Description of document:	General Services Administration (GSA) Final Reports of Elevator Studies developed under contract to the Public Buildings Service, by contractor Ashland Industrial Services, contract number GS11 P16YXX7024, 2016
Requested date:	20-May-2019
Release date:	24-July-2019
Posted date:	30-September-2019
Source of document:	General Services Administration OIG FOIA Officer 1800 F Street, NW Room 5324 Washington 20405 E-mail:OIGFOIA-PrivacyAct@gsaig.gov Fax: 202-501-0414

Office of Administrative Services
FOIA Requester Service Center

July 24, 2019

This letter is in response to your U.S. General Services Administration (GSA) Freedom of Information Act (FOIA) request (GSA-2019-001094), submitted on May 20, 2019, in which you requested:

> "…copy of the Elevator Study developed under contract to the Public Buildings Service, specifically the PBS NCR Operations Maintenance Center 3, by contractor Ashland Industrial Services. The contract number was GS11P16YXX7024. It was awarded on September 13, 2016."

Enclosed please find the information responsive to your request.

In processing your request, GSA has determined that certain information showing building plans and floor plans in this set of responsive documents should be withheld pursuant to Exemption 5 of the FOIA, 5 U.S.C. § 552(b)(5). Exemption 5 protects "inter-agency or intra-agency memorandums or letters which would not be available by law to a party ... in litigation with the agency." Exemption 5 therefore incorporates the privileges that protect materials from discovery in litigation, including the deliberative process, attorney-work product, attorney-client, and commercial information privileges. We are withholding 38 pages in part under Exemption 5 as this information is related to the deliberative process associated with planning for building security.

Additionally, Exemption 7(F) protects law enforcement records if their release could reasonably be expected to endanger the life or physical safety of any individual. Therefore, pursuant to the FOIA, 5 U.S.C. § 552(7)(F), GSA has withheld agency specific security and related information, such as building plans/drawings, the release of which could reasonably be expected to endanger the life or physical safety of any individual.

As we have redacted information referenced in the above paragraphs with the aforementioned FOIA exemptions, this technically constitutes a partial denial of your FOIA request. You have the right to appeal the denial of the information being withheld. You may submit an appeal online at the following link (https://foiaonline.regulations.gov/foia/action/public/home) or in writing to the following address:

U.S General Services Administration
1800 F. Street, Northwest
Washington, DC 20405
Telephone: (877) 675-FOIA
Fax: (202) 501-2727

U.S. General Services Administration
FOIA Requester Service Center (H3A)
1800 F Street, NW, Room 7308
Washington, DC 20405

Your appeal must be postmarked or electronically transmitted within 120 days of the date of the response to your request. In addition, your appeal must contain a brief statement of the reasons why the requested information should be released. Please enclose a copy of your initial request and this denial. Both the appeal letter and envelope or online appeal submission should be prominently marked, "Freedom of Information Act Appeal."

This completes action on your request. Should you have questions, you may contact me at travis.lewis@gsa.gov or contact our GSA FOIA Public Liaison, Audrey Brooks, at (202) 205-5912 or by email at audrey.brooks@gsa.gov for any additional assistance and to discuss any aspect of your FOIA request.

Additionally, you may contact the Office of Government Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, email at ogis@nara.gov; telephone at (202) 741-5770; toll free at (877) 684-6448; or facsimile at (202) 741-5769.

Sincerely,

Travis Lewis

Deputy Director
Office of Accountability and Transparency
Office of Administrative Services

Enclosures

Ashland Industrial Services
Training. Inspections. Consulting. Project Management.

1 North Main Street
Shrewsbury, PA 17361
717.347.5616

100% FINAL ELEVATOR STUDY

FOR

UNITED STATES DEPARTMENT OF AGRICULTURE
FEDERAL BUILDING MD1872ZZ
4700 RIVER ROAD
COLLEGE PARK, MD 20740

December 30, 2016

SCOPE OF WORK

Ashland surveyed six (6) elevators at the referenced property during the week of October 10, 2016. The purpose of the audit and systems analysis is to develop scopes, cost estimates, time schedules, phasing for the interim repair projects and plan for the modernization projects. Ashland also identifies the primary equipment, determines the maintained condition of major components, records operating performance levels and evaluates the vertical transportation based on applicable industry and code standards.

Our report is arranged in sections as follows:

EXECUTIVE SUMMARY

The elevator controllers, motor generator (MG) sets and DC hoist motors are old technology and OBSOLETE by design. Replacement parts are non-existent with spare parts that consist of only rebuilt components. The manufacture, Northern Elevator is no longer in business so technical support is limited to the worn and incomplete electrical prints that were found in the machine room. Replacement of the elevator controllers are immediately necessary in order to prevent extended shutdowns that could last weeks or even months. A modernization will remove the MG sets and be replaced with Variable Voltage Variable Frequency (VVVF) drives. The DC hoist motors will be replaced with AC hoist motors and the overall new elevator system will be more energy efficient than the current configuration.

The building is located at 4700 River Road, College Park, MD, 20740. It is a government owned building. It is currently occupied entirely by United States Department of Agriculture (USDA). General Services Administration (GSA) is the authority for the operations and maintenance of the building. The building has an area of 337,500 Gross SF, 337,500 Rentable SF and 300,000 Usable SF. The building has six (6) levels. These are floors 1 through 6. The building was built in 1995.

Ashland Industrial Services performed a comprehensive survey of the elevator equipment at the referenced property during the week of October 10, 2016. The office building's vertical transportation is provided by two (2) passenger groups of three (3) overhead geared traction passenger elevators (PE1 – PE3 & PE4 – PE6). One passenger group is located on the West side of the building (PE1 – PE3) and the other passenger group is located on the East side of the building (PE4 – PE6). The passenger elevators serve six (6) front openings (1-6), have a capacity of 3500 pounds and operate at 350 feet per minute. PE1 in the West side of the building has a rear service opening on the first floor, utilized by maintenance and building staff therefore PE1 has seven (7) total openings.

All passenger elevators are operating between 10-15% below contract speed. This is due to the elevator controller's inability to control the elevator coming into/out of each landing as it travels through the hoistway. It is typical, based on this type of equipment that the elevators are "slowed down" in order not to miss floor levels or cause additional shutdown issues, more than are occurring now. Door operating times, both in the open and close cycles, are excessively "long" and are also directly related to the type of "open loop" car door operator system that is currently being utilized. A controller and car door operator upgrade would eliminate these issues and improve elevator reliability and performance, based on industry standards.

Realizing that preventive maintenance is an ongoing process, Ashland's survey represents a snap shot on a specific day and time. Overall, the equipment is operating within code with evidence of preventive maintenance being performed on a sporadic basis. The machine room spaces are relatively clean and the areas are organized. The deficiencies found can be addressed during regular preventive maintenance procedures such as hoistway door adjustments and replacement of incandescent light bulbs. The HVAC system in each machine room was operating as designed. In anticipation of the modernization in the next

couple of years, it is recommended that the HVAC system in each machine room be replaced during the elevator modernization project.

Of particular concern is that Ashland also found outdated paperwork in each elevator machine room that illustrates that the annual safety inspections, as required by ASME A17.1 Code, have not been completed since July, 2015, making the tests overdue by more than four (4) months. These tests should be scheduled and completed as soon as possible. Record keeping of maintenance procedures and fireman's service monthly testing are not current or in some cases completely missing.

Incandescent bulb technology requires more frequent replacement when compared to LED type bulbs. In order to improve reliability Ashland recommends that a complete modernization is undertaken within the next 1-2 years which would include new microprocessor controls, removal of the motor generator sets to be replaced with VVVF AC drives, new operating fixtures and new cab finishes.

All pit ladders will require replacement in order to provide a "grab bar" at proper height; most do not have a grab bar at all. Pit lighting appears to be adequate and all pits were "dry" with little to no evidence of water/moisture intrusion.

The six (6) passenger elevators (PE1 – PE3, PE4 – PE6)) are original as installed in 1995 with applied panels, stainless steel reveals and egg crate drop ceilings. The interiors are in good condition for their age but are starting to show wear from normal use. The rear wall of each cab has a stainless steel flat bar stock type hand rail. Ventilation of all cabs is achieved by a standard cab fan mounted on top of each elevator cab shell and appears to be adequate. The finishes surrounding the call buttons are painted drywall and the hall lanterns are above the elevator entrance frames, finished in brushed stainless steel.

SECTION I - EQUIPMENT EVALUATION

VERTICAL TRANSPORTATION SYSTEMS PROFILE

Building: **4700 River Road (USDA)**

	PE1 - PE3	PE4 - PE6
Capacity	3,500	3,500
Loading (Pass/Serv/Freight)	Passenger	Passenger
Rated Speed (fpm)	350	350
Roping	1 to 1	1 to 1
Floors Served	6	6
Floor Identification	1 to 6	1 to 6
	1R (PE1)	
Machine Type:	OH Geared	OH Geared
Control Type:	Northern IPC	Northern IPC
Sequence of Operation	3 car group	3 car group
Door Configuration	SSCO	SSCO
Car Door Operator	Northern	Northern
Operating/Signal Equipment	Incandescent	Incandescent
Door Entrance Size	42" w X 84" h	42" w X 84" h
Car & Cwt Buffers	Oil	Oil
Car Safeties	Northern	Northern
Overspeed Governor	Northern	Northern
Power Supply	460V 3 PH	460V 3 PH
O.E. M.	U.S. Elevator	U.S. Elevator
Date of Installation	1995	1995
Modernization Contractor	N/A	N/A
Date of Modernization	N/A	N/A
Present Service Company	Quality Elev.	Quality Elev
3 or 5 Year Full Load Test	No Records	No Records
Annual Safety Inspection	Jul-15	Jul-15

LIFE CYCLE ANALYSIS – TRACTION SYSTEMS

Elevator I.D.: PE1 – PE3, PE4 – PE6 Date: 10/11/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	21	29	Good	Test & Rebuild as new
2. Drive Motor(s)	50-75	21	29	Good	New A/C motors under mod
3. Power Drives	30-50	21	9	**OBSOLETE**	Replace under mod
4. Signal Controls (Selectors)	20-25	21	0	**OBSOLETE**	Replace under mod
5. Motion Controls	20-25	21	0	**OBSOLETE**	Replace under mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	21	0	Good	Replace under mod
2. Guide Rails	75+	21	54+	Good	Clean, align, tighten
3. Mechanical Safety Equipment & Counterweight	75+	21	54+	Good	Clean & lubricate
4. Hoistway Door Equipment	25-30	21	4	Good	Clean & lubricate
CAR EQUIPMENT					
1. Car Door Equipment	20-25	21	0	**OBSOLETE**	Replace under mod
2. Cab Enclosure	20-30	21	0	Fair	Replace under mod
3. Car Frame	75+	21	54+	Good	No action required
4. Car Safety	75+	21	54+	Good	Clean & lubricate
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	21	0	Fair	Replace under mod

CODES AND STANDARDS REVIEW – ELEVATORS ONLY

All elevators in the 4700 River Road Building were installed in 1995. The elevators have never been upgraded and are original as installed in 1995. The systems do not meet the latest code regulations in the following areas:

- Record Keeping - Data Tags / Testing Requirements (Annual Safety Inspections)
- Emergency Communication - Repair non-functioning telephone (PE5)

Note: Annual load tests are overdue for all traction elevators in the building. Record keeping is inconsistent with the last recorded preventive maintenance visit occurring in June, 2016.

Annual Safety Inspections (Cat 1) All test are performed at inspection speed with no load inside the elevator. Manually activate the safeties, governor, emergency final limits, over speed switch, door locks, gate switches, car door restrictors, stop switches and buffer switches. Activate Fireman's Service Phase I & II. Test emergency lighting / alarm / communications. Test the door protection devices and closing force. Unintended movement device is also verified.

5 year full-load (Cat 5): Same scope of work as the Cat 1 no load test. In addition, while elevator is operating at contract speed. Conduct a full load (elevator capacity) safety drop test, 125% capacity elevator brake test and a full load buffer test. Manually test the governor activation speeds and governor pull through.

What the 5 year test involves and what is expected at the end of the test? The elevator is loaded to maximum designed capacity and with the elevator traveling in the down direction; the speed governor is activated to put the elevator on emergency stop. The distance of slide on the main elevator rails is then measured for tolerance as well as the level of the elevator itself after the emergency brakes (safety) are applied and the car has come to a complete stop. After this is completed, the elevator is further tested in the down direction (under full load, contract speed) and strikes the elevator pit buffer. The elevator then is lifted, and the buffers (oil type) must return to original position within 90 secs. Additional weight is added (25% of capacity) to the cab. The elevator is tested again in the down direction and must stop within normal leveling tolerances between the car and hoistway entrance sills. All tests have specific tolerances set by ANSI A17.1 in relation to the elevator design; type, speed and capacity

THE AMERICANS WITH DISABILITIES ACT (ADAAG)
SURVEY OF EXISTING ELEVATOR SYSTEMS

ELEVATOR(S) IDENTIFICATION: PE1 – PE6 **DATE:** October 12, 2016

S = SATISFACTORY, U = UNSATISFACTORY, R = READILY ACHIEVABLE, NA = NOT APPLICABLE

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.1	General	A. Elevators shall comply with ASME/ANSI A17.1-1990, Safety Code for Elevators and Escalators. B. Freight elevators shall not be considered as meeting the requirements of this section unless the only elevators provided are used as combination passenger and freight elevators for the public and employees.	X		Per installation date of 1995	
4.10.2	Automatic Operations	A. Elevator operation shall be automatic. B. Each car shall have a self-leveling feature that will automatically bring the car to floor landing within a tolerance of ½" under rated loading and zero loading conditions. C. This self-leveling feature shall be automatic and independent of the operating device and shall correct for undertravel and overtravel.	X X X			
4.10.3	Hall Call Buttons	A. Shall be centered at 42" above floor. B. Shall have visual signals to indicate when call is registered and answered. C. Minimum size 3/4" in the smallest dimension. D. "UP" button shall be above "DOWN" button. E. Buttons shall be raised or flush. F. Objects mounted beneath buttons shall not project more than 4" from the wall.	X X X X X		N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.4	Hall Lanterns	A. A visible and audible signal shall be provided at each hoistway entrance to indicate which car is answering a call.	X			
		B. Audible signals shall sound once for "up", twice for "down", or shall have verbal annunciators that say "up" or "down".	X			
		C. Visible signals shall have the following features:				
		1. Fixtures shall be mounted with centerlines at least 72" above the lobby floor.	X			
		2. Visual elements shall be at least 2 ½" in the smallest dimension.	X			
		3. Signals shall be visible from the vicinity of the hall call button.	X			
		D. In-car lanterns, conforming to the above requirements, shall be acceptable.			N/A	
4.10.5 4.30.4	Characters On Hoistway Entrances	A. All elevator hoistway entrances shall have raised and Braille floor designations provided on both jambs.	X			
		B. Characters shall be centered 60" above finish floor.	X			
		C. Characters shall be 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X			
4.10.6 4.16(3)(i)	Door Protective and Reopening Device	A. Elevator doors shall open and close automatically.	X			
		B. Door shall have a reopening device that will stop and reopen a car door if an object or person obstructs the door.				
		1. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5" and 29" above finish floor.	X			
		2. Door reopening device shall remain effective for at least 20 seconds. After such interval, doors may close in accordance with ASME/ANSI A17.1-1990.Rule 112.4 and Rule 112.5 closing force provisions.	X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.7	Door and Signal Timing for Hall Calls	A. The minimum acceptable time from notification that a car is answering a call until doors begin to close shall be calculated as follows: • T = D/(1.5 ft/s) or T=D/(445 mm/s) • T = time in seconds • D = distance (in ft or mm) from point 60" directly in front of farthest call button to centerline of hoistway door. • The minimum acceptable notification time shall be 5 seconds.	X			
4.10.8	Door Delay for Car Calls	A. The minimum time for elevator doors to remain fully open in response to a call shall be 3 seconds.	X			
4.10.9 4.16(3)(ii)	Floor Plan of Elevator Cars	Shall provide for wheelchair users to enter the car, maneuver within reach of controls and exit the car. A. Door shall provide 36" clear minimum. B. Cab Depth: 51" minimum, with 54" minimum from rear of cab to inside face of door. C. Cab Width: side opening door - 68" minimum; Center opening door - 80" minimum. D. Clearance between car platform sill and edge of hoistway landing shall be 1 1/4" maximum. E. Alterations/Existing Condition: Where existing plan configuration or technical infeasibility prevent use of specified cab sizes, dimensions may be reduced as required. However, in no case shall the inside car dimensions be less than 48" by 48". F. Equivalent facilitation may be provided with a cab of different size when usability can be demonstrated and when all other items required to be accessible comply with this section.	X X X X		N/A N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.10	Floor Surfaces	A. Shall be firm, stable and slip-resistant B. If carpet is used, it shall have the following features: 1. Shall be securely attached; 2. A firm cushion pad or backing (or none); 3. A level loop, textured loop, level cut pile or level cut/uncut pile texture; 4. Maximum pile thickness: ½" 5. Exposed edges fastened to floor surfaces with carpet edge trim.	X		N/A	
4.10.11	Illumination Levels	A. Illumination level at controls, platform and threshold and landing shall be minimum 5 footcandles.	X			
4.10.12 (1)	Car Controls: Buttons	A. Size 3/4" minimum in least dimension. B. Buttons shall be raised or flush.	X X			
4.10.12 (2)	Car Controls: Control Indicators	C. All control buttons shall be designated by Braille and by raised standard alphabet characters for letters, Arabic symbols for numerals, or standard symbols are required in ASME/ANSI 17.1-1990. D. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. E. All raised designations shall be immediately left of the button to which they apply. F. Floor buttons shall be provided with visual signals which light when each call is registered and extinguish when each call is answered.	X X X X			
4.10.12 (3)	Car Controls: Height	G. All floor buttons shall be maximum 54" above floor where side approach is provided, 48" maximum where forward approach is required. H. Emergency controls (including alarm and stop) shall be grouped at bottom of panel, with centerlines 35" minimum above floor.	X X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.12 (4)	Car Controls: Location	I. Controls shall be located on a front wall if cars have center opening doors and at either a side wall or the front wall if cars have side opening doors.	X			
4.10.13	Car Position Indicators	A. A visual car position indicator shall be provided above the car control panel or above the door. B. As the car passes or stops at a floor, the corresponding numbers shall illuminate and an audible signal shall sound. C. Numerals shall be a minimum of ½" high. D. Audible signal shall be no less than 20 decibels with frequency no higher than 1500 Hz. E. An automatic verbal announcement of the floor number may be substituted for the audible signal.	X X X X		N/A	
4.10.14	Emergency Communic-ations	Emergency two-way communication system between the elevator and a point outside the hoistway shall comply with ASME/ANSI A17.1-1990 A. Highest operable part of system shall be maximum 48" from floor. B. System shall be identified by raised symbol and lettering located adjacent to the device. C. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. D. If system uses a handset, minimum cord length shall be 29". E. If located in a closed compartment, door shall be operable with one hand, shall not require tight grasping, pinching, or twisting of the wrist, and shall require a maximum force of 5 lbf. F. The emergency communication system shall not require voice communication. (Voice only system is inaccessible to persons with speech or hearing impairments.)	X X X X X X			

SECTION II - MAINTAINED CONDITION EVALUATION

ITEMIZED MAINTENANCE DEFICIENCIES

Machine Room: PE1 – PE3

1. Record keeping is not up to date. Provide maintenance and fireman's service testing records per Code.
2. Annual no-load tests are overdue, last performed in July, 2015.
3. Remove used parts and organize remaining spare parts.

Machine Room: PE4 – PE6

1. Record keeping is not up to date. Provide maintenance and fireman's service testing records per Code.
2. Annual safety inspections are overdue, last performed in July, 2015.
3. Remove used parts and organize remaining spare parts.
4. Machine room door does not lock, repair/replace broken lock set.

General Observations:

1. Hoistway/car door maintenance is overdue.
2. Replace worn car door gibs on PE2.
3. Adjust hoistway door eccentrics to eliminate gaps between door panels when forced open.
4. Repair hall position indicator on PE4
5. Repair non-operational emergency phone in elevator car of PE5
6. Repair damaged/loose hoistway door panel astragals on PE2.
7. Adjust door open duration upon activation of electronic edge detector to within industry standards, refer to Recorded Operating Performance chart.

MAINTENANCE CONTRACT REVIEW

Current Contract Provisions:

THESE DOCUMENTS HAVE NOT BEEN PROVIDED TO ASHLAND INDUSTRIAL SERVICES

Recommendations:

RECORDED OPERATING PERFORMANCE

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. PE2	ELEV. NO. PE3	ELEV. NO. PE4	ELEV. NO. PE5	ELEV. NO. PE6	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**293***	**298***	**280***	**284***	**277***	333 – 367
B. SPEED – DOWN DIRECTION (FPM)	**290***	**299***	**280***	**282***	**279***	333 – 367
C. DOOR OPENING TIME (SEC)	**2.7***	**2.5***	**3.8***	**2.2***	**2.4***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	**3.2***	**3.4***	**3.9***	**3.1***	**3.2***	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	6.0	6.1	4.7	5.0	5.5	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.1	5.7	5.5	6.1	6.0	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**6.0***	**6.2***	**6.1***	**6.3***	**6.5***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**15.7***	**17.8***	**18.2***	**15.8***	**16.5***	11.5 – 12.5
I. START (milli g) Up/Down	33/72	60/52	42/40	61/50	24/21	
J. ACCEL (milli g) Up/Down	62/73	81/80	102/100	73/70	84/81	
K. DECEL (milli g) Up/Down	91/93	90/94	91/90	82/84	80/83	
L. STOP (milli g) Up/Down	31/32	30/30	34/33	32/30	33/42	
M. JERK (milli g) Up/Down	5.1/9.9	12.8/9.5	7.2/7.2	17.0/9.5	5.4/4.9	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	28	27	26	25	24	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

SSCO; 42" wide (front) SSSO; 42" wide (rear)	ELEV. NO. PE1 (front)	ELEV. NO. PE1 (rear)	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**305***	N/A	333 – 367
B. SPEED – DOWN DIRECTION (FPM)	**314***	N/A	333 – 367
C. DOOR OPENING TIME (SEC)	**4.0***	**4.2***	1.4 – 1.6 (front) 2.0 – 2.2 (rear)
D. DOOR CLOSING TIME (SEC)	**5.1***	**5.1***	2.8 – 3.0 (front) 4.0 – 4.2 (rear)
E. DOOR OPEN DURATION - CAR CALL (SEC)	5.8	5.5	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.4	6.2	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**6.1***	**6.0***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**19.1***	N/A	11.5 – 12.5
I. START (milli g) Up/Down	62/91	N/A	
J. ACCEL (milli g) Up/Down	101/102	N/A	
K. DECEL (milli g) Up/Down	120/121	N/A	
L. STOP (milli g) Up/Down	54/51	N/A	
M. JERK (milli g) Up/Down	6.4/10.3	N/A	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	26	24	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation

DEFINITIONS AND MEASUREMENTS

OF ITEMS LISTED IN

RECORDED OPERATING PERFORMANCE

A&B. **Speed** is the rate at which the measured unit travels. The speed has been measured during a complete run of the unit and was taken as the highest sustained value recorded using a hand held tachometer.

C. **Door Opening Time** is defined as the start of car doors opening until they are fully opened. The time was measured in seconds from the moment the car doors start to open until the car doors are fully open (i.e., motion stops).

D. **Door Closing Time** is defined as the start of the car doors closing until fully closed. The time was measured in seconds from the moment the car doors start to close until the car doors are fully closed (i.e., motion stops).

E. **Door Open Duration for a Car Call** is defined as the length of time the car doors remain fully open in response to a car call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car door.

F. **Door Open Duration for a Hall Call** is defined as the length of time the car doors remain fully open in response to a lobby call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car doors.

G. **Door Open Duration After Protective Shield is Re-Established** is defined as the length of time the car doors remain open after an object has passed through the protective shield until the car doors begin to close. This time was measured in seconds from the stop in the motion of the car doors until the re-start of the closing motion of the car doors.

H. **Floor to Floor Performance Time** is defined as the time required for the movement of a car between two (2) floors, including the door closing and effective door opening for passenger transfer. The time was measured in seconds from the start of door closing at one floor until the car was stopped (within stopping accuracy) at the next floor with the doors opened for passenger transfer.

I. **Start Up/Down (milli g)** is measured at the beginning of car motion.

J. **Accel Up/Down (milli g)** is the measure of acceleration immediately after the Start measure.

K. **Decel Up/Down (milli g)** is the measure of transition from high speed to leveling speed or stop.

L. **Stop Up/Down (milli g)** is measure of the stopping rate to the floor level.

M. **Jerk Up/Down (milli g)** is a term used to describe a change in acceleration. In mathematical terms one jerk is equal to a change in acceleration of one foot per second per second, in one second of time. One jerk equals a rate change of .03108 g's in one second. Optimal jerk rate is 15.0 or less.

N. **Stopping Accuracy** is the distance between the car and hoistway sills when the car is stopped at a floor and was measured as the vertical distance (in inches) between the horizontal planes of the car and hoistway sills when the car is stopped at a floor.

O. **Car Door Closing Pressure** is the amount of force required to hold a door from closing after stalling the door, by external means, at about 1/3 of the closing distance. The door pressure was measured in pounds and was recorded upon removal of the physical block.

SECTION III – SCOPE, BUDGET COSTS & PRIORITIES

Design Intent

As part of Ashland's recommendations for upgrades, modernization and/or refurbishment of the elevator equipment, the elevator equipment rooms/spaces have been evaluated, including components such as lighting, HVAC, fire protection, emergency power interface, enclosures, etc. The scope of work for each grouping of elevators requires that the elevator systems and areas comply with GSA Standards / Guidelines / Alerts and all current Codes. The design will bring the elevators up to the latest editions of ASME A17.1 Safety Code for Elevators and Escalators, A17.3 Safety Code for Existing Elevators and Escalators, A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, ANPA 70 National Electric Code and NFPA 101 life safety codes.

Phasing of the elevator modernization should begin with the east end three (3) car group (PE4 – PE6), completing one (1) elevator at a time. Upon completion of the east end elevators proceed with the west end group (PE1 – PE3).

Passenger Elevators PE1 – PE6

Rebuild the U.S. Elevator overhead geared traction machines, provide new elevator controllers with VVVF drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new rollers and safety interlocks, new car door operator (closed loop), new car door panels and ventilation, new car top inspection station, new hall and car operating fixtures with LED lamps, paint entrance frames, new electronic door edge detector, new cab interior applied panels, ceiling and flooring. Retain car and counterweight guide rails, refurbish deflector sheaves and governor cable tension assembly, clean hoistway entrance sills and car sill, refurbish hoistway door panels, retain car frame and platform, modify lobby control panel. Provide new pit ladders.

Budget Cost per elevator: $321,448 x 6 elevators = $1,928,692 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station, refurbish machine room area lighting, provide new HVAC unit(s) in elevator machine room, provide new pit and hoistway lighting. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $151,152 x 2 machine rooms = $302,304 (FY 2017 dollars)

Total Budget Cost for Elevators and Building Related Work for PE1 – PE6: $2,230,996 (FY 2017 dollars)

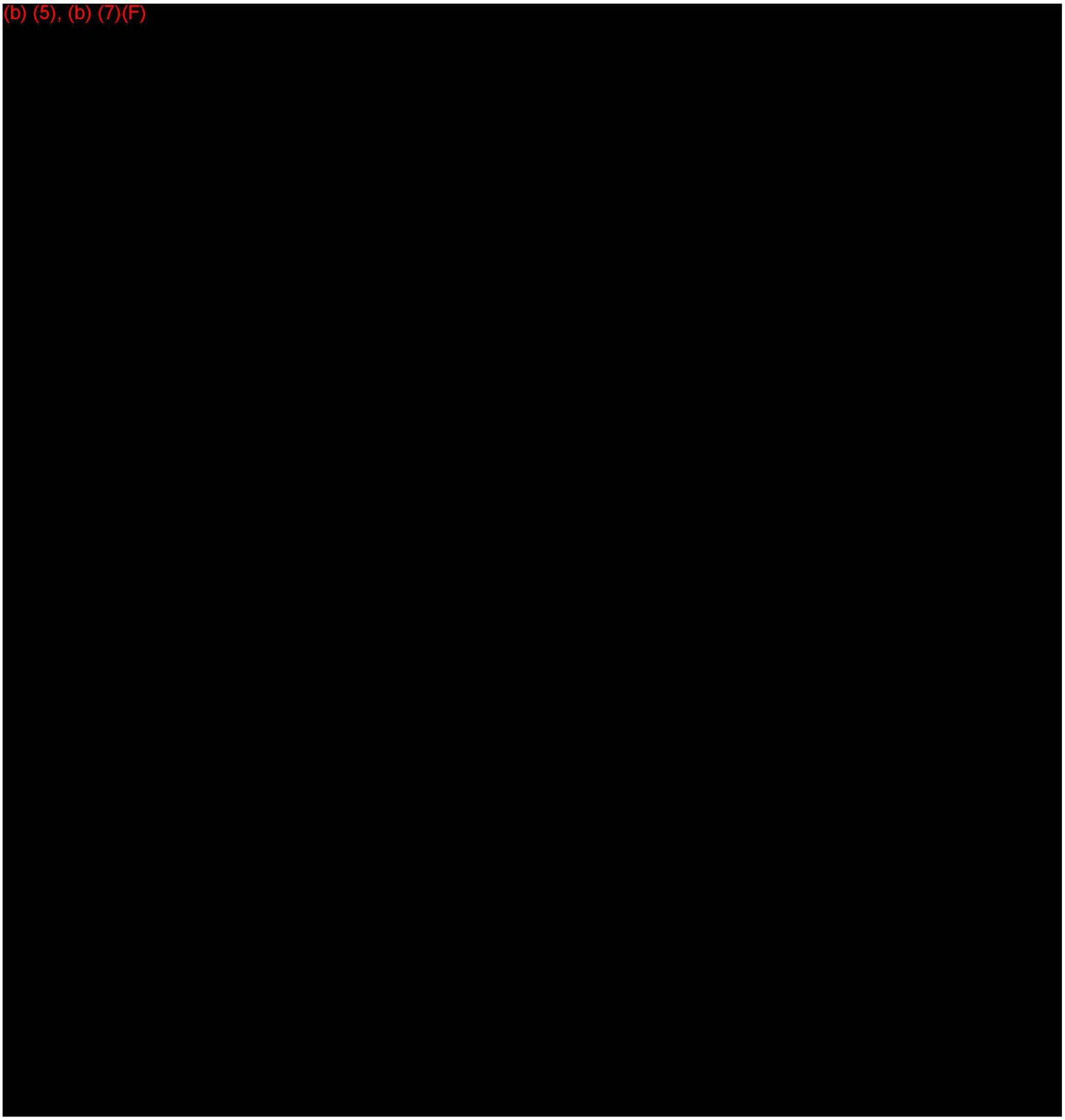
SECTION IV – PHOTOGRAPHS, SCHEDULE & KEY PLAN

See Attachments A, B & C

ATTACHMENT A

PHOTOGRAPHS

(b) (5), (b) (7)(F)



