RFP No. **1169193 / Noyes Library** for Young Children Rehabilitation and Renovation

Solicitation Amendment #1, **Attachment A** (Q&A)

Item No. 1 **QUESTION:** Do the 13 Responses to Questions in Addendum #1 from the prior bid in 2022 still apply to this rebid?

RESPONSE: RFP 1169193 is a new stand-alone RFP with no reference to the former RFP.

Item No. 2 **QUESTION:** Will the Pre-submission Meeting attendance be published?

RESPONSE: A list of the Pre-submission meeting attendees is included with this addendum.

Item No. 3 **QUESTION:** Will the General Contractor be responsible for contracting the Materials Testing and Inspections component of the Contract?

RESPONSE: The County is responsible for regulatory materials testing and inspections. The General Contractor is responsible to ensure that all work meets the regulatory and County's material testing and inspection requirements and specifications.

Item No. 4 **QUESTION:** The Bid Form that was provided in Excel seems to be for the Design Team, not for the General Contract bid. It includes 6 tabs of information including Design Fees, Construction Costs, Alt Adds & Deducts, Unit Prices, and a tab for Total Fees which includes Design and Construction costs. Please provide a specific Bid Form for this General Contract Bid.

RESPONSE: The Excel spreadsheet is designed for multiple uses. Refer to below Item No. 2, II. CLARIFICATIONS/SCOPE ADDENDUM.

Item No. 5 **QUESTION:** Who will be responsible for removal and storage of all of the books, furniture, etcetera inside of Noyes Library while the construction is ongoing, and their replacement in the library after completion of the construction?

RESPONSE: County will be responsible for removal and storage of all the books, furniture, etcetera at off-site location.

Item No. 6 **QUESTION:** Would you please postpone the bid date by at least two weeks?

RESPONSE: **New due-date for proposals is July 23, 2024 at 3:00PM.**

Item No. 7 **QUESTION:** Will the county be hiring its own geotechnical engineering contractor for this project, or is the geotechnical engineer supposed to be hired by the prime contractor?

RESPONSE: County will be responsible for geotechnical testing and inspection.

Item No. 8 **QUESTION:** Will the key card reader furnishing, and installation be quoted directly to the County by the security system contractor, or will the general contractor be responsible for hiring the security system contractor as a subcontractor

RESPONSE: County will be responsible for key card reader furnishing and installation.

Item No. 9 **QUESTION:** Can you please confirm if a bid bond is required for this bid proposal? If so, please confirm the percentage.

RESPONSE: Bid bond is not required.

Item No. 10 **QUESTION:** On "Attachment A: References" it reads, "All letter of references must include the following information: ..." Please clarify what is meant by the word "letter." Are you asking for letters of recommendation written by our references, or are you simply asking for a document that lists each of the client references' contact information?

RESPONSE: A letter means any letter or letters of recommendation written by contractor's references.

Item No. 11 **QUESTION:** Instead of filling out "Attachment F: Construction Contractor Similar Project Information Form" directly on the PDF, would it be acceptable to instead provide this information on a separate attached sheet due to the limited space available to input answers on the provided form?

RESPONSE: Contractor must fill out Attachment F provided in RFP. If additional space is required, the contractor can add a page.

Item No. 12 **QUESTION:** Security plans prepared by EAI Security Systems are included in the bid set of drawings. Please confirm that security will be contracted by the

owner and that these drawings are included for coordination purposes only. If security is to be contracted by the GC, please provide applicable spec sections and confirm if EAI Security Systems is the required vendor or if the GC may solicit pricing from additional vendors.

RESPONSE: EAI will provide the wiring and security devices. The contractor shall provide the conduit and boxes.

Item No. 13 **QUESTION:** Please confirm if a project specific wage rate determination will be provided for this project. If so, please provide.

RESPONSE: Wage rates were included in the RFP

Item No. 14 **QUESTION:** The spec book references both curtainwall and point supported glazing systems at the elevator. Please specify which glazing system is desired.

RESPONSE: Provide point supported glazing system for the elevator enclosure.

Item No. 15 **QUESTION:** Is performance testing of the curtain wall or point supported glazing system required? Will testing be completed by the owner or contractor?

RESPONSE: Testing by the contractor.

Item No. 16 **QUESTION:** There are select spec sections that reference LEED submittals. Please confirm this project is not pursuing LEED certification.

RESPONSE: The project is not LEED. You can ignore the LEED references, but we still want any sustainable properties noted as part of the submittals.

Item No. 17 **QUESTION:** Attachment L of the RFP includes estimated schedule durations. As per Section D.2, Criteria 3.1, a CPM schedule is to be provided with the bidder's proposal. As per Section D.2, Criteria 1.7, key personnel are to be identified with the bidder’s proposal. Please provide an anticipated award date for the project so that these sections can be accurately completed.

RESPONSE: The County usually don’t provide date for construction start but contractor can assume December 1, 2024, start for Section D.2, Criteria 3.1, CPM schedule.

Item No. 18 **QUESTION:** Are drawings of the existing building available for review?

RESPONSE: There are no drawings of the existing building

Item No. 19 **QUESTION:** Detail 8/P7.1 notes to provide a removable cover at the sump pump pit and refers to the architectural drawings for additional details. The architectural plans simply note to install a painted metal grate. Please provide a basis of design and associated fastening details.

RESPONSE: Basis-of-Design: Model R-4810-C by Neenah Foundry Company. Frames and grates to be grey iron, class 35.

Item No. 20 **QUESTION:** Location of cribbing shown on Sheet S2.0 conflicts with new stairs and footing shown on Sheet S2.1. Please advise.

RESPONSE: Cribbing shown on S2.0 is schematic only. The jacking of the building is a delegated design. The contractor shall coordinate jacking structure and cribbing as needed with existing conditions, sequence of construction, and means and methods.

Item No. 21 **QUESTION:** Underpinning is required at the existing to remain chimney, as noted on Sheet S2.1. No underpinning spec section is provided. Please provide the missing underpinning spec section.

RESPONSE: An underpinning specification section will not be provided. Underpinning is a delegated design. Provide signed and sealed drawings/details as noted on sheet S2.0 & S2.1.

