted to step into the elevator, which drifted upwards by several feet and then tried to close and caught Pabon's leg and hand inside the elevator car, until he fell out into the hallway. Pabon died three days later from his injuries. DOI was notified by NYCHA's General Manager on December 30, 2015 of this fatality, and commenced an investigation. DOI determined the following:

- Though NYCHA was alerted by the resident's telephone call that the Boston Road elevator presented an emergency, NYCHA did not take immediate action to evaluate the situation and respond appropriately.

- Multiple lapses in communication contributed to NYCHA's failure to timely respond to Boston Road and take the elevator out of service.

- The morning after the accident, on December 25, 2015, a NYCHA elevator foreman was advised by a mechanic that an individual had been injured by the elevator and was hospitalized, but NYCHA did not investigate or take action until December 28, 2015.

- An elevator safety device known as a "brake monitor," which might have prevented the fatal accident, had been disabled.

- A post-incident review of the 1,080 NYCHA elevators that are equipped with brake monitors revealed that 80 brake monitors, or 7.4%, were not functioning properly. Though brake monitors are not required by NYC Building Code, the policy of the DOB is that if a component is installed on an elevator, it must be functioning.

- Although NYCHA's elevator director sits on the committee that proposes City elevator safety laws, NYCHA was not in compliance with a 2014 revision to the NYC Building Code that requires installation of physical tags to document annual inspection and maintenance of elevator braking systems.

DOI also learned that on December 2, 2015, an elevator at NYCHA's Morris Houses in the Bronx had similarly malfunctioned and caught a resident's foot in the elevator shaft for over an hour. The Morris Houses resident sustained a fractured leg. The brake monitor on the Morris Houses elevator also was not functioning.

DOI's investigation uncovered significant flaws in NYCHA's handling of elevator complaints, as well as in NYCHA's compliance with elevator safety laws. As a result, DOI made 14 Policy and Procedure Recommendations (PPR's), including that NYCHA ensure full compliance with the NYC Building Code, better identify and speed up response times to potentially dangerous elevators, train elevator staff about operation and maintenance of brake monitors, conduct monthly inspections and testing of brake monitors, enable NYCHA call center staff who field calls for assistance from the public to escalate reports of dangerous conditions, and re-train CCC operators in identifying and reporting elevator-related and other emergencies. NYCHA has accepted all of DOI's recommendations and has already begun implementation.

INVESTIGATIVE FINDINGS

I. Two NYCHA Elevators "Drifted" Dangerously Within One Month

A. *Boston Road Plaza (managed by Pelham Parkway Houses), 2440 Boston Road, Bronx, Elevator A*[1]

NYCHA reports show that in 2015, Boston Road Plaza Elevator A experienced 30 outages for an average of 2.5 outages per month, as compared to NYCHA's 2015 citywide average of 1.0 outage per month.[2]

DOI investigators reviewed recent maintenance and repair requests (known as "work orders") for Elevator A, performed site visits, and interviewed ten elevator mechanics and supervisors who worked on or observed the Boston Road elevator before and after the accident.[3] DOI reconstructed the following history, including recent mechanical problems with Elevator A:

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[1] Boston Road Plaza Elevator A was initially installed in 1970 and last rehabilitated in 2000. Recent mandatory inspection and preventive maintenance reports for this elevator were timely conducted and unremarkable.

[2] According to NYCHA's Elevator Services and Repair Department Director, it is the responsibility of Elevator Administrators in each of four departmental sectors to identify and respond to problem elevators. The Elevator Director was not aware of Elevator A's outage rate until DOI brought it to his attention.

[3] DOI interviewed the "house mechanic" assigned to Boston Road Plaza, assisted by his helper (worked on Elevator A on 12/21 and 12/22/15), and regular elevator and Special Teams mechanics who worked on the elevator on 12/22, 12/23, 12/25, 12/30, and 12/31/15. DOI also interviewed

- On December 21, 2015, following routine preventive maintenance, a passenger was reportedly stuck and assisted out of the elevator by FDNY.[4]

- On December 22, 2015, the assigned "house mechanic" advised his foreman that the elevator was running slowly in the up direction, and a Special Teams mechanic[5] installed a new regulator, which controls voltage affecting the car speed and the elevator's brakes. After this second regulator was adjusted and the mechanics observed the elevator functioning properly, the elevator was placed back in service on December 23, 2015.

- On December 24, 2015:

  - CCTV video shows that throughout the late morning and afternoon, Elevator A intermittently functioned normally, and occasionally drifted upwards from various floor landings while the car doors remained open.

  - At approximately 2:58 p.m., an unknown person placed two yellow "wet floor" placards in front of and blocking Elevator A's door on the lobby level.

  - At 4:05 p.m., Pabon, walking with a cane, attempted to enter Elevator A from the first floor. The elevator drifted upwards and Pabon stumbled, then the elevator door tried to close and caught Pabon's leg and hand as the cab continued to rise. After 20 seconds, Pabon fell out of the raised elevator and the door closed. Pabon sought assistance from a neighbor, who called 911 and told the FDNY operator that Pabon said that he had fallen from the elevator. Shortly thereafter, Emergency Medical Technicians (EMT's) from private ambulance company Trans Care arrived on scene, and when they left with Pabon on a gurney at 4:42 p.m., he was conscious and talking. Subsequently throughout the late afternoon and evening, the elevator did not drift again.

On the morning of December 25, 2015, the NYCHA mechanic dispatched to the motor room in response to the work order observed that the elevator was improperly "running through the brakes": when the car was moving, the brakes failed to disengage, so that the brake shoes were overheating[6] and thus losing the ability to hold the car in place.[7] This problem is consistent with Elevator A's intermittent drifting, and likely contributed to the

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two Special Teams supervisors who were on-site on 12/28 and 12/30/15, and the Elevator Director, who was on-site 12/29/15.

[4] After this incident, mechanics repaired the elevator's RD2 resistor, an electrical component that would not have been apparently problematic during routine preventive maintenance.

[5] NYCHA Special Teams mechanics conduct troubleshooting and complex elevator repair and maintenance work.

[6] When brake pads overheat and lose their stopping performance, it is known as "glazing".

[7] This observation was confirmed by a Supervisor of Elevator Special Teams on 12/28/15, as well as by a Special Teams mechanic on 12/31/15.

accident.[8] In its Accident Report dated January 22, 2016, the NYC Department of Buildings ("DOB") concluded that the elevator's regulator was defective and caused the fatal accident.[9]

Elevator A was equipped with Remote Elevator Monitoring Systems (REMS) software, which is used to remotely check whether elevators are running, and logs elevator error messages (known as "faults") that may be helpful in reconstructing problems with an elevator's operation. However, NYCHA and DOI learned during the course of this investigation that REMS had not been properly set up to capture and store historical data for Elevator A.[10]

B. *Morris Houses, 1373 Washington Avenue, Bronx, Elevator B*[11]

In 2015, 1373 Washington Avenue Elevator B experienced 11 outages for an average of .92 outages per month, as compared to NYCHA's 2015 citywide average of 1.0 outage per month.

CCTV video from December 2, 2015 shows that at 4:41 p.m., Morris Houses resident Jamal Brown stepped into Elevator B, which drifted upwards and caused him to trip and fall into the elevator cab, as the door closed and trapped his foot and ankle. Brown pushed the elevator emergency stop button and struggled unsuccessfully to free himself

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[8] Through subsequent interviews, DOI learned that on December 30, 2015, a Special Teams mechanic was sent to meet NYC Department of Buildings (DOB) inspectors at the Boston Road motor room. After NYCHA and DOB staff observed that the brakes were not lifting, the mechanic called controller manufacturer Motion Control Engineering (MCE) and was instructed to check the regulator's voltage output. MCE concurred that the regulator was not functioning properly, so the mechanic installed and adjusted a new, third, regulator on December 30 and 31. After routine adjustments, Elevator A functioned normally with its brakes lifting, and the elevator was put back in service. A few hours later in the evening of December 31, Elevator A was again called in as out of order. A different elevator mechanic was sent to respond, but after troubleshooting the elevator including re-setting the regulator, he was not able to resolve the problem and left the elevator shut down. On January 8, 2016, after an MCE mechanic and the Special Teams mechanic worked together on Elevator A, including tuning up the regulator, the elevator was approved by DOB to be operated, and was finally put back in service around 1:45 p.m.