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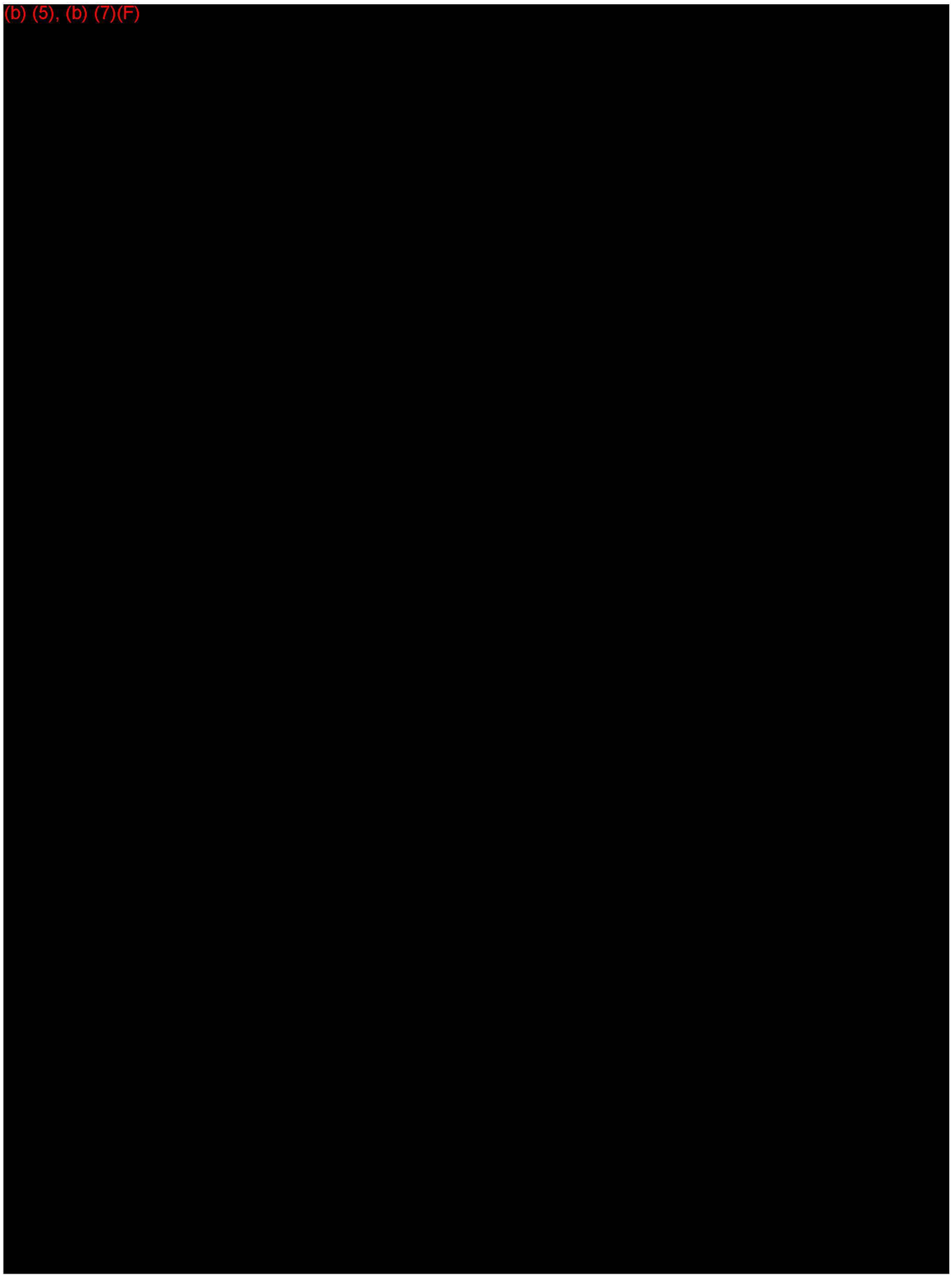
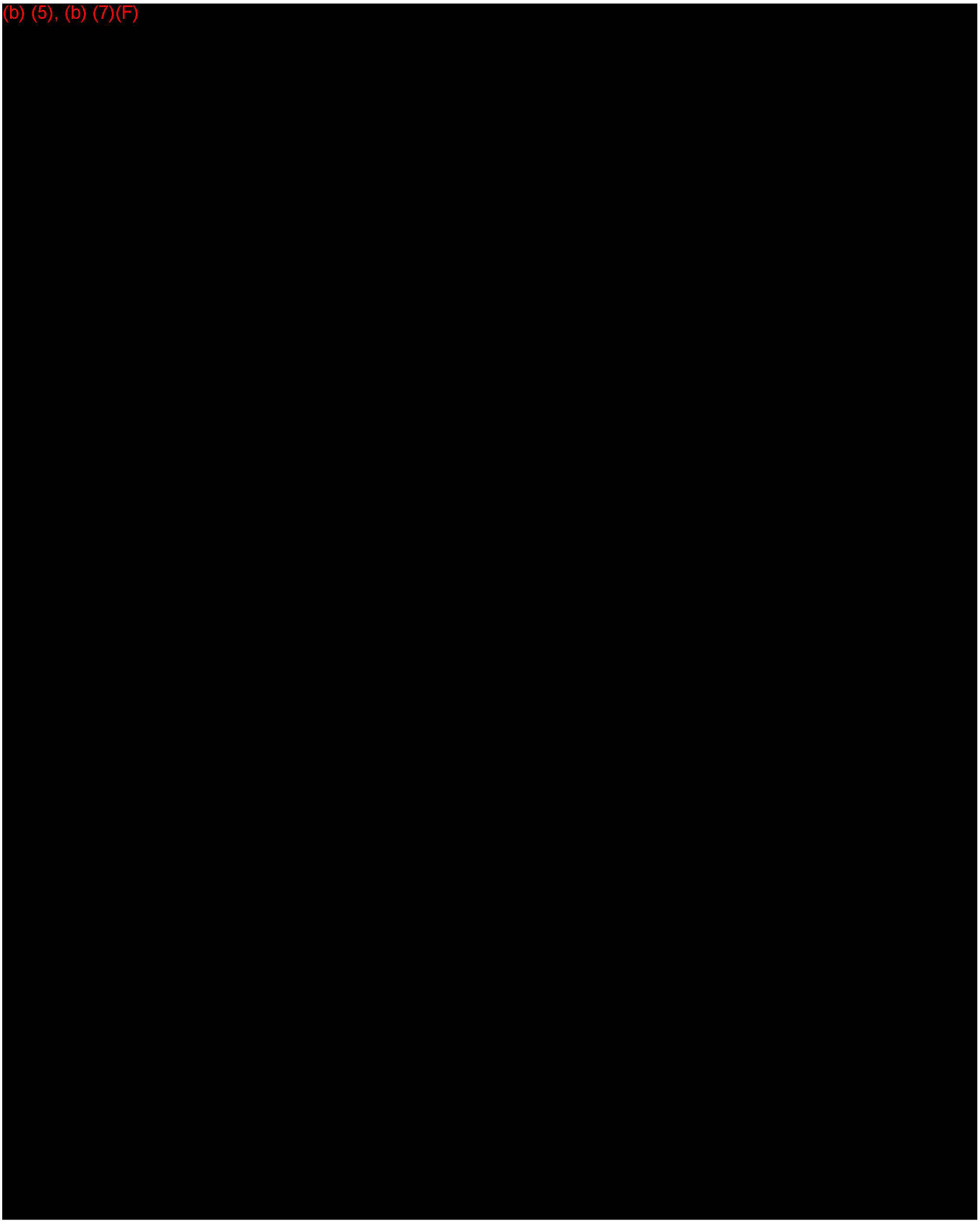


(b) (5), (b) (7)(F)



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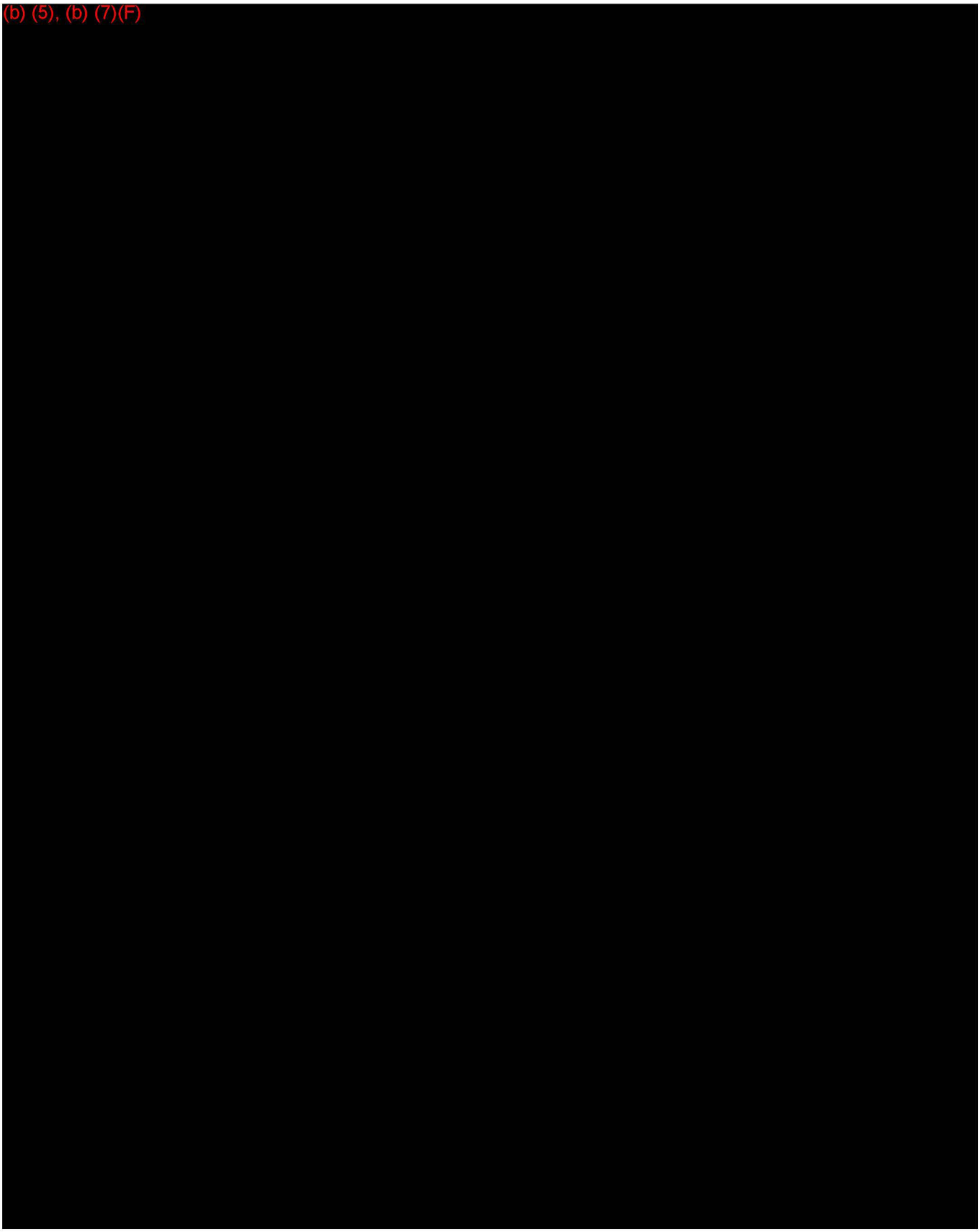


[redacted]

(b) (5), (b) (7)(F)

GENERAL NOTES

CONSTRUCTION NOTES

WALL LEGEND

SYMBOL	DESCRIPTION

PLAN NORTH

ACTION	DATE
70% CONSTRUCTION DOCUMENTS	5-11-94
REVISED CONSTRUCTION DOCUMENTS	4-4-94
GSA APPROVED	5-4-94
ISSUED FOR PERMIT	5-6-94
ISSUED FOR PRICING	5-15-94

UNITED STATES DEPARTMENT OF AGRICULTURE(USDA)
CENTER AT RIVERSIDE

4700 RIVER ROAD
RIVERDALE, MARYLAND 20737

SETTLES ASSOCIATES INC.
1005 NORTH GLEBE ROAD
SUITE 600
ARLINGTON, VA 22201
(703) 525-0424
FAX (703) 527-9281

PROJECT NO. 580/581 CAD NO. 6801NCN
PROJ. ARCHITECT AA PROJ. MGR. ER
DRAWN BY DN SCALE 1/8" = 1'-0"
SHEET TITLE PARTITION PLAN
FIRST FLOOR NORTH

SHEET NO. A-1-1N

(b) (5), (b) (7)(F)

[redacted]

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS AT THE JOB SITE AND SHALL NOTIFY SETTLES ASSOCIATES OF ANY DISCREPANCIES, OMISSIONS AND/OR CONFLICTS BEFORE PROCEEDING WITH ANY WORK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WALL AND CEILING FINISHES TO ENSURE THAT JOINTS AND TRANSITIONS BETWEEN MATERIALS WHETHER THEY WILL BE WALL TO WALL, WALL TO CEILING OR CEILING TO CEILING WILL BE SMOOTH, TRUE, LEVEL AND ACCORDANCE WITH THE DRAWINGS.
3. UNLESS OTHERWISE NOTED ALL PARTITIONS WITHOUT PARTITION TYPE INDICATOR SHALL BE TYPE (1) PARTITION. REFER TO SHEET [illegible] FOR DETAILS.
4. ALL DRYWALL PARTITIONS SHALL BE DIMENSIONED FROM FINISH FACE OF DRYWALL TO FINISH FACE OR FROM CENTER LINE OF COLUMN TO FINISH FACE OF DRYWALL UNLESS OTHERWISE NOTED.
5. ALL PARTITIONS ATTACHED TO WINDOW MULLIONS SHALL BE LOCATED AT CENTERLINE OF MULLION.
6. GENERAL CONTRACTOR SHALL REINFORCE METAL STUDS WITH PRESSURE TREATED WOOD BLOCKING AT ALL LOCATIONS WHERE WALL CABINETS ARE TO BE INSTALLED.
7. WHERE ELECTRICAL AND PLUMBING FIXTURES AND THE LIKE OCCUR IN MILLWORK, THE GENERAL CONTRACTOR SHALL PROVIDE ROUGHING AND STUB-UPS FOR THESE ITEMS AND SHALL COORDINATE INSTALLATION TO ASSURE PROPER LOCATION.
8. ALL CONCEALED WOOD BLOCKING SHALL BE FIRE TREATED TO MEET BOCA AND LOCAL FIRE CODES.

CONSTRUCTION KEY NOTES

- 1.1 CENTER PARTITION ON CENTERLINE OF COLUMN
- 1.2 ALIGN PARTITION WITH CENTERLINE OF MULLION. SEE DETAIL [illegible]
- 1.3 PARTITION TO BE ALIGNED WITH FACE OF PARTITION COLUMN
- 1.6 CARPETED WD. PLATFORM WITH SOLID BULLNOSE EDGE
- [illegible] STEEL STEPS WITH CONCRETE FILLED [illegible]
- [illegible] PLAM. WD ENCLOSURE 18" A.F.F.
- [illegible] 1/2" FULL HT. PLYWOOD SHEET SCREW TO DRYWALL PARTITION
- [illegible] SPEAKER, INSULATED DRYWALL ENCLOSURE
- [illegible] PLAM BASE AND UPPER CABINETS
- [illegible] SIDE FOLDING GRILL / WITH BOTTOM & SIDE LOCK
- [illegible] LOW PARTITION
- [illegible] NOVA WALL / ACOUSTICAL WALL TREATMENT
- [illegible] BLACK-OUT CURTAINS (SEE SPECIFICATIONS)
- [illegible] 6" RAISED ACCESS FLOOR
- [illegible] LINE OF FOLDING PARTITION
- [illegible] UNIT KITCHEN WITH SINK, REFRIGERATOR AND COOKTOP
- [illegible] HANDICAPPED LIFT / WITH BUILT-IN MECHANISM

WALL LEGEND

SYMBOL	DESCRIPTION
(solid heavy line)	EXISTING WALL OR STRUCTURE TO REMAIN
	(1) TYP. FLOOR TO CEILING PARTITION
(long dash line)	(2) TYP. SLAB TO SLAB PARTITION (2A) 3 5/8" STEEL STUDS @ 2A ONLY
(dash-dot line)	(3) TYP. SLAB TO SLAB STC 45 PARTITION (3A) 3 5/8" STEEL STUDS @ 3A ONLY
(long-short dash line)	(4) 1 HR. FIRE RATED PARTITION TEST UL DES U465 GA FILE # WP 1070
	(5) SLAB TO 6" ABOVE FINISHED CEILING (5A) 3 5/8" S.S. STUDS @ 5A ONLY
(thin line)	(6) FURRED OUT PARTITION
(short dash line)	(7) 2 HR. SHAFT WALL FIRE RATED PARTITION - GA FILE # [illegible]
(dash line)	(8) 2 HR. FIRE RATED PARTITION GA FILE # WP [illegible]
(long dash line)	(9) 55 STC FIRE RATED PARTITION GA FILE # WP [illegible]

SETTLES ASSOCIATES INC.
[illegible] NORTH GLEBE ROAD
SUITE 800
ARLINGTON, VA 2220[illegible]
(703) 526-0424
FAX (703) 527-9268

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)
CENTER AT RIVERSIDE
4700 RIVER ROAD
RIVERDALE, MARYLAND 20737

ACTION	DATE
100% CONSTRUCTION DOCUMENTS	3-11-94
REVISED CONSTRUCTION DOCUMENTS	4-4-94
GSA APPROVED	5-4-94
ISSUED FOR PERMIT	5-4-94
ISSUED FOR PRICING	5-19-94

PROJECT NO. 880/881 | CAD NO. 880SON
PROJ. ARCHITECT AA | PROJ. MGR. IR
DRAWN BY DM | SCALE 1/8" = 1'-0"

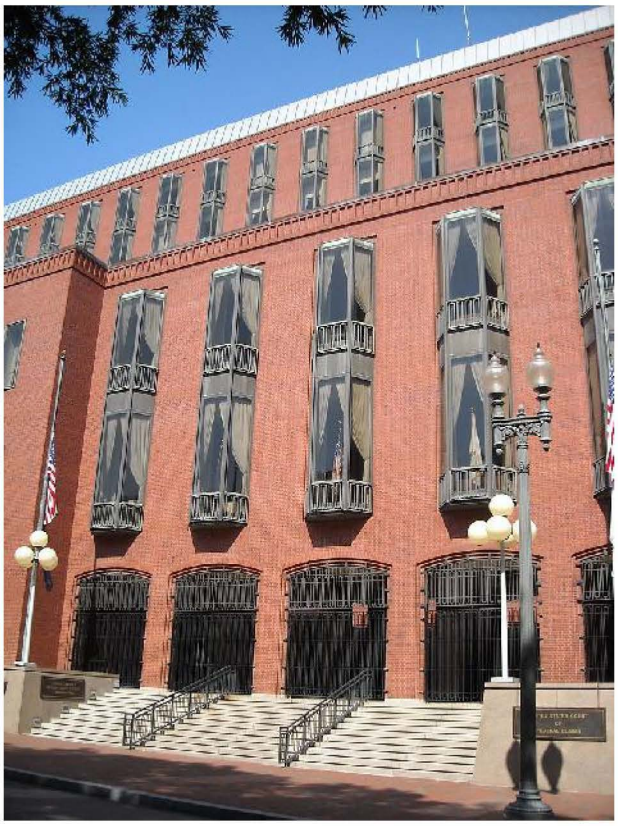
SHEET TITLE: PARTITION PLAN FIRST FLOOR SOUTH

PLAN NORTH

SHEET NO. A-1-1S

Ashland Industrial Services
Training. Inspections. Consulting. Project Management.

1 North Main Street
Shrewsbury, PA 17361
717.347.5616



100% FINAL ELEVATOR STUDY

FOR

HOWARD T. MARKEY FEDERAL BUILDING DC0094ZZ
TAYLOE HOUSE DC0112ZZ
COSMOS CLUB DC0113ZZ
717 MADISON PLACE, NW
WASHINGTON, DC 20005

December 30, 2016

SCOPE OF WORK

Ashland surveyed ten (10) elevators at the referenced property during the week of October 24, 2016. The purpose of the audit and systems analysis is to develop scopes, cost estimates, time schedules, phasing for the interim repair projects and plan for the modernization projects. Ashland also identifies the primary equipment, determines the maintained condition of major components, records operating performance levels and evaluates the vertical transportation based on applicable industry and code standards.

Our report is arranged in sections as follows:

EXECUTIVE SUMMARY

In the main courthouse building the elevator equipment (PE1 – PE4 & PE5 – PE6) was manufactured and installed by Otis Elevator Company in 1964. The elevator system was modernized in 1994 by Armor/KONE with TMS-600 controllers and is **OBSOLETE** by design with spare parts that consist of only rebuilt components. Technical support is also limited to the electrical prints that were found in the machine room. Scarcity of spare replacement parts could lead to elevator downtown for weeks if not months.

The freight elevator (FE7) in the main courthouse was also installed by Otis Elevator Company in 1964 and is original as installed. The Otis relay elevator controller and valve are **OBSOLETE** and require complete replacement. Safety concerns with the single bottom jack have been addressed but we recommend a more long term correction in lieu of the life jacket. Although the lifejacket addresses the safety concerns in the event of jack failure down time could exceed 3 months.

The hydraulic passenger elevators located in the Library (PE8) and Tayloe House (PE8) also have elevator controllers that are **OBSOLETE** due to age and today's design standards. Technical support is limited and replacement parts are very hard to find which could lead to extended out of service time for weeks or maybe even months. Modernization of these control systems will improve safety and reliability of the equipment.

The Howard T. Markey Federal Courthouse building is located at 717 Madison Place, NW, Washington, DC, 20005. It is a government owned building. It is currently occupied entirely by the Federal Appeals Court. General Services Administration (GSA) is responsible for the operations and maintenance of the building. The Markey Courts Building has an area of 261,434 Gross SF, 198,218 Rentable SF and 151,403_ Usable SF. The main building has eleven (11) levels. These are 2B and 1B (parking levels) and floors 1 through 9. The building was built in 1964 and was designated as one of the modern era historic buildings. The Tayloe House has an area of 12,551 Gross SF, 9,532 Rentable SF and 4,436 Usable SF. The Cosmos Club has an area of 14,971 Gross SF, 10,988 Rentable SF and 7,994 Usable SF.

Ashland Industrial Services performed a comprehensive survey of the elevator equipment at the referenced property during the week of October 24, 2016. The main courthouse building's vertical transportation is provided by a four (4) car passenger group (PE1 – PE4) and a two (2) car duplex group (PE5 – PE6). These units were modernized in 1994 with Armor/KONE TMS-600 microprocessor elevator controls, operate at 400 feet per minute and serve eleven (11) front openings, respectively.

Realizing that preventive maintenance is an ongoing process, Ashland's survey represents a snap shot on a specific day and time. Overall, the equipment is in good condition with evidence of preventive maintenance being performed on a sporadic basis. The machine room spaces are relatively clean and the areas are organized. The deficiencies found can be addressed during regular preventive maintenance procedures such as hoistway door adjustments and replacement of incandescent light bulbs.

Of particular concern is that Ashland also found no paperwork in each elevator machine room of the hydraulic elevators PE7 (Freight), PE7 (Cosmos Club) and PE8 (Tayloe House) that illustrates that the safety tests have been completed, as required by ASME A17.1 Code. Verification that these tests have been completed needs to be done or schedule the tests to be completed as soon as possible. Record keeping of maintenance procedures and fireman's service monthly testing is not current or in some cases completely missing.

The Cosmos Club elevator (PE7) underwent a complete modernization in 2014 and is in very good condition. Cab interior finishes have been updated recently for the passenger elevators in the main courthouse building but the elevator cab interiors in the Tayloe House (PE8), Library (PE8) and Freight (FE7) are dated. Incandescent bulb technology utilized in all but the Cosmos Club elevator requires more frequent replacement when compared to LED type bulbs. In order to improve reliability Ashland recommends that a complete modernization is undertaken within the next 1-2 years which would include new microprocessor controls, rebuilding of the existing Otis gearless traction machines, new operating fixtures and new cab finishes for FE7, PE8 (Library) & PE8 (Tayloe House).

All pit ladders will require replacement in order to provide a "grab bar" at proper height; most do not have a grab bar at all. Pit lighting appears to be adequate and all pits were "dry" with little to no evidence of water/moisture intrusion. GFCI electrical outlets also need to be provided in each pit, as well. Cat walks will be required to inspect the pit buffers of each passenger elevator needing them. Some of the elevator pits require cleaning. Walk-in pits are relatively clean.

The passenger elevator interiors, located in the main courts building (PE1-PE4 & PE5-PE6), are in good condition with plastic laminate walls, down light drop ceilings and tile flooring. PE7 (Cosmos Club) was modernized in 2014 so the cab interior finishes are in very good shape, as well. The freight elevator (FE7) cab interior finishes are heavily worn from normal use and should be replaced during a modernization. The Library elevator (PE8) has original cab finishes from 1975 and is in good condition. The Tayloe House elevator (PE8) cab finishes are in fair condition showing their age and should be replaced during modernization.
The finishes surrounding the hall button fixtures and hall lanterns are marble, sheet steel, concrete masonry and painted dry wall.

The hydraulic elevator machine room locations of FE7, PE8 (Library) & PE8 (Tayloe House) are adjacent to each elevator shaft at the bottom most level. Machine rooms are adequately ventilated with proper lighting. GFCI outlets will be required and an ABC type fire extinguisher is needed in each room. Holes in the machine room walls or floors require fire stopping to meet current code requirements.

SECTION I - EQUIPMENT EVALUATION

VERTICAL TRANSPORTATION SYSTEMS PROFILE

Building: **Markey Courts Building**

			(Loading Dock)	(Library)
	PE1 - PE4	**PE5 - PE6**	**FE7**	**PE8**
Capacity	3,000	2,000	4,000	1,200
Loading (Pass/Serv/Freight)	Passenger	Passenger	Freight	Passenger
Rated Speed (fpm)	400	400	75	100
Roping	2 to 1	2 to 1	N/A	N/A
Floors Served	11 (PE1 & PE4)	11	2	2
	9 (PE2 & PE3)			
Floor Identification	2B, 1B, 1-9	2B. 1B, 1-9	B & 1	1 & 2
	1 to 9			
Machine Type:	OH Gearless	OH Gearless	Dry Pump	Sub Pump
Control Type:	Armor	Armor	Otis Relay	ESCO Relay
Sequence of Operation	4 car group	Duplex	Simplex	Simplex
Door Configuration	SSCO	SSCO	Bi-Parting Frt	2SSO
Car Door Operator	MAC	MAC	OTIS	GAL MOD
Operating/Signal Fixtures	Incandescent	Incandescent	Incandescent	Incandescent
Door Entrance Size	42" w X 84" h	42" w X 84" h	68" w X 96" h	34" w X 84" h
Car & Cwt Buffers	Oil	Oil	Spring	Spring
Car Safeties	Otis	Otis	N/A	N/A
Overspeed Governor	Hollister Whitney	Hollister Whitney	N/A	N/A
Power Supply	208V 3 PH	208V 3 PH	208V 3 PH	208V 3 PH
O.E. M.	Otis	Otis	Otis	ESCO
Date of Installation	1964	1964	1964	1975
Modernization Contractor	Armor/KONE	Armor/KONE	N/A	N/A
Date of Modernization	1994	1994	N/A	N/A
Present Service Company	Admiral	Admiral	Admiral	Admiral
3 or 5 Year Full Load Test	Nov-14	Nov-14	1994	No Records
Annual No-Load Test	Oct-15	Oct-15	No Records	No Records

VERTICAL TRANSPORTATION SYSTEMS PROFILE

Building: **Markey Courts Building**

	(Cosmos)	(Tayloe)
	PE7	**PE8**
Capacity	1,800	1,800
Loading (Pass/Serv/Freight)	Passenger	Passsenger
Rated Speed (fpm)	200	100
Roping	1 to 1	N/A
Floors Served	6	4
Floor Identification	G, 1 - 5	B, 1 - 4 (Front)
		1R, 2R (Rear)
Machine Type:	Basemt Grd	Sub Pump
Control Type:	MCE-4000	CEMCO PLC
Sequence of Operation	Simplex	Simplex
Door Configuration	2SSO	SSCO
Car Door Operator	GAL MOVFR	GAL MOD
Operating/Signal Fixtures	LED	Incandescent
Door Entrance Size	33" w X 84" h	36" w X 84" h
Car & Cwt Buffers	Oil	Spring
Car Safeties	Hollister Whitney	N/A
Overspeed Governor	Hollister Whitney	N/A
Power Supply	208V 3 PH	208V 3 PH
O.E. M.	F-S Payne	CEMCO
Date of Installation	Unknown	1993
Modernization Contractor	Maryland	N/A
Date of Modernization	2014	N/A
Present Service Company	Admiral	Admiral
3 or 5 Year Full Load Test	2013	No Records
Annual No-Load Test	Oct-14	No Records

LIFE CYCLE ANALYSIS – TRACTION SYSTEMS

Elevator I.D.: PE1 – PE4, PE5 – PE6 (Main Courts Building) Date: 10/25/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	54	0	Good	Test & Rebuild
2. Drive Motor(s)	50-75	54	0	Good	Test & Rebuild
3. Power Drives	30-50	24	6	**OBSOLETE**	Replace during mod
4. Signal Controls (Selectors)	20-25	24	0	**OBSOLETE**	Replace during mod
5. Motion Controls	20-25	24	0	**OBSOLETE**	Replace during mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	24	0	Good	Replace during mod
2. Guide Rails	75+	54	21+	Good	Clean, Align, Tighten
3. Mechanical Safety Equipment & Counterweight	75+	54	21+	Good	No action required
4. Hoistway Door Equipment	25-30	24	1	Fair	Replace during mod
CAR EQUIPMENT					
1. Car Door Equipment	20-25	24	0	Fair	Replace during mod
2. Cab Enclosure	20-30	24	0	Fair	Replace during mod
3. Car Frame	75+	54	21+	Good	No action required
4. Car Safety	75+	54	21+	Good	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	24	0	Fair	Replace during mod

LIFE CYCLE ANALYSIS – HYDRAULIC SYSTEMS

Elevator I.D.: FE7 – Loading Dock Date: 10/25/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM EQUIPMENT					
1. Tank and Pumping Unit	30 – 40	52	0	**OBSOLETE**	Replace during mod
2. External Piping	40 – 50	52	0	Fair	Replace during mod
3. Signal Controls (Selectors)	20 - 25	52	0	**OBSOLETE**	Replace during mod
4. Manifold Control Valves	25 - 30	52	0	**OBSOLETE**	Replace during mod
HOISTWAY/PIT EQUIPMENT					
1. Guide Rails	75+	52	23+	Good	Clean, Align, Tighten
2. Cylinder –RAM	30 - 40	52	0	Fair	Piston gripper installed.
3. Hoistway Door Equipment	25 - 30	52	0	Fair	Replace during mod
4. Recovery System	20 - 25	52	0	N/A	5 gallon run-off bucket
CAR EQUIPMENT					
1. Car Frame	75+	52	23+	Good	No action required
2. Hoistway Door Equipment	25 - 30	52	0	**OBSOLETE**	Replace during mod
3. Cab Enclosure	20 - 30	52	0	Fair	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Operating/Signal Fixtures	20 - 25	52	0	Fair	Replace during mod

LIFE CYCLE ANALYSIS – HYDRAULIC SYSTEMS

Elevator I.D.: PE8 – Library Date: 10/25/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM EQUIPMENT					
5. Tank and Pumping Unit	30 – 40	41	0	Good	Replace during mod
6. External Piping	40 – 50	41	0	Good	Replace during mod
7. Signal Controls (Selectors)	20 - 25	41	0	**OBSOLETE**	Replace during mod
8. Manifold Control Valves	25 - 30	41	0	**Fair**	Replace during mod
HOISTWAY/PIT EQUIPMENT					
5. Guide Rails	75+	41	34+	Good	Clean, Align, Tighten
6. Cylinder –RAM	30 - 40	41	0	Good	Holeless cantilever design
7. Hoistway Door Equipment	25 - 30	41	0	Fair	Replace during mod
8. Recovery System	20 - 25	41	0	N/A	5 gallon run-off bucket
CAR EQUIPMENT					
4. Car Frame	75+	23	52+	Good	No action required
5. Car Door Equipment	25 - 30	23	2	Fair	Replace during mod
6. Cab Enclosure	20 - 30	23	0	Fair	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
2. Operating/Signal Fixtures	20 - 25	23	0	Fair	Replace during mod

LIFE CYCLE ANALYSIS – TRACTION SYSTEMS

Elevator I.D.: PE7 - Cosmos Club **(Recently modernized in 2014)** Date: 10/25/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
6. Hoisting Machinery, Sheaves & Bearing	50-75	2	48	Good	No action required
7. Drive Motor(s)	50-75	2	48	Good	No action required
8. Power Drives	30-50	2	28	Good	No action required
9. Signal Controls (Selectors)	20-25	2	18	Good	No action required
10. Motion Controls	20-25	2	18	Good	No action required
HOISTWAY AND PIT					
5. Wire Ropes (Hoist, Comp. & Governor)	20-25	2	18	Good	No action required
6. Guide Rails	75+	54	21+	Good	No action required
7. Mechanical Safety Equipment & Counterweight	75+	2	73+	Good	No action required
8. Hoistway Door Equipment	25-30	2	23	Good	No action required
CAR EQUIPMENT					
5. Car Door Equipment	20-25	2	18	Good	No action required
6. Cab Enclosure	20-30	2	18	Good	No action required
7. Car Frame	75+	54	21+	Good	No action required
8. Car Safety	75+	54	21+	Good	No action required
OPERATING/SIGNAL EQUIPMENT					
2. Fixtures	20-25	2	18	Good	No action required

LIFE CYCLE ANALYSIS – HYDRAULIC SYSTEMS

Elevator I.D.: PE8 – Tayloe House Date: 10/25/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM EQUIPMENT					
9. Tank and Pumping Unit	30 – 40	23	7	Fair	Replace during mod
10. External Piping	40 – 50	23	17	Good	Replace during mod
11. Signal Controls (Selectors)	20 - 25	23	0	**OBSOLETE**	Replace during mod
12. Manifold Control Valves	25 - 30	23	0	**Fair**	Replace during mod
HOISTWAY/PIT EQUIPMENT					
9. Guide Rails	75+	23	52+	Good	Clean, Align, Tighten
10. Cylinder –RAM	30 - 40	23	7	Fair	No Action Required
11. Hoistway Door Equipment	25 - 30	23	2	Good	Replace during mod
12. Recovery System	20 - 25	23	0	Good	Replace during mod
CAR EQUIPMENT					
7. Car Frame	75+	23	52+	Good	No Action Required
8. Car Door Equipment	25 - 30	23	2	Fair	Replace during mod
9. Cab Enclosure	20 - 30	23	0	Poor	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
3. Operating/Signal Fixtures	20 - 25	23	0	Fair	Replace during mod

CODES AND STANDARDS REVIEW – ELEVATORS ONLY

All passenger elevators (PE1 – PE4, PE5 – PE6) in the Markey Courts Building were upgraded in the mid 1990's. The present components are a mixture of old (machine, motor, car, counterweight, pit equipment, fixtures) and new (controller, SCR drives and door operating components). The freight elevator (FE7) is original as installed in 1964, Library elevator (PE8) is original as installed in 1975, Cosmos Club (PE7) was modernized in 2013 and Tayloe House (PE8) is original as installed from 1993. The systems do not meet the latest code regulations in the following areas:

• Record Keeping	- Data Tags / Testing Requirements (Annual hydraulic testing)
• Car Door Restrictor Devices	- Repair non-functioning car door restrictor device (PE5)

Note: Annual Safety Inspections (Cat 1) are overdue for the hydraulic elevators (FE7, PE8 [Library]& PE8 [Tayloe House]) in the building. Traction annual safety inspections are due to be completed in November 2016 to stay current. Cosmos Club traction elevator annual safety inspection is overdue, last completed in October, 2014.

