

JEFFERSON COUNTY, WISCONSIN



REQUEST FOR PROPOSAL RFP 2019-3 CS ELEVATOR ALTERATIONS

CONTACT INFORMATION	
BUYER	Jefferson County c/o Larry Meyer
E-MAIL CONTACT	larrym@jeffersoncountywi.gov
MAILING ADDRESS	311 S Center Ave, Room 111 Jefferson, WI 53549

SCHEDULE OF EVENTS	
The following dates are provided for your information and planning purposes. Although every effort will be made to follow this schedule, we reserve the right to modify the dates as necessary.	
RFP Released	June 28
Pre-proposal conference (required for proposal submission)	Monday, July 8, 8:30 AM, East Lobby Entrance Jefferson County Courthouse 311 S. Center Ave. Jefferson, WI
Questions Due	Friday, July 12, 4:30 PM
Responses to Questions	Tuesday July 16, 12:00 PM
Proposals Due	311 S Center Ave., Room 111 Jefferson, WI 53549 Tuesday, July 30, 2019 at 4:00 p.m.

Bid Proposal Opening	Wednesday, July 31, 3:00 PM, Room 112
Building and Grounds Committee Approval	August 7
Board of Supervisors Approval	August 13
Commencement Date	To be determined

REQUEST FOR PROPOSAL

PREPARATION, SUBMISSION, PROCESS AND AWARD

A. Communication:

This RFP is issued on behalf of Jefferson County by the Central Services Department. The buyer assigned to this RFP, along with contact information, is noted on Page 1. The buyer is the sole point during this process and no information provided by any personnel will be considered binding.

The County prohibits communication initiated by the respondent to any other County official, employee or representative evaluating or considering the proposals, prior to the time an award has been made.

All respondents shall use this written document, its attachments and any amendments as the sole basis for responding.

B. Access to County Building:

Controlled access screening is mandatory for all vendors seeking access to the Courthouse. Vendors who will be visiting are to enter and exit the facilities through the main Courthouse public entrance 311 S Center Avenue. Screening will take place in the lobby of the Courthouse. Allow sufficient time to get through the screening process if you are hand delivering your response.

C. Clarifications/Amendments:

If you discover any significant ambiguity, error, omission or other deficiency in the RFP, immediately notify the Buyer in writing. All other questions, clarifications or exceptions regarding the RFP document must be raised prior to the submission of the proposal. We encourage you to submit preliminary questions prior to the pre-proposal conference. Please note the due dates and times noted on page 1 for both the preliminary and final questions. All questions must be submitted to the buyer/Jefferson County in writing, via fax or email, with the RFP Number and description clearly identified.

If it becomes necessary to clarify or revise any part of this RFP, amendments will be posted to the Jefferson County website: <http://www.jeffersoncountywi.gov/rfp>, in accordance with the schedule on Page 1. It is the responsibility of prospective vendors to check the website for any amendments prior to the opening date. All amendments must be acknowledged on the RFP signature page in the area provided. **Failure to do so may result in your response being rejected.**

D. Contents of Proposal:

All attachments, additional pages, addenda or explanations supplied by the vendor with their proposal will be considered as part of the proposal response.

E. Nonconforming Terms and Conditions:

A response that includes contractual terms and conditions that do not conform to the contractual terms and conditions in the RFP document are **subject to rejection as nonresponsive**. Jefferson County reserves the right to permit the respondent to withdraw nonconforming terms and conditions from its response or negotiate changes to the contractual requirements prior to making a determination of responsiveness.

F. Amendment/Withdrawal of Proposals by Vendor:

After receipt by the Central Services Department, vendor proposals may only be amended by submitting a later dated proposal that specifically states that it is amending an earlier proposal. No proposal may be amended after the bid proposal due date unless authorized by the buyer/Jefferson County.

Proposals may be withdrawn only in total, and only by a written request to the buyer/Jefferson County prior to the time and date scheduled for opening of proposals.

PROPOSAL FORMAT & SUBMISSION

A. Tentative Project Timeline

Please Note: These dates are for planning purposes. They represent the County's desired timeline for implementing this project. Any revision to the Due Date for submission of proposals will be made by addendum. All other dates may be adjusted without notice, as needs and circumstances dictate.

Issuance of RFP	June 28, 2019
Required pre-proposal conference - Courthouse East Lobby Entrance	July 8, 8:30 AM
Questions on RFP due from Vendors	July 12, 4:30 PM
Responses to questions provided to Vendors	July 16, 12:00 PM
Proposal responses due from vendors	July 30 by 4 PM CST
Proposal opening	July 31 at 3:00 PM CST
Review proposal selections with Building and Grounds Committee	August 7
Award of contract pending County board approval	August 13
Send out Intent to Award/Thank You letters	August 14
Contract start date	TBD between County and Vendor

B. RFP Questions

All questions related to this RFP must be in writing and received by the Jefferson County Central Services Department Attention: Larry Meyer no later than 4:30 p.m. CST, July 12, 2019 via e-mail to larrym@jeffersoncountywi.gov. Clearly mark the e-mail: "Questions for RFP-Elevator Alterations." **Mailed, phone call and faxed questions will not be accepted.**

Answers to all written questions will be published in the form of an addendum and posted on the Jefferson County website at: (<http://www.jeffersoncountywi.gov/rfp>). It is the responsibility of all interested vendors to access the web site for this information. Calls for assistance with the web site can be made to (920) 674-7142.

C. Proposal Submission Requirements:

Proposal documents must be submitted in hard copy. Any deviation from these requirements may result in the proposal being considered non-responsive, and could eliminate the vendor from further consideration. The proposal shall be prepared with a straight forward, concise delineation of the vendor's capabilities to satisfy the requirements of this RFP.

Proposals should be prepared in a simple, cost effective format providing a straightforward, concise description of the vendor's capabilities to satisfy the requirements of the RFP. The use of elaborate materials and the inclusion of additional information that has no direct bearing on the project are not desired. Emphasis should be concentrated on accuracy, completeness, and clarity of content. All parts, pages, figures, and tables should be numbered and clearly labeled. Instructions relative to each part of the response to this RFP are defined in the remainder of this section.

All proposals must be typed on standard 8 ½" x 11" paper (larger paper is permissible for charts, spreadsheets, etc.) separating each section. Respondent shall be required to mail one (1) original and five (5) copies of the proposal document in a sealed package, box or envelope to arrive no later than 3:00 P.M. CST on July 31, 2019.

Each hard copy should be double-sided and bound, with the exception of the original, which should be double-sided but not bound. The copies should be bound by staple, binder clip or in a three-ring binder. Spiral, wire or comb bound copies are also acceptable.

Responses should be identified in the lower left corner as follows:

PROPOSAL RESPONSE, RFP # 2019-3 CS Elevator Alterations

D. Mailing Address:

All hard copy submissions are to be mailed to:

Jefferson County
c/o Larry Meyer
Administration Department, Room 111
311 S Center Avenue
Jefferson, WI 53549

E. Hand Delivery:

If you are delivering your response in person, you must enter through the main courthouse entrance, 311 S Center Avenue, and deliver it to the Administration Department receptionist in Room 111 of the Administration Department to be time stamped no later than 4:00 p.m. on July 31, 2019.

F. Response Receipt/Opening:

Responses received after the due date and time will be rejected.

Proposals will be opened and the name of the respondents read; however, detail of each proposal, including proposed fees will not be announced at the time of opening. Such information shall be made public an award has been made and all negotiations are completed.

All proposals received in response to this request will become the property of the County and will not be returned to the respondents.

G. Interviews:

Interviews may be required of selected finalists at the respondent's expense. However, an award may be made without discussion with the respondents. Therefore, respondents are cautioned that proposals should be submitted initially on the most favorable terms, from both a technical and cost standpoint.

If an interview is required, the selected finalists will be notified of the date and time of the interview process. Vendors not selected will also be notified.

Proposers not selected will be notified that their proposal will no longer be considered unless the evaluation committee finds, after the completion of interviews, that additional proposers should be interviewed.

H. Financial Verification

Vendor verification prior to award: Vendor's financial solvency may be verified through financial background checks via Dun & Bradstreet or other means (i.e.; Wisconsin Circuit Court Access, UCC) prior to contract award. Jefferson County reserves the right to reject proposals based on information obtained through these background checks if it's deemed to be in the best interest of the County.

I. Evaluation and Award:

Proposals will be evaluated in accordance with the criteria listed below. Award will be made to the responsive, responsible Contractor who complies with the requirements and scores the highest total on the evaluation criteria as it pertains to the overall needs of Jefferson County.

Experience of company in performing similar work	40%
Quality and completeness of Proposal including methods used to produce deliverables and adequacy in responding to the scope of services as defined in RFP	30%
Cost	30%

J. Other Considerations:

Factors which include, but are not limited to, quantity involved, time of completion, purpose for which required, competency and financial capacity of vendor, ability to render satisfactory service and past performance will be considered in determining status as a responsible vendor. The County reserves the right to request additional information as may reasonably be required to make this determination and to further investigate the qualifications of the respondent as deemed appropriate.

All work shall conform to all applicable industry, federal, state and local laws, codes, ordinances, and standards.

The County prohibits communication initiated by the respondent to any County official, representative from another entity or employee evaluating or considering the proposals, prior to the time a decision has been made.

Interested vendors must inform the County Administrator, prior to proposal submission deadline, if they have any pre-existing business relationship(s) with the County related to this project that may conflict with a potential contract award.

Jefferson County reserves the right to accept or reject any or all proposals and to waive any informality in proposals Jefferson County determines that doing so is in the best interests of Jefferson County. No vendor will be provided with financial and/or competitive vendor information on this proposal until after the award of contract has been made. To the extent possible, it is the intention of Jefferson County to withhold the contents of the proposal from public view until such times as competitive or bargaining reasons no longer require non-disclosure, in the opinion of Jefferson County. At that time, all proposals will be available for review in accordance with the Wisconsin Open Records Law. Jefferson County shall not be held liable for any claims arising from disclosure it determines is required under the Wisconsin Open Records Law.

Taxes: Jefferson County and its departments are exempt from payment of all federal tax and Wisconsin state and local taxes on its purchases except Wisconsin excise taxes.

This contract shall be subject to the laws of the State of Wisconsin. In connection with the performance of work under this contract, the contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s. 51.01(5), Stats., sexual orientation as defined in s.111.32(13m), WI Stats, national origin, or any other class protected under federal, state or local law.

Jefferson County is an Equal Opportunity Employer.

The chosen vendor will be required to provide a certificate of insurance at an amount to be determined by the County.

K. Reservations:

This RFP does not commit the County to pay any costs incurred in the preparation of a response to this request or to procure or contract for services or supplies. The Central Services Department reserves the right to accept or reject any or all proposals received as a result of this request, request additional information, waive minor irregularities in the procedure, negotiate with any qualified source, or to cancel this RFP in part or in its entirety.

L. Non-Interest of County Employees and Officials:

No County official, employee or representative on the evaluation committee shall have any financial interest, either direct or indirect, in the proposal or contract or shall exercise any undue influence in the awarding of the contract.

M. RFP Tabulations:

RFP tabulations are available to the public after contract execution, approximately 60-90 days from the date of the opening. RFP Tabulations can be found at the Jefferson County website <http://www.jeffersoncountywi.gov/rfp>. If you are unable to access the internet, you may contact 920-674-7101 for a hard copy. Copies are 15 cents per page plus postage costs if applicable.