RFP # 1169193 / Solicitation Amendment #1
Attachment B

1 VT01 INDEX OF DRAWINGS

SCALE: N/A

ELEVATOR 1 2100 # @ 100 FPM IN-GROUND HYDRAULIC

2 VT01 SUMMARY OF ELEVATORS

SCALE: N/A

AFF	ABOVE FINISH FLOOR
A.P.	ACCESS PANEL
A/C	AIR CONDITIONING
ALT.	ALTERNATE
AC	ALTERNATING CURRENT
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AMP	AMPERE
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
AUX	AUXILIARY
BSMT	BASEMENT
BOT.	BOTTOM
BTUH	BRITISH THERMAL UNITS PER HOUR
BM	BEAM
BOCA	BUILDING OFFICIALS AND CODE ADMINISTRATION
CLG	CEILING
°C	CELSIUS
℄	CENTERLINE
CM	CENTIMETERS
COL.	COLUMN
CLR	CLEAR
CONC.	CONCRETE
CMU	CONCRETE MASONRY UNITS
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
COORD	COORDINATE
CNTRL	CONTROLLER
CWT	COUNTERWEIGHT
CYL.	CYLINDER
DEH	DEAD END HITCH
D	DEEP
°	DEGREES
DTL	DETAIL
Ø	DIAMETER
DIM.	DIMENSION
DC	DIRECT CURRENT
DISC.	DISCONNECT
DBG	DISTANCE BETWEEN GUIDE RAILS
DN	DOWN
DWG	DRAWING
EA.	EACH
ELEC.	ELECTRICAL
EL.	FLOOR ELEVATION
ELEV.	ELEVATOR
ETS	EMERGENCY TERMINAL SLOWDOWN
EQ	EQUAL
EQUIP.	EQUIPMENT
ESCL	ESCALATOR
(E)	EXISTING
° F	FAHRENHEIT
FPM	FEET PER MINUTE
F.V.	FIELD VERIFY
F.F.	FINISH FLOOR
FLR	FLOOR
FT	FOOT (FEET)
FLOUR.	FLUORESCENT
F/O	FRONT OPENING
FUT.	FUTURE
G	GRAVITY
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GOV.	GOVERNOR
GA.	GAUGE
GYP. BD.	GYPSUM BOARD
HT	HEIGHT
HZ	HERTZ
H.	HIGH
HSTWY	HOISTWAY
HORIZ.	HORIZONTAL
HR	HOUR
HP	HORSEPOWER
HYDR.	HYDRAULIC
IBC	INTERNATIONAL BUILDING CODE
IN.	INCH (INCHES)
IGBT	INSULATED GATE BIPOLAR TRANSDUCER
IJC	IN-JAMB CONTROLLER
J/S	JOULES PER SECOND
KCAL	KILOCALORIE
KG	KILOGRAMS
KN	KILONEWTONS
KVA	KILOVOLT-AMPERE
KW	KILOWATTS
K	KIPS
LT	LIGHT
MPS	METERS PER SECOND
MACH.	MACHINE
MRL	MACHINE ROOM LESS
MAX.	MAXIMUM
MEZZ.	MEZZANINE
M	METER
MM	MILLIMETERS
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MG	MOTOR-GENERAL
MTD	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
(N)	NEW
NOM.	NOMINAL
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
NO.	NUMBER
O.C.	ON CENTER
OPNG	OPENING
O.A.	OVERALL
OPP.	OPPOSITE
OVHD	OVERHEAD
PL	PLATE
PLTFM	PLATFORM
#	POUNDS
PSI	POUNDS PER SQUARE INCH
PRELIM.	PRELIMINARY
RAD.	RADIUS
R/O	REAR OPENING
REF.	REFERENCE
REQ.	REQUIRED
REV.	REVISION
RM	ROOM
R.O.	ROUGH OPENING
SCCR	SHORT CIRCUIT CURRENT RATING
SEC.	SECONDARY
SECT.	SECTION
SHT	SHEET
SCR	SILICON CONTROLLED RECTIFIER
SIM.	SIMILAR
SPEC.	SPECIFICATION
SF	SQUARE FEET
SM	SQUARE METERS
STD	STANDARD
SBC	STANDARD BUILDING CODE
STL.	STEEL
STRUCT.	STRUCTURAL
SW.	SWITCH
TBD	TO BE DETERMINED
T.O.	TOP OF
(TYP)	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UBC	UNIFORM BUILDING CODE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
V.	VOLT
W.	WIDE
W/	WITH
WP	WORKPOINT

3 VT01 ABBREVIATIONS

SCALE: N/A

POWER FEEDER REQUIREMENTS (MAIN POWER SUPPLY: 208-3-60)								
ELEVATOR NUMBER	CAPACITY (POUNDS)	SPEED (FPM)	HYDRO MOTOR HP	HYDRO STARTING AMPS			RUNNING AMPS	CONTROL AND MACHINE ROOM SPACE HEAT RELEASE BASED ON 80 UPSTARTS/HR
				LOCKED ROTOR	SOLID STATE	WYE DELTA		(BTUH PER CAR)
1	2100	100	20	575	312	182	104	11880

NOTES:

1. ELECTRICAL POWER AND CURRENT ARE BASED ON THREE (3) PHASE A.C. POWER SUPPLY.
2. MAIN POWER TO BE PROVIDED AT EACH CONTROLLER THROUGH DISCONNECTING MEANS MEANING NEC REQUIREMENTS.
3. MAIN POWER SUPPLY FEEDERS TO LIMIT VOLTAGE DROP TO LESS THAN 5%. MAX SCCR FOR ALL DICONNECT FEEDER DESIGNS BASED ON 5KA RATING (NEC SECTION 409.022 AND UL506A SUPPLEMENT SB.
4. USE COPPER CONDUCTORS ONLY.
5. FEEDER DEMAND FACTORS (NEC SECTION 430.026 AND 620.014) = (2) CARS = 95%, (3) CARS = 90%, (4) CARS = 85%, (5) CARS = 82%, (6) CARS = 79%, (7) CARS = 77%, (8) CARS = 75%, (9) CARS = 73%, (10) CARS = 72%
6. MACHINE SPACE TEMPERATURE TO BE MIN. 13° C (55° F), MAX 32°C (90°)F. TO BE MEASURED 1838 MM (6'-0") ABOVE FINISHED FLOOR AT PROXIMATELY CENTER OF ROOM.
7. RELATIVE HUMIDITY MAX 80% NON-CONDENSING.
8. THE SELECTION OF MAIN POWER SUPPLY DISCONNECTING MEANS OVER CURRENT PROTECTION TO BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE, SECTIONS 620.051 AND 430.052.
9. PROVIDE LOCAL TELEPHONE SERVICE LINE TO EACH CAR CONTROLLER (IF APPLICABLE).
10. PROVIDE GFCI CONVENIENCE OUTLETS IN PIT, MACHINE ROOM, AND IN MACHINERY SPACES. IN PIT, PROVIDE ONE NON-GFCI OUTLET FOR SUMP PUMP AND/OR OIL RETURN PUMP.
11. PROVIDE HOIST MACHINE WITH VOLTAGE TO MATCH SUPPLY VOLTAGE INDICATED. UNLESS NOTED OTHERWISE.

ADDITIONAL POWER AND DISCONNECT REQUIREMENTS IN MACHINE ROOM			
AUXILIARY SYSTEM	SUPPLY TERMINAL	SUPPLY VOLTAGE	CIRCUIT CAPACITY
CAR LIGHT AND FAN WITH LOCKABLE DISCONNECT	EACH CONTROLLER	120-1-60	(15 AMP PER CAR)
INTERCOM SYSTEM (IF APPLICABLE)	AT AMPLIFIER	120-1-60	1800 WATTS (15 AMP MIN)
AIR CONDITIONING AND HEATING SOURCE (IF APPLICABLE)	EACH CONTROLLER	120-1-60	(20 AMP PER CAR)
CONDENSATE EVAPORATOR UNIT FOR AIR CONDITIONING (IF APPLICABLE)	EACH CONTROLLER	120-1-60	(30 AMP PER CAR)

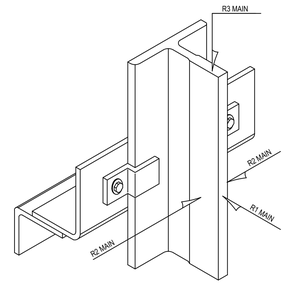
4 VT01 ELEVATOR ELECTRICAL AND MECHANICAL REQUIREMENTS

SCALE: N/A

1. THESE DRAWINGS FOR GENERAL INFORMATION ONLY. REQUIREMENTS OF INDIVIDUAL VENDORS MAY VARY.
2. THESE DRAWINGS TO BE DISTRIBUTED TO APPROPRIATE CONSULTING AND ENGINEERING FIRMS, INCLUDING ARCHITECT, STRUCTURAL, ELECTRICAL AND MECHANICAL ENGINEERS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS.
4. ROUGH OPENING DIMENSIONS FOR ELEVATOR ENTRANCES APPLY ONLY IN THE CASE OF MASONRY OR CONCRETE CONSTRUCTION.
5. VERTICAL STRUCTURAL SUPPORT FOR RAIL BRACKETING IS PROVIDED BY HOISTWAY WALLS IN THE CASE OF REINFORCED CONCRETE HOISTWAY CONSTRUCTION.

5 VT01 GENERAL NOTES

SCALE: N/A



RAIL FORCES MAXIMUM ON EACH GUIDE RAIL (FORCES ARE IN KIPS)			
NORMAL FORCES	ELEVATOR NUMBER	1	OCCURRING ON
	CAR R1	0.9	CAR NORMAL FACE OF MAIN RAIL
	CAR R2	0.6	CAR NORMAL SIDE OF MAIN RAIL - LOADING OR RUNNING
	CAR R3	N/A	FORCE TRANSMITTED TO PIT STRUCTURE AT CAR SAFETY APPLICATION*
	CWT R3	N/A	FORCE TRANSMITTED TO PIT STRUCTURE AT CWT SAFETY APPLICATION*

ASME A17.1

BUILDING SUPPORTS TO RESIST HORIZONTAL FORCES WITH A TOTAL DEFLECTION AT POINT OF SUPPORT NOT IN EXCESS OF 3MM (1/8") DURING NORMAL CONDITIONS.

