375 Essjay Road, Suite 200, Williamsville, New York 14221
P 716.688.0766 **F** 716.625.6825

ADDENDUM NO. 2

CATTARAUGUS COUNTY
LITTLE VALLEY COUNTY CENTER
ELEVATOR IMPROVEMENTS

SEPTEMBER 23, 2022

OWNER

CATTARAUGUS COUNTY DPW
8810 Route 242
Little Valley, NY 14755

ARCHITECT/ENGINEER

Wendel WD Architecture, Engineering, Surveying & Landscape Architecture, Inc.
375 Essjay Road
Suite 200
Williamsville, NY 14221
Phone: 716-688-0766
Fax: 716-625-6825

Project No. 307670

This Addendum is being issued to clarify the bid documents and shall supersede and supplement all portions of previously issued bid documents with which it conflicts. It shall be made an integral part of the construction documents.

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Project	**Cattaraugus County Little Valley County Center Elevator Improvements**	Addendum No.	**02**
		Contract	**GC-55**
			M-56
			E-57
Wendel Project No.	**307670**	Date	**Sept. 23, 2022**

ARTICLE - **1**

DRAWING NO.

SPEC SECTION **Front End Forms**

ADD: "The General Construction Contract (DPW #55) award shall be based upon the sum of the base bid plus the total sum of the maintenance agreement" **to Page A-1 SECTION A Lump Sum Price Bid Schedule.**

SECTION A

LUMP SUM PRICE BID SCHEDULE

The Contractor shall furnish all materials, equipment, tools and labor of every kind required to complete the **Little Valley County Center Elevator Improvements**, 303 Court Street, Little Valley, New York and perform all other work and incidental work in the most substantial and workmanlike manner, and do everything required by the Contract Documents as defined herein.

The total lump sum price shall be the sum of all materials, installation and labor costs as defined herein. Each lump sum bid price shall be entered both in words and numerically in the spaces provided. In the event of a discrepancy the words will be used for tabulation purposes.

The General Construction Contract (DPW #55) award shall be based upon the sum of the base bid plus the total sum of the maintenance agreement.

ARTICLE - **2**

DRAWING NO.

SPEC SECTION **Bid Form #57 Electrical**

DELETE: Bid Form DPW Bid #57 Electrical Construction Contract.
ADD: Bid Form DPW Bid #57 Electrical Construction Contract attached as part of this addendum.

wendel

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Project	**Cattaraugus County Little Valley County Center Elevator Improvements**	Addendum No.	**02**
		Contract	**GC-55**
			M-56
			E-57
Wendel Project No.	**307670**	Date	**Sept. 23, 2022**

ARTICLE - **3** DRAWING NO.

SPEC SECTION **011000 Summary of Work**

ADD: "5. Hours for Hazardous Materials Abatement, Removal, and Associated Required Testing at hoistway doors and call buttons: Weekend work to be coordinated with the Facility" **to Specification Section 011000 Summary of Work, Part 1, Item 1.9 WORK RESTRICTIONS, B.**

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00am to 5:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: 8:30am to 4:30 p.m. to be coordinated with the Facility
2. Early Morning or Later Hours: Coordinate with the Facility.
3. Hours for Utility Shutdowns: After 5:00 p.m.
4. Hours for Core Drilling or noisy activity: After 5:00pm.
5. Hours for Hazardous Materials Abatement, Removal, and Associated Required Testing at hoistway doors and call buttons: Weekend work to be coordinated with the Facility.

ARTICLE - **4** DRAWING NO.

SPEC SECTION **012300 Alternates**

CLARIFICATION: Per the specification section and bid form, the alternate is for expediting the elevator work and components themselves specific to the GC (elevator contractor) scope of work.

ARTICLE - **5** DRAWING NO.

SPEC SECTION **142100**

DELETE: Specification Section 142100 – Electric Traction Elevators.
ADD: Specification Section 142100 – Electric Traction Elevators attached as part of this addendum.

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Project	**Cattaraugus County Little Valley County Center**	Addendum No.	**02**
	Elevator Improvements	Contract	**GC-55**
			M-56
			E-57
Wendel Project No.	**307670**	Date	**Sept. 23, 2022**

ARTICLE - **6** DRAWING NO. **A150**
SPEC SECTION

DELETE: Demolition Keynote #9 in its entirety.
ADD: Demolition Keynote #9 to read as follows:
"Form opening in existing concrete floor to accommodate ductwork. Concrete is 4" thick with #3 re-bar at 10" each way, top and bottom. Ref Mechanical Drawings for sizes and coordinate location under existing roof opening."

ARTICLE - **7** DRAWING NO. **A151**
SPEC SECTION

DELETE: Architectural drawing sheet A151.
ADD: Architectural drawing sheet A151 attached as part of this addendum.

ARTICLE - **8** DRAWING NO. **M101**
SPEC SECTION

ADD: Note to View #3 Machine Room Section where duct termination goes through the shaft wall penetration to read as follows:
"Penetration through shaft wall for the pressurization duct shall be sealed airtight after duct is installed. Contractor to ensure that the entire perimeter of the duct is sealed airtight."

SECTION A

LUMP SUM PRICE BID SCHEDULE

The Contractor shall furnish all materials, equipment, tools and labor of every kind required to complete the **Little Valley County Center Elevator Improvements**, 303 Court Street, Little Valley, New York and perform all other work and incidental work in the most substantial and workmanlike manner, and do everything required by the Contract Documents as defined herein.

The total lump sum price shall be the sum of all materials, installation and labor costs as defined herein. Each lump sum bid price shall be entered both in words and numerically in the spaces provided. In the event of a discrepancy the words will be used for tabulation purposes.

The General Construction Contract (DPW #55) award shall be based upon the sum of the base bid plus the total sum of the maintenance agreement.

BID FORM
DPW BID #57
ELECTRICAL CONSTRUCTION CONTRACT

To: John Searles
Cattaraugus County
303 Court Street
Little Valley, New York 14755

In compliance with your Advertisement for Bids, the undersigned:

_____
(Name of firm, partnership or Corporation)

hereby proposes to furnish all supervision, labor, materials, plan, tools, equipment, transportation, overhead and profit, and other facilities related to, proper, for or incidental to the project at the Little Valley County Center Elevator Improvements, Little Valley, New York, in strict accordance with the Project Manual dated September 1, 2022 and the Drawings mentioned therein, and including any subsequently issued addenda for consideration of the following Lump Sum amount:

TOTAL LUMP SUM BID AMOUNT (INCLUDING ALLOWANCE):

DOLLARS: ($_____)

WORDS: _____

ALLOWANCES: If any, state the amount included in the Base Bid for all work identified in each allowance:

1. Allowance No. 1: Electrical Modifications

   DOLLARS: ($ 30,000_____)

   WORDS: Thirty thousand dollars_____

PROPOSED EQUIVALENTS

The Contractor has included in the Base Bid the following kinds, types, brands, or manufacturers of materials in lieu of those named in the specifications. The Contractor understands that he includes these proposed equivalent items in the Base Bid at his own risk, as they are subject to the approval for the Architect. The Contractor certifies that the following constitute the extent of proposed equivalent items included in the Base Bid are those named in the specifications.

ITEM	SPECIFICATION SECTION & PARAGRAPH(S)	PROPOSED EQUIVALENT

ATTACH ADDITIONAL PROPOSED EQUIVALENT ITEMS TO BID FORM.

The Bidder agrees that this Proposal shall be good and may not be withdrawn for a period of forty-five (45) calendar days from the date of Bid opening. Furthermore, the undersigned will, within ten (10) days of written notice of acceptance of this bid, execute a contract in the form specified and submit specified Performance and Payment Bonds.

The Bidder understands that the Owner specifically reserves the right to reject any and all Bids and to waive any informality therein.

The undersigned agrees to complete the work in accordance with the time period specified in the Supplementary Instructions to Bidders.

Addendum Receipt: The receipt of the following addenda to the Specifications is acknowledged:

Addendum No. _____ Date_____
Addendum No. _____ Date_____
Addendum No. _____ Date_____

Addendum No. _____ Date_____
Addendum No. _____ Date_____
Addendum No. _____ Date_____

Submittals as required by the Instructions/Supplementary Instructions to Bidders, shall be completed and delivered to the Architect, by the tow (2) low bidders, with three (3) working days after the Bid opening.

Dated_____, 20___

_____
Legal name of person, partnership or corporation

Sign Bid Here) By: _____
Name and Title

Legal Business Address: _____
Street

_____
City and State

_____
Phone Number

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Future work.
7. Purchase contracts.
8. Owner-furnished products.
9. Contractor-furnished, Owner-installed products.
10. Access to site.
11. Coordination with occupants.
12. Work restrictions.
13. Specification and drawing conventions.
14. Miscellaneous provisions.

1.3 PROJECT INFORMATION

A. Project Identification: Cattaraugus County, Little Valley County Center Elevator Improvements, Wendel Project # 3076-70

1. Project Location: 303 Court Street, Little Valley, New York 14755.

B. Owner: Cattaraugus County

1. Owner's Representative: William Fox, Director of Engineering, Cattaraugus County DPW, 716-938-2439, wafox@cattco.org.

C. Architect: Wendel Companies, 375 Essjay Road, Suite 200, Williamsville, New York 14221.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Elevator modernization of existing elevator cab and controls with new cab within existing shaft. Pressurization equipment, Sump pump upgrade with piping to daylight at exterior wall. Electrical power, smoke, alarm connections. Hazardous material abatement to elevator doors and items within Machine room. Structural concrete slab over one shaft area.

2. Rescue Assistance Signal System to two staircases on second and third floors. All necessary accessories and signage.

B. Type of Contract:
1. Project will be constructed under coordinated, concurrent multiple contracts. See Section 011200 "Multiple Contract Summary" for a list of multiple contracts, a description of work included under each of the multiple contracts, and the responsibilities of Project coordinator.
2. County contract numbers for each contract are defined below:
   a. Bid #55 – General Construction
   b. Bid #56 – Mechanical Construction
   c. Bid #57 – Electrical Construction

1.5 PHASED CONSTRUCTION

A. Construct the Work in phases for the elevators as listed in specification section 142100 Traction Elevators

B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule, showing the sequence, commencement and completion dates for all phases of the Work.

1.6 ACCESS TO SITE

A. Restricted Use of Site: Each Contractor shall have limited use of Project site for construction operations as indicated on Drawings and as indicated by requirements of this Section. The Building and Site will be fully occupied during the project.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations. Maintain fire alarm operational throughout the project or supplement with fire watch.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 CONTRACTOR USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: Allow for Owner occupancy and use by the public for the entire duration of the project. Owner’s operations are 10 hours per day, 5 days per week.
2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
3. Owner’s existing parking lots are not to be used for parking of construction workers vehicles or staging of materials or equipment, unless authorized specifically by the Owner.
4. All deliveries to the Contractor at the site must be accepted at the site by the Contractor, regardless of time of delivery. The Owner will not accept deliveries for the Contractor at any time.

B. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair any damage caused by weather or construction

operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1. Restore to new condition any lawn, pavement, sidewalk, etc., damage by construction and staging operations. Repair lawns with sod matching existing lawns, not with seed.

1.9 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00am to 5:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: 8:30am to 4:30 p.m. to be coordinated with the Facility
2. Early Morning or Later Hours: Coordinate with the Facility.
3. Hours for Utility Shutdowns: After 5:00 p.m.
4. Hours for Core Drilling or noisy activity: After 5:00pm.
5. Hours for Hazardous Materials Abatement, Removal, and Associated Required Testing at hoistway doors and call buttons: Weekend work to be coordinated with the Facility.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days (48 hours) in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days (48 hours) in advance of proposed disruptive operations.

2. Activity to be carried out after 5:00pm or coordinated with Facilty.
3. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building and Site: Smoking is not permitted within the building or on the project site at any time. There will be no exceptions.

F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building or Project site is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents are abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

3. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.11 MISCELLANEOUS PROVISIONS

A. Copies of Drawings and Project Manuals: The Contractor is required to purchase from the Designated Printing Company the number of copies of the Drawings and Project Manual it

requires for construction of the project. The Owner will not reimburse the Contractor for these copies.

B. Project Superintendent: The Owner must approve the Contractor's project superintendent for the work. Submit resume of proposed superintendent together with Bid.

1. Full Time Superintendent: The Contractor's project superintendent is required to be on site full time for the duration of the project or until such time as mutually agreed upon by the Owner, Architect and Contractor. No substitution of project superintendents by the Contractor after work begins will be allowed without prior approval by Architect and Owner.

C. Licensed Contractors/Subcontractors: Prime Contractor and all Subcontractors must be licensed to work in the State of New York, Cattaraugus County, Town of Little Valley in each of their perspective fields of work on the Project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

September 23, 2022

Little Valley Court House

303 Court Street, Little Valley, NY

Elevator Modernization Specifications
Two (2) Traction Elevators

Prepared by

VDA

145 West 30th Street, 4th Floor | New York, NY 10001

Phone: 212-868-9090 | Fax: 212-868-9099

Email: glegregni@vdassoc.com

VDA No. 65629/GL

DIVISION 14

SECTION 14 21 00

TECHNICAL SPECIFICATIONS FOR

TWO (2) TRACTION ELEVATORS

AT

LITTLE VALLEY COUNTY BUILDING

303 COURT STREET

LITTLE VALLEY, NEW YORK

DATE: September 23, 2022

VDA No. 65629/GL

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DIVISION 14 – CONVEYING SYSTEMS

14 00 00 Conveying Equipment

14 21 00 – Traction Elevators

14 21 23 – Electric Traction Passenger Elevators

PART 1 - GENERAL

1.1 SUMMARY AND DEFINITIONS

A. Related Documents

1. Division 01 - Supplementary General Conditions
2. 14 01 20 - Elevator Maintenance - Full Coverage Contract / Specifications
3. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
4. Examine all other Sections of the Specifications for requirements that affect work under this Section whether or not such work is specifically mentioned in this Section.
5. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

B. Intent

1. This section includes: The Modernization of Elevator PE1

    a. Installation of new microprocessor controllers, solid-state stopping and leveling devices
    b. Replacement of existing geared machine, with installation of a new Geared Machine.
    c. Installation of Ascending car over-speed and unintended car movement protection
    d. New MOVFR type car door operating systems.
    e. Replacement of all hatch door tracks, Hangers & Interlocks.
    f. Replacement of hall hatch doors
    g. Replacement of all car and hall operating fixtures, signals and indicators, as specified
    h. All new wiring, traveling cables and hardware
    i. Inclusion of a $25,000 per car cab allowance. (**Elevator cab finish selections are to be upgraded to match new elevator PE2 as identified on drawing sheet A151**.)
    j. Alternates

        1) Accelerated Schedule

2. This section includes: The Installation of Elevator PE2

a. Installation of new microprocessor controllers, solid-state stopping and leveling devices
b. The installation of a new Geared Machine.
c. The installation of new machine beams.
d. Alignment verification of existing rails.
e. Installation of Ascending car over-speed and unintended car movement protection
f. Installation of a new MOVFR type car door operating system.
g. Installation of new hatch door tracks, Hangers & Interlocks.
h. Replacement of all car and hall operating fixtures, signals and indicators, as specified
i. All new wiring, traveling cables and hardware
j. New cab platform, safety, frame and cab shell.
k. Installation of new spring buffers and buffer channels.
l. Inclusion of a $25,000 per car cab allowance. (**Elevator cab finish selections are to be upgraded to match new elevator PE2 as identified on drawing sheet A151**.)
m. Alternates

1) Accelerated Schedule

3. Related equipment shall be designed, constructed, installed and adjusted to produce the highest results with respect to smooth, quiet, convenient and efficient operation, durability, economy of maintenance, and the highest standard of safety.
4. It is not the intent of these specifications to detail the construction and design of all parts of the equipment, but it is expected that the type, materials, design, quality of work and construction of each part shall be adequate for the service required, durable, properly coordinated with all other parts, and in accordance with the best commercial standards applicable and of the highest commercial efficiency possible.
5. Electric and magnetic circuits and related parts shall be of proper size, design and material to avoid heating and arcing, and all other objectionable effects which may reduce the efficiency of operation, economy of maintenance and/or net-useful life of the apparatus.
6. Minimum requirements for design, materials, etc., are for certain parts of the equipment. Equivalent requirements approved by the Consultant shall apply to such parts as are of special design, construction or material and to which the specified requirements are not directly applicable. These minimum requirements as a whole shall be considered as establishing proportionate general minimum standards for all parts of the equipment.
7. The Consultant may permit variations from the requirement of these specifications to permit use of the Contractor's standard equipment, provided such standard equipment is in every way adequate for the intended use and meets the full intent of these specifications. All such variations proposed by the manufacturer shall be called to the attention of the Consultant and shall only be made if approved in writing prior to the award of the contract.
8. General requirements for design, materials and construction are intended primarily to apply to the heavy-duty and important parts of the equipment specifically mentioned and to other parts of similar duty and importance. Less important and light-duty parts may be of the standard design, materials and construction provided that, in the opinion of the Consultant, such standards are in accordance with the best commercial practice and are fully adequate for the purpose of use. All such variations shall be made only on the Consultant's written approval.
9. All equipment and component parts installed, supplied or provided under this contract shall be manufactured and distributed by a third-party, non-installer company servicing the vertical transportation industry.

a. Apparatus shall conform to the design and construction standards referenced herein, and shall be rated the best commercial grade suitable for this application.
b. Equipment and component systems shall not employ any experimental devices or proprietary designs that could hamper and/or otherwise prohibit subsequent maintenance repairs or adjustments by all qualified contractors.
c. Manufacturers of the apparatus shall provide technical support and parts replacements for their equipment and component systems for a minimum of twenty (20) years, and issue such guarantee of support to the purchaser with written certification naming the final Owner of their product(s) to ensure the apparatus or systems remain maintainable regardless of who may be selected for future service.

10. All equipment provided shall be factory and field tested with a history of design reliability and net-useful life established.

    a. Contractor must be able to demonstrate the apparatus to be installed has been used successfully in a substantially similar manner under comparable conditions.
    b. If the apparatus proposed differs substantially in construction, material composition, design, size, capacity, duty or other such rating from the equipment previously used for the same purpose by the manufacturer, the Consultant may reject the apparatus or require the vendor test and demonstrate the adequacy and suitability for this particular situation. Any necessary tests shall be performed at the sole expense of the Contractor with no prior guarantee of acceptance after the testing procedure.

11. The Contractor shall not use as part of the permanent equipment any experimental devices, proprietary design, components, construction of materials which have not been fully tried out in at least substantially similar or under comparable service, except as may be especially approved by the Consultant. If any important equipment or devices to be used on this installation differ substantially in construction, materials, design, size, capacity or duty from corresponding items previously used for the same purpose by the manufacturer, they shall pass such tests as the Consultant may require to fully show their adequacy and suitability. These tests shall be in addition to tests herein specified and shall be made at the expense of the Contractor.
12. Certain design limitations, tests, etc., are herein specified as a partial check of the adequacy of design, construction and materials used. These requirements do not cover all features necessary to ensure satisfactory and approved operation, etc., of the equipment.
13. It is understood, the entire system shall be designed, fabricated, modified and/or upgraded in full compliance with applicable local laws and code standards. The absence of a particular item or requirement shall not relieve the Contractor of the full and sole responsibility for such equipment, features and/or procedures.
14. With the exception of only those items specifically identified as being performed by others, the Specifications are intended to include all engineering, material, labor, testing, and inspections needed to achieve work specified by the Contract Documents. Inasmuch as it is understood that any incidental work necessary to complete the project is also covered by the Specifications, bidders are cautioned to familiarize themselves with the existing job site conditions. Additional charges for material or labor shall not be permitted subsequent to execution of the Contract.
15. Bidders must report discrepancies or ambiguities occurring in the Specifications to the Consultant for resolution prior to the bidding deadline, otherwise the Specifications shall be deemed acceptable in their existing form.
16. Fixtures, Operating Devices and Signage Survey

a. Upon award of the Contract, Contractor shall perform a survey of the existing elevator operating fixtures and devices, including signage, and present a report to the Owner via submittal process. The report shall include photographs of the following existing items:

1) Hall call push buttons
2) "You are Here" signage if integral with the hall call fixture cover plate
3) Floor identification / Braille signage in entrance jambs
4) Lobby directional lanterns at all floors
5) Applicable wall surfaces

b. The Contractor shall submit, as part of the report, pictures or catalog cuts of the new devices intended to be installed under the modernization project at the various locations including any additional signage either new or replacing existing.

C. Termination of Existing Agreement(s)

1. By submitting a bid, the existing maintenance provider agrees that any service contract(s) in effect shall be terminated by the Owner should the project be awarded to another vendor upon 30-day written notice to the Contractor by the Owner.

a. The contract(s) shall be terminated with no penalty to the Owner or Contractor.
b. Owner will be responsible for money owed the Contractor for services provided and work performed up until the date of cancellation.