Annual Safety Inspection (Cat 1) All test are performed at inspection speed with no load inside the elevator. Manually activate the safeties, governor, emergency final limits, over speed switch, door locks, gate switches, car door restrictors, stop switches and buffer switches. Activate Fireman's Service Phase I & II. Test emergency lighting / alarm / communications. Test the door protection devices and closing force. Unintended movement device is also verified.

3 year test (Cat 3 for hydraulic elevators): This type of testing only is required if the unit has a pressure vessel (hydraulic valve) as a means of propulsion. The pressure vessel must be charged at maximum pressure for 15 mins without changes to pressure. A visual inspection inside of the vessel is also performed.

5 year full-load (Cat 5): Same scope of work as the Cat 1 no load test. In addition, while elevator is operating at contract speed. Conduct a full load (elevator capacity) safety drop test, 125% capacity elevator brake test and a full load buffer test. Manually test the governor activation speeds and governor pull through.

What the 5 year test involves and what is expected at the end of the test? The elevator is loaded to maximum designed capacity and with the elevator traveling in the down direction, the speed governor is activated to put the elevator on emergency stop. The distance of slide on the main elevator rails is then measured for tolerance as well as the level of the elevator itself after the emergency brakes (safety) are applied and the car has come to a complete stop. After this is completed, the elevator is further tested in the down direction (under full load, contract speed) and strikes the elevator pit buffer. The elevator then is lifted, and the buffers (oil type) must return to original position within 90 secs. Additional weight is added (25% of capacity) to the cab. The elevator is tested again in the down direction and must stop within normal leveling tolerances between the car and hoistway entrance sills. All tests have specific tolerances set by ANSI A17.1 in relation to the elevator design; type, speed and capacity

THE AMERICANS WITH DISABILITIES ACT (ADAAG)
SURVEY OF EXISTING ELEVATOR SYSTEMS

ELEVATOR(S) IDENTIFICATION: All Passenger Elevators **DATE:** October 25, 2016

Note: FE7 is a freight elevator with power operated bi-parting freight doors that are for freight and freight handlers only and as a result do not have to meet these requirements.

S = SATISFACTORY, U = UNSATISFACTORY, R = READILY ACHIEVABLE, NA = NOT APPLICABLE

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.1	General	A. Elevators shall comply with ASME/ANSI A17.1-1990, Safety Code for Elevators and Escalators.	X			
		B. Freight elevators shall not be considered as meeting the requirements of this section unless the only elevators provided are used as combination passenger and freight elevators for the public and employees.			Per 1994 modernization (PE1-PE6) Per F/S upgrade in 1994 (PE8) Per 2014 modernization (PE7 Cosmos Club) Per installation date 1993 (PE8, Tayloe House)	
4.10.2	Automatic Operations	A. Elevator operation shall be automatic.	X			
		B. Each car shall have a self-leveling feature that will automatically bring the car to floor landing within a tolerance of ½" under rated loading and zero loading conditions.	X			
		C. This self-leveling feature shall be automatic and independent of the operating device and shall correct for under travel and over travel.	X			
4.10.3	Hall Call Buttons	A. Shall be centered at 42" above floor.	X			
		B. Shall have visual signals to indicate when call is registered and answered.	X			
		C. Minimum size 3/4" in the smallest dimension.	X			
		D. "UP" button shall be above "DOWN" button.	X			
		E. Buttons shall be raised or flush.	X			
		F. Objects mounted beneath buttons shall not project more than 4" from the wall.			N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.4	Hall Lanterns	A. A visible and audible signal shall be provided at each hoistway entrance to indicate which car is answering a call.	X			
		B. Audible signals shall sound once for "up", twice for "down", or shall have verbal annunciators that say "up" or "down".	X			
		C. Visible signals shall have the following features:				
		1. Fixtures shall be mounted with centerlines at least 72" above the lobby floor.	X			
		2. Visual elements shall be at least 2 ½" in the smallest dimension.	X			
		3. Signals shall be visible from the vicinity of the hall call button.	X			
		D. In-car lanterns, conforming to the above requirements, shall be acceptable.			N/A	
4.10.5 4.30.4	Characters On Hoistway Entrances	A. All elevator hoistway entrances shall have raised and Braille floor designations provided on both jambs.	X			
		B. Characters shall be centered 60" above finish floor.	X			
		C. Characters shall be 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X			
4.10.6 4.16(3)(i)	Door Protective and Reopening Device	A. Elevator doors shall open and close automatically.	X			
		B. Door shall have a reopening device that will stop and reopen a car door if an object or person obstructs the door.				
		1. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5" and 29" above finish floor.	X			
		2. Door reopening device shall remain effective for at least 20 seconds. After such interval, doors may close in accordance with ASME/ANSI A17.1-1990.Rule 112.4 and Rule 112.5 closing force provisions.	X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.7	Door and Signal Timing for Hall Calls	A. The minimum acceptable time from notification that a car is answering a call until doors begin to close shall be calculated as follows: • T = D/(1.5 ft/s) or T=D/(445 mm/s) • T = time in seconds • D = distance (in ft or mm) from point 60" directly in front of farthest call button to centerline of hoistway door. • The minimum acceptable notification time shall be 5 seconds.	X			
4.10.8	Door Delay for Car Calls	A. The minimum time for elevator doors to remain fully open in response to a call shall be 3 seconds.		X	Cosmos Club PE7 only	
4.10.9 4.16(3)(ii)	Floor Plan of Elevator Cars	Shall provide for wheelchair users to enter the car, maneuver within reach of controls and exit the car. A. Door shall provide 36" clear minimum. B. Cab Depth: 51" minimum, with 54" minimum from rear of cab to inside face of door. C. Cab Width: side opening door - 68" minimum; Center opening door - 80" minimum. D. Clearance between car platform sill and edge of hoistway landing shall be 1 1/4" maximum. E. Alterations/Existing Condition: Where existing plan configuration or technical infeasibility prevent use of specified cab sizes, dimensions may be reduced as required. However, in no case shall the inside car dimensions be less than 48" by 48". F. Equivalent facilitation may be provided with a cab of different size when usability can be demonstrated and when all other items required to be accessible comply with this section.	X X X X		34" wide (PE8, Library) 33" wide (PE7, Cosmos Club) Per A17.3 Existing Elevators & Escalators N/A N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.10	Floor Surfaces	A. Shall be firm, stable and slip-resistant B. If carpet is used, it shall have the following features: 1. Shall be securely attached; 2. A firm cushion pad or backing (or none); 3. A level loop, textured loop, level cut pile or level cut/uncut pile texture; 4. Maximum pile thickness: ½" 5. Exposed edges fastened to floor surfaces with carpet edge trim.	X		N/A	
4.10.11	Illumination Levels	A. Illumination level at controls, platform and threshold and landing shall be minimum 5 foot-candles..	X			
4.10.12 (1)	Car Controls: Buttons	A. Size 3/4" minimum in least dimension. B. Buttons shall be raised or flush.	X X			
4.10.12 (2)	Car Controls: Control Indicators	C. All control buttons shall be designated by Braille and by raised standard alphabet characters for letters, Arabic symbols for numerals, or standard symbols are required in ASME/ANSI 17.1-1990. D. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. E. All raised designations shall be immediately left of the button to which they apply. F. Floor buttons shall be provided with visual signals which light when each call is registered and extinguish when each call is answered.	X X X X			
4.10.12 (3)	Car Controls: Height	G. All floor buttons shall be maximum 54" above floor where side approach is provided, 48" maximum where forward approach is required. H. Emergency controls (including alarm and stop) shall be grouped at bottom of panel, with centerlines 35" minimum above floor.	X X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.12 (4)	Car Controls: Location	I. Controls shall be located on a front wall if cars have center opening doors, and at either a side wall or the front wall if cars have side opening doors.	X			
4.10.13	Car Position Indicators	A. A visual car position indicator shall be provided above the car control panel or above the door.	X			
		B. As the car passes or stops at a floor, the corresponding numbers shall illuminate and an audible signal shall sound.	X			
		C. Numerals shall be a minimum of ½" high.	X			
		D. Audible signal shall be no less than 20 decibels with frequency no higher than 1500 Hz.	X			
		E. An automatic verbal announcement of the floor number may be substituted for the audible signal.			N/A	
4.10.14	Emergency Communications	Emergency two-way communication system between the elevator and a point outside the hoistway shall comply with ASME/ANSI A17.1-1990				
		A. Highest operable part of system shall be maximum 48" from floor.	X			
		B. System shall be identified by raised symbol and lettering located adjacent to the device.	X			
		C. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X			
		D. If system uses a handset, minimum cord length shall be 29".	X			
		E. If located in a closed compartment, door shall be operable with one hand, shall not require tight grasping, pinching, or twisting of the wrist, and shall require a maximum force of 5 lb.	X			
		F. The emergency communication system shall not require voice communication. (Voice only system is inaccessible to persons with speech or hearing impairments.)	X			

SECTION II - MAINTAINED CONDITION EVALUATION

ITEMIZED MAINTENANCE DEFICIENCIES

Main Courts Building: PE1-PE4, PE5 – PE6, FE7

Machine Room: PE1 – PE4

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Annual safety inspections (Cat 1) are due to be completed October, 2016.

Machine Room: PE5 – PE6

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Annual safety inspections (Cat 1) are due to be completed October, 2016.

Machine Room: FE7

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Remove oil soak pads from under tank unit and correct excessive leaking.
3. Replace missing light bulb on elevator car top.
4. No records of last testing dates for either 3 year (Cat 3) or annual safety inspection (Cat 1).

General Observations:

1. Hoistway/car door maintenance is overdue (passenger elevators).
2. Clean elevator car tops of dirt and debris.
3. Correct hoist rope alignment of PE3 related to car top 2:1 deflector sheave.
4. Adjust door operating times to within industry standards, refer to Recorded Operating Performance chart (passenger elevators only).

Library: PE8

Machine Room:

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Fire stop holes in machine room floor.
3. No records of last testing dates for either 3 year (Cat 3) or annual safety inspection (Cat 1).

General Observations:

1. Adjust door operating times to within industry standards, refer to Recorded Operating Performance chart.

Cosmos Club: PE7

Machine Room:

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Annual safety inspection (Cat 1) was performed in October, 2014, and is overdue.

General Observations:

1. Adjust door operating times to within industry standards, refer to Recorded Operating Performance chart.
2. Re-label all elevator components in pit, machine room and car top to reflect new elevator number "9" in lieu of "7".

Tayloe House: PE8

Machine Room:

1. Record keeping is not up to date. Provide maintenance records per Code.
2. Fire stop holes in machine room wall (pipe penetrations).
3. No records of last testing dates for either 3 year (Cat 3) or annual tests (Cat 1)

General Observations:

1. Hoistway vent at top of elevator shaft has been closed off.
2. Light fixtures in hoistway are coming loose from hoistway wall, secure to wall.
3. Clean pit of dirt and debris.
4. Double door access to machine room is not Code compliant, must be self-closing, self-locking and properly labeled.
5. Adjust door operating times to within industry standards, refer to Recorded Operating Performance chart.
6. Re-label all elevator components in pit, machine room and car top to reflect new elevator number "10" in lieu of "8".

MAINTENANCE CONTRACT REVIEW

Current Contract Provisions:

THESE DOCUMENTS HAVE NOT BEEN PROVIDED TO ASHLAND INDUSTRIAL SERVICES

Recommendations:

RECORDED OPERATING PERFORMANCE

SSCO - 42" wide Main Courts Bldg	ELEV. NO. **PE1**	ELEV. NO. **PE2**	ELEV. NO. **PE3**	ELEV. NO. **PE4**	ELEV. NO. **PE5**	ELEV. NO. **PE6**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**367***	399	396	403	404	399	380 – 420
B. SPEED – DOWN DIRECTION (FPM)	**370***	399	396	406	403	397	380 – 420
C. DOOR OPENING TIME (SEC)	**2.6***	**2.2***	**2.1***	**1.7***	**2.2***	**2.4***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.9	3.2	**3.5***	2.9	3.1	**3.6***	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	4.0	4.1	4.6	4.0	4.0	4.1	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.1	5.9	5.8	5.9	5.3	5.6	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	1.0	1.0	.7	.9	**1.5***	2.0*	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**16.6***	**14.7***	**13.7***	**15.1***	**13.6***	**13.9***	11.5 – 12.5
I. START (milli g) Up/Down	132/107	133/102	116/85	95/87	68/63	74/69	
J. ACCEL (milli g) Up/Down	127/110	128/109	114/109	107/108	105/106	105/100	
K. DECEL (milli g) Up/Down	78/80	83/86	81/85	88/92	75/89	89/88	
L. STOP (milli g) Up/Down	20/32	34/38	32/32	36/39	31/36	37/36	
M. JERK (milli g) Up/Down	5.7/13.8	5.0/13.3	5.5/14.1	4.9/9.9	5.2/7.6	5.2/7.6	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	20	22	24	23	24	26	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

2SSO - 34" wide **Library**	ELEV NO. **PE8**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**78***	95 – 105
B. SPEED – DOWN DIRECTION (FPM)	**55***	95 – 105
C. DOOR OPENING TIME (SEC)	2.5	2.4 – 2.6
D. DOOR CLOSING TIME (SEC)	3.2	4.8 – 5.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	3.5	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.0	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	1.0	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**23.5***	16.5 – 17.5
I. START (milli g) Up/Down	45/32	
J. ACCEL (milli g) Up/Down	19/36	
K. DECEL (milli g) Up/Down	34/21	
L. STOP (milli g) Up/Down	16/10	
M. JERK (milli g) Up/Down	9.4/6.8	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	26	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation

RECORDED OPERATING PERFORMANCE

2SSO - 33" wide **Cosmos Club**	ELEVNO. **PE7**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	202	190 – 210
B. SPEED – DOWN DIRECTION (FPM)	201	190 – 210
C. DOOR OPENING TIME (SEC)	2.5	2.4 – 2.6
D. DOOR CLOSING TIME (SEC)	**5.4***	4.8 – 5.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	**2.6***	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.0	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**1.5***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**17.1***	15.0 – 16.0
I. START (milli g) Up/Down	48/41	
J. ACCEL (milli g) Up/Down	89/85	
K. DECEL (milli g) Up/Down	52/53	
L. STOP (milli g) Up/Down	13/15	
M. JERK (milli g) Up/Down	4.4/7.9	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	20	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation

RECORDED OPERATING PERFORMANCE

SSCO - 36" wide **Tayloe House**	ELEV. NO. **PE8** (front)	ELEV. NO. **PE8** (rear)	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	105	N/A	95 – 105
B. SPEED – DOWN DIRECTION (FPM)	99	N/A	95 – 105
C. DOOR OPENING TIME (SEC)	**3.1***	**3.2***	1.2 – 1.4
D. DOOR CLOSING TIME (SEC)	**4.6***	**4.3***	2.4 – 2.6
E. DOOR OPEN DURATION - CAR CALL (SEC)	3.2	3.2	3.0 minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.1	5.1	5.0 minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**1.5***	**1.6***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	16.5	N/A	16.5 – 17.5
I. START (milli g) Up/Down	43/41	N/A	
J. ACCEL (milli g) Up/Down	30/38	N/A	
K. DECEL (milli g) Up/Down	65/44	N/A	
L. STOP (milli g) Up/Down	48/22	N/A	
M. JERK (milli g) Up/Down	9.6/10.0	N/A	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	24	25	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

DEFINITIONS AND MEASUREMENTS

OF ITEMS LISTED IN

RECORDED OPERATING PERFORMANCE

A&B. **Speed** is the rate at which the measured unit travels. The speed has been measured during a complete run of the unit and was taken as the highest sustained value recorded using a hand held tachometer.

C. **Door Opening Time** is defined as the start of car doors opening until they are fully opened. The time was measured in seconds from the moment the car doors start to open until the car doors are fully open (i.e., motion stops).

D. **Door Closing Time** is defined as the start of the car doors closing until fully closed. The time was measured in seconds from the moment the car doors start to close until the car doors are fully closed (i.e., motion stops).

E. **Door Open Duration for a Car Call** is defined as the length of time the car doors remain fully open in response to a car call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car door.

F. **Door Open Duration for a Hall Call** is defined as the length of time the car doors remain fully open in response to a lobby call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car doors.

G. **Door Open Duration After Protective Shield is Re-Established** is defined as the length of time the car doors remain open after an object has passed through the protective shield until the car doors begin to close. This time was measured in seconds from the stop in the motion of the car doors until the re-start of the closing motion of the car doors.

H. **Floor to Floor Performance Time** is defined as the time required for the movement of a car between two (2) floors, including the door closing and effective door opening for passenger transfer. The time was measured in seconds from the start of door closing at one floor until the car was stopped (within stopping accuracy) at the next floor with the doors opened for passenger transfer.

I. **Start Up/Down (milli g)** is measured at the beginning of car motion.

J. **Accel Up/Down (milli g)** is the measure of acceleration immediately after the Start measure.

K. **Decel Up/Down (milli g)** is the measure of transition from high speed to leveling speed or stop.

L. **Stop Up/Down (milli g)** is measure of the stopping rate to the floor level.

M. **Jerk Up/Down (milli g)** is a term used to describe a change in acceleration. In mathematical terms one jerk is equal to a change in acceleration of one foot per second per second, in one second of time. One jerk equals a rate change of .03108 g's in one second. Optimal jerk rate is 15.0 or less.

N. **Stopping Accuracy** is the distance between the car and hoistway sills when the car is stopped at a floor and was measured as the vertical distance (in inches) between the horizontal planes of the car and hoistway sills when the car is stopped at a floor.

O. **Car Door Closing Pressure** is the amount of force required to hold a door from closing after stalling the door, by external means, at about 1/3 of the closing distance. The door pressure was measured in pounds and was recorded upon removal of the physical block.

SECTION III – SCOPE, BUDGET COSTS & PRIORITIES

Design Intent

As part of Ashland's recommendations for upgrades, modernization and/or refurbishment of the elevator equipment, the elevator equipment rooms/spaces have been evaluated, including components such as lighting, HVAC, fire protection, emergency power interface, enclosures, etc. The scope of work for each grouping of elevators requires that the elevator systems and areas comply with GSA Standards / Guidelines / Alerts and all current Codes. The design will bring the elevators up to the latest editions of ASME A17.1 Safety Code for Elevators and Escalators, A17.3 Safety Code for Existing Elevators and Escalators, A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, ANPA 70 National Electric Code and NFPA 101 life safety codes.

Phasing of the elevator modernization should begin with PE5 – PE6, then PE1 – PE4. Once the passenger elevators have been modernized then modernize FE7, PE8 (Library) and finally PE8 (Tayloe House).

Passenger Elevators PE1 – PE4

Rebuild the Otis overhead gearless traction machines, provide new elevator controllers with SCR drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new hoistway door tracks, hangers, rollers and safety interlocks, new car door operator (closed loop), new car door panels and ventilation, new car top inspection station, new hall and car operating fixtures with LED lamps, new car safeties, paint entrance frames, new electronic door edge detector, new cab interior applied panels. Retain car and counterweight guide rails, refurbish compensation sheaves and governor cable tension assembly, clean hoistway entrance sills and car sill, refurbish hoistway door panels, retain cab interior lighting and flooring, retain car frame and platform, modify lobby control panel.

Budget Cost per elevator: $482,490 x 4 elevators = $1,929,960 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station, refurbish machine room and secondary area lighting, install access doors and catwalk for secondary areas, provide new HVAC unit(s) in elevator machine room, provide new pit and hoistway lighting and modify pit access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $645,820 (FY 2017 dollars)

Total Budget Cost for PE1 – PE4 & Building Related Work: $2,575,780 (FY 2017 dollars)

Passenger Elevators PE5 & PE6

Rebuild the Otis overhead gearless traction machines, provide new elevator controllers with SCR drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new hoistway door tracks, hangers, rollers and safety interlocks, new car door operator (closed loop), new car door panels, ventilation and car door sill, new car top inspection station, new hall and car operating fixtures with LED lamps, new car safeties, paint entrance frames, new electronic door edge detector, new cab side wall bumpers and new cab lighting and diamond plate flooring. Retain car and counterweight guide rails, refurbish deflector sheaves and governor cable tension assembly, clean hoistway entrance sills, refurbish hoistway door panels, retain car frame and platform, modify lobby control panel.

Budget Cost per elevator: $482,490 x 2 elevators = $964,980 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station, refurbish fire controls, provide new HVAC unit(s) in elevator machine room, provide new pit, machine room and hoistway lighting and modify general space conditions in machine room. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $532,100 (FY 2017 dollars)

Total Budget Cost for PE5 & PE6 & Building Related Work: $1,497,080 (FY 2017 dollars)

Freight Elevator FE7

Provide new pump unit and valve controls. Provide new drive motor and elevator controller with emergency battery lowering. Replace in-ground hydraulic jack components and related pit equipment. Provide new hoistway wiring and traveling cables, new car guide assemblies, new car gate operator, car gate and freight door equipment complete, new cab enclosure, lighting , ventilation, flooring, new hall and car operating fixtures with LED type lamps.

Budget Cost: $428,640 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, provide new fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $90,084 (FY 2017 dollars)

Total Budget Cost for FE7 & Building Related Work: $518,724 (FY 2017 dollars)

Passenger Elevator PE8 (Library)

Refurbish pump unit and valve controls. Retain drive motor and provide new elevator controller with emergency battery lowering. Reuse cantilevered hydraulic jack components and related pit equipment. Provide new hoistway wiring and traveling cables, new car guide assemblies, new car door operator and clutch, new car door panels, new cab interior, lighting , ventilation, flooring, new hall and car operating fixtures with LED type lamps.

Budget Cost: $122,520 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, provide new fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $90,384 (FY 2017 dollars)

Total Budget Cost for PE8 & Building Related Work: $212,904 (FY 2017 dollars)

Passenger Elevator PE7 (Cosmos Club)

This passenger elevator was completed modernized in 2014 and should serve the Cosmos Club reliably for many years to come.

Passenger Elevator PE8 (Tayloe House)

Provide new pump unit and valve controls. Provide new drive motor and elevator controller with emergency battery lowering. Provide new hoistway wiring and traveling cables, new car guide assemblies, new car door operator and clutch, new car door panels, new cab enclosure, lighting, ventilation, flooring, new hall and car operating fixtures with LED type lamps.

Budget Cost: $224,220 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, provide new fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $135,164 (FY 2017 dollars)

Total Budget Cost for PE8 & Building Related Work: $359,384 (FY 2017 dollars)

GRAND TOTAL for ALL Elevators & Building Related Work: $5,163,872 (FY 2017 dollars)

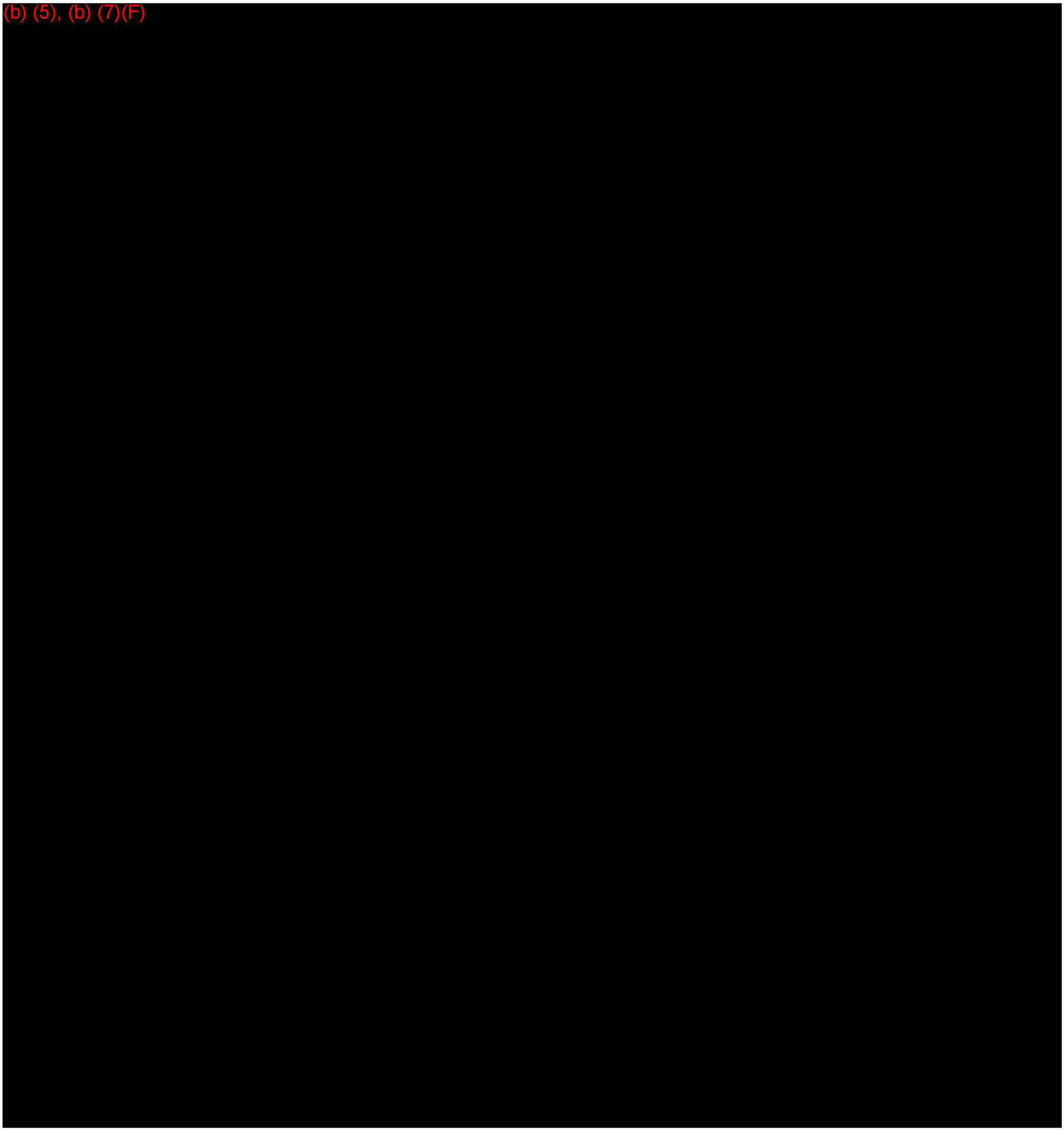
SECTION IV – PHOTOGRAPHS, SCHEDULE & KEY PLAN

Attachments A, B & C

ATTACHMENT A

PHOTOGRAPHS

(b) (5), (b) (7)(F)



Howard T. Markey
Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC

(b) (5), (b) (7)(F)

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Passenger Elevators PE5 & PE6

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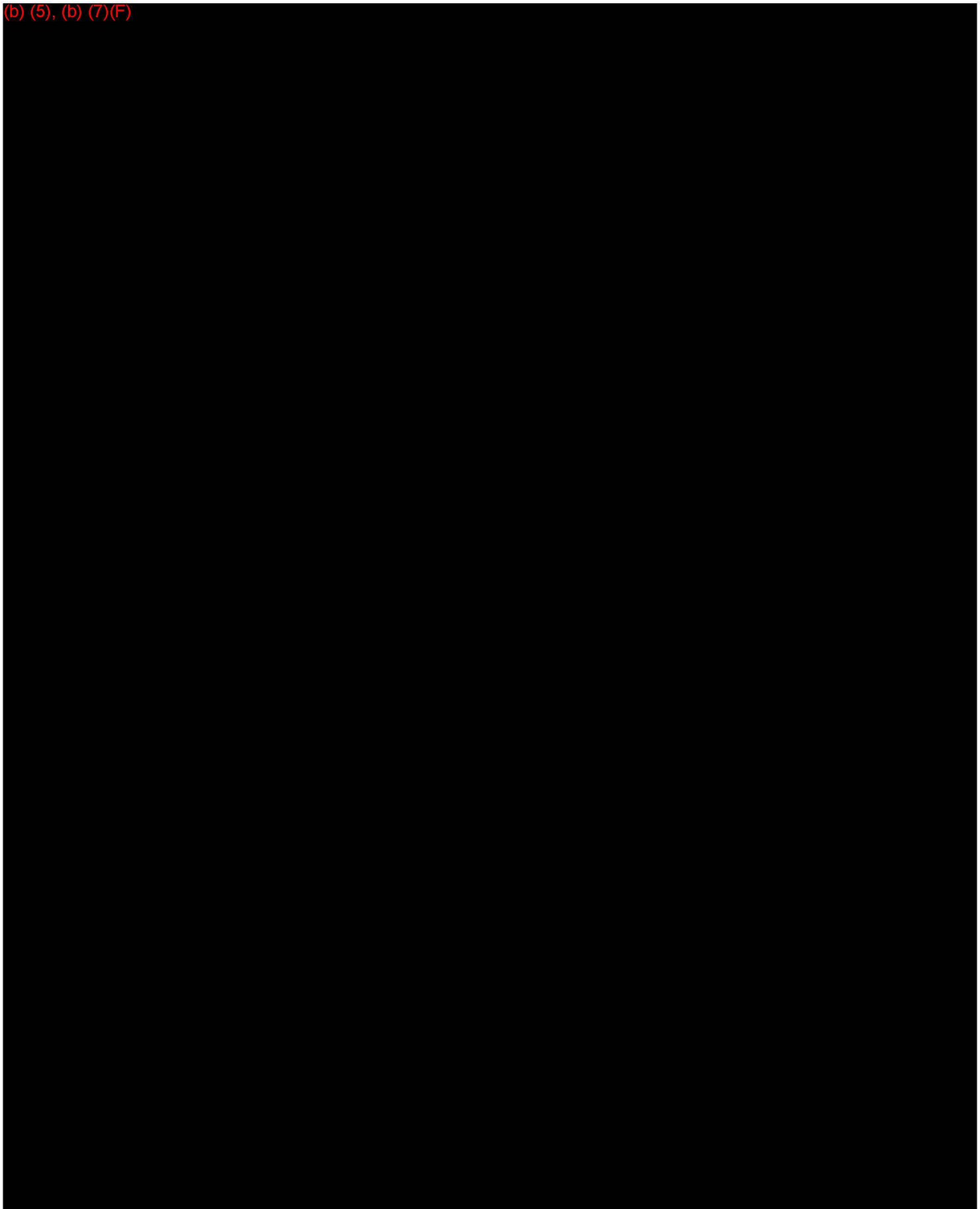
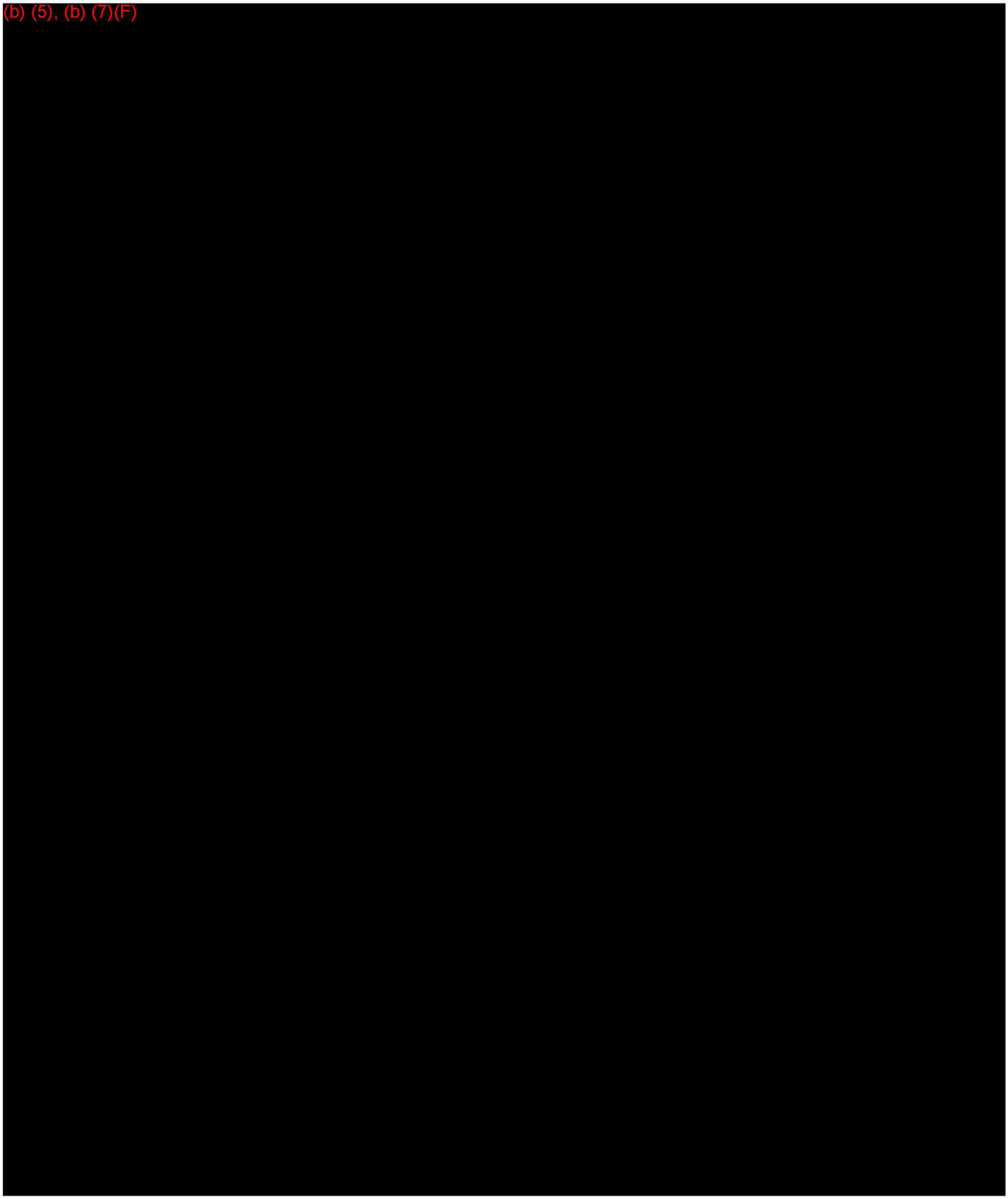


Passenger Elevators PE5 & PE6 (cont.)