* THESE REACTIONS DO NOT OCCUR SIMULTANEOUSLY WITH PIT BUFFER REACTIONS

A17.1/UBC VARIABLES USED FOR SEISMIC CALCULATIONS:
SEISMIC ZONE = 0 OR 1 (NON-SEISMIC FOR ELEVATORS)

6 VT01 RAIL REACTIONS

SCALE: N/A

Lerch Bates
BUILDING INSIGHT
Global Support Center
9780 S. Meridian Blvd, Suite 450
Englewood, CO 80112
T - 303.795.7956

Project Office
Washington DC Office
2448 Holly Ave, Suite 301
Annapolis, MD 21401
T - 301.805.7944

Office Locations
Atlanta Office - Atlanta, GA
Canada Office - Alberta, Canada
Chile Office - Santiago, CL
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Noyes Library for Young Children
Rehabilitation and Renovation
Kensington, MD

No.	Description	Date

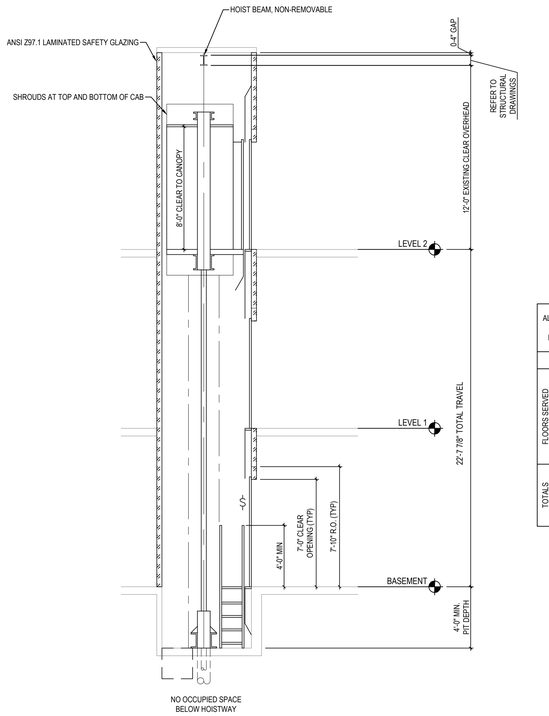
Sheet Name

GENERAL ELEVATOR INFORMATION

Issued For:	ISSUED FOR BID
Project Number:	330-0100025434
Governing Codes:	ASME A17.1
Date:	6/24/2024
Drawn By:	BA
Checked By:	JF/CD
Sheet Number:	VT01
Scale	AS NOTED

File Name: 330-25434 Noyes Library.dwg Date Modified: 23 May 2019

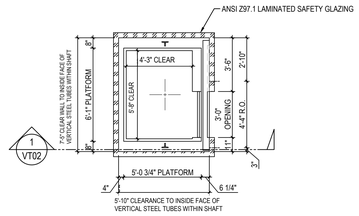
RFP # 1169193 / Solicitation Amendment #1
Attachment C



1 / VT02 HOISTWAY SECTION
ELEVATOR 1
SCALE: 1/4" = 1'-0"
DUTY: 2100# @ 100 FPM

ALL VERTICAL DIMENSIONS THAT ARE DIMENSIONED FROM A BUILDING FLOOR ELEVATION ARE DIMENSIONED TO THE FINISH FLOOR ELEVATION.

ELEVATOR 1			
FLOORS SERVED	FLOOR NUMBER	OPENING REAR/FRONT	FLOOR TRAVEL (FEET)
	2	F	0'-0"
	1	F	11'-8 3/8"
	B	F	10'-11 1/4"
TOTALS	OPENINGS	3	
	STOPS	3	
	TRAVEL		22'-7 7/8"



1 / VT02

2 / VT02 HOISTWAY PLAN
ELEVATOR 1
SCALE: 1/4" = 1'-0"
DUTY: 2100# @ 100 FPM

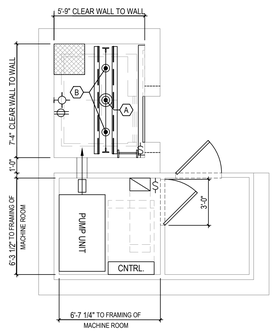
HOISTWAY NOTES:

1. PROVIDE MIN. 3.0 SF OF SMOKE VENTING TO OUTSIDE AIR PER ELEVATOR PER CODE.
2. 1070 MM (42") CAR TOP RAILING PER CODE BY ELEVATOR CONTRACTOR.
3. PROVIDE HOIST BEAM TO SUPPORT 7300#. VERIFY EXISTING HOIST BEAM LOCATION AND LOAD REQUIREMENTS WITH ELEVATOR CONTRACTOR.
4. PROVIDE STRUCTURAL SUPPORT FOR CAR GUIDE RAIL FASTENING AT 4270 MM (14'-0") MAX. VERTICAL SPACING THROUGH TOP OF HOISTWAY. IF THIS SPACING CANNOT BE PROVIDED BY HOISTWAY PERIMETER BEAMS AT EACH FLOOR, AND IF ELEVATOR CONTRACTOR CANNOT PROVIDE BRACKETING FROM TOP AND BOTTOM FLANGE OF HOISTWAY PERIMETER BEAMS TO REDUCE THE SPAN AS NEEDED, PROVIDE INTERMEDIATE SUPPORT BEAMS OR CONTINUOUS VERTICAL STRUCTURE BETWEEN FLOOR BEAMS.
5. ALL VERTICAL DIMENSIONS THAT ARE DIMENSIONED FROM A BUILDING FLOOR ELEVATION ARE DIMENSIONED TO THE FINISH FLOOR ELEVATION.
6. PROVIDE SUPPORT FOR GUIDE RAIL BRACKETING.
7. PROVIDE ADEQUATE STRUCTURAL SUPPORT AS REQUIRED FOR BUFFER AND HYDRAULIC CYLINDER REACTIONS.
8. ELEVATOR CONTRACTOR TO PROVIDE CONTINUOUS FASCIA, OR GENERAL CONTRACTOR TO LOCATE ENTRANCE-FACING WALL INTO HOISTWAY 100 MM (4").
9. PROVIDE MIN. 75° BEVEL GUARD AT ANY LEDGE GREATER THAN 100 MM (4") AT REAR OR SIDE WALLS OF HOISTWAY.
10. THERE IS 1/2" OFFSET, FACE OF VERTICAL STEEL TUBES IN CORNERS OF SHAFT TO FACE OF CONCRETE PIT WALLS BELOW.

RAIL SUPPORT TABLE		
CAR GUIDE RAIL	12'-0"	MAX SPAN

MACHINE ROOM NOTES:

1. PROVIDE 200 MM X 200 MM (8" X 8") BLOCKOUT FOR HYDRAULIC OIL LINE, AND 150 MM X 150 MM (6" X 6") BLOCKOUT FOR ELECTRICAL CONDUIT FOR EACH ELEVATOR. VERIFY LOCATION WITH ELEVATOR CONTRACTOR.
2. VERIFY PATH OF OIL LINE WITH ELEVATOR CONTRACTOR. THE MACHINE ROOM AND HOISTWAY SHALL BE LOCATED ON THE SAME SIDE OF AN EXPANSION JOINT.
3. PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 200 LUX (19 FC) ILLUMINATION AT MACHINE ROOM FLOOR.
4. COORDINATE LIGHT FIXTURES AND UTILITY OUTLETS LOCATION WITH ELEVATOR CONTRACTOR.
5. FOR EQUIPMENT IN THE MACHINE ROOM, A CLEARANCE OF NOT LESS THAN 450 MM (18") SHALL BE PROVIDED IN THE DIRECTION(S) REQUIRED FOR MAINTENANCE, AND A CLEAR PATH OF NOT LESS THAN 450 MM (18") SHALL BE PROVIDED TO ALL COMPONENTS THAT REQUIRE MAINTENANCE.
6. PROVIDE 3-PHASE MAINLINE POWER FEEDER WITH DISCONNECTING MEANS FOR EACH ELEVATOR CONTROLLER. PROVIDE 1-PHASE FEEDER WITH DISCONNECTING MEANS FOR CAR LIGHTING, VENTILATION SYSTEM AND RECEPTACLE FOR EACH ELEVATOR. THESE DISCONNECTING MEANS SHALL INCLUDE OVERCURRENT PROTECTION, SHALL BE LOCATED IN THE MACHINE ROOM, AND SHALL MEET N.E.C. REQUIREMENTS.
7. LOCATE MACHINE ROOM WITHIN 40'-0" OF HOISTWAY.
8. 4" CURB RECOMMENDED.