D. Abbreviations and Symbols

1. The following abbreviations, Associations, Institutions, and Societies may appear in the Project Manual or Contract Documents:

ADA	Americans with Disabilities Act
AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
IBC	International Building Code
IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Agency
OSHA	Occupational Safety and Health Act

E. Codes and Ordinances / Regulatory Agencies

1. Work specified by the Contract Documents shall be performed in compliance with applicable Federal, State, and municipal codes and ordinances in effect at the time of Contract execution. Regulations of the Authority Having Jurisdiction shall be fulfilled by

the Contractor and Subcontractors. The entire installation, when completed, shall conform with all applicable regulations set forth in the latest editions of:

a. Local and/or State laws applicable for logistical area of project work.
b. Building Code applicable to the AHJ.
c. Elevator Code applicable to the AHJ.
d. Safety Code for Elevators and Escalators, ASME A17.1 and all supplements as modified and adopted by the AHJ.
e. Safety Code for Elevators and Escalators, A17.1S supplement to A17.1 as modified and adopted by the AHJ for Machine Room Less installations (MRL).
f. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2.
g. Safety Code for Existing Elevators and Escalators, ASME A17.3 as modified and adopted by the AHJ.
h. Guide for emergency evacuation of passengers from elevators, ASME A17.4.
i. National Electrical Code (ANSI/NFPA 70).
j. American with Disabilities Act - Accessibility Guidelines for Building and Facilities and/or A117.1 Accessibility as may be applicable to the AHJ.
k. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
l. ECC (Energy Conservation Code) as may be applicable to the AHJ.

2. The Contractor shall advise the Owner's Representative of pending code changes that could be applicable to this project and provide quotations for compliance with related costs.

F. Reference Standards

1. AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
2. ANSI/AWS D1.1 - Structural Welding Code, Steel.
3. ANSI/NFPA 80 - Fire Doors and Windows.
4. ANSI/UL 10B - Fire Tests of Door Assemblies.

G. Definitions

1. Defective Work: 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.
2. Provide: Where used in this document, provide shall mean to install new device, apparatus, system, equipment or feature as specified in this document.
3. Definitions in ASME A17.1 as amended or modified by the AHJ apply to work of this Section.

1.2 PERMITS AND SUBMITTALS

A. Permits

1. Comply with the requirements of Division 01.

2. Prior to commencing work specified by the Contract Documents, the Owner will provide permits or variances as may be required by the AHJ and provide satisfactory evidence of having obtained said permits and variance to both the Consultant and Contractor.
3. File necessary drawings for approval of all Authorities Having Jurisdiction.
4. The Elevator Contractor shall undertake the necessary review and search procedure to identify open applications and/or outstanding violations for this property; and, close-out such applications and/or expunge such violations relative to the project scope as required for final acceptance by the AHJ.

    a. Outstanding applications and violations must be indicated on the request for permit filing for this procedure to ensure such applications and/or violations are dismissed accordingly.
    b. All relative costs shall be included in the base bid proposal with the understanding that corrective actions are covered under the specified scope of work.

B. Submittals

1. Prior to beginning the work, the Contractor shall submit and have approved copies of layout drawings, shop drawings and standard cuts. These items shall include:

    a. A plan view of the hoistway and machine room
    b. Elevation of the pit
    c. All accessories.
    d. Comply with the requirements of Division 01.

2. The Consultant and the Owner's Representative shall pass on the submittals with reasonable promptness and the Contractor shall be responsible to ensure that there will be no delay in their work or that of any other trade involved.
3. Approved filing and submittal requirements must be completed before equipment and related materials are ordered.
4. Copies of Department of Buildings' permits and/or governing authority's documents will be posted at the job site.
5. Samples of wood, metal, plastic, paint or other architectural finish material applicable to this project shall be submitted for approval by the Owner's designee.
6. It shall be understood that approval of the drawings and cuts by Owner's designee, Architect and/or Consultant shall be for general arrangement only and does not include measurements which are the Contractor's responsibility or approval of variations from the contract documents required by the AHJ.
7. The Contractor shall prepare a record log and maintain all submittals, shop drawings, catalog cuts and samples.
8. Provide Closeout documentation consisting or Record drawings, O&M Manuals, Training sign-in sheets

C. Measurements and Drawings

1. Drawings or measurements included with the bidding material shall be for the convenience of the bidders only and full responsibility for detailed dimensions lies with the Contractor.
2. In the execution of the work on the job, the Contractor shall verify all dimensions with the actual conditions.

3. Where the work of the Elevator Contractor is to join other trades, the shop drawings shall show the actual dimensions and the method of joining the work of the various trades.

D. Substitutions

1. Requests for substitutions will be considered under the following time limitations and situations:

   a. Not less than ten (10) calendar days before bids are due. Refer to spec section 016000 Product Requirements
   b. Work or equipment specified becomes unavailable through unforeseen events such as strikes, loss of manufacturer's plant through fire, flood or bankruptcy.
   c. Comply with requirements of Division 01.

2. Requested substitutions will be reviewed and adjudged. Failure of the Consultant to raise objection shall not constitute a waiver of any of the requirements of the Contract Documents.
3. Request for substitutions shall include complete data with drawings and samples as required, including the following:

   a. Quality Comparison - Proposed substitution versus the specified product.
   b. Changes required in other work because of the substitution.
   c. Effect on the construction schedule.
   d. Cost Data - Resulting from the proposed substitution versus the specified product. The Contractor shall certify that the cost data presented is complete and includes all related costs under this Contract.

4. When proposing a substitution, the Contractor represents that:

   a. They have investigated the proposed substitution and have determined that it is equal to or better than the product specified.
   b. They will guarantee the substitution in the same manner as the product specified.
   c. They will coordinate and make other changes as required in the work as a result of the substitution.
   d. They waive all claims for additional costs as a result of the substitution, with the exception of those identified above under "cost data".

5. The Consultant will be sole judge of the acceptability of the proposed substitution.
6. The Consultant will have authority to approve or reject substitutions or to change the specified standards of quality. However, neither this authority to act under this provision nor any decision made in good faith, either to exercise or not to exercise this authority, shall give rise to any duty or responsibility of the Consultant to the Contractor, any Subcontractor, any Sub-Subcontractor, any of their agents or employees or any other persons performing the work or offering to perform the work.

E. Changes in Scope and Extra Work

1. The Owner may at any time make changes in the specifications, plans and drawings, omit work, and require additional work to be performed by the Contractor.

a. Comply with requirements of Division 01.

F. Keys

1. Upon the initial acceptance of work specified by the Contract Documents on each unit, the Contractor shall deliver to the Owner, six (6) keys for each general key-operated device that is provided under these specifications in accordance with ASME A17.1, Part 8 standards as may be adopted and modified by the AHJ.
2. All other keying of access or operation of equipment shall be provided in accordance with ASME A17.1 Part 8 as may be adopted and modified by the AHJ.

G. Diagnostic Tools

1. Prior to seeking final acceptance of the project, the Contractor shall deliver to the Owner any specialized tools required to perform diagnostic evaluations, adjustments, and/or programming changes on any microprocessor-based control equipment installed by the Contractor. All such tools shall become the property of the Owner.

    a. Owner's diagnostic tools shall be configured to perform all levels of diagnostics, systems adjustment and software program changes which are available to the Contractor.
    b. Owner's diagnostic tools that require periodic re-calibration and/or re-initiation shall be performed by the Contractor at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the project.
    c. The Contractor shall provide a temporary replacement, at no additional cost to the Owner, during those intervals in which the Owner might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation or repair.

2. Contractor shall deliver to the Owner, printed instructions, access codes, passwords or other proprietary information necessary to interface with the microprocessor-control equipment.

H. Service Support Requirements

1. Software / Firmware Updates

    a. During the life of the equipment and subject to the term of the maintenance agreement, where revisions to firmware and/or software are issued by the control manufacturer or manufacturer of solid state and microprocessor based subsystems subsequent to the beneficial use of the equipment, updates shall be provided so that the installation and spare circuit boards are current with respect to software and firmware versions.

I. Wiring Diagrams, Operating Manuals and Maintenance Data

1. Comply with the requirements of Division 01.
2. Deliver to the Owner, four (4) identical volumes of printed information organized into neatly bound manuals prior to seeking final acceptance of the project.

3. The manuals shall also be submitted in electronic format on non-volatile media, incorporating raw 'CAD' and/or Acrobat 'PDF' file formats.
4. Manuals, as well as electronic copies, shall contain the following:

    a. Step-by-step adjusting, programming and troubleshooting procedures that pertain to the solid-state microprocessor-control and motor drive equipment.
    b. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
    c. A composite listing of the individual settings chosen for variable software parameters stored in the software programs of both the motion and dispatch controllers.
    d. Method of control and operation.

5. Provide four (4) sets of "AS INSTALLED" straight-line wiring diagrams in both hard and electronic format in accordance with the following requirements:

    a. Displaying name and symbol of each relay, switch or other electrical component utilized including identification of each wiring terminal.
    b. Electrical circuits depicted shall include all those which are hard wired in both the machine room and hoistway.
    c. Supplemental wiring changes performed in the field shall be incorporated into the diagrams in order to accurately replicate the completed installation.

6. Furnish four (4) bound instructions and recommendations for maintenance, with special reference to lubrication and lubricants.
7. Manuals or photographs showing controller repair parts with part numbers listed.

J. Training

1. Prior to seeking final acceptance of the project, the Contractor shall conduct a training program on-site with building personnel selected by the Owner.
2. The focus of the session shall include:

    a. Instructions on proper safety procedures and who to contact for the purpose of assisting passengers that may become entrapped inside an elevator car.
    b. Explain each control feature and its correct sequence of operation.
    c. Submit a sign-in sheet of personnel who too the training.

3. Control features covered shall include but, not be limited to:

    a. Independent Service Operation.
    b. Emergency Fire Recall Operation - Phase I
    c. Emergency In-car Operation - Phase II.
    d. Emergency Power Operation.
    e. Emergency Communications Equipment.

K. Patents

1. Patent licenses which may be required to perform work specified by the Contract Documents shall be obtained by the Contractor at its own expense.

2. The Contractor agrees to defend and save harmless the Owner, Consultant and agents, servants, and employees thereof from any liability resulting from the manufacture or use of any patented invention, process or article of appliance in performing work specified in the Contract Documents.

L. Advertising

1. Advertising privileges shall be retained by the Owner.
2. It shall be the responsibility of the Contractor to keep the job site free of posters, signs, and/or decorations.
3. Contractor's logo shall not appear on faceplates or entrance sills without the approval of the Owner.

1.3 QUALITY ASSURANCE

A. Materials and Quality of Work

1. All materials are to be new and of the best quality of the kind specified.
2. Installation of such materials shall be accomplished in a neat manner and be of the highest quality.

a. Should the Contractor receive written notification from the Owner stating the presence of inferior, improper, or unsound materials or quality of installation, the Contractor shall, within twenty-four (24) hours, remove such work or materials and make good all other work or materials damaged.
b. Should the Owner permit said work or materials to remain, the Owner shall be allowed the difference in value or shall, at its election, have the right to have said work or materials repaired or replaced as well as the damage caused thereby, at the expense of the Contractor, at any time within one (1) year after the completion of the work; and neither payment made to the Contractor, nor any other acts of the Owner shall be construed as evidence of acceptance and waiver.

B. Mechanical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work where applicable and are supplementary to other requirements noted under the respective headings.

a. All bearings, pivots, guides, guide shoes, gearing, door hanger sheaves, door hanger tracks and similar elements subject to friction or rolling wear in the entire elevator installation shall be accurately and smoothly finished and shall be arranged and equipped for adequate and convenient lubrication. Means shall be provided for flushing and draining the larger bearings and gear case. All oiling holes shall have dustproof, self-cleaning caps.
b. Bearings of governor and governor sheaves and important supporting bearings of other parts in motion when the elevator is traveling shall, unless otherwise specified or approved, be of ball or roller bearing type.
c. Bearings for brake levers and similar uses where the amount of movement under load is light and the wear negligible may be unlined.

d. All plain bearings shall be liberally sized in accordance with the best commercial elevator usages which have proved entirely satisfactory on heavy-duty installations.

e. Bearings of motors shall be arranged and equipped for adequate automatic lubrication. Ring or chain oilers, spring-fed grease cups and equivalent devices properly used in accordance with the best commercial elevator practice will be acceptable. Approved means shall be provided for visibly checking the amount of lubricant contained and for flushing and draining. Means shall also be provided for preventing leakage of lubricant when the reservoirs or grease cups are filled to proper levels.

f. Ball and roller bearings shall be of liberal size and of a type and make which have been extensively and successfully used on other similar, heavy-duty elevator installations. They shall be fully enclosed. Loading, lubrication, support and all other conditions of use shall be in accordance with the recommendations of the bearing manufacturer based on previous extensive and satisfactory elevator usage.

g. All armature spiders and similar items intended to rotate with their shafts shall be keyed and/or firm press or shrunk fit on the shafts. Set screw fastening will be permitted only for minor items not subject to hoisting loads and where means for field adjustment is required.

h. All bolts used to connect moving parts, bolts carrying hoisting stresses and all other bolts, except guide rail bolts, subject to vibration or shock shall be fitted with adequate means to prevent loosening of the nuts and bolts. Bolts transmitting important shearing stresses between machine parts shall have tight body fit in drilling holes.

i. All machine work, assembling and installing shall be done by skilled and experienced mechanics using first-class, modern equipment and tools. All work shall be thoroughly high grade in every respect. All parts will be manufactured to high precision standards so that wearing parts will be readily interchangeable with stock repair parts with a minimum of field fitting.

j. All bearing and sliding surfaces of shafts, pins, bearings, bushings, guides, etc., shall be smoothly and accurately finished. They shall be assembled and installed in accurate alignment and with working clearance most suitable for the load, speed, lubrication and other conditions of use.

k. Structural steel used for supporting and securing equipment and for the construction of car slings, etc., shall conform to the A.S.T.M. specification for Structural Steel for Buildings. Design stresses shall not exceed those specified in the local Building Code.

l. Castings of motor frames, sheaves, gear casings, etc., shall be of the best quality metallurgically controlled, hard, close grained gray machinery cast iron, free from blow holes, sand holes, or shrinkage cracks, ground to remove overruns, sanded and machined so as to leave a finish suitable for its particular application. Surfaces of sheaves and brake drums shall be entirely free from defects and shall show a hardness of not less than 220 Brinell.

C. Electrical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work and are supplementary to other requirements noted under the respective headings.

a. The design and construction of the motors shall conform to the requirements of these specifications and to the ASME Standards for Rotating Electrical Machinery with revisions issued to the first day when the work of this Contract was advertised.

1) Motors shall operate successfully under all loads and speeds and during acceleration and deceleration.
2) Motors shall be designed for quiet operation without excessive heat.
3) Insulation on motor coils and windings and on all insulated switch, relay, brake and other coils shall conform to the requirements of minimum Class "F" insulation, as defined in ANSI Standards for Rotating Electrical Machinery. All motors shall be impregnated twice.
4) Switches, relays, etc., on controller, starter and signal panels and similar items on other parts of the equipment shall be the latest improved type for the condition of use. They shall function properly in full accordance with the requirements of the machines controlled and with the specified operating requirements of the elevator. Any of these parts showing wear or other injurious effects during the guarantee period to the extent that abnormal maintenance is required or indicated shall be replaced with proper and adequate parts by the Contractor.
5) Contacts in elevator motor circuits which are intended to be opened by governors or other safety devices shall be copper to carbon or other approved non-fusing type.
6) Where required, controllers and other component parts of the installation shall be labeled in accordance with the latest codes and standards as adopted and/or otherwise modified by the AHJ.
7) Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL/US listing as may be required by the AHJ. Equipment shall be labeled or tagged accordingly.

D. Energy Conservation Code

1. The Contractor shall comply with the requirements set forth in the Energy Conservation Code as may be applicable to the AHJ.
2. Except for equipment or systems under the purview of other disciplines, elevator and escalator equipment provided by the Contractor requiring compliance shall include, but not be limited to:

a. Gear ratio efficiencies in geared machines
b. Energy efficiencies of geared and gearless motors
c. Absorption of regenerated power for elevators and escalators
d. Variable speed operation of escalators
e. Energy efficiencies of car interior lighting and ventilation
f. Automatic operation of car interior lighting and ventilation through the individual car controller

E. Materials, Painting and Finishes

1. Two (2) coats of rust inhibiting machinery enamel shall be applied to exposed ferrous metal surfaces in the pit that do not have a galvanized, anodized, baked enamel, or special architectural finishes.

2. Two (2) coats of rust inhibiting enamel paint to the machinery located within the machine room and secondary level (where applicable) as well as to the machine room floors.
3. Architectural metal surfaces of bronze or similar non-ferrous materials which are specified to be refinished, reclad and/or provided new, shall be sufficiently clear coated so as to resist tarnishing during normal usage for a period of not less than twelve (12) months after final acceptance by the Owner.
4. Identify all equipment including buffers, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
5. Paint or provide decal-type floor designation not less than six (6) inches high on hoistway doors (hoistway side), fascias and/or walls as required by Code at intervals not exceeding 7'-0". The color of paint used shall contrast with the color of the surface to which it is applied.

F. Accessibility Requirements

1. Locate door reopening devices at 5” and 29” above the finish floor when individual contact projection apparatus is employed.
2. Locate the alarm button and emergency stop switch at 35”, and floor and control buttons not more than 48” above the finished floor. The alarm button shall illuminate when pressed for visual acknowledgement to user.
3. Provide raised markings in the panel to the left of the car call and other control buttons. Letters and numbers shall be a minimum of 5/8” and raised .03” and shall be in contrasting color to the call buttons and cover plate.
4. The centerline of existing hall push button shall be 42” to 48” above the finished floor.
5. The hall arrival lanterns or cab direction lantern provided shall sound once for the “up” direction and twice for the “down” direction. Design and locate fixtures per Federal standards.
6. Provide floor designations at each entrance on both sides of jamb at a height of 60” above the floor.

    a. Use cast metal plates and polished numbers secured with tamper-proof hardware.
    b. Designations shall be 2” high, raised .03” on a contrasting color background as selected by the Owner.

7. Provide an audible signal within the elevator to tell passenger that the car is stopping or passing a floor served by the elevator.
8. Where elevators operate at a speed greater than 200 fpm, provide a verbal annunciator to announce the floor at which the elevator is stopping where required by the AHJ.
9. Provide signal control timing for passenger entry/exit transitions per Federal and/or Local standards.
10. Ensure sill-to-sill running clearances do not exceed 1-1/4” at all landings served.
11. Provide visual call acknowledgment signal for car emergency intercommunication device.

G. Qualifications

1. The work shall be performed by a company specialized in the business of manufacturing, installing and servicing conveying systems of the type and character required by these specifications with a minimum of ten (10) years of experience.

2. Prior written acceptance is required for manufacturers other than those listed, before quoting this project. Requests for acceptance will not be considered unless they are submitted before bid date and are accompanied by the following information:

    a. List of five (5) similar installations having exact equipment being proposed for this project arranged to show name of project, system description and date of completed installation. The list shall include the names, position and resumes of the construction team and field supervisor of the installations.
    b. Complete literature, performance and technical data describing the proposed equipment. Include the names, position and resumes of the proposed construction team and field supervisor.
    c. List of ten (10) service accounts by building name, building manager or owner, including phone numbers.
    d. Location of closest service office from which conveying system will be maintained.
    e. Location of closest parts inventory for this installation.
    f. List of the names, positions and resumes of the construction teams and field supervisor for the installation.

1.4 DELIVERY / STORAGE / HANDLING / COORDINATION

A. Delivery and Storage of Material and Tools

1. Comply with the requirements of Division 01.
2. Delivery, Storage and Handling:

    a. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted samples.
    b. Store materials under cover in a dry and clean location, off the ground.
    c. Remove delivered materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

3. The Owner shall bear no responsibility for the materials, equipment or tools of the Contractor and shall not be liable for any loss thereof or damage thereto.
4. The Contractor shall confine storage of materials on the job site to the limits and locations designated by the Owner and shall not unnecessarily encumber the premises or overload any portion with materials to a greater extent than the structural design load of the Facility.

B. Work with Other Trades / Coordination

1. Coordinate installation of sleeves, block outs, equipment with integral anchors, and other items that are embedded in concrete or masonry for the applicable equipment. Furnish templates, sleeves, equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.
2. Coordinate sequence of installation with other work to avoid delaying the Work.
3. Coordinate locations and dimensions of other work relating to the equipment scheduled for installation including pit ladders, sumps, and floor drains in pits; entrance subsills; machine beams; and electrical service, electrical outlets, lights, and switches in pits and machine

rooms, secondary levels, overhead sheave rooms and hoistways as it relates to the specific equipment.

C. Removal of Rubbish and Existing Equipment

1. On a scheduled basis, the Contractor shall remove all rubbish generated in performing work specified in the Contract Documents from the job site.
2. Any component of the existing elevator plant that is not reused under the scope of work specified in the Contract Documents shall become property of the Contractor and, as such, shall be removed from the premises at the Contractor's sole expense.
3. The Contractor agrees to dispose of the aforementioned equipment and rubbish in accordance with any and all applicable Federal, State, and municipal environmental regulations, and further accepts all liability that may result from handling and/or disposing of said material.

D. Protection of Work and Property

1. The Contractor shall continuously maintain adequate protection of all their work from damage and shall protect the Owner's property from injury or loss arising out of this contract.
2. The Contractor shall make good any such damages, injury or loss, except such as may be directly caused by agents or employees of the Owner.
3. The Contractor shall provide all barricades required to protect open hoistways or shafts per OSHA regulations. Such protection shall include any necessary guards or other barricades for employee protections during and after the modernization procedure.

