



UNIVERSITY OF KENTUCKY Purchasing Division

INVITATION FOR BIDS

CCK-2661-23

ADDENDUM # 2

9/26/2022

New Bid Due Date 10/5/2022

ATTENTION: This is not an order. Read all instructions, terms and conditions carefully.

IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY 10/05/2022 @ 3:00 P.M. LEXINGTON, KY TIME

Bidder must acknowledge receipt of this and any addendum as stated in the Invitation for Bids.

This addendum is being released to add the elevator maintenance specifications and the traction specification section 142200. It is also moving the bid due date from September 28, 2022 to **New Bid Due Date October 5, 2022 by 3pm**

OFFICIAL APPROVAL
UNIVERSITY OF KENTUCKY

SIGNATURE

David D. Stefanic / Category Specialist / 859-257-5792

Typed or Printed Name



TABLE OF CONTENTS

SECTION 143250 - LERCH BATES MAINTENANCE SPECIFICATION (LBMS) 2

PART 1 GENERAL..... 2

1.1 PARTIES 2

1.2 DUTIES OF CONTRACTOR 2

1.3 AGREEMENT INTENT 2

1.5 OBSOLESCENCE 4

1.6 CONTRACTOR SERVICES 4

1.7 CONTRACTOR COMPLIANCE WITH LAWS 5

1.8 CONTRACTOR’S EMPLOYEES 6

1.9 HOURS AND MANNER OF WORK..... 6

1.10 MINIMUM MANPOWER AND MAINTENANCE HOURS REQUIREMENTS 8

1.11 SCHEDULING OF WORK 9

1.12 ELEVATOR CALLBACK FREQUENCY 9

1.13 PERFORMANCE REQUIREMENTS 9

1.14 REMOVAL OF UNITS FROM SERVICE 10

1.15 PURCHASER’S RIGHT TO INSPECT AND REQUIRE WORK 10

1.16 EXCLUSIONS 11

1.17 REMOVAL OF PARTS..... 11

1.18 MACHINE ROOMS 12

1.19 WIRING DIAGRAMS..... 12

1.20 MAINTENANCE CONTROL PROGRAM..... 12

1.21 SPECIAL CONDITIONS 12

1.22 PURCHASER’S RESPONSIBILITIES 13

APPENDIX A - EQUIPMENT ID, SCHEDULE, PERFORMANCE REQUIREMENTS 15

EQUIPMENT ID AND SCHEDULE IS PROVIDED IN ELECTRONIC BID FORM INCLUDED IN RFP. .. 15

PERFORMANCE REQUIREMENTS 15

APPENDIX B - KEY PERFORMANCE INDICATORS..... 18

APPENDIX C - DEFINITIONS 19

APPENDIX D - EXTENT AND SCOPE OF SERVICES 20

APPENDIX E - CODE-MANDATED TESTS 24

APPENDIX F - ELEVATORS WITH OVERTIME 24/7 CALLBACKS 26

APPENDIX G - CONTRACTOR’S PREVENTIVE MAINTENANCE SCHEDULE AND MAINTENANCE CONTROL PROGRAM 27

APPENDIX H - SAMPLE MAINTENANCE LOG 29

APPENDIX I - SAMPLE CALLBACK LOG 31



SECTION 143250 -
LERCH BATES MAINTENANCE SPECIFICATION (LBMS)

PART 1 GENERAL

1.1 PARTIES

- A. The parties to this Agreement (the "Agreement") are university of Kentucky Medical Center Physical Plant ("Purchaser") and _____ ("Contractor"). The contract start date is the date this Agreement is executed by Purchaser or their Designated Representative. The purpose of this Agreement is to set forth the terms and conditions under which Contractor will provide certain services for Purchaser. This agreement covers all elevator and dumbwaiters listed in Section 143250, Appendix A.