(b) (5), (b) (7)(F)



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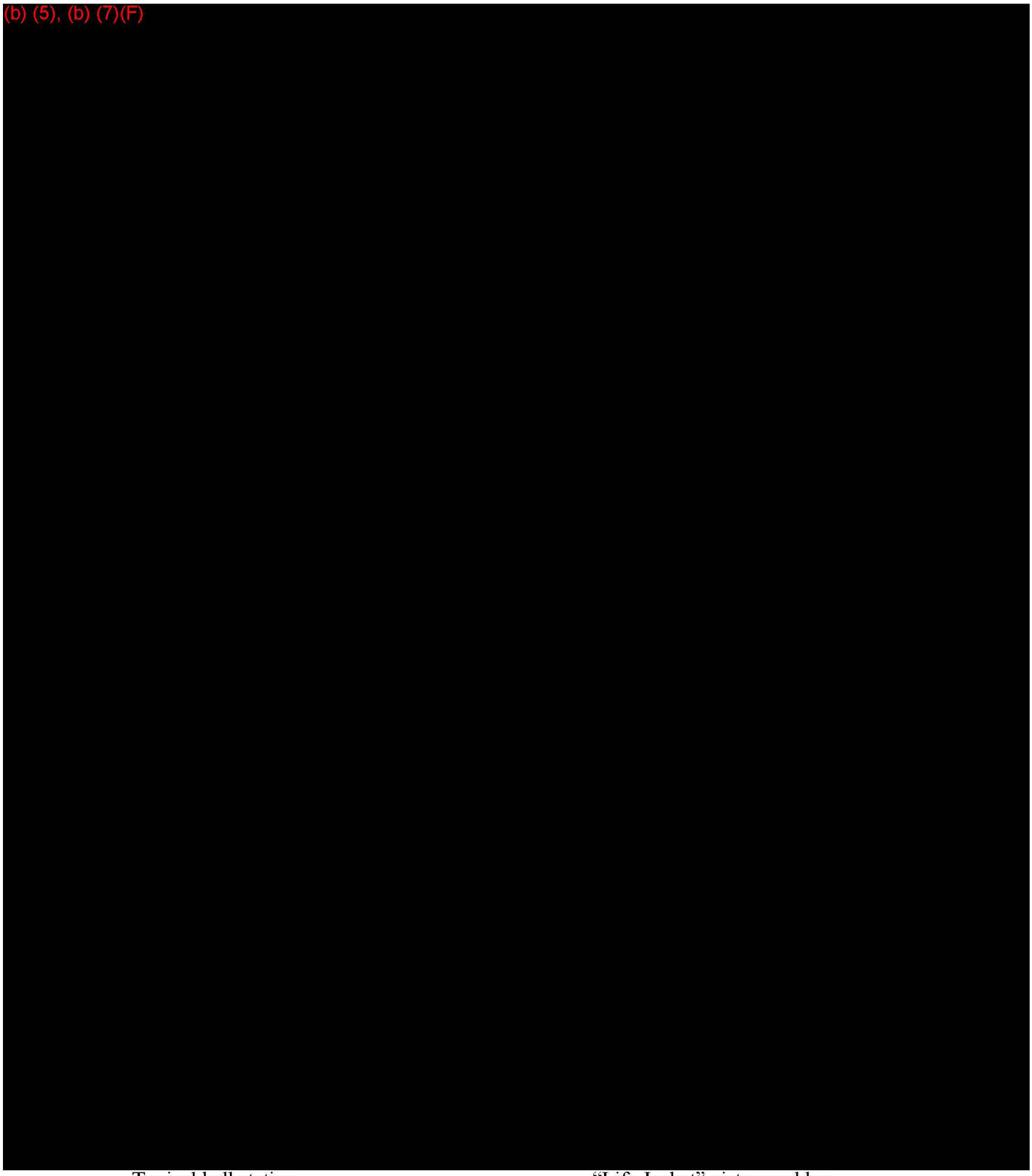
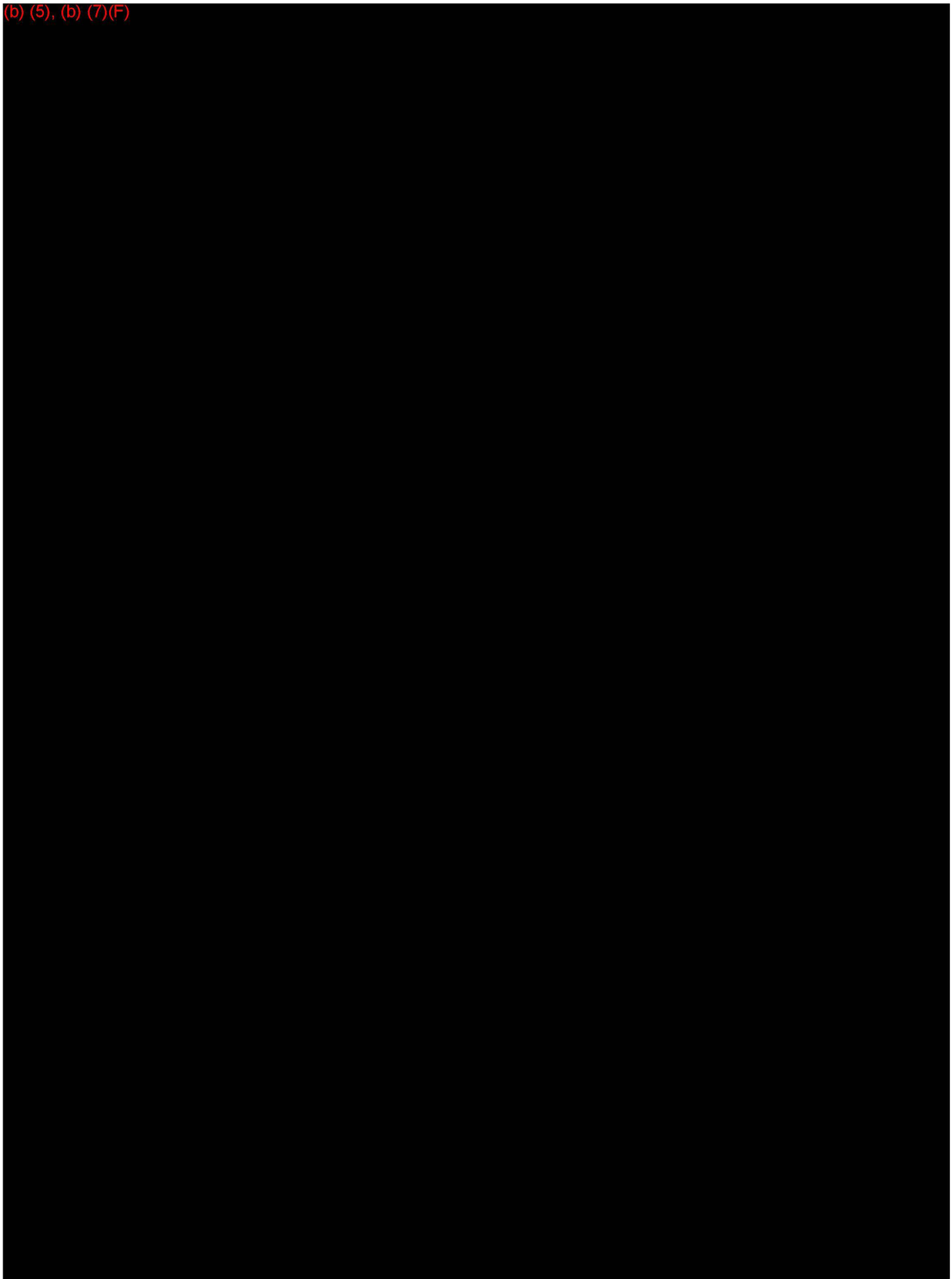


Typical hall station

"Life Jacket" piston grabber

Howard T. Markey
Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC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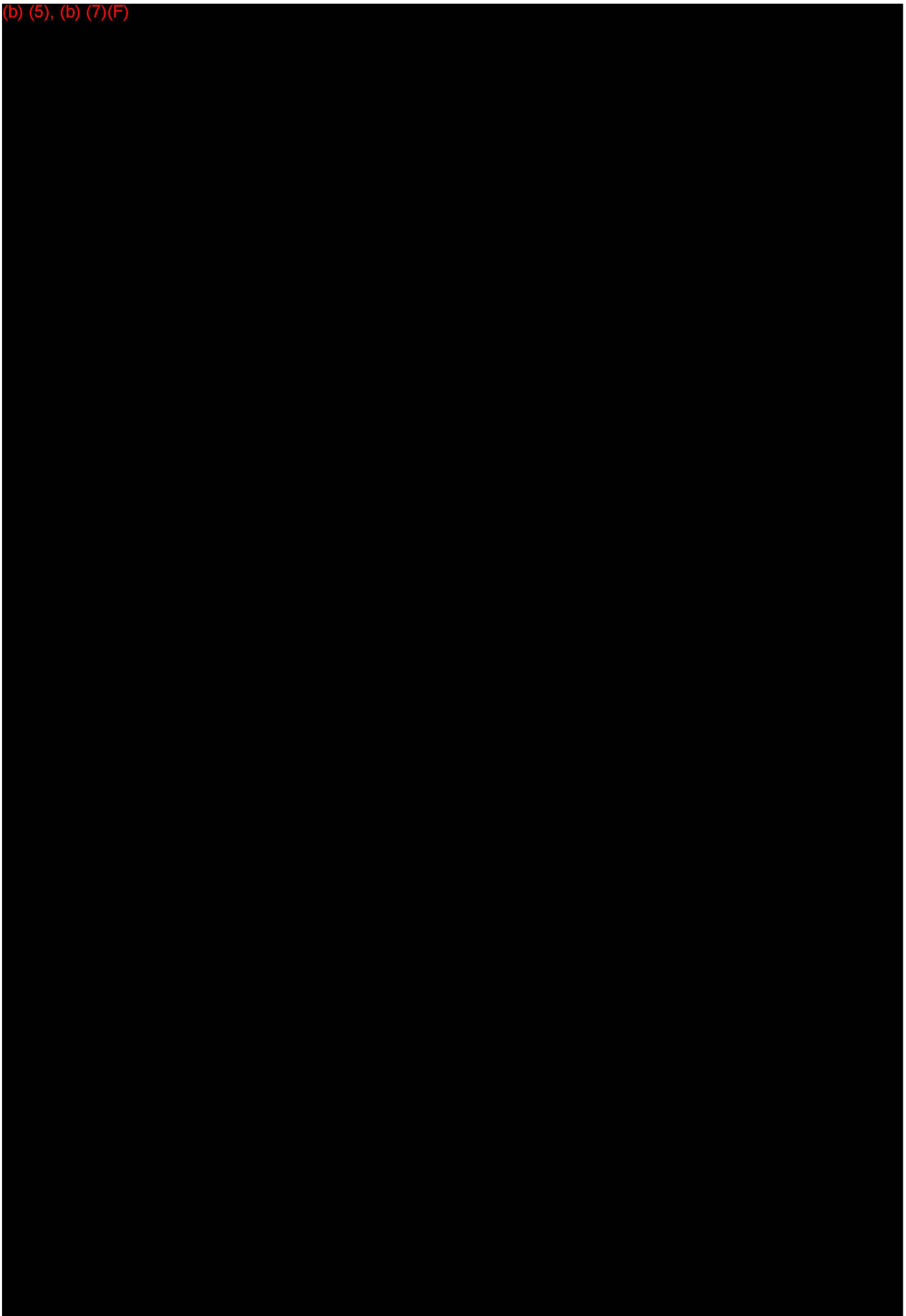
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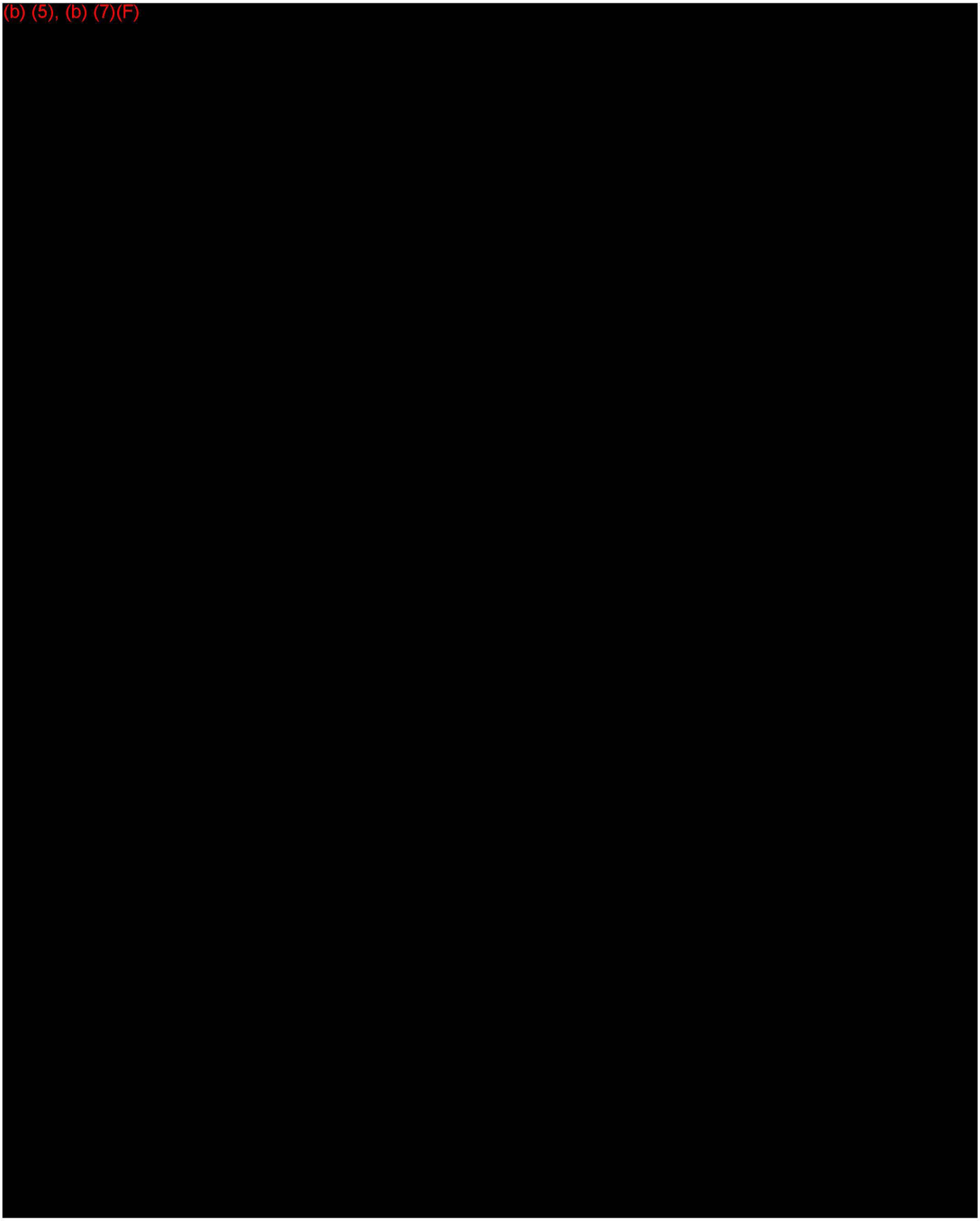
Howard T. Markey
Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC

(b) (5), (b) (7)(F)



Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC

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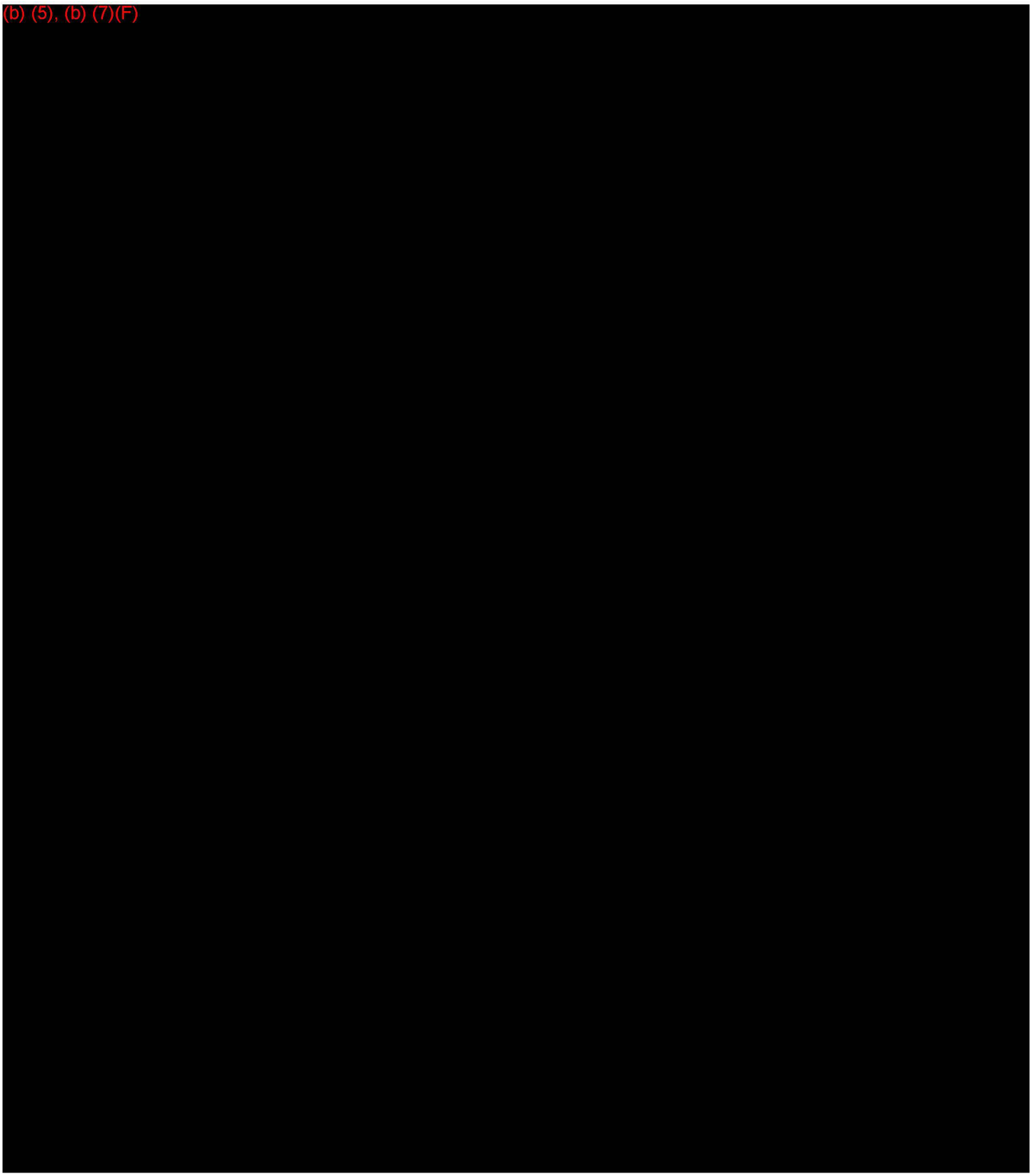

Howard T. Markey
Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC

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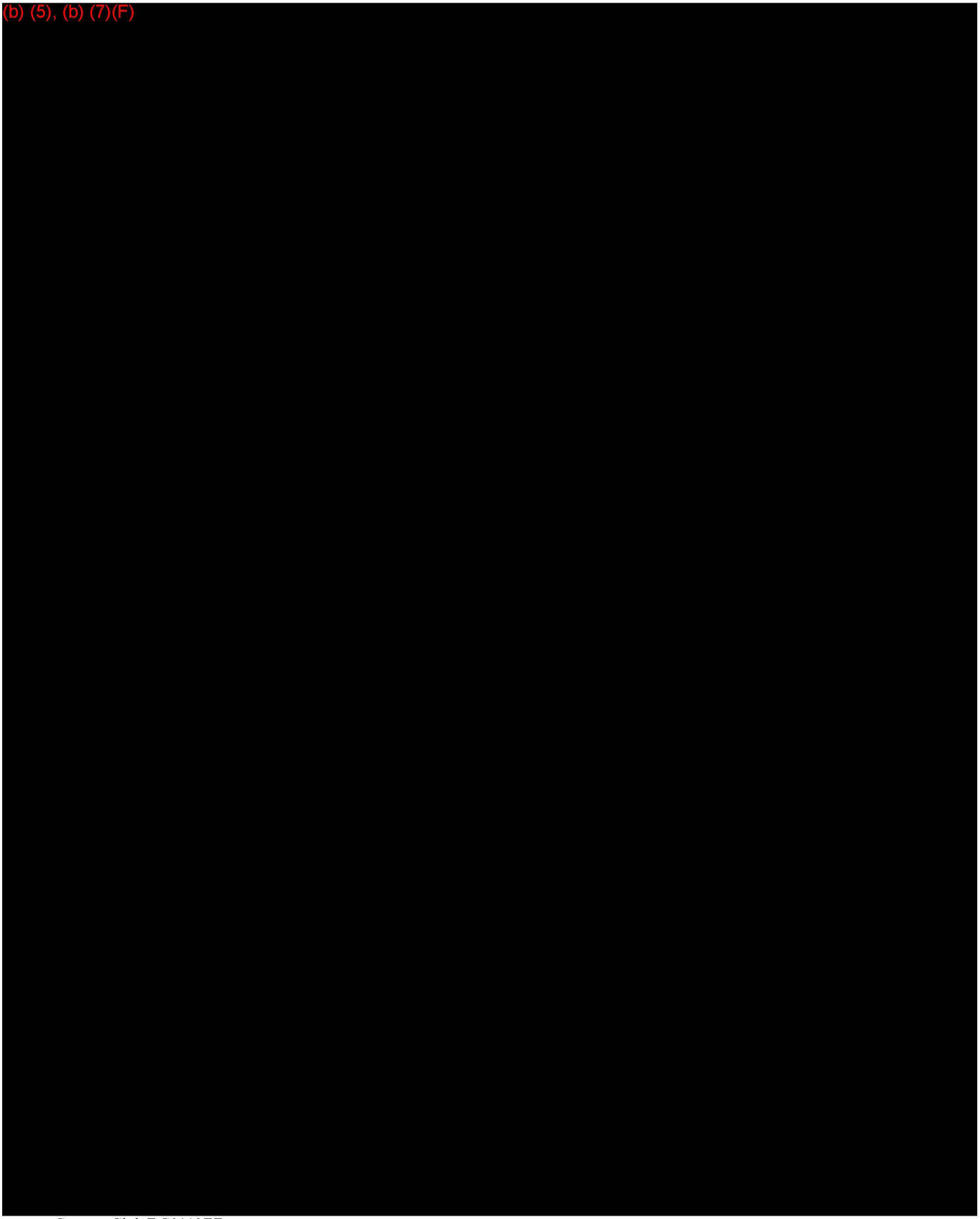

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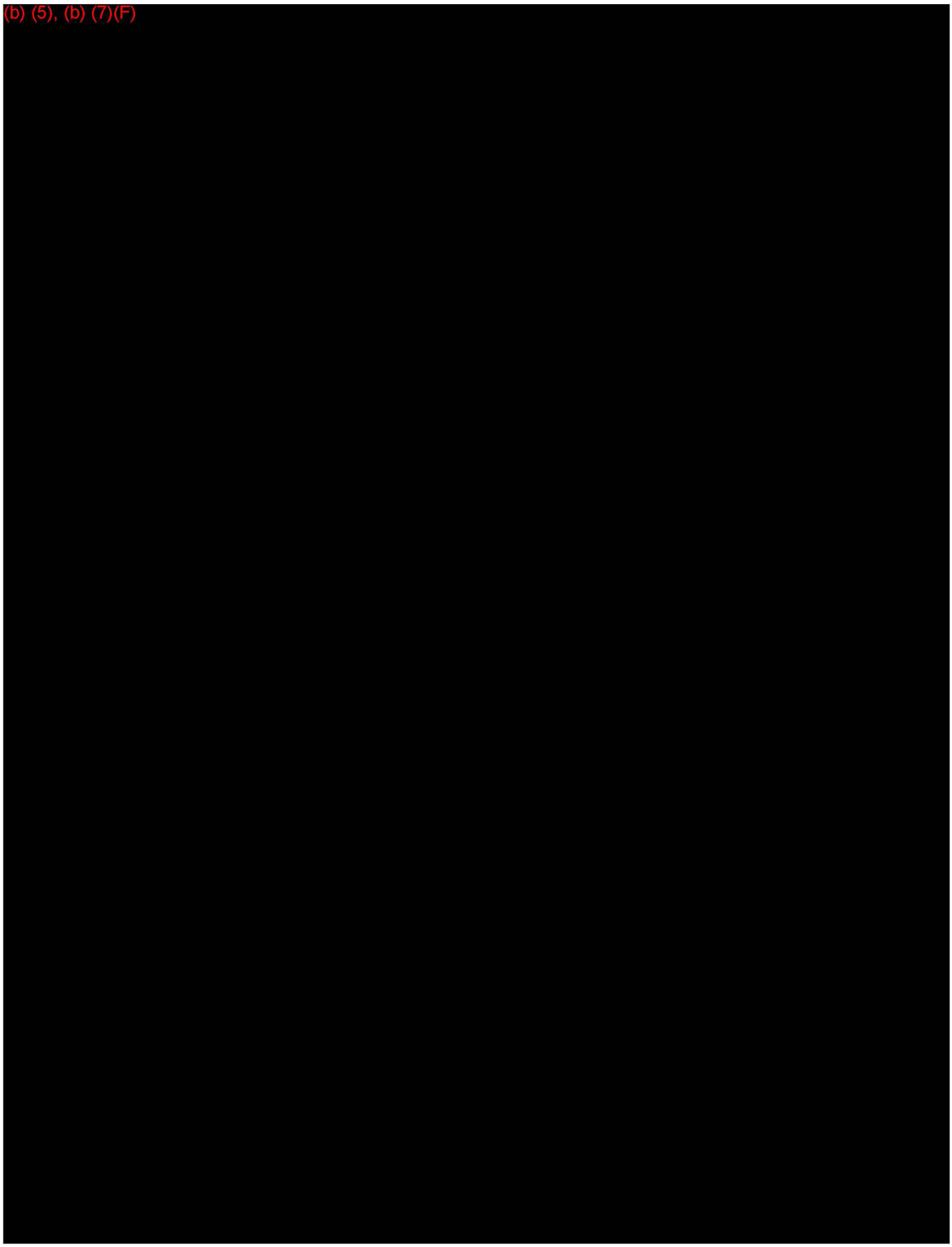

Federal Courts Building DC0094ZZ
Tayloe House DC0112ZZ
Cosmos Club DC0113ZZ
Washington, DC

Markey Courts
DC0094ZZ
Tayloe House DC0112ZZ
Elevator Modernization Schedule

	Year 1												Year 2											
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FE7																								
PE8 (Tayloe)																								
PE8 (Library)																								
PE5																								
PE6																								
PE1																								
PE2																								

	Year 3											
Month	25	26	27	28	29	30	31	32	33	34	35	36
PE3												
PE4												

(b) (5) (b) (7)( )

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GSA

GENERAL SERVICES ADMINISTRATION
PUBLIC BUILDINGS SERVICE
NATIONAL CAPITAL REGION
7th and D Street SW
Washington, DC 20407

FIELD VERIFY ALL DIMENSIONS

SPACE LABEL KEY

EXAMPLE

01001	SPACE ID
500.00	USABLE AREA SqFt
TTO	SPACE TYPE
1007	AGENCY BUREAU CODE
ATX06979	ASA NUMBER

LABEL CODES LEGEND

ANSI/BOMA CATEGORIES
01 OFFICE
02 BUILDING COMMON
03 FLOOR COMMON
04 VERTICAL PENETRATION
05 PBS SPECIFIC

SPACE CATEGORIES
01 ASSIGNED
02 BUILDING COMMON
03 BUILDING JOINT USE
10 UNMARKETABLE

SPACE TYPES
CON CONSTRUCTION
CRH CIRCULATION - HORIZONTAL
CRV CIRCULATION - VERTICAL
CST CUSTODIAL
FDS FOOD SERVICE
INS LIGHT INDUSTRIAL
MCH MECHANICAL
PTL PRIVATE TOILET
STC STRUCTURALLY CHANGED
STP STRUCTURED PARKING SQFT
TFC TENANT FLOOR CUT
TLT TOILET
TTO TOTAL OFFICE

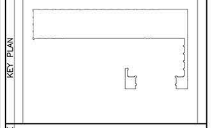
AUDIT RECORD

DATE	TYPE	PERFORMED BY

CONTRACTORS

A/E CON. NO.	
A/E TASK NO.	
CONS. CONTR.	
CONS. WORK	
PRIME A/E	
SUB A/E	
CONSTR. CON.	

KEY PLAN



GRAPHIC SCALE

4' 0" 4' 8'
Custom

BUILDING

NAME	HOWARD T. MARKEY NATIONAL CRTS
STREET	717 MADISON PL NW
CITY/ST./ZIP	WASHINGTON 20005-7700
BUILDING NO.	DC0094 FACILITY CODE:
OTHER BUILDING NOs.	
FACILITY NAME	

PROJECT

PROJECT TITLE	
PROJECT DESCRIPTION	
PROJECT NO.	
GSA PM	
SUBMISSION	
SUB. DATE	
ORIG. SURVEY DATE	

DRAWING

DRAWING TITLE	
FILE NAME	
FLOOR NO.	01
DRAWN BY	DATE DRAFTED:
CHECKED BY	SHEET SIZE: E
DRAWING NO.	DISCIPLINE SHEET TYPE SEQUENCE
	SHEET 1 OF 1

(b) (5), (b) (7)(F)

P V U H U A A U V M
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V
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GSA

GENERAL SERVICES ADMINISTRATION
PUBLIC BUILDINGS SERVICE
NATIONAL CAPITAL REGION
7th and D Street SW
Washington, DC 20407

FIELD VERIFY ALL DIMENSIONS

SPACE LABEL KEY

EXAMPLE

01001 — SPACE ID
500.00 — USABLE AREA SqFt
TTO — SPACE TYPE
1007 — AGENCY BUREAU CODE
ATX06979 — ASA NUMBER

LABEL CODES LEGND

ANSI/BOMA CATEGORIES
01 OFFICE
03 FLOOR COMMON
04 BLDG. CONCENTRATION
05 MBS SPECIFIC

SPACE CATEGORIES
01 ASSIGNED
02 BUILDING COMMON
10 UNMARKETABLE

SPACE TYPES
CON CONSTRUCTION
CRH CIRCULATION - HORIZONTAL
CRV CIRCULATION - VERTICAL
CUS CUSTODIAL
TLT TOILET
TTO TOTAL OFFICE

AUDIT RECORD

DATE	TYPE	PERFORMED BY

CONTRACTORS

A/E CON. NO.	
A/E TASK NO.	
CONS. CONTR.	
CONS. WORK	
PRIME A/E	
SUB A/E	
CONSTR. CON.	