[9] In DOB's 1/22/16 Accident Report #106/15, the inspector wrote of his site inspection on December 29, 2015: "That the brake monitor switch was disconnected. The bridged fuses on controller, defective regulator that did not function properly to send the proper voltage to the brake; inoperative overload relay and the brake was not lifting. I performed a 125 percent brake test and the device failed. The car (device) was ceased-use and a violation was issued . . . Brake monitoring switch is not required by the code but if it's part of the installation it must be in working order." The DOB report concluded: "IT APEARS THE DEVICE CONTRIBUTE TO THE ACCIDENT DUE TO BRAKE MONITORING SWITCH INOPERATIVE AND DEVICE NOT HOLDING THE 125 PERCENT LOAD. ALSO THE CONTROLLER REGULATOR WAS NOT WORKING PROPERLY."

[10] DOI interviewed 2 NYCHA Elevator Department IT staff, who were unable to determine why REMS historical data had not been captured for the Boston Road elevator. Furthermore, these staff did not have a comprehensive system nor any controls to identify which elevators have been equipped with REMS capabilities, and to cross-check whether REMS data is being duly captured and stored.

[11] The Morris Houses elevator was initially installed in 1963 and last rehabilitated in 2004. DOI investigators reviewed recent inspection and preventive maintenance reports and REMS data, which are all unremarkable.

for nearly 20 minutes until FDNY first responders arrived; it took FDNY another 50 minutes using the Jaws of Life and other tools to extricate him. This elevator also was running through the brakes.[12, 13]

II. Brake Monitors Were Disabled at Boston Road, Morris Houses, and Other NYCHA Developments

A common thread among these accidents is that in both cases, a fail-safe device called a brake monitor, which is designed to identify when an elevator is running through its brakes and to shut down or reset the elevator, was not functioning. If these two brake monitors had been functioning, the accidents might have been prevented. Though brake monitors are not required by NYC Building Code, the policy of the NYC Department of Buildings (DOB) is that if a brake monitor is installed, it must be functioning.[14] Though the protocols and checklists used by NYCHA in December 2015 required elevator mechanics to inspect several key brake components during monthly preventive maintenance and periodic inspections, at the time NYCHA did not require mechanics to specifically examine and report on the condition of brake monitors.

Out of NYCHA's 3,314 elevators citywide, 1,080 elevators are equipped with brake monitors. Typically, brake monitors are not factory-installed by the machine manufacturer, but rather are added on during elevator installation or rehabilitation.[15] Following the Morris Houses accident, and later the Boston Road accident, NYCHA inspected all of its brake monitors[16] and concluded that 80, or 7.4%, of its brake monitors were not functioning properly. NYCHA represents that it has subsequently remediated all 80 brake monitors and put the elevators back in service. Importantly, and in part in response to recommendations made by DOI during the course of this investigation, NYCHA has also revised its policies and checklists to require that mechanics and inspectors routinely inspect, test, and verify that brake monitors are functioning, and document their findings.

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[12] During subsequent interviews with DOI, a NYCHA Supervisor of Elevator Special Teams, a Special Teams mechanic, and the Elevator Director all opined that the Morris Houses elevator malfunction was caused by a faulty electrical trace on a Tricon-branded RBH relay board in the elevator's controller system, which consequently failed to lift the brake. NYCHA affirmed this diagnosis when the circuit board was replaced on December 3, 2015 and the brake immediately lifted. One elevator mechanic told DOI that he has seen two Tricon boards over a four-year period on which traces burned out and affected nearby traces. However, a Special Teams supervisor advised that the Tricon RBH boards fail only "once in a while"; and a Special Teams mechanic opined that the boards "last a long time."

[13] The DOB Accident Report, by an inspector who came on-site on December 2 and December 8, 2015, concluded that this accident "was caused by the brake hanging up because of the brake plunger hanging up and causing the brakes not to drop."

[14] After both elevator accidents, DOB issued NYCHA violations for the non-functioning brake monitors.

[15] NYCHA brake monitors are commonly comprised of either an electronic microswitch, or a metal box, installed on the elevator's machine.

[16] After the Morris Houses accident, NYCHA implemented a plan to inspect brake monitors on all elevators equipped with "single plunger" brakes like the Morris Houses elevator; after the Boston Road accident, NYCHA expanded inspections to include all elevators.

Based on post-accident inspection results, interviews with elevator mechanics and supervisors, and site visits, DOI identified several independent causes of non-functioning brake monitors at NYCHA developments:

- Disconnected brake monitor (Boston Road): At Boston Road, a NYCHA Special Teams mechanic removed the cover from the brake monitor and observed that the brake monitor wiring had been disconnected and covered in black electrical tape.[17] *See* photograph, Appendix A. During interviews with DOI, multiple elevator staff stated variously that brake monitors "definitely can cause issues" by shutting down elevators, because the devices are "very sensitive." Based on these consistent statements by multiple NYCHA mechanics and supervisors, and because the Boston Road brake monitor wire tips had been deliberately covered in black tape, DOI determined that it is possible that at some point before the accident, one of the several elevator mechanics who worked on the Boston Road elevator intentionally disconnected the brake monitor in an effort to prevent shutdowns.[18] Because NYCHA protocols did not require regular brake monitor inspections, this condition could have gone undetected indefinitely.

- Contradictory manufacturer's instructions (Morris Houses): In order to ensure proper installation and operation, mechanics must precisely follow manufacturers' blueprints.[19] However, several NYCHA elevator supervisors indicated that the blueprints for the Tricon-brand controller used at Morris Houses and other NYCHA elevators are incorrect.[20] Consequently, a mechanic who duly follows the blueprints will be led to believe that the brake monitor is functioning when in fact it is not turned on. In fact, according to NYCHA, its mechanics did properly follow the Tricon blueprints, and after the accidents, NYCHA discovered that

[17] This discovery, first made by a Special Teams mechanic, was also confirmed during separate DOI interviews of two elevator supervisors and the Elevator Director.

[18] NYCHA's records contain work order #35242977, which indicates that an elevator mechanic's helper, who assists the "house mechanic," worked on the Boston Road brake monitor on 1/14/15: "TLC OPEN MICRO SW ON MECHINE [sic] BRAKE/ADJ CKOP BIS" [Trace/Locate/Clear (i.e., troubleshoot and fix) open micro switch on machine brake/adjust, check operation, and put elevator Back In Service]. During interviews with DOI investigators, the helper and house mechanic denied disconnecting the brake monitor: the helper stated that his job duties do not include working on elevator components, and the mechanic stated that he did not recall working on the microswitch.

[19] Because it is critical that mechanics follow these blueprints exactly, they are sometimes dubbed "Bibles" for installation.

[20] Specifically, the Tricon blueprints indicate in two places that the brake monitor should be wired "normally open," meaning that the default configuration of the electrical circuit is open, but when the brake monitor is activated, the circuit closes. Likewise, textual notes on the prints indicate "Switch closes when brake lifts." *See* Tricon prints, Appendix B. In diametrical contradiction, Tricon's manual instructs mechanics setting up a brake monitor using a handheld computerized device to answer the question: "Brake has contact which opens when brake lifts: yes/no. Set to yes if brake has a contact that opens when brake is lifted. If brake does not have this contact, set to NO" (emphasis added). *See* Tricon manual pages, Appendix C; and photograph of parameter question on handheld device, Appendix D. During this investigation, DOI contacted MCE (which purchased Tricon), which stated that it as of March 17, 2016, it had not received any complaints concerning Morris Houses elevators. NYCHA did not contact MCE about this issue until March 21, 2016, as a result of DOI's investigation.

these brake monitors had not been activated. Again, because NYCHA did not previously require regular brake monitor inspections and operability testing, this condition went undetected until post-accident.

- Missing linkage bolts (Morris Houses): After the Morris Houses accident, NYCHA conducted inspections and discovered that a bolt needed to link up and activate the brake monitors was missing on 33 out of 34 brake monitors at that development.[21] NYCHA subsequently fabricated bolts to activate these brake monitors. *See* photograph, Appendix E. This issue also went undetected because NYCHA did not routinely inspect its brake monitors until after the subject accidents.