1.2 DUTIES OF CONTRACTOR

- A. Contractor shall furnish all supplies, materials, parts, labor, labor supervision, tools, scaffolding, machinery, hoists, equipment (including employee safety equipment), lubricants, and technical information to provide proactive full preventive maintenance service including, but not limited to, cleaning, lubrication, adjusting, parts replacement, repair, and callback service. All work shall be in conformity with highest standards and best industry practices, applicable laws, and all expressed and implied provisions of this Agreement for the complete vertical transportation systems detailed in Appendix A of this Agreement.

1.3 AGREEMENT INTENT

- A. The intent of this Agreement is to maintain the elevator equipment to the highest industry standards using "industry best" practices by continuously preserving and maintaining the condition, appearance, and performance of the elevators and dumbwaiters in keeping with their original and modernized design. The purpose of the maintenance program specified herein is to provide the following:
 - 1. Safe, consistent, and reliable operation
 - 2. Maximum operational performance
 - 3. Maximum beneficial usage
 - 4. Maximum life cycle
- B. Contractor acknowledges Purchaser is relying on Contractor's professional expertise in performance of Services to achieve and comply with the Agreement intent.
- C. Contractor accepts full responsibility for the equipment, as it exists on the effective date of this Agreement, and will leave it in a condition acceptable to Purchaser, or a mutually agreeable third party consultant, at the termination date.
- D. Contractor acknowledges Purchaser provided free access to and sufficient time for adequate examination of the equipment and review of service records. Contractor further acknowledges the specified vertical transportation equipment has been evaluated by Contractor, and Contractor has determined the equipment is in serviceable operating condition. The Contractor accepts full and complete responsibility for all of the maintenance service, repair, cleaning, and testing of the specified vertical transportation equipment listed, in "as is" condition, in accordance with this Agreement.
- E. Invoicing Requirements. The following criteria must be clearly met for payment of any invoice:



1. Travel time clearly identified and a separate line item on technician's time sheet.
2. Site arrival time and departure time clearly identified on technician's time sheet.
3. Service call and work description clearly identified on technician's time sheet.
4. Billable material cost backup.
5. Travel expenses/surcharges shall not be allowed.
6. Contractor's invoice must include clear and concise detail of service call and work complete.
7. Contractor's invoice must include clear and concise detail of travel hours billed and hourly rate utilized.
8. Contractor's invoice must include clear and concise detail of time on job and hourly rate utilized.
9. UK Work Order Number
10. Building Name and Number
11. Elevator Number/Name
12. Additional information required specific to Maintenance Billing
 - a. Units itemized and subtotaled by building
 - b. Unit certificate number to be included on each line
 - c. Date of last safety test performed by Unit

1.4 QUALITY ASSURANCE

A. Mechanic Qualifications:

1. Acceptable Installers shall be regularly engaged in servicing elevators of the type and character herein specified, and with a history of successful production acceptable to THE UNIVERSITY.
 - a. Acceptable Installers shall have a staffed service office located in the Lexington, Kentucky area.
 - b. Evidence the selected acceptable installers can respond to service calls within (30) minutes or less when the call covers passenger entrapment or other emergency as deemed by THE UNIVERSITY on a 7 day per week 24-hour per day basis.
 - c. The service call respondents will be a competent elevator "Journeyman", skilled on the existing and upgraded equipment and a field employee of the selected acceptable installer. Installation and service employee qualifications shall be submitted to The University prior to contract award and updated if and when any personnel changes are made.
 - d. Evidence that Installer will utilize an adequate number of work persons ("Journeymen") thoroughly trained, experienced and skilled in the necessary crafts and that all work shall be performed in a skillful and professional manner. All work/services shall be performed by first class Elevator Constructor Journeymen with at least five (5) years' experience with similar vertical transportation equipment. All journeymen shall have a minimum of 5 years' experience, and shall have, either a current "IUEC journeyman's card" after successfully passing the journeyman's test of the International Union of Elevator Constructors (IUEC) or shall have a current Certified Elevator Technician (CET) license, after completing the National Association of Elevator Contractors (NAEC) Certified Elevator Technician Education Program. If during this work, the State of Kentucky requires elevator Journeymen to be licensed, Journeymen assigned to this project shall abide by the State licensing requirement. An apprentice worker of fewer qualifications may be utilized, only for assisting an elevator contractor Journeymen.

B. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of following codes, laws, and/or authorities, including revisions and changes in effect:

1. ASME A17.1



2. ASME A17.2
3. ASME A17.5
4. NFPA 70
5. Accessible Design to comply with ANSI A117.1
6. Local Fire Authority
7. Requirements of most stringent provision of local authority having jurisdiction.
8. NFPA101 – 2012 Edition
9. State of Kentucky Elevator Code

- C. In addition to complying with all applicable and pertinent regulations of National, State, City and University codes and requirements, comply with current adopted code by the Authority Having Jurisdiction (AHJ) Latest adopted version of 2010 - ASME A17.1 and addenda's, NFPA 13 - 2016 / NFPA 70 – 2016 / NFPA 72 - 2017, OBC with amendments effective August 1, 2018.

1.5 OBSOLESCENCE

- A. Definition of Obsolescence: A system, component, or part that is no longer repairable, re-buildable, supported, manufactured, available in-stock or supplied by the OEM, non-OEM elevator/escalator systems parts supplier or other third party parts supplier or fabricator in the same form, fit and function.
- B. Prior to submission of contractor's proposal to the Purchaser, the contractor will have an opportunity to review all applicable vertical transportation elements as identified in this document. After such review, if the contractor believes there are systems, components or parts which are obsolete or may become obsolete during the term of this agreement, they must identify those components in Appendix A. If no components or systems are listed in Appendix A and approved by the Purchaser, then no components or systems will be considered obsolete through the term of the agreement.
- C. Additionally, contractor shall:
1. Provide base bid proposal response pricing (Bid Form Section 7.1 and 8.1) that includes full maintenance coverages inclusive of full maintenance coverage for all components listed in Bid Form Section 8.2.C. as obsolete or parts requiring repair.
 2. Provide optional services bid proposal response pricing that excludes systems, components or parts requiring repair listed in Bid Form 8.2.C.
 - a. Provide Optional Service pricing and schedule to replace all systems, components or parts detailed in RFP Section 7.2 and 8.2, as an extra charge, at the beginning of this agreement for the Purchaser's consideration.
- D. If contractor, third party consultant, or Purchaser receive a notice of "component or part obsolescence" from a third party non-OEM elevator system parts supplier, not owned by or in any way affiliated with the contractor, during the course of this agreement then Purchaser will evaluate a claim of obsolescence. Claim may include only the necessary retro-fit material and only the additional portion of labor above and beyond what would have been required to replace the obsolete component or part with an OEM original component or part.
- E. No other claim for obsolescence of any kind will be considered by the Purchaser during the course of this agreement.

1.6 CONTRACTOR SERVICES

- A. Services shall include all labor, transportation, supplies, materials, parts, tools, scaffolding, machinery, hoists, employee safety equipment, equipment, lubricants, supervision and all other



work and materials expressly required under this Agreement, or reasonably inferred, whether or not expressly stated herein.