3 / VT02 PIT AND MACHINE ROOM PLAN
ELEVATOR 1
SCALE: 1/4" = 1'-0"
DUTY: 2100# @ 100 FPM

PIT NOTES:

1. PROVIDE ADEQUATE LIGHTING TO MAINTAIN MIN. 100 LUX (10 FC) ILLUMINATION AT PIT FLOOR.
2. PROVIDE PIT ACCESS LADDER(S) OR DOOR(S), LIGHT SWITCH(ES), LIGHT(S), AND GFCI-PROTECTED UTILITY OUTLET(S).
3. PROVIDE 200 MM X 200 MM (8" X 8") BLOCKOUT FOR HYDRAULIC OIL LINE, AND 150 MM X 150 MM (6" X 6") BLOCKOUT FOR ELECTRICAL CONDUIT FOR EACH ELEVATOR. VERIFY LOCATION WITH ELEVATOR CONTRACTOR.
4. VERIFY PATH OF OIL LINE WITH ELEVATOR CONTRACTOR.
5. COORDINATE LIGHT FIXTURES AND UTILITY OUTLETS LOCATION WITH ELEVATOR CONTRACTOR.
6. PROVIDE ADEQUATE STRUCTURAL SUPPORT AS REQUIRED FOR BUFFER AND HYDRAULIC CYLINDER REACTIONS.
7. PROVIDE INDIRECT PIT DRAIN OR SUMP WITH GRATING COVER LEVEL WITH PIT FLOOR.
8. REACTIONS HAVE BEEN DOUBLED FOR IMPACT.
9. REACTIONS DO NOT OCCUR SIMULTANEOUSLY.
10. ELEVATOR CONTRACTOR PROVIDE PERMANENT MEANS TO ACCESS UNDERSIDE OF CAR AS REQUIRED.

PIT REACTION TABLE			
DUTY: 2100# @ 100 FPM			
KEY	REACTION (FORCES IN KIPS)		DESCRIPTION
(A)	18.0	EACH	CAR CYLINDER
(B)	11.7	EACH	CAR BUFFER

Lerch Bates
BUILDING INSIGHT
Global Support Center
9780 S. Meridian Blvd, Suite 450
Englewood, CO 80112
T - 303.795.7956

Project Office
Washington DC Office
2448 Holly Ave, Suite 301
Annapolis, MD 21401
T - 301.805.7944

Office Locations

Atlanta Office - Atlanta, GA
Canada Office - Alberta, Canada
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Rehabilitation and Renovation
Kensington, MD

No.	Description	Date

Sheet Name

PLANS AND HOISTWAY SECTION FOR ELEVATOR 1

Issued For:	ISSUED FOR BID
Project Number:	330-0100025434
Governing Codes:	ASME A17.1
Date:	6/24/2024
Drawn By:	BA
Checked By:	JF/CD
Sheet Number:	VT02
Scale	AS NOTED

File Name: 330-25434 Noyes Library.dwg Date Modified: 23 May 2019

SECTION 142400
HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Hydraulic elevator:
   1. One (1) In-Ground Passenger Elevator –Install one (1) in-ground jack, hydraulic elevator in a glass hoistway that will attach to an existing historic structure. No changes to hoistway size, structural supports, or overhead are available. All bids must fit drawings.
   2. Coordination with Contractor for location of equipment and code compliance will be required.
   3. Paint all exposed hoistway equipment, equipment on car top and bottom in color as selected (dark bronze).
   4. Provide painted steel bevels for all projections due to glass hoistway construction (dark bronze).

B. Products Installed But Not Furnished Under This Section:
   1. Emergency Voice/Alarm Communication System Provisions
   2. Elevator related security devices, control unit, mounting brackets, wiring materials, logic circuits, security system interface terminals, boxes and relays.
   3. Car flooring
   4. Monitoring system interface

C. Related Requirements:
   1. Division 01 Section “Temporary Facilities and Controls” for temporary use of elevators for construction purposes.
   2. Division 03 Section “Cast-in-Place Concrete” for setting sleeves, inserts, and anchoring devices in concrete.

1.2 ALLOWANCE

A. Elevator Car Allowances: Not used.

B. Hoistway Door Allowances: Not used.

1.3 DEFINITIONS

A. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1.

1.4 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with ASME A17.1/CSA B44.

B. Accessibility Requirements: Comply with 2010 ADA standards for Accessible Design.

1.5 DOCUMENT AND SITE VERIFICATION

A. To discover and resolve conflicts or lack of definition which might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structural, electrical, and mechanical provisions for compatibility with Contractor's products. Purchaser will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Contractor's equipment.

1.6 SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information. Include product data for car enclosures, hoistway entrances, and operation, control, and signal systems. Include product data for signal fixtures, lights, graphics, Braille plates, and details of mounting provisions.

B. Shop Drawings:
   1. Include plans, elevations, sections, and large-scale details indicating openings at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment.
   2. Include large-scale layout of car operating panel and standby power operation control panel.
   3. Indicate maximum dynamic and static loads imposed on building structure at points of support and maximum and average power demands.
   4. Power Confirmation Information: Include motor horsepower, code letter, starting current, full load running current, and demand factor. Provide engineered power consumption estimates based on 80 starts per hour. Provide maximum and average power consumption.

C. Samples for Initial Selection: For finishes involving surface treatment, paint or color selection.

D. Samples for Verification: For exposed car, hoistway door and frame, and signal equipment finishes:
   1. Samples of sheet materials: 3" (75 mm) square.
   2. Running trim members: 4" (100 mm) lengths.

E. OSHPD submittals.

F. Operation and Maintenance Data:
   1. For elevators to include in emergency, operation, and maintenance manuals.
   2. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel.

G. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

H. Continuing Maintenance Proposal: Submit a continuing maintenance proposal from Installer to Owner, in the form of a standard five-year maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options. Include running the elevators twice a year for hoistway glass clean downs (Fall/Spring). Coordinate with purchaser for early morning cleanings.

1.7 QUALITY ASSURANCE

A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of following codes, laws, and/or authorities, including revisions and changes in effect:
   1. Safety Code for Elevators and Escalators, ASME A17.1
   2. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2
   3. Elevator and Escalator Electrical Equipment, ASME A17.5
   4. National Electrical Code, NFPA 70
   5. Americans with Disabilities Act, ADA A117.1
   6. Local Fire Authority
   7. Requirements of most stringent provision of local authority having jurisdiction.
   8. Life Safety Code, NFPA101
   9. Maryland Field Directives

1.8 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver material in Contractor's original unopened protective packaging.

B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.

C. Protect equipment and exposed finishes from damage and stains during transportation and construction.

1.9 WARRANTY
   1. Manufacturer's Warranty: Manufacturer agrees to repair, restore, or replace elevator work that fails in materials or workmanship within specified warranty period.
   2. Failures include but are not limited to: operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
   3. Warranty Period: One year from date of Substantial Completion.

1.10 MAINTENANCE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include twelve months full maintenance by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
   1. Perform maintenance during normal working hours.
   2. Perform emergency callback service during normal working hours Include 24-hour-per-day, 7-day-per-week emergency callback service with response time of sixty minutes or less.
   3. Include running the car twice a year (Fall/Spring) to allow purchaser to clean hoistway glass under base contract and for future maintenance service contracts.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide in-ground hydraulic products by one of the following available manufacturers offering products that may be incorporated into the Work include the following:
   1. KONE Inc.
   2. Minnesota Elevator, Inc.
   3. Mitsubishi Electric Corporation.
   4. Otis Elevator Company.
   5. Schindler Elevator Corporation.
   6. TK Elevator Corporation.

2.2 ELEVATORS

A. Elevator System, General: Manufacturer's standard elevator systems that will fix the space provided in the contract documents. Unless otherwise indicated, manufacturer's standard components shall be used, as included in standard elevator systems and as required for complete system. Provide custom fabrication where required to meet contract documents.