III. Communication Failures at Boston Road

In addition to these technical issues, DOI has reviewed the chain of pre-accident warnings initiated by a concerned Boston Road resident, and post-accident communications among NYCHA employees.

On Thursday, December 24, 2015 at 2:38 p.m., the Boston Road resident called NYCHA's CCC and reported that an elevator presented an emergency situation because it was not leveling properly and it was "moving up before the doors closed." The resident caller continued: "it's going up and down and you can see down the shaft . . . you got to be careful, somebody could come in and go in it and go right down . . . it's very dangerous."[22]

Despite the resident caller's warning to the CCC and her additional call directly to the development's management office, no elevator mechanic was dispatched until the morning of December 25, 2015. Furthermore, NYCHA senior management did not become aware of the accident until Monday, December 28, 2015.

DOI has identified numerous communication lapses and missteps that contributed to the fatal Boston Road accident, and also caused the four-day lag until NYCHA management learned of the elevator accident:

1) Because the CCC's computerized intake system did not provide a problem code that accurately described the elevator problem, the call center operator selected a low-priority category. In response to the resident caller, the CCC operator made substantial efforts to understand the factual scenario and to select the appropriate "problem code," which is automatically assigned a response priority. Based on the resident's verbal description, the operator selected "elevator out of order," which is designated Priority 5, requiring correction within 48 hours.[23] *See* Work

[21] DOI was unable to determine whether the missing bolts had never been installed properly, or whether they had been initially installed and then subsequently removed.
[22] DOI reviewed the recording of the resident's call to the CCC.
[23] In its Maximo work order tracking software, NYCHA classifies work orders from lowest Priority 1 (pending resources or approval) through highest Priority 9 ("Super Hazard").

Order #41020560, Appendix F. By contrast, various emergency elevator codes are assigned Priority 9, requiring response within 1 hour, including "passenger stuck," "open hatch door," "accident," "alarm ringing," and "no lights."

2) The management office secretary failed to notify NYCHA maintenance or elevator staff about the elevator problem. The CCC operator followed NYCHA procedure[24] and immediately phoned the elevator emergency to the Pelham Parkway management office responsible for Boston Road Plaza, where she spoke with a secretary. The operator reported a "dangerous condition" in that Elevator A was "not running properly."[25] After the operator's call and an additional call directly from the resident caller, the secretary attempted to contact the Assistant Superintendent by phone and to page him over the intercom system. During a later DOI interview, the secretary stated that she does not recall if she made contact with him but she does "not believe" she did, and that her "job is not to call the mechanic." The secretary left the office when her shift ended at 4:30 p.m. without successfully notifying any elevator, maintenance, or other NYCHA staff about the elevator problem.

3) Though the work order was automatically printed at the development management office five minutes after the problem was reported, development management did not respond. The resident's call to the CCC came at 2:38 p.m. on December 24, 2015. NYCHA's Maximo computer system shows that at 2:43 p.m., the work order was printed on printer #B33PS03, which is located in an office at Pelham Parkway Houses (which manages Boston Road Plaza) that is shared by a Superintendent and Assistant Superintendent. During interviews with DOI, the Superintendent stated that he was on vacation that day, and the Assistant Superintendent denied having seen the work order.

4) Development staff heard that someone had fallen in Elevator A, but did not investigate or notify development management. On the afternoon of December 24, 2015, the Pelham Parkway Assistant Superintendent and a Caretaker came to Boston Road to perform routine maintenance work in the building. CCTV video shows that at 4:37 p.m., while EMT's were still on-site, these NYCHA employees entered the Boston Road lobby, briefly attempted to look from inside the doorway of Elevator B into the neighboring Elevator A shaftway, then took the stairs. At 5:20 p.m., the Assistant Superintendent and Caretaker rode Elevator A together: video shows that the elevator door failed to close, such that the Assistant Superintendent had to physically pull on the door repeatedly to make it operate; and other people waiting for elevators opted not to take Elevator A, but to wait for the other car. A few minutes later at 5:23 p.m., after stopping on the first floor where Pabon had earlier been treated by EMT's, the Assistant Superintendent and

[24] Pursuant to Standard Procedure 040:09:7 (4/27/09), call center operators are instructed to respond to reports of emergencies by: during business hours, calling the development; or after business hours, calling NYCHA's Emergency Services Department. The operator correctly followed this procedure by immediately calling the development management office to report the condition.
[25] DOI reviewed the recording of the CCC operator's call to the Pelham Parkway management office.

Caretaker exited the stairwell into the lobby. The Caretaker picked up the yellow "wet floor" placards that an unknown person had previously put in the area, and placed them to block access from the lobby level to Elevator A; both NYCHA employees then left the building.

During subsequent interviews with DOI, the Assistant Superintendent stated that he had heard residents in the lobby talking about someone who had fallen, but that he did not associate the accident with the elevator until days later. During separate interviews, the Caretaker said that he had heard someone say that "someone fell in the elevator" and that the injury had taken place in Elevator A, which is why he placed the safety placards in front of that car. The Caretaker told DOI that he did not discuss the incident with the Assistant Superintendent, stating: "I was not paying it no mind I was just looking to go home." Neither NYCHA employee reported the incident to anyone at NYCHA before leaving for the day.

5) NYCHA elevator dispatchers did not provide sufficient details to the mechanics to fully inform them of conditions as reported by the resident caller. In the work order describing the resident's call, the CCC operator wrote: *"Elevator cab door slamming and elevator is going up and down without opening the door . . . the door opens when it wants to and the elevator is jumping up and down and back and forth – hazardous condition for the elevator." See* Appendix F. NYCHA elevator mechanics and supervisors agree that if they had received this message verbatim, they would have considered it an emergency and acted immediately. However, during the first dispatch call concerning this work order on December 25, 2015 at 3:29 a.m., a Supervisor of Elevator Mechanics told the mechanic only that "they called in the A Car" and that the location is a senior building but the complaint was "not verified." [26] A few minutes later, the supervisor called the mechanic back and told him that REMS indicated that Boston Road Elevator A was running. Consequently, the supervisor redirected the mechanic to go work on a building that had no elevator service. Similarly, when the day shift began on December 25, 2015 and a different mechanic was dispatched to Boston Road at approximately 8:15 a.m., the dispatcher told him: "it's called in as the cab door slamming." During a later interview with DOI, NYCHA's Elevator Services and Repair Department Director agreed that reports may be "watered down" when they are communicated to mechanics.

6) A mechanic who arrived at Boston Road the morning after the accident told his dispatcher and foreman that he had learned that an individual had been hurt in the elevator and was hospitalized, but the foreman did not escalate the report. On December 25, 2015 at 8:45 a.m., a mechanic and his helper arrived at Boston Road. While they were working on the elevator, a man approached the helper and said that his father had been hurt on the elevator and was in the hospital. Around 11 a.m., the mechanic called dispatch and reported this information first to the dispatcher, and then to his foreman. The foreman responded that he hadn't seen a

[26] DOI reviewed the recorded dispatch calls.

report and that "we don't know about anybody" hurt by the elevator or hospitalized, but the mechanic and foreman agreed that the elevator should be left shut down because the brakes were failing to lift. The foreman then dispatched the mechanic to the next job but did not report the information to his supervisor.

During a later DOI interview, the foreman reported that he did not recall understanding that anyone had been hurt or hospitalized because of the elevator, and that if he had correctly understood the situation he would have notified his supervisor.

IV. NYCHA's Noncompliance with NYC Building Code

Following the Boston Road accident, on December 31, 2015, DOB Commissioner Rick Chandler sent a letter to NYCHA Chair Shola Olatoye concerning a 2014 revision to the NYC Building Code, which requires annual maintenance of specified elevator brake components,[27] and that such maintenance be documented by affixing a metal tag with the company name and date of service to each elevator's controller. *See* Chandler letter, attached as Appendix G. In this letter, Commissioner Chandler wrote: "In addition, any devices and/or controller software to monitor brake system must be operational and maintained as needed." *Id.*

NYCHA has routinely performed brake inspections and preventive maintenance, but during this investigation, NYCHA elevator staff told DOI that NYCHA staff had "missed" the new requirements to tag and document the brake inspections, and had therefore failed to bring NYCHA in compliance with the tagging and documentation Code provisions.[28] This oversight is especially notable because these Code provisions went into effect a full year earlier, on December 31, 2014, and because NYCHA's Elevator Services and Repair Department Director sits as an expert on the technical committee for Code revisions. Following the subject accidents, NYCHA finally took steps to duly implement the tagging and documentation requirements. *See* "Annual Brake Maintenance" compliance directive to elevator staff, attached as Appendix H.

