



EXHIBIT C

ELEVATOR MODERNIZATION REPORT

CLATSOP COUNTY, OR

FOUR (4) ELEVATORS

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Prepared for:

Dave Dieffenbach
Capital Improvement Projects Manager

Clatsop County, OR
(503) 338-3695

DDieffenbach@co.clatsop.or.us

Prepared by:

Bill Greenland
Consultant

Elevator Consulting Services, Inc.
1117 31st Avenue South
Seattle, WA 98144
(503) 933-0038

billg@elevatoradvice.com

EXECUTIVE SUMMARY	3
MODERNIZATION RANKING	7
SPECIFIC BUILDING EQUIPMENT DETAIL	8
800 EXCHANGE	8
Existing Equipment	8
Audit Findings	8
Modernization Evaluation	10
Elevator Equipment Profile	12
Modernization Plan	13
Existing Equipment Photos	16
ADA Compliance Checklist	19
820 EXCHANGE.....	21
Existing Equipment	21
Audit Findings	21
Modernization Evaluation	23
Elevator Equipment Profile	25
Modernization Plan	26
Existing Equipment Photos	29
ADA Compliance Checklist	32
COURTHOUSE	34
Existing Equipment	34
Audit Findings	34
Modernization Evaluation	36
Elevator Equipment Profile	38
Modernization Plan	39
Existing Equipment Photos	42
ADA Compliance Checklist	45
JAIL	47
Existing Equipment	47
Audit Findings	47
Modernization Evaluation	49
Elevator Equipment Profile	51
Modernization Plan	52
Existing Equipment Photos	55
ADA Compliance Checklist	58
APPENDIX: State Inspection History	60

EXECUTIVE SUMMARY

This report was commissioned to inspect and analyze four (4) elevators at Clatsop County facilities to determine the current condition and compliance with current code and safety requirements, and to identify and recommend options for elevator modernizations. During our on-site audit, we inspected each elevator component to determine whether it should be reused, refurbished, or replaced with new equipment with much improved technology as part of an elevator modernization.

The audit included the following sites and elevator equipment:

Site	Equipment	Type	Qty.	Cap.	Speed (fpm)	Stops
800 Exchange	Otis	Traction	1	2,000	150	5
820 Exchange	Otis	Hydraulic	1	4,000	125	2
Courthouse	Esco	Hydraulic	1	2,500	100	3
Jail	U.S.	Hydraulic	1	2,500	125	3

Current Maintenance Contract

Kone Elevator Company is the current maintenance provider operating under a full-service maintenance contract.

An elevator maintenance contract is a major partnership between an elevator contractor and a building owner. The purpose of the contract is to ensure continuing reliable and safe service from the vertical transportation equipment, and to protect the financial investment the owner has made in the elevator equipment. It is a mutual relationship with the Elevator Contractor and the Owner, with each having certain obligations. Maintenance contracts are valuable to elevator maintenance providers as they provide a recurring income stream and are often automatically renewed for recurring multi-year terms with annual price escalation clauses.

Elevator preventive maintenance is labor intensive. Approximately 80% of the cost of maintenance is associated with labor. The labor costs include regular preventive maintenance checks, installation of replacement parts, adjusting and repair, required safety tests, and call-backs. The remaining 20% of preventive maintenance costs cover replaceable parts, outside repair shop costs, and supplies.

Kone appears to be providing monthly service on all four elevators audited. Preventive maintenance on all four elevators was above average. Equipment was clean, lubricated and well adjusted. All State required testing and documentation in the machine rooms were up to date.

Elevator Safety and Code Compliance

Clatsop County elevators generally comply with the codes that were in effect at the time of installation, however they do not comply with the 2010 ASME A17.1 Safety Code for Elevator and Escalators currently in effect in the State of Oregon. When equipment is modernized it will be brought up to current code requirements.

Life Cycle

Typically, elevators are expected to have a life cycle of between 25 and 30 years. There are factors that will impact the expected life cycle. Poor maintenance, poor installation, less than robust design, environmental conditions and frequency of use will contribute to lessen the life cycle. After decades of use there will also have been many code changes and technological advances that would allow the equipment to operate with greater safety, consume less energy, and require less maintenance.

Modernization Audit and Evaluation

To evaluate the need for an elevator modernization, Elevator Consulting Services examines the elevator based on the following eight key categories to calculate the Elevator Profile Score. The Elevator Profile Score determines when an elevator modernization should be considered. These categories are:

1. Age of Equipment

If any factor drives the need for an elevator modernization, it is age of the equipment. Even with proper preventive maintenance, elevator equipment will not last forever, and substandard preventive maintenance can drastically reduce the life expectancy. With proper preventive maintenance, elevator equipment should be expected to last 25 to 30 years.

2. Code Compliance

Codes are evolutionary by design. New technology and better designs provide for safer equipment. An elevator can comply with the code under which it was installed but not have any of the latest safety features required on new equipment.

3. Preventive Maintenance

Preventive maintenance is the activity of performing systematic and periodic checks, tests and service on elevator equipment to ensure that it operates safely and within design parameters. Its goal is to ensure that the equipment will last and operate safely for its anticipated life span. Indicators of poor preventive maintenance are repeated shutdowns and trouble calls, unscheduled repairs, poor adjustment, poor ride quality, accumulation of dirt and debris, and improper or lack of lubrication.

4. Operation and Performance

Operation and performance of the elevator refers to how each component and the overall elevator system performs and is directly related to rider experience waiting for and riding the elevator. Elevator operation during starting, acceleration, deceleration, leveling, and door operation can give good indications of the quality of operation and performance. Continuous operation without numerous mechanical problems can also be a good indicator of operation and performance.

5. Frequency of Use

The frequency of use illustrates how often demand is placed on the elevator equipment. More use results in more wear on the controls and mechanical components of an elevator. For example, office buildings will typically use elevators less than facilities that are active 24-hours per day such as airports, hospitals, apartments, and condominiums.

6. Energy Efficiency

Today's technology seeks ways to make elevator equipment perform better while using less energy. New systems take advantage of Permanent Magnet Synchronous Motors (PMSM), which consume less energy than previous AC and generator control systems. Door operators are using newer technology to provide more efficient door operation with better control and safer operation, while also using less energy. Newer operating fixtures use LED lamps that consume less energy and reduce overall fixture maintenance. Auto light/fan shut-off features are included in newer controllers.

7. Environmental Conditions

Environmental conditions such as heat, moisture, salt water, caustic materials, and many other types of conditions contribute to the degradation of elevator equipment. Equipment installed in an enclosed, controlled environment tends to have the least impact from these environmental conditions. Equipment exposed to the outside environment will be more prone to deterioration that will contribute to more unscheduled shutdowns and requires more intense preventive maintenance. Environment can also include the locality of operation and the clientele that will normally use the equipment. Using a passenger elevator to carry freight can also have a negative impact on the life of the equipment.

8. Design and Installation

The engineering design and installation of the elevator incorporates strength and durability, operational and performance standards, professional craftsmanship, adherence to code requirements, proper installation, and ease of maintenance and repairs. Strength of components and structural equipment is important to ensure that the guide rails, car platform, machines and overhead and pit structures do not shift during building settling or during normal operation and will also withstand the loads imposed on the equipment. Field installation is a critical component of design. A poor installation will lead to continuous

maintenance and repair problems and a shorter than expected life cycle. One factor that often lacks attention in designs is the ease with which equipment can be maintained and repaired. Designs that allow for the quick procurement of parts and reduced lubrication are desired.

Benefits of Modernization

1. Building and Personal Safety Code Requirements
 - Fire safety
 - Seismic safety
 - Passenger protection
2. Operation and Performance
 - More efficient building traffic
 - Reduced maintenance to keep obsolete equipment functioning, and more maintenance on the proper areas
 - Savings on electrical power
3. Appearance and Quality of Life
 - New cab interior (optional) and fixtures
 - New elevator lobby fixtures
4. Increased Value of the Building
5. Reduced Owner Liability
6. Reduced Environmental Risks

Cost Estimates

Budgetary modernization costs are provided in each equipment detail section below. These estimates do not include ancillary work by other trades (electrical, HVAC, fire/life safety, etc.) that would be required in support of the elevator modernization. Generally, work by others costs add an additional 10-20% to the modernization work budget depending on how much work is needed.

MODERNIZATION RANKING

SITE	AGE	MOD PROFILE SCORE	QTY	BUDGET \$ (Does not include Work by Others)
Jail	41	32	1	\$150,000
Courthouse	40	30	1	\$150,000
800 Exchange	46	29	1	\$275,000
820 Exchange	43	27	1	\$125,000

	= Critical Conditions
	= Moderate Conditions
	= Acceptable Conditions

Profile Score	Description	Time Frame to Replace
Greater than 30	Equipment condition is extreme. Major components expected to fail. Proper maintenance is difficult, and parts are, or will become, obsolete. Multiple safety and code concerns. Modernize immediately.	Immediately
25 – 30	Equipment is nearing end of expected life. Potential failure of major components. Proper maintenance is becoming difficult and parts are becoming obsolete. Potential safety and code issues. Begin planning for modernization.	2 to 5 years
17 – 24	Equipment shows normal wear based on current age. Update and improve maintenance program. Include modernization in long term planning.	6 to 9 years
Less than 17	Equipment shows normal wear based on current age. Maintain existing maintenance program. Modernization should not be needed for 10+ years.	10 + years

SPECIFIC BUILDING EQUIPMENT DETAIL

800 EXCHANGE

Existing Equipment

Elevator Type	Geared Traction Passenger Elevator
State ID Number	PXE-6649
Year Installed/Modernized	1975
Manufacturer	Otis
Controller/Selector	Otis
Control System	Simplex
Door Equipment	Otis
Door Size	3' 6" Wide X 7' Tall
Door Type	Single Speed, Center Opening
Door Operation	Power
Landings/Openings	5/5
Floor Designation	*B, 1, 2, 3, 4
Capacity	2,000 LBS
Speed	150 FPM
Machine Room Location	Overhead
Disconnect (AMPS/VAC)	60/240
Motor (HP/AMPS/VAC)	10/38/240

Audit Findings

The elevator at 800 Exchange is a geared traction passenger elevator installed by Otis in 1975. The elevator serves five floors of office building and appears to receive moderate-heavy use. The elevator is relatively small with a 2,000 LB capacity and travels at 150 feet per minute. The machine room is located directly over the hoistway, on the roof top.

The elevator has most of its original components with the exception of a newer Otis AT-400 door operator and infrared door protection device. The hoist motor and drive machine run well and have few leaks compared to similar equipment. Controller contacts were clean and working well.

The pit appears to have had a water intrusion issue in the past and a sump and pump were installed adjacent to the pit behind a metal shroud. Car top equipment was a bit dirty and the cab ventilation fan was not functioning.

Elevator Safety and Code Compliance

While the elevator does comply with the codes that were in effect at the time of installation, it does not comply with the 2010 ASME A17.1 Safety Code for Elevator and Escalators currently in effect in the State of Oregon.

1. Does not comply with current code related to firefighter service.
 - A modernization would include the latest Firefighter's Emergency Operation safety features.
2. Does not comply with current code related to seismic protection.
 - Does not have seismic detection device installed.
3. Fixtures do not meet current code requirements.
 - Hall fixtures not at code height.
 - The main lobby hall call fixtures do not have the required communications failure indicator.
4. The elevator does not comply with all current ADA requirements.

Conclusions

This Otis elevator is near the end of its useful life. While the equipment has been well maintained, and most parts are still available through Otis or other third-party elevator parts vendors, reliability has been compromised due to aging components. The hoist machine and controller require a significant amount of preventive maintenance and travelling cables are original and wires may begin to sever. Door equipment and switches are worn and should be replaced. Buttons and fixtures do not have LED lighting and should be upgraded to meet current code requirements.