1.5 RELATED WORK

A. Work by Elevator Contractor Included in the Base Bid – (**Elevator Contractors Responsibility**)

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.

a. Installation of new electrical conduit and power feeders between the load side of the new main line disconnect switches and new elevator control equipment in the elevator machine room.
b. Provide hoist rope guards at the car and counterweight drop side of the hoisting machine sheave to prevent accidental contact with the hoisting ropes. The guard shall extend from the point where the hoisting ropes penetrate the machine room floor slab to a point beyond where the ropes contact the traction and deflector sheaves. The guards shall be constructed so as to conceal pinch-points between ropes and sheave grooves.
c. Provide a standard railing conforming to Code on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance or as otherwise required by the Authority Having Jurisdiction.
d. Provide necessary patching, repairing and installation of masonry and/or dry wall for smooth and legal elevator hoistways.

e. Subsequent to the contract execution, the Contractor shall perform the following procedures and engineering tasks relative to balance loading of system and cab work included under base specification requirements and alternative/optional upgrades:

1) Perform balance load testing to determine existing conditions and requirements applicable to new/modified equipment.
2) Provide data for Purchaser and/or their agents to evaluate any limitations that may be placed on design/finish options due to prevailing conditions or total suspended loading.

f. Painting

1) Contractor is responsible for the following areas.
   a) Car Top & Equipment (Contractors Choice)
   b) Pit floors, pit equipment & walls up to 6ft (All in battleship grey)
   c) Pit Ladders (Safety Yellow)
   d) Elevator Machine room floor (Floors will be painted in a battleship grey)
   e) All machines will be finished in the new coat of machine manufactures color upon turnover.

B. Work by Others – (**GC/EC/MC Responsibility**)

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.

a. Installation of new feeder conduit and wiring to new dry type transformer. Installation of all required disconnect per local and national code.
b. Installation of new fully enclosed, externally operated, fused, main line disconnect switches, properly located in accordance with local law that can be locked in the open (off) position.
c. Installation of auxiliary power feed with related distribution panel and disconnect switches designed and located per local and national code.

1) Voltage shall be 120VAC with one 15 Amp circuit breaker or fuse for lighting of each individual elevator car enclosure.
2) Circuit breakers and/or fused disconnects shall be lockable in the "OFF" position in accordance with applicable code.
3) Installation of branch circuit wiring to all elevator associated HVAC equipment.

d. The top surface of any setback or projection in the hoistway that measures 2" or more in width shall be beveled at an angle of not less than 75 degrees from horizontal, constructed from prime painted 14 gauge cold-rolled steel and installed so as to conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.
e. Installation of elevator shaft pressurization system. Installation of all peripheral sensors and the interconnection wiring from the fire alarm control panel
f. Installation of three (3) new permanent 4ft LED lighting fixtures and 120-volt GFCI duplex receptable in the elevator machine room. Illumination shall be no less than

30 foot-candles at floor level. A light control switch shall be provided immediately adjacent to the machine room entrance door. Provide necessary receptacles as required by Elevator Contractor to supply power to auxiliary elevator equipment and/or remotely located monitors.

1) Provide the following lighting:

   a) One (1) 4ft LED lighting fixtured above each elevator machine
   b) One (1) 4ft LED lighting fixtures 1ft in front of each elevator controller.
   c) One (1) 2ft LED lighting fixtures in front of the power disconnects.

g. Provide each elevator pit with a 120volt GFI duplex receptacle and a permanent 2ft LED lighting fixture equipped with protective guard. Illumination shall be no less than 10 foot-candles at pit floor level. A light control switch shall be provided and so positioned as to be readily accessible from the pit entrance door or ladder.

h. Installation of hoistway and machine room smoke relief provisions in accordance with local laws.

i. Provide any required repair of smoke holes with subway grating covers in the machine rooms and/or secondary levels where applicable. All smoke ventilation provisions, including duct work, dampers, fans, fire control interfaces, in accordance with local codes, shall be reviewed for proper operation.

j. Provide a smoke detector system meeting the requirements of A17.1 and/or the Local Governing Authority.

k. Installation of fire emergency control interface provisions for automatic recall of the elevator(s) through operation of the fire detection system. Provisions shall be made for alternate designated fire recall landing with connection contingent on Codes recognized by the local governing authority. The interfacing contacts shall be wired to an electrical junction box located inside each elevator machine room for connection to the elevator control systems by the Elevator Contractor. Each wire shall be clearly labeled with its control function. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.

l. Installation of emergency power control interface provisions to signal the elevator control apparatus of a transfer from normal (utility) power to the building emergency (generator) power supply. Also, provide additional control interface to give advanced notification to the elevator control apparatus that the power source will transfer from emergency (generator) power to normal (utility) power. Interfacing contacts shall be wired to an electrical junction box located inside each machine room for connection to the elevator control equipment by the Elevator Contractor. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.

   1) On the line side of each main line disconnect switch, provide some means to absorb power that may be regenerated by the elevator hoist motor during emergency power operation.
   2) Normal Power/Emergency Power Control Signals consisting of two (2) dry contacts provided by others to function as follows:

a) One (1) dry contact normally open to make when Normal Power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).
b) One (1) dry contact normally open to make when emergency power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).

m. Installation of HVAC provisions inside the machine room so as to maintain ambient temperature and humidity levels that are within the range specified by the microprocessor-control equipment manufacturers.
n. Provide a class "ABC" fire extinguisher in electrical machinery and control spaces. Locate the extinguisher in close proximity to the access door.
o. Provide necessary telephone wiring with connection to local telephone service for remote elevator monitoring and/or two-way voice emergency communications systems.

1) Terminate the telephone wiring in junction boxes or standard phone jack terminals in the machine room.
2) Coordinate the quantity and termination method of individual phone connections with the Elevator Contractor.
3) Identify each phone line for connection by the Elevator Contractor to the appropriate elevator device(s).
4) Telephone wiring, where required by applicable codes, shall be installed in conduit.

p. Sumps in pits where provided, shall be covered. The cover shall be level with the pit floor so as not to produce a tripping hazard. (Refer to details on plumbing drawings)
q. Install new pit permanent fixed metal ladder. (Refer to details on Arch drawing, Refer sheet A151)

1) Ladder shall extend no less than 48" above the sill of the access door. Handgrips shall extend from the ladder to a point no less than 48" above the sill of the access door where the ladder does not comply.
2) The rungs shall be a minimum of 12" wide. Where prevailing conditions prevent a 12" wide rung, the rung may be reduced to no less than 9".
3) The rungs shall be spaced 12" on center.
4) A clear distance of no less than 4 ½" from the centerline of the rungs and handgrips to the nearest permanent object in back of the ladder shall be provided.

r. Asbestos abatement as per drawing sheet and specification section included in the contract document

1.6 WARRANTY / MAINTENANCE SERVICES

A. Contract Close-Out, Guarantee and Warranties

1. The Contractor agrees to certify that work performed in accordance with the Contract Documents shall remain free of defects in materials and quality of work for a period of one (1) year after final acceptance of the completed project, or acceptance thereof by beneficial use on a unit by unit basis, whichever occurs first.
2. The sole duty of the Contractor under this warranty is to correct any non-conformance or defect and all damages caused by such defect without any additional cost to the Owner and within fifteen (15) days of notification.
3. The express warranty contained herein is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.
4. In the event the Contractor fails to fulfill its obligations defined herein, the Owner shall have the express right to perform the Contractor's obligations and to charge the Contractor the cost of such performance or deduct an equal amount from any monies due the Contractor.

B. Maintenance Coverage

1. The following maintenance coverage apply:

a. Interim Maintenance

1) Provide full protective maintenance services and equipment coverage prior to the commencement of work, and during the work implementation procedure, until final acceptance of the finished project.
2) Interim full comprehensive maintenance services shall be provided in accordance with Section 14 01 20, Owner's Form of Agreement issued with the modernization documents for subsequent services.
3) Costs related to interim maintenance shall **NOT** be included in the base bid quotation & indicated on the bid form provided with a deduction for unit(s) out of service for upgrading.

b. Guarantee Maintenance

1) Provide full comprehensive preventative maintenance services for a period of twelve (12) months after the final completion and acceptance of the entire project.
2) Guarantee maintenance and related services shall be provided in accordance with Section 14 01 20, Owner's Form of Agreement issued with the modernization documents for subsequent services.
3) Costs related to guarantee maintenance shall be **INCLUDED** in the base bid quotation & indicated on the bid form in the space provided.

c. Long-Term Maintenance

1) Long-term full comprehensive maintenance and related services shall be provided in accordance with Section 14 01 20, Owner's Form of Agreement issued with the modernization documents for subsequent services.
2) Costs related to long-term maintenance shall **NOT** be included in the base bid quotation & indicated on the bid form in the space provided.

1.7 AUXILIARY SYSTEMS / TESTING PROCEDURES

A. Smoke Detector System

1. The Electrical Contractor shall provide a complete smoke detector system for elevator recall to comply with the governing authority's requirements and ASME A17.1 as approved or modified under local law.

a. Smoke detectors and all fire alarm systems components to be installed by the electrical contractor. Final termination and testing of the elevator equipment to be carried out by the Elevator subcontractor. Electrical and Elevator contractor to coordinate the installation for a complete operable system as designed.
b. Smoke detectors shall be installed, in the elevator lobby at each floor, top of hoistway, in pit areas, and associated elevator machine room in accordance with NFPA and/or other applicable codes and standards of the authority having jurisdiction.
c. The activation of a smoke detector in any elevator lobby or associated elevator machine room other than the designated level (1st Floor) shall cause all cars in all groups that serve that lobby to return non-stop to the designated level (1st Floor).
d. The activation of a smoke detector at the designated level (1st Floor) shall cause the cars to return to an alternate level as required and/or allowed by applicable code unless the Phase I key-operated switch is in the "firemen service" position.(Reference Electrical Specifications)
e. Smoke detectors and/or smoke detector system shall not be self-resetting.
f. Elevator Recall System shall incorporate a minimum number of zones as follows (Coordinate per smoke detector locations within the electrical contract)

1) Zone 1, First Floor
2) Zone 2, Basement Floor
3) Zone 3, Machine Room
4) Zone 4, Top of Shaftway
5) Zone 5, Pit
6) Zone 6, Elevator heat detectors
7) Zone 7 to All Typical Landings serviced.

g. Elevator Contractor shall provide final terminations, Electrical contractor to provide all conduit and wiring between elevator equipment. Electrical Contractor to coordinate locations with the elevator contractor. Conduit may run in elevator hoistway as part of elevator control signal systems provided such circuitry is installed per local code requirements.

1.8 ALTERNATES AND VALUE ENGINEERING:

The following alternatives are elective upgrades which constitute changes to the base scope of work specified. Pricing for each alternate upgrade is requested from the bidder with costs indicated in the appropriate space in the Request for Proposal (RFP). Contractor shall take into consideration, as part of the alternative pricing, alternate work that is required either in lieu of, or in addition to, work specified in the base scope and shall not duplicate costs.

A. Alternate No. 1 – **Accelerated Schedule**

1. Bidders are required to submit a separate price quotation to perform all work described in the Specification on a shift-work basis whereby six (6) consecutive 10-hour shifts of field installation labor shall be employed Monday through Saturday for the entire length of the project.
2. The bidder shall submit a revised project completion schedule based upon the use of shift work.

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION

2.2 Traction Elevator

A. Little Valley County Building 303 Court Street, Little Valley, NY 14755 US - Traction Elevator PE1- (Right Handed Elevator)

1.Quantity	1
2.Type	Passenger
3.Capacity (lbs)	2500
4.Speed (fpm)	200
5.Travel in Feet	
a. Roping\Hoisting	New
b. Roping\Governor	New
c. Roping/Ropes	1:1
6.Number of Landings	Four (4) @ G, 1 – 3
7.Number of Openings	Four (4)
8.Front Openings	4
9.Rear Openings	0
0.Side Openings	0
1.Operation	Automatic Group Duplex
2.Controller	Control Equipment (New)
3.Firefighter's Service	National
a. Comments	NA
4.Machine Room, Pit Lighting and GFI	
a. Comments	NEW LED – (By GC)
5.Machine Type	New Geared
6.Power Drive	New VVVF
7.Machine Location	Overhead
8.Governor	New
9.Car Platform / Frame / Safety	Reuse
0.Counterweight	Reuse
1.Guide Rails	Reuse
2.Guides	Roller Guides (New)

3.Buffers	Car and Counterweight Buffers (New Spring)
4.Car Door Type	
a. Front Door	SSCO
5.Car Door Size	
a. Front Door	42 (inches) wide x 84 (inches) high
6.Hoistway Door Type	SSCO
7.Hoistway Door Size	42 (inches) wide x 84 (inches) high
8.Master Door Operator	Master Door Power Operator System - VVVF/AC (New)
9.Hoistway Entrance Sills	Reuse
0.Hoistway Entrances	Reuse
1.Tracks / Hangers / Interlocks / Closers	New
2.Emergency Exits / Top	New
3.Keyed Access	New
4.Pit Ladder	New – (By Owner)
5.Power Supply	240V-3-60
6.Electrical Conduit / Wiring / Traveling Cable (New)	New
7.CCTV	Wiring Provisions
8.Number of Push Button Risers	One (1)
9.Car Operating Fixtures	New
0.Emergency Communication	New Audio & Visual
1.Door Reopening Device	New
2.Emergency Cab Lighting	New
3.Car Ventilation	New
4.Elevator Cab Enclosure	New Cab Shell
5.Cab Allowance	$25,000 - **Elevator cab finish selections are to be upgraded to match new elevator PE2 as identified on drawing sheet A151**
6.Car Doors / Gate Panels	New
7.Car Flooring	New
8.Car Sill	New

2.3 Traction Elevator

A. Little Valley County Building 303 Court Street, Little Valley, NY 14755 US - Traction Elevator PE2- (Left Handed Elevator)

9.Quantity	1
0.Type	Passenger
1.Capacity (lbs)	2500
2.Speed (fpm)	200
3.Travel in Feet	
d. Roping\Hoisting	New
e. Roping\Governor	New
4.Compensation Sheave	Not Applicable

5.Number of Landings	Four (4) @ G, 1 – 3
6.Number of Openings	Four (4)
7.Front Openings	4
8.Rear Openings	0
9.Side Openings	0
0.Operation	Automatic Group Duplex
1.Controller	New
2.Firefighter's Service	National
b. Comments	NA
3.Machine Room, Pit Lighting and GFI	
b. Comments	NEW LED – (By GC)
4.Machine Type	New Geared
5.Power Drive	VVVF
6.Machine Location	Overhead
7.Governor	New
8.Car Platform / Frame / Safety	New
9.Counterweight	New
0.Guide Rails	Reuse and Align
1.Guides	Roller Guides (New)
2.Buffers	Car and Counterweight Buffers (New Spring)
3.Car Door Type	
b. Front Door	SSCO
4.Car Door Size	
b. Front Door	42 (inches) wide x 84 (inches) high
5.Hoistway Door Type	SSCO
6.Hoistway Door Size	42 (inches) wide x 84 (inches) high
7.Master Door Operator	Master Door Power Operator System - VVVF/AC (New)
8.Hoistway Entrance Sills	Reuse
9.Sill Finish	Clean and polish
0.Hoistway Entrances	Reuse
1.Hoistway Doors	New
2.Tracks / Hangers / Interlocks / Closers	New
3.Emergency Exits / Top	New
a. Comments	New
4.Pit Ladder	New
5.Power Supply	240V-3-60
6.Electrical Conduit / Wiring / Traveling Cable (New)	New
7.CCTV	Wiring Provisions
8.Number of Push Button Risers	Common
9.Car Operating Fixtures	New
0.Emergency Communication	New Audio & Visual
1.Door Reopening Device	New
2.Emergency Cab Lighting	New
3.Car Ventilation	New
4.Elevator Cab Enclosure	New Cab Shell

5.Cab Allowance	$25,000 -**Elevator cab finish selections are to be upgraded to match new elevator PE2 as identified on drawing sheet A151**.
6.Car Doors / Gate Panels	New
7.Car Flooring	New
8.Car Sill	New

2.4 MANUFACTURERS

A. Pre-Approved Equipment Manufacturers

1. The following manufacturer's equipment and materials have been pre-approved for use on this project.
2. Other equipment not specifically mentioned shall be considered for approval on an individual basis.
3. **ONLY 3RD PARTY-EQUIPMENT SUBMITTALS WILL BE ACCEPTED**

   a. Controller - GAL (GALaxy), Motion Control Engineering, Elevator Controls Corporation, Elevator Systems, Inc., Smartrise
   b. Tracks, Hangers, Interlocks and Door Operators - G.A.L., ECI.
   c. Fixtures - G.A.L., Adams, EPCO, Monitor, E-Motive USA, C.E. Electronics, Innovation, PTL, MAD, National.
   d. Door Protective Device - Janus, Adams, G.A.L., T.L. Jones, Tri-Tronics.
   e. Cabs and Entrances/Entrance Door Panels - Accurate Elevator Door Corp, CEC Elevator Cab, EDI/ECI, Elite Elevator Cab, National Cab & Door, Tyler, Velis, Gunderlin, Premier, Prestige, Regency, Columbia Elevator Products, United Cabs.
   f. Machines - Hollister-Whitney, Titan, Imperial, Torin.
   g. Motors - Imperial Electric, General Electric, Baldor, Reuland Electric.
   h. VVVF Power Drives - Mitsubishi, MagneTek, Yaskawa, TorqMax.
   i. Guide Rails - AFD Industries, Savera, Monteferro.
   j. Electrical Traveling Cables - Draka, James Monroe.
   k. Guide Shoes/Rollers – ELSCO, G.A.L.
   l. Wire Ropes - Paulsen, Bethlehem, Wayland, Draka.
   m. Intercommunications/Telephones - Webb Electronics, K-Tec, Ring, Wurtec, Janus, approved equal.

2.5 CONTROL FEATURES / OPERATION

A. Motion Control

1. Smooth stepless acceleration and deceleration of the elevator car shall be provided in either direction of travel during both single and multiple floor runs.
2. Use digital logic to calculate optimum acceleration and deceleration patterns during each run.
3. Acceleration, deceleration, jerk, maximum velocity, leveling accuracy and elapsed flight time, for a typical elevator one floor run, shall not exceed values as further specified.

B. Automatic Group Duplex / Selective Collective Operation

1. Provide duplex selective collective operation with the two cars arranged to operate from a single riser of hall push buttons.
2. When there is no demand for elevator service, park one car at the Lobby Floor and the other shall be a "free car", parking at the floor last served.

    a. Park both cars with doors closed.
    b. The "free car" shall normally respond to any registered hall call except:

        1) A hall call registered at the Lobby Floor shall be answered by the car parked at the Lobby Floor.
        2) A hall call registered below the Lobby Floor shall be answered by the car parked at the Lobby Floor.

3. When the car parked at the Lobby Floor responds to a registered call for a floor above the Lobby Floor, the "free car" shall be dispatched automatically to the Lobby Floor, and shall become the assigned Lobby Floor parking car.
4. When the "free car" is responding to registered calls, the Lobby Floor parking car shall automatically dispatch from the Lobby Floor under any of the following conditions:

    a. Registration of hall call below the "free car" while it is traveling in the up direction.
    b. Registration of hall call above the "free car" while it is traveling in the down direction.
    c. Inability of the "free car" to move in response to a registered hall call within a predetermined time.

5. When both cars are responding to registered car and hall calls, the first car to complete its calls shall become the assigned Lobby Floor parking car and shall be dispatched automatically to the Lobby Floor.
6. If either car is removed from service, the other car shall respond to all registered hall calls and its own car calls.
7. When a car arrives at its last stop and reverses direction of travel, all previously registered car calls shall be automatically cancelled.
8. When a car has responded to the highest or lowest call, and hall calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
9. When a car arrives at a landing where both up and down hall calls are registered, it will answer the call in the direction of travel.

    a. If no car call is registered, the car shall be assigned to respond to call registered for the opposite direction. The car doors shall immediately close and re-open to respond to the call in the opposite direction.
    b. Hall lantern operation shall always correspond to direction of service.

10. When an empty car reverses direction at a landing with no hall calls, the doors shall not open and the hall lantern shall not operate.
11. If a car has no car calls registered and arrives at a floor where both up and down hall calls have been registered, the car shall respond to the hall call corresponding to the direction of car travel.

12. If, after making its stop, a car call is not registered and no other hall calls exist ahead of the car corresponding to its original direction of travel, the doors shall close and immediately reopen in response to the hall call for the opposite direction.
13. The car shall maintain its original direction at each stop until the doors are fully closed to permit a passenger to register a car call before the car reverses its direction of travel.
14. In the event that any car is delayed for more than a predetermined time interval after it received a start signal, the system shall automatically permit the remaining car in the two car group to respond to signals and be dispatched in the specified manner.
15. Coincident calls: The dispatching system shall be designed with a twenty (20) second parameter whereby an elevator with a car call will receive priority to answer a corresponding corridor call if it can do so within twenty (20) seconds. If it cannot answer the call within the prescribed time, the first available car shall be assigned. A continuous reassessment of calls shall be made, with the processor having the capability of reassessing five (5) times per second.
16. In the event the supervisory control system should malfunction so that neither elevator is assigned calls within a predetermined interval and in accordance with the conditions of the operating strategy in effect, the system shall automatically assume a back-up mode of operation whereby the elevators shall be arranged to provide continuous service to each landing in a predetermined pattern without regard to actual corridor call demands.