[27] NYC Building Code, Appendix K, Chapter K1, Section 8.6.4.6.1, provides: "The driving-machine brake shall be maintained annually to ensure proper operations, including, but not limited to the following: (a) residual pads (anti-magnetic pads); (b) lining and running clearances; (c) pins and levers; (d) springs; (e) sleeves and guide bushings; (f) discs and drums; and (g) brake coil and plunger." Notably, this Code provision does not specifically reference brake monitors.

[28] Specifically, DOI was told that NYCHA elevator staff had "missed the boat" concerning tagging and documentation of elevator brake inspections, but that many companies had also been slow to comply with this requirement.

POLICY AND PROCEDURE RECOMMENDATIONS & RECOMMENDATIONS FOR EMPLOYEE DISCIPLINE

Based on this investigation, DOI made the following Policy and Procedure Recommendations (PPR's) to NYCHA. As indicated below, NYCHA has accepted all of these recommendations and has already begun to implement them.

1) NYCHA should ensure that systems are in place to track NYC Building Code/Construction Code revisions and to implement full compliance. *Response: Accepted. NYCHA will increase staff resources for initial monitoring of the NYC Building/Construction Code revisions by applying for an additional representative to sit on the NYC elevator code committee, which will assist NYCHA in identifying regulatory changes prior to and following adoption. NYCHA will explore adopting a system for monitoring regulations and regulatory changes following a comprehensive review of existing models for regulation monitoring and program compliance.*

2) NYCHA should review which Elevator Division staff bear responsibility for identifying and responding to problem elevators, and implement systems and controls to ensure that problems are addressed. *Response: Accepted. Elevator Division Supervisors are responsible for identifying and collecting information about problem elevators from subordinate staff. Furthermore, Supervisors are responsible for implementing controls to ensure that problems are addressed in a timely fashion. NYCHA will also train all Elevator Division staff to report all problem elevators to Supervisors to ensure that Supervisors have access to on-the-ground and real-time information. Finally, NYCHA will improve its proactive identification of elevator problems by classifying a range of potential elevator problems, which it will use to train staff that conducts inspections and preventative maintenance.*

3) NYCHA should implement systems and controls to ensure that REMS current and historical data is collected for all REMS-monitored elevators. *Response: Accepted. NYCHA's Information Technology Department is evaluating ways to collect and store data so that historical data is preserved. NYCHA will also evaluate methods for verifying that such data is properly collected and stored through, for example, auditing of data.*

4) NYCHA should evaluate the feasibility of procuring or setting up REMS systems to identify potentially dangerous malfunctions and send real-time alerts. *Response: Accepted. NYCHA's Information Technology Department will evaluate cloud-based and other REMS enhancements to increase functionality for providing more useful and timely alert reporting and escalation, and to allow for preventative maintenance and monitoring.*

5) NYCHA should require that brake monitors are regularly inspected and tested for functionality, including during monthly preventive maintenance checks. *Response: Accepted. NYCHA has already adopted, implemented, and disseminated internally a revised procedure explicitly requiring the inspection of brake monitors when preventive maintenance is performed, when elevator brake systems are inspected, and when elevators are restored to service. NYCHA is also in the process of modifying its elevator Standard Procedure to reflect these and other key changes*.

6) NYCHA should contact the company that now owns Tricon controllers to ensure that corrected blueprints are issued and distributed to affected NYCHA developments. *Accepted*. *NYCHA has contacted MCE, owner of Tricon, to acquire corrected blueprints. Upon receipt of the corrected blueprints, NYCHA will review which developments are affected, disseminate corrected blueprints to staff, and train staff to implement a program for using corrected blueprints, where applicable.*

7) While inspecting its portfolio of brake monitors, NYCHA discovered that some brake monitors are programmed by their manufacturers,[29] upon identifying an elevator running through the brakes, to test run the elevator and then reset it and continue to allow operation.[30] NYCHA should develop a plan either to replace elevator controllers that do not immediately shut down the elevator when a brake monitor senses a problem, or to re-program such controllers to institute immediate shutdown. *Response: Accepted. NYCHA is working with controller manufacturers to change programming to shut down the elevator when the brake monitor senses a brake malfunction. NYCHA will conduct a systematic review of which NYCHA elevators would need the change in programming, and will develop a plan for implementation, where applicable.*

8) In March 2013, following an investigation by NYCHA's Office of the Inspector General into an elevator accident at NYCHA's Wilson Houses, DOI recommended that NYCHA should explore installing emergency braking systems, such as "rope grippers,"[31] to prevent unintended motion on all elevator cars not so equipped. In October 2013, NYCHA responded that installing rope grippers to retrofit existing elevators would be "cost prohibitive," even assuming that such installation would be physically feasible. In January 2015, the NYC Building Code was revised to require that elevators must be equipped with systems to prevent unintended motion by 2027.[32] Accordingly, DOI now again recommends that NYCHA evaluate the feasibility of implementing a plan to install emergency

[29] Some controller manufacturers program brake monitors to shut down an elevator upon identifying the elevator's running through the brakes. Other brake monitors are programmed to attempt multiple test runs and to allow the elevator to continue operating under some circumstances.
[30] This optional functionality is not prohibited by NYC Building Code or other law.
[31] Rope grippers are steel plates that grip an elevator's cables in order to prevent unintended motion of the elevator car.
[32] NYC Building Code, Appendix K, Chapter K3, Section 3.8.4.1.

braking systems in advance of the 2027 deadline and as soon as possible. *Response: Accepted. NYCHA is developing a feasibility study to evaluate options for complying with the 2027 Building Code. NYCHA has submitted a scope to various architectural and engineering firms and is awaiting proposals/responses.*

9) NYCHA should train elevator mechanics and supervisors specifically concerning safety devices, including brake monitors, and rope grippers and other emergency braking systems. *Response: Accepted. NYCHA elevator staff currently receives training on safety devices. Additionally, NYCHA is developing field training specifically tailored for brake monitors to be done on-site for supervisors and staff at locations that have brake monitors, and will expand field training to include training on rope grippers and other emergency braking systems.*

10) NYCHA should re-examine elevator "problem codes" and ensure that appropriate and sufficient codes are available to classify and prioritize elevator-related and other emergencies. *Response: Accepted. NYCHA is working with maintenance, operations, and Customer Contact Center staff to evaluate existing problem codes and identify the necessity for additional or different codes that would assist CCC staff in classifying elevator-related and other emergencies, which would assist operations staff in prioritizing emergencies. NYCHA will then work with its Information Technology Department to create new codes and will retrain staff on these codes and utilization.*

11) NYCHA should re-train Customer Contact Center operators about identification, triage, and reporting of elevator-related and other emergencies. *Response: Accepted. NYCHA has already provided CCC staff with additional training and information regarding the creation and handling of elevator work orders including escalation/reporting and how to better identify key elevator issues that require high priorities. NYCHA will improve its training of staff in triage questioning, and will expand the materials made available to the CCC staff, including adding photographs, to ensure correct identification of the most important issues.*

12) NYCHA should review its policies and systems for Customer Contact Center operators to escalate reports of potentially hazardous elevator-related and other conditions, and implement a new policy as soon as possible. *Response: Accepted. NYCHA has already adopted, implemented, and disseminated internally a revised protocol for staff who learn of conditions that may pose imminent danger (for example, open hatch or stuck passenger) that clearly instructs them to call 911 for FDNY response. In addition, CCC operators are directed to escalate calls to their shift supervisor if there is any question about the level of danger being described by the caller. NYCHA is also reviewing the flow of an elevator complaint from call-in to completion, to identify risks and opportunities for improving response time, accuracy, and efficiency.*

13) NYCHA elevator dispatchers should independently evaluate elevator complaints by reviewing work orders including narrative notes in their entirety, instead of relying on prioritization set by customer service operators who lack expertise in elevator and building conditions. *Response: Accepted. NYCHA has already directed elevator dispatch staff that they are required to review elevator complaints in their entirety, and to share all relevant details and notes with the elevator mechanic.*

14) NYCHA should seek agreement by FDNY and other first responder agencies to notify NYCHA of accidents and other safety-related incidents occurring on NYCHA property. *Response: Accepted. NYCHA will work with its partners across City government, including at the FDNY and NYPD, on developing a system for improving and ensuring efficient communication and reporting about any dangerous issues observed at NYCHA facilities that can or did cause an injury, and to integrate such information into NYCHA's alert and response system.*

In addition to the above 14 PPR's, in connection with these elevator accidents and fatality, DOI has referred NYCHA's Elevator Services and Repair Department Director and nine other employees to NYCHA for consideration of appropriate disciplinary action.