Recommendations

It is our recommendation that this elevator is modernized in the next 2-5 years. Several major components should be replaced with new equipment that complies with current safety requirements, will improve the elevator's operation and reliability, reduce energy consumption, and improve quality of life enhancements. Modernization will offer performance improvements, and significantly reduce the maintenance required on equipment that has surpassed its useful life, allowing service personnel to spend more time on areas that require diligent maintenance, such as hoistway door equipment.

Cost Estimates

The cost estimate to modernize the elevator is **\$275,000**. This estimate does not include ancillary work by other trades that would be required in support of the elevator modernization. The specific items we recommend as part of a modernization are detailed in the Elevator Modernization Plan, including the required ancillary work.

Estimated Schedule

New elevator equipment is custom manufactured for each job, which means a significant lead time before actual construction begins. The following table highlights some of the major tasks that must be accomplished as part of an elevator modernization project:

Develop specifications and bid documents	4-8 weeks
Bid process and review	6 weeks
Contract negotiations to NTP	4-8 weeks
Provide and review drawings and submittals	10 weeks
Order and deliver equipment	18-24 weeks
Elevator Construction	10-12 weeks
Final inspection and punch list completion	2-4 weeks
Total Modernization Construction Schedule	54-70 weeks

Modernization Evaluation

To evaluate the need for an elevator modernization, Elevator Consulting Services examines the elevator based on the following eight key categories to calculate the Elevator Equipment Profile score. The Elevator Equipment Profile score helps determine when an elevator modernization should be considered. These categories are:

1. Age of Equipment
2. Code Compliance
3. Preventive Maintenance
4. Operation and Performance
5. Frequency of Use
6. Energy Efficiency
7. Environmental Conditions
8. Design and Installation

1. Age of Equipment

- The elevator at 800 Exchange is over 45 years old and has not received any major upgrades since the original installation with the exception of new door operator (which can be retained during future modernization) and infrared door protection. The elevator controller, hoist motor, door operator equipment, and fixtures are operating beyond their useful life. Additionally, technology has significantly improved on energy efficiency and maintenance requirements of some of the major elevator equipment.

2. Code Compliance

- The elevator does not comply with the current ASME 17.1 2010 code enforced by the State of Oregon. Several of these code changes relate to life safety.

3. Preventive Maintenance

- The preventive maintenance needed to maintain this vintage elevator is relatively high. The higher level of required maintenance is primarily due to the geared hoist machine, controller, and old/worn switches and other components.

4. Operation and Performance

- The existing elevators' operation and performance is not acceptable based primarily on the age of the equipment. The existing components rely on outdated technology which cannot provide acceptable reliability, power efficiency, leveling accuracy, response to traffic demands, and ride quality.

5. Frequency of Use

- This elevator appears to receive moderate to heavy use by building personnel during normal business hours.

6. Energy Efficiency

- The existing equipment relies on 45-year-old technology. Newer devices like LED lighting, auto light/fan shut off, and regen drives can all contribute to energy savings.

7. Environmental Conditions

- The biggest environmental factor is heat in the elevator machine room. Added ventilation or air conditioning should be considered to protect the more sensitive solid-state equipment that will be installed as part of the modernization. Water intrusion in the pit appears to have been remedied.

8. Design and Installation

- The design and installation of the elevator was acceptable based on the technology and standards when it was installed, but after 45 years of use a large portion of the existing equipment needs to be replaced as part of an elevator modernization to meet today's technological and safety requirements and avoid risk of long shut downs due to unreliable components.

Elevator Equipment Profile

Client / Job Site: CLATSOP COUNTY-800 EXCHANGE									
Equipment: ONE (1) GEARED TRACTION PASSENGER ELEVATOR									
	Age	Code Compliance	Preventive Maintenance	Performance & Operation	Frequency of Use	Environmental Conditions	Energy Efficiency	Design & Installation	TOTAL
5 Extreme	5	5							10
4 High					4				4
3 Moderate			3	3		3	3	3	15
2 Low									
1 Minimal									
	= Critical Conditions								
	= Moderate Conditions						Profile Score =	29	
	= Acceptable Conditions								
Profile Score	Description								Time Frame to Replace
Greater than 30	Equipment condition is extreme. Major components expected to fail. Proper maintenance is difficult, and parts are, or will become, obsolete. Multiple safety and code concerns. Modernize immediately.								Immediately
25 – 30	Equipment is nearing end of expected life. Potential failure of major components. Proper maintenance is becoming difficult and parts are becoming obsolete. Potential safety and code issues. Begin planning for modernization.								2 to 5 years
17 – 24	Equipment shows normal wear based on current age. Update and improve maintenance program. Include modernization in long term planning.								6 to 9 years
Less than 17	Equipment shows normal wear based on current age. Maintain existing maintenance program. Modernization should not be needed for 10+ years.								10 + years

Modernization Plan

ELEVATOR CONTRACTOR

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Controller	Replace	New Solid-State Controller.
Hoist Machine	Replace	Remove existing geared machine and replace with permanent magnet AC gearless machine.
Drive Unit	New	New controller will include drive
Overspeed Governor	Replace	New overspeed governor.
Wiring	Replace	Replace all existing wiring.
Firefighters Service	New	New controller will provide the latest code required firefighter's service.
HOISTWAY		
Hoistway Doors	Replace	Provide new hoistway door panels painted to match door jams.
Hoistway Door Sills	Retain / Refurbish	Door sills are in good condition and will be cleaned. Install new door gibs.
Hoistway Door Frames	Retain / Refurbish	Door frames are suitable for reuse. Paint to match doors.
Door Headers, Tracks and Interlocks	Replace	Provide new door header and tracks and door interlocks.
Car Door Detector	Replace	Provide new 3D door detector.
Car Door Operator and Clutch	Retain	Newer Otis AT-400 door operator can be reused.
Comp Chains	Retain / Refurbish	Comp chains can be reused. Remove rust and paint where needed.
Hoistway Wiring	Replace	All hoistway wiring will be replaced with new. All existing conduit (EMT) will be retained provided it complies with current NEC.
Roller Guides	Replace	Provide new roller guides.
Guide Rails and Brackets	Retain / Refurbish	The existing guide rails and brackets are suitable for reuse. Clean and paint as required.
Guide Rail Fishplates	Replace	Recommend new seismic rated fishplates be installed.
Platform, Stiles, Crosshead	Retain	The car sling (structural members which support the platform) are suitable for reuse.

Car Top Inspection Station	Replace	A new car top inspection station will be provided for the safety of maintenance and inspection personnel.
Car Landing and Leveling Devices	Replace	A new computer-controlled landing and leveling system will be provided.
Limit Switches	Replace	New upper and lower limit switches will be provided.
Travelling Cables	Replace	All new electrical travelling cables will be provided.
PIT		
General Pit	Refurbish	The elevator pit will be cleaned and painted.
Buffers	Retain	Retain existing buffers.
CAB ENCLOSURE & FIXTURES		
Cab Enclosure	Retain or Replace	The cab shell is in good condition and can be retained. New wall panels and drop lighting can be installed at owner's discretion.
Car Doors	Replace	New car doors will be provided.
Cab Wiring	Replace	All cab wiring will be replaced with new.
Car Operating Panel (COP)	Replace	New vandal resistant car operating fixtures will be provided.
Intercom to Machine Room	New	In-car intercom to machine room will be provided.
Intercom to Main Recall Floor	New	In-car to main recall floor will be provided.
ADA Emergency Communications	New	ADA approved in car emergency communications will be provided.
Hall Stations	New	New vandal resistant surface mount hall call stations will be provided.
Hall Lanterns and Position Indicators	New	Since there are no hall position indicators there will need to be a car running lantern added to the return jamb of the car enclosure.

WORK BY OTHER TRADES

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Main Line Disconnect	Retain	Main line disconnect can be reused.
Fire Extinguisher	Retain	Fire extinguisher is suitable for reuse.
HVAC	New	Machine room HVAC will be added.
Lighting and Electrical Outlets	Retain / Upgrade	Machine room lighting meets code required 19ft candles. Add GFCI outlet.
Intercom Circuit Disconnect	New	Currently there is no dedicated intercom circuit disconnect.
Car Light Disconnect Switch	Retain	Dedicated car light disconnect can be reused.
PIT		
Lighting	New	Provide pit lighting to meet code required 10ft candles.
Electrical Outlet	New	Provide GFCI outlet.
Pit Ladder	Retain	Pit ladder is code compliant.
CAB ENCLOSURE & FIXTURES		
Lobby Lighting	Retain	Verify lobby lighting meets requirement of 10 ftc at the sill area with the hoistway doors in the closed position.
Cab Flooring	Retain	Cab flooring can be reused or replaced at Owner's discretion.
FIRE SAFETY		
Fire Alarm Initiating Devices	New	Provide fire alarm initiating devices in elevator machine room and at each elevator lobby.

Existing Equipment Photos



Fig. 1 – Controller



Fig. 2 – Hoist motor/machine



Fig. 3 – Overspeed governor



Fig. 4 – Main line disconnect & cab lighting disconnect



Fig. 5 – Door operator



Fig. 6 – Roller guides (car)



Fig. 7 – Car top inspection station



Fig. 8 – Cab fan



Fig. 9 – Limit switches



Fig. 10 – Hoistway door hardware



Fig. 11 – Car door hardware



Fig. 12 – Travelling cables



Fig. 13 – Pit



Fig. 14 – Governor tail sheave



Fig. 15 – Pit stop switch



Fig. 16 – Car position indicator



Fig. 17 – Car operating panel



Fig. 18 – Hall fixture

ADA Compliance Checklist

CODE	COMPLIANT		NOTES
	YES	NO	
4.10.3 Hall Call Buttons			
Are all buttons at least 3/4" in diameter?	X		
Are all button centered 42" above floor?		X	
Do all buttons illuminate when elevator is called and fade when answered?	X		
4.10.4 Hall Lanterns			
Are there visible and audile signals at each hoistway entrance to indicate which car is answering a call?		X	
Do audible signals sound once for "up" and twice for "down"?		X	
Are hall lantern fixtures centered at least 72" above lobby floor?		X	
Are all visual elements at least 2-1/2" in dimension?		X	
Are signals visible from hall call button?		X	
4.10.5 Hoistway Signs			
Does elevator have Braille jamb plates on both jambs, centered 60" above floor?	X		
Are Braille characters at least 2" in height and raised 1/32" in sans serif type?		X	
4.10.6 Elevator Door Requirements			
Do doors have reopening device that will reopen doors if they become obstructed?	X		
Do doors remain open for at least 20 seconds?	X		
4.10.7 Door and Signal Timing for Hall Calls			
From notification that a car is answering a call until the doors start to close, does the time meet the formula of T = D/1.5 ft./s and a minimum of 5 seconds?	X		
4.10.8 Door Delay for Call Calls			
Do the elevator doors remain fully open in response to a car call for a minimum of 3 seconds?	X		
4.10.9 Floor Plan of Elevator Cars			
Is the clearance between the car platform sill and the edge of the hoistway landing no more than 1-1/4"?	X		

CODE	COMPLIANT		NOTES
	YES	NO	
4.10.11 Illumination Levels			
Is the illumination at the car controls, platform, car threshold and landing sill at least 5 ftc?	X		
4.10.12 Car Controls			
Are controls at least 3/4" in dimension?	X		
Are all buttons accompanied by raised characters or Braille that are a minimum 5/8" in height & uppercase sans serif)?	X		
Are all raised designations to left of the button to which they apply?	X		
Do all floor buttons have visual signals in which illuminate when a call is placed and fade when each call is answered?	X		
Are all floor buttons a max. of 48" above floor when forward reach is required and a max. of 54" above floor when side reach is required?	X		
Are all emergency controls grouped at the bottom of the panel with centerlines a minimum of 35" and maximum of 54" above floor?		X	
4.10.13 Car Position Indicators			
Are visual car position indicators above the door or above control panel?	X		
Are the corresponding numbers illuminating when the car passes or stops at that floor, accompanied by an audible signal?	X		
Are all numerals at least 1/2" high?	X		
Are all audible signals at least 20 decibels with a frequency no higher than 1500Hz?		X	
4.10.14 Emergency Communications			
Does elevator have emergency communication that does not require voice communication?	X		
Is the highest operable part of the two-way communication system under the maximum 48" from the floor of the car?	X		
Is the length of the cord from the panel to the handset at least 29"?			N/A

820 EXCHANGE

Existing Equipment

Elevator Type	Above-Ground, Single -Post Hydraulic Passenger Elevator
State ID Number	PXH-7126
Year Installed/Modernized	1978
Manufacturer	Otis
Controller/Selector	Otis
Control System	Simplex
Pump Unit/Machine	Otis
Door Equipment	Otis
Door Size	3' 6" Wide X 7' Tall
Door Type	Two Speed, Side Slide
Door Operation	Power
Landings/Openings	2/2
Floor Designation	*1, 2
Capacity	4,000 LBS
Speed	125 FPM
Machine Room Location	Adjacent, Bottom Landing
Disconnect (AMPS/VAC)	200/240

Audit Findings

The elevator at the 820 Exchange building is a hydraulic passenger elevator installed by Otis in 1978. The elevator has a single, above-ground hydraulic piston, with a cantilever design. The elevator serves 2 floors of the building, which is adjacent and connected to the 800 Exchange building. The elevator has a 4,000 LB capacity, which can accommodate a gurney, and travels at 125 feet per minute. Machine room is located adjacent to the hoistway at the lowest landing.