KEY PLAN

GRAPH. SCALE

1" 0" 1" 2"
Custom

BUILDING

NAME	TAYLOE HOUSE
STREET	717 MADISON PL NW
CITY/ST./ZIP	WASHINGTON DC 20005-7700
BUILDING NO.	DC0112 FACILITY CODE:
OTHER	
BUILDING NOs.	
FACILITY NAME	

PROJECT

PROJECT TITLE	
PROJECT DESCRIPTION	
PROJECT NO.	
GSA PM	
SUBMISSION	
SUB. DATE	
ORIG. SURVEY DATE	

DRAWING

DRAWING TITLE	
FILE NAME	
FLOOR NO.	01
DRAWN BY	DATE DRAFTED:
CHECKED BY	SHEET SIZE: E
DRAWING NO.	DISCIPLINE SHEET TYPE SEQUENCE

SHEET 1 OF 1

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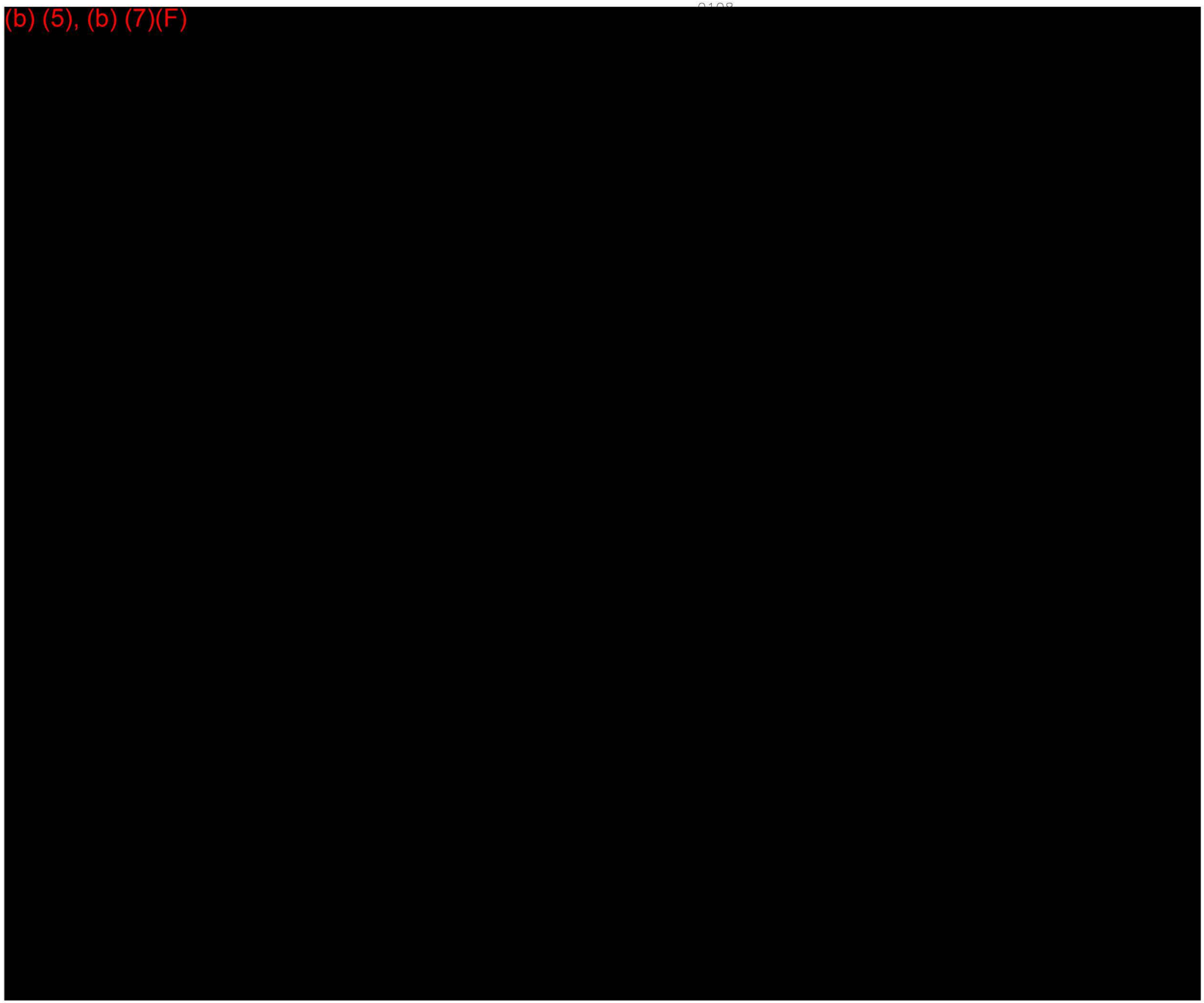

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A U Y
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GSA
GENERAL SERVICES ADMINISTRATION
PUBLIC BUILDINGS SERVICE
NATIONAL CAPITAL REGION
7th and D Street SW
Washington, DC 20407

FIELD VERIFY ALL DIMENSIONS

SPACE LABEL KEY

EXAMPLE
01001 — SPACE ID
500.00 — USABLE AREA SqFt
TTD — SPACE TYPE
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ATX06979 — ASA NUMBER

LABEL CODES LEGEND

ANSI/BOMA CATEGORIES
01 OFFICE
03 FLOOR COMMON
04 BUILDING ADMINISTRATION
05 MBS SPECIFIC

SPACE CATEGORIES
01 ASSIGNED
02 BUILDING COMMON
10 UNMARKETABLE

SPACE TYPES
CDN CONSTRUCTION
CHV CIRCULATION – HORIZONTAL
CRV CIRCULATION – VERTICAL
MCH MECHANICAL
TLT TOILET
TTO TOTAL OFFICE

AUDIT RECORD

DATE	TYPE	PERFORMED BY

CONTRACTORS

A/E CON. NO.	
A/E TASK NO.	
CONS. CONTR.	
CONS. WORK	
PRIME A/E	
SUB A/E	
CONSTR. CON.	

KEY PLAN

GRAPHIC SCALE

Custom

BUILDING

NAME	COSMOS CLUB
STREET	717 MADISON PL NW
CITY/ST./ZIP	WASHINGTON DC 20005-7700
BUILDING NO.	DC0113 FACILITY CODE:
OTHER	
BUILDING NOs.	
FACILITY NAME	

PROJECT

PROJECT TITLE	
PROJECT DESCRIPTION	
PROJECT NO.	
GSA PM	
SUBMISSION	
SUB. DATE	
ORIG. SURVEY DATE	

DRAWING

DRAWING TITLE	
FILE NAME	
FLOOR NO.	01
DRAWN BY	DATE DRAFTED:
CHECKED BY	SHEET SIZE: E
DRAWING NO.	DISCIPLINE SHEET TYPE SEQUENCE

SHEET 1 OF 1

Ashland Industrial Services
Training. Inspections. Consulting. Project Management.

1 North Main Street
Shrewsbury, PA 17361
717.347.5616

100% FINAL ELEVATOR STUDY

FOR

ROBERT C. WEAVER
FEDERAL BUILDING DC0092ZZ
451 7th STREET, SW
WASHINGTON, DC 20401-0001

December 30, 2016

SCOPE OF WORK

Ashland surveyed twenty-one (21) elevators and one (1) wheelchair lift at the referenced property during the week of October 3, 2016. The purpose of the audit and systems analysis is to develop scopes, cost estimates, time schedules, phasing for the interim repair projects and plan for the modernization projects. Ashland also identifies the primary equipment, determines the maintained condition of major components, records operating performance levels and evaluates the vertical transportation based on applicable industry and code standards.

Our report is arranged in sections as follows:

EXECUTIVE SUMMARY

The original equipment in the Weaver Building was manufactured and installed by Haughton Elevator Company in 1967-1968 with some component systems original as installed. An elevator controller upgrade was performed on all elevators in 1992-1993 with the passenger elevator groups receiving Thompson Micro-flite controls with SCR drives and is **OBSOLETE.** Replacement parts consist of rebuilt components. The service elevators (SE17 & SE18) also received a controller upgrade in 1992-1993 utilizing Motion Control Engineering (MCE) controls and are also **OBSOLETE** by design. SE18 received a new, overhead geared traction machine whereas the geared traction machine of SE17 was reused during the modernization process, is **OBSOLETE** requiring replacement. The hydraulic elevators (SE19, PE20 & PE21) were modernized, as well, during the same time frame as the passenger & service elevators, utilizing MCE controls which are also **OBSOLETE** by design and require replacement. All operating fixtures utilize incandescent bulb technology which is **OBSOLETE** and will require replacement to LED type lamps during modernization. FE19, PE20 & PE21 should be removed from service immediately due to the **OBSOLETE** hydraulic jack assemblies (single bottom construction) and replacement of these assemblies should be performed.

The Robert C. Weaver Building is located at 451 7th Street, SW, Washington, DC, 20401. It is a government owned building. It is currently occupied entirely by Department of Housing and Urban Development (HUD). General Services Administration (GSA) has given delegation authority to HUD for the operations and maintenance of the building. The building has an area of 1,372,278 Gross SF, 1,121,913 Rentable SF and 813,763 Usable SF. The building has thirteen (13) levels. These are sub-basement, basement, floors 1 through 10 and penthouse. The building was built in 1968 and was designated as one of the modern era historic buildings.

Ashland Industrial Services performed a comprehensive survey of the elevator equipment at the referenced property during the week of October 3, 2016. The office building's vertical transportation is provided by two (2) passenger groups of eight (8) overhead gearless traction passenger elevators (PE1 – PE8 & PE9 – PE16). One passenger group is located on the North side of the building and the other passenger group is located on the South side of the building. The passenger elevators serve eleven (11) front openings (B, 1-10), have a capacity of 4000 pounds and operate at 500 feet per minute with 2:1 roping. Each passenger group has a 10,000 pound capacity service/freight elevator (SE17 & SE18) that serves thirteen (13) landings including the sub-basement (SB) and penthouse (PH) levels. The building is also served by a 10,000 pound capacity, two (2) stop direct lift hydraulic service/freight elevator (SE19) that serves the first floor and basement levels of the building and is adjacent to the South side service/freight elevator. These freight elevators service the kitchen/café areas of the building. There are also two (2), 3,500 pound capacity, three (3) stop, direct lift hydraulic passenger elevators (PE20 & PE21) that operate as a duplex that currently serve only two (2) stops (B & 1) and the cafeteria area on the first floor which is currently unoccupied. These elevators are not being utilized at this point until the cafeteria area is repurposed and the 2nd floor car call buttons in each car station have been disconnected. The wheel chair lift (WCL22) serves two (2) stops, travels about 4 feet and serves the 10th floor and roof top area of the building's south side.

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Realizing that preventive maintenance is an ongoing process, Ashland's survey represents a snap shot on a specific day and time. Overall, the equipment is in good condition with evidence of preventive maintenance being performed on a regular basis. The machine room spaces are clean and the areas are organized. The deficiencies found can be addressed during regular preventive maintenance component replacement procedures such as replacing worn hoistway door pick-up rollers and replacement of the tail sheave assembly related to the leveling steel tape system.

Of particular concern is that Ashland found outdated paperwork in each elevator machine room that illustrates that the five (5) year full load safety tests, as required by ASME A17.1 Code, have not been completed since 2009, making the tests overdue by more than two (2) years. These tests should be scheduled and completed as soon as possible. Record keeping of maintenance procedures and fireman's service monthly testing are not current or in some cases completely missing.

Another issue that was discovered during our visit concerns the hydraulic passenger elevators PE20 & PE21 that serve the now defunct cafeteria area of the first floor. The car call buttons inside each elevator and the hall call button for the second floor have been disconnected so access to that floor has been removed but the hoistway doors have not been bolted shut and the space directly in front of the elevator entrances on the second floor has been converted into closet space. Ashland recommends bolting the hoistway doors shut at the second floor and relocating the top final terminal limit switches "down" to eliminate anyone's ability to access the second floor on Phase 2 Fireman's Service operation. If the intent is to never provide elevator service to the second floor utilizing these elevators then the pushbutton in each car station and the hall station should be completely removed and a stop ring should be welded onto each elevator hydraulic piston to prevent the car from ever inadvertently traveling past the first floor landing.

The elevator control equipment for all elevators in the Weaver Building are obsolete by design, with parts availability of the Thompson control system an inherent problem and the MCE system no longer being supported by the manufacturer. MCE is still in business and is a very successful third party, non-proprietary elevator control manufacturer based in California. The Thompson Company was purchased by MCE more than fifteen (15) years ago and MCE is the best candidate to provide limited tech support for the Micro-flite system. That being said, the elevator control system for the two (2), eight (8) car passenger elevator groups has withstood a substantial amount of heat exposure since the HVAC system in each machine room is nonfunctional and apparently has been that way for the last four (4) years. Exposure to temperatures in excess of 100 degrees Fahrenheit is detrimental to the equipment and would appear to be one of the major reasons shutdowns have increased along with passenger entrapments. The HVAC system in each elevator machine room needs repaired and/or replaced as soon as possible in order to provide a stable environment for the equipment to operate.

In conjunction with repairing and/or replacing the HVAC system in each passenger elevator machine room, Ashland recommends that the elevator controls be budgeted for replacement within the next 1-2

years due to lack of spare parts and availability of technical support. Elevator control upgrades would also include the installation of "rope grippers" to prevent unintended movement in the "up" direction. This is a safety feature that the current elevator controllers and machines do not have and newly installed equipment would meet the latest ASME A17.1 Code requirements. Since the elevator controls were modernized back in 1991-1992, the building related work required by Code when an elevator controller is replaced with new, should be nominal.

The passenger elevator Haughton gearless traction machines of PE1 – PE16 are operating as designed and are original to the building making them 45+ years old. Ashland recommends completing an electrical evaluation of each DC hoist motor and making repairs where necessary to return the units to like new condition.

Any elevator hydraulic jack assembly that has been installed prior to 1972 was constructed utilizing a single bottom bulk head design. As a result of the installation date of 1968, the hydraulic elevators FE19, PE20 & PE21 will require a complete hydraulic jack replacement. Ashland recommends that the elevators be immediately removed from service and the hydraulic jacks be replaced. The new jack will be encased in a PVC liner or another means to protect from moisture and electrolysis, per ASME A17.1 Code requirements. Even though the hydraulic elevators travel relatively "short" distances, removal and replacement of the in-ground components can be very expensive. There are a lot of variables that cannot be determined until after the removal is completed and the existing well hole conditions can be evaluated for acceptance of the new, in-ground equipment. Potential risk is always a factor relating to water infiltration and or collapse of the well hole. If these unknown conditions can be corrected we advise an additional risk cost estimate of 35% added to elevator budget costs.

The passenger elevator hall fixtures (hall call buttons, position indicators at the main lobby level and hall lanterns at each floor) are currently utilizing incandescent bulb technology which requires more frequent bulb replacement when compared with LED type lamps. Ashland recommends that the hall fixtures be replaced and upgraded to LED type bulbs. This work should be coordinated with the elevator control upgrades that have been recommended to be completed within the next 1-2 years.

All pit ladders will require replacement in order to provide a "grab bar" at proper height; most do not have a grab bar at all. Pit lighting appears to be adequate and all pits were "dry" with little to no evidence of water/moisture intrusion. GFCI electrical outlets also need to be provided in each pit, as well. Cat walks will be required to inspect the pit buffers of each passenger elevator.

The sixteen (16) passenger elevators (PE1 – PE16) underwent complete cab interior upgrades approximately three (3) years ago. The upgrades included new down light ceilings, applied panels with plastic laminate wood finish (edging coming loose) with stainless steel reveals, flat bar stock stainless steel handrails on side and rear walls, vinyl tile flooring and new car operating panels (main & auxiliary). The large service elevator (SE17, SE18 & SE19) cabs have two (2) rows of solid oak bumpers on the side and rear walls of the cab, stainless steel cab shell, standard fluorescent ceiling lights and diamond plate flooring. Service elevator cabs are in fair condition due to heavy use and normal wear & tear. The hydraulic passenger elevator (PE20 & PE21) cabs have stainless steel walls and two (2) rows of flat bar

stock stainless steel handrails (being utilized as bumpers) on the side and rear walls with cove style lighting. Ventilation of all cabs (Passenger & Service) is achieved by a standard cab fan mounted on top of each elevator cab shell and appears to be adequate.

The hydraulic elevator machine room location of PE20 & PE21 is on the sub-basement level at the rear of the elevator shaft walk-in pit access. The service elevator (SE19) machine room is located at the basement level, adjacent to the elevator's hoistway. Machine rooms are not adequately ventilated and will require additional lighting to meet Code. GFCI outlets will be required and an ABC type fire extinguisher is needed in each room.

SECTION I - EQUIPMENT EVALUATION

VERTICAL TRANSPORTATION SYSTEMS PROFILE

Building:
WEAVER (HUD)

	PE1 - PE8	PE9 - PE16	SE17 & SE18	SE19	PE20 & PE21
Capacity	4,000	4,000	10,000	10,000	4,000
Loading (Passenger/Service/Freight)	Passenger	Passenger	Service	Service	Passenger
Rated Speed (feet per minute)	500	500	250	50	100
Roping	2 to 1	2 to 1	1 to 1	N/A	N/A
Floors Served	11	11	13	2	2
Floor Identification	B, 1 - 10	B, 1 - 10	SB, B, 1-10, PH	B, 1	B, 1
Machine Type:	OH Gearless	OH Gearless	OH Geared	Dry Pump	Dry Pump
Control Type:	Thompson	Thompson	MCE	MCE	MCE
Sequence of Operation	8 car group	8 car group	Simplex	Simplex	Duplex
Door Configuration	SSCO	SSCO	2SCO	2SCO	2SSO
Car Door Operator	GAL MOD	GAL MOD	GAL MOD	GAL MOD	GAL MOD
Operating/Signal Fixtures	Incandescent	Incandescent	Incandescent	Incandescent	Incandescent
Door Entrance Size	42" w X 84" h	42" w X 84" h	66" w X 84" h	66" w X 84" h	48" w X 84" h
Car & Cwt Buffers	Oil	Oil	Oil	Spring	Spring
Car & Cwt Safeties	Haughton	Haughton	Haughton	N/A	N/A
Overspeed Governor	Hollister Whitney	Hollister Whitney	Hollister Whitney	N/A	N/A
Power Supply	208V 3 PH	208V 3 PH	208V 3 PH	208V 3 PH	208V 3 PH
O.E. M.	Haughton	Haughton	Haughton	Haughton	Haughton
Date of Installation	1967	1967	1967	1967	1967
Modernization Contractor	Millar	Millar	Millar	Millar	Millar
Date of Modernization	1992	1992	1992	1992	1993
Present Service Company	ELCON	ELCON	ELCON	ELCON	ELCON
3 or 5 Year Full Load Test	Apr-09	Apr-09	Apr-09	No records	No Records
Annual Safety Inspection	Oct-14	Oct-14	Oct-14	2013	2013

LIFE CYCLE ANALYSIS – TRACTION SYSTEMS

Elevator I.D.: PE1 – PE8, PE9 – PE16 Date: 10/4/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	49	1	Good	Test & Rebuild
2. Drive Motor(s)	50-75	49	1	Good	Test & Rebuild
3. Power Drives	30-50	24	4	**OBSOLETE**	Replace during mod
4. Signal Controls (Selectors)	20-25	24	0	**OBSOLETE**	Replace during mod
5. Motion Controls	20-25	24	0	**OSBOLETE**	Replace during mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	24	0	Good	Replace during mod
2. Guide Rails	75+	49	26+	Good	Clean, Align, Tighten
3. Mechanical Safety Equipment & Counterweight	75+	49	26+	**OBSOLETE**	Replace during mod
4. Hoistway Door Equipment	25-30	24	1	Good	Replace during mod
CAR EQUIPMENT					
1. Car Door Equipment	20-25	24	0	Fair	Replace during mod
2. Cab Enclosure	20-30	3	17	Good	Replace during mod
3. Car Frame	75+	49	26+	Good	No Action Required
4. Car Safety	75+	49	26+	**OBSOLETE**	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	24	0	**OBSOLETE**	Replace during mod

LIFE CYCLE ANALYSIS - TRACTION SYSTEMS

Elevator I.D.: SE17 & SE18 Date: 10/4/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	49 (SE17) 24 (SE18)	1(SE17) 26 (SE18)	Fair (SE17) Good (SE18)	Replace during mod (SE17) Test & Rebuild (SE18)
2. Drive Motor(s)	50-75	49 (SE17) 24 (SE18)	1(SE17) 26 (SE18)	Fair (SE17) Good (SE18)	Replace during mod
3. Power Drives	30-50	24	4	**OBSOLETE**	Replace during mod
4. Signal Controls (Selectors)	20-25	24	0	**OBSOLETE**	Replace during mod
5. Motion Controls	20-25	24	0	**OBSOLETE**	Replace during mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	24	0	Good	Replace during mod
2. Guide Rails	75+	49	26+	Good	Clean, Align, Tighten
3. Mechanical Safety Equipment & Counterweight	75+	49	26+	**OBSOLETE**	Replace during mod
4. Hoistway Door Equipment	25-30	24	1	Good	Replace during mod
CAR EQUIPMENT					
1. Car Door Equipment	20-25	24	0	Fair	Replace during mod
2. Cab Enclosure	20-30	3	17	Good	Replace during mod
3. Car Frame	75+	49	26+	Good	No Action Required
4. Car Safety	75+	49	26+	**OBSOLETE**	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	24	0	**OBSOLETE**	Replace during mod

LIFE CYCLE ANALYSIS – HYDRAULIC SYSTEM

Elevator I.D.: SE19, PE20 & PE21 Date: 10/5/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM EQUIPMENT					
1. Tank and Pumping Unit	30 – 40	25	5	Good	
2. External Piping	40 – 50	25	15	Good	
3. Signal Controls (Selectors)	20 - 25	25	0	**OBSOLETE**	Replace during mod
4. Manifold Control Valves	25 - 30	25	0	**OBSOLETE**	Replace during mod
HOISTWAY/PIT EQUIPMENT					
1. Guide Rails	75+	49	26+	Good	Clean, Align, Tighten
2. Cylinder –RAM	30 - 40	49	0	**OBSOLETE**	Single bottom jacks require replacement per Code
3. Hoistway Door Equipment	25 - 30	25	0	Good	Replace during mod
4. Recovery System	20 - 25	25	0	Good	Replace during mod
CAR EQUIPMENT					
1. Car Frame	75+	49	26+	Good	No Action Required
2. Car Door Equipment	25 - 30	25	0	Fair	Replace during mod
3. Cab Enclosure	20 - 30	25	0	Good	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Operating/Signal Fixtures	20 - 25	25	0	**OBSOLETE**	Replace during mod

CODES AND STANDARDS REVIEW – ELEVATORS ONLY

All elevators in the Weaver Building were upgraded in the early 1990's. The present components are a mixture of old (machine, motor, car, counterweight, pit equipment, fixtures) and new (controller, SCR drives and door operating components). The systems do not meet the latest code regulations in the following areas:

- Record Keeping - Data Tags / Testing Requirements
- Hydraulic Jack Assembly - Pre 1972 require replacement (SE19, PE20 & PE21)

Note: Five (5) year full load tests are overdue for all traction elevators in the building. The hydraulic equipment has been recently tested but annual safety inspections are overdue, as well. Record keeping is very poor.

Annual Safety Inspection (Cat 1) All test are performed at inspection speed with no load inside the elevator. Manually activate the safeties, governor, emergency final limits, over speed switch, door locks, gate switches, car door restrictors, stop switches and buffer switches. Activate Fireman's Service Phase I & II. Test emergency lighting / alarm / communications. Test the door protection devices and closing force. Unintended movement device is also verified.

3 year test (Cat 3 for hydraulic elevators): This type of testing only is required if the unit has a pressure vessel (hydraulic valve) as a means of propulsion. The pressure vessel must be charged at maximum pressure for 15 mins without changes to pressure. A visual inspection inside of the vessel is also performed.

5 year full-load (Cat 5): Same scope of work as the Cat 1 no load test. In addition, while elevator is operating at contract speed. Conduct a full load (elevator capacity) safety drop test, 125% capacity elevator brake test and a full load buffer test. Manually test the governor activation speeds and governor pull through.

What the 5 year test involves and what is expected at the end of the test? The elevator is loaded to maximum designed capacity and with the elevator traveling in the down direction; the speed governor is activated to put the elevator on emergency stop. The distance of slide on the main elevator rails is then measured for tolerance as well as the level of the elevator itself after the emergency brakes (safety) are applied and the car has come to a complete stop. After this is completed, the elevator is further tested in the down direction (under full load, contract speed) and strikes the elevator pit buffer. The elevator then is lifted, and the buffers (oil type) must return to original position within 90 secs. Additional weight is added (25% of capacity) to the cab. The elevator is tested again in the down direction and must stop within normal leveling tolerances between the car and hoistway entrance sills. All tests have specific tolerances set by ANSI A17.1 in relation to the elevator design; type, speed and capacity.

THE AMERICANS WITH DISABILITIES ACT (ADAAG)
SURVEY OF EXISTING ELEVATOR SYSTEMS

ELEVATOR(S) IDENTIFICATION: **DATE:** October 5, 2016
ALL PASSENGER & SERVICE ELEVATORS

S = SATISFACTORY, U = UNSATISFACTORY, R = READILY ACHIEVABLE, NA = NOT APPLICABLE

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.1	General	A. Elevators shall comply with ASME/ANSI A17.1-1990, Safety Code for Elevators and Escalators. B. Freight elevators shall not be considered as meeting the requirements of this section unless the only elevators provided are used as combination passenger and freight elevators for the public and employees.	X		Per Modernization Date of 1992	
4.10.2	Automatic Operations	A. Elevator operation shall be automatic. B. Each car shall have a self-leveling feature that will automatically bring the car to floor landing within a tolerance of ½" under rated loading and zero loading conditions. C. This self-leveling feature shall be automatic and independent of the operating device and shall correct for undertravel and overtravel.	X X X			
4.10.3	Hall Call Buttons	A. Shall be centered at 42" above floor. B. Shall have visual signals to indicate when call is registered and answered. C. Minimum size 3/4" in the smallest dimension. D. "UP" button shall be above "DOWN" button. E. Buttons shall be raised or flush. F. Objects mounted beneath buttons shall not project more than 4" from the wall.	X X X X X		N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.4	Hall Lanterns	A. A visible and audible signal shall be provided at each hoistway entrance to indicate which car is answering a call. B. Audible signals shall sound once for "up", twice for "down", or shall have verbal annunciators that say "up" or "down". C. Visible signals shall have the following features: 1. Fixtures shall be mounted with centerlines at least 72" above the lobby floor. 2. Visual elements shall be at least 2 ½" in the smallest dimension. 3. Signals shall be visible from the vicinity of the hall call button. D. In-car lanterns, conforming to the above requirements, shall be acceptable.	X X X X X		Audible signals work sporadically N/A	X
4.10.5 4.30.4	Characters On Hoistway Entrances	A. All elevator hoistway entrances shall have raised and Braille floor designations provided on both jambs. B. Characters shall be centered 60" above finish floor. C. Characters shall be 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X X X			
4.10.6 4.16(3)(i)	Door Protective and Reopening Device	A. Elevator doors shall open and close automatically. B. Door shall have a reopening device that will stop and reopen a car door if an object or person obstructs the door. 1. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5" and 29" above finish floor. 2. Door reopening device shall remain effective for at least 20 seconds. After such interval, doors may close in accordance with ASME/ANSI A17.1-1990.Rule 112.4 and Rule 112.5 closing force provisions.	X X X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.7	Door and Signal Timing for Hall Calls	A. The minimum acceptable time from notification that a car is answering a call until doors begin to close shall be calculated as follows: • T = D/(1.5 ft/s) or T=D/(445 mm/s) • T = time in seconds • D = distance (in ft or mm) from point 60" directly in front of farthest call button to centerline of hoistway door. • The minimum acceptable notification time shall be 5 seconds.	X			
4.10.8	Door Delay for Car Calls	A. The minimum time for elevator doors to remain fully open in response to a call shall be 3 seconds.	X			
4.10.9 4.16(3)(ii)	Floor Plan of Elevator Cars	Shall provide for wheelchair users to enter the car, maneuver within reach of controls and exit the car. A. Door shall provide 36" clear minimum. B. Cab Depth: 51" minimum, with 54" minimum from rear of cab to inside face of door. C. Cab Width: side opening door - 68" minimum; Center opening door - 80" minimum. D. Clearance between car platform sill and edge of hoistway landing shall be 1 1/4" maximum. E. Alterations/Existing Condition: Where existing plan configuration or technical infeasibility prevent use of specified cab sizes, dimensions may be reduced as required. However, in no case shall the inside car dimensions be less than 48" by 48". F. Equivalent facilitation may be provided with a cab of different size when usability can be demonstrated and when all other items required to be accessible comply with this section.	X X X X		N/A N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.10	Floor Surfaces	A. Shall be firm, stable and slip-resistant B. If carpet is used, it shall have the following features: 1. Shall be securely attached; 2. A firm cushion pad or backing (or none); 3. A level loop, textured loop, level cut pile or level cut/uncut pile texture; 4. Maximum pile thickness: ½" 5. Exposed edges fastened to floor surfaces with carpet edge trim.	X		N/A	
4.10.11	Illumination Levels	A. Illumination level at controls, platform and threshold and landing shall be minimum 5 foot-candles.	X			
4.10.12 (1)	Car Controls: Buttons	A. Size 3/4" minimum in least dimension. B. Buttons shall be raised or flush.	X X			
4.10.12 (2)	Car Controls: Control Indicators	C. All control buttons shall be designated by Braille and by raised standard alphabet characters for letters, Arabic symbols for numerals, or standard symbols are required in ASME/ANSI 17.1-1990. D. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. E. All raised designations shall be immediately left of the button to which they apply. F. Floor buttons shall be provided with visual signals which light when each call is registered and extinguish when each call is answered.	X X X X			
4.10.12 (3)	Car Controls: Height	G. All floor buttons shall be maximum 54" above floor where side approach is provided, 48" maximum where forward approach is required. H. Emergency controls (including alarm and stop) shall be grouped at bottom of panel, with centerlines 35" minimum above floor.	X X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.12 (4)	Car Controls: Location	I. Controls shall be located on a front wall if cars have center opening doors and at either a side wall or the front wall if cars have side opening doors.	X			
4.10.13	Car Position Indicators	A. A visual car position indicator shall be provided above the car control panel or above the door.	X			
		B. As the car passes or stops at a floor, the corresponding numbers shall illuminate and an audible signal shall sound.	X			
		C. Numerals shall be a minimum of ½" high.	X			
		D. Audible signal shall be no less than 20 decibels with frequency no higher than 1500 Hz.	X			
		E. An automatic verbal announcement of the floor number may be substituted for the audible signal.			N/A	
4.10.14	Emergency Communications	Emergency two-way communication system between the elevator and a point outside the hoistway shall comply with ASME/ANSI A17.1-1990				
		A. Highest operable part of system shall be maximum 48" from floor.	X			
		B. System shall be identified by raised symbol and lettering located adjacent to the device.	X			
		C. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X			
		D. If system uses a handset, minimum cord length shall be 29".	X			
		E. If located in a closed compartment, door shall be operable with one hand, shall not require tight grasping, pinching, or twisting of the wrist, and shall require a maximum force of 5 lb.	X			
		F. The emergency communication system shall not require voice communication. (Voice only system is inaccessible to persons with speech or hearing impairments.)	X			

SECTION II - MAINTAINED CONDITION EVALUATION

ITEMIZED MAINTENANCE DEFICIENCIES

Machine Room: PE1 – PE8

1. Excessive heat in machine room with portable A/C unit that can't handle heat load. Repair and/or replace HVAC unit.
2. Record keeping is non-existent. Provide maintenance and fireman's service testing records per Code.
3. Five (5) year full load tests are overdue, last performed in April, 2009.
4. Very little spare parts kept in machine room space.

Machine Room: PE9 – PE16

1. Excessive heat in machine room. Repair and/or replace HVAC unit.
2. Record keeping is non-existent. Provide maintenance and fireman's service testing records per Code.
3. Five (5) year full load tests are overdue, last performed in April 2009.
4. Very little spare parts kept in machine room space.

Machine Room: SE18

1. Repair machine room lights.
2. Repair and/or replace HVAC unit.

Hydraulic Elevators: PE19, PE20 & PE21

1. Replace single bottom hydraulic jack assembly, installed pre 1972.
2. Annual safety inspection is overdue, last performed in 2013.
3. Repair and/or replace HVAC unit.

General Observations:

1. Replace missing screws in hall position indicator cover plates at main lobby level of both eight (8) car passenger groups.
2. Hall lanterns operate intermittently upon elevator arriving at the floor.
3. Adjust door open limit (DOL) switch to obtain full open position of hoistway and car doors when car is at each landing.
4. Replace noisy selector tape sheaves, as needed.
5. PE7 & PE14 were out of service during our visit, waiting for replacement parts. Obtain parts as soon as possible to return units to service.
6. Replace hall lantern bulbs, as needed.
7. Clean car and hoistway sills of dirt & debris.
8. Replace worn hoistway door pick-up rollers, as needed.
9. Adjust springs on roller guides for proper operation.