C. Independent Service Operation

1. The car operating station shall be equipped with a key-operated switch labeled “IND SER”.
2. Locate the switch in the locked service compartment.
3. When placed in the “on” position the following shall occur:

    a. Group elevator - the elevator shall bypass corridor calls and travel directly to any floor chosen by registration of a car call. Hall calls shall remain registered for service by another elevator in the group.

4. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or a car call push button is pressed and maintained until the doors are fully closed.
5. If more than one (1) car call is registered, all registered car calls shall extinguish when the elevator stops in response to the first call.
6. Fire Emergency Recall shall automatically override Independent Service Operation and engage Phase I - Fire Emergency Recall Operation following a period of approximately forty-five (45) seconds.

D. Inspection Service Operation

1. Provide a key operated switch in the main car operating panel locked service panel that, when turned to the ‘ON’ position, shall cause the elevator to be removed from service and placed in Inspection Service Operation.
2. Limited operation of the car shall be provided through pressing the Attendant Service up and down push buttons (if provided) or the highest or lowest car call push buttons (if up and down buttons are not provided) in the main car operating panel only.
3. The car shall move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with both the hall and car door panels in the closed and locked position.

4. The Inspection Service switch shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. The top of the elevator car shall be equipped with a control for limited operation of the car during repairs, maintenance and inspection conducted in the hoistway. The transfer of control to the top of car operating device shall cause that device to be the sole means of control for the elevator.

    a. Visual and audible indication shall be provided on the top of the car when Firefighters' Emergency Operation is initiated.

6. Power door operating equipment shall be rendered inoperative while the car is being operated in the Inspection Service mode with the exception of power closing of the door. The control system shall maintain closing power on the door while the elevator is moving under Inspection Service Operation.
7. The in-car Inspection Service switch shall be rendered ineffective when the top of car inspection control is activated.
8. Machine Room Inspection Operation and Inspection Operation with open door circuits shall be provided in accordance with A17.1 Safety Code, as modified and adopted, where required or allowed by the AHJ.

E. Hoistway Access Operation

1. Provisions shall be made to allow access to the hoistway through the use of hoistway access switches.
2. Operating the access switch shall permit the car to move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with the hall and car doors in the open position to obtain access to the top of the car or climb-in pit.
3. The car shall automatically stop motion when the car top is level with the hoistway door sill for access to top of car.
4. The access key switch(es) shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. Access operation shall be disabled when top of car inspection operation is in effect.

F. Load Weighing Operation

1. A positive means shall be provided to continuously monitor the amount of load being transported by the elevator car.
2. The system shall be used to:

    a. Preload static motor drives.
    b. Activate control features that include:

        1) anti-nuisance operation.
        2) load dispatch operation.
        3) load dependent non-stop operation where applicable.

3. The anti-nuisance feature shall operate at loads not exceeding 200 lbs., whereas load dispatch and load non-stop shall be set to function at 65% of the rated loading capacity for the initial set up and adjustment procedure.

G. Firefighters' Emergency Operation

1. Phase I Emergency Recall Operation shall be provided for each car in accordance with ASME A17.1 code as modified under the applicable local or State law.
2. Each main or auxiliary car operating station shall be provided with an indicator light and warning buzzer, each of which shall become activated whenever Phase I Operation is engaged.

    a. The warning buzzer shall cease to function once the car has completed the recall sequence and is positioned at the designated recall landing.
    b. The indicator light shall remain illuminated as long as Phase I Operation is activated.

3. A three-position, key-operated switch shall be provided on the designated recall landing to manually activate Phase I Operation.

    a. When activated, Phase I Operation shall be arranged so that in order to reset normal service, all cars must first be returned to the designated recall landing, after which the Phase I key-switch must be turned to the "OFF" position.

4. A standardized Fire Recall Key shall be used where required by the codes and standards applicable to the AHJ.
5. A "Standardized Fire Recall Key" shall be used in accordance with the applicable Chapter of the Public Law. This key shall be a Yale #3502.

    a. Multiple elevators within a group or building that are not affected by the scope of work specified herein, shall be upgraded to the "Standardized Fire Recall Key".
    b. The "Standardized Fire Recall Key" shall apply to both Phase I and Phase II Operation.

6. Phase II Emergency Recall In-Car Operation shall be provided for each car in accordance with ASME A17.1 code as modified under local or State law.
7. Locate controls required for Phase II In-Car Operation in a locked access cabinet in the main car operating panel.

    a. The cover of the locked access panel shall be engraved as required by local or State law.
    b. The locked access panel shall contain:

        1) Phase II key switch.
        2) Fire indicator light.
        3) Call cancel push button.
        4) Door open push button.
        5) Door close push button.
        6) Run/Stop switch.
        7) Other devices as may be required by local law.

c. Engrave the Firefighters' Service operating Instructions on the inside of the locked cabinet door.

H. Emergency Power Operation / All Elevators Operational

1. Upon loss of normal power, and establishing of emergency power, all elevators shall automatically resume normal operation.

   a. Elevators shall start sequentially so as to prevent overloading of the emergency power system.
   b. Sequential transformer connection operation shall be employed where necessary to reduce half-cycle inrush currents.

2. An illuminated signal marked "ELEVATOR EMERGENCY POWER" shall be provided in the elevator lobby at the designated level to indicate that the normal power supply has failed and the emergency power is in effect.
3. Prior to return to normal power, the building ATS shall provide a "pre-transfer" signal to the elevator equipment that will initiate the landing of elevators prior to transfer from emergency power to normal power.

   a. Timer of the pre-transfer signal shall be adjustable from fifteen (15) to thirty (30) seconds.

4. The following additional requirements apply:

   a. Firefighters' Service Operation, if in effect, will remain active at all times during emergency power operation.
   b. Car lighting will remain active with car lighting on separate emergency power feeders in addition to battery back-up.
   c. Communications will remain active at all times on emergency power feeders in addition to battery back-up.
   d. Remote monitoring, where provided, will be active from each group dispatcher for selected elevators using an uninterrupted power supply (UPS) to maintain the central processing unit during power transfers.
   e. Position indicator for each elevator will be active in the selected elevator and security room (where applicable), as well as lobby display panels.

5. Testing of elevators under emergency power shall be accomplished with the building ATS providing necessary "pre-transfer" signals to the elevator control apparatus.

   a. Prior to testing, the building ATS shall provide a "pre-transfer" signal to initiate the landing of the elevators prior to the transfer from normal to emergency power.
   b. After testing, the building ATS shall provide a "pre-transfer" signal to initiate the landing of the elevators prior to the transfer from emergency to normal power.

6. Where modernization of elevators is to be performed in phases, emergency power operation shall be tested by the building personnel upon completion of each individual elevator, after regular business hours. Contractor shall provide all necessary labor and include all corresponding overtime cost in the base bid.

I. Door Operation

1. Car and hoistway doors shall be arranged to operate in unison without excessive noise or slamming in either direction of travel.

    a. Door opening speeds of two (2) feet per second shall be provided in conjunction with closing speeds of 1.0 foot per second in accordance with governing code.
    b. Door operation shall commence as the car stops level at the floor and the machine brake is applied. Pre-door opening shall not be permitted.

2. Where the hoistway door and the car door are mechanically coupled, the kinetic energy of the closing door system shall be based upon the sum of the hoistway and the car door weights, as well as all parts rigidly connected thereto, including the rotational inertia effects of the door operator and the connecting transmission to the door panels.
3. The force necessary to prevent closing of the car and hoistway door from rest shall not exceed thirty (30) lbf. This force shall be measured on the leading edge of the door with the door at any point between one-third and two-thirds of its travel.
4. Door open and door close time shall be measured between the moment car door operation in either direction begins and the instant at which that cycle is completed.
5. When responding to either a car or corridor call, the amount of time that the elevator door remains stationary in the open position shall be adjustable up to sixty (60) seconds.

    a. Door open dwell time for a corridor call shall be separate of that for a car call, and in both cases, dwell time shall be canceled whenever the car door protection device is momentarily interrupted by passenger transfers, followed by a reduced door open dwell time of approximately one (1) second (adjustable) after the door protection device is cleared of obstructions.

6. The operation of the door protective device by interruption of one or more infrared light beams (dual or multi-beam non-contact) during the close cycle shall cause the immediate reversing of the doors to the full open position.
7. The door closing cycle shall be arranged so that, in the event the door protective devices become continually obstructed after the normal door open dwell time has expired, and following a time interval of approximately thirty (30) seconds (adjustable), a warning tone shall sound and the door closing cycle shall commence at reduced speed and torque per applicable Code requirements.
8. Each car operating station shall be provided with a “door open” and “door close” push button.

    a. Pressure on the “door open” button shall cause doors in the full open position to remain so and doors engaged in the close cycle to reverse direction and assume the full open position so long as pressure remains applied to the button.
    b. The “door open” buttons shall also control the open cycle during Phase II - Emergency In-car Operation.
    c. The “door close” push button shall function on Independent Service, Attendant Service and Phase II - Emergency In-car Operation as well as during normal automatic operations.

9. Repeated attempts by the power door operator to open or close the door at any landing shall be monitored by the control system.

a. In the event the door fails to cycle properly after a preset (adjustable) number of attempts, the car shall either travel to the next stop or remove itself from service, depending upon whether the malfunction is in the open or close cycle.

10. Each hoistway door shall be provided with an automatic self-closing mechanism arranged so that the door shall close and lock if the car should leave the landing while the hoistway door is unlocked.
11. Car doors shall be arranged to prevent their being manually opened from inside the car unless the elevator is positioned within a floor landing zone.

2.6 MACHINE ROOM / SECONDARY EQUIPMENT

A. Control Equipment

1. Provide a microprocessor-based elevator control system.
2. Digital logic shall calculate optimum acceleration, deceleration and velocity patterns for the car to follow during each run.
3. Closed-loop distance and velocity feedback shall monitor the actual performance of the elevator car with the desired speed profile.
4. System operating software shall be stored in non-volatile memory.

a. Elevator control relays, contactors, switches, capacitors, resistors, fuses, circuit breakers, overload relays, power supplies, circuit boards, static motor drive units, wiring terminal blocks and related components shall be totally enclosed inside a free-standing metal cabinet with hinged access doors.
b. The motor drive may be located in its own cabinet where the physical size of the drive prohibits installation within the elevator signal controller cabinet.
c. Mechanical ventilation or air conditioning of the cabinet shall be provided and shall be adequate to dispose of the full load heat losses without exceeding 40º C (104º F) ambient temperature.

1) Where integral air conditioners are not employed, control equipment cabinets shall be provided with forced air ventilation to prevent overheating of the electrical components housed therein.
2) Where integral air conditioners are employed, control equipment cabinets shall be “NEMA 12” rated with no ventilation fans or slots.

d. All electrical wiring inside the control equipment cabinet shall be performed in a neat manner with field wiring terminated at stud blocks provided inside the control cabinet.
e. Each wiring terminal shall be clearly identified according to the nomenclature used on the “as built” wiring diagrams. No more than two (2) field wires may be connected to any single terminal stud.
f. Spare wires shall be tagged according to their point of termination, bundled, and placed at the bottom of the control equipment cabinet.
g. Each electrical component within the cabinet shall be permanently identified with symbols, identical to those used on the “as-built” wiring diagrams.
h. A data plate that indicates the edition of the Code in effect at the time of installation and/or alteration shall be provided in accordance with applicable code and

requirements of ASME A17.1 Code. The data plate shall be in plain view and securely attached on the mainline disconnect or on the controller.

i. Control equipment shall comply with requirements of all applicable Sections of the ASME A17.1 Code as approved and adopted by the AHJ.

j. The manufacturer's standard on-board "LCD" display shall be incorporated on the main processor board and/or otherwise incorporated in the controller cabinet. The "LCD" shall be capable of providing alpha-numeric characters to view the operational status of the elevator and/or group functions depending on the application. The display shall provide the user with necessary information for troubleshooting and reprogramming of the basic system parameters.

    1) Where the "LCD" is not an integral part of the controller and troubleshooting/reprogramming requires the use of a separate tool, the tool shall be maintained in the machine room and accessible to service personnel. This tool, along with all technical documentation for the correct use of the tool, shall remain the property of the Owner.
    2) Password protection of critical programming features is required to prevent accidental changes to life-safety and other non-typical control settings.
    3) Where a separate dispatch or group control panel is provided, a separate "LCD" display shall be provided to view group functions.

B. Machine Beams – (**PE2**)

1. Provide support beams, angles, plates, bearing plates, blocking steel members to support machine, governors, dead end hitches, deflector and overhead sheaves.
2. Provide anchor bolts, templates and support beams for the machine.
3. Note the location of the structural machine beam supports and advise if the top of support is not adequate for the machine beams.
4. Fit each rope, cable and tape opening with 3" high 16-gauge minimum galvanized guard.

C. Machine Beams (Existing) – (**PE1**)

1. Provide additional support beams, angles, plates, bearing plates, blocking steel members, etc., to support new machine, governors, dead end hitches, deflector and overhead sheaves from existing machine beams where applicable.
2. Contractor shall verify adequacy of all existing supports scheduled to be reused and report any potential issues to the Owner.

D. Geared Traction Machine / Sheaves / Brake

1. Provide a worm-geared traction machine with a direct current brake and demountable drive sheave, mounted in proper alignment on a common bedplate.
2. The worm shall be accurately machined from steel and provided with a single end, double race ball bearing thrust.
3. The worm gear shall be made from a phosphor bronze rim, accurately cut, fitted and bolted to a cast iron spider.
4. The drive sheave shall be a demountable casting from the best grade of metal with a Brinell hardness of 215 to 230, and shall be machined with grooves, providing maximum traction with a minimum of rope and sheave wear.

a. Roping requirements and type of steel rope used as suspension means shall be engineered by the contractor and manufacturer of the equipment for maximum life of ropes and sheave.

5. Provide means for lubricating the machine.
6. The gear housing shall have a gasketed hole to inspect the gear.
7. Provide machine with an electro-mechanical brake.

    a. The brake shall be spring applied and electrically released where drum or disk-type brakes are employed.
    b. Design the brake electro-magnet for quick release and application of the brake.
    c. The brake lining material shall be non-asbestos.
    d. The brake pulley or disk shall act as the coupling between the drive motor shaft and the worm shaft.

8. Provide a raised machine arrangement so that the deflector sheave is located above the machine room slab. Provide adequate steel blocking members to support the machine assembly.
9. Provide sheave guards to prevent ropes from jumping off of the sheave grooves.
10. Provide hoist cable guards at the car and counterweight-drop side of the machine sheave.

    a. Guards shall cover cables from the point of slab penetration to the point where the hoist cables contact the sheave.
    b. Guards shall prevent access to cables at pinch points.

E. AC Drive Motor

1. Provide a vector duty, variable speed, reversible alternating current induction motor with high starting torque and low starting current, rated for 50° C (122° F) during continuous operation, designed for this particular elevator application with 180 starts per hour.

    a. Provide adequate ventilation of internal stator windings and rotating element to prevent overheating. (Constant velocity fan for constant cooling.)
    b. Provide thermal overload protection of the stator windings.

2. The hoist motor housing shall have a rigid cast iron stator frame.

    a. Core plate stator laminations shall be press fit into frame and properly secured.
    b. Minimum class “F” (or approved equal) insulation shall be used to ensure long-term reliability.

3. The rotating element shall be fabricated from drawn bars machined and fitted in slots with end rings brazed together and shall be dynamically balanced for vibration-free operation. The motor shaft shall be manufactured from high-strength alloy steel for maximum strength.
4. Provide a motor coupling machined for proper fit on motor shaft with slotted keyway and key to properly secure same for standard NEMA mounted construction (foot or footless).
5. Properly align the hoisting motor to the hoisting machine for vibration-free operation.
6. The motor shall have proper labeling in accordance with the requirements of the AHJ.

F. VVVF AC Drive

1. Provide a solid-state, variable voltage, variable frequency (VVVF), 3-phase AC hoist motor drive system as part of the microprocessor-based equipment.

    a. VVVF drive system shall be a low-noise, flux-vector inverter device.
    b. Include a digital LED readout and touch-key pad to facilitate software parameter adjustments, monitor system operation and display fault codes.

2. The drive shall utilize a 3-phase, full wave rectifier and capacitor bank to provide direct current power for solid-state inversion.
3. The inverter shall utilize IGBT power semiconductors and duty cycle modulation fundamental frequency of not less than one kilohertz to synthesize 3-phase, variable voltage variable frequency output.
4. The system shall be designed and configured with the following countermeasures for noise generated by the pulse-width modulated (PWM) inverters.

    a. Control of radiated noise via inverter and/or motor cables.
    b. Conducted noise through power lines.
    c. Induction noise and ground noise.

5. Inverter shall be encased in metal and independently grounded.
6. A noise filter for the input power line shall be provided to prevent penetration into radios, wireless equipment and smoke detectors.
7. A 3% three-phase line reactor shall be provided on the power system rated at the utility voltage input to the drive and sized for the rated drive current.
8. The drive shall:

    a. Be configured as a complete digital drive system.
    b. Be totally software configurable.
    c. Interface with external equipment/signals via either discrete local I/O connections or high speed Local Area Network (LAN).
    d. Be located within the limits of the control cabinet (where system size allows) or separately mounted in an appropriate chassis with hinged swing-out doors with clearances equal to the cabinet width dimensions.
    e. Provide programmable linear or S-curve acceleration.
    f. Provide free run or programmable linear or S-curve deceleration.
    g. Have controlled reversing.

9. Operating and Environmental Conditions:

    a. Have a service factor of 1.0.
    b. Rated for continuous duty.
    c. Humidity - 90% rated humidity non-condensing.
    d. Cooling - forced air when required.
    e. Digital display for:

        1) Running - output frequency, motor RPM, output current, voltage.
        2) Setting - Parameters values for setup and review.

3) Trip - separate message for each trip, last thirty (30) trips to be retained in memory.

10. Protective Features:

a. Motor overspeed.
b. Adjustable current limit.
c. Isolated control circuitry.
d. Digital display for fault conditions.
e. Selectable automatic restart at momentary power loss.
f. Manual restart.
g. Over/Under Voltage.
h. Line to line and line to ground faults.
i. Over-temperature.

G. Overspeed Governor

1. Provide a speed governor, located overhead, to operate the car safety.

a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.

1) Springs used to develop the tension are not acceptable.

b. Provide rope grip jaws, designed to clamp the governor rope to actuate the car safety upon a predetermined overspeed downward.

1) The centrifugal type governor shall trip and set rope jaws within 60 degrees of governor sheave rotation after reaching rated tripping speed.

c. Design the governor rope tripping device so that no appreciable damage to or deformation of the governor rope shall result from the stopping action of the device in operating the car safety.
d. Provide an electrical governor overspeed protective device which shall remove power from the driving machine motor and brake before or at the application of the safety.

1) The setting for the overspeed switch shall be as prescribed in the ASME A17.1 Safety Code.
2) Locate and enclose the switch to ensure that excess lubrication will not enter the switch enclosure.
3) Overspeed switch shall operate in both direction of travel on systems employing a static power drive unit.

e. Seal and tag the governor with the running speed, tripping speed and date last tested.
f. Design the governor to prevent false tripping due to conditions caused by rope dynamics.

H. Equipment Isolation

1. Provide sound reducing vibration isolation elements at all support points of elevator controller, solid-state motor drives, isolation transformers, reactance units, hoisting motors and machines.
2. The elements for controllers, solid-state motor drives and isolation transformers shall be similar to double deflection neoprene-in-shear mounts, as manufactured by Mason Industries, Type ND, with 0.35" static deflection under design load ratings.
3. Elements between the hoisting machine unitized base and machine support beams shall be similar to triple layer ribbed neoprene pads, separated by appropriate steel shims as manufactured by Mason Industries, Type W pads, at 50 durometer, loaded for 40 psi or approved equal.
4. All bolts through isolation elements, where necessary, are to incorporate resilient washers and bushings.
5. Isolation of existing hoisting machine and motor is contingent on the OEM design of the apparatus.

    a. Existing isolation pads shall be replaced with new.

I. Emergency Brake

1. Ascending Car Overspeed Protection Device

    a. Provide a device designed to prevent an ascending elevator from striking the hoistway overhead structure.
    b. The device shall decelerate the car with any load up to the rated capacity by applying an emergency brake.

        1) The device shall detect an ascending car overspeed condition of not greater than 10% higher than the speed that the car governor is set to trip.
        2) The device, when activated, shall prevent operation of the car until the device is manually reset.
        3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

2. Unintended Car Movement Protection Device

    a. Provide a device to prevent unintended car movement away from the landing when the car and hoistway doors are not closed and locked.

        1) The device shall prevent such movement in the event of failure of:

            a) The electric driving machine motor.
            b) The brake.
            c) The machine shaft or shaft coupling.
            d) Machine gearing.
            e) Control system.
            f) Any component upon which the speed of the car depends.
            g) Suspension ropes and the drive sheave of the traction machine are excluded.

        2) The device shall prevent operation of the car until the device is manually reset.