The elevator has a newer Otis AT-400 linear door operator, infrared door protection and a solid state "soft" starter. All other components of this elevator appear to be original to the 1978 installation. The equipment appeared clean and well maintained by Kone.

Car top and pit areas were clean. The cab does not have a ventilation fan, however there is a cut-out for one and we recommend installing one now or during a future modernization to improve airflow in the cab.

The elevator appears to receive moderate use by County employees and the public. Top floor car calls can be locked out with a key switch.

Elevator Safety and Code Compliance

While the elevator does comply with the codes that were in effect at the time of installation, it does not comply with the 2010 ASME A17.1 Safety Code for Elevator and Escalators currently in effect in the State of Oregon.

1. Does not comply with current code related to firefighter service.
 - A modernization would include the latest Firefighter's Emergency Operation safety features.
2. Does not comply with current code related to seismic protection.
 - Current code requires seismic over-speed valves in pits that will activate and stop the elevator if there is an oil line break between the jack and the pump unit.
3. Hall fixtures and car operating panel do not comply with latest codes.
 - Car operating panel does not have a dedicated firefighter's lockable panel.
 - The main lobby hall call fixtures do not have the required communications failure indicator.
4. The elevator does not comply with all current ADA requirements.

Conclusions

This Otis elevator is near the end of its useful life. While the equipment has been well maintained, and most parts are still available through Otis or other third-party elevator parts vendors, reliability has been compromised due to aging components. The power unit (pump, motor, valve) are in decent condition but should be considered for replacement due to age. Travelling cables are original and wires may begin to sever. Door equipment and switches are worn and should be replaced. Buttons and fixtures do not have LED lighting and should be upgraded to meet current code requirements.

Recommendations

It is our recommendation that this elevator is modernized in the next 2-5 years. Several major components should be replaced with new equipment that complies with current safety requirements, will improve the elevator's operation and reliability, reduce energy consumption, and improve quality of life enhancements. Modernization will offer performance improvements, and significantly reduce the maintenance required on equipment that has surpassed its useful life, allowing service personnel to spend more time on areas that require diligent maintenance, such as hoistway door equipment.

Cost Estimates

The cost estimate to modernize the elevator is **\$125,000**. This estimate does not include ancillary work by other trades that would be required in support of the elevator modernization. The specific items we recommend as part of a modernization are detailed in the Elevator Modernization Plan, including the required ancillary work.

Estimated Schedule

New elevator equipment is custom manufactured for each job, which means a significant lead time before actual construction begins. The following table highlights some of the major tasks that must be accomplished as part of an elevator modernization project:

Develop specifications and bid documents	4-8 weeks
Bid process and review	6 weeks
Contract negotiations to NTP	4-8 weeks
Provide and review drawings and submittals	10 weeks
Order and deliver equipment	18-24 weeks
Elevator Construction	3-4 weeks
Final inspection and punch list completion	2-4 weeks
Total Modernization Construction Schedule	47-64 weeks

Modernization Evaluation

To evaluate the need for an elevator modernization, Elevator Consulting Services examines the elevator based on the following eight key categories to calculate the Elevator Equipment Profile score. The Elevator Equipment Profile score helps determine when an elevator modernization should be considered. These categories are:

1. Age of Equipment
2. Code Compliance
3. Preventive Maintenance
4. Operation and Performance
5. Frequency of Use
6. Energy Efficiency
7. Environmental Conditions
8. Design and Installation

1. Age of Equipment

- The 820 Exchange elevator is 43 years old and has most of the original components. The newer door operator can be retained during a modernization, however most other major parts should be replaced as part of a modernization.

2. Code Compliance

- The elevator complies with the 40+ year old codes that were in effect at the time of the installation but do not comply with the current ASME 17.1 2010 code enforced by the State of Oregon. Many of these code changes relate to life safety.

3. Preventive Maintenance

- The preventive maintenance needed to maintain this vintage elevator is relatively high. The higher level of required maintenance is primarily due to the high usage and age of the equipment.

4. Operation and Performance

- The existing elevators' operation and performance is not acceptable based primarily on the age of the equipment. The existing components rely on outdated technology which cannot provide acceptable reliability, power efficiency, leveling accuracy, response to traffic demands, and ride quality.

5. Frequency of Use

- This elevator appears to receive moderate use by both County staff and the public. Elevator use appears to be during business hours only.

6. Energy Efficiency

- The existing equipment relies on forty-year-old technology. Higher efficiency power units, LED lighting, and auto light/fan shut off devices can all contribute to better energy efficiency.

7. Environmental Conditions

- The elevator equipment is well protected from the environment. The hoistway is dry and there are no signs of previous moisture intrusion. There is a vent in the machine room, however we could not determine if it was cooling the room.

8. Design and Installation

- The design and installation of the elevator was acceptable based on the technology and standards when it was installed. After 40+ years, a large portion of the existing equipment needs to be replaced as part of an elevator modernization to meet today's technological and safety requirements and avoid risk of long shutdowns due to old, worn components.

Elevator Equipment Profile

Client / Job Site: CLATSOP COUNTY-820 EXCHANGE										
Equipment: ONE (1) HYDRAULIC PASSENGER ELEVATOR										
		Age	Code Compliance	Preventive Maintenance	Performance & Operation	Frequency of Use	Environmental Conditions	Energy Efficiency	Design & Installation	TOTAL
5	Extreme	5	5							10
4	High								4	4
3	Moderate			3		3		3		9
2	Low				2		2			4
1	Minimal									
		= Critical Conditions								
		= Moderate Conditions						Profile Score =		27
		= Acceptable Conditions								
Profile Score		Description								Time Frame to Replace
Greater than 30		Equipment condition is extreme. Major components expected to fail. Proper maintenance is difficult, and parts are, or will become, obsolete. Multiple safety and code concerns. Modernize immediately.								Immediately
25 – 30		Equipment is nearing end of expected life. Potential failure of major components. Proper maintenance is becoming difficult and parts are becoming obsolete. Potential safety and code issues. Begin planning for modernization.								2 to 5 years
17 – 24		Equipment shows normal wear based on current age. Update and improve maintenance program. Include modernization in long term planning.								6 to 9 years
Less than 17		Equipment shows normal wear based on current age. Maintain existing maintenance program. Modernization should not be needed for 10+ years.								10 + years

Modernization Plan

ELEVATOR CONTRACTOR

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Controller	Replace	New Solid-State Controller.
Pump Unit, Tank, Valve	Replace	New Power Unit (Tank, Pump, Pump Motor, Valve).
Muffler	Replace	New gas charged muffler.
Oil Lines	Retain	Oil lines are suitable for reuse. Replace any leaking Victaulic fittings. Provide new hydraulic fluid.
Shut Off Valve	Retain	Shut off valve in machine room can be reused.
Battery Lowering	New	New battery lowering device.
HOISTWAY		
Hoistway Doors	Retain / Refurbish	Hoistway doors are in good condition and can be reused. Provide new rollers.
Hoistway Door Sills	Retain / Refurbish	Door sills are in good condition and will be cleaned. Install new door gibs.
Hoistway Door Frames	Retain	Door frames are suitable for reuse.
Door Headers, Tracks and Interlocks	Retain / Refurbish	Retain door header and tracks. Provide new interlocks.
Car Doors	Retain / Refurbish	Car doors are in good condition and can be reused. Provide new door rollers.
Car Door Detector	Replace	Provide new 3D door detectors.
Car Door Operator and Clutch	Retain	Newer Otis AT-400 door operator can be reused.
Limit Switches	Replace	New upper and lower limit switches will be provided.
Hoistway Wiring	Replace	All hoistway wiring will be replaced with new. All existing conduit (EMT) will be retained provided it complies with current NEC.
Slide Guides	Retain	Existing slide guide assemblies will be retained. Provide new slide guide inserts.
Guide Rails and Brackets	Retain / Refurbish	The existing guide rails and brackets are suitable for reuse. Clean and touch-up paint as required.

Platform, Stiles, Crosshead	Retain	The car sling (structural members which support the platform) are suitable for reuse.
Car Top Inspection Station	Replace	A new car top inspection station will be provided for the safety of maintenance and inspection personnel.
Car Landing and Leveling Devices	Replace	A new computer-controlled landing and leveling system will be provided.
Travelling Cables	Replace	All new electrical travelling cables will be provided.
PIT		
Jack Unit	Retain	Above-ground jack can be reused.
Shut Off Valve	Retain	Existing pit shut off valve can be reused.
Seismic Over Speed Valve	New	Seismic rupture valve will be provided.
Jack Unit Packing	Replace	Repack with new seals.
Pit Ladder	Replace	New code compliant pit ladder will be provided.
Buffers	Retain	Retain existing spring buffers.
CAB ENCLOSURE & FIXTURES		
Cab Enclosure	Retain / Upgrade	The cab shell is in good condition and can be retained. New laminate side panels and new stainless-steel ceiling are optional upgrades at the discretion of the owner.
Handrails	Reuse	Cab handrails can be reused
Cab Wiring	Replace	All cab wiring will be replaced with new.
Car Operating Panel (COP)	Replace	New vandal resistant car operating fixtures will be provided. *Keyed security for top floor can be reused or new key/fob security can be added.
ADA Emergency Communications	Replace	ADA approved in car emergency communications will be provided.
Cab Ventilation Fan	New	New cab ventilation fan will be provided.
Hall Stations	Replace	New vandal resistant flush mounted hall call stations will be provided.
Car Riding Lanterns	New	New vandal resistant car directional lanterns will be provided in car jamb.

WORK BY OTHER TRADES

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Main Line Disconnect	Retain	Main line disconnect is suitable for reuse.
Fire Extinguisher	Retain	Fire extinguisher can be reused.
HVAC	Retain / Upgrade	Verify vent in machine room has mechanical or natural means to maintain equipment temp (typically 50°-90°)
Lighting and Electrical Outlets	Upgrade	Add machine room lighting to meet code required 19ft candles. Provide new GFCI outlet.
Car Light Disconnect Switch	New	New dedicated lighting circuit will be added.
PIT		
Lighting	Retain	Pit lighting meets code required 10ft candles.
Electrical Outlet	Upgrade	Provide new GFCI outlet.
CAB ENCLOSURE & LOBBIES		
Lobby Lighting	Retain	Lobby lighting meets current code requirements and can be retained.
Cab Flooring	Retain	Cab flooring is in good shape and can be retained.
FIRE SAFETY		
Fire Alarm Initiating Devices	New	Machine room, hoistway and lobby fire alarm initiating devices will be provided.