- B. Contractor shall coordinate and follow the directives of Purchaser with respect to scheduling Services and any deliveries hereunder or at a time or times further specified in other provisions of this Agreement.
- C. Services shall be performed as follows:
 - 1. In conformance with all provisions of this Agreement including RFP 2068-20 and Specification 143250.
 - 2. In conformance with all applicable original equipment manufacturer's specifications.
 - 3. In conformance with the written Maintenance Control Program (MCP).
 - 4. In conformance with Purchaser's rules, policies, regulations, and requirements for work at the Property, as modified and supplemented during term of this Agreement.
 - 5. In conformance with Purchaser's requirements for cleanup using containers supplied by Contractor.
 - 6. To Purchaser's satisfaction in conformance with this agreement.
 - 7. By qualified, careful, and efficient employees in conformity with best industry practices.
 - 8. Diligently, to highest industry standards, in a complete and workman-like manner, free of defects or deficiencies.
 - 9. In such manner as to minimize any annoyance, interference, or disruption to occupants of Property and their invitees.
- D. Contractor shall initiate, maintain, and supervise all safety precautions and programs in connection with Services, and comply with all applicable safety laws. Contractor shall take all reasonable precautions for safety of Purchaser, Purchaser's tenants, Purchaser's employees, Contractor's employees, and other persons on or about the Property.
- E. Contractor shall repair, to satisfaction of Purchaser, any damage to the Property and adjacent areas caused by performance of Services. This excludes building structural deficiencies which may occur during periodic safety testing.
- F. Contractor's additional services:
 - 1. Attendance and assistance to facilitate cleaning of the exterior glass surface of observation elevator car enclosures and the interior surface of the glass enclosed hoist ways of observation elevator. This shall be accomplished on an annual basis. Contractor may require certain waivers for third party contractors/employees.
 - 2. Attendance and assistance to facilitate re-lamping of architectural lighting in equipment pits, hoist ways, or elevator car tops. Contractor may require certain waivers for third party contractors/employees.
 - 3. Attendance and assistance to facilitate annual Emergency Power testing.
 - 4. Performance of Fire Service testing.

1.7 CONTRACTOR COMPLIANCE WITH LAWS

- A. Contractor agrees to comply with all current laws, codes, rules, and regulations set forth by appropriate authorities having jurisdiction in the locations where Services are performed. In the event of differing testing requirements between this Agreement and local codes or ordinances, the more stringent requirement shall prevail.
- B. The Contractor shall not be required to install new attachments or perform tests as may be recommended or directed by: inspecting entities; insurance companies; and federal, state, or municipal governmental authorities subsequent to the date of this Agreement, unless compensated for such tests, installation, or services.



- C. Contractor must complete all code-mandated testing and work tasks as detailed in Appendix E.

1.8 CONTRACTOR'S EMPLOYEES

- A. This Agreement is not one of agency, partnership, master-servant, or joint employer, but one with Contractor engaged in the business of providing Services hereunder as an independent contractor. Contractor shall have sole responsibility for the means, methods, techniques, procedures, and safety precautions in connection with performance of Services.
- B. Contractor shall be responsible for the supervision and execution of Services by its employees. An onsite condition review shall be conducted by the designated Supervisor of Contractor on an annual basis to ensure that all Services hereunder are performed properly. Contractor shall designate its Supervisor and inform Purchaser of the person responsible for execution of Service, and Supervisor shall have the authority to act as Contractor's agent. Supervisor shall notify Purchaser of site inspection and provide Purchaser with a written summary of findings within ten working days after completion of site review.
- C. Contractor agrees that its employees are properly qualified and will use reasonable care in the performance of Services. Contractor agrees that all work shall be performed by, and under the supervision of, skilled, experienced elevator service and repair persons directly trained, employed, and supervised by Contractor. Any and all employees performing work under this Agreement shall be satisfactory to Purchaser. Purchaser shall be given at least thirty days' notice prior to making changes to site-specific mechanic/employees.
- D. If Purchaser, in Purchaser's sole opinion, determines, for any reason, that the qualifications, actions, or conduct of any particular Contractor employee has violated this Agreement by performing unsatisfactory Services, interfering with operation of Property, bothering or annoying any occupants, other contractors, or subcontractors then at Property, or that such actions or conduct is otherwise detrimental to Purchaser, then upon Purchaser's notice, Contractor shall immediately provide qualified replacement persons.
- E. Contractor shall not engage any subcontractors or other parties to perform Services unless first approved in writing by Purchaser. Purchaser's acceptance of subcontractors or other parties shall not relieve, release, or affect in any manner any of Contractor's duties, liabilities, or obligations hereunder, and Contractor shall at all times be and remain fully liable hereunder.
- F. Contractor employees are required to wear standard matched uniforms with a company logo. Each employee shall be required to have on their person a company ID card for identification as a current company employee.