CONCLUSION

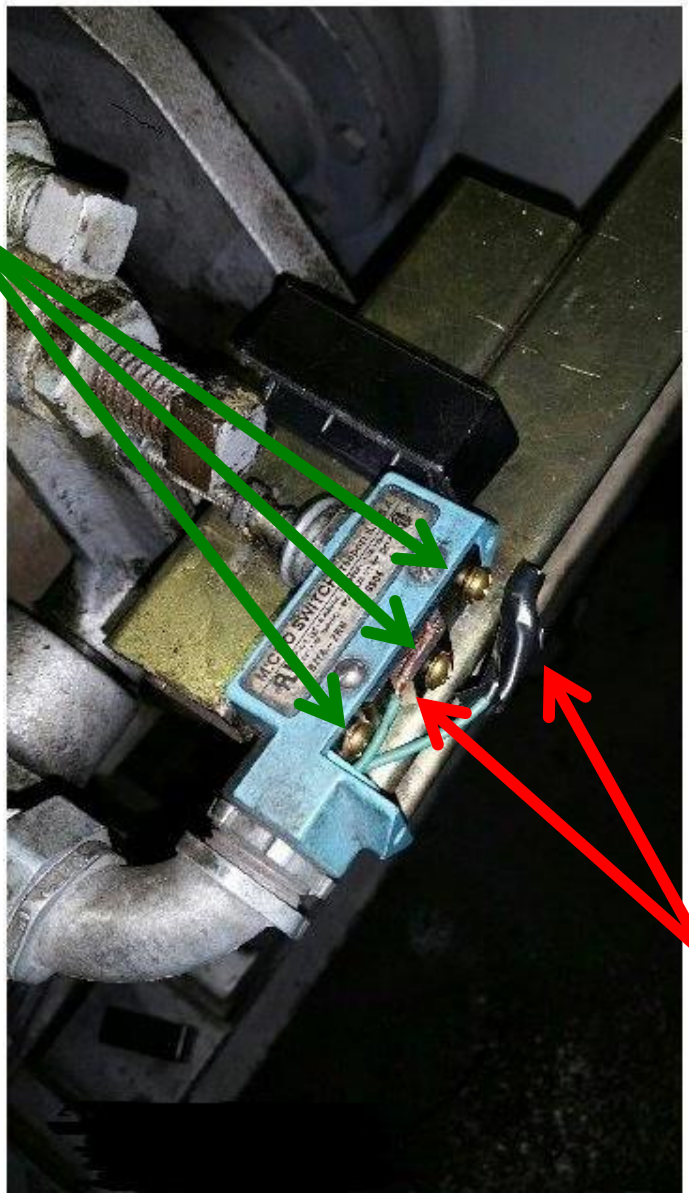
DOI's investigation identified numerous weaknesses in NYCHA's systems for promptly communicating about and responding to elevator problems in its more than 3,000 elevators in NYCHA public housing developments citywide. Significant problems include NYCHA's failure to comply with NYC Building Code; lack of awareness about elevator brake monitors; and multiple missed communication opportunities that contributed to the fatal accident at Boston Road Plaza.

As a result, DOI made 14 Policy and Procedure Recommendations to enhance NYCHA's brake monitor inspections, elevator response protocols, and elevator safety; to increase training for elevator mechanics about brake monitors and other elevator safety devices; to improve training for call center staff to triage, report, and escalate elevator-related and other emergencies; and to improve elevator dispatch procedures to better identify and respond to elevator-related emergencies. NYCHA has accepted all of DOI's recommendations and has already commenced implementation. DOI has also recommended that NYCHA consider disciplinary action against certain involved employees.

DOI will monitor NYCHA for compliance with these recommendations.

APPENDIX A

Wires should have been connected to two of these three screws in order to activate the brake monitor



but instead, the wires were not connected to the screws, and both stripped wire tips were covered in black electrical tape.

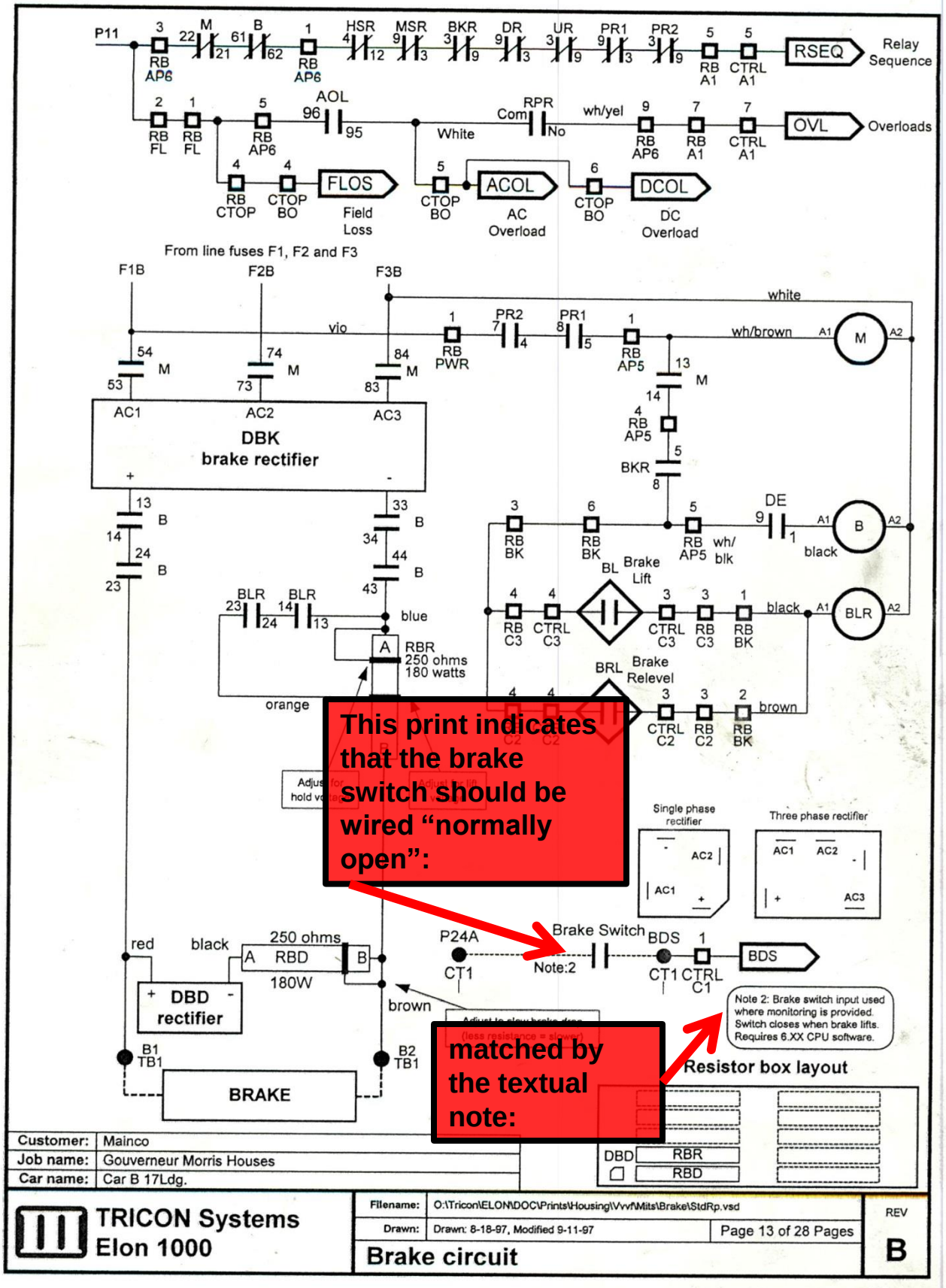
Boston Road Plaza, Elevator Motor Room,
Elevator A brake monitor microswitch with disconnected wires