Existing Equipment Photos



Fig. 1 – Controller



Fig. 2 – Pump, motor and valve



Fig. 3 – Muffler

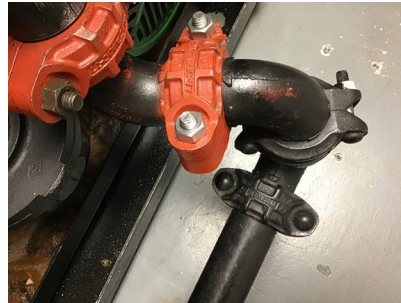


Fig. 4 – Oil lines



Fig. 5 – Newer door operator

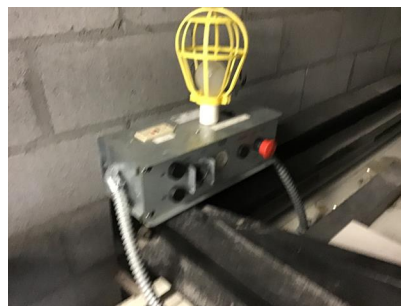


Fig. 6 – Car top inspection



Fig. 7 – Car top (incl. fan cutout)



Fig. 8 – Limit switches



Fig. 9 – Hoistway door hardware



Fig. 10 – Slide guide/lubrication reservoir

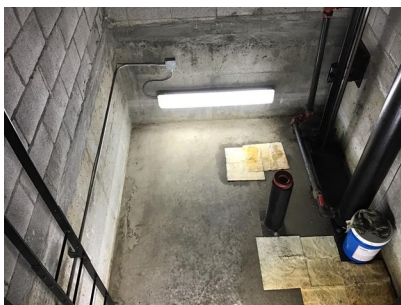


Fig. 11 – Pit



Fig. 12 – Pit shut off valve



Fig. 13 – Spring Buffer



Fig. 14 – Hall station



Fig. 15 – Car operating panel



Fig. 16 – Cab handrail



Fig. 17 – Upper floor keyed security



Fig. 18 – Cab interior

ADA Compliance Checklist

CODE	COMPLIANT		NOTES
4.10.3 Hall Call Buttons	YES	NO	
Are all buttons at least 3/4" in diameter?	X		
Are all button centered 42" above floor?	X		
Do all buttons illuminate when elevator is called and fade when answered?	X		
4.10.4 Hall Lanterns			
Are there visible and audible signals at each hoistway entrance to indicate which car is answering a call?		X	
Do audible signals sound once for "up" and twice for "down"?		X	
Are hall lantern fixtures centered at least 72" above lobby floor?			N/A
Are all visual elements at least 2-1/2" in dimension?			N/A
Are signals visible from hall call button?		X	
4.10.5 Hoistway Signs			
Does elevator have Braille jamb plates on both jambs, centered 60" above floor?		X	
Are Braille characters at least 2" in height and raised 1/32" in sans serif type?		X	
4.10.6 Elevator Door Requirements			
Do doors have reopening device that will reopen doors if they become obstructed?	X		
Do doors remain open for at least 20 seconds?	X		
4.10.7 Door and Signal Timing for Hall Calls			
From notification that a car is answering a call until the doors start to close, does the time meet the formula of $T = D/1.5 \text{ ft./s}$ and a minimum of 5 seconds?	X		
4.10.8 Door Delay for Call Calls			
Do the elevator doors remain fully open in response to a car call for a minimum of 3 seconds?	X		
4.10.9 Floor Plan of Elevator Cars			
Is the clearance between the car platform sill and the edge of the hoistway landing no more than 1-1/4"?	X		

CODE	COMPLIANT		NOTES
	YES	NO	
4.10.11 Illumination Levels			
Is the illumination at the car controls, platform, car threshold and landing sill at least 5 ftc?	X		
4.10.12 Car Controls			
Are controls at least 3/4" in dimension?	X		
Are all buttons accompanied by raised characters or Braille that are a minimum 5/8" in height & uppercase sans serif)?		X	
Are all raised designations to left of the button to which they apply?		X	
Do all floor buttons have visual signals in which illuminate when a call is placed and fade when each call is answered?	X		
Are all floor buttons a max. of 48" above floor when forward reach is required and a max. of 54" above floor when side reach is required?	X		
Are all emergency controls grouped at the bottom of the panel with centerlines a minimum of 35" and maximum of 54" above floor?	X		
4.10.13 Car Position Indicators			
Are visual car position indicators above the door or above control panel?		X	
Are the corresponding numbers illuminating when the car passes or stops at that floor, accompanied by an audible signal?		X	
Are all numerals at least 1/2" high?		X	
Are all audible signals at least 20 decibels with a frequency no higher than 1500Hz?		X	
4.10.14 Emergency Communications			
Does elevator have emergency communication that does not require voice communication?	X		
Is the highest operable part of the two-way communication system under the maximum 48" from the floor of the car?	X		
Is the length of the cord from the panel to the handset at least 29"?			N/A

COURTHOUSE

Existing Equipment

Elevator Type	Conventional In-Ground Hydraulic Elevator
State ID Number	PXH-7812
Year Installed/Modernized	1981
Manufacturer	ESCO
Controller/Selector	ESCO
Control System	Simplex
Pump Unit/Machine	IMO
Door Equipment	ESCO
Door Size	3' 6" Wide X 7' Tall
Door Type	Single Speed, Side Slide
Door Operation	Power
Landings/Openings	3/3
Floor Designation	B, *1, 2
Capacity	2,500 LBS
Speed	10 FPM
Machine Room Location	Adjacent, Bottom Landing
Disconnect (AMPS/VAC)	100/240

Audit Findings

The Clatsop County Courthouse elevator is a hydraulic passenger elevator with a conventional, in-ground jack. The elevator was made by ESCO and was installed in 1981. The power unit is a "dry" system, with the pump, motor, and valve located under the hydraulic fluid tank. The elevator serves 3 floors in the courthouse, has a 2,500 LB capacity, and travels at 100 feet per minute. The machine room is located adjacent to the hoistway at the bottom landing and is located in a secure area of the building.

There is a new solid-state "soft" starter (provides motor protection), a newer pump motor, and infrared door protection. All other elevator components appear original to the installation. There is a recirculating pump located in the pit, which is intended to pump excess hydraulic fluid from the jack head back into the hydraulic fluid tank. There is also a sump/pump and a sprinkler head located in the pit.

Car top and pit items housekeeping could be improved. The car interior is laminate applied directly to the cab walls and looks dated. There is a security camera located in the cab.

Elevator Safety and Code Compliance

While the elevator does comply with the codes that were in effect at the time of installation, it does not comply with the 2010 ASME A17.1 Safety Code for Elevator and Escalators currently in effect in the State of Oregon.

1. Does not comply with current code related to firefighter service.
 - A modernization would include the latest Firefighter's Emergency Operation safety features.
2. Does not comply with current code related to seismic protection.
 - Current code requires seismic over-speed valves in pits that will activate and stop the elevator if there is an oil line break between the jack and the pump unit.
3. Hall fixtures and car operating panel do not comply with latest codes.
 - The car operating panel does not have a dedicated firefighter's lockable panel.
 - The main lobby hall call fixtures do not have the required communications failure indicator.
4. The elevator does not comply with all current ADA requirements.

Conclusions

The Courthouse elevator is at the end of its useful life. Esco went out of business in the late 90's, however the elevator utilizes relay logic and parts are still available for the controller. The newer solid-state starter and pump motor provide reliability in the short term, however there are other equipment reliability concerns due to age. The hydraulic fluid tanks from these old Esco units are prone to developing leaks in the side which can be very difficult to repair. Wiring and fixtures should be replaced, and the door operator, selector and slide guides should be upgraded.

Most fire/life safety systems have been brought up to current code requirements however things like lighting and GFCI outlets need to be upgraded.

Recommendations

It is our recommendation that this elevator is modernized as soon as possible. Most major components should be replaced with new equipment that complies with current safety requirements, will improve the elevator's operation and reliability, reduce energy consumption, and improve quality of life enhancements. Modernization will offer performance improvements, and significantly reduce the maintenance required on equipment that has surpassed its useful life, allowing service personnel to spend more time on areas that require diligent maintenance, such as hoistway door equipment.

Cost Estimates

The cost estimate to modernize the elevator is **\$150,000**. This estimate does not include ancillary work by other trades that would be required in support of the elevator modernization. The specific items we recommend as part of a modernization are detailed in the Elevator Modernization Plan, including the required ancillary work.

Estimated Schedule

New elevator equipment is custom manufactured for each job, which means a significant lead time before actual construction begins. The following table highlights some of the major tasks that must be accomplished as part of an elevator modernization project:

Develop specifications and bid documents	4-8 weeks
Bid process and review	6 weeks
Contract negotiations to NTP	4-8 weeks
Provide and review drawings and submittals	10 weeks
Order and deliver equipment	18-24 weeks
Elevator Construction	4 weeks
Final inspection and punch list completion	2-4 weeks
Total Modernization Construction Schedule	48-64 weeks

Modernization Evaluation

To evaluate the need for an elevator modernization, Elevator Consulting Services examines the elevator based on the following eight key categories to calculate the Elevator Equipment Profile score. The Elevator Equipment Profile score helps determine when an elevator modernization should be considered. These categories are:

1. Age of Equipment
2. Code Compliance
3. Preventive Maintenance
4. Operation and Performance
5. Frequency of Use
6. Energy Efficiency
7. Environmental Conditions
8. Design and Installation

1. Age of Equipment

- The Courthouse elevator is 40 years old. Apart from newer solid-state starter, pump motor and infrared door protection, the elevator components are original to the installation. The elevator controller, pump, tank, door operator equipment, and fixtures

are operating beyond their useful life. Additionally, technology has significantly improved on energy efficiency and maintenance requirements of some of the major elevator equipment.

2. Code Compliance

- The Courthouse elevator complies with the 40-year-old codes that were in effect at the time of the installation but do not comply with the current ASME 17.1 2010 code enforced by the State of Oregon. Many of these code changes relate to life safety.

3. Preventive Maintenance

- The preventive maintenance needed to maintain this vintage elevator is relatively high. The higher level of required maintenance is primarily due to the type and age of the equipment. A new solid-state controller and submersible power unit would require less maintenance than the current equipment, allowing the mechanic to spend more time on components that require more preventive maintenance, such as door equipment.

4. Operation and Performance

- The existing elevators' operation and performance is not acceptable based primarily on the age of the equipment. The existing components rely on outdated technology which cannot provide acceptable reliability, power efficiency, leveling accuracy, response to traffic demands, and ride quality.

5. Frequency of Use

- It was hard to determine use during the audit, but it could be assumed that this elevator receives moderate use during normal business hours.

6. Energy Efficiency

- The existing equipment relies on 40-year-old technology. LED lighting and auto light/fan shut off devices can provide energy savings in the future.

7. Environmental Conditions

- The elevator equipment is fairly well protected from the environment. The biggest environmental factor is heat in the elevator machine room. There is an existing vent in the machine room, and it should be verified that this ventilation is capable of maintaining the elevator equipment at manufacturers recommended temperatures (typically 50-90°).
- The pit/hoistway does not appear to have moisture intrusion and there is a sump/pump in case the sprinkler head should activate.

8. Design and Installation

- The design and installation of the elevator was acceptable based on the technology and standards when it was installed. After 40 years, a large portion of the existing equipment

needs to be replaced as part of an elevator modernization to meet today's technological /safety requirements and avoid risk of long shutdowns due to worn components.