1.9 HOURS AND MANNER OF WORK

- A. All work, except as otherwise noted in this Agreement, including unlimited call-back service, shall be performed during the building's regular hours. These hours are 6:00 a.m. to 6:00 p.m. Purchaser, at its option, may request callback or normal service within the scope of this Agreement at no additional cost during those hours. Emergency callback service requested prior to 5:30 p.m. but answered after 6:00 p.m. shall be considered a regular one-hour callback; after which it shall be in accordance with Article 1.11 D.
 - 1. Elevators listed in Appendix F require overtime call back coverage 24/7 included in the monthly price.
 - 2. If two (2) or more elevators in the same group are out of service due to equipment shutdown or malfunction Purchaser, at its option, may request Emergency callback service at no additional cost.



- B. Callback is defined as any request for service or assistance by Purchaser or Purchaser's Facilities Management UKHC Dispatch representatives when any unit is not available for beneficial usage due to equipment shutdown or malfunction.
- C. Response Time for Callback Service:
 - 1. During regular time hours identified in Article 1.11 A. Contractor shall arrive at Property within 30 minutes from time of notification of equipment problem or failure by Purchaser. For callbacks placed during regular time hours, the portion of work that could have been accomplished from the required arrival time of technician to the end of the defined work day shall not be billed at overtime rates.
 - a. Sixty (60) minutes will be given for Eastern Locations.
 - 2. During the regular time hours identified in Article 1.11 A, Contractor shall arrive at Property in response to passenger entrapment calls within 15 minutes from time of notification by Purchaser.
 - a. Thirty (30) minutes will be given for Eastern Locations.
 - 3. During hours outside those identified in Article 1.11 A. Contractor shall arrive at Property within Two (2) hours from time of notification of equipment problem or failure by Purchaser. For callbacks placed during regular time hours, the portion of work that could have been accomplished from the required arrival time of technician to the end of the defined work day shall not be billed at overtime rates.
 - a. Two (2) hours minutes will be given for Eastern Locations.
 - 4. During hours outside those identified in Article 1.11 A, Contractor shall arrive at Property in response to passenger entrapment calls within 45 minutes from time of notification by Purchaser.
 - a. Forty Five (45) minutes will be given for Eastern Locations.
 - 5. Purchaser, at its sole discretion, shall reduce monthly Agreement amount by \$1,000/occurrence for Contractor's repeated failure to meet callback response time.
- D. If additional work within the scope of this Agreement is requested during overtime hours, Purchaser shall pay only the difference between regular time and overtime hours at the hourly rates indicated in Bid Form Section 8.1.C.
- E. If additional work beyond the scope of work enumerated in this Agreement is requested during regular hours, the regular time hourly rates shown below shall apply at the hourly rates indicated in Bid Form Section 8.1.C..
- F. If additional work beyond the scope of work enumerated in this Agreement is requested during overtime, the rate billed shall be the regular time rate plus the applicable overtime premium at the hourly rates indicated in Bid Form Section 8.1.C..
- G. If any unit is shut down due to equipment failure for more than seventy-two (72) continuous hours, maintenance billing for that unit may be suspended until it is restored to beneficial usage, excluding scheduled equipment repairs.
- H. Suspended billing shall be calculated per unit, per day, and will not begin until the 72 hour period is exceeded.
- I. During peak passenger traffic times: Purchaser requires all elevators to be in operation. The elevator Contractor shall not remove elevators from service during these times without authorization.
- J. Removal of units from beneficial usage to facilitate Services shall be coordinated with and approved by the Purchaser and identified in the MCP, unless removal is necessitated for



emergency repair or adjustment. Purchaser agrees to permit Contractor to remove units from service for a reasonable time during hours identified in Item 1.11, A., to perform Services.