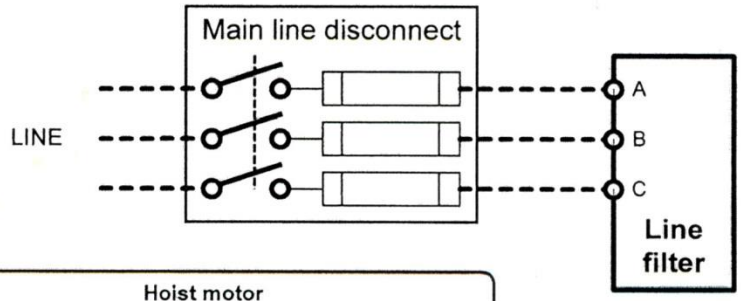
(Photograph taken by NYC Department of Buildings Inspector Cuthbert Lyons on 12/28/15, and later provided to NYCHA OIG)

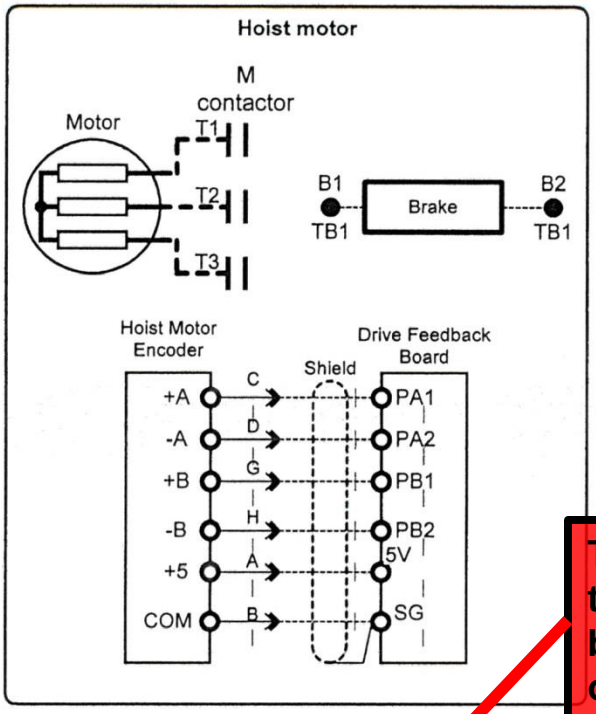
APPENDIX B

Morris Houses, 1373 Washington Avenue, Bronx
Tricon Prints: Brake Circuit and Machine Room Wiring Diagram

Original prints collected as evidence by NYCHA OIG from motor room on 1/28/16

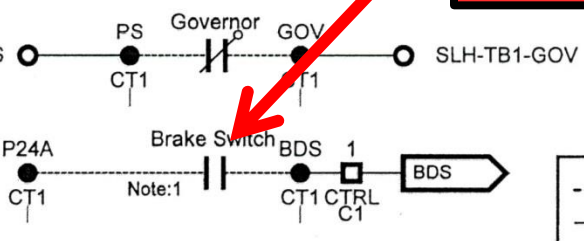

P11
RSEQ
Relay Sequence
OVL
Overloads
AOL
White
RPR
Com
No
wh/yel
FLOS
Field Loss
ACOL
AC Overload
DCOL
DC Overload
From line fuses F1, F2 and F3
F1B
F2B
F3B
white
vio
wh/brown
M
AC1
AC2
AC3
DBK
brake rectifier
DE
B
BLR
BL
Brake Lift
BRL
Brake Relevel
wh/ blk
black
blue
orange
brown
RBR
250 ohms
180 watts
This print indicates that the brake switch should be wired “normally open”:
Single phase rectifier
Three phase rectifier
red
black
250 ohms
RBD
180W
DBD
rectifier
P24A
CT1
Brake Switch
Note:2
BDS
CT1 CTRL C1
brown
B1 TB1
B2 TB1
BRAKE
matched by the textual note:
Note 2: Brake switch input used where monitoring is provided. Switch closes when brake lifts. Requires 6.XX CPU software.
Resistor box layout
DBD
RBR
RBD
Customer: Mainco
Job name: Gouverneur Morris Houses
Car name: Car B 17Ldg.
TRICON Systems
Elon 1000
Filename: O:\Tricon\ELON\DOC\Prints\Housing\Vvvf\Mits\Brake\StdRp.vsd
Drawn: Drawn: 8-18-97, Modified 9-11-97
Page 13 of 28 Pages
Brake circuit
REV
B

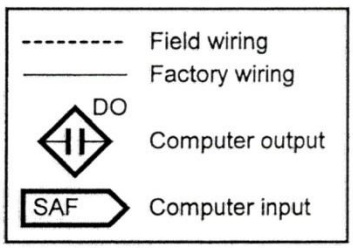




This print indicates that the brake switch should be wired "normally open":

matched by the textual note:





Note:1 Brake switch input used where monitoring is provided. Switch closes when brake lifts.

Customer:	Mainco
Job name:	Gouverneur Morris Houses
Car name:	Car B 17Ldg.

TRICON Systems
Elon 1000

Filename:	O:\Tricon\ELON\DOC\Prints\Housing\Wiring\Hall\CI.vsd	
Drawn:	2-26-98 rja	Page 27 of 28 Pages

Wiring diagram, Machine room

REV **A**

APPENDIX C

Motion Control Engineering, Inc.
11380 White Rock Road
Rancho Cordova, CA 95742

voice 916 463 9200
fax 916 463 9201
www.mceinc.com

Tricon Controller, Installation & Adjustment:

Magnetek HPV 600 Drive
Magnetek HPV 900 Drive
Yaskawa F7 Drive
Mitsubishi A500 Drive
Magnetek DSD 412 DC Drive

V6.2x Software

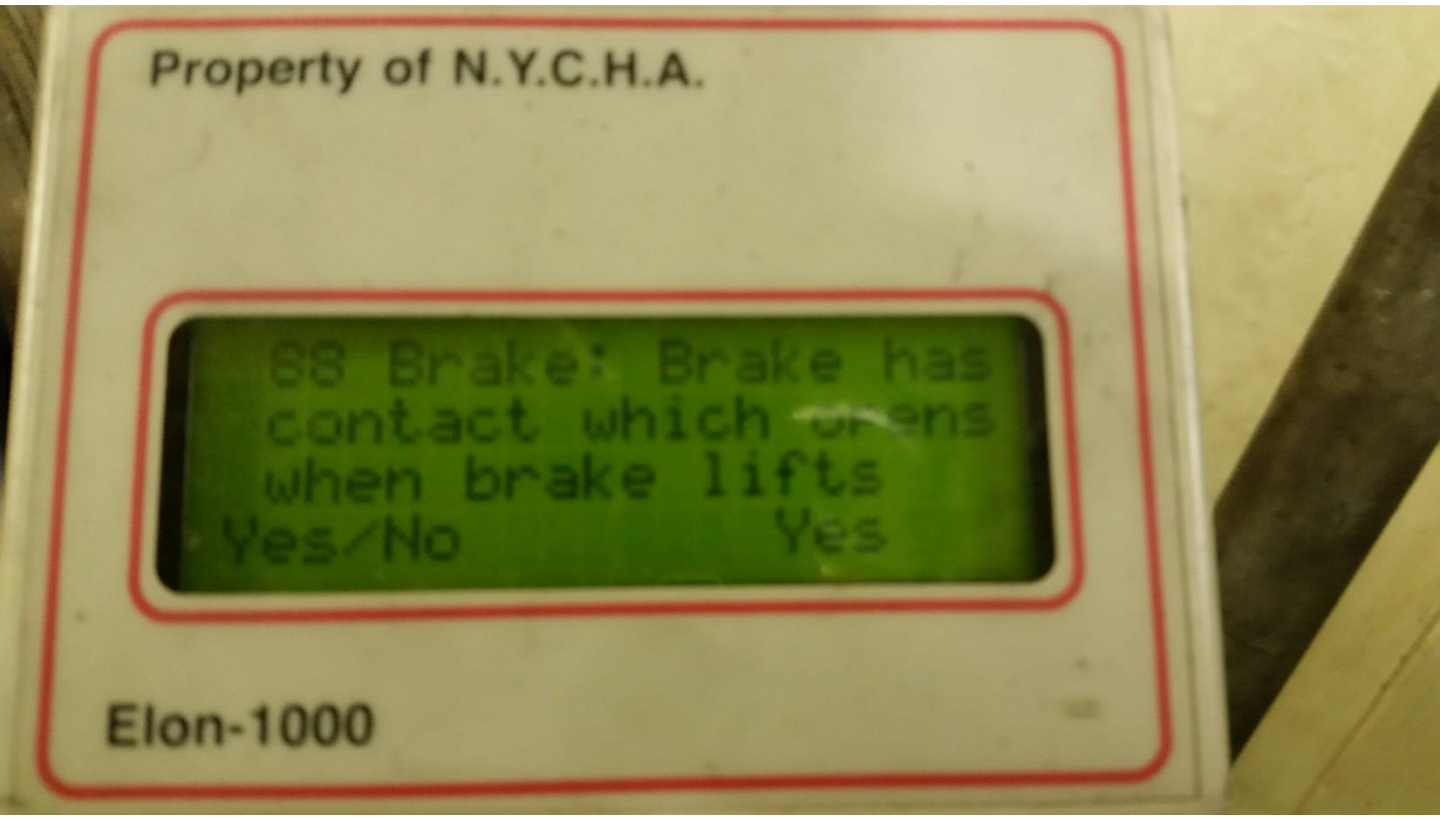
Manual # 42-02-2T00, Rev F4, October 2009