B. Passenger Elevator Description:
   Elevator Identification: Elevator 1
   1. Capacity: 2,100 lbs.
   2. Class of Loading: Class A
   3. Contract Speed: 100 fpm
   4. Machine: Hydraulic Pump
   5. Machine Location: Adjacent at bottom landing
   6. Operational Control, microprocessor-based: Selective collective
   7. Motor Control: Single speed AC with SCR soft start with closed transition
   8. Power Characteristics: 208 Volts, 3 Phase, 60 Hertz (field verify)
   9. Maximum Pump Motor HP: 20 HP
   10. Stops and Openings: 3 Front; 0 Rear
   11. Floors Served: Front: 3; Rear: 0
   12. Travel: 22'-7" ±
   13. Minimum Clear Inside Car: 5'-8" Wide X 4'-3" Deep
   14. Entrance Size: 3'-0" Wide X 7'-0" High
   15. Entrance Type: Single-speed, Side-opening
   16. Door Operation: High-speed, heavy-duty door weather resistant operator. Minimum Opening Speed: 2.5 fps.
   17. Door Protection: Waterproof Infrared full screen device with differential timing, nudging, and interrupted beam time
   18. Hydraulic Type: Direct plunger
   19. Guide Rails: Planed Steel Tees
   20. Buffers: Spring
   21. Car Enclosure with stainless steel shrouds maximum height that still meets code top and bottom and stainless-steel cladding of all visible external cab walls and return areas. Provide a professional cladding of standard cab, so that it appears to be a smooth flush stainless cab on the exterior and front:
       a. As specified, stationary returns.

b. Clear height under canopy, 8’-0”
c. Car interior air ventilation system with battery backup.
d. Pad buttons and vinyl-covered pads.

22. Signal Fixtures: LED illumination. Contractor’s standard design, vandal resistant assembly.
    a. Hall and Car Pushbutton Stations:
        1) Single hall pushbutton riser.
        2) Single car operating panel.
        3) Vandal resistant car and hall pushbuttons.
    b. Car Position Indicators:
        1) Digital in car station with car direction arrows.
    c. Car Direction Lanterns: All car entrance columns with volume adjustable electronic chime or tone. Sound twice for down direction. vandal resistant assembly.
23. Communication System:
    a. Self-Dialing, Vandal Resistant, Push to Call, Two-Way Communication System with Recall, Tracking, and Voiceless Communication.
24. Additional Features:
    a. Hoistway access switches, top and bottom floors.
    b. Hoistway door unlocking device, all floors
    c. Anti-nuisance feature.
    d. Individual floor lock off feature for floor 2.
    e. Sill support angles.
    f. Provide pit access ladder(s).
    g. System diagnostic means and instructions.
    h. Platform Isolation, Jack to Platen Connections.
    i. Hydraulic Pump Unit and Controller Sound Isolation.
    j. Jack hole, outer casing, and watertight PVC inner casing.

2.3 MATERIALS

A. Steel:
1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
3. Structural Steel Shapes and Plates: ASTM A36.

B. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength, and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature, with texture and reflectivity required to match Architect’s sample. Protect with adhesive paper covering.
1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in longest dimension.
2. No. 8 Mirror: Reflective polish finish with no visible graining.
3. Textured: Provide 5WL 4LB as manufactured by Rigidized Metals or Windsor pattern 5-SM as manufactured by Rimex Metals or approved equal with .050 inches mean pattern depth with bright directional polish (No. 4 satin finish).

C. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.

D. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick, color and texture as follows:
   1. Exposed Surfaces: Color and texture selected by Architect.
   2. Concealed Surfaces: Contractor's standard color and finish.

E. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.

F. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt, and polish sanded, book matched. Species and finish designated and approved by Architect.

G. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard dark bronze rust-resistant primer. After erection, provide one finish coat of dark bronze industrial enamel paint.

H. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.

I. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three additional coats of enamel in the selected solid color.

J. Glass: Laminated safety glass, minimum 9/16" thick, conforming to ANSI Z97.1 and CPSC 16 CFR Part 1201.

2.4 CAR PERFORMANCE

A. Car Speed: ± 10% of contract speed under any loading condition. For standard hydraulic applications.

B. Car Capacity: Safely lower, stop and hold 125% of rated load.

C. Car Stopping Zone: ±1/4" under any loading condition.

D. Door Times: Seconds from start to fully open or fully closed:
   1. Elevator 1: Door open: 2.1 seconds. Door close: 3.4 seconds.

E. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are 3/4 open (1/2 open for side opening doors) and car level and stopped at next successive floor under any loading condition or travel direction (11' typical floor height):
   1. Elevator 1: 15.1 seconds.

F. Pressure: Fluid system components shall be designed, and factory tested for 500 p.s.i. Maximum operating pressure shall be 400 p.s.i.

G. Car Ride Quality:

1. Acceleration and Deceleration: Smooth constant and not less than 1.5 feet/second^2 with an initial ramp between 0.5 and 0.75 second.
2. Sustained Jerk: Not more than 6 feet/second^3.
3. Horizontal and vertical acceleration within car during all riding and door operating conditions. Not more than 15 mg peak to peak (adjacent peaks) in the 1-10 Hz range.
4. Measurement Standards: Measure and evaluate ride quality consistent with ISO 18738, using low pass cutoff frequency of 10 Hz and A95 peak-to-peak average calculations.

H. Noise and Vibration Control
1. Airborne Noise: Measured noise level of elevator equipment and its operation shall not exceed 55 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed. Limit noise level in the machine room relating to elevator equipment and its operation to no more than 80 dBA. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the “A” weighted scale.
2. Vibration Control: All elevator equipment provided under this contract, including power unit, controller, oil supply lines, and their support shall be mechanically isolated from the building structure and electrically isolated from the building power supply and to each other to minimize the possibility of objectionable noise and vibrations being transmitted to occupied areas of the building.
OPERATION

I. Collective Microprocessor-Based:
1. Operate car without attendant from pushbuttons in car and located at each floor. When car is available, automatically start car and dispatch it to floor corresponding to registered car or hall call. Once car starts, respond to registered calls in direction of travel and in the order the floors are reached.
2. Do not reverse car direction until all car calls have been answered, or until all hall calls ahead of car and corresponding to the direction of car travel have been answered.
3. Slow car and stop automatically at floors corresponding to registered calls, in the order in which they are approached in either direction of travel. As slowdown is initiated for a hall call, automatically cancel hall call. Cancel car calls in the same manner. Hold car at arrival floor an adjustable time interval to allow passenger transfer.
4. Answer calls corresponding to direction in which car is traveling unless call in the opposite direction is highest (or lowest) call registered.
5. Illuminate appropriate pushbutton to indicate call registration. Extinguish light when call is answered.
6. Car to return to basement level after each use. Provide any special software, etc., to meet this operational requirement.

J. Other Items:
1. Low Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park until oil is added.
2. Load Weighing: Provide means for weighing car passenger load. Control system to provide dispatching at main floor in advance of normal intervals when car fills to capacity. Provide hall call by-pass when the car is filled to preset percentage of rated capacity and traveling in down direction. Field adjustment range: 10% to 100%.
3. Anti-Nuisance Feature: If car loading relative to weight in car is not commensurate with number of registered car calls, or activation of door protection device is not commensurate with number of registered car calls, cancel car calls.

4. Independent Service: Provide controls for operation of each car from its pushbuttons only. Close doors by constant pressure on desired destination floor button or door close button. Open doors automatically upon arrival at selected floor.

K. Car-to-Lobby Feature: Provide the means in the main hall pushbutton station for automatic return to the Basement. Return car nonstop after answering pre-registered car calls, and park with doors open for an adjustable time period of 60-90 seconds. Upon expiration of time period, car shall automatically revert to normal operation and close its doors until assigned as next car or until the car is placed on manual control via in-car attendant or out-of-service switch.

L. Firefighters' Service: Provide equipment and operation in accordance with code requirements.

M. Automatic Car Stopping Zone: Stop car within 1/4" above or below the landing sill. Maintain stopping zone regardless of load in car, direction of travel, and distance between landings.