1.10 MINIMUM MANPOWER AND MAINTENANCE HOURS REQUIREMENTS

- A. Contractor shall provide a one (1) 1st shift mechanic from 6:00 a.m. to 2:30 p.m. and one (1) 2nd shift mechanic from 10:30 a.m. to 6:00 p.m.; Monday through Friday, excluding union holidays. Contractor shall provide one (1) mechanic for 8 hours during union holidays during regular working hours. Contractor is to provide at least the minimum amount of labor called for during the specified hours, however, additional labor resources will be added as needed without charge to help remedy temporary/unusual circumstances of an urgent nature. If changes in long-term staffing are desired or required, pricing will be negotiated to reflect permanent or semi-permanent changes.
- B. These minimum manpower requirements in no way restrict the upper limit on the staffing requirements of this project to these minimums. Depending on the circumstances, the University fully expects that at times the number will need to be exceeded, and Contractor shall supply manpower as conditions warrant at no additional cost to Purchaser.
- C. Contractor agrees to furnish maintenance personnel for specified minimum hours per week, month, quarterly, or annually for on-site, routine, regular preventive maintenance as listed in Section 143250 Appendix A (see detailed scheduled hours).
- D. Staffing: Contractor shall provide adequate and dedicated personnel suitable to Purchaser, for preventative maintenance based on the required maintenance hours identified in Section 143250 Appendix A. During vacation periods, an alternate mechanic, suitable to Purchaser, shall be assigned for maintenance. These hours shall not include time expended for callbacks, repair work, tests, or billable work. Time spent assisting Purchaser in performing tests of Firefighter's Emergency Operation or Standby Power Operation, and time spent accompanying Purchaser or their Elevator Consultant in making tests, inspections, or reviews may be credited against these minimum hours, and no additional billing shall be accepted for such time expended.
- E. Contractor's Employees Shall:
1. Upon arrival and departure all Contractor employees must register in the log maintained at Purchaser's location: UHMC Dispatch. In addition, Purchaser requires Contractor's employees to check in and check out with designated personnel each time they enter the building.
 - a. Purchaser's location may be subject to change.
 2. The site maintenance log book shall indicate the name of person or persons, time of arrival, purpose of visit, i.e. callback, preventive maintenance, scheduled repair, Supervisor's inspection, etc., and a brief description of work accomplished, including car and/or group designation, elevator, and time of departure. A sample of the maintenance log book is in Appendix I and a sample of the callback log is in Appendix J.
 3. When departing the property, Contractor's personnel shall sign the maintenance log book indicating as listed above under item C. 2. Purchaser requires Contractor's employees to check out with designated personnel.
 4. In addition, Contractor's employees who perform billable work shall leave time tickets after each visit when leaving the property.
 5. Purchaser may elect to have any entries or time tickets documented via a manual or electronic log device provided by Purchaser, or supplied by Contractor.
- F. If the hours expended fall below those required on a three-month rolling average basis Purchaser shall have the right to require the shortfall in hours of work to be made up on a



schedule of work acceptable to Purchaser. If the hours expended fall below those required for two three-month rolling average periods, the Purchaser shall have the right to a credit in the amount of the shortfall in hours for every three-month rolling average period after the first period. This metric will reset after each period where the hours expended meets or exceeds those required.