3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

2.7 HOISTWAY EQUIPMENT

A. Guide Rails / Inserts / Brackets (Reuse & New)

1. Car and counterweight guide rails, fishplates, rail brackets, backing support and related attachments shall be inspected to determine if unfavorable conditions exist that diminish the structural integrity of any component.

    a. In the event substandard conditions are disclosed by means of this inspection, the Contractor shall immediately inform the Consultant as to the exact nature of said problems and then undertake whatever repairs and/or replacements the Consultant may deem appropriate to remedy the situation.

2. Each stack of guide rails shall be individually examined to determine if excessive compression has occurred from building settlement.

    a. In the event such conditions are found to exist, each affected stack shall be cut off enough to relieve pressure.
    b. Jacking bolts shall be provided underneath each stack of both car and counterweight guide rails.
    c. PE2 rails shall be check for proper alignment and aligned if necessary.
    d. If PE2 shaft requires additional rails to extend into the machine room, the contractor shall provide, install and align,

3. Each stack of guide rails shall be realigned so that total deviation from plumb in any direction does not exceed 1/8” over the entire length of the hoistway and that DBG measurements never vary more than .030”.
4. As required, car guide rails joints shall be individually filled, filed and sanded in order to eliminate minor variations in adjoining machined surfaces.

B. Counterweight Assembly / Frame – (**PE2**)

1. Counterweight shall consist of a steel frame welded or bolted together and necessary steel sub-weights.

    a. Sub-weights shall be held within the frame by not less than two (2) tie-rods passing through holes in all weights with rods equipped with locknuts, secured by washers and cotter pins at each end.
    b. The counterweight shall be equal to the weight of the elevator car and approximately 40% of the contract (specified) capacity.
    c. Provide the required pit counterweight guard where no compensation is used.
    d. The bottom of the counterweight shall have a buffer striking plate and means to attach knock-off blocks to compensate for varying rope length.

C. Counterweight Assembly (Reuse) – (**PE1**)

1. The existing counterweight assembly shall be refurbished to as new condition and reused.
2. Individual counterweight frame members shall be inspected for any indication of damage and to determine if the overall assembly is twisted, racked, or otherwise distorted.

    a. All fastenings between counterweight frame members shall be individually examined, tightened and if necessary renewed.
    b. In case any of these conditions are found to exist, the Contractor shall immediately inform the Consultant about the exact nature of the problem and undertake whatever corrective action the Consultant may deem appropriate to remedy the situation.

3. The amount of filler weight placed within the counterweight frame shall be adjusted so the weight of the entire counterweight assembly is equal to that of the renovated elevator car, plus forty to forty-two percent (40-42%) of its rated loading capacity unless otherwise required by a manufacturer where new hoisting machinery is employed.

    a. Filler weights shall be held securely in place at all times with tie rods passing through holes in both the weights and the counterweight frame with tie rods secured on each end with double lock nut and a cotter pin arrangement.

4. The existing 2:1 rope sheave mounted to the counterweight frame shall be washed clean of accumulated grease and oil, then examined for any indication of bearing or bearing seal failure.

    a. Bearings which are found to be worn or emit unusual noises, vibration, heat, or other unfavorable characteristics shall be replaced.
    b. Defective grease retention seals shall be replaced.
    c. Provide means to ensure that hoist ropes cannot jump out of their respective grooves in case of a slacken-rope condition.

D. Roller Guides

1. Provide roller guide shoes with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car and counterweight frame.

    a. Roller guides shall consist of a set of sound reducing **[neoprene / polyurethane]** wheels in precision bearings held in contact with the three (3) finished rail surfaces by adjustable stabilizing springs.
    b. The bearings shall be sealed or provided with grease fittings for lubrication.
    c. Equip roller guides with adjustable stops to control postwise float.
    d. Fit the top car roller guides with galvanized, painted or powder coated steel guards.

2. Approved applications and manufacturers:

    a. Geared traction elevators: ELSCO Model B for car roller guides and ELSCO Model D for counterweight guides, or approved equal.

E. Hoist Ropes

1. Pre-formed traction steel wire rope, specifically constructed for elevator applications, shall be provided for suspension of the elevator car and counterweight assembly.

a. Fastenings shall be accomplished by use of individual tapered rope sockets (wedge clamp) with adjustable shackles.
b. General design requirements for rope shackles and the method of securing wire rope shall conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.

2. New ropes shall be identical in number and construction to those which are currently in use.
3. New rope shackles shall be provided.
4. Existing hitch plates shall be inspected for wear. Hitch plates with elongated holes or other conditions that may damage shackles shall be replaced with new.
5. Provide anti-spinout as required by applicable code at all shackles where applicable.

F. Governor Rope

1. Pre-formed wire rope specifically constructed for elevator applications, shall be provided for governor ropes.

a. Rope shall be traction steel or iron in accordance with OEM design requirements.
b. Rope diameter and method of fastening shall be in accordance with ASME A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

G. Electrical Conduit / Wiring / Traveling Cable

1. Electrical wiring shall be provided.

a. All wiring shall be stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
b. Electrical wiring provided for hoistway interlock shall be of a flame retardant type, capable of withstanding temperatures of at least 392 degrees Fahrenheit. Conductors shall be Type SF or equivalent.
c. Each run of electrical conduit or duct shall contain no less than 10% spare wires and, in any case, no fewer than two (2) spare wires.
d. Crimp-on type wire terminals shall be used where possible.

2. Traveling cable shall be provided.

a. Each traveling cable shall be provided with a flame and water resistant polyvinyl chloride jacket.
b. Electrical wiring shall consist of stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
c. Each traveling cable shall contain no less than 10% spare wires.
d. Traveling cable exceeding 100’ in length shall be provided with a steel wire rope support strand from which the cable shall be suspended.
e. Traveling cable must be contained within an approved electrical conduit to within 6’ of the final suspension point in the hoistway.

f. Each traveling cable shall be arranged to provide no fewer than six (6) individually shielded pairs of 20 gauge wire and arranged to contain no less than one (1) coaxial cable for CCTV remote monitoring.
g. Traveling cable conductors that terminate at a hoistway center box shall be connected to stud blocks provided for that purpose.

1) Each wiring terminal shall be clearly identified by its nomenclature as shown on the "as built" wiring diagrams and solderless, crimp-on type wire terminals shall be used where possible.

h. The attachment of a traveling cable to the underside of the elevator car shall be performed so that a minimum loop diameter of 30x the cable diameter is provided.
i. Pre-hang the cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting during operation.

3. Rigidly supported EMT conduit, flexible metal conduit and galvanized steel trough shall be utilized throughout the hoistway.

a. Both EMT and flexible conduit shall be connected on either end by use of compression fittings and secured in place with metal clamps sized in accordance with the diameter of conduit utilized.

1) Wire or plastic wire ty-raps shall not constitute an acceptable means of fastening.

b. The use of flexible metal conduit shall be limited to runs not greater than three feet (3') in length.
c. All abandoned or unused electrical conduit shall be removed from the hoistway.
d. Existing conduit and wiring duct may be reused if suitable for the application.

1) Reuse of existing conduit/duct shall be at the discretion of the Consultant.

H. Normal and Final Terminal Stopping Devices

1. Provide normal terminal stopping devices to stop the car automatically from any speed obtained under normal operation within the top and bottom overtravel, independent of the operating devices, final terminal stopping device and the buffers.
2. Provide final terminal stopping devices to stop the car automatically from the speed specified within the top clearance and bottom overtravel.
3. The terminal stopping devices shall have rollers with rubber or other approved composition tread to provide silent operation when actuated by the cam fixed to the top of the car.

a. Terminal stopping devices that are not mechanically operated (i.e.: magnetic proximity) shall be provided by the manufacturer of the control equipment, intended for use as a terminal limit, and designed for reliable operation in the hoistway environment.

4. Final terminal limits shall be pinned so as to prevent movement after final adjustment where required by the AHJ.

2.8 PIT EQUIPMENT

A. Car and Counterweight Buffers

1. Provide buffer with necessary blocking and horizontal steel braces under the car and counterweight.
2. Provide spring type buffers for elevators with operating speeds of up to and including 200 fpm.
3. The buffer shall be tested and approved by a qualified testing laboratory.
4. Provide a permanent buffer marking plate which indicates the manufacturer's name, identification number, rated impact speed and stroke.
5. Provide a permanent data plate in the vicinity of the counterweight buffer indicating the maximum designed counterweight runby.
6. Support buffers from the pit floor level with all required blocking and bracing steel members.

B. Governor Rope Tension Assembly

1. Provide a governor rope tension assembly.

    a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.

        1) Springs used to develop the tension are not acceptable.

    b. The sheave shall be of proper diameter and set directly plumb with the governor rope drop to prevent the rope from pulling off of the sheave at an angle.
    c. Lubrication fittings shall be provided on the assembly.
    d. The assembly shall have necessary rope guards to prevent accidental contact of the rope/sheave by service personnel and to prevent the governor rope from jumping off of the sheave.

C. Pit Stop Switch

1. Where pit depth does not exceed 67”, each elevator pit shall be provided with a push/pull or toggle switch that is conspicuously designated “EMERGENCY STOP” and located so as to be readily accessible from the hoistway entrance on the lowest landing served at a height of approximately 18” above the floor.

    a. This switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the “OFF” position.

2. Where climb-in pit depth exceeds 67”, each pit shall be provided with two (2) push/pull or toggle switches conspicuously designated “EMERGENCY STOP”.

    a. Both of these stop switches, shall be located immediately adjacent to the pit access ladder.

        1) Place one stop switch approximately 47” above the pit floor.

2) Place the second stop switch 18" above the hoistway entrance sill on the lowest landing served.
3) These switches shall be arranged so as to prevent the application of power to the hoist motor or machine brake when either one is placed in the "OFF" position.

2.9 HOISTWAY ENTRANCE

A. Slide Type Hoistway Door / New in Existing Frame

1. Provide a new elevator hoistway entrance door reusing existing entrance frame.
2. Each new door shall be as follows:

    a. Hollow metal construction.
    b. 1-1/2-hour fire-rated test approved with required label.
    c. Manufactured of cold rolled furniture steel.
    d. Flush design both sides.
    e. Rigidly reinforced.
    f. Sound deadened.

3. Where conditions warrant, and where otherwise required by code, equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels.
4. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in existing sill grooves with a minimum clearance.

    a. The guide mounting shall permit their replacement without removing the door from the hangers.
    b. A steel fire stop shall be enclosed in each guide.

5. Provide the meeting edge of center opening doors with necessary new continuous rubber astragal bumper strips.

    a. Astragal shall be relatively inconspicuous when the doors are closed.
    b. Provide rubber bumpers at the top and bottom of each section of door to stop them at their limit of travel in the opening direction.

6. Provide a special key so that an authorized person can open any landing door when the car is elsewhere.

    a. The key hole shall be not less than 3/8" in diameter and shall be fitted with a stainless steel or bronze ferrule to match related equipment.

7. Finish all door panels **baked enamel color as selected by Owner**.
8. Where conditions require, provide necessary new masonry around existing entrance frames to maintain fire rating. Painting or other wall surface decorating will be by Others.
9. **Disposal of doors is the responsibility of the hazardous materials sub-contractor ref HM drawings for scope of work.**

B. Tracks / Hangers / Closers / Related Equipment

1. Formed or extruded steel landing door hanger tracks shall be provided.
2. Each landing door panel shall be suspended from a pair of door hanger assemblies that are compatible with the hanger tracks.

    a. Hanger assemblies shall be directly mounted to the door panel using 3/8" diameter or better hardware.
    b. Solid steel blocks shall be used where job-site conditions dictate the use of spacers between hanger assemblies and the landing door panel.
    c. Hanger assemblies shall be adjusted or shimmed so that door panels are suspended in a plumb manner with no more than 3/8" vertical clearance to the cab entrance threshold.
    d. Upthrust rollers shall be adjusted for minimal operating clearance against the bottom edge of the hanger track.
    e. Means shall be provided to prevent hangers from jumping the track.
    f. Blocks shall be provided to prevent rollers from overrunning the end of the track.

3. Each set of center opening landing doors shall be provided with a cable driven relating mechanism which is compatible for use with the door hanger assemblies.

    a. The relating mechanism shall be properly tensioned and adjusted so as to equalize the relationship between the door panels and the hoistway entrance.

4. Where applicable, each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing manufacturers' standard type access key at all landings served.

    a. Drill each hoistway door to accommodate manufacturers standard lock release key and install escutcheon.

        1) Escutcheon shall be brushed stainless steel to match door panels where required.
        2) Aluminum shall be provided at all other typical floors.

C. Interlocks / Unlocking Devices

1. Each set of landing doors shall be provided with a complete electromechanical interlock assembly.

    a. Each interlock assembly shall consist of:

        1) A switch housing with contacts.
        2) Lock keeper.
        3) Clutch engagement/release subassembly.
        4) Associated linkages.

    b. Arrange the lock so that individual leading door panels (side slide or center opening) are locked when in the closed position.

2. Non-typical mounting arrangements for interlocks and/or related mechanisms must receive prior approval from the Consultant.
3. Each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing a drop-leaf type access key at all landings served.

    a. Each hoistway door shall accommodate manufacturers standard lock release key with escutcheon.

        1) The key hole shall be fitted with a metal ferrule that matches the door finish.
        2) Drilling key holes in the field will not be accepted.

D. Hoistway Door Bottom Guides / Safety Retainers

1. The bottom of each side sliding type hoistway door panel shall be equipped with a minimum of two (2) guiding members.

    a. Metal mounting angles shall be secured to the integral panel frame structure; and when conditions warrant, additional external metal support plates or angles shall be installed to ensure the integrity of the panel frame is not compromised.
    b. Guides shall be manufactured of low friction non-metal material with sufficient strength to withstand forces placed on door panels per ASME A17.1 Standards.
    c. Each guide assembly shall incorporate a steel wear indicator and be so designed to permit sliding member replacements without removal of door panel(s) from top hanger devices.
    d. Panels shall be hung with a maximum vertical clearance of 3/8 inch between top of sill and bottom of panel and the guide shall engage the sill groove by not less than 1/4 inch.

2. The bottom of each side sliding type hoistway door panel shall be equipped with a guiding member safety retainer to prevent displacement in the event of primary guide means failure.

    a. A metal reinforcement (12 gauge stainless or galvanized steel) shall be installed between the two (2) primary guiding members (a.k.a. “Z” bracket).
    b. The reinforcement shall be designed with a minimum length of eight (8) inches or the maximum possible length that will fit between the primary members and a minimum overall height of two and one-half (2.5) inches secured on the internal face of the door panel. (Hoistway side)
    c. The retainer shall be set with the supplemental safety angle 3/8 inch into the corresponding sill groove; and be capable of preventing displacement of the panel no more than 3/4 inch with an applied force of 1125 lbf at right angles over an area twelve (12) inches x twelve (12) inches at the approximate center of the door panel.

2.10 CAR EQUIPMENT / FRAME

A. Car Frame and Platform – (**PE2**)

1. The car frame shall be made of steel members, with the required factor of safety.

2. The car platform shall consist of a steel frame with necessary steel stringers, all securely welded together.
3. The frame and platform shall be so braced and reinforced that no strain will be transmitted to the elevator car.
4. Passenger Elevators

    a. Provide platform with two (2) layers of 3/4" thick marine grade plywood.
    b. Cover the underside of the car platform with sheet steel.
    c. The support frame shall carry rubber pads on which the platform shall rest without any connection to the steel frame for sound and vibration isolation.
    d. Provide extruded [aluminum / bronze / stainless steel / nickel silver] thresholds having non-slip surface, guide grooves.
    e. Recess the platform to receive finished flooring as selected by the architect and specified under another section of their specification.
    f. Interior finishes are listed on sheet A151

B. Car Frame (Reuse) – (**PE1**)

1. The existing car frame assembly shall be refurbished to as new condition and reused.
2. Individual car frame members, platform isolation framework, door operator support structure, related bracing and hardware shall be inspected for any indication of damage or distortion.

    a. Where damage is detected, the Contractor shall immediately inform the Consultant and then undertake corrective action deemed appropriate by the Consultant to remedy the condition.

3. Provide new elastomer isolation pads for all existing platforms where pads are presently installed.
4. The car frame, door operator support and related bracing shall be modified or reconfigured as necessary in order to accommodate new cab enclosure and/or master door operating equipment specified herein.
5. The elevator car shall undergo static balancing upon substantial completion of all work described in the project specifications and subsequent to any car interior refinishing or cab replacement work performed in conjunction with the project.

C. Car Platform (Reuse) – (**PE1**)

1. The existing platform shall be modified to accommodate the new apparatus specified herein.

    a. Where necessary, the underside of platform shall be refurbished and treated with fire-rated material.
    b. Top of platform shall be refurbished with a marine grade plywood set to receive new finished floor covering as selected by Owner.
    c. Where necessary, provide a new safety access hole ring and cover assembly to match selected cab finishes.
    d. At Contractor's option or when conditions warrant, provide a totally new platform in lieu of repairs, modifications and upgraded specified above.

D. Car Safety – (**PE2**)

1. Provide a governor actuated mechanical safety device mounted under the car platform and securely bolted to the car sling.
2. The car safety shall be sized for the capacity and speed noted herein.

    a. When tripped, the safety mechanism shall engage the rails with sufficient force to stop a fully loaded car with an average rate of retardation within the limits given in A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

3. Install a car safety marking plate of corrosion resistant metal and, in addition to the data required by Code, indicate the manufacturer's name and manufacturer's catalog designation number for safety.
4. Make provisions to release the car safety. In no event shall the safety be released by downward motion of the car. Raising the car to reset the safety shall be allowed.
5. Provide an electrical safety plank switch that will interrupt the power to the hoist machine and apply the machine brakes when the safety is set.

E. Car Safety (Reuse) – (**PE1**)

1. The existing governor actuated car safety device shall be retained, overhauled and upgraded for current code compliance.
2. Readjust safety for proper operation in accordance with current ASME A17.1 design standards.
3. Check the existing safety operated switch (plank-switch) for proper adjustment and operation.

    a. Provide a new plank-switch where none currently exists.

4. A new safety shall be provided where the existing is not suitable for reuse due to overall condition or in conjunction with an increase in the elevator speed or full load capacity.

F. Automatic Leveling / Releveling / Positioning Device

1. Equip the elevator with a floor leveling device which shall automatically bring the car to a stop within 1/4” of any floor for which a stop has been initiated regardless of load or direction of travel.
2. This device shall also provide for releveling which shall be arranged to automatically return the elevator to the floor in the event the elevator should move below or above floor level in excess of 1/4”.
3. This device shall be operative at all floors served and whether the hoistway or car door is open or closed provided there is no interruption of power to the elevator.
4. A positioning device shall be part of the controller microprocessor systems.

    a. Position determination in the hoistway may be through fixed tape in the hoistway or by sensors fitted on each driving machine to encode and store car movement.
    b. Design the mechanical features and electrical circuits to permit accurate control and rapid acceleration and retardation without discomfort.

5. Where there are consecutive floors/stops that are short stops, the system shall be capable of distinguishing between the two landing zones without error.
6. All equipment and logic required for leveling system to properly function with short stops shall be included.

G. Top-of-Car Inspection Operating Station

1. An inspection operating station shall be provided on top of the elevator car.
2. This station shall be installed so that the controls are plainly visible and readily accessible from the hoistway entrance without stepping on the car.
3. When the station is operational, all operating devices in the car shall be inoperative.
4. Provide the following control devices and features:

    a. A push/pull or toggle switch designated "EMERGENCY STOP" shall be arranged so as to prevent the application of power to the hoist motor or machine brake when in the "off" position.
    b. A toggle switch designated "INSPECTION" and "NORMAL" to activate the top of car Inspection Service Operation.
    c. Push button designated "Up", "Down" and "Enable" to operate the elevator on Inspection Service (the "Enable" button shall be arranged to operate in conjunction with either the "Up" or "Down" button).
    d. An indicator light and warning buzzer that are subject to activation under Phase I - Fire Emergency Recall Operation.

H. Load Weighing Device

1. Provide means to measure the load in the car within an accuracy of ± 4% of the elevator capacity.
2. Provide one of the following types of devices:

    a. A device consisting of four (4) strain gauge load cells located at each corner of the car platform and supporting a free floating car platform and cab with summing circuits to calculate the actual load under varying conditions of eccentric loading.
    b. A strain gauge device located on the crosshead, arranged to measure the deflection of the crosshead and thus determine the load in the car.
    c. A device consisting of four (4) strain gauge load cells, supporting the weight of the elevator machine with summing circuits to calculate the actual load under varying conditions of load.
    d. A device to measure the tension in the elevator hoist ropes and thus determine the load in the car.

3. Arrange that the output signal from the load weighing device be connected as an input to the signal and motor control systems to pre-torque of the hoisting machine motors where applicable.
4. Provide audible and visual signals in connection with the load weighing device when used as an "overload" device.

I. Car Enclosure Work Light / Receptacle

1. The top and bottom of each car shall be provided with a permanent lighting fixture and 110 volt GFI receptacle.
2. Light control switches shall be located for easy accessibility from the hoistway entrance.
3. Where sufficient overhead clearance exists, the car top lighting fixture shall be extended no less than 24" above the crosshead member of the car frame.
4. Light bulbs shall be guarded so as to prevent breakage or accidental contact.