N. Motion Control: Microprocessor-based AC type with unit valve suitable for operation specified and capable of providing smooth, comfortable car acceleration and retardation. Limit the difference in car speed between full load and no load to not more than ±10% of the contract speed.

O. Door Operation: Automatically open doors when car arrives at main floor. At expiration of normal dwell time, close doors. Reopen doors when car is designated for loading.

P. Standby Lighting and Alarm: Car mounted battery unit with solid-state charger to operate alarm bell and car emergency lighting. Battery to be rechargeable with minimum five-year life expectancy. Include required transformer. Provide constant pressure test button in service compartment of car operating panel. Provide lighting integral with portion of normal car lighting system.

Q. Battery Lowering Feature: Upon loss of normal power, provide controls to automatically lower the car(s) to the nearest lower landing. Upon arrival at the lowest landing, the elevator doors shall open automatically and remain open until regular door time has expired. The elevator shall then become deactivated. The standby power source shall be provided via 12-volt D.C. battery units installed in machine room, including solid-state charger and testing means mounted in a common metal container. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy. Upon restoration of normal power, the elevator shall automatically resume normal operation.

R. Battery Standby Power Pack for Air Ventilation: Upon loss of normal power, standby power source shall be provided via 12-volt D. C. battery units installed in machine room, including solid-state charger and testing means mounted in a common metal container. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy. Standby power source shall provide minimum four hours operation.

S. Card/Proximity Reader Security System: Provide provisions inside Elevator 1 for reader unit. Mount reader unit as directed by Architect and cross connect from car pushbuttons to control module in machine room. Reader control unit, mounting brackets, wiring materials, logic circuits, etc., by Security Subcontractor. Provide a filler plate to match card slot size and car return panel finish, including direction of graining, where card slot or proximity reader cutout is not initially utilized. Elevator control systems shall facilitate system tracking of persons accessing secure floors via printout by passenger I.D. number, floor accessed, and time of entry.

2.5 MACHINE ROOM EQUIPMENT

A. Arrange equipment in spaces shown on drawings.

B. Pump Unit: Assembled unit consisting of positive displacement pump, induction motor, master-type control valves combining safety features, holding, direction, bypass, stopping, manual lowering functions, shut off valve, oil reservoir with protected vent opening, oil level gauge, outlet strainer, drip pan, muffler, all mounted on isolating pads. Provide oil thermal unit, oil cooling unit and oil temperature thermostat to maintain oil at operating temperature. Provide SCR soft start with closed transition. Design unit for 80 up starts/hour.

C. Landing System: Solid-state, magnetic, or optical type.

D. Controller: UL/CSA labeled.
   1. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
   2. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
   3. Microprocessor-Related Hardware:
      a. Provide built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
      b. Provide power supplies with noise suppression devices.
      c. Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.
      d. Design control circuits with one leg of power supply grounded.
      e. Safety circuits shall not be affected by accidental grounding of any part of the system.
      f. System shall automatically restart when power is restored.
      g. System memory shall be retained in the event of power failure or disturbance.
      h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
   4. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
   5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.
   6. Provide controller or machine mounted auxiliary lockable “open” disconnect if mainline disconnect is not in sight of controller and/or machine.
   7. Provide control panel compliant with UL 508A SB.SCCR of 5000A required.

E. Muffler: Provide in discharge oil line near pump unit. Design shall dampen and absorb pulsation and noise in the flow of hydraulic fluid.

F. Piping and Oil: Provide piping, connections and oil for the system. Buried piping shall be secondarily contained with watertight Schedule 40 PVC sleeves between elevator machine room and pit. A minimum of two sound isolation couplings shall be provided between the pump unit and oil line and the oil line and jack unit. Provide isolated pipe stands or hangers as required.

G. Shut-Off Valve: manual valve on line adjacent to pump unit. Provide second valve in pit adjacent to jack unit.

2.6 HOISTWAY EQUIPMENT

A. Paint all hoistway equipment after installation in dark bronze as selected by Architect.

B. Guide Rails: Planed steel T-sections for car of suitable size and weight for the application, including brackets for attachment to building structure. Provide rail backing to meet code requirements. No additional structural points of rail attachment, other than those shown on the Contract Documents, will be provided.

C. Buffers: Spring type with blocking and support channels.

D. Hydraulic Jack Assembly:
1. Cylinders: Seamless steel pipe. Design head to receive unit-type packing and provide means to collect oil at cylinder head and return automatically to oil reservoir. Cylinder stabilizer bracketing between guide rails is not allowed.
2. Plungers: Polished seamless steel tubing or pipe. If plunger length exceeds 24'-0", provide two or more sections not exceeding 16'-0" in length, or coordinate installation of longer unit at the jobsite. Join sections by internal threaded couplings. Multiple section jack units shall be factory polished while assembled and marked for proper future reassembly. Isolate plunger from car frames.

E. Jack Support and Fluid Shut-Off Valves: Provide steel pit channels to support jack assembly and transmit loads to building structure. Provide intermediate stabilizers as required. Provide manual on/off valves in oil lines adjacent to pump unit and jack units in pit.

F. Well Hole Casing:
1. Well hole is to be provided by Elevator Contractor. No additional compensation will be allowed for unforeseen conditions of any kind or spoil removal.
2. Install steel outer casing minimum 18" diameter. Install watertight sleeve over jack assembly for secondary containment prior to insertion into the outer casing. Extend PVC sleeve through pit floor slab to underside of jack support beams and seal with non-permeable membrane. Seal well opening at the pit floor with hydraulic quick setting cement. Provide PVC vision/access ports.

G. Terminal Stopping: Provide normal and final devices.

H. Electrical Wiring and Wiring Connections:
1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10% spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room.
2. Conduit: Galvanized steel conduit, EMT, or duct. Flexible conduit length not to exceed 3'-0". Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.
3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway.

a. Provide five pair of shielded wires of minimum 18 gauge for card reader.
b. Provide four pair of spare shielded communication wires in addition to those required to connect specified items.
c. Tag spares in machine room. Provide cables from controller to car top.

4. Auxiliary Wiring: Provide conduit, wiring and connections for fire alarm initiating devices, emergency two-way communication system, firefighters' phone, paging speaker, and card reader interface terminals and relays, intercom, and announcement speaker and/or background music from the machine room junction box to each car controller in machine room.

I. Entrance Equipment:
1. Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.
2. Door Tracks: Bar or formed, cold-drawn removable steel tracks with smooth roller contact surface.
3. Door Interlocks: Operable without retiring cam. Paint interlock box flat black.
4. Door Closers: Spring, spirator, or jamb/strut mounted counterweight type. Design and adjust to insure smooth, quiet mechanical close of doors.
5. Hoistway Door Unlocking Device: Provide unlocking device with escutcheon in door panel at all floors, with finish to match adjacent surface.
6. Hoistway Access Switches: Mount in entrance frame side jamb at top and bottom floors. Provide switch without faceplate.

J. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car. Back side of door shall be field painted dark bronze as selected by Architect.

2.7 HOISTWAY ENTRANCES

A. After installation, paint all entrance equipment in the hoistway dark bronze as selected by the Architect.

B. Complete entrances bearing fire labels from a nationally recognized testing laboratory approved within the governing jurisdiction.

C. Frames: 14-gauge hollow metal at all floors. Bolted and lapped. Clad frames with finish material indicated in finish schedule Item 2.7 I. at all floors. Provide Arabic floor designation/Braille plates, centered at 60" above finished floor, on both side jambs of all entrances. Provide plates at main egress landing with "Star" designation. For designated emergency car, provide "Star of Life" designation plates at height of 78"-84" above finished floor on both side jambs at all floors. Braille indications shall be below Arabic floor designation. Provide cast floor designation/Braille plates as manufactured by SCS Elevator Products, Inc. or Vision Mark.

D. Door Panels: 16-gauge steel, sandwich construction without binder angles. Provide leading edges of center-opening doors with rubber astragals. Provide a minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel. Construct door panels with interlocking, stiffening ribs. Architectural metal cladding shall wrap around leading and trailing edge of panel and return a minimum of 1/2" on rear side of leading edge of panel at all floors. Back side of doors shall be dark bronze as selected by Architect.