- G. Quarterly, Contractor shall meet with Purchaser or its Designated Representative. The scope of this meeting shall include:
1. A review of the previous quarter's callbacks
 2. A review of maintenance, including work performed, progress on any deficiency lists or other programs, and scheduled work requiring removal of elevators from service
 3. A review of any reported complaints
 4. Such other elevator-related items as may be appropriate
 5. A review of on-site spare equipment or parts for the elevators
 6. A review of maintenance hours
 7. If requested by Purchaser, Contractor shall provide a monthly list of callbacks for review by Purchaser prior to the quarterly meetings.
- H. Overtime travel time in response to any callback shall be billed as the difference between regular time and overtime travel. There shall be a maximum of two hours per round trip allowed for travel for any overtime callback. The cost for this overtime travel shall be calculated and identified as a flat rate in Bid Form Section 8.1.C.

1.11 SCHEDULING OF WORK

- A. Within thirty days of receipt of a fully executed copy of this Agreement, Contractor shall prepare and submit a schedule of repairs, tests, or other work that will require a shutdown of one or more elevators within the initial 90 days. The nature of work, elevator involved, and anticipated days out of service shall be included. Subsequently, this schedule shall be updated quarterly prior to the meeting referenced in Article 1.12 E.
- B. Pre-Maintenance Repairs: All work detailed and accepted by Purchaser at award of Agreement as pre-maintenance repairs must be completed per the schedule agreed upon between Contractor and Purchaser.

1.12 ELEVATOR CALLBACK FREQUENCY

- A. Callback frequency for the elevators covered under this Agreement shall be subject to the provisions of this Agreement.
- B. Total callbacks for equipment failure on any elevator shall not be more than 1 per unit per one quarter, as indicated in Appendix B.
- C. Callbacks due to vandalism or misuse of the equipment shall be excluded.

1.13 PERFORMANCE REQUIREMENTS

- A. Contractor agrees to maintain the following minimum performance requirements for the gearless, geared, gearless machine-room-less (MRL), and hydraulic elevators designated in table located in Section 143250 Appendix A:
1. Floor-to-floor times are measured in seconds from start of doors closing, including a typical one-floor travel and until the elevator is approximately level with the next successive floor, either up or down, and the doors are 3/4 open for center opening doors



- or 1/2 open for side opening doors, per Section 143250 Appendix A. Times shown are ± 0.2 seconds.
2. Door opening times are measured in seconds from start of car door open until doors are fully open, per Section 143250 Appendix A. Times shown are ± 0.1 seconds.
 3. Door closing times are measured in seconds from start of door close to doors fully closed, and shall be no less than the times shown per above schedule or those permitted by code. Times shown are ± 0.1 seconds. Door closing force is measured at rest with the doors between 1/3 and 2/3 closed. Door closing force shall be no more than 30 lbf.
 4. Stopping accuracy shall be measured under all load conditions and maintained per Section 143250 Appendix A. Standards shown are maximum allowable from no load to full load.
 5. Variance from rated speed, regardless of load, shall not exceed the following:
 - a. 3% for closed loop equipment.
 - b. 5% for open loop equipment.
 - c. +10% up/-20% down, no load, for hydraulic equipment.
 6. Door opening and closing shall be smooth and quiet, with smooth checking at the extremes of travel. Car and hoistway doors shall open flush with entrance jambs and each other.
 7. Acceleration and deceleration shall be smooth, with no noticeable "steps" or bumps to increase or reduce speed, and no objectionable vibrations.
 8. Elevator cars shall travel smoothly and quietly through the hoistways.
 9. Performance requirements indicated are minimum standards and are not the sole criteria for judging the Contractor's performance.

1.14 REMOVAL OF UNITS FROM SERVICE

- A. Removal of elevators from service during peak hours shall be coordinated with and approved by Purchaser. Removal of elevators for routine maintenance during off-peak hours is expected, but notification to and coordination with Purchaser shall be provided.