MAINTENANCE CONTRACT REVIEW

Current Contract Provisions:

THESE DOCUMENTS HAVE NOT BEEN PROVIDED TO ASHLAND INDUSTRIAL SERVICES

Recommendations:

RECORDED OPERATING PERFORMANCE

SOUTH LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. **PE1**	ELEV. NO. **PE2**	ELEV. NO. **PE3**	ELEV. NO. **PE4**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	490	**366***	493	499	475 – 525
B. SPEED – DOWN DIRECTION (FPM)	489	**369***	492	501	475 – 525
C. DOOR OPENING TIME (SEC)	1.7	1.4	**1.9***	**2.1***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.4	2.7	3.1	**3.3***	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	3.7	3.0	4.0	5.0	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.0	5.0	5.2	5.0	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**1.8***	1.0	**1.5***	**4.0***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	11.4	11.9	11.9	11.2	11.5 – 12.5
I. START (milli g) Up/Down	51/39	37/16	46/48	44/44	
J. ACCEL (milli g) Up/Down	99/99	74/74	101/102	100/100	
K. DECEL (milli g) Up/Down	105/112	58/60	93/95	111/114	
L. STOP (milli g) Up/Down	47/52	28/29	43/44	52/52	
M. JERK (milli g) Up/Down	5.6/6.4	2.6/5.3	4.5/4.4	3.3/5.4	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	26	25	26	24	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

SOUTH LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. **PE5**	ELEV. NO. **PE6**	ELEV. NO. **PE7**	ELEV. NO. **PE8**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**470***	**461***	N/O	491	475 – 525
B. SPEED – DOWN DIRECTION (FPM)	**472***	**456***	N/O	489	475 – 525
C. DOOR OPENING TIME (SEC)	1.7	1.7	N/O	**2.1***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.8	**3.2***	N/O	**3.2***	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	4.4	4.3	N/O	4.0	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.0	5.5	N/O	5.1	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**1.5***	**1.2***	N/O	1.0	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	11.0	11.2	N/O	12.1	11.5 – 12.5
I. START (milli g) Up/Down	55/49	41/42	N/O	47/47	
J. ACCEL (milli g) Up/Down	98/97	91/92	N/O	99/101	
K. DECEL (milli g) Up/Down	96/92	93/94	N/O	105/106	
L. STOP (milli g) Up/Down	43/48	44/45	N/O	48/49	
M. JERK (milli g) Up/Down	3.9/4.9	3.5/4.9	N/O	5.1/5.8	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	N/O	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	26	25	N/O	22	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

NORTH LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. **PE9**	ELEV. NO. **PE10**	ELEV. NO. **PE11**	ELEV. NO. **PE12**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	503	494	485	481	475 – 525
B. SPEED – DOWN DIRECTION (FPM)	502	490	485	481	475 – 525
C. DOOR OPENING TIME (SEC)	**1.9***	1.7	**1.8***	**2.1***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.6	2.6	2.6	2.8	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	4.2	3.1	5.4	6.4	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.1	5.8	9.1	5.8	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**2.0***	1.0	**3.0***	**5.0***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	11.3	11.8	11.9	**13.6***	11.5 – 12.5
I. START (milli g) Up/Down	90/92	68/70	52/47	58/57	
J. ACCEL (milli g) Up/Down	104/107	109/112	98/98	96/95	
K. DECEL (milli g) Up/Down	110/110	107/110	103/108	91/94	
L. STOP (milli g) Up/Down	48/48	47/49	48/52	43/44	
M. JERK (milli g) Up/Down	5.4/11.1	5.5/6.3	4.2/5.3	4.2/6.7	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	26	24	22	25	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

NORTH LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. **PE13**	ELEV. NO. **PE14**	ELEV. NO. **PE15**	ELEV. NO. **PE16**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	488	N/O	480	490	475 – 525
B. SPEED – DOWN DIRECTION (FPM)	484	N/O	481	491	475 – 525
C. DOOR OPENING TIME (SEC)	**1.9***	N/O	**1.8***	**1.8***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.4	N/O	2.5	2.6	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	3.0	N/O	3.0	4.2	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.6	N/O	5.5	5.7	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	1.0	N/O	**1.2***	**4.5***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	12.1	N/O	12.3	11.9	11.5 – 12.5
I. START (milli g) Up/Down	82/71	N/O	56/70	N/O	
J. ACCEL (milli g) Up/Down	97/96	N/O	96/97	N/O	
K. DECEL (milli g) Up/Down	97/100	N/O	93/97	N/O	
L. STOP (milli g) Up/Down	46/47	N/O	44/45	N/O	
M. JERK (milli g) Up/Down	7.9/7.9	N/O	3.6/7.6	N/O	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	N/O	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	25	N/O	24	26	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

TWO SPEED CENTER OPENING DOORS (66" wide)	ELEV. NO. **SE17**	ELEV. NO. **SE18**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	**189***	**227***	240 – 260
B. SPEED – DOWN DIRECTION (FPM)	**189***	**231***	240 – 260
C. DOOR OPENING TIME (SEC)	2.0	2.0	2.0 – 2.2
D. DOOR CLOSING TIME (SEC)	3.0	3.1	4.0 – 4.2
E. DOOR OPEN DURATION - CAR CALL (SEC)	5.0	5.3	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	**10.0***	8.5	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**3.7***	**3.5***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	12.1	**16.5***	13.5 – 14.5
I. START (milli g) Up/Down	29/39	15/8	
J. ACCEL (milli g) Up/Down	47/48	71/70	
K. DECEL (milli g) Up/Down	49/48	64/64	
L. STOP (milli g) Up/Down	13/14	29/27	
M. JERK (milli g) Up/Down	2.9/5.9	1.8/4.0	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	25	24	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

TWO SPEED CENTER OPENING DOORS (66" wide)	ELEV. NO. **SE19**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	54	47 - 53
B. SPEED – DOWN DIRECTION (FPM)	49	47 - 53
C. DOOR OPENING TIME (SEC)	2.2	2.0 – 2.2
D. DOOR CLOSING TIME (SEC)	3.8	4.0 – 4.2
E. DOOR OPEN DURATION - CAR CALL (SEC)	3.6	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	7.5	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**2.0***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	16.7	16.5 – 17.5
I. START (milli g) Up/Down	28/30	
J. ACCEL (milli g) Up/Down	24/23	
K. DECEL (milli g) Up/Down	26/27	
L. STOP (milli g) Up/Down	20/21	
M. JERK (milli g) Up/Down	3.8/4.5	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	27	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. **PE20**	ELEV. NO. **PE21**	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	108	108	95 – 105
B. SPEED – DOWN DIRECTION (FPM)	99	103	95 – 105
C. DOOR OPENING TIME (SEC)	1.5	1.7	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.9	3.1	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	4.2	4.0	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.5	5.6	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	.8	.7	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	15.9	16.4	15.5 – 16.5
I. START (milli g) Up/Down	61/80	62/65	
J. ACCEL (milli g)Up/Down	40/98	36/76	
K. DECEL (milli g) Up/Down	72/54	95/90	
L. STOP (milli g) Up/Down	22/20	26/27	
M. JERK (milli g) Up/Down	11.1/9.9	15.4/14.8	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	24	28	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation

DEFINITIONS AND MEASUREMENTS

OF ITEMS LISTED IN

RECORDED OPERATING PERFORMANCE

A&B. **Speed** is the rate at which the measured unit travels. The speed has been measured during a complete run of the unit and was taken as the highest sustained value recorded using a hand held tachometer.

C. **Door Opening Time** is defined as the start of car doors opening until they are fully opened. The time was measured in seconds from the moment the car doors start to open until the car doors are fully open (i.e., motion stops).

D. **Door Closing Time** is defined as the start of the car doors closing until fully closed. The time was measured in seconds from the moment the car doors start to close until the car doors are fully closed (i.e., motion stops).

E. **Door Open Duration for a Car Call** is defined as the length of time the car doors remain fully open in response to a car call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car door.

F. **Door Open Duration for a Hall Call** is defined as the length of time the car doors remain fully open in response to a lobby call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car doors.

G. **Door Open Duration After Protective Shield is Re-Established** is defined as the length of time the car doors remain open after an object has passed through the protective shield until the car doors begin to close. This time was measured in seconds from the stop in the motion of the car doors until the re-start of the closing motion of the car doors.

H. **Floor to Floor Performance Time** is defined as the time required for the movement of a car between two (2) floors, including the door closing and effective door opening for passenger transfer. The time was measured in seconds from the start of door closing at one floor until the car was stopped (within stopping accuracy) at the next floor with the doors opened for passenger transfer.

I. **Start Up/Down (milli g)** is measured at the beginning of car motion.

J. **Accel Up/Down (milli g)** is the measure of acceleration immediately after the Start measure.

K. **Decel Up/Down (milli g)** is the measure of transition from high speed to leveling speed or stop.

L. **Stop Up/Down (milli g)** is measure of the stopping rate to the floor level.

M. **Jerk Up/Down (milli g)** is a term used to describe a change in acceleration. In mathematical terms one jerk is equal to a change in acceleration of one foot per second per second, in one second of time. One jerk equals a rate change of .03108 g's in one second. Optimal jerk rate is 15.0 or less.

N. **Stopping Accuracy** is the distance between the car and hoistway sills when the car is stopped at a floor and was measured as the vertical distance (in inches) between the horizontal planes of the car and hoistway sills when the car is stopped at a floor.

O. **Car Door Closing Pressure** is the amount of force required to hold a door from closing after stalling the door, by external means, at about 1/3 of the closing distance. The door pressure was measured in pounds and was recorded upon removal of the physical block.

SECTION III – SCOPE, BUDGET COSTS & PRIORITIES

Design Intent

As part of Ashland's recommendations for upgrades, modernization and/or refurbishment of the elevator equipment, the elevator equipment rooms/spaces have been evaluated, including components such as lighting, HVAC, fire protection, emergency power interface, enclosures, etc. The scope of work for each grouping of elevators requires that the elevator systems and areas comply with GSA Standards / Guidelines / Alerts and all current Codes. The design will bring the elevators up to the latest editions of ASME A17.1 Safety Code for Elevators and Escalators, A17.3 Safety Code for Existing Elevators and Escalators, A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, ANPA 70 National Electric Code and NFPA 101 life safety codes. Adding remote monitoring capabilities is also recommended. Remote monitoring is recommended to be placed in the Facilities Management Office and not elevator machine room, elevator shop or any off site locations.

Passenger Elevators PE1 – PE16

Rebuild the Haughton overhead gearless traction machines, provide new elevator controllers with SCR drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new hoistway door tracks, hangers, rollers and safety interlocks, new car door operator (closed loop), new car door panels and ventilation, new car top inspection station, new hall and car operating fixtures with LED lamps, new car and counterweight safeties, paint entrance frames, new electronic door edge detector, new cab interior applied panels. Retain car and counterweight guide rails, refurbish compensation sheaves and governor cable tension assembly, clean hoistway entrance sills and car sill, refurbish hoistway door panels, retain cab interior lighting and flooring, retain car frame and platform, modify lobby control panel.

Budget Cost per elevator: $458,910 x 16 elevators = $7,342.560 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station, refurbish machine room and secondary area lighting, install access doors and catwalk for secondary areas, provide new HVAC unit(s) in elevator machine room, provide new pit and hoistway lighting and modify pit access. Modify and update fire controls. Paint machine rooms and hoistways as required. Note: All building related work shall be completed during Phase 1 (first 4 cars) of each 8 car elevator group modernization.

Budget Cost for Building Relate Work: $480,610 x 2 machine rooms = $961,220 (FY 2017 dollars)

Total Budget Cost for PE1 – PE16 and Building Related Work: $8,303,780 (FY 2017 dollars)

Service Elevators SE17 – SE18

Rebuild the Hollister-Whitney overhead geared traction machine of SE18, install new Hollister-Whitney overhead geared traction machine and deflector sheave for SE17, provide A/C drive motors, provide new

elevator controllers with VVVF drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new hoistway door tracks, hangers, rollers and safety interlocks, new car door operator (closed loop), new car door panels, ventilation and car door sill, new car top inspection station, new hall and car operating fixtures with LED lamps, new car and counterweight safeties, paint entrance frames, new electronic door edge detector, new cab side wall bumpers and new cab lighting and diamond plate flooring. Retain car and counterweight guide rails, refurbish deflector sheaves and governor cable tension assembly, clean hoistway entrance sills, refurbish hoistway door panels, retain car frame and platform, modify lobby control panel.

Budget Cost per elevator: $579,000 x 2 elevators = $1,158,000 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station,, refurbish fire controls, provide new HVAC unit(s) in elevator machine room, provide new pit, machine room and hoistway lighting and modify general space conditions in machine room. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $110,300 x 2 machine rooms = $220,600 (FY 2017 dollars)

Total Budget Cost for SE17 & SE18 and Building Related Work: $1,378,600 (FY 2017 dollars)

Service Elevator SE19

Refurbish pump unit and valve controls. Provide new drive motor and elevator controller. Replace in-ground hydraulic jack components and related pit equipment. Provide new hoistway wiring and traveling cables, new car guide assemblies, new car door operator and clutch, new car door panels, new cab interior, lighting , ventilation, flooring, new hall and car operating fixtures with LED type lamps.

Budget Cost: $396,480 (FY 2017 dollars)

Building related work will be required as follows: Refurbish main power supply and replace emergency power panel, refurbish fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine room and hoistway as required.

Budget Cost for Building Related Work: $108,700 (FY 2017 dollars)

Total Budget Cost for SE19 and Building Related Work: $505,180 (FY 2017 dollars)

Passenger Elevators PE20 & PE21

Refurbish pump unit and valve controls. Provide new drive motor and elevator controller. Replace in-ground hydraulic jack components and related pit equipment. Provide new hoistway wiring and traveling cables, new car guide assemblies, new car door operator and clutch, new car door panels, new cab interior, lighting , ventilation, flooring, new hall and car operating fixtures with LED type lamps. Modify access to 2nd floor level that has been turned into closet space.

Budget Cost per elevator: $354,240 x 2 elevators = $708,480 (FY 2017 dollars)

Building related work will be required as follows: Refurbish main power supply and replace emergency power panel, refurbish fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $120,400 (FY 2017 dollars)

Total Budget Cost for PE20 & PE21 and Building Related Work: $828,880 (FY 2017 dollars)

Wheelchair Lift WCL22

Remove old chairlift and replace with same design.

Total for WCL22: $35,250 (FY 2017 dollars)

GRAND TOTAL: $11,051,690 (FY 2017 dollars)

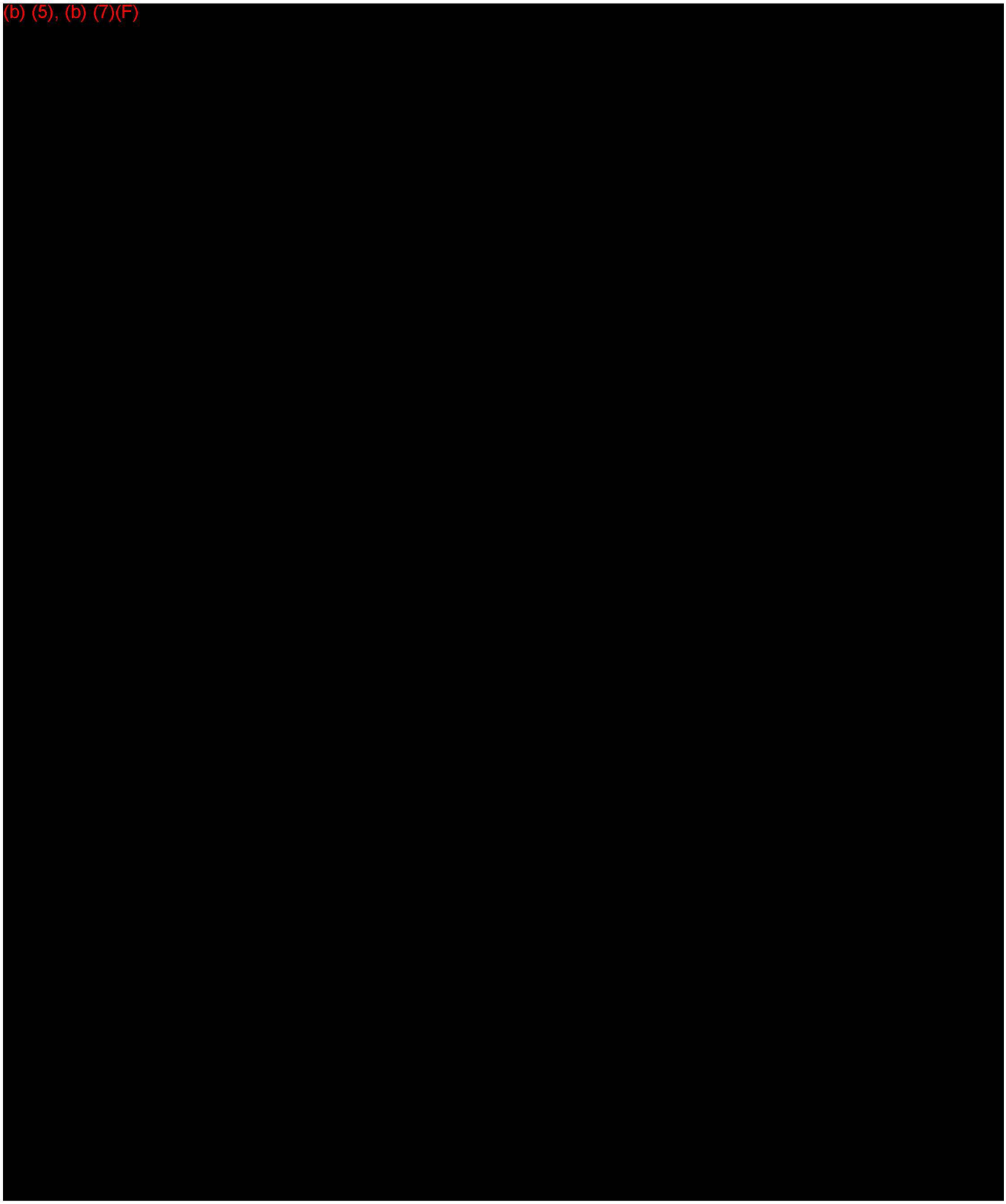
SECTION IV – PHOTOGRAPHS, SCHEDULE & KEY PLAN

See Attachments A, B & C

ATTACHMENT A

PHOTOGRAPHS

(b) (5), (b) (7)(F)



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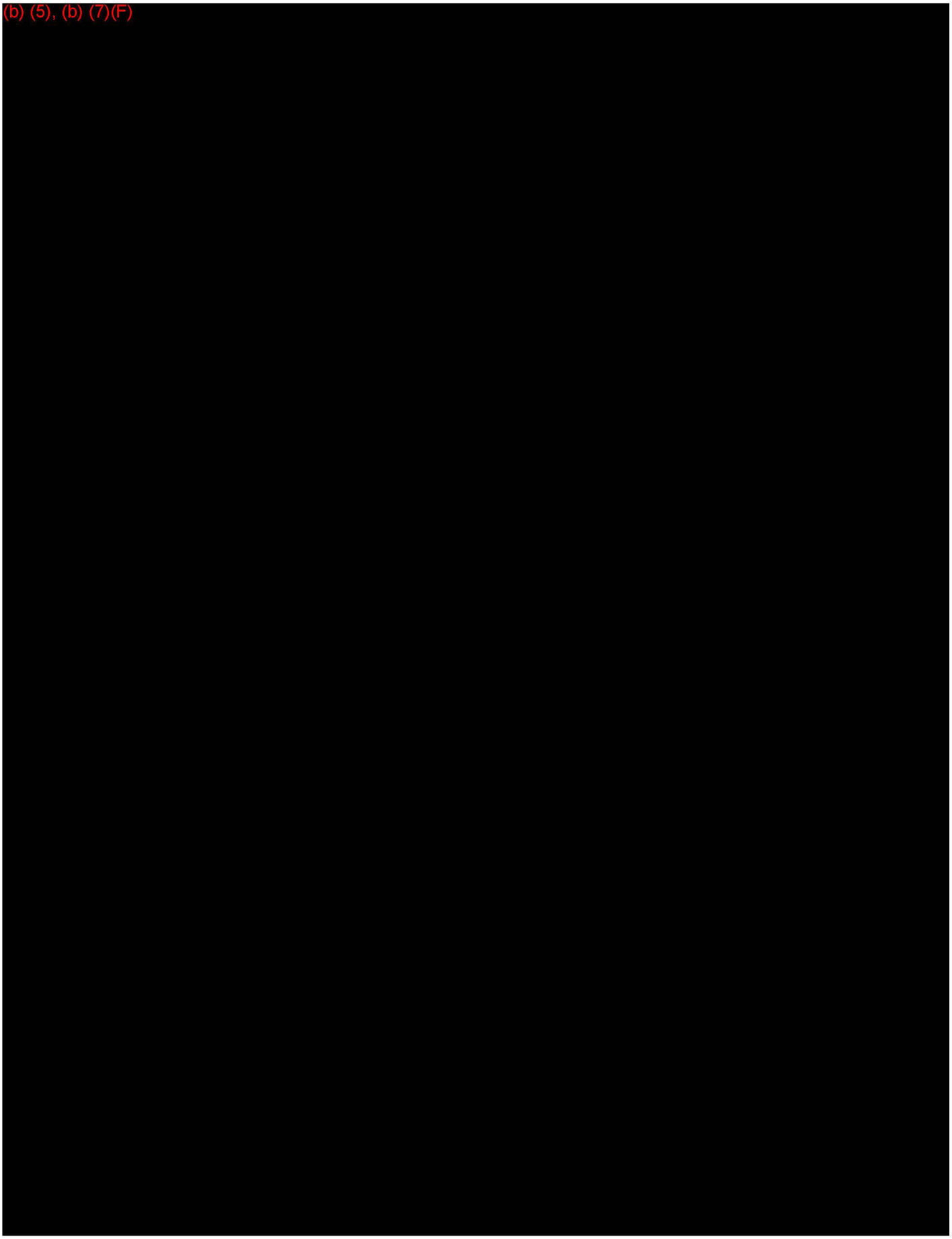

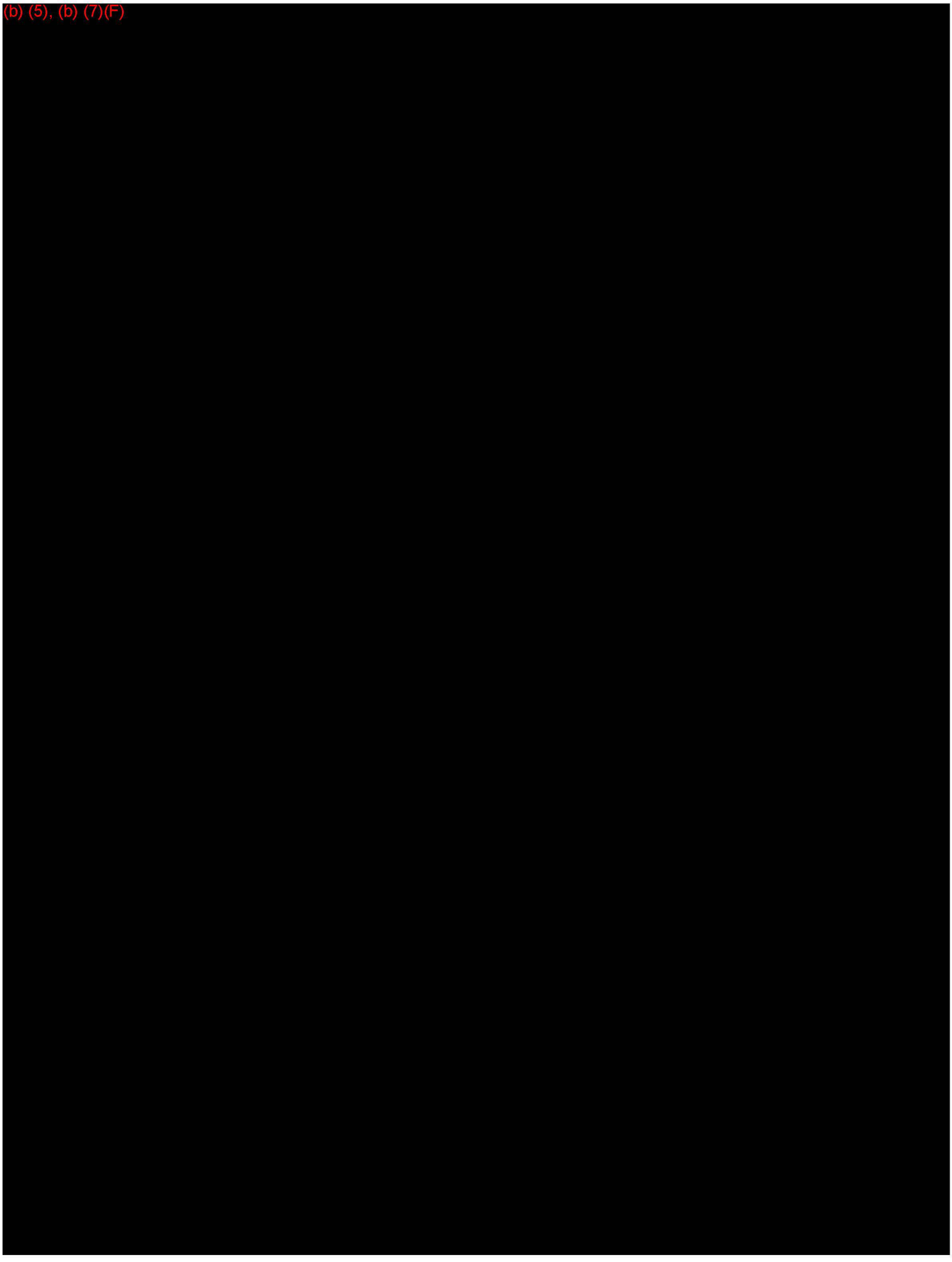
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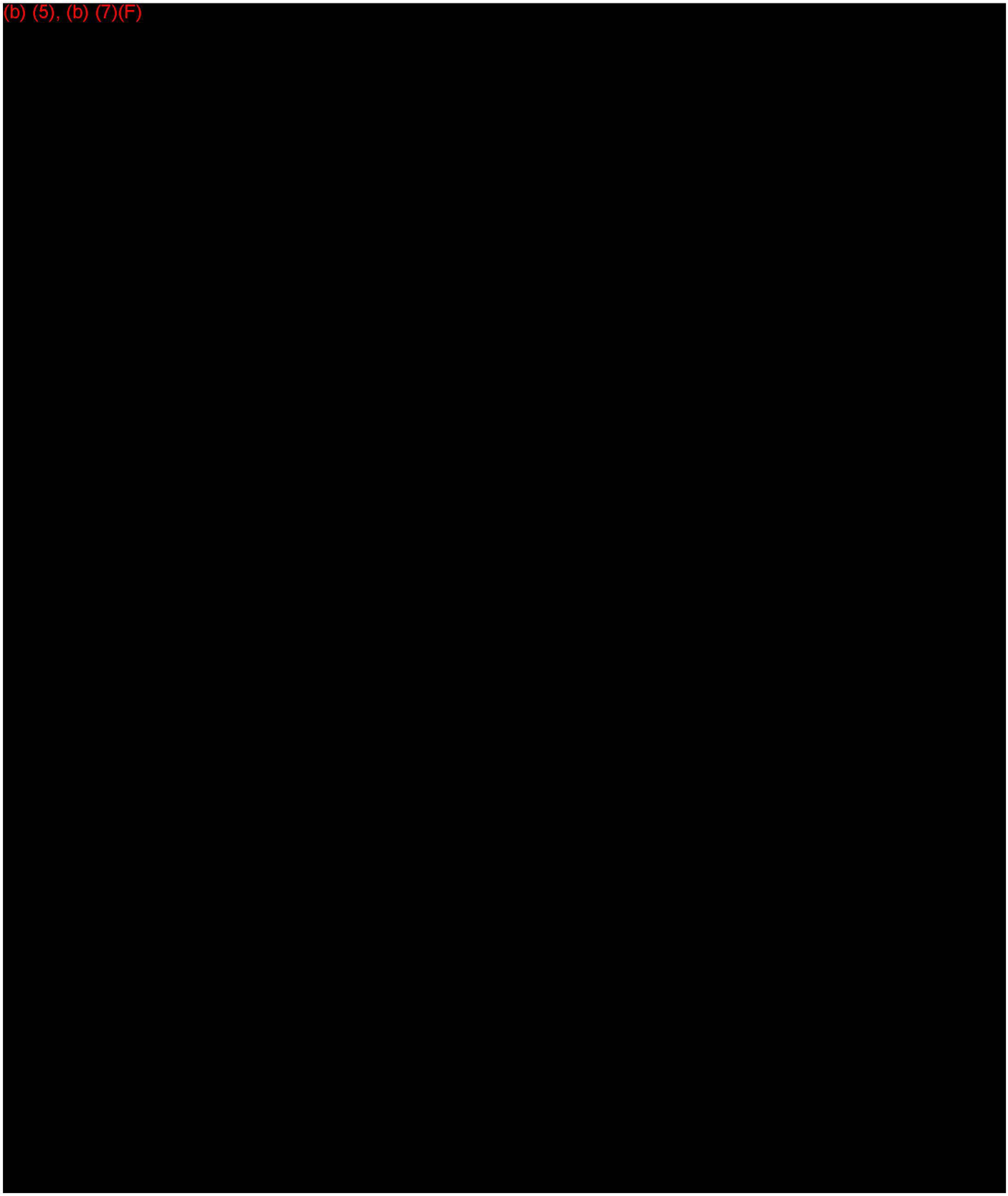
(b) (5), (b) (7)(F)

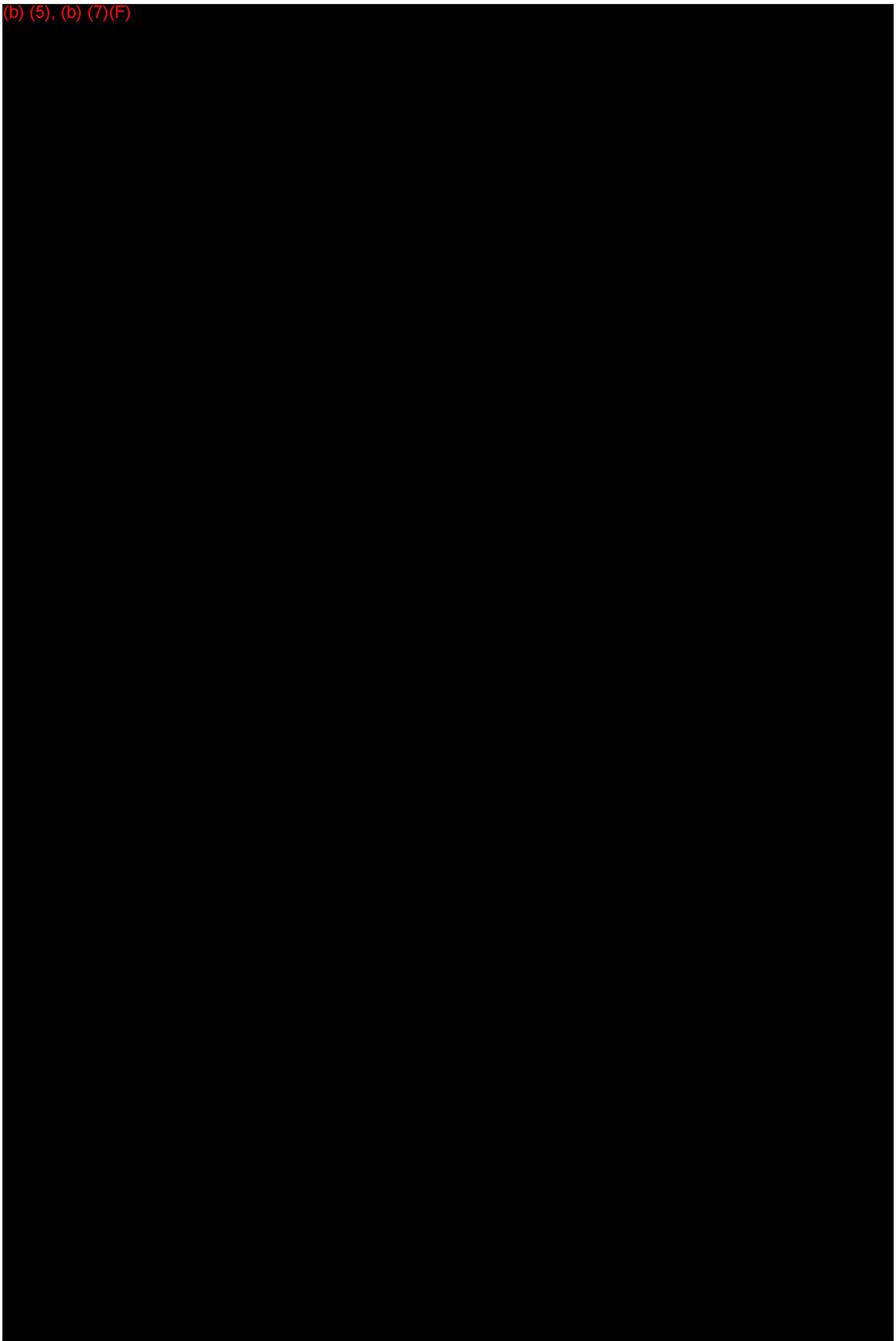


Service Elevators SE17 & SE18 (Cont.)

(b) (5), (b) (7)(F)

[redacted]

Service Elevator SE19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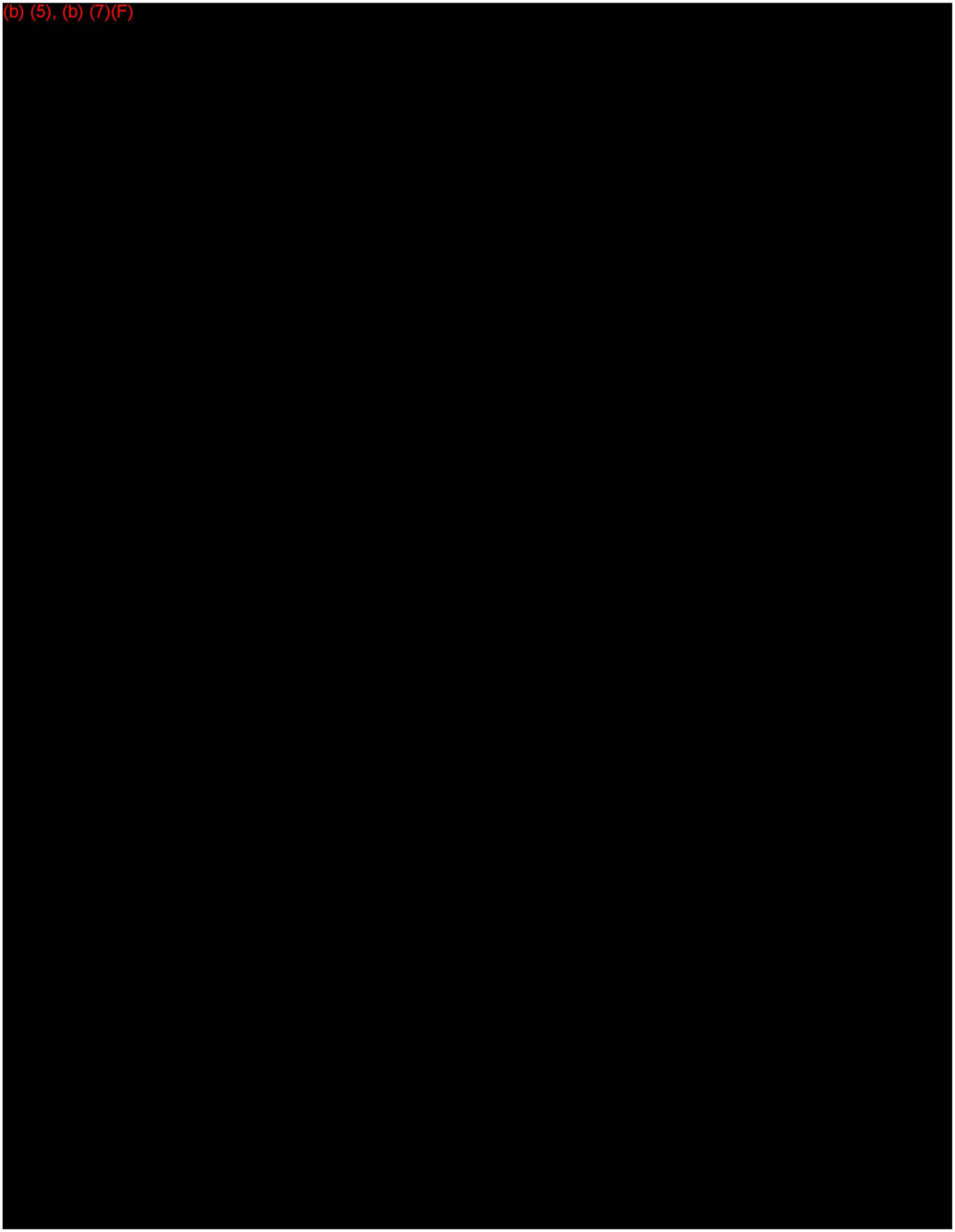

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[redacted]

Weaver (HUD) DC0092ZZ
Elevator Modernization Schedule

	Year 1												Year 2											
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
SE19	■	■	■																					
PE20				■	■	■																		
PE21							■	■	■															
PE13 - PE16										■	■	■	■	■										
PE9 - PE12															■	■	■	■	■					
PE1 - PE4																				■	■	■	■	■

	Year 3												Year 4											
Month	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
PE5 - PE8	■	■	■	■	■																			
SE17						■	■	■	■	■	■													
SE18												■	■	■	■	■	■							
WCL 22*																		■						

* Wheel Chair Lift approximately 1.5 to 2.0 weeks to install.