E. Sight Guards: 14-gauge, same material and finish as hoistway entrance door panels. Construct without sharp edges.

F. Sills: Extruded nickel silver.

G. Sill Supports: Structural or formed steel designed to support door sill based upon car loading classification. Mount to eliminate need for grout under the sill.

H. Fascia, Toe Guards and Hanger Covers: 14-gauge furniture steel with dark bronze enamel finish as selected by Architect. Provide hoistway width fascia, toe guards, and hanger covers for Elevator 1.

I. Struts and Headers: Provide for vertical support of entrances and related material. Provide door open bumpers on entrances equipped with vertical struts. (painted dark bronze)

J. Finish of Frames and Doors:
   1. Elevator 1: Floors B, 1 – 2 – Color as selected by Architect.

K. Hoistway Access:
   1. Hoistway Door Unlocking Device: Provide unlocking device with escutcheon tubes in door panel at all floors, with finish to match adjacent surface.
   2. Hoistway Access Switches: Mount in entrance frame side jamb at top bottom floor. Provide switch without faceplate.

2.8 SEISMIC EQUIPMENT

A. Not used.

2.9 CAR EQUIPMENT

A. After installation, paint all car equipment dark bronze as selected by Architect.

B. Frame: Welded or bolted, rolled or formed steel channel construction to meet load classification specified. Field paint in color as selected.

C. Platform: Isolated type, constructed of steel, or steel and wood which is fireproofed on underside. Design and construct to accommodate load classification requirements. Provide Class “A” construction for passenger elevators, Class A.

D. Platform Apron: Minimum 14-gauge steel, reinforced and braced to car platform front with dark bronze enamel finish as selected.

E. Guide Shoes: Roller type with three or more spring dampened, sound-deadening rollers per shoe. Maximum roller rotation speed, 350 rpm.

F. Finish Floor Covering: Provided.
   1. Elevator: Porcelain tile, 3/8” thick, color selected by Architect, over 3/4” thick marine plywood sub-floor. Design for ease of replacement from within cab.

G. Sills: One piece extrusion with extruded extension between car entrance columns to face of car front return. Extruded extension to match finish of sill.
   1. Elevator 1: Nickel silver.

H. Door Panels: 16-gauge steel, sandwich construction without binder angles. Provide leading edges of center-opening doors with rubber astragals. Provide a minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel. Construct door panels with interlocking, stiffening ribs. Architectural metal cladding shall wrap around leading and trailing edge of panel and return a minimum of 1/2" on rear side of leading edge of panel. Paint exterior of car floor in field in dark bronze color as selected.

I. Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.

J. Door Track: Bar or formed, cold-drawn removable steel track with smooth roller contact surface.

K. Door Header: Construct of minimum 12-gauge steel, shape to provide stiffening flanges.

L. Door Electrical Contact: Prohibit car operation unless car door is closed. Provide car door interlock to prevent opening of car doors outside the unlocking zone.

M. Door Clutch: Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open.

N. Restricted Opening Device: Provide car-door interlock to prevent opening of car doors outside unlocking zone.

O. Door Operator: High-speed, heavy-duty door operator capable of opening doors at no less than 2.5 fps. Accomplish reversal in no more than 2½" of door movement. Provide solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current. Provide a minimum of four controller-activated motion profiles, per floor, per door, to maintain consistent, smooth, and quiet door operation at all floors, regardless of door weight or varying air pressure. Acceptable closed-loop door operators:
   1. KONE: AMD 2.0
   2. Otis: PGlide
   3. Schindler: QKS 15 Heavy Duty
   4. Thyssenkrupp: HD91 StarTrac
   5. G.A.L.: MOVFE
   6. Mitsubishi: LV4K

P. Door Control Device:
   1. Infrared Reopening Device:
      a. Black, fully enclosed device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7'-0" above finished floor. Device shall prevent doors from closing and reverse doors at normal opening speed if beams are obstructed while doors are closing, except during nudging operation. In event of device failure, provide for automatic shutdown of car at floor level with doors open:
      b. Acceptable Infrared Reopening Device:
         1) Cegard/MAX-154 by CEDES
         2) Gatekeeper by Adams
         3) Optiguard by Otis
         4) Magic Edge by Tri-Tronics

5) Microscan E by T.L. Jones
6) Pana40 Plus by Janus

2. Nudging Operation: After beams of door control device are obstructed for a predetermined time interval (minimum 20.0-25.0 seconds), warning signal shall sound, and doors shall attempt to close with a maximum of 2.5 foot pounds kinetic energy. Activation of the door open button shall override nudging operation and reopen doors.
3. Interrupted Beam Time: When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0-1.5 seconds after beams are reestablished.
4. Differential Door Time: Provide separately adjustable timers to vary time that doors remain open after stopping in response to calls.
   a. Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
   b. Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds. Use hall call time when car responds to coincidental calls.

Q. Car Operating Panel:
1. One car operating panel with faceplate, consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car swing front return. Car operating panel will be constructed of #4 stainless-steel, brushed finish.
2. Provide Exposed Pushbuttons to Initiate:
   a. Car call registration.
   b. Alarm.
   c. Door open.
   d. Door close.
   e. Emergency push-to-call communication.
3. Pushbuttons:
   a. Provide minimum 3/4" diameter raised floor pushbuttons which illuminate to indicate call registration.
   b. Provide brushed stainless, vandal resistant buttons with illuminated LED lighting.
   c. Locate operating controls no higher than 48” above the car floor, no lower than 35” for emergency push-to-call button and alarm button.
   d. Identify buttons with flat stainless tactile symbols outlined in black and rear mounted.
4. Locked Firefighters’ Emergency Operation Panel:
   a. Openable by the same key which operates the Fire Operation switch.
   b. Provide panel with solenoid operated key switch which automatically opens in the event of Firefighters’ Emergency Operation Phase I activation.
   c. Include the following features:
      1) Phase II fire access switch.
      2) Firefighters’ visual indication.
      3) Call cancel button.
      4) Stop switch, manually operated.
      5) Door open button.
      6) Door close button.
      7) Fire communication jack.
5. Service Compartment:
   a. Provide lockable service compartment with recessed flush door.
   b. Door material and finish to match car operating panel faceplate.
   c. Include integral flush window for displaying the elevator operating permit on inside surface of door.

d. Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:
   1) Access switch.
   2) Light switch.
   3) Four-position exhaust blower switch.
   4) Independent service switch.
   5) Constant pressure test button for battery pack emergency lighting.
   6) 120-volt, AC, GFCI protected electrical convenience outlet.
   7) Stop switch. Arrange switch to sound main control panel distress signal when actuated. Mark device to indicate “run” and “stop” positions.
   8) Switch to select either floor voice annunciation, floor passing tone, or chime.
   9) Car lighting dimmer switch.

6. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:
   a. Phase II firefighters’ operating instructions on inside face of firefighters’ compartment door.
   b. Engrave filled red firefighters’ operation on outside face of compartment door.
   c. Building identification car number on main car operating panel.
   d. “No Smoking” on main car operating panel.
   e. Car capacity in pounds on service compartment door.
7. Provide “door open” button to stop and reopen doors or hold doors in open position.
8. Provide “door close” button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters’ operation.
9. Provide firefighters’ Phase II key switch with engraved instructions filled red. Include light jewel, audible signal, and call cancel button.
10. Emergency Audible Signal: Provide on top of elevator. Activation of Alarm Button or Emergency Stop switch will cause Emergency Audible Signal. Provide auxiliary power supply to provide 1-hour power in the event of loss of normal power.

R. Communication System:
   1. Hands-Free Phone System:
      a. Two-way communication instrument in car with automatic dialing, tracking, and recall features with shielded wiring to car controller in machine room.
      b. Provide dialer with automatic rollover capability with minimum two numbers:
         1) Actuate two-way communication via “Help” button.
         2) Adjacent light jewel shall illuminate and flash when call is acknowledged.
         3) Button shall match car operating panel pushbutton design.
         4) Provide “Help” button tactile symbol, engraved signage, and tactile marking adjacent to button mounted integral with car front return panel.
   2. Emergency Personnel Communication:
      a. Communication system shall be provided allowing emergency personnel to establish communications with each elevator individually.
      b. Emergency Personnel Communication shall override any existing connection outside of building.
      c. Adjacent light jewel shall illuminate and flash when call is acknowledged.
      d. Provide operating instructions.
      e. On the same car operating panel as the phone push button, provide capability to communicate with and obtain responses from passengers.
      f. Provide display video capability for entrapment assessment.