Table 5.18 Car Setup, Parameters Screen

74	Consecutive drive faults time	0 - 255	120	sec	If this time elapses without any drive faults or timeouts, the consecutive faults counter is reset to zero. The consecutive faults counter is incremented every time a fault or timeout occurs. If too many successive faults occur, the counter will reach the value set in parameter 73 (consecutive faults count) and the car will be shut down.
75	Drive: Number of drive reset attempts before giving up	0 - 255	5	each	Determines number of times the drive will try to reset before giving up.
76	Drive: Time to hold drive run after brake drops (insp)	0 - 25.5	0	sec	Time to hold drive running after brake output is turned off. Applies only to inspection operation.
77	Drive: Time to hold drive run after brake drops (auto)	0 - 25.5	1	sec	Time to hold drive running after brake output is turned off. Applies only to automatic operation.
78	Drive: Time to wait before releveling (relev debounce)	0 - 25.5	0	sec	Car will not attempt to relevel until this time has elapsed. This prevents the rapid switching of relays if the car bounces.
79	Drive: Time reset output ON when drive resets	0 - 25.5	3.5	sec	Drive reset line On time.
80	Drive: Time reset output OFF when drive reset	0 - 25.5	4.0	sec	Drive reset line Off time.
81	Brake: Time to delay the brake lift (auto)	0 - 25.5	0	sec	Time to delay the brake lift.
82	Brake: How long brake lift voltage is applied	0 - 25.5	3.5	sec	Determines how long brake lift voltage will be applied. It must be long enough to allow the brake to lift fully.
83	Brake: Time Brake remains ON after car becomes level (auto)	0 - 25.5	0	sec	Determines how long brake will hold after car reaches full leveled position. Allows car to fully stop motion before setting brake.
84	Brake: Time to delay the brake lift (insp)	0 - 25.5	0	sec	Brake lift delay in Inspection mode.
85	Brake: Time brake remains ON after car stops (insp)	0 - 25.5	0	sec	Brake drop delay in Inspection mode.
86	Brake: Time to delay the brake lift (relevel)	0 - 25.5	0	sec	Brake lift delay when releveling. Allows drive to pre-torque before starting, preventing rollback.
87	Brake: Time Brake remains ON after car becomes level (relevel)	0 - 25.5	0	sec	Determines how long brake will hold after car reaches full leveled position. Allows car to fully stop motion before setting brake.
88	Brake: Brake has contact which opens when brake lifts	yes/no	no	yes/no	Set to Yes if brake has a contact that opens when brake is lifted. If brake does not have this contact, set to NO.
89	Brake: Brake uses BRL output when releveling	yes/no	no	yes/no	Set to Yes if a separate relevel setting is desired. WARNING! If the controller does not have hardware for brake relevel (BRLR relay or electronic brake control) DO NOT set this parameter to Yes. The brake will not pick if this parameter is set to Yes and there is no hardware installed.
90	Brake: Flag 1	yes/no	no	yes/no	

Setup parameter 88:

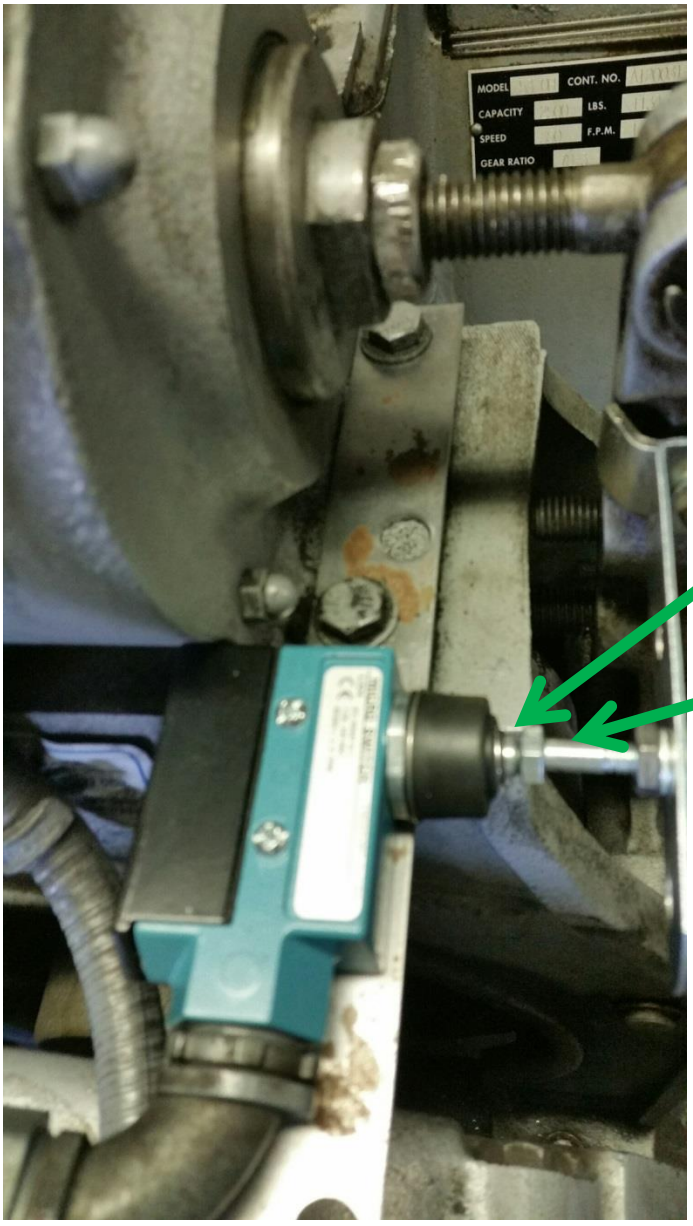
APPENDIX D



Tricon Handheld Device, Setup Parameter 88

“Brake has contact which opens when brake lifts: Yes/No”

APPENDIX E



To function, the brake monitor microswitch must make contact with the linkage bolt.