(b) (5), (b) (7)(F)

Ashland Industrial Services
Training. Inspections. Consulting. Project Management.

1 North Main Street
Shrewsbury, PA 17361
717.347.5616

100% FINAL ELEVATOR STUDY

FOR

ORVILLE WRIGHT
FEDERAL BUILDING DC0083ZZ
800 INDEPENDENCE AVE, SW
WASHINGTON, DC 20401-0001

December 30, 2016

SCOPE OF WORK

Ashland surveyed twenty (20) elevators and six (6) escalators at the referenced property during the week of October 17, 2016. The purpose of the audit and systems analysis is to develop scopes, cost estimates, time schedules, phasing for the interim repair projects and plan for the modernization projects. Ashland also identifies the primary equipment, determines the maintained condition of major components, records operating performance levels and evaluates the vertical transportation based on applicable industry and code standards.

Our report is arranged in sections as follows:

EXECUTIVE SUMMARY

The elevator equipment in the Orville Wright Building (FAA) was originally installed in 1962 by Westinghouse Elevator and was modernized in 1992-1993. The existing Swift 5000 elevator controllers of PE1 – PE16 are **OBSOLETE** by design with spare parts that only consist of rebuilt components. Technical support is limited to electrical prints that are located in each elevator machine room. Scarcity of spare replacement parts could lead to elevator down time for weeks if not months. The freight elevators, PE17 & FE18 also were modernized in 1992-93 with the same Swift 5000 elevator controllers and are **OBSOLETE,** as well. The hydraulic freight elevator FE19 & FE20 were modernized in 1993 with MCE controls which are no longer supported by the manufacturer and are **OBSOLETE**, as well. All freight elevators have Currion freight door equipment which is no longer made and the relay door controls are **OBSOLETE** by design. The building is also served by six (6) Westinghouse Modular B type escalators that are original as installed in 1962. These units are **OBSOLETE** by design and should be replaced as part of the elevator modernization project. FE19 & FE20 should be removed from service immediately due to the **OBSOLETE** hydraulic jack assemblies (single bottom construction) and replacement of these assemblies should be performed.

The Orville Wright Building is located at 800 Independence Ave, SW, Washington, DC, 20401. It is a government owned building. It is currently occupied entirely by the Federal Aviation Administration (FAA). General Services Administration (GSA) is responsible for the operations and maintenance of the building. The building has an area of 1,114,225 Gross SF, 847,391 Rentable SF and 637,240 Usable SF. The building has twelve (12) levels. These are B and A (parking levels) and floors 1 through 10. The building was built in 1962 and was designated as one of the modern era historic buildings.

Ashland Industrial Services performed a comprehensive survey of the elevator equipment at the referenced property during the week of October 17, 2016. The office building's vertical transportation is provided by two (2) passenger groups of eight (8) overhead gearless traction passenger elevators (PE1 – PE8 & PE9 – PE16). One passenger group is located on the West side of the building and the other passenger group is located on the East side of the building. The passenger elevators serve ten (10) front openings (1-10), have a capacity of 3,500 pounds and operate at 400 feet per minute with 2:1 roping. There are two (2), 6,000 pound capacity service/freight elevators (FE17 & FE18) located on the East side of the building that serve ten (10) landings (FE18) and twelve (12) landings (FE17), respectively, with FE17 serving the parking garage levels "A" & "B". The building is also served by two (2), 5,000 pound capacity, two (2) stop direct lift hydraulic service/freight elevator (FE19 & FE20) that serve the first and second floors of the building and are located on the West side of the building. The building is also served by six (6) Westinghouse Modular B type escalators with 24 inch wide steps and are original to the building (1962). A pair of escalators serves parking levels "B" to "A", "A" to "1" and one office level "1" to "2".

Realizing that preventive maintenance is an ongoing process, Ashland's survey represents a snap shot on a specific day and time. Overall, the equipment is in good condition with evidence of preventive maintenance being performed on a regular basis. The machine room spaces are clean and the areas are

organized. The deficiencies found can be addressed during regular preventive maintenance component replacement procedures such as replacing worn car door gibs and replacement of the incandescent bulbs utilized in the operating fixtures.

Of particular concern is that Ashland found outdated paperwork in each elevator machine room that illustrates that the annual no-load safety tests, as required by ASME A17.1 Code, have not been completed since July 2014 for all traction elevators and December 2014 for FE19. FE20 requires a new test tag since the control valve was replaced and the unit was tested in July 2016. These tests should be scheduled and completed as soon as possible. Record keeping of maintenance procedures and fireman's service monthly testing is not current or in some cases completely missing. The escalator testing paperwork could not be located so confirmation of when and what type of tests were performed on the escalators could not be determined. The car door restrictor devices on the some of the passenger elevators need to be repaired for proper operation, as well, and represent a safety concern.

The elevator control equipment for all elevators in the Orville Building are obsolete by design, with parts availability of the Swift-5000 control system an inherent problem and the MCE system no longer being supported by the manufacturer. MCE is still in business and is a very successful third party, non-proprietary elevator control manufacturer based in California. Computerized Elevator Controls (CEC), manufacturer of the Swift Controls, was purchased by ThyssenKrupp Elevator (TKE) more than ten (10) years ago and there is no technical support for the product provided by TKE. CEC was closed not long after TKE's purchase.

Ashland recommends that all elevator controls be budgeted for replacement within the next 1-2 years due to lack of spare parts and availability of technical support. Elevator control upgrades would also include the installation of "rope grippers" to prevent unintended movement in the "up" direction. This is a safety feature that the current elevator controllers and machines do not have and newly installed equipment would meet the latest ASME A17.1 Code requirements. Since the elevator controls were modernized back in 1992-1993, the building related work required by Code when an elevator controller is replaced with new, should be minimal. The freight elevator power operated, bi-parting door controls should also be replaced on FE17, FE18, FE19 & FE20, along with worn door operating components including door motors, chains, door panels, etc.

The passenger elevators Westinghouse gearless traction machines of PE1 – PE16 are operating as designed and are original to the building making them 54+ years old. Ashland recommends completing an electrical evaluation of each DC hoist motor and making repairs where necessary to return each machine to like new condition.

Any elevator hydraulic jack assembly that has been installed prior to 1972 was constructed utilizing a single bottom bulk head design. As a result of the installation date of 1962, the hydraulic freight elevators FE19 & FE20 will require a complete hydraulic jack replacement. Ashland recommends that the elevators be immediately removed from service and the hydraulic jacks be replaced. The new jack will be encased in a PVC liner or another means to protect from moisture and electrolysis, per ASME A17.1

Code requirements. Even though the hydraulic elevators travel relatively "short" distances, removal and replacement of the in-ground components can be very expensive. There are a lot of variables that cannot be determined until after the removal is completed and the existing well hole conditions can be evaluated for acceptance of the new, in-ground equipment. Potential risk is always a factor relating to water infiltration and or collapse of the well hole. If these unknown conditions can be corrected we advise an additional risk cost estimate of 35% added to elevator budget costs. In the case of FE19 & FE20, since most of the hydraulic jack components are exposed due to having walk in pits, the well hole cleaning and installation of the new components should be less complicated than if the jacks were buried in the ground.

Cab interior and car fixture upgrades were performed on passenger elevators PE1 – PE16 when the elevator controls were changed twenty-four (24) years ago. The fixtures utilize incandescent bulb technology. Ashland recommends that the operating fixtures be replaced and upgraded to LED type bulbs. This work, accompanied with cab interior upgrades, should be coordinated with the elevator control upgrades that have been recommended for completion within the next 1-2 years.

All pit ladders will require replacement in order to provide a "grab bar" at proper height; most do not have a grab bar at all. Pit lighting appears to be adequate and all pits were "dry" with little to no evidence of water/moisture intrusion. GFCI electrical outlets also need to be provided in each pit, as well. Cat walks will be required to inspect the pit buffers of each passenger elevator.

The sixteen (16) passenger elevators (PE1 – PE16) underwent complete cab interior upgrades approximately twenty four (24) years ago with applied panels with black reveals and brushed bronze accents. The cabs are heavily worn with chipping along the panel edges evident in most of the cabs. The freight elevator cabs of FE17, FE18, FE19 & FE20 are a typical freight cab design with steel walls and two rows of oak bumpers on the side and rear walls of each cab. The flooring is diamond plate which is showing wear from normal use. Ventilation of all cabs (Passenger & Freight) is achieved by a standard cab fan mounted on top of each elevator cab shell and appears to be adequate.

Each hydraulic elevator machine room location of FE19 & FE20 is on the "A" level of the underground parking garage with walk-in pit access.

SECTION I - EQUIPMENT EVALUATION

VERTICAL TRANSPORTATION SYSTEMS PROFILE

Building:
ORVILLE WRIGHT
(FAA)

				(CAFÉ)	
	PE1 - PE8	**PE9 - PE16**	**FE17 & FE18**	**FE19 & FE20**	**ESC1 – ESC6**
Capacity	3,500	3,500	6,000	5,000	300 lb./step
Loading (Passenger/Service/Freight)	Passenger	Passenger	Service	Service	Commercial
Rated Speed (feet per minute)	400	400	250	50	90
Roping	2 to 1	2 to 1	1 to 1	N/A	N/A
Floors Served	10	10	10	2	1 to A (Esc 1& Esc 2)
	12 (PE8)	12 (PE16)	12 (FE17)		A to B (Esc 3 & Esc 4
Floor Identification	1 - 10	1 - 10	1-10	1 - 2	1 to 2 (Esc 5 & Esc 6
	B.A. 1-10 (PE8)	B.A. 1-10 (PE16)	B.A. 1-10 (FE17)		
Machine Type:	OH Gearless	OH Gearless	OH Geared	Dry Pump	Chain Drive
Control Type:	Swift 5000	Swift 5000	MCE	MCE	Westinghouse
Sequence of Operation	8 car group	8 car group	Simplex	Simplex	Up or Down
Door Configuration	SSCO	SSCO	Power Bi-parting Freight	Power Bi-parting Freight	N/A
Car Door Operator	GAL MOD	GAL MOD	Curion	Curion	N/A
Operating/Signal Fixtures	Incandescent	Incandescent	Incandescent	Incandescent	Incandescent
Door Entrance Size	42" w X 84" h	42" w X 84" h	96" w X 96" h	96" w X 96" h	24" step width
Car & Cwt Buffers	Oil	Oil	Oil	Spring	N/A
Car & Cwt Safeties	Westinghouse	Westinghouse	Westinghouse	N/A	N/A
Overspeed Governor	Hollister Whitney	Hollister Whitney	Hollister Whitney	N/A	N/A
Power Supply	208V 3 PH	208V 3 PH	208V 3 PH	208V 3 PH	208V 3 PH
O.E. M.	Westinghouse	Westinghouse	Westinghouse	Westinghouse	Westinghouse
Date of Installation	1962	1962	1962	1962	1962
Modernization Contractor	Quality Elev	Quality Elev	Quality Elev	Quality Elev	N/A
Date of Modernization	1992	1992	1992	1992	N/A
Present Service Company	Century	Century	Century	Century	Century
3 or 5 Year Full Load Test	Feb 2012	Feb 2012	Feb 2012	No records	No Records
Annual Safety Inspections				No Records (FE19) July 2016 (FE20)	N/A

LIFE CYCLE ANALYSIS – TRACTION SYSTEMS

Elevator I.D.: PE1 – PE8, PE9 – PE16 Date: 10/18/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	54	0	Good	Test & Rebuild
2. Drive Motor(s)	50-75	54	0	Good	Test & Rebuild
3. Power Drives	30-50	24	6	**OBSOLETE**	Replace during mod
4. Signal Controls (Selectors)	20-25	24	0	**OBSOLETE**	Replace during mod
5. Motion Controls	20-25	24	0	**OBSOLETE**	Replace during mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	24	0	Good	Replace during mod
2. Guide Rails	75+	54	21+	Good	Clean, Align, Tighten
3. Mechanical Safety Equipment & Counterweight	75+	54	21+	**OBSOLETE**	REPLACE DURING MOD
4. Hoistway Door Equipment	25-30	24	1	Fair	Replace during mod
CAR EQUIPMENT					
1. Car Door Equipment	20-25	24	0	Fair	Replace under mod
2. Cab Enclosure	20-30	24	0	Good	Replace during mod
3. Car Frame	75+	54	21+	Good	No Action Required
4. Car Safety	75+	54	21+	**OBSOLETE**	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	24	0	**OBSOLETE**	Replace during mod

LIFE CYCLE ANALYSIS - TRACTION SYSTEMS

Elevator I.D.: FE17 & FE18 Date: 10/18/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM					
1. Hoisting Machinery, Sheaves & Bearing	50-75	24	26	Good	Test & Rebuild
2. Drive Motor(s)	50-75	24	26	Good	Replace with AC motor under mod
3. Power Drives	30-50	24	4	**OBSOLETE**	Replace during mod
4. Signal Controls (Selectors)	20-25	24	0	**OBSOLETE**	Replace during mod
5. Motion Controls	20-25	24	0	**OBSOLETE**	Replace during mod
HOISTWAY AND PIT					
1. Wire Ropes (Hoist, Comp. & Governor)	20-25	24	0	Good	Replace under mod
2. Guide Rails	75+	54	21+	Good	Clean, Align, Tighten
3. Mechanical Safety Equipment & Counterweight	75+	54	21+	**OBSOLETE**	Replace during mod
4. Hoistway Door Equipment	25-30	24	1	Fair	Replace during mod
CAR EQUIPMENT					
1. Car Door Equipment	20-25	24	0	Fair	Replace under mod
2. Cab Enclosure	20-30	24	0	Good	Replace during mod
3. Car Frame	75+	54	21+	Good	No Action Required
4. Car Safety	75+	54	21+	**OBSOLETE**	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Fixtures	20-25	24	0	**OBSOLETE**	Replace during mod

LIFE CYCLE ANALYSIS – HYDRAULIC SYSTEM

Elevator I.D.: FE19 & FE20 Date: 10/18/16

Component/System	Projected Design Life (Years)	Present Age (Years)	Remaining Useful Life (Years)	Condition Comments	Recommended Action
MACHINE ROOM EQUIPMENT					
1. Tank and Pumping Unit	30 – 40	54	0	POOR	Replace during mod
2. External Piping	40 – 50	24	16	FAIR	Replace during mod
3. Signal Controls (Selectors)	20 - 25	24	0	**OBSOLETE**	Replace during mod
4. Manifold Control Valves	25 - 30	24	1	**OBSOLETE**	Replace during mod
HOISTWAY/PIT EQUIPMENT					
1. Guide Rails	75+	54	21+	Good	Clean, Align & Tighten
2. Cylinder –RAM	30 - 40	54	0	**OBSOLETE**	Single bottom jacks require replacement per Code
3. Hoistway Door Equipment	25 - 30	24	1	Fair	Replace during mod
4. Recovery System	20 - 25	N/A	N/A	N/A	5 Gallon run off bucket
CAR EQUIPMENT					
1. Car Frame	75+	54	21+	Good	No Action Required
2. Car Door Equipment	25 - 30	24	1	Fair	Replace during mod
3. Cab Enclosure	20 - 30	24	1	Fair	Replace during mod
OPERATING/SIGNAL EQUIPMENT					
1. Operating/Signal Fixtures	20 - 25	24	0	**OBSOLETE**	Replace during mod

CODES AND STANDARDS REVIEW – ELEVATORS ONLY

All elevators in the Orville Wright Building were upgraded in the early 1990's. The present components are a mixture of old (machine, motor, car, counterweight, pit equipment, fixtures) and new (controller, SCR drives and fixture components). The systems do not meet the latest code regulations in the following areas:

- Record Keeping - Data Tags / Testing Requirements
- Hydraulic Jack Assembly - Pre 1972 require replacement (PE19 & PE20)

Note: Annual safety inspections are overdue for all elevators in the building. Record keeping is not up to date.

Annual Safety Inspections (Cat 1) All test are performed at inspection speed with no load inside the elevator. Manually activate the safeties, governor, emergency final limits, over speed switch, door locks, gate switches, car door restrictors, stop switches and buffer switches. Activate Fireman's Service Phase I & II. Test emergency lighting / alarm / communications. Test the door protection devices and closing force. Unintended movement device is also verified.

3 year test (Cat 3 for hydraulic elevators): This type of testing only is required if the unit has a pressure vessel (hydraulic valve) as a means of propulsion. The pressure vessel must be charged at maximum pressure for 15 mins without changes to pressure. A visual inspection inside of the vessel is also performed.

5 year full-load (Cat 5): Same scope of work as the Cat 1 no load test. In addition, while elevator is operating at contract speed. Conduct a full load (elevator capacity) safety drop test, 125% capacity elevator brake test and a full load buffer test. Manually test the governor activation speeds and governor pull through.

What the 5 year test involves and what is expected at the end of the test? The elevator is loaded to maximum designed capacity and with the elevator traveling in the down direction; the speed governor is activated to put the elevator on emergency stop. The distance of slide on the main elevator rails is then measured for tolerance as well as the level of the elevator itself after the emergency brakes (safety) are applied and the car has come to a complete stop. After this is completed, the elevator is further tested in the down direction (under full load, contract speed) and strikes the elevator pit buffer. The elevator then is lifted, and the buffers (oil type) must return to original position within 90 secs. Additional weight is added (25% of capacity) to the cab. The elevator is tested again in the down direction and must stop within normal leveling tolerances between the car and hoistway entrance sills. All tests have specific tolerances set by ANSI A17.1 in relation to the elevator design; type, speed and capacity.

THE AMERICANS WITH DISABILITIES ACT (ADAAG)
SURVEY OF EXISTING ELEVATOR SYSTEMS

ELEVATOR(S) IDENTIFICATION: PE1 – PE8 & PE9 – PE16 **DATE:** October 12, 2016

Note: FE17, FE18, FE19 & FE20 are freight elevators with power operated bi-parting freight doors that are for freight and freight handlers only and as a result do not have to meet these requirements.

S = SATISFACTORY, U = UNSATISFACTORY, R = READILY ACHIEVABLE, NA = NOT APPLICABLE

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.1	General	A. Elevators shall comply with ASME/ANSI A17.1-1990, Safety Code for Elevators and Escalators.	X		Per 1992-1993 modernization.	
		B. Freight elevators shall not be considered as meeting the requirements of this section unless the only elevators provided are used as combination passenger and freight elevators for the public and employees.				
4.10.2	Automatic Operations	A. Elevator operation shall be automatic.	X			
		B. Each car shall have a self-leveling feature that will automatically bring the car to floor landing within a tolerance of ½" under rated loading and zero loading conditions.	X			
		C. This self-leveling feature shall be automatic and independent of the operating device and shall correct for undertravel and overtravel.	X			
4.10.3	Hall Call Buttons	A. Shall be centered at 42" above floor.	X			
		B. Shall have visual signals to indicate when call is registered and answered.	X			
		C. Minimum size 3/4" in the smallest dimension.	X			
		D. "UP" button shall be above "DOWN" button.	X			
		E. Buttons shall be raised or flush.	X			
		F. Objects mounted beneath buttons shall not project more than 4" from the wall.			N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.4	Hall Lanterns	A. A visible and audible signal shall be provided at each hoistway entrance to indicate which car is answering a call.	X			
		B. Audible signals shall sound once for "up", twice for "down", or shall have verbal annunciators that say "up" or "down".	X		Audible signals work sporadically	X
		C. Visible signals shall have the following features:				
		1. Fixtures shall be mounted with centerlines at least 72" above the lobby floor.	X			
		2. Visual elements shall be at least 2 ½" in the smallest dimension.	X			
		3. Signals shall be visible from the vicinity of the hall call button.	X			
		D. In-car lanterns, conforming to the above requirements, shall be acceptable.			N/A	
4.10.5 4.30.4	Characters On Hoistway Entrances	A. All elevator hoistway entrances shall have raised and Braille floor designations provided on both jambs.	X			
		B. Characters shall be centered 60" above finish floor.	X			
		C. Characters shall be 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille.	X			
4.10.6 4.16(3)(i)	Door Protective and Reopening Device	A. Elevator doors shall open and close automatically.	X			
		B. Door shall have a reopening device that will stop and reopen a car door if an object or person obstructs the door.				
		1. The device shall be capable of completing these operations without requiring contact for an obstruction passing through the opening at heights of 5" and 29" above finish floor.	X			
		2. Door reopening device shall remain effective for at least 20 seconds. After such interval, doors may close in accordance with ASME/ANSI A17.1-1990.Rule 112.4 and Rule 112.5 closing force provisions.	X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.7	Door and Signal Timing for Hall Calls	A. The minimum acceptable time from notification that a car is answering a call until doors begin to close shall be calculated as follows: • T = D/(1.5 ft/s) or T=D/(445 mm/s) • T = time in seconds • D = distance (in ft or mm) from point 60" directly in front of farthest call button to centerline of hoistway door. • The minimum acceptable notification time shall be 5 seconds.	X			
4.10.8	Door Delay for Car Calls	A. The minimum time for elevator doors to remain fully open in response to a call shall be 3 seconds.	X			
4.10.9 4.16(3)(ii)	Floor Plan of Elevator Cars	Shall provide for wheelchair users to enter the car, maneuver within reach of controls and exit the car. A. Door shall provide 36" clear minimum. B. Cab Depth: 51" minimum, with 54" minimum from rear of cab to inside face of door. C. Cab Width: side opening door - 68" minimum; Center opening door - 80" minimum. D. Clearance between car platform sill and edge of hoistway landing shall be 1 1/4" maximum. E. Alterations/Existing Condition: Where existing plan configuration or technical infeasibility prevent use of specified cab sizes, dimensions may be reduced as required. However, in no case shall the inside car dimensions be less than 48" by 48". F. Equivalent facilitation may be provided with a cab of different size when usability can be demonstrated and when all other items required to be accessible comply with this section.	X X X X		N/A N/A	

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.10	Floor Surfaces	A. Shall be firm, stable and slip-resistant B. If carpet is used, it shall have the following features: 1. Shall be securely attached; 2. A firm cushion pad or backing (or none); 3. A level loop, textured loop, level cut pile or level cut/uncut pile texture; 4. Maximum pile thickness: ½" 5. Exposed edges fastened to floor surfaces with carpet edge trim.	X		N/A	
4.10.11	Illumination Levels	A. Illumination level at controls, platform and threshold and landing shall be minimum 5 footcandles.	X			
4.10.12 (1)	Car Controls: Buttons	A. Size 3/4" minimum in least dimension. B. Buttons shall be raised or flush.	X X			
4.10.12 (2)	Car Controls: Control Indicators	C. All control buttons shall be designated by Braille and by raised standard alphabet characters for letters, Arabic symbols for numerals, or standard symbols are required in ASME/ANSI 17.1-1990. D. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. E. All raised designations shall be immediately left of the button to which they apply. F. Floor buttons shall be provided with visual signals which light when each call is registered and extinguish when each call is answered.	X X X X			
4.10.12 (3)	Car Controls: Height	G. All floor buttons shall be maximum 54" above floor where side approach is provided, 48" maximum where forward approach is required. H. Emergency controls (including alarm and stop) shall be grouped at bottom of panel, with centerlines 35" minimum above floor.	X X			

A.D.A.AG SEC.	ITEM	TECHNICAL REQUIREMENTS	S	U	EXISTING CONDITION/ NOTES	R
4.10.12 (4)	Car Controls: Location	I. Controls shall be located on a front wall if cars have center opening doors and at either a side wall or the front wall if cars have side opening doors.	X			
4.10.13	Car Position Indicators	A. A visual car position indicator shall be provided above the car control panel or above the door. B. As the car passes or stops at a floor, the corresponding numbers shall illuminate and an audible signal shall sound. C. Numerals shall be a minimum of ½" high. D. Audible signal shall be no less than 20 decibels with frequency no higher than 1500 Hz. E. An automatic verbal announcement of the floor number may be substituted for the audible signal.	X X X X		N/A	
4.10.14	Emergency Communic-ations	Emergency two-way communication system between the elevator and a point outside the hoistway shall comply with ASME/ANSI A17.1-1990 A. Highest operable part of system shall be maximum 48" from floor. B. System shall be identified by raised symbol and lettering located adjacent to the device. C. Characters shall be 5/8" to 2" high, raised 1/32", upper case, sans serif or simple serif type, and shall be accompanied by Grade 2 Braille. D. If system uses a handset, minimum cord length shall be 29". E. If located in a closed compartment, door shall be operable with one hand, shall not require tight grasping, pinching, or twisting of the wrist, and shall require a maximum force of 5 lbf. F. The emergency communication system shall not require voice communication. (Voice only system is inaccessible to persons with speech or hearing impairments.)	X X X X X X			

SECTION II - MAINTAINED CONDITION EVALUATION

ITEMIZED MAINTENANCE DEFICIENCIES

Machine Room: PE1 – PE8

1. Record keeping is not up to date. Provide maintenance and fireman's service testing records per Code.
2. Annual safety inspections are overdue, last performed July 2014.
3. Address access to secondary sheaves and over-speed governors in secondary area.
4. Provide auxiliary disconnects for each elevator where line of site is restricted from existing switch to machine, locate new switch in proximity of each machine/controller.
5. Remove peeling paint from machine room walls and test for lead content.
6. Remove old bolt attachments in machine room floor, represent a tripping hazard.

Machine Room: PE9 – PE16, FE17 & FE18

1. Record keeping is not up to date. Provide maintenance and fireman's service testing records per Code.
2. Annual safety inspections are overdue, last performed July 2014.
3. Address access to secondary sheaves and over-speed governors in secondary area.
4. Provide auxiliary disconnects for each elevator where line of site is restricted from existing switch to machine, locate new switch in proximity of each machine/controller.
5. Repair water intrusion from roof area drain in machine room ceiling.

Hydraulic Elevators: FE19 & FE20

1. Remove oil dry material from machine room floor and repair leak. (FE19)
2. Replace single bottom hydraulic jack assembly, installed pre 1972.
3. Annual safety inspections are overdue, last performed in December 2014 (FE19).
4. PE20 control valve was replaced 3 months ago and needs to have inspection/testing tag updated to reflect that the test was completed in July 2016.

General Observations:

1. Adjust door open limit (DOL) switch to obtain full open position of hoistway and car doors when car is at each landing.
2. Adjust floor annunciator inside elevator cab of PE12, very loud.
3. PE2 was out of service during our visit, waiting for replacement parts. Obtain parts as soon as possible to return unit to service.
4. Replace incandescent bulbs, as needed.
5. Clean car and hoistway sills of dirt & debris.
6. Replace car door gibs, as needed.
7. Replace pit buffer equipment due to water exposure (FE18).
8. Cab interior applied panels of passenger elevators are heavily worn due to normal use and should be replaced during next modernization cycle.
9. Repair hall station position indicators, missing segments and blurry numbers (FE17)

10. Investigate and repair end bell bearing noises emanating from gearless machine during normal operation.
11. Correct elevator emergency phone static (FE19)
12. Repair several emergency lights in main car operation panels (PE9, PE10 & PE11)
13. Replace missing solid card gate bumpers on bottom blade of gate (FE18)
14. Walk-in pit door does lock (FE18)
15. Repair hoistway lighting (PE5, PE6 & PE7)
16. Monitor hoist ropes for loss of diameter due to evidence of rouge and schedule for replacement (PE10)

MAINTENANCE CONTRACT REVIEW

Current Contract Provisions:

THESE DOCUMENTS HAVE NOT BEEN PROVIDED TO ASHLAND INDUSTRIAL SERVICES

Recommendations:

RECORDED OPERATING PERFORMANCE

WEST LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. PE1	ELEV. NO. PE2	ELEV. NO. PE3	ELEV. NO. PE4	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	399	N/O	389	395	380 – 420
B. SPEED – DOWN DIRECTION (FPM)	400	N/O	386	397	380 – 420
C. DOOR OPENING TIME (SEC)	**1.9***	N/O	1.7	**2.1***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	**3.4***	N/O	**4.9***	**3.2***	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	**1.9***	N/O	**1.8***	**1.8***	3.0 Minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	5.9	N/O	6.1	5.8	5.0 Minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**2.3***	N/O	**2.1***	**2.1***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	10.9	N/O	12.3	11.2	11.5 – 12.5
I. START (milli g) Up/Down	42/63	N/O	52/53	92/90	
J. ACCEL (milli g) Up/Down	62/64	N/O	61/62	91/90	
K. DECEL (milli g) Up/Down	71/80	N/O	63/60	105/103	
L. STOP (milli g) Up/Down	32/31	N/O	30/22	41/42	
M. JERK (milli g) Up/Down	5.0/6.9	N/O	4.6/5.7	7.2/7.1	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	N/O	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	25	N/O	20	22	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

WEST LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. PE5	ELEV. NO. PE6	ELEV. NO. PE7	ELEV. NO. PE8	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	394	401	390	393	380 – 420
B. SPEED – DOWN DIRECTION (FPM)	393	403	393	393	380 – 420
C. DOOR OPENING TIME (SEC)	**1.9***	**2.7***	1.5	1.6	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	3.1	3.0	**3.3***	2.8	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	**1.7***	**1.5***	**1.7***	2.1	3.0 Minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	6.0	6.2	6.7	7.0	5.0 Minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**1.5***	**1.6***	**2.1***	**2.1***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	**13.2***	10.5	11.1	11.2	11.5 – 12.5
I. START (milli g) Up/Down	22/31	60/63	61/55	55/105	
J. ACCEL (milli g) Up/Down	72/72	70/71	87/92	62/104	
K. DECEL (milli g) Up/Down	80/83	73/92	83/91	82/82	
L. STOP (milli g) Up/Down	31/32	32/42	42/42	41/43	
M. JERK (milli g) Up/Down	5.5/7.5	7.9/4.7	5.9/9.7	5.8/13.7	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	20	20	24	23	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

EAST LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. PE9	ELEV. NO. PE10	ELEV. NO. PE11	ELEV. NO. PE12	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	392	391	381	391	380 – 420
B. SPEED – DOWN DIRECTION (FPM)	392	390	396	391	380 – 420
C. DOOR OPENING TIME (SEC)	**2.5***	1.7	1.7	**2.0***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	**3.5***	2.4	2.7	2.6	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	**2.0***	**2.0***	**1.9***	**1.8***	3.0 Minimum
F. DOOR OPEN DURATION - HALL CALL (SEC)	8.9	9.0	9.2	8.7	5.0 Minimum
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**3.0***	**2.5***	**2.9***	**2.6***	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	12.6	10.9	10.9	**13.5***	11.5 – 12.5
I. START (milli g) Up/Down	101/96	70/66	50/44	51/49	
J. ACCEL (milli g) Up/Down	82/87	60/64	57/57	66/66	
K. DECEL (milli g) Up/Down	68/69	57/56	62/62	81/77	
L. STOP (milli g) Up/Down	30/30	26/26	27/27	27/28	
M. JERK (milli g) Up/Down	6.9/15.5	4.2/10.3	3.6/5.0	5.4/6.1	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	22	24	**30+***	26	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

RECORDED OPERATING PERFORMANCE

EAST LOBBY

SINGLE SPEED CENTER OPENING DOORS (42" wide)	ELEV. NO. PE13	ELEV. NO. PE14	ELEV. NO. PE15	ELEV. NO. PE16	ACCEPTABLE STANDARDS FOR THIS EQUIPMENT
A. SPEED - UP DIRECTION (FPM)	402	399	403	400	380 – 420
B. SPEED – DOWN DIRECTION (FPM)	404	399	402	395	380 – 420
C. DOOR OPENING TIME (SEC)	**1.8***	1.7	**2.2***	**2.3***	1.4 – 1.6
D. DOOR CLOSING TIME (SEC)	2.9	2.6	2.8	2.8	2.8 – 3.0
E. DOOR OPEN DURATION - CAR CALL (SEC)	**1.9***	**2.0***	**2.8***	**3.1***	3.0 to 5.0
F. DOOR OPEN DURATION - HALL CALL (SEC)	8.2	8.5	8.0	5.0	5.0 to 8.0
G. DOOR OPEN DURATION - AFTER PROTECTIVE SHIELD IS RE-ESTABLISHED (SEC)	**2.5***	**2.7***	**2.6***	.6	.5 to 1.0
H. FLOOR TO FLOOR PERFORMANCE TIME (SEC)	10.7	9.8	10.8	10.4	11.5 – 12.5
I. START (milli g) Up/Down	61/71	58/83	80/66	80/73	
J. ACCEL (milli g) Up/Down	67/72	77/88	56/66	68/74	
K. DECEL (milli g) Up/Down	76/77	98/104	53/52	78/79	
L. STOP (milli g) Up/Down	32/30	38/42	23/22	33/31	
M. JERK (milli g) Up/Down	4.9/7.9	6.5/9.1	6.8/8.7	5.8/8.5	15.0 max
N. STOPPING ACCURACY (INCHES)	1/4	1/4	1/4	1/4	± ½
O. CAR DOOR CLOSING PRESSURE (LBS)	24	24	23	26	30 Maximum

* DENOTES UNACCEPTABLE CONDITION BASED ON STANDARDS SPECIFIED.