3. Communication for Deaf, Hard of Hearing and Speech Impaired: Device is located on the same car operating panel as the phone pushbutton. Provide shielding twisted pair wiring to communicate to machine network box.

S. Car Top Control Station:
1. Mount to provide safe access and utilization while standing on car top.
2. Operating device shall contain Up and Down direction buttons, a Run button, an Inspection/Automatic switch and Emergency Stop switch.
3. Operating device shall contain an audible and visible indicator that fire recall has been initiated.
4. This station shall be fixed to the car crosshead or may be portable provided the extension cord and housing is permanently attached to the car crosshead.
5. The car will be operated by constant pressure on the appropriate directional button and the Run button simultaneously.
6. Normal operating devices will be inoperative while this device is in use.

T. Work Light and Duplex Plug Receptacle:
1. GFCI protected outlet at top and bottom of car.
2. Include on/off switch and lamp guard.
3. Provide additional GFCI protected outlet on car top for installation of car CCTV display.

2.10 CAR ENCLOSURE

A. Passenger Elevator: Provide complete as specified herein and detailed on architectural drawings. The exterior of the elevator will be clad in stainless steel. In addition, include stainless steel shrouds top and bottom of cab. Please note additional pit and overhead is not available.
1. Shell: Reinforced 14-gauge furniture steel formed panels with baked enamel interior finish as selected. Apply sound-deadening mastic to exterior. Provide concealed ventilation cutouts.
2. Canopy: Reinforced 12-gauge stainless steel formed panels with lockable, contacted, hinged emergency exit. Interior finish white color reflective baked enamel.
3. Front Return Panels: Reinforced 14-gauge furniture steel clad with minimum 16-gauge satin finish stainless steel with cutouts for applied car operating panel(s) and other equipment.
4. Transom: Reinforced 14-gauge furniture steel clad with minimum 16-gauge satin finish stainless steel full width of enclosure.
5. Car Door Panels: Reinforced minimum 16-gauge furniture steel clad with minimum 18-gauge satin finish stainless steel. Same construction as hoistway door panels. Cladding shall wrap leading and trailing edge of panel a minimum of 1/2" on rear side.
6. Base: Satin finish stainless steel.
7. Interior Wall Finish: Removable panels, faced and edged, with satin textured finish stainless steel.
8. Ventilation: Forced ventilation, 3-speed fan or blower mounted to car canopy. Exhaust blower shall meet noise and vibration criteria.
9. Lighting: Provide LED fixtures with wiring and hookup. Coordinate with emergency lighting requirements
10. Ceiling: Six-section mirror finish stainless steel panels with lighting cutouts in each panel.
11. Handrails/Guardrails: Two lines. Top handrail line minimum 1½" diameter stainless steel grab bar with backing plates and captive nuts. Lower guardrail line 4" x 3/8" solid stainless steel flatstock bars mounted on both sides rear of the car. Locate bottom guardrail line at 8" above car floor and handrail line at 32" above the car floor. Bolt rails through car walls from

back and mount on 1½" deep solid round stainless steel standoff spacers no more than 18" O.C. Return handrail/guardrail ends to car walls.

12. Pads and Buttons: Three-piece removable pads. Two pads covering side walls and adjacent front returns and one covering rear wall. Provide cutouts to access main car operating panel.
13. Auxiliary power for ventilation.

2.11 HALL CONTROL STATIONS

A. Pushbuttons: Provide one (1) riser with flush mounted faceplates. Include pushbuttons for each direction of travel that illuminate to indicate call registration. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency as part of faceplate. Pushbutton design shall match car operating panel pushbuttons. Provide vandal resistant pushbutton and light assemblies. Provide LED illumination.

B. Phase I Fire Service fixture, including keyswitch, engraved operating instructions and illuminating jewel. Provide illuminating jewel(s) indicating standby power status. Provide communication check failure indication and silence key switch. Incorporate all items required by Code at the primary egress level into a single hall fixture.

2.12 SIGNALS

A. Car Direction Lantern, Elevator 1:
1. Provide dual fixtures at each entrance to indicate travel direction of arriving car. Locate as detailed on architectural drawings. Provide flush-mounted car lanterns in each car entrance columns.
2. Illuminate up or down LED lights and sound tone once for up and twice for down direction prior to car arrival at floor. Illuminate light until the car doors start to close as doors open.
3. Sound level shall be adjustable from 20-80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor.
4. Car direction lenses shall be arrow shaped with faceplates.
5. Lenses shall be minimum 2½" in their smallest dimension.
6. Provide vandal resistant lantern and light assemblies consisting of series of dots or lines for maximum visibility.

B. Car Position Indicator: Alpha-numeric digital indicator containing floor designations and direction arrows a minimum of 1/2" high to indicate floor served and direction of car travel. Locate fixture in car operating panel. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway. Illuminate proper direction arrow to indicate direction of travel.

C. Faceplate Material and Finish: Satin finish stainless steel, all fixtures. Tamper resistant fasteners for all fastenings exposed to the public.
1. Car Direction Lantern:
2. Car Position Indicator:
3. Call Stations.

D. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.

E. Voice Synthesizer: Provide electronic device with easily reprogrammable message and male voice to announce car direction, floor, emergency exiting instructions, etc.

F. Firefighters' Key Box: Flush-mounted box with lockable hinged cover. Engrave instructions for use on cover per Local Fire Authority requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning installation of equipment examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.

B. Do not proceed with installation until work in place conforms to project requirements.

3.2 INSTALLATION

A. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.

B. Install machine room equipment with clearances in accordance with referenced codes and specification.

C. Install all equipment so it may be easily removed for maintenance and repair.

D. Install all equipment for ease of maintenance.

E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.

F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel in color as selected by Architect.
   1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
   2. Machine room equipment may be factory colors. All hoistway equipment including guide rails, guide rail brackets, and pit equipment must be field painted in color as selected.
   3. Neatly touch up damaged factory-painted surfaces in the machine with original paint color. Protect machine-finish surfaces against corrosion.

G. Clean all architectural finishes and replace or restore any surfaces damaged during construction to like new condition.

3.3 FIELD QUALITY CONTROL

A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies.

B. Operating Test: Load elevator capacity, speed, and travel distance to rated capacity and operate continuously for 30 minutes over full travel distance, stopping at each level and proceeding immediately to the next. Record temperature rise of elevator machine during 30-minute test period. Record failure to perform as required.

C. Advise Owner, Architect, and authorities having jurisdiction in advance of dates and times that tests are to be performed on elevators.

3.4 ADJUSTING

A. Install hydraulic jack assembly and guide rails plumb and align vertically with tolerance of 1/16" in 100'-0". Secure guide rail joints without gaps and file any irregularities to a smooth surface.

B. Static balance car to equalize pressure of guide shoes on guide rails.

C. Lubricate all equipment in accordance with Contractor's instructions.

D. Adjust motors, valves, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.5 CLEANUP

A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.

B. Remove all loose materials and filings resulting from work.

C. Clean machine room equipment and floor.

D. Clean pit equipment and floor.

E. Clean hoistways, car, car enclosure, entrances, operating, and signal fixtures.

3.6 TEST RESULTS:

A. Under any load obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Consultant. Tests may be conducted under no load, balanced load, and full load conditions.

B. Consultant may test temperature rise in motor windings limited to 50° Celsius above ambient. A full-capacity one hour running test, stopping at each floor for ten seconds in up and down directions, may be required.

C. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevator(s).

D. Check operation of elevator with Owner's personnel present before date of Substantial Completion and again not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

3.7 PROTECTION

A. Temporary Use: Comply with the following requirements for each elevator used for construction purposes:
   1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
   2. Provide strippable protective film on entrance and car doors and frames.
   3. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.

4. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
5. Do not load elevators beyond their rated weight capacity.
6. Engage elevator Installer to provide full maintenance service. Include preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleanup, and adjustment as necessary for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.
7. Engage Elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items which cannot be refinished in the field to the shop, make required repairs, and refinish entire unit, or provide new units as required.

END OF SECTION