Brake monitor, with linkage bolt fabricated by NYCHA

APPENDIX F

NYCHA Work Order #41020560, 12/24/15

New York City Housing Authority Work Order

41020560

WO #: **41020560** Reported By: **MXINTADM** Craft: **ELEVMECH** Work Type: **CM** Print Count: **1**

Parent: Actual Reported: 12-24-2015 02:38 PM Status: **CLOSE** Sub Work Type: Scheduled: **12/31/2015**

Priority: **5** ~~Ownergroup: BXELEV~~ ~~Resolution:~~ Court Date: **8AM - 12PM** 4.7

Location Details

Development: BOSTON ROAD PLAZA
Location: **189.01.039.ERM01.BK01.SHT4473**
Description: Elevator Shaft 4473 Car-A
Address: 2440 BOSTON ROAD
BRONX, NY 10467
Location Type: ELEVATOR SHAFT
Class: **Elevator Out of Order**
Problem: **Elevator OOO**

Child Under 6: N
Child Under 11: N
Senior Citizen: Y
Life Support: N
Apt Size:
Apt SEC 8:
Smoke Detector: BT

Resident Information

Name:
Apt: **Permission to Enter:** [ ]
Phone:

Caller Information

Caller Phone: ILEANA PAGAN
Caller Name: 3479082096
Call Taken By: Cassandra Jones

Work Order Description

REPLACED REGULATOR UNIT & MADE ADJS REPLACED BRAKE PADS C/O BIS
Elevator cab door slamming and elevator is going up and down without opening the door the door opens when it wants to and the elevator is jumping up and down and back and forth - hazardous condition for the elevator.

Team 15 - Z. Gjuraj / R. Santiago was pulled at 3:32 AM for 2X at MAR before they got there.

Because the Problem Code selected was "Elevator [Out Of Order]," this work order was automatically assigned Priority 5.

Workorder Status ( ) Completed ( ) Resident Not at Home ( ) Material not in Stock ( ) Interrupted

Safety Information:
N/A

Select Craft for Follow-Up Work

( ) Asbestos Handler	( ) Elevator Mechanic	( ) Maintenance	( ) Vendor
( ) Asbestos Hazard Investing	( ) Exterminator	( ) Painter	( ) Welder
( ) Bricklayer	( ) Glazier	( ) Plaster	( ) OTHERS
( ) Carpenter	( ) Lead Abatement Worker	( ) Roofer	_____
( ) Electrician	( ) Lead Investigator	( ) Tech services 504	

(X) Normal Wear and Tear ( ) Vandalism ( ) Accidental Damage **Reasonable Accomodation:**

Choose One Remedy from the List Below
(X) Found Out Of Service ( ) Installed ( ) Removed from Service ( ) Repaired ( ) Repaired Replaced ( ) Replaced ( ) Running On Arrival ( ) Unfounded ( ) Verified

Check for These Items

Fire Safety Notice	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action
CO Detector	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action
Window Guards	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action
Smoke Detector	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action
G.F.C.I OUTLET	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action
Apartment Door	( ) Satisfactory	( ) Unsatisfactory	( ) Corrective Action

Apt Temp: Water Temp: Cat in Apt : Dog In Apt :
( ) HA Follow Up: Voltage Reading:

Elevator dispatch did not read these notes to the mechanics.

Notes: **Was this Skilled Trades work?:** Yes ( ) No ( )

24-DEC-15 tkt-ELEVATOR - MAINT tkt-ELEVATOR - MAINT
25-DEC-15 INST TL CBL,ADJ ZN I/LK INST TL CBL,ADJ ZN I/LK
25-DEC-15 L/S/D PRBLM WITH BRAKES L/S/D PRBLM WITH BRAKES
30-DEC-15 3:41pm start 3:41pm start
30-DEC-15 C/Over 3:41pm start C/Over 3:41pm start

Started: 12-25-2015 06:41 AM Completed: 12-31-2015 05:30 PM How Many Installed:

To be Completed by the Resident

Resident Statisfied?: **Yes( ) No( )** **Resident Confirmed Work:** _____ Start Date/Time _____ End Date/Time:

Resident Refused Work:I, the resident of this apartment am refusing to allow NYCHA to complete the repair work listed in this work ticket.
Resident: (print and sign name):_____

Resident Comments:

NYC Buildings

#9 APPENDIX G

Rick D. Chandler, P.E.
Commissioner

280 Broadway
7th Floor
New York, NY 10007
nyc.gov/buildings

+1 212 393 2001 tel
+1 212 566 3784 fax

December 31, 2015

Chair Shola Olatoye
NYC Housing Authority
250 Broadway
New York, NY 10007

Re: Elevator Brake Maintenance Requirements

Dear Chair Olatoye:

I write to follow up on and memorialize my conversations with NYCHA General Manager Michael Kelly today regarding the elevator accident that occurred on December 24th at Boston Road Plaza. My staff and I share your desire to address any potentially hazardous conditions as quickly as possible. We thank you for your commitment to work closely with the Department in this endeavor.

As we discussed, NYCHA will provide the Department's Elevators Division with all inspection reports for the elevators at Boston Road Plaza, and inspect all the elevator brakes in the development by 1pm on January 2, 2016.

Pursuant to the 2014 NYC Construction Code ("Code") APPENDIX K, Chapter k1, Section 8.6.4.6.1, "...the driving-machine brake shall be maintained annually to ensure proper operations..." This includes maintenance of the residual pads (anti-magnetic pads), lining and running clearances; pins and levers; springs; sleeves and guide bushings; discs and drums; and brake coil and plunger. In addition, any devices and/or controller software to monitor brake system must be operational and maintained as needed. The Code requires records to be kept of such maintenance, and the attachment of a metal tag on the controller indicating the elevator maintenance company and date of service.

Accordingly, NYCHA will inspect the brakes and tag the controllers of all NYCHA single-plunger brake-system elevators by the end of January 2016, and all dual-plunger brake-system elevators by the end of March 2016.

If any brakes should fail in the course of the aforementioned inspections, cease use of the elevator equipment immediately and contact the Department. The agency director must then sign off on repairs and inspections of the braking systems prior to putting the elevator(s) back into service.

The Department also strongly recommends that NYCHA undertake a feasibility study on the installation of ascending-car overspeed protections for its elevator stock. Such protections are required on all elevator systems installed after July 1, 2009, per the attached sections of the Code.

Thank you again for working in cooperation with us to ensure that elevators in the city are safe for the public and in compliance with the NYC Construction Codes.

NYC
Buildings

If I can be of further assistance to you, please do not hesitate to contact me, or have your staff contact the Department's Elevator Division at (212) 393-2144 or elevatordivision@buildings.nyc.gov

Sincerely,

Rick D. Chandler, P.E.
Commissioner

Cc: Michael Kelly

APPENDIX H

ANNUAL BRAKE MAINTENANCE

*For immediate release

Please be guided below by the Directive concerning NYC building code , Appendix K1, Section 8.6.4.6

Section 8.6.4.6 states,

8.6.4.6 Brakes

8.6.4.6.1 The driving-machine brake shall be maintained annually to ensure proper operations, including, but not limited to the following:

(a) residual pads (anti-magnetic pads);
(b) lining and running clearances;
(c) pins and levers;
(d) springs;
(e) sleeves and guide bushings;
(f) discs and drums; and
(g) brake coil and plunger.

8.6.4.1.1 Brake maintenance shall be entered in the maintenance records.

8.6.4.1.2 A metal tag indicating the elevator maintenance company and date of service shall be attached to the elevator controller.

8.6.4.6.2 If any part of the driving machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

Compliance Directive

1. 8.6.4.6.1 Is achieved by inspecting, cleaning, lubricating adjusting and replacing components as needed. This preventative maintenance is captured during monthly preventative maintenance routines. This section has enhanced preventative maintenance of brake systems by requiring the documentation and tagging of the controller to certify annual compliance.
2. If during the Annual Brake Maintenance any component found to be defective or affecting normal operation replacement is necessary a cease use order will be conveyed to NYC DOB by the Inspection Unit. This information must be provided to Louis Callegari and Ford Weiner. No elevator is to be returned to service until the Agency Director signs off on the inspection.
3. 8.6.4.1.2 Will be documented and completed by the completion of the annual brake maintenance checklist and installation of the tag on the controller door. NYCHA has ordered the tags. The tag and checklist must bear the same date. The method of tag installation will be to drill 2 1/16" holes vertically in the middle of the controller cabinet door. If no cabinet door is available the holes are to be drilled vertically in the middle of frame. A tag seal will be passed through the front, passed back out through the remaining hole, the tag placed on the seal lead and then crimped.

4. 8.6.4.6.2 Will be invoked only if the brake friction material (pads) or tension adjust has been altered or replaced. The elevator will be subjected to a full load test under 2.24.8.3. NYCHA will additionally test the holding force under the current CAT5 requirement of 125%.
5. The above rules will remain in effect unless modified by the NYC DOB.