Elevator Equipment Profile

Client / Job Site: CLATSOP COUNTY-COURTHOUSE										
Equipment: ONE (1) HYDRAULIC PASSENGER ELEVATOR										
		Age	Code Compliance	Preventive Maintenance	Performance & Operation	Frequency of Use	Environmental Conditions	Energy Efficiency	Design & Installation	TOTAL
5	Extreme	5	5							10
4	High					4			4	8
3	Moderate			3	3		3	3		12
2	Low									
1	Minimal									
		= Critical Conditions								
		= Moderate Conditions						Profile Score =		30
		= Acceptable Conditions								
Profile Score		Description								Time Frame to Replace
Greater than 30		Equipment condition is extreme. Major components expected to fail. Proper maintenance is difficult, and parts are, or will become, obsolete. Multiple safety and code concerns. Modernize immediately.								Immediately
25 – 30		Equipment is nearing end of expected life. Potential failure of major components. Proper maintenance is becoming difficult and parts are becoming obsolete. Potential safety and code issues. Begin planning for modernization.								2 to 5 years
17 – 24		Equipment shows normal wear based on current age. Update and improve maintenance program. Include modernization in long term planning.								6 to 9 years
Less than 17		Equipment shows normal wear based on current age. Maintain existing maintenance program. Modernization should not be needed for 10+ years.								10 + years

Modernization Plan

ELEVATOR CONTRACTOR

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Controller	Replace	New Solid-State Controller.
Pump Unit, Tank, Valve	Replace	New Power Unit (Tank, Pump, Pump Motor, Valve).
Muffler	Replace	New gas charged muffler.
Oil Lines	Retain	Oil lines are suitable for reuse. Replace any leaking fittings. Provide new hydraulic fluid.
Shut Off Valve	New	Shut off valve will be added to machine room oil line.
Battery Lowering	New	New battery lowering device.
HOISTWAY		
Hoistway Doors	Retain / Refurbish	Hoistway doors are in good condition and can be reused. Provide new rollers.
Hoistway Door Sills	Retain / Refurbish	Door sills are in good condition and will be cleaned. Install new door gibs.
Hoistway Door Frames	Retain	Door frames are suitable for reuse.
Door Headers, Tracks and Interlocks	Retain / Refurbish	Retain door header and tracks. Provide new interlocks.
Car Doors	New	New car doors, hangers and rollers will be provided.
Car Door Detector	Replace	Provide new 3D door detectors.
Car Door Operator and Clutch	Replace	New linear car door operator and hardware will be provided.
Limit Switches	Replace	New upper and lower limit switches will be provided.
Hoistway Wiring	Replace	All hoistway wiring will be replaced with new. All existing conduit (EMT) will be retained provided it complies with current NEC.
Slide Guides	Replace	Provide new roller guides (provides a much smoother ride).
Guide Rails and Brackets	Retain / Refurbish	The existing guide rails and brackets are suitable for reuse. Clean and touch-up paint as required.
Platform, Stiles, Crosshead	Retain	The car sling (structural members which support the platform) are suitable for reuse.

Car Top Inspection Station	Replace	A new car top inspection station will be provided for the safety of maintenance and inspection personnel.
Car Landing and Leveling Devices	Replace	A new computer-controlled landing and leveling system will be provided.
Travelling Cables	Replace	All new electrical travelling cables will be provided.
PIT		
Jack Unit	Retain	In-ground jack can be reused.
Shut Off Valve	Retain	Existing pit shut off valve can be reused.
Seismic Over Speed Valve	New	Seismic rupture valve will be provided.
Jack Unit Packing	Replace	Repack with new seals.
Pit Ladder	Replace	New code compliant pit ladder will be provided.
Buffers	Retain	Retain existing spring buffers.
CAB ENCLOSURE & FIXTURES		
Cab Enclosure	Retain / Upgrade	The cab shell is in good condition and can be retained. New laminate side panels and new stainless-steel ceiling are optional upgrades at the discretion of the owner.
Handrail	Reuse	Cab handrail can be reused
Cab Wiring	Replace	All cab wiring will be replaced with new.
Car Operating Panel (COP)	Replace	New vandal resistant car operating fixtures will be provided.
Car Position Indicator	Replace	Cover existing car PI with blank stainless plate. New PI integrated in Car Operating Panel.
ADA Emergency Communications	Replace	ADA approved in car emergency communications will be provided.
Cab Ventilation Fan	Retain	Cab ventilation fan can be reused.
Hall Stations	Replace	New vandal resistant flush mounted hall call stations will be provided.
Car Riding Lanterns	Replace	New vandal resistant car directional lanterns will be provided in car jamb.

WORK BY OTHER TRADES

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Main Line Disconnect	Retain	Main line disconnect is suitable for reuse.
Fire Extinguisher	Retain	Fire extinguisher can be reused.
HVAC	Retain / Upgrade	Verify vent in machine room has mechanical or natural means to maintain equipment temp (typically 50°-90°)
Lighting and Electrical Outlets	Upgrade	Add machine room lighting to meet code required 19ft candles. Provide new GFCI outlet.
Car Light Disconnect Switch	New	New dedicated lighting circuit will be added.
PIT		
Lighting	Upgrade	Provide additional pit lighting to meet code required 10ft candles.
Electrical Outlet	Upgrade	Provide new GFCI outlet.
CAB ENCLOSURE & LOBBIES		
Lobby Lighting	Retain	Lobby lighting meets current code requirements and can be retained.
Cab Flooring	Retain	Cab flooring is in good shape and can be retained.
FIRE SAFETY		
Fire Alarm Initiating Devices	Retain	Machine room, hoistway and lobby fire alarm initiating devices can be reused.

Existing Equipment Photos



Fig. 1 – Controller

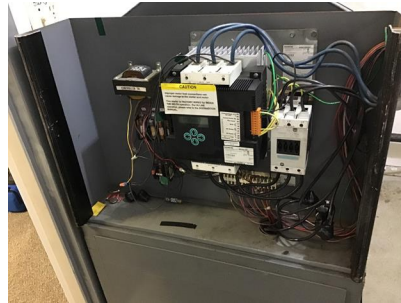


Fig. 2 – Newer solid-state “soft” starter

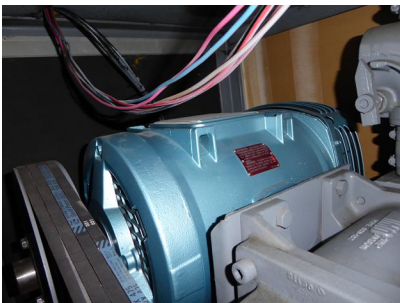


Fig. 3 – Newer pump motor



Fig. 4 – Pump



Fig. 5 – Valve

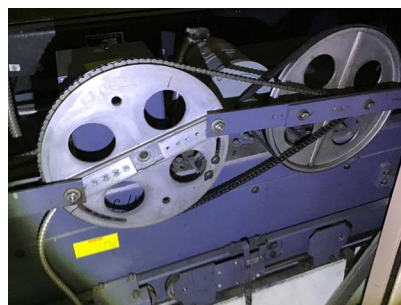


Fig. 6 – Door operator



Fig. 7 – Car top inspection



Fig. 8 – Hoistway door hardware



Fig. 9 – Limit switches



Fig. 10 – Slide guides



Fig. 11 – Cab ventilation fan



Fig. 12 – Selector



Fig. 13 – Pit



Fig. 14 – Recirculating pump



Fig. 15 – Hall Station



Fig. 16 – Car Operating Panel



Fig. 17 – Car position indicator



Fig. 18 – Cab interior

ADA Compliance Checklist

CODE	COMPLIANT		NOTES
4.10.3 Hall Call Buttons	YES	NO	
Are all buttons at least 3/4" in diameter?	X		
Are all button centered 42" above floor?	X		
Do all buttons illuminate when elevator is called and fade when answered?	X		
4.10.4 Hall Lanterns			
Are there visible and audile signals at each hoistway entrance to indicate which car is answering a call?	X		
Do audible signals sound once for "up" and twice for "down"?	X		
Are hall lantern fixtures centered at least 72" above lobby floor?			N/A
Are all visual elements at least 2-1/2" in dimension?	X		
Are signals visible from hall call button?	X		
4.10.5 Hoistway Signs			
Does elevator have Braille jamb plates on both jambs, centered 60" above floor?	X		
Are Braille characters at least 2" in height and raised 1/32" in sans serif type?	X		
4.10.6 Elevator Door Requirements			
Do doors have reopening device that will reopen doors if they become obstructed?	X		
Do doors remain open for at least 20 seconds?	X		
4.10.7 Door and Signal Timing for Hall Calls			
From notification that a car is answering a call until the doors start to close, does the time meet the formula of $T = D/1.5 \text{ ft./s}$ and a minimum of 5 seconds?	X		
4.10.8 Door Delay for Call Calls			
Do the elevator doors remain fully open in response to a car call for a minimum of 3 seconds?	X		
4.10.9 Floor Plan of Elevator Cars			
Is the clearance between the car platform sill and the edge of the hoistway landing no more than 1-1/4"?	X		

CODE	COMPLIANT		NOTES
	YES	NO	
4.10.11 Illumination Levels			
Is the illumination at the car controls, platform, car threshold and landing sill at least 5 ftc?	X		
4.10.12 Car Controls			
Are controls at least 3/4" in dimension?	X		
Are all buttons accompanied by raised characters or Braille that are a minimum 5/8" in height & uppercase sans serif)?	X		
Are all raised designations to left of the button to which they apply?		X	
Do all floor buttons have visual signals in which illuminate when a call is placed and fade when each call is answered?	X		
Are all floor buttons a max. of 48" above floor when forward reach is required and a max. of 54" above floor when side reach is required?	X		
Are all emergency controls grouped at the bottom of the panel with centerlines a minimum of 35" and maximum of 54" above floor?	X		
4.10.13 Car Position Indicators			
Are visual car position indicators above the door or above control panel?	X		
Are the corresponding numbers illuminating when the car passes or stops at that floor, accompanied by an audible signal?	X		
Are all numerals at least 1/2" high?	X		
Are all audible signals at least 20 decibels with a frequency no higher than 1500Hz?	X		
4.10.14 Emergency Communications			
Does elevator have emergency communication that does not require voice communication?	X		
Is the highest operable part of the two-way communication system under the maximum 48" from the floor of the car?	X		
Is the length of the cord from the panel to the handset at least 29"?			N/A

JAIL

Existing Equipment

Elevator Type	In Ground Hydraulic Elevator
State ID Number	PXH-7181
Year Installed/Modernized	1980
Manufacturer	US Elevator
Controller/Selector	US Elevator
Control System	Simplex
Pump Unit/Machine	US Elevator
Door Equipment	US Elevator
Door Size	3' 6" Wide X 7' Tall
Door Type	Single Speed, Center Opening
Door Operation	Power
Landings/Openings	3/3
Floor Designation	*1, 2, 3
Capacity	2,500 LBS
Speed	125 FPM
Machine Room Location	Adjacent, Bottom Landing
Disconnect (AMPS/VAC)	60/600

Audit Findings

The Clatsop County jail elevator is a hydraulic passenger elevator with a conventional hydraulic jack which was installed by US Elevator in 1980. The elevator serves three floors of the correction facility and appears to receive low-moderate use. The elevator has override controls located in the guard station. The car capacity is 2,500 LBS and travels at 125 feet per minute. Machine room is located adjacent to the hoistway on the lowest landing.

All components of the elevator appear to be original with the addition of a seismic rupture valve in the pit and shut off valves in both the pit & machine room. There is a sump & pump in the pit. Elevator has hall and car security key switches in the fixtures.

Most building elements related to the elevator are original to the installation and will need to be brought up to code during a future modernization. Items like machine room/pit lighting, GFCI outlets and fire recall initiation devices will need to be upgraded.

Elevator Safety and Code Compliance

While the elevator does comply with the codes that were in effect at the time of installation, it does not comply with the 2010 ASME A17.1 Safety Code for Elevator and Escalators currently in effect in the State of Oregon.