J. Emergency Exits / Top

1. Ensure they operate as per code and have proper electrical contacts and mechanical locks on the exterior of the cab enclosure.
2. No other key to the building shall unlock the emergency exit lock except access switch keys which may be keyed alike.

    a. Keys shall be assigned in accordance with ASME A17.1 Group 1 Security requirements.

K. Master Door Power Operator System – VVVF/AC

1. Provide a heavy-duty master door operator on top of the elevator car enclosure for power opening and closing of the cab and hoistway entrance door panels.
2. The operator may be of the pivot/lever drive type.
3. Operator shall utilize an alternating current motor, controlled by a variable voltage, variable frequency (VVVF) drive and a closed-loop control with programmable operating parameters.

    a. System may incorporate an encoder feedback to monitor positions with a separate speed sensing device or an encoderless closed-loop VVVF-AC control to monitor motor parameters and vary power applied to compensate for load changes.

4. The type of system shall be designated as a high speed operator, designed for door panel opening at an average speed of two (2.0) feet per second and closing at approximately one (1.0) foot per second.

    a. Reduce the closing speed as required to limit kinetic energy of closing doors to within values permitted by ASME A17.1 as may be adopted and/or modified by the AHJ.

5. The door shall operate smoothly without a slam or abrupt motion in both the opening and closing cycle directions.

    a. Provide controls to automatically compensate for load changes such as:

        1) Wind conditions (stack effect).
        2) Use of different weight door panels on multiple landings.
        3) Other unique prevailing conditions that could cause variations in operational speeds.

    b. Provide nudging to limit speed and torque in conjunction with door close signaling/closing and timing devices as permitted by ASME A17.1 as may be

adopted and/or modified by the AHJ. Nudging shall be initiated by the signal control system and not from the door protective device.

6. In case of interruption or failure of electric power from any cause, the door operating mechanism shall be so designed that it shall permit emergency manual operation of both the car and corridor doors only when the elevator is located in the floor landing unlocking zone.

    a. The hoistway door shall continue to be self-locking and self-closing during emergency operation.
    b. The door operator and/or car door panel shall be equipped with safety switches and electrical controls to prevent operation of the elevator with the door in the open position as per ASME A17.1 Code Standards.
    c. Provide zone-lock devices as required by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ.

7. Construct all door operating levers of heavy steel or reinforced extruded aluminum members.
8. Belts shall be designed for long life and operate noise free.
9. All components shall be designed for stress and forces imposed on the related parts, linkages and fixed components during normal and emergency operation functions.

    a. All pivot points, pulleys and motors shall have either ball or roller-type bearings, oilite bronze bushings or other non-metallic bushings of ample size.

10. Provide operating data / data tag permanently attached to the operator as required by applicable code and standards.

L. Car Door Hangers / Tracks / Gate Switch

1. Provide sheave type two-point suspension hangers and track for each car door.

    a. Sheaves shall be hardened steel, not less than 3-1/4 inches in diameter with sealed grease packed precision ball bearings.
    b. The upthrust shall be taken by a roller mounted on the hanger and arranged to ride on the underside of the track.

2. The track shall be of formed cold rolled steel or cold drawn steel and shall be rounded on the track surface to receive the hanger sheaves.

    a. The track shall be removable and shall not be integral with the header.

3. Provide a gate switch that mounts directly to the car door track.

    a. The gate switch shall prevent movement of the elevator until such time as it signals the control equipment that the car door has physically closed.

M. Car Door Gate Switch

1. Provide a car door electrical safety (gate) switch that connects directly to the car door track.

a. The gate switch shall prevent movement of the elevator until such time as it signals the control equipment that the car door has physically closed.

N. Car Door Panels

1. Provide standard 1” thick, 14-gauge hollow metal flush construction panel(s), reinforced for power operation and insulated for sound deadening.
2. Paint the hoistway side of each panel black and face the cab side with 16-gauge sheet steel matching the existing returns or in selected material and finish as otherwise directed by Owner/Architect.
3. The panels shall have no binder angles and welds shall be continuous, ground smooth and invisible.
4. Drill and reinforce panels for installation of door operator hardware, door protective device, door gibs, etc.

    a. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in the sill grooves with minimum clearance.
    b. The guide mounting shall permit their replacement without removing the door from the hangers.

5. Provide the meeting edge of center opening doors with necessary continuous rubber astragal bumper strips.

    a. These strips shall be relatively inconspicuous when the doors are closed.

O. Door Reopening Device

1. Provide an infrared curtain door protection system.
2. The door shall be prevented from closing and reopen when closing if a person interrupts any one of the light rays.
3. The door shall start to close when the protection system is free of any obstruction.
4. The infrared curtain protective system shall provide:

    a. Protective field not less than 71” above the sill.
    b. Where a horizontal infrared light beam system is used:

        1) A minimum of forty-seven (47) light beams.
        2) Accurately positioned infrared lights to conform to the requirements of the applicable handicapped code.

    c. Modular design to permit on board test operation and replacement of all circuit boards without removing the complete unit.
    d. Controls to shut down the elevator when the unit fails to operate properly.

2.11 FINISH / MATERIALS / SIGNAGE

A. Material, Finishes and Painting

1. General

a. Cold-rolled Sheet Steel Sections: ASTM A366, commercial steel, Type B
b. Rolled Steel Floor Plate: ASTM A786
c. Steel Supports and Reinforcement: ASTM A36
d. Aluminum-alloy Rolled Tread Plate: ASTM B632
e. Aluminum Plate: ASTM B209
f. Stainless Steel: ASTM A167 Type 302, 304 or 316
g. Stainless Steel Bars and Shapes: ASTM A276
h. Stainless Steel Tubes: ASTM A269
i. Aluminum Extrusions: ASTM B221
j. Nickel Silver Extrusions: ASTM B155
k. Structural Tubing: ASTM A500
l. Bolts, Nuts and Washers: ASTM A325 and A490
m. Laminated / Safety Tempered Glass: ANSI Z97.1

2. Finishes

a. Stainless Steel

1) Satin Finish: No. 4 satin, long grain.
2) Mirror Finish: No. 8 non-directional mirror polished.

b. Sheet Steel:

1) Shop Prime: Factory-applied baked on coat of mineral filler and primer.
2) Finish Paint: Two (2) coats of low sheen baked enamel, color as selected by the Architect.
3) Steel Equipment: Two (2) coats of manufacturer's standard rust-inhibiting paint to exposed ferrous metal surfaces in both the hoistway and pit that do not have galvanized, anodized, baked enamel, or special architectural finishes.

3. Painting

a. Apply two (2) coats of paint to the machine room floor.
b. Identify all equipment including buffers, car apron, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
c. Paint or provide decal-type floor designation not less than four (4) inches high on hoistway doors (hoistway side), fascias and/or walls as required by A17.1 as may be adopted and/or modified by the AHJ. The color of paint used shall contrast with the color of the surface to which it is applied.

B. Hoistway Entrances Finish and Design

1. Hoistway door panels shall be finished as specified by the Owner.
2. Where no finish is specified, finishes shall be baked enamel primer gray.
3. Refer to specifications for other design requirements.

C. Designation and Data Plates, Labeling and Signage.

1. Provide an elevator identification plate on or adjacent to each entrance frame where required by the AHJ.
2. Provide floor designation cast plates at each elevator entrance, on both sides of the jamb at a height of sixty (60) inches to the baseline of floor indication.

    a. Floor number designations and Braille shall be 2” high, 0.03” raised and stud mounted.

3. Provide raised designations and Braille markings to the left of the car call and control buttons of the car operating panel(s).

    a. Designations shall be a minimum of 5/8” high, 0.03” raised and stud mounted.

4. Provide elevators with data and marking plates, labels, signages and refuge space markings complying with A17.1 Elevator Safety Code as may be adopted and/or otherwise modified by the AHJ.

2.12 FIXTURES / SIGNAL EQUIPMENT

A. General - Design and Finish

1. The design and location of the hall and car operating and signaling fixtures shall comply with the ADAAG and local requirements of the AHJ.
2. The operating fixtures shall be selected from the manufacturer's premium line of fixtures.
3. Custom designed operating and signaling fixtures shall be as shown on the drawings or as approved by the Owner / Architect.
4. The layout of the fixtures including all associated signage and engraving shall be as approved by the Owner / Architect.
5. Where no special design is shown on the drawings, the buttons shall be as follows:

    a. Stainless steel convex type as selected by the Architect from the manufacturer's premium line of push buttons.

6. Mount passenger elevator fixtures with tamperproof screws. The screw/fastener and key switch cylinder finishes shall match faceplate finish.
7. Where key-operated switch and or key operated cylinder locks are furnished in conjunction with any component of the installation, four (4) keys for each individual switch or lock shall be furnished, stamped or permanently tagged to indicate function.
8. All caution signs, pictographs, code mandated instructions and directives shall be engraved and filled with epoxy in code required colors.

B. Main Car Operating Panel

1. Provide a main car operating push button panel on the inside front return panel of the car.
2. Car operating panel shall be flush mounted with swing type, one-piece faceplate with heavy-duty concealed hinges.

    a. Mount all key switches that are required to operate and maintain the elevators exposed on the car station except those specified within a locked service cabinet.

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3. The push buttons shall become individually illuminated as they are pressed and shall extinguish as the calls are answered.
4. The operating panel shall include:

    a. A call button for each floor served, located not more than 48" above the cab floor.
    b. "Door open" / "Door close" buttons.
    c. "Alarm" button, interfaced with emergency alarm. The alarm button shall illuminate when pressed.
    d. "Emergency Stop" switch per local law located at 35" above the cab floor.
    e. Self-dialing, hands-free emergency communication system actuation button with call acknowledging feature and ASME A17.1. design provisions.
    f. Three (3) position firefighter key operated switch, call cancel button and illuminated visual/audible signal system with mandated signage engraved per ASME A 17.1 Standards as modified by the AHJ.

5. Locked Firemen's' Service cabinet, keyed in accordance with local Code, containing required devices and signals in accordance with ASME A17.1 Standards.

    a. Automatic opening of the locked cabinet door may be provided with signals initiated by the fire detection and alarm system where approved by the Authority Having Jurisdiction.

6. Provide a locked service cabinet flush mounted and containing the key switches required to operate and maintain the elevator, including, but not limited to:

    a. Independent service switch.
    b. Light switch.
    c. Fan switch.
    d. G. F. I. duplex receptacle.
    e. Emergency light test button and indicator.
    f. Inspection Service Operation key switch.
    g. Port for hand-held service tool where applicable.

7. Car operating panel shall incorporate:

    a. An integral (no separate faceplate) digital MAD Matisse **10.1"** floor position indicator screen. (**Screen will be customizable**)
    b. .
    c. **B**lack-filled engraved unit I.D. number or other nomenclature, as approved by Owner.
    d. A "No Smoking" advisory.
    e. The rated passenger load capacity in pounds.

8. Where posting of an advisory is permitted by the Governing Authority in lieu of the inspection certificate, engrave the following advisory on the hinged cover of the service cabinet, or where otherwise directed by the Owner.

    a. Elevator Certificate is On File in Building Management Office.

C. Car Position Indicator

1. The position of the car in the hoistway shall be indicated by the illumination of the position indicator numeral corresponding to the floor at which the car has stopped or is passing.

    a. An integral (no separate faceplate) digital MAD Provide Lexan cover lens with hidden support frame behind fixture plate to protect the indicator readout.
    b. Provide audible floor passing signal per ADA standards where not provided by the elevator signal control.
    c. Flush mount fixture with cover to match selected car front or car operating panel finish as directed by the Owner.

D. Car Direction Lantern

1. Provide a car riding lantern with visual and audible signal in the edge of the strike and/or return post.
2. The lens shall project a minimum of 1/4" and shall be of solid Plexiglas.
3. Use tamperproof screws with surface mount faceplate.
4. Car lantern shall indicate the direction of travel when doors are 3/4 open.
5. The unit shall sound once for the "up" direction and twice for the "down" direction.

    a. Provide an electronic chime with adjustable sound volume.

E. Corridor Push Button Stations / Remove Back Boxes

1. Push button signal fixtures shall be provided on each landing.
2. Each signal fixture shall consist of:

    a. Up and down illuminating push buttons measuring 3/4" at their smallest dimension as selected by the Owner.
    b. A recessed mounting box, electrical conduit and wiring.

3. Intermediate landings shall be provided with fixtures containing two (2) push buttons while terminal landings shall be provided with fixtures containing a single push button.
4. Include firefighter key switch in the main lobby level station or other designated recall landing.
5. Where existing fixtures are located greater than 48" above the floor:

    a. The existing back boxes shall be removed.
    b. New back boxes shall be installed to provide a new centerline to buttons of 42" above the floor.
    c. Standardize the new centerline on each floor.

6. All cutting, patching, grouting and/or plastering of masonry walls resulting from the removal or installation of corridor fixtures shall be performed by the GC so as to maintain the fire rating of the hoistway.

    a. Finished painting or decorating of wall surfaces shall be by Others.

7. Provide a digital floor position indicator with 1" high numerals landings except the lobby landing.

F. Floor Position Indicator

1. Remove existing floor position indicator at the lobby and provide new digital LED type unit.
2. New plate shall completely cover the present cutout and provide 2" numerals located on center.
3. Provide integral direction arrows that will indicate the direction in which the elevator is traveling.

G. Hoistway Access Switch

1. Install a cylindrical type keyed switch at top terminal in order to permit the car to be moved at slow speed with the doors open to allow authorized persons to obtain access to the top of the car.
2. Where there is no separate pit access door, a similar switch shall be installed at the lowest landing in order to permit the car to be moved away from the landing with the doors open in order to gain access to the pit.
3. Locate the switch in the hall call push button station at the top and bottom terminal landings where required if allowed by the Authority Having Jurisdiction.
4. This switch is to be of the continuous pressure spring-return type and shall be operated by a cylinder type lock having not less than a five (5) pin or five (5) disc combination with the key removable only in the "OFF" position.

    a. The lock shall not be operable by any key which operates locks or devices used for other purposes in the building and shall be available to and used only by inspectors, maintenance men and repairmen in accordance with A17.1 applicable Security Group.

H. Closed Circuit TV Security System

1. Provide a corner mounted, high-resolution color camera with a wide angle for a Closed Circuit Television (CCTV) security system.
2. The camera is to be mounted diagonally across from the strike plate of the elevator door and able to view the position indicator and passenger traffic.
3. The camera shall be of the wide angle lens low light type.
4. Provide a 15-inch LCD color monitor in the Lobby or as otherwise directed by the Owner.

    a. Monitor shall be capable of displaying all cameras on a split screen (via separate splitter) and switching to a single camera utilizing the entire screen.

5. The receiving monitor shall be a self-contained unit designed for wall or shelf mounting with all necessary brackets, hardware and fixture component accessories as required.
6. Provide a Digital Video Recorder (DVR) with CD/DVD burner capable of saving up to thirty (30) days of video and a six (6)-month supply of applicable recordable media (DVD, Video CD).
7. Provide a lockable storage cabinet for the CCTV operating system to be located in a climate controlled location as directed by the Owner.

8. The CCTV security system shall be energized by an independent source of current, other than the current supply to the main elevator operation to avoid the possibility of system failure due to an interrupted current supply to the elevator equipment.
9. Provide a battery back-up unit located at the DVR to provide a minimum of two (2) hours of back-up power in the event of building power loss.

2.13 CAR ENCLOSURES

A. Elevator Car Enclosure(s) and the Five Percent (5%) Rule:

1. In accordance with A17.1, Section 8.7, as adopted and/or modified by the AHJ, entitled "Alterations", where a new or remodeled elevator car enclosure is included in the base scope of work, the Contractor shall, within thirty (30) days after execution of the contract, weigh the elevator, or one (1) elevator of each group of elevators included in the base scope of work, to determine the present deadweight of the platform/sling/cab assembly.
2. The Contractor shall, when necessary, weigh the interior materials of a single cab to better estimate the total existing weight of existing materials being removed as part of the alteration.
3. The Contractor shall make every effort to provide accurate weight measurements while taking into consideration all weights that may present themselves at the time the measurement is taken such as compensation, compensating sheave, hoist ropes and traveling cables that may affect the measurement of the assembly itself.
4. The Contractor shall evaluate the actual counterbalance percentage for each sample elevator to identify prevailing conditions.
5. Measurements of actual cab weight shall be compared to the original deadweight of the car as stamped on the crosshead data tag.
6. Where no data tag exists, the Contractor shall make every effort to determine the original weight of the platform/sling/cab through calculations based on the current weight of the counterweight assembly and the verified percent of full load counterbalance.
7. The amount of weight that may be added to the car, so as to remain within the limits of the "5% Rule", shall be calculated based on the following:

    a. (Original Deadweight + Capacity) X (0.05) = Maximum Additional Weight Allowed

8. The Contractor shall document and notify the Owner and Consultant of the results of the measurements taken and what weight, if any, can be added or needs to be removed from the cab in order to maintain compliance with the 5% Rule.
9. The Contractor shall work diligently with the Owner and/or Owner's Representative and/or Architect as well as the manufacturer of the car enclosure to minimize additional weights of the new or remodeled car enclosure so as to maintain compliance with the 5% Rule.
10. Contractor shall be responsible for proper adjustment of the counterbalance of the system, including the static balance of the platform/sling/car enclosure, upon completion of the car interior work.
11. Costs associated with this work shall be included in the base modernization price.
12. Provide a new data tag on the crosshead of the elevator indicating the new deadweight, the current percent counterbalance and the date of the alteration.

B. Elevator Cab Remodel Allowance ($25,000 per elevator.)

1. It is understood that if the selected manufacturer of the cab is not the same as the Elevator Supplier, all cab material will be constructed in a manner to accommodate the elevator manufacturer's associated equipment, such as operator, hangers, interlocks, etc., as purchased by the Owner or Owner's Agent.
2. The net allowance for the elevator cabs are to be exclusive of:

    a. Handling charges.
    b. Applicable sales and/or use taxes.
    c. Car door hangers, interlocks, exit contact locks.
    d. Platform, flooring, car door sill.
    e. Car installation, operating equipment, and such items are to be included by the Elevator Supplier in the base contract.

3. The net allowance covering the elevator cars of a design and material as selected shall include:

    a. Ventilation and lighting.
    b. Doors.
    c. Base wainscoting.
    d. Handrails.
    e. Entrance columns.
    f. Transoms as required.
    g. Necessary cutouts.
    h. All necessary cutouts and cab associated appurtenances that may be designed or required.

4. The Owner or Owner's authorized representative reserves the right to deduct the net allowances from the Elevator Contract and to purchase the elevator cabs separately.
5. The Owner retains the right to assign this purchase to the Elevator Supplier for coordination and receive the necessary credits or make the installation by an authorized representative of the Architect and/or Owner.
6. Contractor shall include all costs associated with coordination of cab related work in the base modernization bid including static and dynamic balance of the system.

C. Elevator Cab – (PE1 – PE2)

1. Car Shell and Panels

    a. The car sides and rear wall shall be constructed of No. 14-gauge furniture steel.
    b. Apply sound deadening material to the outside face of the shell.

        1) Sound deadening material shall be of the rubberized type and shall be of either brush or spray-on consistency.
        2) Material shall be applied to a minimum of 1/8" thickness.

    c. Side emergency exit, where applicable, shall be provided per local laws.

        1) Side emergency exit shall be inconspicuous flush design fitted with concealed hinges and a satisfactory flush lock.
        2) The lock shall provide three (3)-point locking of exit; at top, bottom and side.

3) Provide an additional five (5)-pin keyed lock and/or electrical safety switch a may be required by local law.

d. The car top shall be of no less than No. 12-gauge sheet steel suitably braced to meet the requirements of the A17.1 Code.
e. Top of car emergency exit shall include hinging and locking arrangements with electrical safety switch to prevent operation with door open.

1) Attach the top of car exit to the dome of the cab via sash-chain or other suitable means, where the exit cover is not hinged or otherwise permanently attached to the dome.

f. The transom shall be constructed of 14-gauge metal finished as selected by Owner.
g. The wall panels shall be constructed of 3/4" thick marine grade plywood.
h. Each panel section shall be faced with a selected laminate/veneer or other material and framed in 1/16" thick stainless steel or bronze.
i. Frame members shall be separated by 1/2" thick polished metal trim and fitted with 3-1/2" by 3-1/2" polished metal plates at corners.
j. Apply furniture steel or suitable laminate to shaft side of panels to prevent warping or other deformations.

2. Base:

a. Provide a finished metal base with a 1/4" wide continuous vent slot above the base to allow the proper amount of air to infiltrate the cab based on the CFM of the exhaust fan and car interior size.
b. Prepare base to accept finished floor as referenced in A151.

3. Entrance Sill:

a. Provide car door entrance saddle using an extruded aluminum sill. Set sill to accommodate flooring selected and installed by others.

4. Flooring:

a. Provide finish floor covering as referenced in A151.

5. Handrail:

a. Provide standard 1/2" x 2" polish flat-stock handrail on rear wall with top of rail located 32 inches above the finished floor.
b. Use three (3) points of attachment designed for interior access servicing with exterior support plates.

6. Protection Pads:

a. Provide floor-to-ceiling vinyl pads for all wall surfaces with associated hanging hardware.