SPECIFICATIONS

PROJECT INFORMATION

ELEVATOR ALTERATIONS FOR:
JEFFERSON COUNTY COURTHOUSE
 311 S CENTER AVE • JEFFERSON, WI 53549

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JUNE 26, 2019

REVISIONS

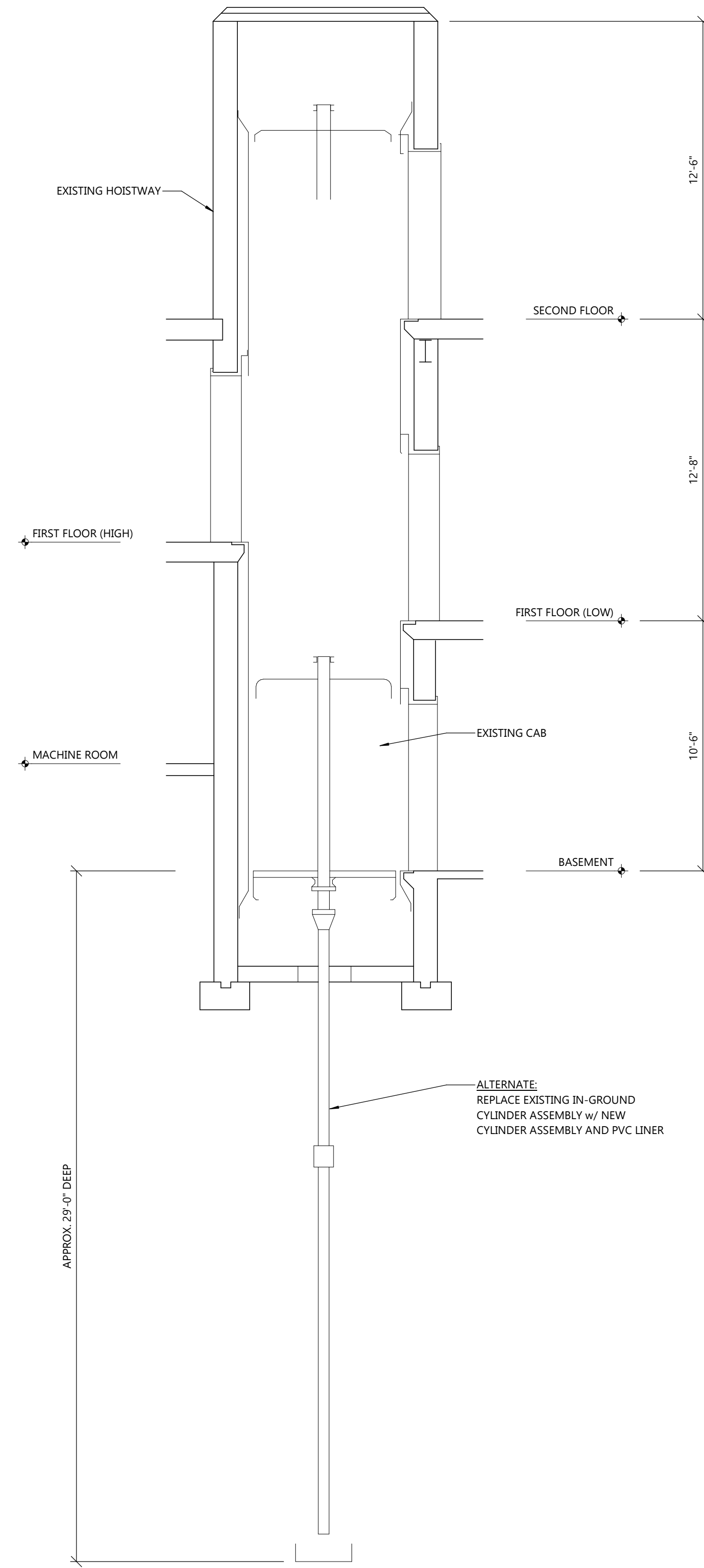
NO.	DESCRIPTION

JOB NUMBER

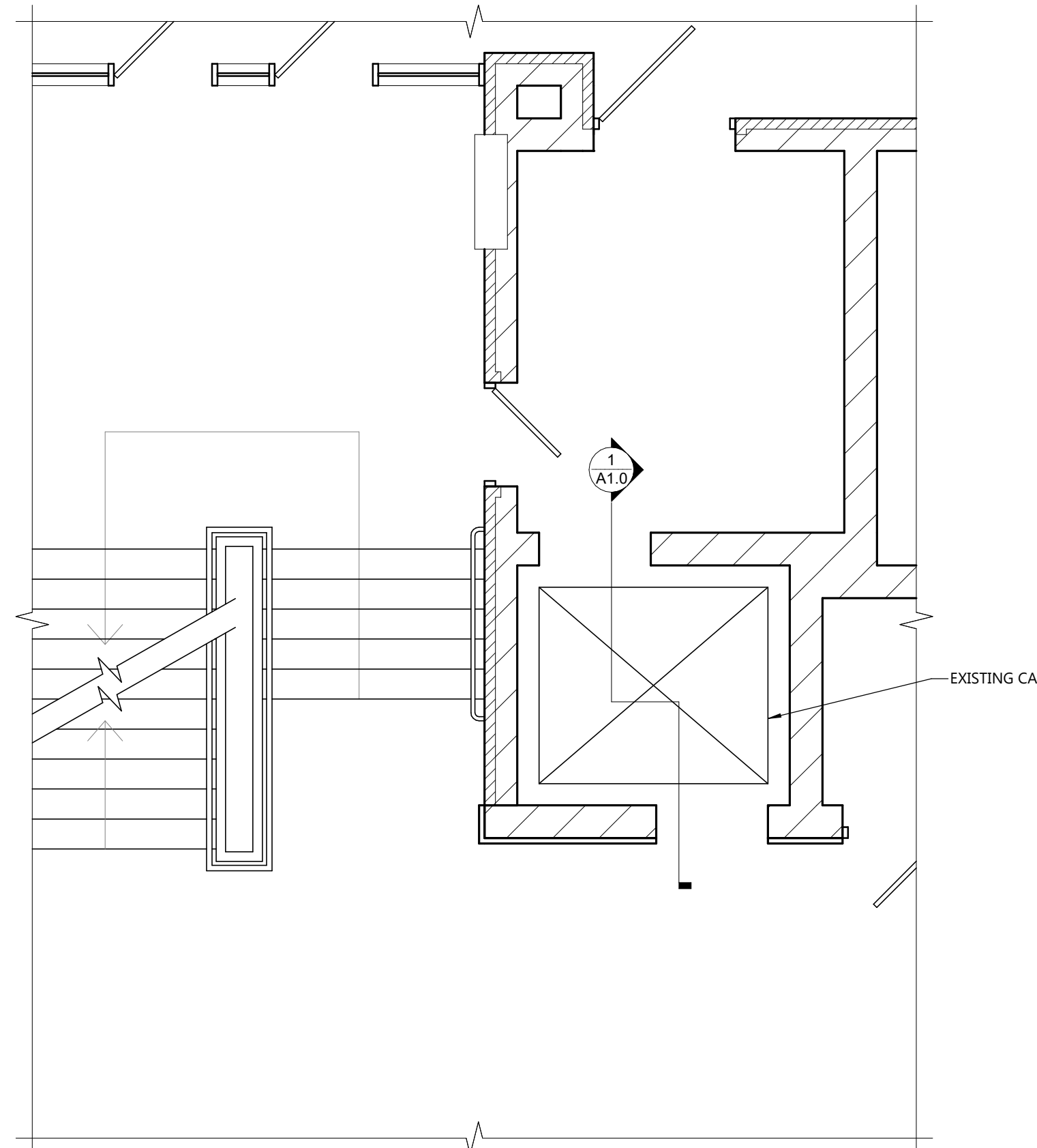
1929440

SHEET NUMBER

A1.0

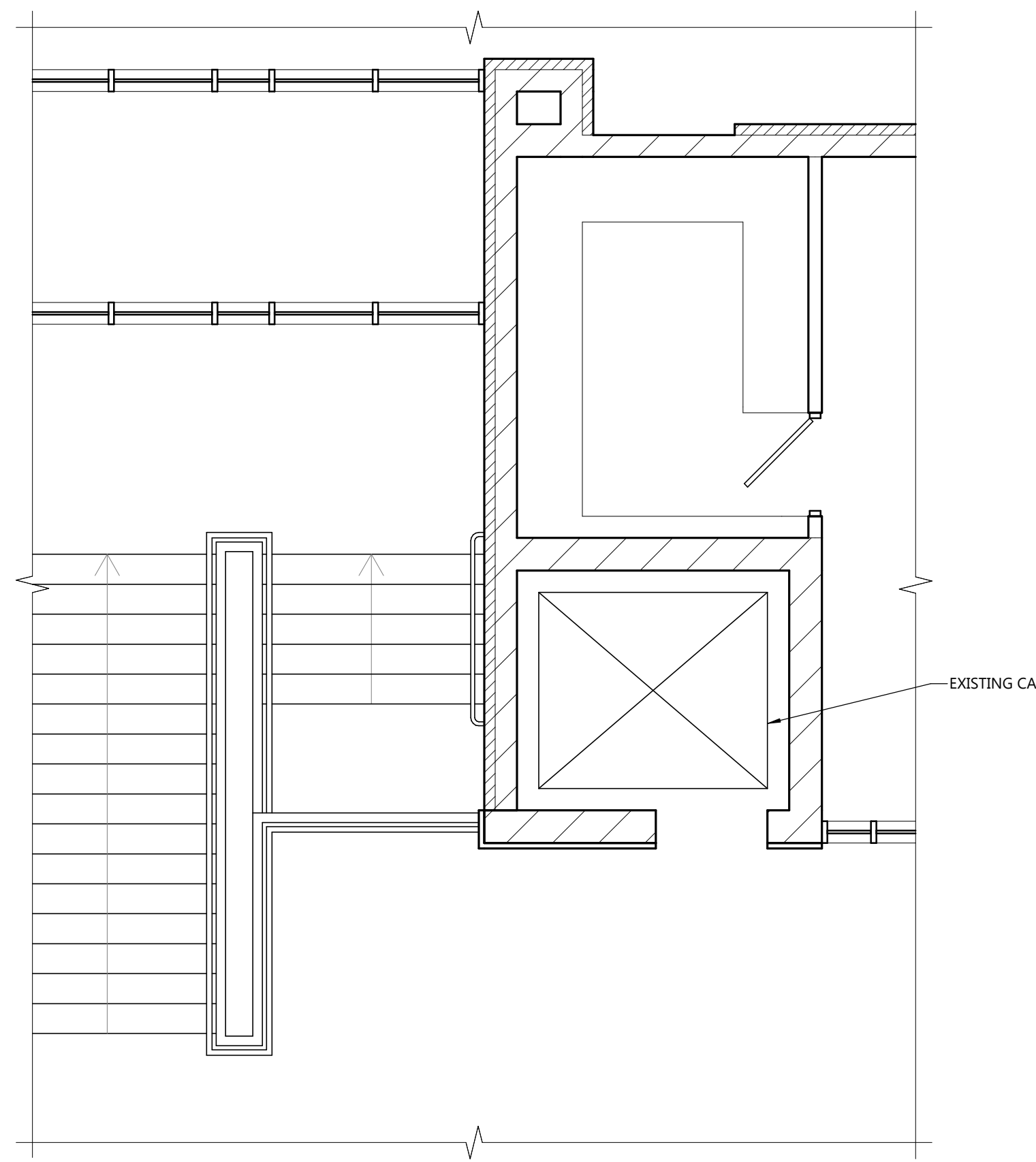


1 ELEVATOR SECTION
 A1.0 SCALE: 1/4" = 1'-0"



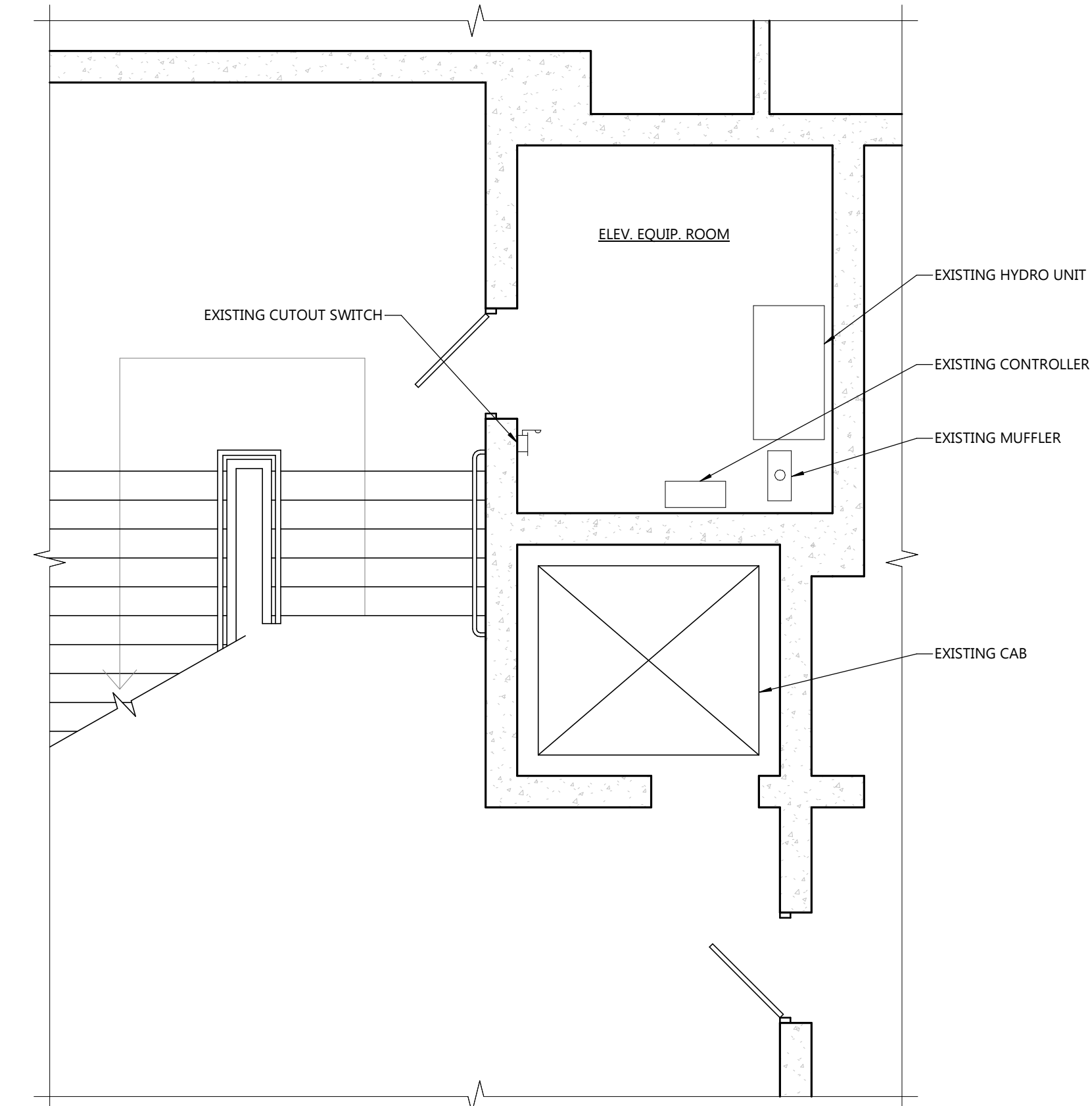
FIRST FLOOR LANDING

SCALE: 1/4" = 1'-0"
 4 0 4 8



SECOND FLOOR LANDING

SCALE: 1/4" = 1'-0"
 4 0 4 8



BASEMENT FLOOR

SCALE: 1/4" = 1'-0"
 4 0 4 8

SCOPE OF WORK

- NEW PROGRAMMABLE MICROPROCESSOR CONTROLLER w/ PRECISE LEVELING SYSTEM
 - NEW HOISTWAY LIMIT SWITCHES AND LEVELING DEVICES
 - NEW CAR TOP INSPECTION STATION AND PIT STOP SWITCH
 - NEW MACHINE ROOM AND HOISTWAY WIRING AND TRAVEL CABLE
 - NEW SIGNAL FIXTURES
 - 1. MAIN CAR STATION w/ POSITION INDICATORS, REQUIRED FIRE SERVICE FEATURES AND ADA PHONE
 - 2. HALL PUSHBUTTON STATIONS
 - 3. CAR RIDING LANTERNS
 - 4. HOISTWAY ACCESS SWITCHES (TOP & BOTTOM)
 - 5. JAMB BRILLE PLATES AT EACH HOISTWAY ENTRANCE FRAME SIDE JAMB
 - NEW HYDRAULIC POWER UNIT INCLUDING MOTOR, PUMP, CONTROL VALVE, MUFFLER, AND HYDRAULIC FLUID.
 - NEW DOOR EQUIPMENT
 - 1. DOOR OPERATOR w/ CLUTCH AND RESTRICTOR
 - 2. INTERLOCKS, CLOSERS, AND DOOR DRIVES
 - 3. CAR DOOR HANGERS AND TRACK
 - NEW ELECTRONIC DOOR EDGES (CURTAIN OF LIGHT)
 - NEW CAR DOOR PANELS #4 S.S. FINISH
 - MACHINE ROOM LAYOUT
- SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION

SYMBOLS LEGEND

- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN

SECTION 14000

PART 1 – TECHNICAL INSTRUCTIONS TO BIDDERS

1.1 EXAMINATION OF EXISTING BUILDING AND CONTRACT DOCUMENTS

- A. Examine the existing building to become informed as to facilities for delivering materials and equipment.
- B. Examine the specifications and other data or instructions pertaining to the work. Lack of knowledge of any conditions that exist, or any difficulties or conditions that may be encountered concerning the work to be performed, will not be accepted as an excuse for any failure or omission on the part of the Elevator Contractor to fulfill the requirements of the work.
- C. Provide a schedule of the work to be completed in the shortest possible time frame taking into account any negative impact on the tenants and their operations.

1.2 DESCRIPTION OF WORK

- A. Perform field surveys and provide engineering, labor, materials, tools, equipment, coordination, transportation, supervision and all means and methods in order to design, engineer, fabricate and install the elevator, complete in a first class workmanlike manner. Work shall be done in accordance with the requirements of local codes and applicable regulations which may govern the requirements of this installation.

1.3 INTENT

- A. Intent of these documents is to cover the specified work complete and operable in every respect. It is not intended to give every detail in the specifications. Material and equipment usually furnished with such systems and/or needed to make a complete and safe installation, whether specifically mentioned or not, shall be furnished. Material and equipment furnished shall be new and in perfect condition.
- B. Owner's or Owner's Representative's interpretation of specifications shall be final and binding upon the Elevator Contractor.

1.4 QUALITY ASSURANCE

- A. Work shall comply with current (at time of bid) governing local codes, conform to laws, ordinances and regulations affecting the erection, sequence of erection and completion of the whole or part of the work, and conform to the requirements of authorities having lawful or customary jurisdiction.

1.5 LAWS AND PERMITS

- A. Comply with federal, state and municipal laws and ordinances, prepare documents, obtain permits, pay costs and fees for permits and inspections and obtain Certificates of Operation and deliver to the Owner.

1.6 CONFLICTS

- A. Should it appear that there is real or apparent discrepancy between different sections of the specifications concerning nature, quality, or extent of work to be furnished, the Elevator Contractor shall base the bid on completing the work in the more stringent manner.

PART 2 - GENERAL REQUIREMENTS

2.1 SCOPE OF WORK

- A. The scope of work of the Elevator Contractor's Base Bid consists of the modernization of one hydraulic passenger elevator and associated work as required to obtain a legal Certificate of Operation from the Authority Having Jurisdiction, whether stated herein, or not.
- B. Included shall be field surveys, engineering, labor, materials, tools, equipment, coordination, transportation, supervision and means and methods as required in order to design, fabricate and install the equipment specified. All work shall be done in accordance with the requirements of local codes and applicable regulations, which may govern the requirements of this installation.
- C. In cases where a device or part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation.
- D. Work and materials that may be required for the complete and proper execution of the work shall be included. Work shall be performed in accordance with the best trade practices.