1. Does not comply with current code related to firefighter service.
 - A modernization would include the latest Firefighter's Emergency Operation safety features.
2. Hall fixtures and car operating panel do not comply with latest codes.
 - The car operating panel does not have a dedicated firefighter's lockable panel.
 - The main lobby hall call fixture does not have the required communications failure indicator.
3. The elevator does not comply with all current ADA requirements.

Conclusions

This elevator has surpassed the useful life and modernization should be considered as soon as possible. The main factor for the need to modernize is the fact that US elevator has been out of business for over 20 years (purchased by ThyssenKrupp) and parts are very scarce or no longer available. Of particular concern are the printed circuit boards which could render this car inoperable at any time if they were to fail. Components such as the power unit (pump, motor, valve, tank), door operator, fixtures and wiring should all be replaced after over 40 years of use. Recommend adding a cab ventilation fan when the elevator is eventually modernized.

During the audit, it was brought to our attention that this building will no longer be used as a detention facility in the near future. An elevator modernization would be critical to having reliable vertical transportation when the building is repurposed/sold in the future.

Recommendations

It is our recommendation that this elevator is modernized as soon as possible. Several major components should be replaced with new equipment that complies with current safety requirements, will improve the elevator's operation and reliability, reduce energy consumption, and improve quality of life enhancements. Modernization will offer performance improvements, and significantly reduce the maintenance required on equipment that has surpassed its useful life, allowing service personnel to spend more time on areas that require diligent maintenance, such as hoistway door equipment.

Cost Estimates

The cost estimate to modernize the elevator is **\$150,000**. This estimate does not include ancillary work by other trades that would be required in support of the elevator modernization. The

specific items we recommend as part of a modernization are detailed in the Elevator Modernization Plan, including the required ancillary work.

Estimated Schedule

New elevator equipment is custom manufactured for each job, which means a significant lead time before actual construction begins. The following table highlights some of the major tasks that must be accomplished as part of an elevator modernization project:

Develop specifications and bid documents	4-8 weeks
Bid process and review	6 weeks
Contract negotiations to NTP	4-8 weeks
Provide and review drawings and submittals	10 weeks
Order and deliver equipment	18-24 weeks
Elevator Construction	4 weeks
Final inspection and punch list completion	2-4 weeks
Total Modernization Construction Schedule	48-64 weeks

Modernization Evaluation

To evaluate the need for an elevator modernization, Elevator Consulting Services examines the elevator based on the following eight key categories to calculate the Elevator Equipment Profile score. The Elevator Equipment Profile score helps determine when an elevator modernization should be considered. These categories are:

1. Age of Equipment
2. Code Compliance
3. Preventive Maintenance
4. Operation and Performance
5. Frequency of Use
6. Energy Efficiency
7. Environmental Conditions
8. Design and Installation

1. Age of Equipment

- The Clatsop County jail elevator is over 40 years old and has not received any major upgrades since the original installation. The elevator controller, power unit, door operator equipment, and fixtures are operating beyond their useful life. In some cases, replacement parts are no longer available or soon will be obsolete. Additionally,

technology has significantly improved on energy efficiency and maintenance requirements of some of the major elevator equipment.

2. Code Compliance

- The jail elevator complies with the 40-year-old codes that were in effect at the time of the time of the installation but do not comply with the current ASME 17.1 2010 code enforced by the State of Oregon. Many of these code changes relate to life safety.

3. Preventive Maintenance

- The preventive maintenance needed to maintain this elevator moderate.

4. Operation and Performance

- The existing elevators' operation and performance is not acceptable based primarily on the age of the equipment. The existing components rely on outdated technology which cannot provide acceptable reliability, power efficiency, leveling accuracy, response to traffic demands, and ride quality. More importantly, US Elevator parts are no longer available which significantly compromises reliability.

5. Frequency of Use

- The jail elevator appears to receive low-moderate use.

6. Energy Efficiency

- The existing equipment relies on 40-year-old technology. LED lighting and auto light/fan shut off devices can provide energy savings in the future and a solid-state starter offers ramped starting which decreases electrical demand spikes.

7. Environmental Conditions

- The elevator equipment is fairly well protected from the environment. The biggest environmental factor is heat in the elevator machine room. Added ventilation or air conditioning should be considered to protect the more sensitive solid-state equipment that will be installed as part of the modernization.
- Pit shows no signs of moisture intrusion and has a sump pump if water happened to enter the pit.

8. Design and Installation

- The design and installation of the elevator was acceptable based on the technology and standards when it was installed. US Elevator products have not been supported for many years and parts are either very scarce or no longer available.

Elevator Equipment Profile

Client / Job Site: CLATSOP COUNTY-JAIL										
Equipment: ONE (1) HYDRAULIC PASSENGER ELEVATOR										
		Age	Code Compliance	Preventive Maintenance	Performance & Operation	Frequency of Use	Environmental Conditions	Energy Efficiency	Design & Installation	TOTAL
5	Extreme	5	5						5	15
4	High				4	4				8
3	Moderate			3			3	3		9
2	Low									
1	Minimal									
		= Critical Conditions								
		= Moderate Conditions						Profile Score =		32
		= Acceptable Conditions								
Profile Score		Description								Time Frame to Replace
Greater than 30		Equipment condition is extreme. Major components expected to fail. Proper maintenance is difficult, and parts are, or will become, obsolete. Multiple safety and code concerns. Modernize immediately.								Immediately
25 – 30		Equipment is nearing end of expected life. Potential failure of major components. Proper maintenance is becoming difficult and parts are becoming obsolete. Potential safety and code issues. Begin planning for modernization.								2 to 5 years
17 – 24		Equipment shows normal wear based on current age. Update and improve maintenance program. Include modernization in long term planning.								6 to 9 years
Less than 17		Equipment shows normal wear based on current age. Maintain existing maintenance program. Modernization should not be needed for 10+ years.								10 + years

Modernization Plan

ELEVATOR CONTRACTOR

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Controller	Replace	New Solid-State Controller.
Pump Unit, Tank, Valve	Replace	New Power Unit (Tank, Pump, Pump Motor, Valve).
Muffler	Replace	New gas charged muffler.
Oil Lines	Retain	Oil lines are suitable for reuse. Replace any leaking Victaulic fittings. Provide new hydraulic fluid.
Shut Off Valve	Retain	Machine room shut off valve can be reused.
Battery Lowering	New	New battery lowering device.
HOISTWAY		
Hoistway Doors	Replace	Provide new hoistway door panels and hardware.
Hoistway Door Sills	Retain / Refurbish	Door sills are in good condition and will be cleaned. Install new door gibs.
Hoistway Door Frames	Retain	Door frames are suitable for reuse.
Door Headers, Tracks and Interlocks	Retain / Refurbish	Retain door header and tracks. Provide new interlocks.
Car Doors	New	New car doors, hangers and rollers will be provided.
Car Door Detector	Replace	Provide new 3D door detector.
Car Door Operator and Clutch	Replace	New linear car door operator and hardware will be provided.
Limit Switches	Replace	New upper and lower limit switches will be provided.
Hoistway Wiring	Replace	All hoistway wiring will be replaced with new. All existing conduit (EMT) will be retained provided it complies with current NEC.
Roller Guides	Retain	Roller guides can be reused. Provide new rollers.
Guide Rails and Brackets	Retain / Refurbish	The existing guide rails and brackets are suitable for reuse. Clean and touch-up paint as required.

Platform, Stiles, Crosshead	Retain	The car sling (structural members which support the platform) are suitable for reuse.
Car Top Inspection Station	Replace	A new car top inspection station will be provided for the safety of maintenance and inspection personnel.
Car Landing and Leveling Devices	Replace	A new computer-controlled landing and leveling system will be provided.
Travelling Cables	Replace	All new electrical travelling cables will be provided.
PIT		
Jack Unit	Retain	In-ground jack can be reused.
Shut Off Valve	Retain	Existing pit shut off valve can be reused.
Seismic Over Speed Valve	Retain	Seismic rupture valve can be reused.
Jack Unit Packing	Replace	Repack with new seals.
Pit Ladder	Replace	New code compliant pit ladder will be provided.
Buffers	Retain	Retain existing spring buffers.
CAB ENCLOSURE & FIXTURES		
Cab Enclosure	Retain / Upgrade	The cab shell is in good condition and can be retained. New laminate side panels and new stainless-steel ceiling are optional upgrades at the discretion of the owner.
Handrail	Reuse	Cab handrail can be reused
Cab Wiring	Replace	All cab wiring will be replaced with new.
Car Operating Panel (COP)	Replace	New vandal resistant car operating fixtures will be provided.
Car Position Indicator	Replace	Cover existing car PI with blank stainless plate. New PI integrated in Car Operating Panel.
ADA Emergency Communications	Replace	ADA approved in car emergency communications will be provided.
Cab Ventilation Fan	New	Cab ventilation fan can be provided.
Hall Stations	Replace	New vandal resistant flush mounted hall call stations will be provided.
Hall Lanterns	Replace	New combo hall position indicator/lantern will be provided at each landing.

WORK BY OTHER TRADES

EQUIPMENT LOCATION	DISPOSITION	NOTES
MACHINE ROOM		
Main Line Disconnect	Retain	Main line disconnect is suitable for reuse.
Fire Extinguisher	Retain	Fire extinguisher can be reused.
HVAC	New	Provide mechanical or natural means to maintain equipment temp (typically 50°-90°)
Lighting and Electrical Outlets	Upgrade	Add machine room lighting to meet code required 19ft candles. Provide new GFCI outlet.
Car Light Disconnect Switch	New	New dedicated lighting circuit will be added.
PIT		
Lighting	Upgrade	Provide additional pit lighting to meet code required 10ft candles.
Electrical Outlet	Upgrade	Provide new GFCI outlet.
CAB ENCLOSURE & LOBBIES		
Lobby Lighting	Retain	Lobby lighting meets current code requirements and can be retained.
Cab Flooring	Retain	Cab flooring can be replaced at Owner's discretion.
FIRE SAFETY		
Fire Alarm Initiating Devices	New	Machine room, hoistway and lobby fire alarm initiating devices will be provided.