N/E - denotes "No Evaluation" of referenced standard performed.

N/A - denotes standard is "Not Applicable" to these systems.

N/O - denotes "Not Operative" at time of evaluation.

DEFINITIONS AND MEASUREMENTS

OF ITEMS LISTED IN

RECORDED OPERATING PERFORMANCE

A&B. **Speed** is the rate at which the measured unit travels. The speed has been measured during a complete run of the unit and was taken as the highest sustained value recorded using a hand held tachometer.

C. **Door Opening Time** is defined as the start of car doors opening until they are fully opened. The time was measured in seconds from the moment the car doors start to open until the car doors are fully open (i.e., motion stops).

D. **Door Closing Time** is defined as the start of the car doors closing until fully closed. The time was measured in seconds from the moment the car doors start to close until the car doors are fully closed (i.e., motion stops).

E. **Door Open Duration for a Car Call** is defined as the length of time the car doors remain fully open in response to a car call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car door.

F. **Door Open Duration for a Hall Call** is defined as the length of time the car doors remain fully open in response to a lobby call without anyone passing through the protective shield. This time was measured in seconds from the stop in the open motion of the car doors until the start of the closing motion of the car doors.

G. **Door Open Duration After Protective Shield is Re-Established** is defined as the length of time the car doors remain open after an object has passed through the protective shield until the car doors begin to close. This time was measured in seconds from the stop in the motion of the car doors until the re-start of the closing motion of the car doors.

H. **Floor to Floor Performance Time** is defined as the time required for the movement of a car between two (2) floors, including the door closing and effective door opening for passenger transfer. The time was measured in seconds from the start of door closing at one floor until the car was stopped (within stopping accuracy) at the next floor with the doors opened for passenger transfer.

I. **Start Up/Down (milli g)** is measured at the beginning of car motion.

J. **Accel Up/Down (milli g)** is the measure of acceleration immediately after the Start measure.

K. **Decel Up/Down (milli g)** is the measure of transition from high speed to leveling speed or stop.

L. **Stop Up/Down (milli g)** is measure of the stopping rate to the floor level.

M. **Jerk Up/Down (milli g)** is a term used to describe a change in acceleration. In mathematical terms one jerk is equal to a change in acceleration of one foot per second per second, in one second of time. One jerk equals a rate change of .03108 g's in one second. Optimal jerk rate is 15.0 or less.

N. **Stopping Accuracy** is the distance between the car and hoistway sills when the car is stopped at a floor and was measured as the vertical distance (in inches) between the horizontal planes of the car and hoistway sills when the car is stopped at a floor.

O. **Car Door Closing Pressure** is the amount of force required to hold a door from closing after stalling the door, by external means, at about 1/3 of the closing distance. The door pressure was measured in pounds and was recorded upon removal of the physical block.

SECTION III – SCOPE, BUDGET COSTS & PRIORITIES

Design Intent

As part of Ashland's recommendations for upgrades, modernization and/or refurbishment of the elevator equipment, the elevator equipment rooms/spaces have been evaluated, including components such as lighting, HVAC, fire protection, emergency power interface, enclosures, etc. The scope of work for each grouping of elevators requires that the elevator systems and areas comply with GSA Standards / Guidelines / Alerts and all current Codes. The design will bring the elevators up to the latest editions of ASME A17.1 Safety Code for Elevators and Escalators, A17.3 Safety Code for Existing Elevators and Escalators, A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, ANPA 70 National Electric Code and NFPA 101 life safety codes. Adding remote monitoring capabilities is also recommended. Remote monitoring is recommended to be placed in the Facilities Management Office and not the elevator machine room, elevator shop or any off site locations.

Passenger Elevators PE1 – PE16

Rebuild the Westinghouse overhead gearless traction machines, modify deflector sheaves, provide new elevator controllers with SCR drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, new hoistway door tracks, hangers, rollers and safety interlocks, new car door operator (closed loop), new car door panels and ventilation, new car top inspection station, new hall and car operating fixtures with LED lamps, new car and counterweight safeties, paint entrance frames, new electronic door edge detector, new cab interior applied panels, lighting and flooring. Retain car and counterweight guide rails, refurbish compensation sheaves and governor cable tension assembly, clean hoistway entrance sills and car sill, refurbish hoistway door panels, retain car frame and platform, modify lobby control panel.

Budget Cost per elevator: $465,090 x 16 elevators = $7,441,440 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station,, refurbish machine room and secondary area lighting, install access doors and catwalk for secondary areas, provide new HVAC unit(s) in elevator machine rooms, provide new pit and hoistway lighting and modify pit access. Paint machine rooms and hoistways as required. Repair roof drains and test/abate machine room areas as needed.
Note: All building related work shall be completed during Phase 1 (first 4 cars) of each 8 car elevator group modernization.

Budget Cost per Building Related Work: $487,890 x 2 machine rooms = $975,780 (FY 2017 dollars)

Total Budget Cost for PE1 – PE16 and Building Related Work: $8,417,220 (FY 2017 dollars)

Freight Elevators FE17 – FE18

Rebuild the Hollister-Whitney overhead geared traction machines, provide A/C drive motors, provide new elevator controllers with VVVF drives, install "rope gripper" for unintended movement, provide new hoist and governor ropes, new hoistway wiring and traveling cables, new car and counterweight roller guides, modify entrance frames, new hoistway door panel operating equipment, modify existing door panels, modify door tracks and provide new safety interlocks, new car gate motor and related equipment, new car gates, new car ventilation, new car top inspection station, new hall and car operating fixtures with LED lamps, new car safeties, paint entrance frames, new electronic gate edge detector, new cab enclosure with side wall bumpers and new cab lighting and diamond plate flooring. Provide new pit buffers and related equipment, new compensation chains (whisper flex), new governor tail sheave assembly. Retain car and counterweight guide rails, refurbish deflector sheaves and governor cable tension assembly, clean hoistway entrance sills, refurbish hoistway door panels, retain car frame and platform, provide new lobby control panel and auxiliary panels.

Budget Cost per elevator: $755,310 x 2 elevators = $1,510,620 (FY 2017 dollars)

Building related work will be required as follows: Replace main power supply and distribution panel in its entirety, replace all circuit control devices with new components, make all elevator control connections to emergency power transfer switch and lobby control station, refurbish fire controls, provide new HVAC unit(s) in elevator machine room, provide new pit, machine room and hoistway lighting and modify general space conditions in machine room. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $218,000 (FY 2017 dollars)

Total Budget Cost for FE17 & FE18 and Building Related Work: $1,728,620 (FY 2017 dollars)

Freight Elevator FE19 & FE20

Provide new pump unit and valve controls. Provide new drive motor and elevator controller. Replace in-ground hydraulic jack components and related pit equipment. Provide new hoistway wiring and traveling cables, new car guide assemblies, modify entrance frames, new hoistway door panel operating equipment, modify existing door panels, modify door tracks and provide new safety interlocks, new car gate motor and related equipment, new car gates, new car ventilation, new car top inspection station, new cab enclosure, lighting, ventilation, flooring, new hall and car operating fixtures with LED type lamps.

Budget Cost: $446,640 x 2 elevators = $893,280 (FY 2017 dollars)

Building related work will be required as follows: Refurbish main power supply and replace emergency power panel, refurbish fire controls, provide new HVAC unit in elevator machine room, provide new pit, machine room and hoistway lighting and modify machine room access. Paint machine rooms and hoistways as required.

Budget Cost for Building Related Work: $145,042 x 2 machine rooms = $290,084 (FY 2017 dollars)

Total Budget Cost for FE19 & FE20 and Building Related Work: $1,183,364 (FY 2017 dollars)

Escalators ESC 1 – ESC 6

Remove Westinghouse escalators and replace with same design within existing steel truss.
Budget Cost per escalator: $388,050 x 6 escalators = $2,328,300 (FY 2017 dollars)
Building related work is inclusive of the budget cost per escalator.

Total for ESC 1 – ESC 6: $2,328,300 (FY 2017 dollars)

GRAND TOTAL: $13,657,504 (FY 2017 dollars)

SECTION IV – PHOTOGRAPHS, SCHEDULE & KEY PLAN

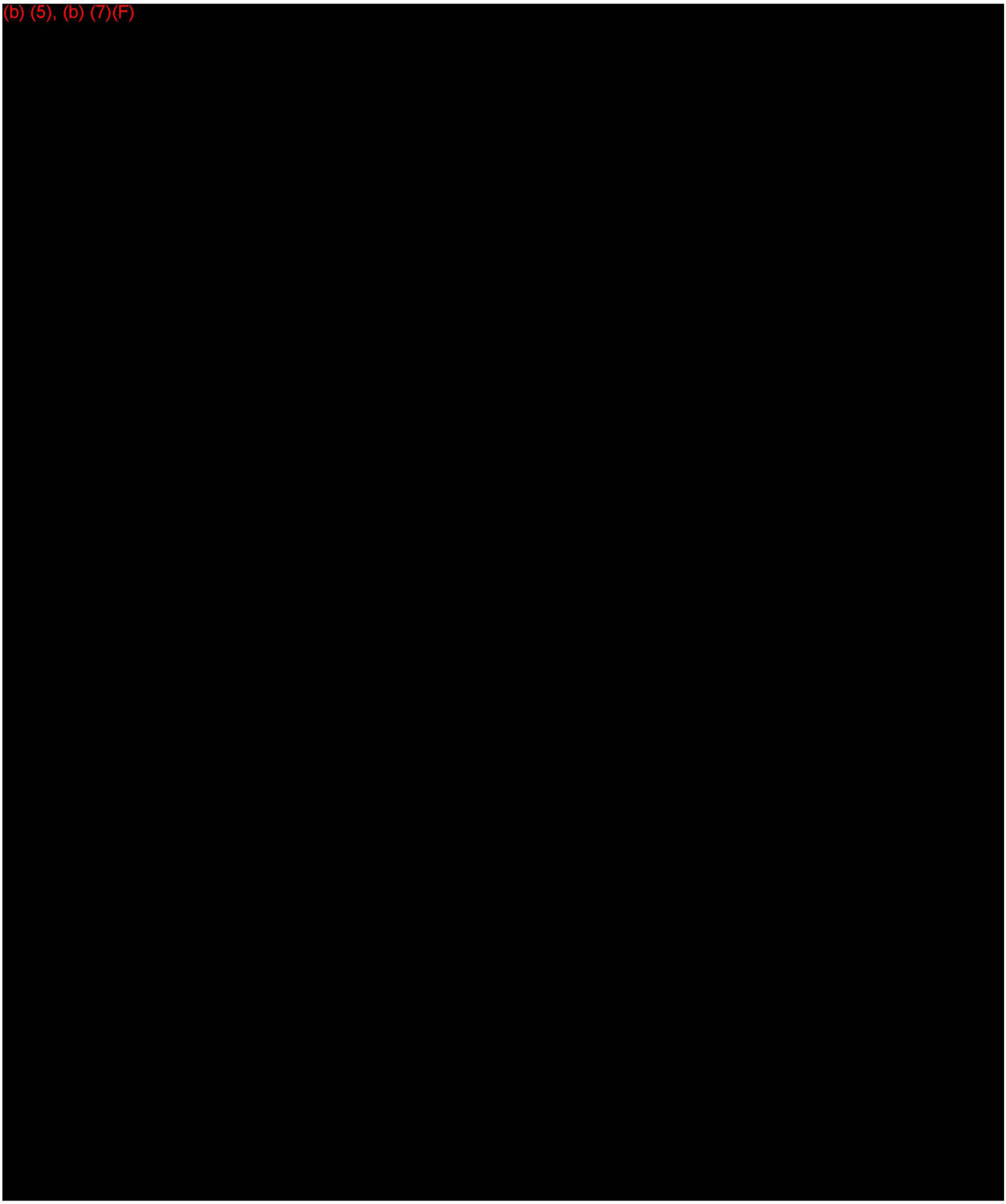
See Attachments A, B & C

ATTACHMENT A

(b) (5), (b) (7)(F)

[redacted]

(b) (5), (b) (7)(F)



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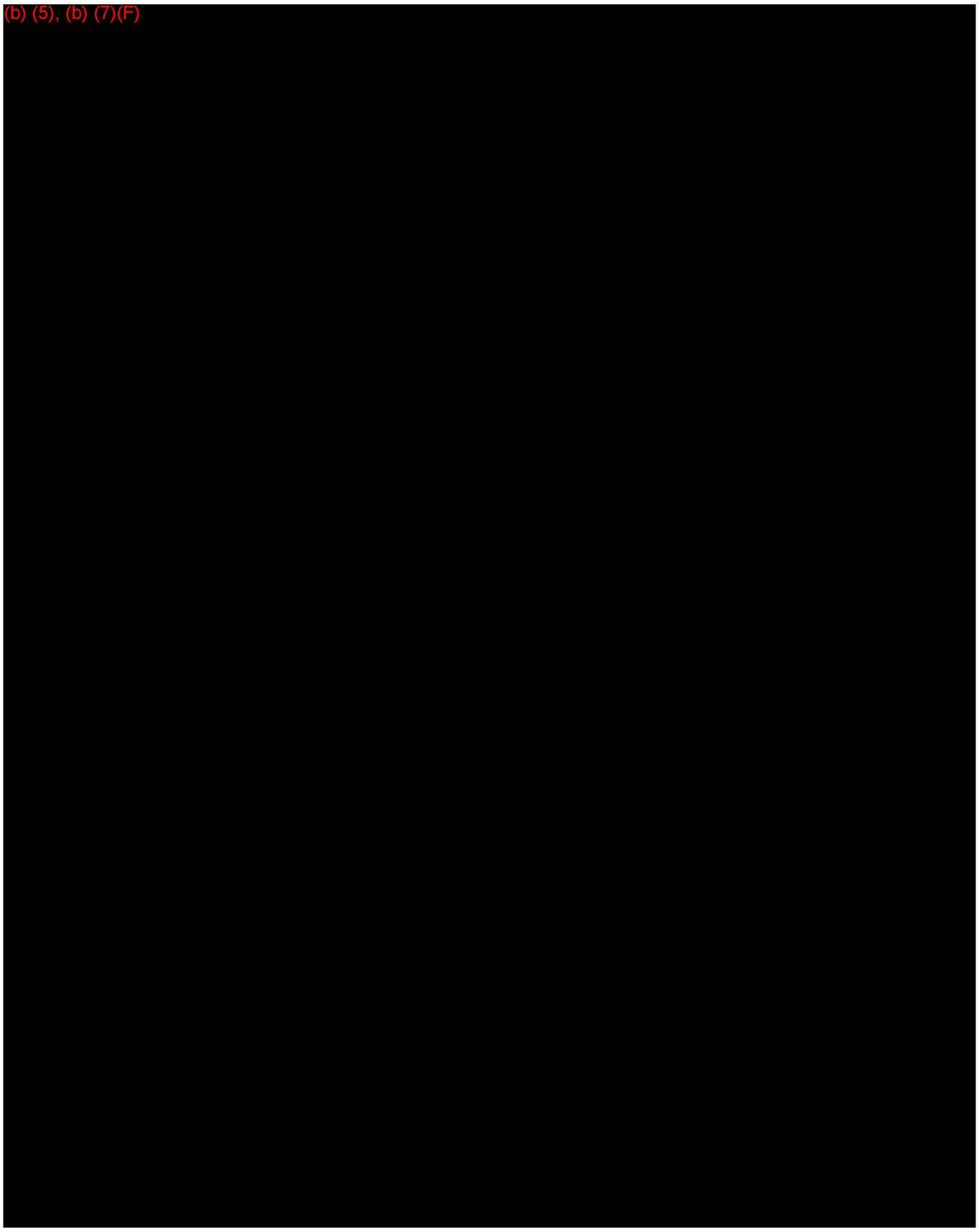

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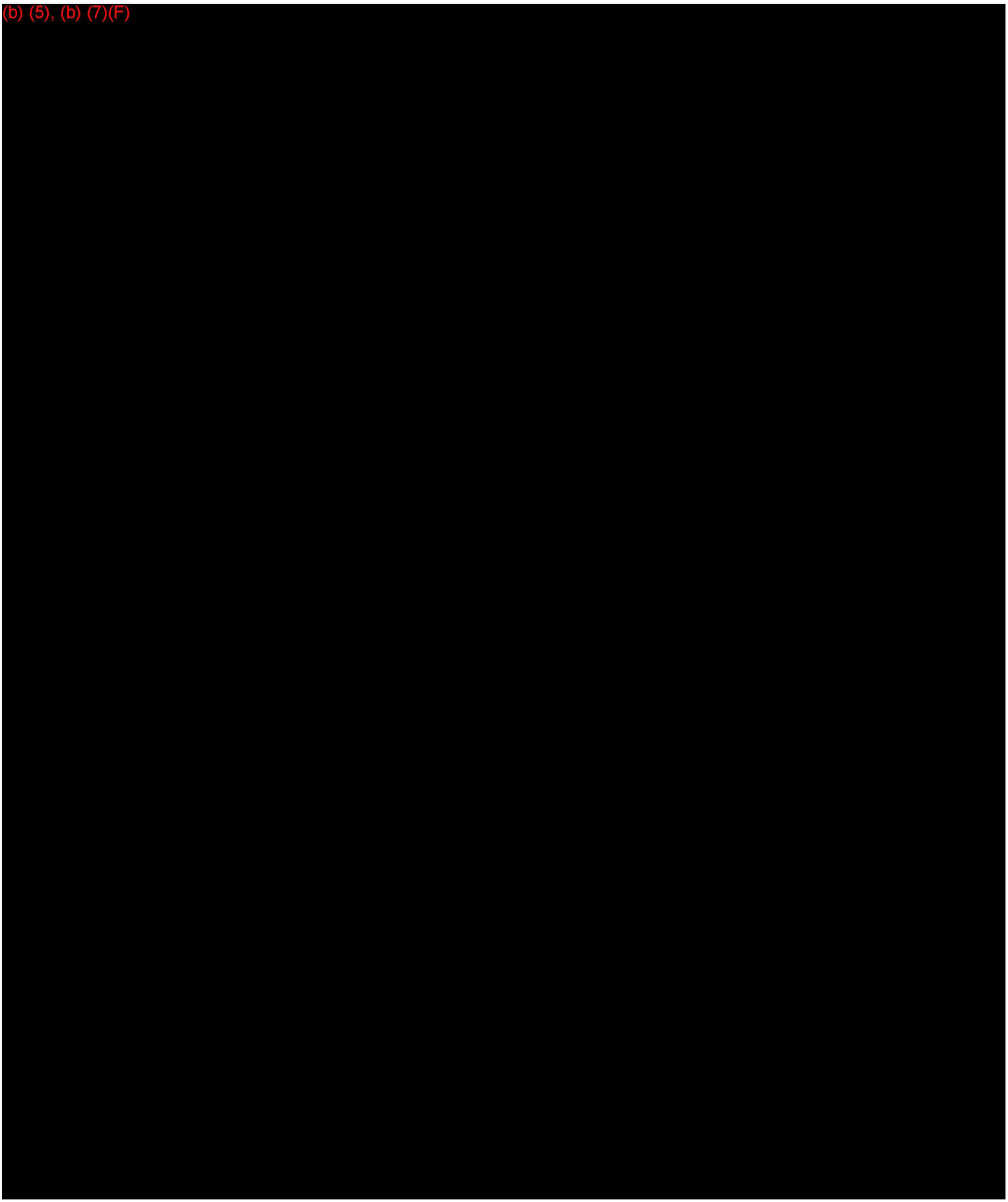

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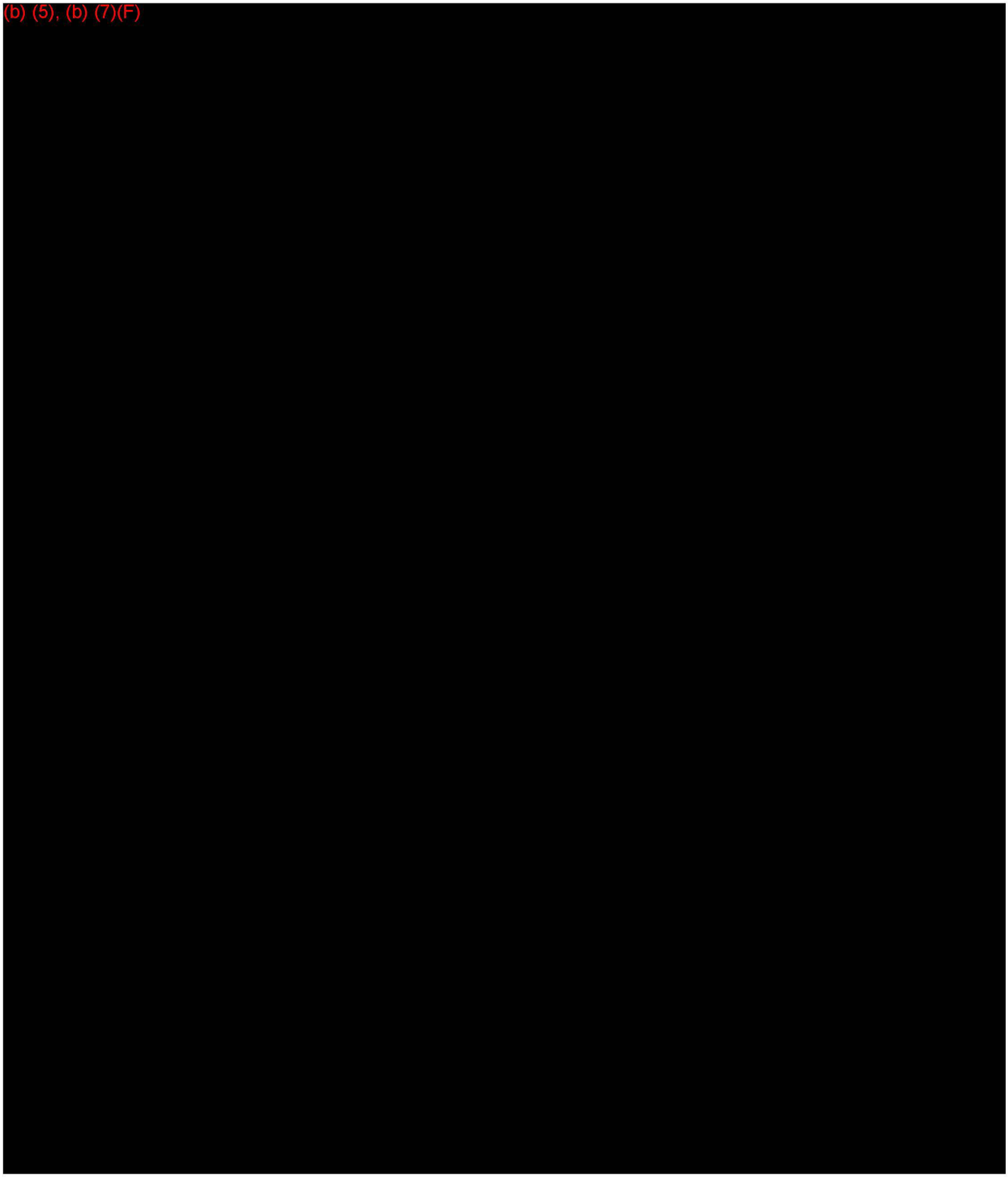

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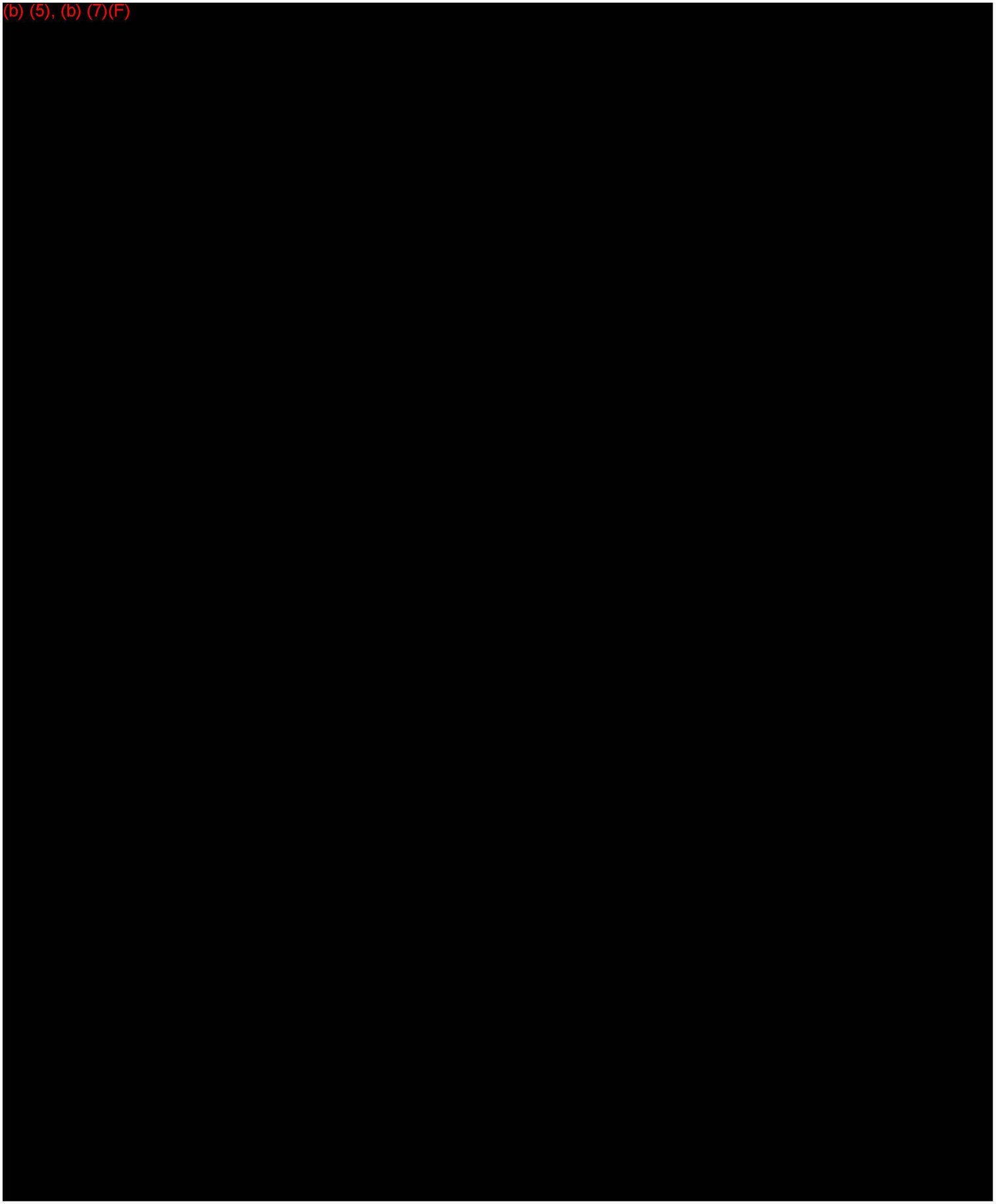

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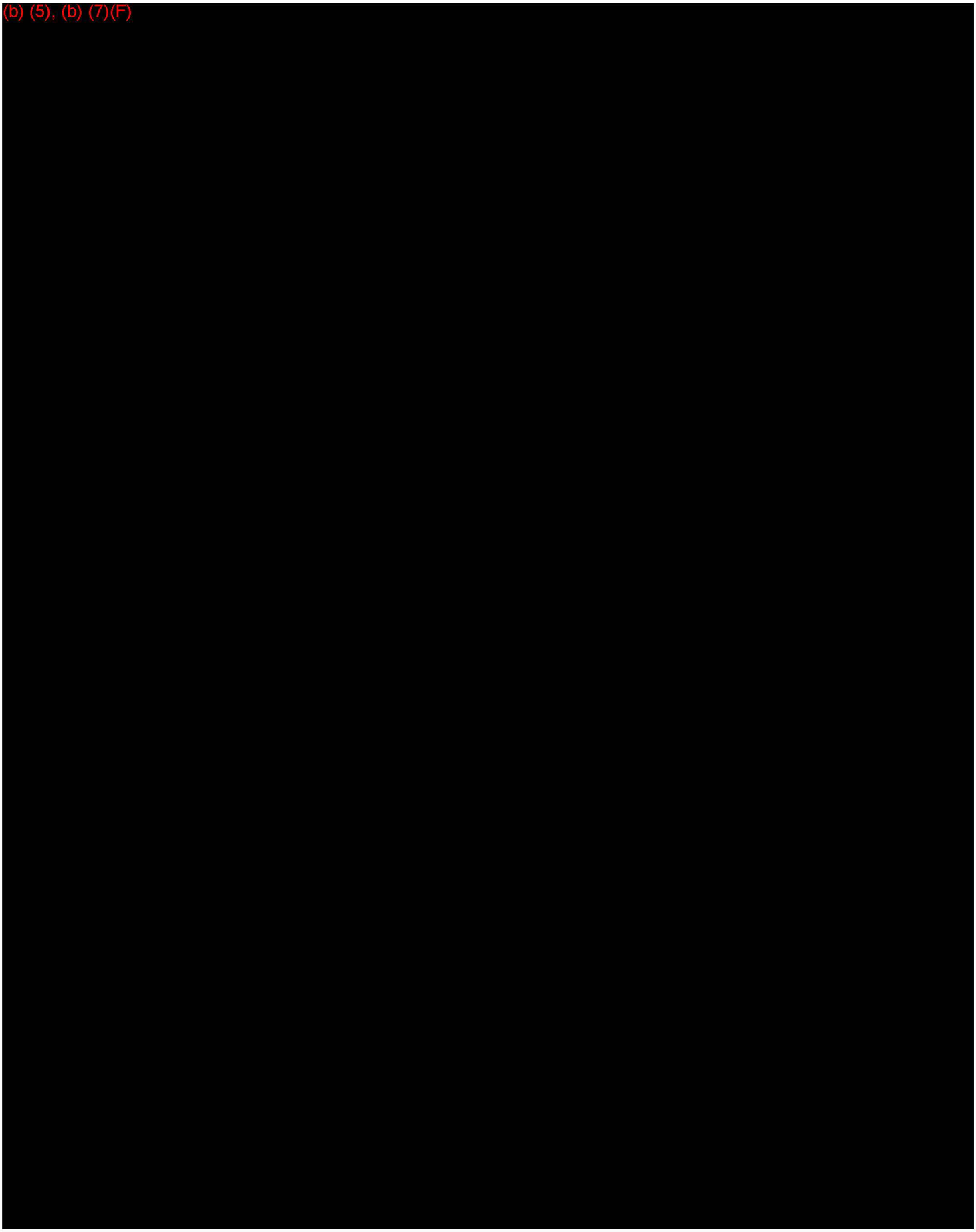

(b) (5), (b) (7)(F)

Orville Wright (FAA) DC0083ZZ
Elevator Modernization Schedule

	Year 1												Year 2											
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FE19	■	■																						
FE20			■	■																				
PE1 - PE4					■	■	■	■	■															
PE5 - PE8										■	■	■	■	■										
PE9 - PE12															■	■	■	■	■					
PE13 - PE16																				■	■	■	■	■
Esc 1 & 2	■	■	■	■																				
Esc 3 & 4					■	■	■	■																
Esc 5 & 6									■	■	■	■												

	Year 3											
Month	25	26	27	28	29	30	31	32	33	34	35	36
FE17	■	■	■	■	■	■						
FE18							■	■	■	■	■	■

(b) (5), (b) (7)(F)

TOTAL FAA OFFICE SPACE 17,244 SF
TOTAL FAA ASSIGNED SPACE 11,088 SF
TOTAL FAA SPECIAL SPACE 6,105 SF

TO C STREET

N

DRAWN	
REVIEWED	
RECVD	
APPRVD	
REVISION:	
UPDATED	08/01/2008
BY	Vanesha Frazier
PROJECT	MASTER
FILE	1-FLOOR.DWG

FEDERAL AVIATION ADMINISTRATION

DEPARTMENT OF TRANSPORTATION
800 INDEPENDENCE AVE., SW
WASHINGTON, DC 20590

1ST FLOOR

CONTRACT	1024-01	DWG	P:\PROJECTS\MASTER\1-FLOOR.DWG
SCALE	1/16" 1	SHEET	1 OF 1
		DATE	Aug. 01, 2008