- E. Any items not specified in detail by the specifications, but which are incidental to or necessary for the complete installation and proper operation of the work described herein or reasonably implied, shall be furnished as if called for in detail by the specifications.

2.2 STANDARDS AND REGULATIONS

- A. Material, design, clearances, construction, workmanship, operation and tests shall be in accordance with, as of the date of design of the project, the applicable requirements of the following, including other Codes, regulations, laws, and ordinances as may govern. Where conflicts occur in these codes, the most rigid shall apply.
 - 1. ASME A17.1: Safety Code for Elevators and Escalators.
 - 2. ASME A17.2: Guide for Inspection of Elevators, Escalators and Moving Walks.
 - 3. ICC A117.1: Accessible and Usable Buildings and Facilities.
 - 4. NFPA 70: National Electric Code.
 - 5. NFPA 72: National Fire Alarm and Signaling Code.
 - 6. IBC: International Building Code.
- B. Nothing contained in these specifications shall conflict with any codes or federal, state or local laws, ordinances, rules or regulations governing the work.

2.3 PERMITS AND INSPECTIONS

- A. Obtain and pay for permits and display an elevator installation permit on the job site, visible to interested parties.
- B. Obtain and pay for state and local inspections and conduct tests as required by the regulations of the Authority Having Jurisdiction. Conduct tests in the presence of the authorized representative of the Authority Having Jurisdiction.
- C. Confirm all systems interfacing with elevators are operational prior to scheduling tests with the Authority Having Jurisdiction to assure that testing will be accomplished promptly and efficiently.
- D. Obtain final approval of the Authority Having Jurisdiction and provide evidence of the inspection results and the Certificate of Operation from the Authority Having Jurisdiction.

2.4 ELEVATOR CONTRACTOR QUALIFICATION

- A. The Elevator Contractor shall:
 - 1. Be regularly engaged in the business of engineering, installation and servicing of elevators of the type and character required by these specifications, shall be or represent an approved manufacturer, and shall assume full responsibility for the products used in assembling the elevator equipment.
 - 2. Be able to demonstrate similar elevators installed to that specified and which have given satisfactory service and have been in successful operation for a period of at least five years.
 - 3. Be able to show successful experience in the complete maintenance of elevators, employ competent personnel to handle this service, maintain locally an adequate stock of parts for replacement or emergency and have qualified employees locally available to insure the fulfillment of the service without unreasonable delay.

2.5 DEPARTURE FROM THE SPECIFICATIONS AND DRAWINGS

- A. Carefully review the specifications, examine the field conditions and be responsible for the proper fitting of the material and equipment indicated.

2.6 SHOP DRAWINGS/SUBMITTALS

- A. Submit Product Data and Catalogue Information in electronic pdf format for review, as follows:
 - 1. Jack assembly with PVC protection system.
 - 2. Controller.
 - 3. Power unit and electronic valve.
 - 4. Signal operating fixtures.
 - 5. Hands free telephone.
 - 6. Door operating system.
 - 7. Proximity detector.
 - 8. Bio-degradable hydraulic fluid.
- B. Submit Shop Drawings in electronic pdf format for review, as follows:
 - 1. Elevator hoistway and machine room layouts, plan and section, prepared by the power unit equipment manufacturer.
 - 2. Signal operating fixture details.
 - 3. Car enclosure details.
- C. Samples:
 - 1. For exposed finishes, submit 6 inch square samples of sheet materials and 4-inch lengths of running trim members.
- D. Submit documents sufficiently in advance of job progress requirements to afford ample time for review and correction.
- E. Submittals shall conform to requirements of contract documents. Submittals differing from the contract shall be identified in a letter of transmittal with an explanation.
- F. Prior to submission, check submittals for conformity with contract specifications and correct any errors, omissions, or deviations before submitting. Submit specifications, catalogs, product data,

etc., properly labeled indicating specific service for which material or equipment is to be used, and Manufacturer's name and name of job.

- G. Confirm correct quantities, dimensions, and, details for satisfactory construction of work.
- H. Owner shall review drawings to confirm compliance with specifications, drawings, schedules, and catalogs that are reviewed and returned, shall not be interpreted as a complete check, nor shall it relieve the Elevator Contractor of responsibilities stated.
- I. Materials or equipment delivered before the required approval is provided shall be removed and replaced at no charge, if material or equipment does not meet the intent of the specifications.
- J. Coordinate dimensions before submitting shop drawings. Submission of shop drawings shall represent that all project drawings have been reviewed with dimensions coordinated on the shop drawings.

2.7 DRAWING CERTIFICATION

- A. Provide a Professional Engineer's certification of the elevator drawings.

2.8 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit a schedule upon Notice to Proceed.
- B. Indicate dates for completion of work by other trades.