Existing Equipment Photos



Fig. 1 – Controller

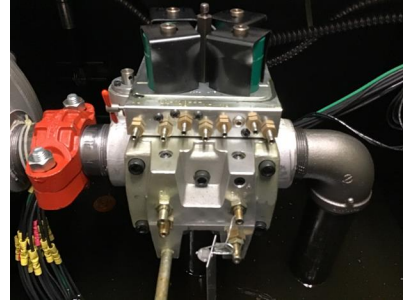


Fig. 2 – Valve



Fig. 3 – Muffler



Fig. 4 – Machine room shut off valve



Fig. 5 – Car top

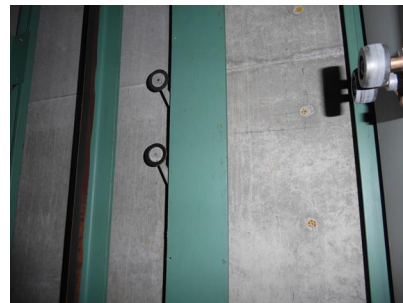


Fig. 6 – Limit switches



Fig. 7 – Travelling cables



Fig. 8 – Hydraulic jack/Buffers



Fig. 9 – Seismic overspeed valve



Fig. 10 – Sump



Fig. 11 – Hoistway door hardware



Fig. 12 – Pit floor

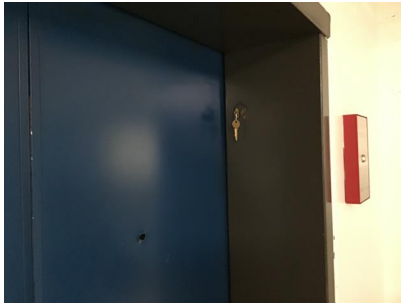


Fig. 13 – Hoistway door panel/jamb



Fig. 14 – Hall station



Fig. 15– Hall position indicator



Fig. 16 – Cab handrail

ADA Compliance Checklist

CODE	COMPLIANT		NOTES
4.10.3 Hall Call Buttons	YES	NO	
Are all buttons at least 3/4" in diameter?	X		
Are all button centered 42" above floor?	X		
Do all buttons illuminate when elevator is called and fade when answered?	X		
4.10.4 Hall Lanterns			
Are there visible and audible signals at each hoistway entrance to indicate which car is answering a call?		X	
Do audible signals sound once for "up" and twice for "down"?		X	
Are hall lantern fixtures centered at least 72" above lobby floor?	X		
Are all visual elements at least 2-1/2" in dimension?	X		
Are signals visible from hall call button?		X	
4.10.5 Hoistway Signs			
Does elevator have Braille jamb plates on both jambs, centered 60" above floor?		X	
Are Braille characters at least 2" in height and raised 1/32" in sans serif type?		X	
4.10.6 Elevator Door Requirements			
Do doors have reopening device that will reopen doors if they become obstructed?	X		
Do doors remain open for at least 20 seconds?	X		
4.10.7 Door and Signal Timing for Hall Calls			
From notification that a car is answering a call until the doors start to close, does the time meet the formula of $T = D/1.5 \text{ ft./s}$ and a minimum of 5 seconds?	X		
4.10.8 Door Delay for Call Calls			
Do the elevator doors remain fully open in response to a car call for a minimum of 3 seconds?	X		
4.10.9 Floor Plan of Elevator Cars			
Is the clearance between the car platform sill and the edge of the hoistway landing no more than 1-1/4"?	X		

CODE	COMPLIANT		NOTES
	YES	NO	
4.10.11 Illumination Levels			
Is the illumination at the car controls, platform, car threshold and landing sill at least 5 ftc?	X		
4.10.12 Car Controls			
Are controls at least 3/4" in dimension?	X		
Are all buttons accompanied by raised characters or Braille that are a minimum 5/8" in height & uppercase sans serif)?	X		
Are all raised designations to left of the button to which they apply?	X		
Do all floor buttons have visual signals in which illuminate when a call is placed and fade when each call is answered?	X		
Are all floor buttons a max. of 48" above floor when forward reach is required and a max. of 54" above floor when side reach is required?	X		
Are all emergency controls grouped at the bottom of the panel with centerlines a minimum of 35" and maximum of 54" above floor?	X		
4.10.13 Car Position Indicators			
Are visual car position indicators above the door or above control panel?	X		
Are the corresponding numbers illuminating when the car passes or stops at that floor, accompanied by an audible signal?	X		
Are all numerals at least 1/2" high?	X		
Are all audible signals at least 20 decibels with a frequency no higher than 1500Hz?		X	
4.10.14 Emergency Communications			
Does elevator have emergency communication that does not require voice communication?	X		
Is the highest operable part of the two-way communication system under the maximum 48" from the floor of the car?	X		
Is the length of the cord from the panel to the handset at least 29"?			N/A

APPENDIX: STATE INSPECTION HISTORY



Oregon

Kate Brown, Governor

Department of Consumer and Business Services

Building Codes Division
Elevator Safety Program
PO Box 14470
Salem, Oregon 97309
Permits/Inspections: (503) 373-1298
Payments: (503) 373-7731

Inspection Report

Equipment ID: PXE6649-OP
Site ID: 182
Site Name: CLATSOP COUNTY
Site Address: 800 EXCHANGE ST
ASTORIA OR 97103

Elevator Contractor Information:	<u>License Number and Type</u>	<u>Contractor Name</u>	<u>Business Name</u>
	46EC Elevator		THYSSEN/KRUPP ELEVATOR

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	12/06/2019	Periodic	Required by Next Inspec
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/12/2017	Periodic	Written Verification Requ
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	03/25/2015	Periodic	Required by Next Inspec
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/17/2014	Reinspection 2	Required by Next Inspec

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976	03/20/2014	Reinspection 1	Unsatisfactory
Inspection Result Comments: Full Load Safety Test overdue/8.11.2.3.1 Strap conduit run going over top of elevator controller/NEC620 Maintain a clean and dry elevator pit (standing water) 8.11.2.1.5/8.11.3.1.5			
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976	07/03/2013	Periodic	Unsatisfactory
Inspection Result Comments: Full Load Safety Test overdue/8.11.2.3.1 Strap conduit run going to car controller/NEC620 Identify/label unknown keyed switch in car operating panel/8.11.3 Remove or tape loose free end wire on back of car controller(near NT capacitor)/NEC620 Remove loose parts laying on car top. Anti-egress device requires repair or adjustment/8.6.1.6.5 12) Maintain a clean and dry elevator pit(water in pit)/8.11.2.1.5/8.11.3.1.5 Verify integrity of pit buffer channel, or replace (rusted and cracking.) 24 hour Communication device is inoperative(responder to know correct address of elevator)/8.11.2.1.1/8.11.3.1.1			
NICK CERDA	04/26/2010	Periodic	Satisfactory
Inspection Result Comments:			
JIM POWELL	04/29/2009	Reinspection 1	Satisfactory
Inspection Result Comments: 19) PRIOR 204.1e(1)(c) Provide restraint chain for top car exit panel (not hinged). 20) PRIOR 212.9g Provide anti-twist cable through cable shackles at car & counterweight ends.			
JIM VERLINDE	12/19/2007	Periodic	Unsatisfactory
Inspection Result Comments: Item 2 - 2006. Item 3 - 2001-provide tag on cartop. Item 8 - Light & bell. Item 12 - Dry. Item 18 - Adjustment. 19) Alarm bell to be tied to emergency stop switch. 20) Confirm operation of access switch at top & bottom floors. 21) 8.6.1.2.4 Clean cart			
NON-INSPECT YEAR	01/31/2007	Periodic	Satisfactory
Inspection Result Comments: 19) NEC 620.25 Detector cannot be on car light circuit - correct wiring to another source.			
JIM WEST	01/04/2006	Periodic	Satisfactory
Inspection Result Comments: 14) Repair pit lights. 8.11.2.1.5. 19) Recommend painting buffer stands.			
JIM WEST	01/10/2005	Periodic	Satisfactory
Inspection Result Comments:			
JIM WEST	01/06/2004	Periodic	Satisfactory
Inspection Result Comments:			

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
JIM WEST Inspection Result Comments:	12/03/2002	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	01/15/2002	Periodic	Satisfactory
DON HICKMAN Inspection Result Comments:	04/04/2001	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	01/24/2000	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	12/30/1998	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	05/06/1998	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	05/01/1997	Reinspection 1	Satisfactory
AL LAMBERT Inspection Result Comments:	01/07/1997	Periodic	In Progress
AL LAMBERT Inspection Result Comments:	01/22/1996	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	05/08/1995	Reinspection 1	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
AL LAMBERT Inspection Result Comments:	01/19/1995	Periodic	Unsatisfactory
16) Annual Safety Test is due this month. 17) Repair governor sheave, it has excessive clearance between axle--cross shaft and sheave hub bearing (reason for UNSAT). 18) Install 2-way communication system, ASME A17.1, EFF 1956, Rule 211, check type for			
JIM RUNYAN Inspection Result Comments:	05/30/1994	Written Verif	Satisfactory
Problem w/safety test tag resolved.			
AL LAMBERT Inspection Result Comments:	05/19/1994	Reinspection 1	Unsatisfactory
1. Five year full load test is overdue. Item 3 above. 2. Repair governor. Excessive wear or clearance between cross shaft & sheave. Cable groove is not lined up with bail dog--protrusion.			
AL LAMBERT Inspection Result Comments:	01/25/1994	Periodic	Unsatisfactory
- Repair governor. Cross shaft has excessive wear clearance. - Install annual safety test tag which shows only one date of test. - Install full load safety test tag which states full load test with month and year of test.			
MARK FLAGG Inspection Result Comments:	04/22/1993	Reinspection 1	Satisfactory
AL LAMBERT Inspection Result Comments:	12/16/1992	Periodic	Unsatisfactory
MARK FLAGG Inspection Result Comments:	01/13/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	02/27/1991	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	04/03/1990	Periodic	Satisfactory
NICK CERDA Inspection Result Comments:	07/14/1989	Written Verif	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
MARK FLAGG Inspection Result Comments:	05/23/1989	Periodic	Unsatisfactory
MARK FLAGG Inspection Result Comments:	09/08/1988	Periodic	Satisfactory
JIM RUNYAN Inspection Result Comments:	06/04/1987	Periodic	Satisfactory
RICHARD AVILA Inspection Result Comments:	03/11/1986	Periodic	Satisfactory



Oregon

Kate Brown, Governor

Department of Consumer and Business Services

Building Codes Division
Elevator Safety Program
PO Box 14470
Salem, Oregon 97309
Permits/Inspections: (503) 373-1298
Payments: (503) 373-7731

Inspection Report

Equipment ID: PXH7126-OP
Site ID: 182
Site Name: CLATSOP COUNTY
Site Address: 800 EXCHANGE ST
ASTORIA OR 97103

Elevator Contractor Information: License Number and Type Contractor Name Business Name

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments: 1. Make telephone properly operate 2.27	12/06/2019	Periodic	Required by Next Inspec
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/12/2017	Periodic	Satisfactory
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	03/25/2015	Periodic	Satisfactory
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976	07/03/2013	Periodic	Required by Next Inspec

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Inspection Result Comments: Strap conduit run at top of car controller/NEC620 Identify and label keyed switches in car operating panel/8.11.3 24 hour Communication device is inoperative(responder to know correct location of elevator)/8.11.2.1.1/8.11.3.1 .1 Tightent loose cab handrail.			
NICK CERDA	04/28/2010	Periodic	Satisfactory
Inspection Result Comments:			
JIM POWELL	04/29/2009	Reinspection 1	Satisfactory
Inspection Result Comments:	19) 204.1e(1)(c) Provide restraint chain for top car exit panel (not hinged).		
JIM VERLINDE	12/19/2007	Periodic	In Progress
Inspection Result Comments:	Item 12 - Clean & dry. Item 18 - Adjustment. Add additional angle on fascia between 1st & 2nd floor. 19) Use correct maintenance checklist for all work. Provide written verification within 30 days to avoid reinspection fee.		
JIM WEST	01/04/2006	Periodic	Satisfactory
Inspection Result Comments:	19) Provide car to inspection station. 3.10.3.		
JIM WEST	01/10/2005	Periodic	Satisfactory
Inspection Result Comments:	Item 5 - Change tag to read 04.		
JIM WEST	01/06/2004	Periodic	Satisfactory
Inspection Result Comments:			
JIM WEST	12/03/2002	Periodic	Satisfactory
Inspection Result Comments:	19) Repair ceiling in machine.		
JIM WEST	01/14/2002	Periodic	Satisfactory
Inspection Result Comments:			
DON HICKMAN	04/04/2001	Periodic	Satisfactory
Inspection Result Comments:	19) Mount resistors hanging on back of car controller. 20) Tighten cab handrails. 21) Install covers on 4 x 4 box for lights in pit, 370. 22) Install bolt & secure base of pit ladder. 23) Keep test log properly filled out, 1000.1d.		