D. Elevator Cab / General Design Requirements **(As referenced in A151)**

1. The design, materials and finishes of the cab enclosures shall be as shown in A151.

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2. Steel Shell: 14-gauge furniture steel reinforced and designed to accept finished wall panels. Finish shell panels with one coat of rust inhibitive primer and two (2) coats of enamel paint in accordance with Section 09900. Apply 1/8" thick, rubberized sound deadening material to the hoistway side of the shell.

    a. All panels shall have minimum radii. Apply sealant beads to panel joints before bolting together with lock washers.

3. Aluminum Shell: Minimum .090" walls and .125" canopy. Reinforce wall panels and ceiling as may be necessary.

    a. Apply sealant beads to panel joints before bolting together with lock washers.

4. Wood Shell: 3/4" thick particleboard with backing laminate at both sides designed to accept finished wall panels. Apply 26-gauge sheet steel or fire proofing compound to the hoistway side of the shell.
5. Canopy: Canopy construction methods shall match the shell walls. Use 12-gauge furniture sheet steel and adequately support canopy to comply with the loading requirements of the Code.

    a. Provide necessary cutouts for the installation of fan and top emergency exit. Arrange exit panel to swing up using a heavy duty piano hinge.
    b. The exit panel shall have dual locks, necessary stops and a handle.
    c. When in the locked position, the panel shall be flush with the interior face of the canopy with hairline joints.

6. Base: Where finished base provided under another section of these specifications, recess and prepare the shell to accept the base.

    a. Provide concealed vent slots above side and rear wall base for proper ventilation. Arrange and size vent slots for quiet operation without any whistling. Use 16 gauge baffles to protect the hoistway side of the vent slots.
    b. The elevator cab shop drawings shall include elevator vent calculations and number, location and size of top and bottom vent holes.

7. Flooring: as referenced in A151.
8. Front Return Panels, Entrance Posts and Transom: Use 14-gauge furniture sheet steel with proper reinforcing to prevent oil canning.

    a. Fixed type return panel shall have required cutouts for car operating and signaling fixtures.
    b. Swing front return panels shall have required cutouts for the car call buttons, keyed switches, indicators, emergency light fixture, cabinets and the specified special control and signaling devices.

        1) Provide concealed full height stainless steel piano hinges of sufficient strength to support the panel, without sagging, in the open position.

2) The concealed locks shall secure the panel at two (2) points with linkage that shall be free of vibration and noise when in the locked position.
3) When locked in the closed position, the front return panel shall be in true alignment with the transom and base.
4) Lock release holes shall be not more than 1/4" diameter and be located at the return side jamb of the panel.
5) Engrave the elevator identification number and capacity, no smoking sign, firefighter instructions, and other code mandated instructions and caution signs directly in the front return panel. Applied panels are unacceptable.

c. Transom shall be 14 gauge, and be reinforced and constructed the same as the front return panels.
d. Construct entrance posts for the passenger elevators from 12-gauge sheet steel and reinforce to maintain vertical alignment with the adjacent panels.
e. Provide channel post entrance jambs for the service elevators. Clad channels with 14-gauge sheet steel and through bolt channels to the floor and to the reinforced header section.

9. Cab Doors: Standard 1" thick, 14-gauge hollow metal flush construction, reinforced for power operation and insulated for sound deadening. Paint hatch side of doors black and face cab side with 16-gauge sheet steel in selected material and finish.

a. The door panels shall have no binder angles. All welds shall be continuous, ground smooth and invisible.
b. Drill and reinforce doors for installation of door operator hardware, door protective device, door gibs, etc.

10. Ceiling: Construction techniques for wall panels shall apply to ceiling panel construction. Locate top emergency exit inconspicuously. Construct and mount the exit panel to prevent light leakage around the perimeter of panel.
11. Ventilation: The ventilation system of the exhaust type shall be provided in each elevator.

a. The system shall include a blower driven by a direct connected motor and mounted on top of car with isolation to effectively prevent transmission of vibration to the car structure. The blower shall have not less than two (2) operating speeds. The ventilation system shall be sized to provide one (1) air change per minute at low speed and one and one-half (1.5) air changes per minute at high speed. The unit design and installation shall be such that the maximum noise level, when operating at high speed, shall not exceed 55 dBA approximately three (3) feet above the car floor. A three (3)-position switch to control the blower shall be provided in the service panel.

12. Lighting: Arrange lighting fixtures and ceiling assembly to provide even illumination without hot spots and shadows. Overlap fluorescent lamps where cove lighting is specified.

a. Design and configure lighting system to facilitate maintenance of the fixtures.
b. Cab lighting source shall be designed to provide a minimum of 35 lumens per watt.
c. When an unoccupied elevator has remained stationary for fifteen (15) minutes, the cab lighting shall become de-energized. The control system shall automatically re-energize the lighting system upon opening of the cab door.

13. Handrails: All attachment hardware shall match the selected handrail and shall permit handrail removal from within the cab.

    a. Provide a minimum of 10-gauge plate at the hatch side of the shell, aligned with the handrail attachment points, to assure secure handrail mounting.
    b. Design handrail attachment system to support the weight of a person (two hundred fifty [250] pounds) sitting on it without any deflection and damage to the handrail, cab panel and the shell.

14. Protective Pads and Pad Hooks: Provide pad hooks at locations as directed by the Architect. Protective pads shall cover the front return panels, and the side and rear walls. Provide cutouts in pads for access to the cab operating and signaling devices. Pads shall be fire-resistant canvas with two (2) layers of cotton batting padding.

    a. Identify each pad by elevator number and wall location.

15. Accessories: Construct elevator cab to accommodate the door operator, hangers, interlocks and all accessory equipment provided under other sections of these specifications, including firefighter phones, card readers and CCTV.
16. All cab materials shall conform to the code prescribed flame spread rating and smoke development requirements.

E. Cab Fabrication and Installation

1. Maintain accurate relation of planes and angles with hairline fit of contacting panels and/or surfaces.
2. Any shadow gaps (reveals) between panels shall be consistent and uniform.
3. Unless otherwise specified or shown on the drawings, for work exposed to view use concealed fasteners.
4. Maximum exposed edge radius at corner bends shall be 1/16". There shall be no visible grain difference at the bends.
5. Form the work to the required shapes and sizes with smooth and even curves, lines and angles. Provide necessary brackets, spacers and blocking material for assembly of the cab.
6. Interior cab surfaces shall be flat and free of bow or oil canning. The maximum overall deviation between the low and high points of 24" x 24" panel section shall not exceed 1/32".
7. Make weights of connections and accessories adequate to safely sustain and withstand stresses to which they will be subjected.
8. All steel work except stainless steel and bronze materials shall be painted with an approved coat of primer and one (1) coat of baked enamel paint.
9. Cab Finish Warranty Enhancement

    a. Contractor shall be responsible for engineering and installing interior cab finishes in a manner that will withstand all code mandated inspections and test procedures. Failure of finishes during testing shall be repaired by the contractor without expense to the owner. Any objections or qualifications to material selection or design shall be identified during the engineering of the cab interior drawings for review by the owner.

F. Elevator Cab Enclosure Fan

1. Provide an exhaust type two (2)-speed fan unit with cover grill, mounting accessories and necessary cab enclosure modifications.

    a. Fan unit shall include self-lubricating motor with housing rubber mounted for sound vibration isolation.

2. Provide a key switch in the elevator cab enclosure for control of fan unit.
3. Provide necessary wiring and approved conduit to properly connect fan unit with power source and control key switch.

2.14 EMERGENCY LIGHTING / COMMUNICATIONS / SIGNALING

A. Battery Back Up Emergency Lighting Fixture and Alarm

1. Provide a self-powered emergency light unit.

    a. Arrange two (2) of the cab light fixtures to operate as the emergency light system.
    b. Where cab lighting is utilized for emergency lighting, Contractor shall coordinate the battery back-up equipment so that it is compatible with the type of cab lighting specified by the Owner or Architect.

2. Provide a car-mounted battery unit including solid-state charger and testing means enclosed in common metal container.

    a. The battery shall be rechargeable nickel cadmium with a ten (10)-year minimum life expectancy. Mount the power pack on the top of the car.
    b. Provide a 6" diameter alarm bell mounted directly to the battery/charger unit and connected to sound when any alarm push button or stop switch in the car enclosure is operated.
    c. The bell shall be configured to operate from power supplied by the building emergency power generator. The bell shall produce a sound output of between 80-90 dBa (measured from a distance of 10') mounted on top of the elevator car.

        1) Activation of this bell shall be controlled by the stop switch and alarm button in the car operating station.
        2) The alarm button shall illuminate when pressed.

3. Where required by Code for the specific application, the unit shall provide mechanical ventilation for at least one (1) hour.
4. The operation shall be completely automatic upon failure of normal power supply.
5. Unit shall be connected to normal power supply for car lights and arranged to be energized at all times so it automatically recharges battery after use.

B. Common Alarm Bell

1. Provide a common alarm bell located in the elevator pit.

    a. The bell shall be configured to operate when the alarm or stop switch of any elevator is activated, during both normal and battery back-up power conditions.

C. Communication System Failure

1. The two-way communications means within the car shall include a means to verify operability of the emergency communication system line operability and shall be performed at least on a daily basis and shall not require activation of the two-way communication link(s). If means other than a telephone line (e.g. VOIP, network, intercom, etc.) is used for the two-way communications, similar verification of this equivalent means shall be performed. If the verification means determines that the telephone or equivalent means in not functional, an audible and illuminated visual signal shall be activated. A minimum of one (1) visual and one (1) audible signal shall be provided for each group of elevators controller be a "Fire Recall" switch.
2. The visual signal shall:

    a. Be located at the designated means of egress landing incorporated and or in the vicinity of the "Fire Recall" switch and visible to elevators users
    b. Be labeled "ELEVATOR COMMUNICATION FAILURE" in red letters at a minimum of 5mm (0.25 in.) high.
    c. Illuminate intermittently
    d. Continue to illuminate intermittently until the line made functional.

3. The audible signal shall:

    a. Be (10 dba) minimum above ambient but shall not exceed (80 dba) measured at the designated landing "Fire Recall" switch.
    b. Sound at least once every 30-seconds with a minimum duration of half a second.
    c. Continue to sound until silenced by authorized personal or the telephone line or equivalent means is made functional.
    d. The means to silence the audible signal shall be accessible only to authorized personal. The signal when silenced shall remain silent unless activated by the next verification.

D. Emergency Voice/Visual/Video Communication

1. 2-Way Voice Communication - A means of communications between the car and a location staffed by authorized personnel who can take appropriate action shall be provided.
2. If the call is not acknowledged within forty-five (45) seconds, the call shall be automatically directed to an alternate on- or off-site location, monitored 24/7.
3. 2-Way Visual Communication – Authorized personal can "text" messages onto an elevator screen, passenger can respond Yes/No via buttons.
4. 1-Way Video Confirmation– Authorized personal can "assist" situation, confirm occupancy utilizing an in-cab security camera.
5. The means of communications within the car shall comply with the following requirements:
    a. In jurisdictions enforcing NBCC, Nonmandatory Appendix E; in jurisdictions not enforcing the NBCC, ANSI/ICC A117.1, ADAAG, or ADA/ABAAG.
    b. A push button to actuate the two-way communication means shall be provided in or adjacent to a car operating panel. The push button shall be visible and permanently identified with the "PHONE" symbol. The identification shall be on or adjacent to the "PHONE" push button. The communications means shall be initiated when the push button is actuated.

c. On the same panel as the phone push button, a message shall be displayed that is activated by authorized personnel to acknowledge that communications are established. The message shall be permitted to be extinguished where necessary to display a new message [see (d) and (e)] or when the communications are terminated.
d. On the same panel as the phone push button, messages shall be displayed that permit authorized personnel to communicate with and obtain responses from a trapped passenger(s), including a passenger(s) who cannot verbally communicate or hear.
e. On the same panel as the phone push button, a message shall be displayed that is activated by the authorized personnel to indicate when help is on the way. The message shall continue to be displayed until a new message is displayed communications are terminated.
f. The communications means shall provide information that identifies the building location and elevator number on demand to authorized personnel.
g. The communications once established, shall be disconnected only when authorized personnel terminate the call or a timed termination occurs. A timed termination by the communications means in the elevator, with the ability to extend the call by authorized personnel, is permitted if voice notification is sent by the communications means to authorized personnel a minimum of three (3) minutes after communication has been established. Upon notification, authorized personnel shall have the ability to extend the call; automatic disconnection shall be permitted if the means to extend are not enacted within twenty (20) seconds of the voice notification.
h. The communications means shall not use a handset in the car.
i. The communications shall not be transmitted to an automated answering system. The call shall be answered by authorized personnel, monitored 24/7.
j. Operating instructions shall be incorporated with or adjacent to the phone push button.
k. A means to display video to observe passengers at any location on the car floor, to authorized personnel for entrapment assessment, shall be provided via an in-cab security camera.

E. Emergency Voice Communication / Telephone

1. A hands-free emergency voice communication system shall be furnished in each car mounted as an integral part of the car operating panel.

   a. Necessary wires shall be included in the car traveling cable and shall consist of a minimum of one shielded pair of 20AWG conductors.
   b. 120V power shall be provided to power the hands-free device.

2. The telephone shall be equipped with an auto-dialer and illuminating indicator which shall illuminate when a call has been placed and begin to flash when the call has been answered.

   a. Engraving shall be provided next to the indicator which says “When lit help is on the way".

3. In addition to the standard “Alarm” button, a separate activation button shall be provided on the car operating panel to initiate the emergency telephone and place a call.

   a. The telephone must not shut off if the activating button is pushed more than once.

b. The telephone shall transmit a pre-recorded location message only when requested by the operator and be provided with an adjustable call time which can be extended on demand by the operator.
c. Once two-way communication has been established, voice prompts shall be provided which instruct the operator on how to activate these functions as well as alerting the operator when a call is being attempted from another elevator in the building.

4. The system shall be compatible with ring down equipment and PBX switchboards.
5. The system shall be capable of serving as the audio output for an external voice annunciation system.

a. Conversation levels shall measure 60 dbA or higher and measure 10 dbA above ambient noise levels.
b. Each device shall be provided with a self-diagnostic capability in order to automatically alert building personnel should an operational problem be detected.

6. The phone shall be able to:

a. Receive incoming calls from any On-Site Rescue Station (when provided or required).
b. Receive incoming calls from other off-site locations via the public telephone system.
c. Acknowledge incoming calls and automatically establishing hands-free two way communications.

1) If no On-Site Rescue Station is provided, each hands-free device shall have built in line consolidation which will allow up to six (6) elevators to be called individually from outside the building over a single telephone line and up to eighty (80) elevators if an On-Site Rescue Station is provided.

7. The emergency elevator communication system shall require a maximum of one (1) telephone line.

a. The system must provide line sharing capability to eliminate the need for a dedicated telephone line.
b. The line sharing function must ensure that the emergency telephones always receive dialing priority even if the line is in use and that the emergency telephones can be called into from an off-site location.

8. The system shall provide its own four-hour backup power supply in case of a loss of regular AC power.
9. The system must provide capability for building personnel to call into elevators and determine the charge state of any backup batteries provided for the emergency telephones.
10. Pushing the activation button in any of the elevator car stations will cause any on-site Rescue Station (where provided or required) or security telephone to ring.

a. If the on-site call is not picked up within thirty (30) seconds, the call will be automatically forwarded to a twenty-four (24)-hour off-site monitoring service.
b. The arrangements and costs of the off-site monitoring and telephone line shall be by others.

11. All connections from the junction box to the telephone system shall be done by the Elevator Contractor where existing provisions can be reused.
12. New telephone lines, where required, shall be provided and interfaced by others.
13. All connections from the junction box to the security room's main telephone system shall be done by others.
14. All electrical work shall conform to Division 16 requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspection

1. Study the Contract Documents with regard to the work as specified and required so as to ensure its completeness.
2. Examine surface and conditions to which this work is to be attached or applied and notify the Owner in writing if conditions or surfaces are detrimental to the proper and expeditious installation of the work. Starting the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify, by measurements at the job site, dimensions affecting the work. Bring field dimensions which are at variance with those on the accepted shop drawings to the attention of the Owner. Obtain the decision regarding corrective measures before the start of fabrication of items affected.
4. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.

3.2 INSTALLATION / PROJECT PHASING

A. Installation

1. Install / Modernize the elevators, using skilled personnel in strict accordance with the final accepted shop drawings and other submittals.
2. Comply with the code, manufacturer's instructions and recommendations.
3. Coordinate work with the work of other building functions for proper time and sequence to avoid delays and to ensure right-of-way of system. Use lines and levels to ensure dimensional coordination of the work.
4. Accurately and rigidly secure supporting elements within the shaftways to the encountered construction within the tolerance established.
5. Provide and install motor, switch, control, safety and maintenance and operating devices in strict accordance with the submitted wiring diagrams and applicable codes and regulations having jurisdiction.
6. Ensure sill-to-sill running clearances do not exceed 1 ¼" at all landings served.
7. Erect guide rails plumb and parallel with a tolerance of 1/8" (plus or minus 1/16").
8. Install rails so joints do not interfere with brackets.
9. Arrange door tracks and sheaves so that no metal-to-metal contact exists.
10. Reinforce hoistway fascias to allow not more than 1/2" of deflection.

11. Install elevator cab enclosure on platform plumb and align cab entrance with hoistway entrances.
12. Sound isolate cab enclosure from car structure. Allow no direct rigid connections between enclosure and car structure and between platform and car structure.
13. Isolate cab fan from canopy to minimize vibration and noise.
14. Remove oil, dirt and impurities and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.
15. Prehang traveling cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting after installation.
16. After installation, touch up in the field, surfaces of shop primed elements which have become scratched or damaged.
17. Lubricate operating parts of system as recommended by the manufacturer.

B. Project Phasing

1. Phase I - Final design development and contractors' preliminary work procedures to be completed within eight (8) weeks from date of contract award.

    a. Prevailing conditions review and layout.
    b. Selection meeting for aesthetic design and finishes with Owners' designee.
    c. Filing for required permits or other governing authorities work procedure requirements.

2. Phase II - Submittal approvals and confirmations shall be completed within ten (10) weeks from date of contract award.

    a. Selection confirmations.
    b. Manufacturer's shop drawings applicable, i.e., fixtures, cab, machine room layouts, doors, etc.
    c. Engineering data acknowledgment applicable, i.e., power, heat, structural loads.
    d. Delivery dates for major component suppliers, i.e., controls, machinery, fixtures, cabs, etc.
    e. Posting of permits or other governing agency authorizations to proceed.
    f. Proposed work implementation schedule based on the aforementioned procedures/confirmations.

3. Phase III - Mobilization of Final Design Approvals

    a. Revision confirmations. (Equipment, etc.)
    b. Preliminary work procedures.
    c. Schedule confirmations.

4. Phase IV – Implementation

    a. PE2 (New Elevator) shall be installed first
    b. PE1

C. Removal of Elevators

1. If extenuating circumstances (i.e. separating controller interconnections, inspection, testing, etc.), require that multiple cars of a single elevator group be removed from service simultaneously, the work shall be performed outside of the normal business hours at a time mutually agreed to by the Owner and Contractor.
2. A minimum of five (5) days advance written notice shall be given to the Owner and Elevator Consultant by the Contractor detailing the reasons for the simultaneous removal of the elevators from service along with the estimated out-of-service time.
3. The request shall be subject to review by the Elevator Consultant and approved by the Owner prior to the commencement of the work.
4. Costs for this work in addition to associated expenses shall be included as part of the base bid pricing.

D. Transfer of Hall Button Risers

1. Transfer of the hall button riser(s) to the new signal control systems shall be performed on a not-to-interfere basis and shall not interrupt building operations or inconvenience building occupants.
2. Costs for this work in addition to associated expenses shall be included as part of the base bid pricing.

3.3 FIELD QUALITY CONTROL

A. Inspection and Testing

1. Upon completion of each work phase or individual elevator specified herein, the Contractor shall, at its own expense, arrange and assist with inspection and testing as may be required by the A.H.J. in order to secure a Certificate of Operation.

B. Substantial Completion

1. The work shall be deemed “Substantially Complete” for an individual unit or group of units when, in the opinion of the Consultant, the unit is complete, such that there are no material and substantial variations from the Contract Documents, and the unit is fit for its intended purpose.
2. Governing authority testing shall be completed and approved in conjunction with inspection for operation of the unit; a certificate of operation or other required documentation issued; and remaining items mandated for final acceptance completion are limited to minor punch list work not incorporating any life safety deficiencies.
3. The issuance of a substantial completion notification shall not relieve the Contractor from its obligations hereunder to complete the work.
4. Final completion cannot be achieved until all deliverables, including but not limited to training, spare parts, manuals, and other documentation requirements, have been completed.

C. Contractor’s Superintendent

1. The Contractor shall assign a competent project superintendent during the work progress and any necessary assistant, all satisfactory to the Owner. The superintendent shall

represent the Contractor and all instructions given to him shall be as binding as if given to the Contractor.

3.4 PROTECTION / CLEANING

A. Protection and Cleaning

1. Adequately protect surfaces against accumulation of paint, mortar, mastic and disfiguration or discoloration and damage during shipment and installation.
2. Upon completion, remove protection from finished surfaces and thoroughly clean and polish surfaces with due regard to the type of material. Work shall be free from discoloration, scratches, dents and other surface defects.
3. The finished installation shall be free of defects.
4. Before final completion and acceptance, repair and/or replace defective work, to the satisfaction of the Owner, at no additional cost.
5. Remove tools, equipment and surplus materials from the site.