2.9 MATERIALS STANDARDS

- A. Materials furnished shall be new, of the best grade and quality used for the purpose of commercial practice and shall be the latest standard product as advertised in printed catalogues by reputable manufacturers.
 - 1. Aluminum Extrusions per ASTM B-221; sheet and plate per ASTM B-209.
 - 2. Nickel-Silver Copper-Nickel-Zinc extrusions of CDA alloy C77600.
 - 3. Steel Low carbon, cold rolled to stretcher leveled standard flatness per ASTM A-366 for sheet; per ASTM A-36 for structural.
 - 4. Stainless Steel ASTM A666, Type 302 or 304 with No 4 finish (150 grit) on exposed surfaces per ASTM A-167. Grains of belting shall be in the direction of the longest dimension.
 - 5. Textured Stainless Steel ASTM A-666, Type 304 with embossed texture rolled into exposed surface.
 - 6. Polished Stainless Steel ASTM A-666, Type 304 with No 8 mirror polished finish.
 - 7. Plastic Laminate NEMA LD3, Grade HGS 0.048 nominal thickness.
 - 8. Paint Exposed metal work, except as otherwise noted, shall be cleaned of oil, grease, scale, and other foreign matter with a factory coat of manufacturer's standard rust-resistant primer applied.
 - 9. Prime Finish Surfaces which are to receive an enamel finish shall be cleaned of oil, grease, scale, etc. and have one coat of rust-resistant mineral paint applied followed by a filler coat over uneven surfaces, then the surfaces shall be sanded smooth and a final coat of mineral paint applied.
 - 10. Enamel Finish Surfaces shall be primed per the preceding specification for Prime Finish and then have two coats of enamel in the color selected applied.

2.10 EQUIPMENT STANDARDS

- A. Equipment provided shall be new and be the latest standard product of reputable manufacturers.
- B. Equipment or apparatus of any one system must be the product of one manufacturer, or equivalent products of a number of manufacturers, which are suitable for use in a unified or assembled system. Parts of the equipment shall be built to standard dimensions, tolerances and clearances in order to ensure complete interchangeability of similar parts of similar machines and devices. Mechanical fastenings used throughout the equipment on parts subject to wear and replacement shall be key and seat, nut and bolt, screw or other removable type not requiring physical deformation.

2.11 ACCEPTANCE OF EQUIPMENT

- A. Materials, equipment and appurtenances specified or required for the completion of the work shall be completely satisfactory and acceptable with respect to operation, performance and capacity.
- B. No approval of any drawings, data or samples shall relieve the obligation to turn over the equipment to the Owner in perfect working order at the completion of the work.
- C. Any material, equipment, or appurtenances, the operation, capacity or performance of which does not comply with the specification requirements, or which is damaged prior to acceptance by the Owner, shall be held to be defective and shall be removed and replaced with proper and acceptable materials,
equipment and/or appurtenances, or put in proper and acceptable working order, satisfactory to the Owner, without additional cost to the Owner.

2.12 DEMOLITION, CUTTING, ALTERATIONS AND REMOVALS

- A. Identify and remove abandoned elevator and non-elevator equipment, conduit, wiring, etc. from the hoistway and equipment room.
- B. Perform demolition, cutting, alterations and removal as required to prepare the building to receive the new work, and any such demolition, cutting, alterations and removal which may be necessary to complete the work in a first class workmanlike manner.
- C. Repair surfaces, such as roofs, walls, windows, floorings, ceiling, etc., which are damaged or disturbed due to the performance of the work of this contract, in a first-class workmanlike manner to match existing and surrounding areas.
- D. Provide permanent and temporary bracing and anchoring required for the support or transfer of any load while demolition or installation work is in progress. Work shall be made absolutely stable and secure. Assume responsible for any damage resulting from failure to properly furnish such support.
- E. Protect Owner's property, equipment and materials against damage, dust and dirt and confine methods of construction to promote safety and reduce noise and dust .
- F. Provide necessary protective guards, barricades, tarpaulins and drop cloths.
- G. Remove unused and demolished equipment and rubbish on a continual basis and keep the premises clean during the term of the project. At the completion of work leave the premises clean and in condition satisfactory to the Owner.
- H. Provide minimum 6 ft. high, properly secured and locked, painted, temporary barricades and enclosures to guard the elevator shaft when the elevator shaft is exposed.
- I. Provide all protection of flooring and walls from damage and dirt, including plywood and walk off mats.

2.13 HOISTING, HANDLING AND INSTALLATION OF EQUIPMENT

- A. Provide all cartage, handling and receiving, hoisting and lowering and removal of equipment related to the work, from the property.
- B. Obtain permits, fees and coordinate with local authorities, including local police and fire departments, for use of crane service on and around the property.
- C. Install equipment in accordance with the equipment manufacturer's direction, referenced codes and specifications.
- D. Install equipment with clearances complying with referenced and applicable codes and specifications.
- E. Install items to be safely accessible for maintenance and to be removable via portable hoist or other means for maintenance and repair.

2.14 MATERIAL AND EQUIPMENT DELIVERY, STORAGE

- A. Storage on site is limited. Provide for off-site storage, at no additional cost to Owner, if available on-site storage is not adequate.
- B. Deliver materials in the original unopened protective packaging and store in the protective packaging to prevent soiling, physical damage or wetting.
- C. Protect equipment and exposed finishes during transportation, erection and construction against damage and stains.
- D. Confine apparatus and storage of materials to limits established by law, ordinances, permits or directions of the Owner and do not unreasonably encumber the premises.
- E. Store flammable and combustible materials to obviate fire and in areas approved by the Owner.

2.15 WORK INCLUDED AS PART OF THE ELEVATOR CONTRACT

- A. Hoistway and elevator equipment room shall be accepted as exists, or as indicated elsewhere to be modified.
 - 1. Notify the Owner of any changes to the hoistway and/or elevator equipment room, which are necessary to comply with Code, at the time of submission of the proposal.
 - 2. Apply for Variances as may be required to retain existing conditions.
- B. Provide the following:
 - 1. All electrical modifications/replacements as required by Code and AHJ to existing electrical service, including NEC compliant disconnects with adequate ground, auxiliary contact due to inclusion of battery lowering alternate power feature, protected fluorescent equipment room and pit lighting compliant with code with accessible light switches, 110V service in elevator equipment room with lockable disconnect for cab lighting, elevator equipment room and pit GFCIs and receptacles, fire alarm interface and modifications, auxiliary contact in disconnect switch required due to inclusion of battery lowering system.
 - 2. Rated elevator equipment room access door, with closer and storeroom type lock.
 - 3. Removal/relocation of all non-elevator equipment, wood and wiring from the elevator equipment room and hoistway. Review with Owner prior to removal of any non-elevator wiring. Obtain variances from the AHJ as necessary to retain.
 - 4. Patching and firesafing of all penetrations in elevator equipment room and hoistway, including door frames and signal fixtures.
 - 5. Repair of concrete pit floor, including waterstop ring and non-shrink concrete and waterproofing around new jack cylinder after installation.

6. Pit ladder.
7. Interface existing fire alarm system with elevator control. Coordinate with Owner's fire alarm contractor to provide signals from 3-inputs, including machine room, primary recall floor and alternate recall floor.
8. Remove sensors from hoistway and cap boxes as per AHJ.
9. Remove all wood from hoistway.

2.16 WORK NOT INCLUDED AS PART OF THE ELEVATOR CONTRACT

- A. Work that is not part of the Elevator Contract, unless identified elsewhere within this specification as being part of the work of the Elevator Contract, is summarized as follows.
 1. Elevator Hoistway:
 - a. Dry pit floor.
 2. Elevator Equipment Room:
 - a. Rated elevator equipment room enclosure.
 - b. Ventilation and heat in the elevator equipment room to maintain 50° - 90° Fahrenheit ambient temperature range.
 3. Fire Alarm Initiating Devices:
 - a. Fire Alarm Initiating Devices (FAID), at each floor level in each elevator lobby, and in the elevator equipment room in accordance with NFPA 72, with outputs and wiring as follows:
 - 1) Output 1: One set of wires through a set of contacts to the elevator controller in the equipment room representing the main Firefighter access floor.
 - 2) Output 2: One set of wires through a set of contacts to the elevator controller in the equipment room, representing other typical floor.
 - 3) Output 3: One set of wires through a set of contacts to the elevator controller in the equipment room representing the elevator equipment room, to signal the elevator controller when a FAID in that location is activated.
 4. Telephone line and dial tone to machine room for elevator emergency telephone. 24/7 monitoring of line.

2.17 SCHEDULE

- A. See bid form for bid due date.
- B. Building + grounds approval August 7th.
- C. County Board Approval August 13th.
- D. Commence survey work immediately upon receiving notice to proceed.
- E. Confirm power, floor designations, Firefighters Emergency Operation recall floors and dispatch floor locations, etc. prior to fabricating equipment.
- F. Provide engineering information as necessary to coordinate the interface work of other trades impacting the elevator work.

2.18 INSTALLATION

- A. Comply with manufacturer's written instructions.

- B. Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.
- C. Mount rotating and vibrating equipment on vibration-isolating mounts designed to minimize transmissions or vibrations to structure and thereby minimize structure-borne noise from elevator system.
- D. Lubricate operating parts of systems as recommended by manufacturers.
- E. Maintain leveling tolerance of ¼" up or down, regardless of load in car and direction of travel.
- F. Pre-hang traveling cables for at least 24 hours with ends suitably weighted to eliminate twisting.

2.19 EXECUTION

- A. Initiate, maintain and supervise safety precautions and programs in connection with the work and at minimum, follow guidelines of the most recent NEII (National Elevator Industry, Inc) Elevator Industry Field Employees' Safety Handbook.
- B. Provide substantial barricades whenever it is necessary to expose the hoistway in order to perform the work.
- C. Comply with requirements of the local Fire Codes that are applicable to this work. Maintain a fire watch in the vicinity of any burning or welding for a minimum period of three hours after burning or welding has been completed, or as required by the Owner.
 - 1. No burning or welding shall be performed without prior Owner approval.
- D. Respect the needs and entitlements of the building occupants while performing the work.
- E. Confirm that the specifications and contract documents are complete with regard to the work required to provide for a complete, legal and Code compliant installation.
- F. Confirm that equipment to be provided will fit within the space available. Survey the job site and verify by measurement, dimensions affecting the work to be performed as part of the Contract. Advise Owner of any deficiencies which may be in conflict with design tolerances of the equipment to be installed, prior to fabrication of the equipment affected.
- G. Provide information as required for coordination of work to be performed by other trades which will affect scheduling of the work and information required for coordination in scheduling the work which will affect the scheduling of other trade contractor work.
- H. Permit only skilled workmen to perform the work.
- I. Install equipment in accordance with the contract, specifications and final approved shop drawings.
- J. Comply with applicable Codes and manufacturer's installation instructions.
- K. Keep means of access and egress to and from the building, stairwells and lobbies free and clear of materials, tools and equipment.
- L. Protect finished surfaces during installation through to the final acceptance of the equipment. Upon acceptance of the equipment, remove protective coverings and thoroughly clean finished surfaces of paint, wrappings, mastic, etc. Repair any damage, including scratches, dents, discoloration, etc., which may have occurred to finished surfaces.
- M. Broom sweep the work areas, remove hazardous materials from the site on a daily basis and keep areas clean of dirt and grease resulting from the work.

2.20 TESTING AND DEMONSTRATION

- A. Notify the Owner at least five (5) days before scheduling of tests, to be performed to enable the Owner to observe testing of the elevators.
- B. Provide labor, tools and equipment necessary for on-site observations, testing, re-testing, inspections and re-inspections as may be required to satisfy the Code testing requirements, the requirements of the local testing authority and the requirements of the Owner.
- C. Test the equipment, both before the local authority and the Owner, to demonstrate that the equipment was provided in accordance with Code and Contract specification requirements and complies with the Performance criteria listed elsewhere in the specification.
- D. Load test each elevator at rated capacity and operate it continuously for 30 minutes over full travel distance, stopping at each level and proceeding immediately to next. Record temperature rise of elevator equipment during 30 minute test period. Record failure of elevator to perform as required. Advise Owner, Owner representatives, and authorities having jurisdiction in advance of dates and times tests are to be performed on the elevator.
- E. Upon satisfactory completion of required tests, obtain and submit to the Owner the Certificate of Operation or other instrument which may be required to legally permit the Owner to operate the equipment.

2.21 FINAL CLEAN UP

- A. Clean the hoistway, pit and elevator equipment room, including all elevator equipment, ledges and projections, of excess lubricant, dirt and debris upon completion of the work, and again at the end of the warranty period.
- B. Remove crating and packing materials and unused equipment from the job site.