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
BILL WARREN Inspection Result Comments:	01/24/2000	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	12/30/1998	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	05/06/1998	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	05/01/1997	Reinspection 1	Satisfactory
	17) Find and record weight ==combine weight of car & hoistway doors so the kinetic energy can be calculated, Rule 112.4.		
AL LAMBERT Inspection Result Comments:	01/07/1997	Periodic	In Progress
	#5 above--To be done annually. Install pressure relief tested tag showing date of test & pressure at which relief occurred. Install tag on the same single wire which seals the pressure relief adjustment. 17) Remove oil soaked wicking pads from under pu		
AL LAMBERT Inspection Result Comments:	01/22/1996	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	07/18/1995	Reinspection 2	Satisfactory
AL LAMBERT Inspection Result Comments:	05/08/1995	Reinspection 1	Unsatisfactory
	#8 from last ROI not done.		
AL LAMBERT Inspection Result Comments:	01/19/1995	Periodic	Unsatisfactory
	16) Install 2-way communication system, ASME A17.1 EFF date 1956, Rule 211, check Code requirements for installation date (12-78). 17) Install pit ladder, Rule 106.1 ASME A17.1, Code date 10/78.		
AL LAMBERT Inspection Result Comments:	01/25/1994	Periodic	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
MARK FLAGG Inspection Result Comments:	04/22/1993	Reinspection 1	Satisfactory
AL LAMBERT Inspection Result Comments:	12/16/1992	Periodic	Unsatisfactory
MARK FLAGG Inspection Result Comments:	01/13/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	02/27/1991	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	04/03/1990	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	05/23/1989	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	09/08/1988	Periodic	Satisfactory
JIM RUNYAN Inspection Result Comments:	06/04/1987	Periodic	Satisfactory
RICHARD AVILA Inspection Result Comments:	03/11/1986	Periodic	Satisfactory



Oregon

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Department of Consumer and Business Services

Building Codes Division
Elevator Safety Program
PO Box 14470
Salem, Oregon 97309
Permits/Inspections: (503) 373-1298
Payments: (503) 373-7731

Inspection Report

Equipment ID: PXH7812-OP
Site ID: 648
Site Name: CLATSOP COUNTY COURTHOUSE
Site Address: 749 COMMERCIAL ST
ASTORIA OR 97103

Elevator Contractor Information:	<u>License Number and Type</u>	<u>Contractor Name</u>	<u>Business Name</u>
	46EC Elevator		THYSSEN/KRUPP ELEVATOR

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	12/06/2019	Periodic	Required by Next Inspec
			1. Perform and log annual smoke detector test- overdue 8.11
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	05/03/2018	Reinspection 1	Satisfactory
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/12/2017	Periodic	Unsatisfactory
			1. Perform and log annual smoke detector test- overdue 8.11
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	03/25/2015	Periodic	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/17/2014	Reinspection 2	Satisfactory
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976 Inspection Result Comments:	03/20/2014	Reinspection 1	Unsatisfactory
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976 Inspection Result Comments:	07/03/2013	Periodic	Unsatisfactory
NICK CERDA Inspection Result Comments:	04/26/2010	Periodic	Satisfactory
WRITE OFF INSPECTION Inspection Result Comments:	04/26/2010	Reinspection 1	Satisfactory
JIM VERLINDE Inspection Result Comments:	12/19/2007	Periodic	In Progress
JIM WEST Inspection Result Comments:	01/04/2006	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	01/10/2005	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	01/06/2004	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	12/04/2002	Periodic	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
JIM WEST Inspection Result Comments:	01/17/2002	Periodic	Satisfactory
DON HICKMAN Inspection Result Comments:	04/10/2001	Periodic	Satisfactory
Item 9 - Re-program. 19) Bend down all fire tabs on all hoistway doors, 110.11f. 20) Replace broken flex conduit on cartop to gate switch, NEC 620. 21) Keep test log properly filled out, 1000.1d.			
BILL WARREN Inspection Result Comments:	01/24/2000	Periodic	Satisfactory
BILL WARREN Inspection Result Comments:	09/13/1999	Reinspection 3	Satisfactory
BILL WARREN Inspection Result Comments:	08/03/1999	Reinspection 2	Unsatisfactory
Item 1 - Fire service test to be performed quarterly. 30 day extension granted due to special circumstances.			
BILL WARREN Inspection Result Comments:	04/26/1999	Reinspection 1	Unsatisfactory
Item #1 - Fire service test to be performed quarterly. Item #9 - Responder knows its Clatsop Co. Courthouse, but no address or elevator number. Elevator ADA phone must work according to ADA regulations. Answering party claims they do not have capability			
BILL WARREN Inspection Result Comments:	01/04/1999	Periodic	Unsatisfactory
Item #9 above - Elevator ADA phone must work according to ADA regulations. Answering party claims they do not have capability to give location, or blinking light for deaf. 18) Make pit light to work, 106.1e.			
BILL WARREN Inspection Result Comments:	08/07/1998	Reinspection 1	Satisfactory
18) Make machine room door to self-close & self-lock, 101.3d. 19) Make pit light to work, 106.1e.			
BILL WARREN Inspection Result Comments:	05/05/1998	Periodic	Unsatisfactory
18) Make machine room door to self-close and lock, 101.3d. 19) Make pit light to work, 106.1e.			
AL LAMBERT Inspection Result Comments:	04/30/1997	Reinspection 1	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
AL LAMBERT Inspection Result Comments:	01/07/1997	Periodic	Unsatisfactory
#5--To be done annually. Install tag with date of test & pressure at which relief occurred. Install tag with one wire & seal. #12 above--Oil not draining, running down pit sump. 17) Clean drip pan under pump unit. Excessive oil accumulation, Rule 204.			
AL LAMBERT Inspection Result Comments:	01/24/1996	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	01/19/1995	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	07/19/1994	Reinspection 2	Unsatisfactory
AL LAMBERT Inspection Result Comments:	05/19/1994	Reinspection 1	Unsatisfactory
System failed to bill Fee waived 3/15/97			
AL LAMBERT Inspection Result Comments:	01/26/1994	Periodic	Unsatisfactory
- Install two way 24 hour communication. Must access 24 hours at location. Rule 211.1			
AL LAMBERT Inspection Result Comments:	12/15/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	01/17/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	06/07/1991	Reinspection 1	Satisfactory
MARK FLAGG Inspection Result Comments:	02/28/1991	Periodic	Unsatisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
MARK FLAGG Inspection Result Comments:	04/05/1990	Periodic	Satisfactory
NICK CERDA Inspection Result Comments:	06/29/1989	Written Verif	Satisfactory
MARK FLAGG Inspection Result Comments:	05/11/1989	Periodic	Unsatisfactory
ROD WAGNER Inspection Result Comments:	03/16/1988	Periodic	Satisfactory
NICK CERDA Inspection Result Comments:	07/28/1987	Reinspection 1	Satisfactory
ROD WAGNER Inspection Result Comments:	03/31/1987	Periodic	Unsatisfactory
RICHARD AVILA Inspection Result Comments:	08/19/1985	Periodic	Satisfactory



Oregon

Kate Brown, Governor

Department of Consumer and Business Services

Building Codes Division
Elevator Safety Program
PO Box 14470
Salem, Oregon 97309
Permits/Inspections: (503) 373-1298
Payments: (503) 373-7731

Inspection Report

Equipment ID: PXH7181-OP
Site ID: 649
Site Name: CLATSOP COUNTY DETENTION CENTER
Site Address: 636 DUANE
ASTORIA OR 97103

Elevator Contractor Information:	<u>License Number and Type</u>	<u>Contractor Name</u>	<u>Business Name</u>
	109EC Elevator		OTIS ELEVATOR CO

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:		Periodic	Scheduled
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	12/06/2019	Periodic	Satisfactory
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	07/12/2017	Periodic	Required by Next Inspec
Dan Jones / dan.w.jones@oregon.gov / (503) 510-6441 Inspection Result Comments:	03/25/2015	Periodic	Required by Next Inspec
Don Hickman / don.e.hickman@oregon.gov / 503-910-2976 Inspection Result Comments:	07/03/2013	Periodic	Required by Next Inspec

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
NICK CERDA Inspection Result Comments:	04/28/2010	Periodic	Satisfactory
JIM VERLINDE Inspection Result Comments:	12/19/2007	Periodic	Satisfactory
Item 8 - Only 0.14 foot-candles. Item 18 - Adjustment.			
JIM WEST Inspection Result Comments:	01/04/2006	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	01/10/2005	Periodic	Satisfactory
Item 12 - Maintain clean elevator pit, broom clean. 19) Sump pump cover, replace present with steel grate.			
JIM WEST Inspection Result Comments:	01/06/2004	Periodic	Satisfactory
JIM WEST Inspection Result Comments:	12/04/2002	Periodic	Satisfactory
19) Fire tabs to be bent down on hatch & car door. 20) Fire caulk hole between hatch & machine room. 21) Piston hitting casing in down direction, also piston leaking oil at first splice, recommend realigning jack unit.			
JIM WEST Inspection Result Comments:	01/16/2002	Periodic	Satisfactory
DON HICKMAN Inspection Result Comments:	07/31/2001	Reinspection 1	Satisfactory
Item 17 - Install. 19) Make lowest landing hoistway doors to close from any position, 110. 20) Maintain test log (initials). 21) All A17.3 items due by next annual inspection. If all items 17,19,20,21 not done by next annual inspection, unit will be s			
DON HICKMAN Inspection Result Comments:	04/10/2001	Periodic	Unsatisfactory
Item 17 - Install. 19) Make lowest landing hoistway doors to close from any position. 20) Maintain test log (initials). 21) All A17.3 items due by next annual inspection.			
DON HICKMAN Inspection Result Comments:	10/10/2000	Reinspection 2	Satisfactory
Item 17 - Install. 18) Maintain test log, 1000.			

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
DON HICKMAN Inspection Result Comments:	06/13/2000	Reinspection 1	Unsatisfactory
BILL WARREN Inspection Result Comments:	01/24/2000	Periodic	In Progress
BILL WARREN Inspection Result Comments:	04/26/1999	Reinspection 1	Satisfactory
BILL WARREN Inspection Result Comments:	01/04/1999	Periodic	Unsatisfactory
Item #17 above - provide class ABC fire extinguisher in machine room, installed near opening side of door, 1002.2g. 18) Make machine room door to self-close and self-lock, 101.3d. 19) Install guard on pit light, 106.1e(2).			
BILL WARREN Inspection Result Comments:	08/07/1998	Reinspection 1	Satisfactory
18) Make machine room door to self-close & self-lock, 101.3d. 19) Provide class ABC fire extinguisher in machine room, installed near opening side of door, 1002.2g.			
BILL WARREN Inspection Result Comments:	05/05/1998	Periodic	Unsatisfactory
18) Make machine room door to self-close and lock, 101.3d. 19) Provide class ABC fire extinguisher in machine room, installed near opening side of door, 1002.2g.			
JIM RUNYAN Inspection Result Comments:	02/13/1997	Written Verif	Satisfactory
AL LAMBERT Inspection Result Comments:	01/07/1997	Periodic	In Progress
#5 above--To be done annually. Install tag with date of pressure relief test & pressure at which relief occurred. Use same wire that seals the pressure relief adjuster. 17) Clean oil from drip pan under pump unit. Remove wick- ing pads from drip pan, t			
JIM RUNYAN Inspection Result Comments:	02/14/1996	Written Verif	Satisfactory
AL LAMBERT Inspection Result Comments:	01/24/1996	Periodic	In Progress
17) Remove oil from under pump and pump motor drip pan.			

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
AL LAMBERT Inspection Result Comments:	01/19/1995	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	01/26/1994	Periodic	Satisfactory
AL LAMBERT Inspection Result Comments:	12/15/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	01/17/1992	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	02/28/1991	Periodic	Satisfactory
MARK FLAGG Inspection Result Comments:	04/05/1990	Periodic	Satisfactory
NICK CERDA Inspection Result Comments:	06/29/1989	Written Verif	Satisfactory
MARK FLAGG Inspection Result Comments:	05/11/1989	Periodic	Unsatisfactory
ROD WAGNER Inspection Result Comments:	03/16/1988	Periodic	Satisfactory
ROD WAGNER Inspection Result Comments:	03/31/1987	Periodic	Satisfactory

Inspector Name/Email/Phone	Inspection Date	Inspection Type	Inspection Result
RICHARD AVILA	08/19/1985	Periodic	Satisfactory
Inspection Result Comments:			