B. Barricades and Hoistway Screening

1. The Contractor shall provide barricades where necessary in order to maintain adequate protection of areas in which work specified by the Contract Documents is being performed, including open hoistway entrances. Fabrication and erection as all barricades shall be in compliance with applicable OSHA regulations.
2. As required, the Contractor shall provide temporary wire mesh screening in the hoistway and of any elevator undergoing work specified in the Contract Documents. This screening shall be installed in such a manner as to completely segregate the hoistway from that of adjacent elevators. Screening shall be constructed from .041" diameter wire in a pattern that rejects passage of a 1" diameter ball.

3.5 DEMONSTRATION

A. Performance and Operating Requirements

1. Passenger elevators shall be adjusted to meet the following performance requirements:

a. Speed within 5% of rated speed in the up direction under any loading condition.
b. Leveling: within ±1/4" as measured between the car entrance threshold and the landing sill on any given floor under any loading condition.
c. Typical Floor-to-Floor Time: (Recorded from the doors start to close on one floor until they are 3/4 open at the next floor) under various loading conditions.

Group Passenger Elevators	13.5 seconds.

d. Door dwell time for hall calls: 4.0 sec with Advance lantern signals.
e. Door dwell time for hall calls: 5.0 sec without Advance lantern signals.
f. Door dwell time for car calls: 3.0 seconds.
g. Reduced non-interference dwell time: 1.0 – 1.5 seconds.

2. Maintain the following ride quality requirements for the passenger elevators:

    a. For speeds up to 1400 fpm, the speed of the car roller guides shall not exceed 500 rpm.
    b. Where pit permits, extend bottom roller guides by not less than one half the distance from the centerline of the upper roller guides to the platform.
    c. Noise levels inside the car shall not exceed the following:

        1) Car at rest with doors closed and fan off - 40 dba.
        2) Car at rest with doors closed, fan running - 55 dba.
        3) Car running at high speed, fan off - 50 dba.
        4) Door in operation - 60 dba.

    d. Vertical and horizontal accelerations shall not exceed 14 milli-g

        1) The accelerometer used for this testing shall be capable of measuring and recording acceleration to nearest 0.01 m/s^2 (1 milli-g) in the range of 0-2 m/s^2 over a frequency range from 0-80 Hz with ISO 8041 filter weights applied. Accelerometer should provide contact with the floor similar to foot pressure, 60 kPA (8.7psi).

    e. The maximum jerk rate shall be 1.5 to 2.0 times the acceleration and deceleration.
    f. The maximum velocity which the elevator achieves in either direction of travel while operating under load conditions that vary between empty car and full rated load shall be within ± 3% of the rated speed.

B. Acceptance Testing

1. Elevator PE2 (new) shall be tested and approved to be in use before elevator PE1 can be started, subsequently that elevator (PE1) needs to be tested and approved at the end for substantial completion.
2. Comply with the requirements of Division 01.
3. The Contractor shall provide at least five (5) days prior written notice to the Owner and Consultant regarding the exact date on which work specified in the Contract Documents will reach completion on any single unit of vertical transportation equipment.
4. In addition to conducting whatever testing procedures may be required by local inspecting authorities in order to gain approval of the completed work, and before seeking approval of said work by the Owner, the Contractor shall perform certain other tests in the presence of the Consultant.
5. The Contractor shall provide test instruments, test weights, and qualified field labor as required to safely operate the unit under load conditions that vary from empty to full rated load and, in so doing, to successfully demonstrate compliance with applicable performance standards set forth in the project specifications with regard to:

    a. Operation of safety devices.
    b. Sustained high-speed velocity of the elevator in either direction of travel.
    c. Brake-to-brake running time and floor-to-floor time between adjacent floors.
    d. Floor leveling accuracy.
    e. Door opening/closing and dwell times.
    f. Ride quality inside the elevator car.

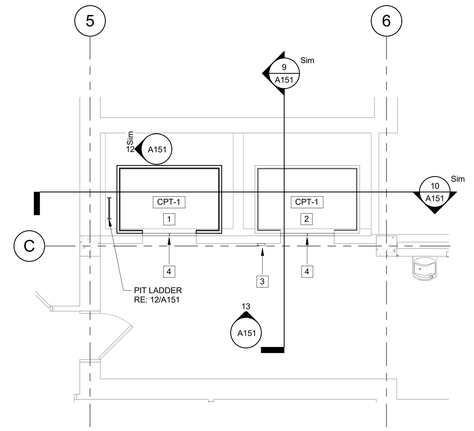
g. Communication system.
h. Load settings at which anti-nuisance, load dispatch, and load non-stop features are activated.

6. Upon completion of work specified in the Contract Documents on the last car in any group of elevators, and in conjunction with the aforementioned testing procedures, the Contractor shall carry out additional testing of group dispatch/supervisory control features in the presence of the Consultant.
7. The Contractor shall provide test instruments and qualified field labor as required to successfully demonstrate:

    a. The back-up operating mode for group dispatch failure.
    b. Simulated and actual emergency power operation.
    c. Firefighter, attendant and independent service operations.
    d. Zoning operations and floor parking assignments.
    e. Up/down peak operation.

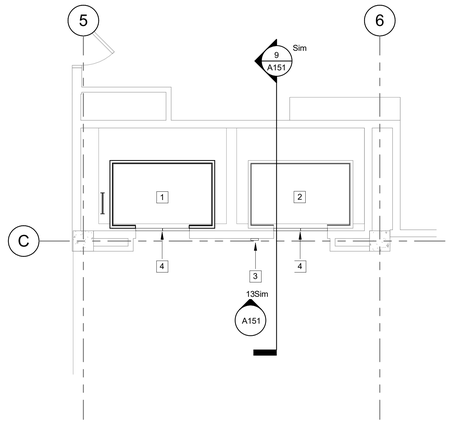
8. Upon completion of the modernization of each individual elevator, emergency power testing shall be conducted by the Building Management after normal business hours and/or weekends.
9. After hour tests of systems such as emergency generators, fire service, and security systems shall be conducted at no extra cost to the Owner.
10. Owner shall receive in writing and test results.

END OF SPECIFICATION



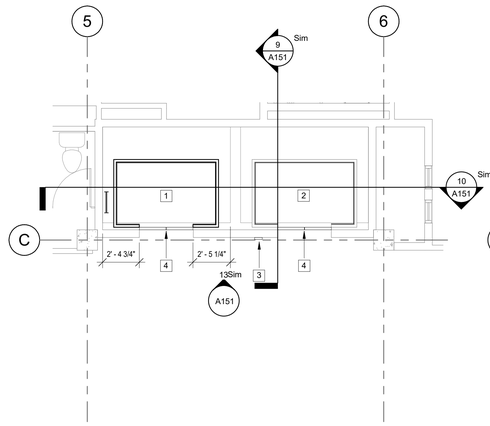
1 ENLARGED GROUND FLOOR ELEVATION
SCALE: 1/4" = 1'-0"

TRUE NORTH N



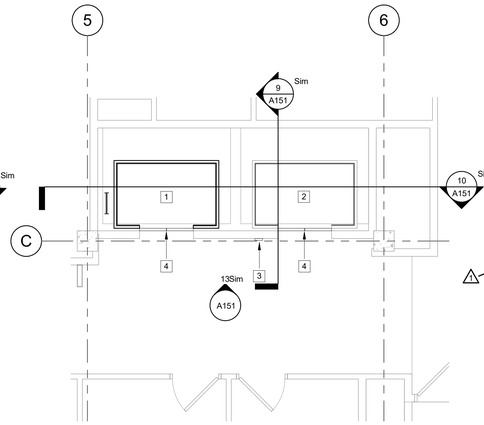
2 ENLARGED FIRST FLOOR ELEVATION
SCALE: 1/4" = 1'-0"

TRUE NORTH N



3 ENLARGED SECOND FLOOR ELEVATION
SCALE: 1/4" = 1'-0"

TRUE NORTH N



4 ENLARGED THIRD FLOOR ELEVATION
SCALE: 1/4" = 1'-0"

TRUE NORTH N

GENERAL NOTES:

1. REPAIR AND RESTORE ALL ITEMS DAMANGED DURING PROJECT DURATION TO THEIR ORIGINAL CONDITION. ALL ITEMS NOT ABLE TO BE REPAIRED OR RESTORED TO THEIR ORIGINAL CONDITION ARE TO BE REPLACED WITH MATCHING ITEMS.
2. ALL DIMENSIONS SHOWN "+/- VIF" ARE TO BE VERIFIED IN THE FIELD BEFORE PROCEEDING WITH ANY WORK OR ORDERING OF MATERIALS.
3. FOR ALL HORIZONTAL PROJECTION IN THE ELEVATOR SHAFT PROVIDE A 60 DEGREE CONCRETE SLOPE TO EDGE OF HORIZONTAL PROJECTION.
4. ADA-COMPLIANT AREA OF REFUGE SIGNAGE, DIRECTIONAL SIGNAGE AND INSTRUCTIONAL SIGNAGE TO BE PROVIDED BY OWNER.

0 CONSTRUCTION NOTES:

1. PROVIDE ELEVATOR CAB WITHIN EXISTING SHAFT.
2. RENOVATE INTERIOR FINISHES: WALLS, FLOOR, CEILING WITHIN EXISTING CAB.
3. PROVIDE CALL BUTTON AT EXIST LOCATION.
4. PROVIDE 2HR FIRE RATED ELEVATOR DOOR TO FIT EXISTING OPENING SIZE.
5. PROVIDE CONC. SLAB FLOOR OVER SHAFT; REF DETAIL 8 ON THIS SHEET.

   1 INDICATES SPAN DIRECTION OF CONCRETE SLAB INFILL, COORDINATE WITH DETAIL 8 ON THIS SHEET.
6. PROVIDE OPENING IN EXISTING CMU FOR DUCTWORK; REF: MECHANICAL DRAWINGS. REPAIR EXISTING MASONRY TO SEAL TIGHT AGAINST DUCT.
7. DUCTWORK FROM ROOF OPENING, THROUGH EXISTING OPENING IN CONCRETE SLAB TO VOID BELOW. REF MECH DWGS.
8. PROVIDE 2 HOUR FIRE RATED WALL, UL DESIGN U411 TO INFILL WALL OPENING. MATCH WALL THICKNESS
   A. WALL CONSTRUCTION TO BE 2 1/2" METAL STUD FRAMING MIN AT 16" O.C. MAXIMUM WITH 2 LAYERS OF 5/8" TYPE X GYPSUM WALL BOARD ON BOTH SIDES OF STUDS. FILL STUD CAVITY WITH SOUND ATTENUATION BLANKET. FINISH JOINTS AT ABUTTING EXISTING MATERIAL AS REQUIRED TO ACHIEVE A CONTINUES SHAFT RATING.
   B. PAINT BOTH SIDES OF WALL FROM WALL CORNER TO WALL CORNER MATCHING EXISTING WALL FINISH.
9. AREA OF REFUGE SIGNAGE; REF. ELECTRICAL DWGS.
10. TWO WAY COMMUNICATION SYSTEM; RE: ELECTRICAL DWGS.
11. PROVIDE 18 GAUGE METAL PLATE OVER FLOOR GRATE, APPROX 2FT BY 2FT, SECURE WITH FASTENERS INTO CONCRETE. PROVIDE CONT. SEALANT AROUND PERIMETER EDGE.
12. AT PROJECTIONS GREATER THAN 2" IN WIDTH SHALL BE BEVELED AT 75 DEGREES TO HORIZONTAL, CONSTRUCTED OF 14 GAUGE COLD-ROLLED STEEL AND INSTALLED TO CONFORM WITH ASME A17.1 ELEVATOR SAEFTY CODE.
13. PROVIDE DOOR CLOSER AND ARM TO EXISTING DOOR AND FRAME TO MATCH EXISTING LOCATIONS. CLOSER TO BE HAGER 5100 SERIES, HEAVY DUTY CLOSER WITH ARM AND TO BE ADA COMPLIANT OR APPROVED EQUAL.

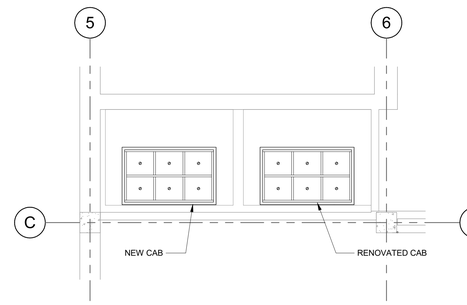
FINISH SPECIFICATIONS:

FLOORING

CPT-1	MFR:	MILLIKEN
	STYLE:	OBEX
	STYLE #:	TBD
	COLOR:	
	INSTALL:	
	LOCATION:	ELEVATOR FLOOR

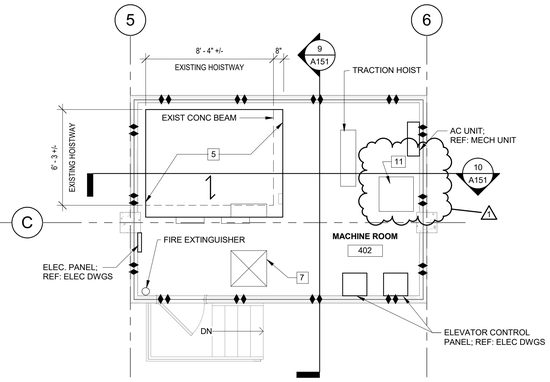
PLASTIC LAMINATE

PLAM-1	MFR:	WILSONART
	COLOR:	VAPOR STRANDZ
	COLOR #:	4939K-18
	FINISH:	LINEARITY
	LOCATION:	ELEVATOR CABIN WALLS
PLAM-2	MFR:	WILSONART
	COLOR:	SATIN STAINLESS
	COLOR #:	4830
	FINISH:	60 MATTE
	LOCATION:	ELEVATOR CABIN WALLS



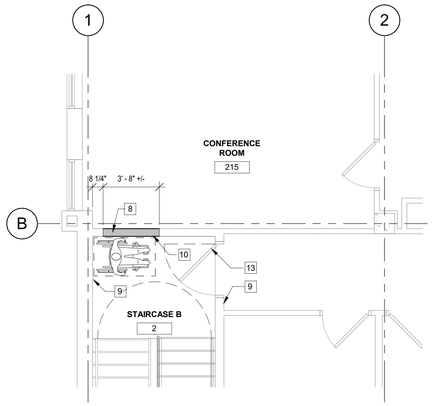
5 TYPICAL REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

TRUE NORTH N



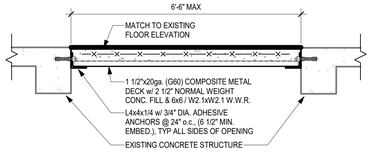
6 PENTHOUSE MACHINE ROOM PLAN
SCALE: 1/4" = 1'-0"

TRUE NORTH N

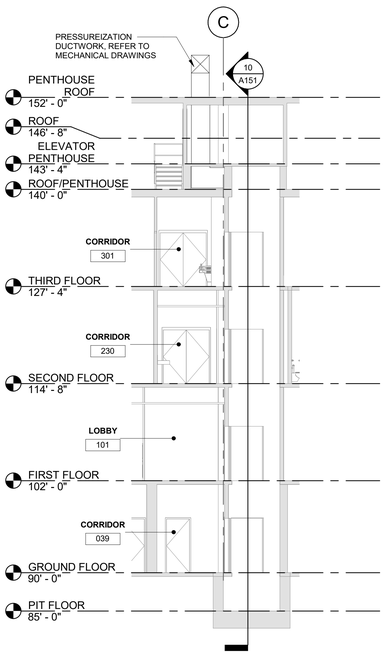


7 ENLARGED SECOND FLOOR PLAN - STAIRCASE B
SCALE: 1/4" = 1'-0"

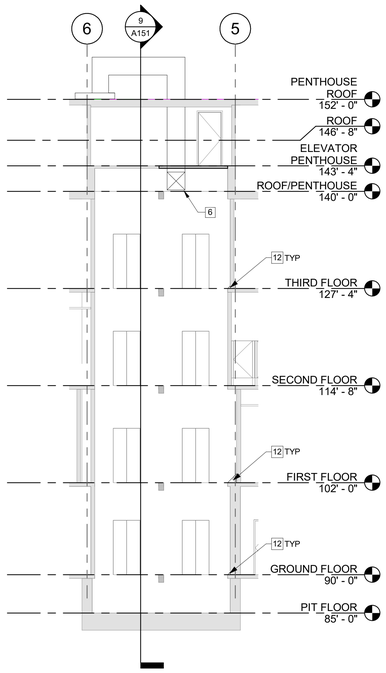
TRUE NORTH N



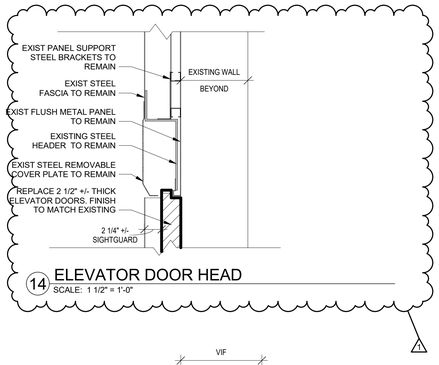
8 TYPICAL SLAB IN-FILL DETAIL
SCALE: 3/4" = 1'-0"



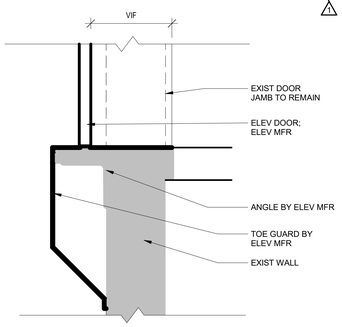
9 ELEVATOR SECTION - EAST
SCALE: 1/8" = 1'-0"



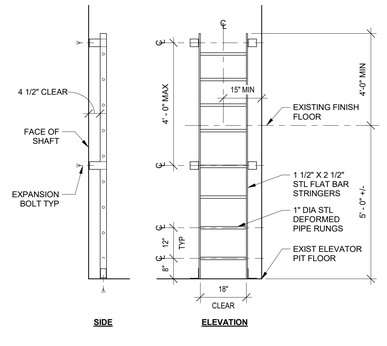
10 ELEVATOR SECTION -SOUTH
SCALE: 1/8" = 1'-0"



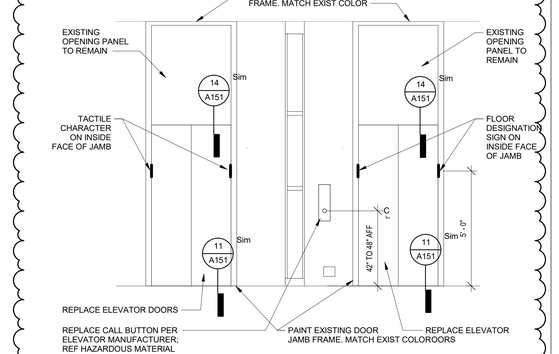
14 ELEVATOR DOOR HEAD
SCALE: 1 1/2" = 1'-0"



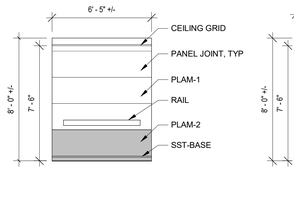
11 ELEVATOR SILL
SCALE: 1 1/2" = 1'-0"



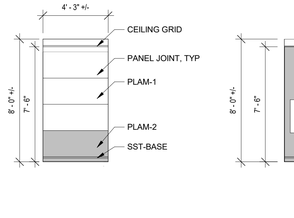
12 ELEVATOR PIT LADDER
SCALE: 1/2" = 1'-0"



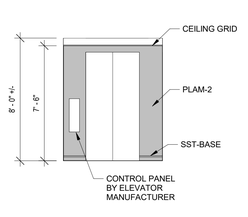
13 TYPICAL ELEVATOR ELEVATION - CALL BUTTON
SCALE: 3/8" = 1'-0"



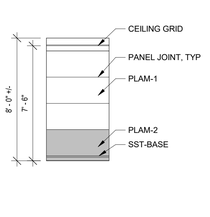
15 ELEVATOR - TYP CABIN NORTH ELEVATION
SCALE: 1/4" = 1'-0"



16 ELEVATOR - TYP CABIN EAST ELEVATION
SCALE: 1/4" = 1'-0"



17 ELEVATOR - TYP CABIN SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



18 ELEVATOR - TYP CABIN WEST ELEVATION
SCALE: 1/4" = 1'-0"

Enchanted Mountains
Cattaraugus County
303 Court Street,
Little Valley, NY 14755

LITTLE VALLEY COUNTY CENTER ELEVATOR IMPROVEMENT

BID DOCUMENTS
BID #55 - GC
BID #56 - MC
BID #57 - EC

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NO.	REVISIONS	DATE
1	ADDENDUM #02	9/23/2022

DWG. TITLE

ENLARGED ELEVATOR AND ELEVATOR LOBBY PLANS, SECTIONS & ELEVATIONS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

DATE	09-01-2022
SCALE	As indicated
DWN.	CLS CHK. JAH
PROJ. No.	307670
DWG. No.	

A151