2.22 INSTRUCTIONS TO OWNER

- A. Demonstrate operation of the elevator to Owner's representative and personnel. Include demonstration of:
 - 1. Safety devices.
 - 2. Up and Down travel speed.
 - 3. Door opening, door closing and door dwell times.
 - 4. Ride quality and noise levels.
 - 5. Communication systems.
 - 6. Standby Power operation.
 - 7. Instructions on proper procedures for assisting and dealing with entrapped passengers.
 - 8. Firefighters Emergency Operation.
 - 9. Independent service operation.
 - 10. All operating and control switches, devices, and keys.
- B. Provide on-site training of Owner's personnel and provide instructions in proper use, operation and daily maintenance of the elevator. Included in the training shall be:
 - 1. Instructions on proper procedures for assisting and dealing with entrapped passengers.
 - 2. Firefighters Emergency Operation.
 - 3. Independent service operation.
 - 4. All operating and control switches, devices, and keys.
- C. Review emergency provisions, including:
 - 1. Emergency access and procedures to be followed at time of operational failure and other building emergencies.

2. Train Owner's personnel in procedures to follow in identifying sources of operational failures or malfunctions.
- D. Confer with Owner on requirements for a complete elevator maintenance program.

2.23 CLOSEOUT DOCUMENTS

- A. Submit the following upon completion of the work in electronic pdf format and in number of copies shown:
1. Three (3) sets of parts lists and parts numbers of equipment provided.
 2. Three (3) complete and legible sets of wiring diagrams showing the electrical connections, functions and operation of apparatus connected with the equipment. Each device on the wiring diagrams and also on the controller panels shall be properly and permanently identified by name and part number.
 3. Three (3) complete sets of As-Built shop drawings.
 4. Three (3) sets of instructions explaining operating features including apparatus in the car and lobby control panels, adjusting and troubleshooting procedures.
 5. Three (3) sets of lubrication charts indicating lubrication points and type of lubrication recommended.
- B. Submit the following upon completion of the work in number of copies shown:
1. Six (6) complete sets of keys as required to operate each unique cylinder to operate key operated functions. Keys shall be marked and identified and a key schedule provided. Firefighters Emergency Operation keys shall be provided in quantity sufficient to operate all keyed devices simultaneously.
 2. Two (2) signed copies of the elevator manufacturer's warranty in accordance with the terms outlined in this specification.

2.24 WARRANTY

- A. Warrant equipment provided and installed under these specifications against defects in materials and workmanship and correct any defects not due to ordinary wear and tear or improper use or care which may develop from the time of turnover through twelve (12) months from the date the elevators are accepted by the Owner and placed into operation.

2.25 MAINTENANCE SERVICE

- A. Maintenance Service Program
1. Provide twelve (12) months preventive maintenance in accordance with Manufacturer's recommendations and standard maintenance program.
 2. Perform a minimum of 1 hour preventive maintenance each month to the elevator.
 3. Examine the equipment, and include adjustments, lubrication, cleaning, supplies and parts to keep the equipment in proper operation.
 4. Repair or replace electrical and mechanical parts of the equipment, whenever required, and use only genuine parts produced by the Manufacturer of the equipment concerned.
 5. Coordinate services with Owner and/or Owner's designated representative(s).
 6. Do not be assign or transfer to any agent or subcontractor the performance of maintenance service work. Perform work with competent personnel under the supervision and in the direct employ of the Elevator Contractor.
 7. Perform tests as required by Code of the equipment operation as often as required.

8. Perform preventive maintenance and callback service work during the regular working hours of the regular working days, unless specifically requested to be performed at other times by the Owner.
9. Provide Emergency callback service on a 24 hour 7 day per week basis and be available upon the Owner's request, at no additional cost to Owner.
10. Respond to requests for service within one hour during regular working hours and within two hours during non-regular hours, including nights, Saturdays, Sundays and Holidays.

2.26 SPECIAL CONDITIONS

- A. Provide escort for access to hoistway for Owner representative(s) to perform substantial completion surveys, when requested.
- B. Obtain licenses in the state and in the local municipality to do work of this nature.
- C. Comply with laws, ordinances, rules and regulations, including standards as set forth in the rules and regulations of the local municipality and all Authorities Having Jurisdiction.
- D. Nothing contained in these specifications shall be so construed as to conflict with any Codes or state or local laws, ordinances, rules or regulations governing the work specified herein.
- E. Work installed under these specifications shall be subject to inspection and approval by any Authority Having Jurisdiction, notwithstanding anything in these specifications to the contrary.
- F. Confine apparatus, storage of materials and operation of workmen to limits established by law, ordinances, permits or project directions and do not unreasonably encumber the premises with materials. Flammable or combustible materials shall be properly stored to obviate fire and in areas approved.
- G. Do not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

PART 3 - SPECIFICATIONS

3.1 ELEVATOR SCHEDULE/EQUIPMENT SUMMARY – Elevator #1

A.	Quantity	Existing	One.
B.	Type	Existing	Passenger.
C.	Capacity	Existing	3000 lbs.
D.	Speed	Existing	100 fpm.
E.	Travel	Existing	23'-2" +/- Field verify.
F.	Stops/Openings	Existing	four (4) stops. Three front openings and one back opening.
G.	Power	Existing	208V; 3 phase; 60 hz. Field verify all power characteristics prior to fabrication of the elevator equipment.
H.	Power Unit	New	Remove existing power unit and piping. Provide a new submersible oil hydraulic power unit, including valve and 20HP (maximum) AC motor. Provide new oil line from power unit to jack assembly.

J.	Hydraulic Fluid	New	<p>Remove existing hydraulic fluid and dispose of in accordance with State and Local Codes.</p> <p>Provide new Bio-degradable hydraulic fluid formulated specifically for use in operating hydraulic elevators.</p>
K.	Controller	New	<p>Remove the existing controller, motor starter and wiring.</p> <p>Provide a new controller with solid state motor starters, conduit and wiring..</p>
L.	Operation	New	<p>Operation to be microprocessor and include:</p> <ul style="list-style-type: none"> • Non-proprietary design. • On board diagnostic. • Variable door timing. • Door closing delay. • Independent service. • Firefighters Emergency Operation. • Low oil control. • Hoistway access. • Battery Lowering Operation.
M.	Jack Assembly Alternate No.1	New	<p>Remove existing jack assembly.</p> <p>Provide a new direct acting jack assembly located directly beneath the elevator car in existing jack hole location.</p> <p>Provide new structural steel pit mounting channel to span cylinder hole.</p>

			Work to be performed on off-hours. Jack sections shall be saw cut for removal. No burning.
N.	Jack Hole Alternate No 1	Modify	Upon removal of existing jack assembly, clean out hole, plumb to determine clear diameter and whether the existing hole can be re-used. Work to be performed on off- hours. Provide jack manufacturer's sealed PVC jack protection system with means to monitor and evacuate unwanted fluids. Provide PVC waterstop ring around perimeter of PVC casing and embed in cylinder hole with non-shrink grout. Restore structural integrity of pit floor caused by jack removal. Provide a Structural Engineer's certification of pit repairs.
	Alternate No. 2		In the event that the existing jack hole is not plumb to adequate diameter and depth to enable installation of sealed PVC protection system, ream hole to adequate diameter and depth to accommodate new PVC liner. Provide new steel outer liner. Provide new steel watertight inner liner with water stop ring embedded in concrete in pit floor. Restore concrete floor with non-shrink grout. Structural engineer to confirm the structural integrity of pit
O.	Buffers	New	Remove the existing pit buffers.
P.	Pit Ladder	Existing	Provide spring buffers, pit steel and pit support channels. Retain existing pit ladder in the elevator pit
Q.	Pit Stop Switch	New	Provide a pit new stop switch, located adjacent to pit access .
R.	Pit Lighting	Existing	Retain existing light fixture
S.	Scavenger Pump	New	Provide a scavenger pump to automatically return residual hydraulic fluid from the jack head to fluid reservoir.
T.	Guide Rails	Existing	Retain the existing guide rails. Inspect, file joints, clean and resecure.
U.	Car Frame	Existing	Retain steel car frame.

			Inspect and resecure.
V.	Platform	Existing	Retain car platform.
W.	Guide Shoes	Existing	Replace existing car shoe gibs.
X.	Entrances	Existing	Retain existing painted steel entrance frames. Provide door bumpers to restrict door over-travel. Clean, repair, straighten, replace where missing, and paint with rust inhibiting paint, all fascia, toe guards and dust covers.
Y.	Door Panels	Existing	Retain existing door panels. Reinforce and adapt for new power door operation Provide new gibs.
Z.	Identification Plates	New	Provide floor and car identification plates at all floors, with concealed fastenings.
AA.	Pictograph Signage	New	Provide pictograph signs, minimum 1/8" thick x 5" x 8" stainless steel, engraved with "In Case of Fire Do Not Use Elevators-Use Exit" and required graphics at floors above/adjacent to the hall pushbutton stations.
BB.	Car Enclosure	Modify	Retain the existing car enclosure. Modify car enclosure interior finishes as follows: <ul style="list-style-type: none"> • Canopy: Modify top emergency exit as per code. Provide locks, chain and contacts. • Return/Transom: Wrap/clad return and transom with 16 gauge #4 stainless steel. Reinforce return and provide for car operating panel cutout. • Freize/Base: Wrap/clad with 16 gauge #4 stainless steel. • Car doors: Retain existing car doors, 16 gauge stainless steel, reinforced for power door operation. • Wall Panels: Retain existing wall panels. ,

- Handrail: Retain existing handrails.
- Flooring: Retain existing vinyl tile flooring.
- Emergency Light: Provide emergency lighting and alarm bell to be operative from emergency power pack

CC.	Door Equipment	New	<p>Remove existing door operator system.</p> <p>Provide new door operating equipment, including a solid state closed loop power door operator, car door track, door contacts, relating devices; hoistway door closers, hanger rollers, relating cable, interlocks, wiring, and reinforcing for pickups, etc. Adjust for smooth quiet operation.</p>
DD.	Door Detector	New	<p>Remove existing door edge system.</p> <p>Provide a new 3D proximity door detector system, with lights.</p>
EE.	Signals	New	<p>Remove existing signal fixtures.</p> <p>Provide new signal operating fixtures as follows. Design shall include stainless steel pushbuttons with LED halo surround.</p> <p>Car operating panel:</p> <ul style="list-style-type: none"> • Light up LED pushbuttons, with integral Braille/raised numeral plates • 2" high digital position indicator with direction of travel arrows. • Lockable Firefighters Emergency Operation box with required devices. • Hands free, voice announcing auto dialing telephone instrument. • Door open, door close buttons. • Keyed service switches. • Voice annunciator. • Battery operated LED emergency light.

Car direction lanterns, one in each cab return jamb.

One hall pushbutton riser adjacent to each entrance frame at existing location. Primary floor device to include 1" position indicator with direction of travel arrows.

Firefighters Emergency Operation Phase 1 key switch and illuminated signal at Primary floor with instructions.

Emergency Power illuminated signal at Primary floor to illuminate when battery lowering is activated.

Hoistway access switch adjacent to the hoistway entrance at the terminal landings.

Top of Car Inspection Station.

Fixture faceplates shall be 1/8" thick, #4 satin stainless steel with eased edges, oversized to fully cover existing openings. Faceplate graining shall run the length of the plate. Reuse existing locations where possible.

Perform all cutting and patching as required for new devices.

Oversize faceplates to cover cutouts.

Fire-safe all cutouts and back boxes.

Patch all abandoned box locations and paint all disturbed areas to match existing finishes.

FF. Warranty

Twelve months.

GG. Maintenance

Twelve months.

HH. Miscellaneous

Test Fire alarm system interface with Owner and Code authority.

Remove and dispose of off-site, all equipment being replaced.

Perform all hoistway patching and repairs.

Provide all permits and perform all Inspections as necessary to obtain Certificate of Operation.

Perform all code required tests and document with code authority

Comply with Americans with Disabilities Act.

Provide substantial and secure barricades in front of hoistway entrances when work is being performed which

requires hoistway doors to be open or the hoistway to be exposed in any manner.

Provide access to the elevator hoistway, via the elevator car top or platform, if requested, by Owner for any reason.

Extend 3 phase power feeders and single phase cab lighting feeders from source to elevator controller.

Remove from site all abandoned elevator equipment, conduit, wiring, miscellaneous fixtures, panels, brackets, etc.

Stencil equipment identification numbers on power unit, controller, disconnect switch, buffers and car top.

Provide travel cable protective screening.

At the conclusion of the project, thoroughly clean the hoistway, equipment room and elevator equipment, clean fascia, toe guards, dust covers, pit steel and buffers, and paint with rust inhibitor paint, where rusted.

Design, fabricate and install all equipment in accordance with clearance requirements of applicable Codes.

Provide all building related items as detailed in Section 2.21.

3.2 HYDRAULIC POWER UNIT

- A. Remove the existing hydraulic power unit and dispose of off site.
- B. Remove all hydraulic fluid and dispose of in accordance with the State of Wisconsin requirements.
- C. The new hydraulic power unit shall be compact, self-contained fully enclosed rigid steel design. Power unit shall be floor mounted on isolators. Power unit shall contain the submersible pump and drive motor, hydraulic fluid control valve unit assembly, and storage tank.
- D. Pump shall be a positive displacement screw type design, specifically designed for hydraulic elevator service, with a steady discharge for minimal vibrations to provide smooth operation. Output of the pump shall not vary more than 10% percent between no load and full load conditions on the elevator. Mechanical efficiency of the pump shall be minimum 85% under fully rated load conditions.
- E. Motor shall be an alternating current, poly-phase, squirrel-cage induction type design motor, specifically designed for starting and running requirements of a hydraulic elevator.
- F. The hydraulic control valve shall be electronically controlled utilizing one up and one down proportional solenoid for step-less acceleration and deceleration. A feedback device shall be incorporated to sense the oil flow giving the valve a closed loop operation. This is necessary to ensure consistent operation and speed regulation regardless of load and/or oil temperature. Speed deviations throughout the load range shall not exceed 5% in either direction. This particular design describes a submersible power unit that incorporates a Bucher LRV-1 valve. Any deviation must be pre-approved. To have a non-closed loop valve approved the power unit must include constant speed lowering, viscosity control and a thermostat controlled oil cooler. Viscosity control utilizing the pump motor to circulate the hydraulic fluid is unacceptable.
- G. Hydraulic fluid reservoir storage tank shall be constructed of welded steel sheets and provided with a tight fitting cover, a protected vent opening, an hydraulic fluid level gage, a filtering screen mounted over the suction inlet and a drain connection and baffles as required to prevent surging and splashing of the hydraulic fluid upon reentering the reservoir. An initial supply of hydraulic fluid of the proper grade and volume shall be provided to permit proper operation of the elevator. Storage tank shall be of sufficient capacity to lift the elevator to the top terminal of the hoistway, plus a reserve of a minimum of ten gallons. Tank shall not operate as a pressure tank, but shall operate only as a storage tank.
- H. A blow out proof hydraulic muffler system, designed to reduce hydraulic pulsations and to minimize noise to permit quiet operation, shall be provided in the hydraulic fluid line near the power unit.
- I. A self cleaning main line strainer with a 60 mesh element and a magnetic drain plug shall be installed in the hydraulic fluid line.
- J. Shut off valves shall be installed in the hydraulic fluid line in the elevator pump room and in the elevator pit to isolate the hydraulic fluid in the system to permit maintenance and repair work to be performed without draining the system.
- K. An automatic pipe rupture shut-off valve shall be installed in the oil line immediately before the jack inlet. Automatic shut-off valve shall be adjusted to immediately stop the elevator in the event of a loss in supply pressure or an excessive oil flow condition.
- L. Supplemental means to maintain oil operating temperatures within acceptable design ranges shall be provided, if necessary.
- M. Provide all new piping, fittings and valves. Piping, fittings and valves shall be of sufficient schedule steel or extra heavy wrought iron with extra heavy fittings to exceed the pressures expected in

operating the system. Piping in the machine room and pit shall be resiliently supported by isolators. Piping which penetrates walls shall have a resilient sleeve to prevent direct contact with the machine room wall. At least two hangers or supports shall be provided between each flexible coupling. All pipe connections shall be threaded.

- N. Hydraulic fluid shall be "Readily" biodegradable and formulated specifically for hydraulic elevators. Hydraulic fluid shall meet Code requirements and elevator manufactures specifications for hydraulic elevator duty.
- O. Supplemental sound isolation of the power unit and hydraulic operating system shall be provided, including:
 - 1. A minimum of two sound isolating couplings in the oil line in the machine room between pump and jack. Each coupling shall consist of two machined flanges departed by two neoprene seals to absorb vibration and to positively prevent metal to metal contact in the oil line. Build couplings in such a manner that they will be absolutely blow-out proof.
 - 2. Vibration pads under the power unit assembly and oil line support brackets to isolate the unit form the building structure.
 - 3. Locate the power unit at least 6 inches from any walls.
 - 4. Resilient insert of neoprene sponge at any hydraulic floor or wall supports or use neoprene mount or hanger for the support.
 - 5. Flexible conduit with ground wiring for pump unit connections.
- P. All piping running through walls shall include a resilient penetration sleeve fabricated from a pipe that is $\frac{1}{2}$ " to $\frac{3}{4}$ " larger than the penetrating element in directions around the element. Space between the sleeve and the penetrating element shall be packed with fire-safing insulation to within $\frac{1}{4}$ " of the ends of the sleeve. Remaining $\frac{1}{4}$ " space on each end shall be filled with a fire rated sealant to form an airtight seal. Penetrating element shall be able to pass through the sleeve without contacting the sleeve.

3.3 CONTROLLER

- A. Remove the existing controller and dispose of off-site.
- B. Elevator controller shall be designed to provide the required flow control of oil from the power unit to the hydraulic jack. This flow control shall bypass oil on the initial start of the pump, allowing the motor to attain full running speed, and gradually increase load to the motor over a timed acceleration interval. Thermal overload relays shall be provided to protect the motor in three phases. Time between door close and car start shall not exceed one second.
- C. Solid state starting shall be provided to limit the motor starting current.
- D. Elevator shall be provided with a self leveling feature that will automatically bring the car level to the floor landing and maintain the car within 1/4" of level with the floor landing, regardless of rated capacity, load or direction of travel. Self-leveling shall be entirely automatic and correct for overtravel or undertravel.
- E. Controller shall be enclosed in a properly ventilated metal cabinet with sides and top, and with hinged access doors on the front. Rubber mats shall be installed on the floor in front of the controller for electrical grounding protection of the equipment.

- F. Controller printed circuit boards, discrete components, switches, and other items of control equipment shall be mounted on a common panel or individual panels which shall be made of a moisture-resisting, noncombustible material which shall be securely mounted in a substantial, self supporting steel frame. A vibration absorbing mounting shall be provided for the steel frame to eliminate perceptible vibration.
- G. Electro-mechanical switches and relays shall be used where heavy current is supplied and/or on safety circuits required by the governing Codes.
- H. Switches shall be the electro-magnetic operated with contacts of design and material to insure maximum conductivity, long life and reliable operation without overheating or excessive wear, and provide a wiping action to prevent sticking due to fusion. Switches carrying highly inductive currents shall be provided with arc deflectors or suppressers.
- I. Switches, printed circuit boards and discrete components shall be mounted in the front of panels together with any small electronic components. Large capacity resistors shall be mounted on the sides or top of panels.
- J. Protective devices shall protect against overload and single phasing and against overload and phase reversal.
- K. Time delay circuits shall be via electronic timing circuits.
- L. Wiring on the controller shall be done in neat workmanlike order and connections shall be made to studs and/or terminals by means of solderless lugs or similar connections. Wiring shall be copper.
- M. Terminal blocks with identifying studs shall be provided on the controller for connection of board wiring and external wiring.
- N. Identifying symbols or letters shall be permanently marked on or adjacent to each device on the controller and the marking shall be identical to marking used on the wiring diagrams. In addition to the identifying marks, the ampere rating shall be marked adjacent to fuse holders.
- O. Input-output devices shall be marked similarly to relays for ease of reference to wiring diagrams.
- P. Confirmation of which floor is to be the main dispatch floor, the Firefighters Emergency Operation Recall floor and the Alternate Firefighters Emergency Operation Recall floor shall be obtained prior to fabrication of the control equipment. Control shall be programmable to enable dispatch and recall floors to be changed in the field.
- Q. Electrical information necessary for review by the project Electrical Engineer shall be provided at the time of submission of the elevator hoistway layout drawings.

3.4 SELECTIVE COLLECTIVE OPERATION

- A. Elevator controller operation shall be a solid-state microprocessor design simplex selective collective automatic, operating from calls registered by momentary pressure of car or landing pushbuttons. System shall incorporate a directionally selective response to landing calls as well as a collective retention of calls.
- B. Elevator shall operate from buttons located at each floor and in the car. Registration of calls by momentary pressure on buttons shall cause the car to respond to passenger demand. Elevator shall slow down and stop automatically at landings corresponding to calls registered on car or hall buttons. Stops shall be made in natural order of floors for each direction of travel irrespective of the order in which calls were registered. Simultaneous to the initiation of the slow down of a car for a hall call, that call shall be canceled. Call shall remain canceled and hall button ineffective until car doors begin to close after passenger traffic. Calls registered on car buttons shall cancel in the same manner.

- C. In the event the doors are held open, or prevented from closing, for a predetermined adjustable period of time, initially to be set at 20 seconds, after automatic door closing has been initiated, a buzzer shall continuously sound, a voice announcement shall indicate to clear the doors, and the doors shall reopen. The doors shall not be permitted to close, even at a reduced speed, if an obstruction is in the plane of proximity detector curtain. When the obstruction is removed and the doors are permitted to close, the doors shall close at a reduced speed. Buzzer shall continuously sound until the doors are fully closed. Door open button shall remain operable.
- D. Additional operating features:
 - 1. Door Dwell Times: Door dwell times shall be field adjustable between 1 and 30 seconds. Hall call timing shall predominate in the event of a coincidental car and hall call stop. Upon interruption of car door proximity detector, the door open time shall be reduced to an adjustable time of 0.5 to 5 seconds. Proximity detector control door dwell time shall be separately adjustable for car and hall calls.
 - 2. Door closing delay: In the event the doors are held open, or prevented from closing, for a predetermined adjustable period of time, initially to be set at 20 seconds, after automatic door closing has been initiated, a buzzer shall continuously sound, a voice announcement shall activate and the doors shall not reopen. Doors shall not be permitted to close, even at a reduced speed, if an obstruction is in the plane of proximity detector curtain. When the obstruction is removed, the doors shall be permitted to close at a reduced speed. Buzzer shall continuously sound until the doors are fully closed. Door open button shall remain operable at all times.
 - 3. Provisions shall be incorporated into the elevator control dispatch system to prevent loss of control memory, sequence of operation and/or other control functions due to fractional power interruptions, spikes or other interference.
 - 4. Controller shall be capable of determining faults. When a fault occurs, controller shall be able to provide a retrievable fault code message identifying which fault has occurred.

3.5 CONTROLLER DIAGNOSTICS

- A. Controller shall include the ability to perform diagnostic analysis of the system and be capable of determining faults. When a fault occurs, the controller shall be able to provide a retrievable fault code message.

3.6 INDEPENDENT SERVICE

- A. A two-position switch shall be provided in the car operating panel for selecting Independent Service operation to permit an elevator to be removed from automatic operation and be used for special service.
- B. When the switch is in the Independent Service position, the elevator shall respond only to calls registered on the car buttons. Hall calls shall be automatically bypassed and directional lanterns and high call operation circuits shall be inoperative. Car doors shall close only when a car call button is pressed.

3.7 FIREFIGHTERS EMERGENCY OPERATION

- A. Firefighters Emergency Operation shall include Phase I, Phase II and Alternate Floor operation in accordance with ASME A17.1 Elevator Code and local Code requirements.
- B. Key switches for Phase I and Phase II operation shall be the same and not operate any other device. Key shall be a uniform key for the facility and be acceptable to the AHJ. Provide adequate quantity of keys to operate all Firefighters Emergency Operation devices.

- C. Firefighters Emergency Operation Phase 1 key switch shall be located in the main Fireman access floor elevator lobby.
- D. Floor access restrictions shall be overridden on Firefighters Emergency Operation.
- E. Interface elevator control and test with the Fire Alarm system.

3.8 LOW OIL CONTROL

- A. In the event the oil level in the power unit is insufficient for travel to the top floor, return the elevator to the main level and remove the car from service until the reason for the oil loss is determined and oil is added.

3.9 EMERGENCY POWER OPERATION - Battery lowering

- A. Provide a battery-operated system, as part of the elevator controller, to automatically lower the elevator to the lowest landing where it shall stop and allow the doors to open, then close in the event of loss of normal power. Door open button in the cab shall remain operational. Upon restoration of normal power, the elevator shall return to normal operation.
- B. Provide an auxiliary contact in the disconnect switch, and shunt breaker if applicable, to inhibit elevator emergency lowering in the event the disconnect switch shuts power off. Auxiliary contact shall be positively opened mechanically and the opening shall not be solely dependent on springs. Contact shall cause additional power source to be disconnected from its load when disconnecting means is in the open position.

3.10 HOISTWAY ACCESS

- A. Provide hoistway access switches at the top and bottom terminal landings to permit access to the elevator pit and car top as per local Code requirements.

3.11 EMERGENCY LIGHTING

- A. Provide a self-contained power supply to operate the elevator car enclosure emergency light fixture, telephone, alarm bell in the event of loss of normal power.
- B. Emergency power supply power packs shall contain a rechargeable battery and charger and shall be provided with a means of testing. Emergency power supply power packs to be operational for at least four hours. Operation shall be completely automatic upon failure of normal power supply.
- C. Devices operated by emergency power supply units shall be connected to the normal power supply and always be energized. Batteries shall recharge automatically after use. Rechargeable batteries shall have a minimum ten-year life expectancy.

3.12 TOP OF CAR STATION

- A. Provide an inspection and maintenance control station, mounted on top of the elevator car. Station shall contain Up and Down direction buttons and an emergency stop switch, 110V GFCI duplex receptacle, work light and audible and visual signal to comply with the Firefighters Emergency Operation requirements. When the car is on inspection it shall operate at reduced speed by constant

pressure on the appropriate direction button. Provisions shall be made to make normal operating devices inoperative while the top of car operating device is in use.

3.13 SIGNALS AND OPERATING FIXTURES

- A. Remove the present signal operating fixtures.
- B. Provide a new car operating panel in the car enclosure return which shall include:
 - 1. A series of car operating buttons with white LED acknowledge light illumination corresponding to the landings served, alarm bell button, and door open and door close buttons. Pressure upon a car landing call button shall cause the button to illuminate. When car stops in response to a car call, call shall be canceled and button illumination extinguished. Plates containing raised numerals and Braille indications shall be integral with each floor button, operating button, and alarm bell button in the car operating panel.
 - 2. Surface mounted keyed service switches for independent service, keyed inspection/access, light, two speed fan, emergency light test switch, emergency stop, and two additional spare switches.
 - 3. Adjustable volume electronic toners for audible signaling of floor passing and car stop, and adjustable volume buzzers shall signal door delay and fireman emergency.
 - 4. Firefighters Emergency Operation Phase II key switch, illuminated signal and call cancel pushbutton door open and door close buttons within locked cabinet with engraved instructions. Fire Department phone jack (if required).
 - 5. Emergency light fixture with LED lamps.
 - 6. 2 inch high LED digital readout position indicator to indicate position of the car in the hoistway, and include arrows to indicate direction of travel of the car.
 - 7. An ADA compliant hands-free telephone, and wiring from telephone to terminals on the elevator controller. Others shall provide telephone wiring to the machine room controller location. Hands-free telephone shall include instructions for use, pushbutton to initiate the call, microphone transmitter, speaker and acknowledge light to indicate when the call has been answered. Operation of telephone shall automatically signal call acknowledgment and automatically reset on call termination and not require any special action on the part of the operator. Telephone shall have capability for ring-down use with in-house telephone system or operate with standard dial tone.
 - 8. Engrave and fill, in standard Helvetica graphics as follows: "Capacity" (0.25 inch), "Car Number" (0.5 inch), "Firefighters Emergency Operation Instructions" (0.125 inch), and all other engraving required by Code.
- C. Directional lanterns with adjustable audible electronic toners shall be provided in car enclosure entrance jamb. Directional lanterns shall provide audible signal once if a car is traveling in Up direction and twice if in Down direction and visual signal to waiting passengers of elevator arrival and direction of travel.
- D. Landing pushbutton fixtures containing Up and/or Down pushbuttons with integral Braille Up/Down arrows shall be provided at each floor. LED illumination shall be provided in each button, which shall light upon pressure registration of a call at that landing and extinguish when a car responds to that call.

- E. Firefighters Emergency Operation Phase I key switch and illuminated signal shall be located at primary Fire access floor elevator lobby to permit the elevator to be recalled manually via operation of that key switch. Primary Firefighters Emergency Operation access floor and alternate floor shall be confirmed prior to fabricating control or installing key switch station.
- F. An illuminated signal shall be provided at the designated level marked "Elevator Emergency Power" to indicate that normal power has failed and emergency power is in effect.
- G. A hoistway access switch shall be provided at the terminal landings to permit access to the elevator pit and car top as per local Code requirements.
- H. Fixture faceplates shall be a minimum of 1/8 inch thick with eased edges to eliminate sharpness and finished per the Equipment Schedule. Faceplates graining shall run vertically.
- I. Landing, car and lobby fixtures shall be mounted with tamperproof type screws. Screws shall be same finish as the faceplates.
- J. Key switch cylinders in faceplates shall match the faceplate finish.
- K. Hall pushbutton bulbs, car operating panel pushbutton bulbs and hall lantern bulbs shall be LED. Bulb light shall be of sufficient intensity to not be overwhelmed by surrounding light. Car and hall pushbutton bulbs shall be uniform white, red, or blue.
- L. Fixtures and devices shall be located as required by the Americans with Disabilities Act.
- M. Provide all cutting, patching and firesafing of all existing and new boxes. Provide oversize faceplates to completely cover cutouts to eliminate need for lobby refinishing.

3.14 VOICE ANNUNCIATOR

- A. A programmable voice annunciator system shall be provided in the car enclosure capable of the following announcements:
 - 1. Floor Numbers and Direction of Travel: Activated when the elevator stops at the designated level, i.e.: "Second floor, Going Down."
 - 2. Emergency Service: Activated when the elevator is placed on Firefighters Emergency Operation or Emergency Power. "This elevator is on emergency service. Please exit the elevator at the next stop."
 - 3. Door Closing Delay: Activated when the doors are delayed from closing beyond the scheduled dwell time. "Please allow the door to close".
 - 4. Special Operation: Activated when the elevator is on Independent Service or Inspection Operation, i.e.: "This elevator is on independent service."
 - 5. Language: English.
 - 6. Voice: Female.

3.15 JACK ASSEMBLY REMOVAL AND REPLACEMENT Alternate No 1

- A. Remove the existing jack assembly.
 - 1. Pump hydraulic fluid out of the existing jack assembly, and dispose of as per requirements of the State of New Jersey Department of Environmental Protection Agency
 - 2. Remove the jack assembly, oil line, related hardware, and fittings, and clean out the jack hole to create a clean hole.
 - 3. Plumb hole and determine adequacy for use with new jack assembly. Jack assembly to include manufacturers PVC encased integral system, complete with monitoring capability.

4. Minimize demolition of the concrete, which may be surrounding the jack hole casing.

3.16 JACK HOLE REDRILLING - Alternate No. 2

- A. If, once the jack assembly is removed and the jack hole is cleaned out, it is determined that the jack hole outer casing has insufficient clear plumb diameter to install the new PVC encapsulated jack assembly system advise Owner and obtain authorization to redrill cylinder hole.
- B. Upon Owner authorization, pull the jack hole outer casing and re-bore the hole to sufficient depth and diameter to accommodate the new PVC encased hydraulic jack assembly and a new steel outer casing. Provide a new watertight inner casing with welded watertight bottom and pit embedded water-stop ring.
 1. Removal of the jack assembly, cleanout of the hole, installation of the new PVC encapsulated jack assembly in cleaned out hole is to be included as part of the Base Bid work.
 2. Removal of the existing jack hole casing, re-boring of the hole, if required, and installation of a new steel outer casing shall be bid as an Alternate to the Base Bid and a separate price shall be provided for this work.
 3. Restore the pit floor concrete disturbed due to the removal of the existing jack cylinder and jack hole casing and provide waterstop ring for pit to be dry. Provide certification from a Structural Engineer that the pit floor integrity has been restored.

3.17 HYDRAULIC JACK ASSEMBLY REPLACEMENT; PIPING

- A. Provide and install a new PVC encased hydraulic jack assembly in the hole, plumb. Include waterstop ring on PVC casing and embed in concrete.
 1. Once the jack assembly is aligned and plumb, backfill the casing with clean dry sand to maintain the plumb cylinder alignment.
 2. Restore concrete damaged due to removal of jack cylinder assembly or installation of new jack cylinder assembly.
- B. Hydraulic jack assembly shall be fabricated of steel pipe of sufficient thickness to withstand operating and overload pressure, closed at the bottom and provided with a removable cylinder head and packing gland at the top. Bottom of the jack cylinder shall have a safety bulkhead in addition to the welded closure. Jack head shall have a bronze or Babbitt lined bearing and an integral drip ring. Packing shall be of the self-adjusting type, not requiring external adjustment, and shall allow operation of the plunger with minimal friction. Packing gland shall be arranged for and a return system shall be provided to automatically return any hydraulic fluid, which may escape the packing ring to the reservoir. The jack assembly shall be contained within a sealed PVC outer casing. A means shall be provided as part of the jack/PVC system to determine if water has entered the PVC containment system to evacuate same pursuant to Code requirements.
- C. Structural steel channels shall be provided to support the jack and to transmit the vertical loads to the building structure.
- D. Exposed jack assembly shall be laterally supported and access ladders and service platforms shall be provided for access to cylinder heads. Existing access ladders and service platforms may be retained if acceptable to local Code authority.
- E. Construct plunger of seamless steel pipe or tubing, turned true and smooth and polished to a fine finish. Internal couplings shall join multiple piece plungers.

- F. Fasten plunger to the bottom of the car frame by means of vibration isolating dampening plates to prevent noise and vibration from being transmitted to the car frame. A stop plate shall be welded on the bottom of the plunger to prevent the plunger from leaving the jack cylinder.
- G. Grey cast iron or other brittle materials shall not be used and the cylinder and plunger unit shall be factory tested at not less than 400 psi for strength and freedom from leakage. All jacks shall be tested for potential leakage, and corrected if any is observed, before they are finally installed.
- H. Provide a new threaded hydraulic oil line, of the proper schedule, properly supported and isolated from the hydraulic machine to the new hydraulic jack assembly and with approved shut off valves located in the machine room and elevator pit. (Note: Victaulic connections are not acceptable).
- I. Piping, which penetrates walls, shall have a resilient sleeve to prevent direct contact with the machine room wall and the hole fireproofed. At least two hangers or supports shall be provided between each flexible coupling.

3.18 HYDRAULIC FLUID DISPOSAL

- A. Engage an environmental firm, licensed in the State of New Jersey, regularly employed in the recovery and removal of hazardous materials, to evacuate, remove, and properly dispose of all hazardous and contaminated materials from the job site.
 - 1. Provide the location of the disposal site to the Owner for substantiation of authorization of site to receive contaminated materials.

3.19 PIT STOP SWITCH

- A. Provide a stop switch in the elevator pit, located adjacent to pit access ladder in accordance with Code requirements.

3.20 SCAVENGER PUMP

- A. Provide a positive displacement, rotary type scavenger pump with discharge pressure of 200 psi maximum and capacity of 10 gallons per hour, to return excess oil collected from the wiping action of the operating piston by the jack head packing. Pump shall be self-priming and self-lubricating and be equipped with a 100-mesh screen strainer. Pump housing shall be constructed of brass with stainless steel internal parts. Pump shall be mounted off the pit floor and connected to the jack unit and oil

tank with copper tubing oil return lines. Pump shall be connected to a dedicated receptacle, or as required by Code inspector. Pump shall include a flood control switch.

3.21 GUIDE RAILS

- A. Existing guide rails shall be retained.
- B. Rails and rail bracket fastenings shall be examined and resecured to the building structure, as necessary. Machined running surface of the guide rails shall be thoroughly cleaned. Joints shall be filed smooth and the alignment shall be checked and adjusted to within 1/8" (+ or -) top to bottom and face to face, as required for proper and smooth operation of the elevator. Unmachined portion of the guide rails and brackets shall be thoroughly cleaned.
- C. Anti-snag guards shall be provided where necessary to prevent travel cables from snagging on brackets, fishplates, clips or bolts.

3.22 CAR FRAME

- A. Existing car frame shall be retained.
- B. Examined car frame and resecure all fastenings.

3.23 PLATFORM

- A. Existing car platform shall be retained.

3.24 CAR GUIDE SHOES

- A. Remove existing car shoe guides.
- B. Replace car shoe guides with new self lubricating guides.

3.25 ENTRANCE ASSEMBLIES

- A. Existing hoistway landing entrance assemblies shall be retained.
- B. All fastenings of the retained apparatus shall be made secure. Any repairs that may be required, or alterations necessary to adapt the new doors and door operating equipment to the existing hoistway landing entrance assemblies, shall be performed.
- C. Landing sills for all openings shall be cleaned to permit smooth operation of the door gibs in the sill tracks.
- D. Supports shall be provided for any new door track assemblies provided. New supports shall be 3/16 inch thick steel formed sections securely bolted to the strut angles and closer support angles.
- E. Existing fascia, toe guards, hanger covers and dust covers may be retained, if in compliance with Code and if reinforced, resecured, and degreased. New fascia shall be sheet steel, reinforced as necessary to prevent deflection and to present a flat surface. Fascia shall be no more than 5 inches from the edge of the car sill, or as required by Code, throughout the full rise of the hoistway and be securely fastened to hanger housings, intermediate supports and sills. The fascia shall overlap the entrance width by a minimum of 6 inches on each side. Fascia shall be secured at hanger supports and at the sills with oval head machine screws. All existing and new, fascia, toe guards, hanger covers and dust covers shall be painted with rust inhibitor paint. Six (6) inch high numerals designating the appropriate floor shall be stenciled at six (6) foot intervals on all fascia.
- F. New door stops and rubber bumpers shall be mounted at the top and bottom of the strut angles to cushion and limit the extreme travel of the door panels.

- G. A stainless steel pictograph sign, minimum 1/8" thick, stating "In Case of Fire Do Not Use Elevators- Use Exit" and graphics required by Code, shall be provided at all floors above the hall pushbutton station. Shop drawings and/or samples shall be submitted for approval.

3.26 HOISTWAY DOOR PANELS

- A. Existing passenger elevator door panels shall be retained.
- B. Door panels shall be provided with two new removable laminated phenolic sill guides, which shall run in the entrance sill slots. Sill guides shall be U/L labeled and designed to be replaced without removing door panels.
- C. Door panels shall be reinforced for door interlock pickups.
- D. Sight guards shall be inspected and new provided on the leading edge of the leading door panel where existing are damaged. New sight guards shall be formed of not less than 16 gauge metal of the same type and same finish as the door panel facing.

3.27 ELEVATOR DOOR OPERATING EQUIPMENT

- A. The existing door operating system shall be removed.
- B. A motor driven door operator with closed loop control system and electronic and digital operation shall be provided. Door operator shall open and close car doors and hoistway doors simultaneously at any landing through use of pickups and an automatic clutch arrangement.
- C. Closed loop control shall give constant feedback on the position and velocity of the elevator door. Motor torque shall be constantly adjusted to maintain correct door speed based upon position and load of the door. Door movements shall be electronically cushioned at both limits of travel and door operating mechanism shall be arranged for manual operation in the event of power failure with amount of force needed not to exceed thirty pounds per Code.
- D. Closing speed of hoistway doors shall not cause the kinetic energy of hoistway door assembly to exceed 7 foot-pounds per Code. Doors shall begin to open when car has stopped at floor level.
- E. Doors shall open automatically when the car has stopped at floor line and shall again close after predetermined time interval has elapsed or when the car is parked. A door open button shall be provided in the car, momentary pressure on which shall reopen the door and reset the time interval. Momentary touch of the corridor button at the floor at which the elevator is parked shall cause the doors to open. Doors shall reclose if no call is registered after an adjustable time interval. Emergency stop key switch operation shall open the car doors only after the car has come to rest.
- F. New car and hoistway door hanger rollers shall be provided. Hanger rollers shall be steel or have resilient sound-absorbing tires of approved material and shall include ball bearings properly sealed to retain grease lubrication. Adjustable ball bearing rollers shall be provided to take up thrust of doors. Hanger tracks shall be cleaned and working section of tracks shall be cleaned and oiled with wick type lubricators, if steel rollers are used.
- G. New hoistway door closers and relating devices shall be provided. Car door and hoistway doors shall be arranged that hoistway doors and car doors cannot be opened more than 4 inches from inside car when car is outside unlocking zone, per the requirements of ASME A17.1.
- H. Existing mechanical electrical interlocks shall be refurbished with new contacts, springs and wiring, obtained from original equipment manufacturer. New mechanical electrical interlocks, if provided, shall be of a design, which will operate without use of a retiring cam, with new code compliant wiring shall be installed at each landing entrance.

3.28 PROXIMITY DOOR DETECTOR EDGE

- A. The existing door detector edge shall be removed.
- B. A full curtain screen design proximity detector door edge shall be installed on the car doors. Device shall include a full curtain of LED light-rays to fully cover entire opening and be so arranged that, should the plain of the screen be penetrated or if the edge should be touched or an object come into proximity of the doors while the doors are open shall cause car and hoistway doors to remain in the open position or, if closing, cause the doors to return to open position. Design and operation of the proximity detector shall be in conformance with requirements of the Americans with Disabilities Act.
- C. Should the proximity detector be interrupted for an extended adjustable period of time, an adjustable volume buzzer shall continuously sound until doors are released and allowed to fully close. Doors shall not be permitted to close, even at a reduced speed, if an obstruction is in the plane of proximity detector curtain. Nudging shall not be activated, only audible signal provided.
- D. Control system shall permit adjusting of varying door dwell times after the proximity detector is interrupted, based on car call time and hall call time.
- E. Should the proximity detector device become inoperative, elevator shall be removed from service until the proximity detector is made operational and elevator returned to service.
- F. A second independent 3D detection system consisting of an infra-red proximity detector which operates between the hoistway doors and landing doors shall be provided. 3D system shall detect any reflection within the 3D zone in the landing, which triggers the system, causing the doors to reopen. 3D system shall have multiple modes of activation to suit the building requirements. 3D system shall desensitize after either three attempts to close or after doors have been held open for a predefined time. Static curtain detector shall remain operational when 3D system is desensitized.

3.29 ELEVATOR CAR ENCLOSURE

- A. The existing car enclosure shall be retained.
- B. Entrance columns and return panels shall be wrapped/clad in 16 gauge finished as indicated in the Equipment Schedule. Return panels shall be reinforced so as not to deflect and include cutouts for car-operating panel and arrival lanterns.

3.30 ELECTRIC WIRING

- A. Existing wiring, travel cable and abandoned conduit shall be removed from the hoistway, pit, and elevator equipment room.
- B. Provide complete new elevator electric wiring and travel cable.
- C. Existing conduit and duct, which is in compliance with Code and compatible with the new equipment, may be retained.
- D. Power and control wiring to connect parts of the elevator equipment including controllers, cars, remote panels, and signal operating fixtures shall be insulated copper wiring.
- E. Wiring shall have a flame retarding and moisture resisting insulating outer cover and be run in metal conduit, metallic tubing or wire ducts. Wiring shall bear the UL approval or equivalent for service intended and be installed in accordance with National Electric Code.
- F. Travel cables shall have a flame retarding and moisture resisting outer cover and be circular in cross section. Travel cables shall contain a steel core and be flexible and suitably suspended by the steel core to relieve strains in individual conductors. Cables shall contain an approximately equal number of conductors and be of approximate equal diameter and flexibility. Travel cables shall be terminated

in a junction box on top of the car and in elevator equipment room. Anti-snag guards shall be provided to prevent travel cables from snagging or abrading on beams, brackets, or any surfaces within the hoistway.

- G. Provide ten percent spare wires in travel cable. Spare wires shall be properly tagged.
- H. Provide an emergency alarm bell in the hoistway, or just outside the hoistway, where directed by local Code enforcement official.
- I. Interlock wiring of elevator entrances shall be Teflon insulated, or as required by Code.
- J. Wiring, conduit, fittings and devices in pit shall be waterproof NEMA rated design and be identified for use in wet locations in accordance with NFPA 70.

3.31 PAINTING

- A. Elevator hoistway, pit, and elevator equipment room shall be thoroughly cleaned at conclusion of the project and prior to Acceptance.
- B. Elevator hoistway, pit, and elevator equipment room shall be thoroughly cleaned at the conclusion of 12 month Warranty period.
- C. Exposed ferrous metal surfaces of power unit and controller shall receive a factory applied primer and finish coat of rust inhibiting machinery paint. After installation and final adjusting, equipment shall be touched up or repainted.
- D. Exposed ferrous metal in the hoistway including guide rails, brackets, pit steel, buffers, platforms, ladders, car frames, shall be touched up or repainted after installation and final adjusting.
- E. Electrical wiring ducts, junction boxes, switch boxes, signal boxes, terminal boxes, rigid or flexible metallic tubing, trough and brackets shall be painted to prevent corrosion or be fabricated from a non corrosive material.

3.32 PERFORMANCE

- A. Elevator system shall be required to meet the following performance criteria.
 - 1. Control:
 - a. Design and adjust equipment and control so that an average acceleration over total accelerating period of not less than 2.2 FPSPS is maintained and acceleration peaks do not exceed 3.5 FPSPS.
 - b. Provide a selector as part of operating system to accurately provide signal to control of the exact position of the elevator within hoistway within ¼ inches.
 - 2. Operating Time:
 - a. Adjust equipment so that elapsed time to travel one typical floor does not exceed time parameters as follows:
 - 1) Flight time: 17 seconds. Start to measure time when fully opened doors begin to close and continue to measure time until car is stopped level with next floor and car and hall doors are open to three quarters of fully open position.
 - b. Criteria to be used when measuring the time durations are as follows:
 - 1) A typical floor shall not exceed 12 feet.
 - 2) Floor level is considered to be within ¼ inch of level.
 - 3) Time is measured with full load in the car and in both directions of travel.

- 4) Power door operation for the hall and car doors conforms to Elevator Code requirements.
 - c. Adjust equipment so that operating speed in both directions of travel under load and no load conditions does not vary more than three percent.
 - d. Adjust equipment so that operating time as set out above is compatible with dependable, consistent operation without undue wear on the equipment, can be maintained without excessive maintenance and so that operating time can be readily maintained over the life of the elevator installation.
 - e. Adjust equipment so that, with the control adjusted to give the required time, elevator operates under smooth acceleration and retardation and provides a comfortable and agreeable ride to passengers.
3. Leveling:
- a. Cause the car to stop automatically at floor level without overshooting, regardless of load or direction of travel, so that car sill is within $\frac{1}{4}$ inch of level with respect to hoistway sill.
 - b. Correct for overtravel or undertravel or rope stretch by returning car imperceptibly to the floor. Releveling shall not commence within the $\frac{1}{4}$ inch floor landing zone, above or below, with doors in open position. Releveling sequence of operation within this zone shall be initiated with car doors in closed position only.
4. Door Time; Door Operation:
- a. Arrange doors to close with an average horizontal speed creating a kinetic energy not in excess of 7 foot-pounds.
 - b. Arrange time necessary for passenger elevator doors to operate as follows:
 - 1) Opening: 3 seconds. Measure from start of door motion to $\frac{3}{4}$ of fully open position.
 - 2) Closing: 4 seconds. Measure from start of door closing to fully closed position.
 - 3) Door Dwell Time: 3 seconds after stopping for a car call. 5 seconds after stopping for a hall call. Timer shall be adjustable from 0 to 30 seconds.
 - 4) Reduced Door Dwell Time: Initially adjusted to 1 second. Short door dwell time after interruption of proximity detector to be adjustable from 0 to 10 seconds.

- 5) Arrange that door closing force, as measured when a door panel is stalled in the act of closing, does not exceed 30 lbs.
5. Machine Room:
 - a. Provide Code Data Plate on controller.

END OF SECTION