1.15 PURCHASER'S RIGHT TO INSPECT AND REQUIRE WORK

- A. Purchaser reserves the right to make, or cause to be made, audits, maintenance evaluations, inspections or tests whenever it deems advisable or necessary to ascertain that the requirements of this Agreement are being fulfilled. The Contractor agrees to furnish, without cost, personnel to accompany Purchaser and/or its representatives during such inspections. Deficiencies noted shall be submitted in writing to the Contractor.
 1. If said deficiencies are not corrected at the time of the follow-up review, then Contractor shall be responsible for the cost of subsequent follow-up reviews at a cost of \$250/hour portal to portal.
 2. Failure to correct the deficiencies found, as a part of this section, to the satisfaction of the Purchaser or their representative subject this agreement to cancellation as noted in Section 1.7
- B. The Contractor shall, promptly (within ten days unless otherwise agreed), correct deficiencies covered under the terms of this Agreement at its expense. This includes deficiencies discovered as a part of this section.
- C. If Contractor fails to perform the work required by the terms of this Agreement in a diligent and satisfactory manner, Purchaser, after thirty days' written notice to Contractor listing the deficiencies or failures to perform, may perform or cause to be performed all or any part of the work required hereunder. Contractor agrees that it shall reimburse Purchaser for any expense incurred thereto, or Purchaser, at its election, may deduct such expenses from any sum owed to Contractor. The waiver by Purchaser of a breach of any provision of this Agreement by



Contractor shall not operate or be construed as a waiver of any subsequent breach by Contractor.

- D. In the event Contractor disputes a listing of deficiencies or failures to perform, in whole or in part, and the parties cannot resolve the dispute, a qualified Elevator Consultant acceptable to both parties may be retained by Contractor to conduct a non-binding mediation of any disputes, and Purchaser and Contractor shall split the Consultant's fees equally.
- E. A qualified vertical transportation consultant may be retained by Purchaser to perform any of Services and mediate disputes noted in 1.17 or elsewhere in this agreement.

1.16 EXCLUSIONS

- A. Contractor shall NOT be responsible for the following:
 - 1. Repairs, callbacks, modifications, adjustments, or replacement required because of negligence, accident, or misuse of the equipment by anyone other than Contractor, its employees, subcontractors, servants or agent, or other causes beyond the Contractor's control except ordinary use and wear.
 - 2. Repair or replacement of building items, such as hoistway or machine room walls and floors, car enclosures, car finish floor material, hoistway and car entrance frames, car or hoistway sills, signal fixture faceplate surfaces, cleaning of car interiors, and cleaning of the portions of sills visible when the doors are open.
 - 3. Mainline and auxiliary disconnect switches, fuses, and feeders to control panels. Excludes jack casing and underground piping.
 - 4. Lamps for car, machine room and pit illumination. Contractor shall replace machine room and pit lamps if such items are provided by Purchaser.
 - 5. Smoke and heat sensors and related life safety equipment.
 - 6. Standby power generators and associated contacts and relays, and wiring to the elevator machine rooms (exclusive of wiring connections to elevator controller).
 - 7. Building paging/communication systems, including consoles, panels and wiring to junction box on elevator controllers. However, Contractor shall maintain paging system and emergency telephone equipment and speakers in the cars and wiring from each such speaker to the machine room junction boxes.
 - 8. Failure or fluctuations of property electric power, air conditioning, or humidity control.
 - 9. Ingress by water or other material into machine room, hoistway, car enclosure, or pit.
 - 10. Access Control Equipment, Software, Hardware, Programming:
 - a. Exclusive of elevator traveling cables
 - b. Termination points within elevator systems in control room and car
 - 11. Upgrades to Control/Dispatching systems: (not to include software updates).
 - 12. Below ground hydraulic cylinders and piping.
- B. Notwithstanding any other agreement or provision to the contrary, under no circumstances will either party be liable for any indirect, special or consequential damages of any kind.

1.17 REMOVAL OF PARTS

- A. No parts or components required for the performance of Services on the vertical transportation equipment or required for its operation may be removed from the site without written approval from Purchaser. This does not include renewal parts stocked on the job by Contractor, but does include parts and components that were installed with and are a part of the elevator installation, and parts delivered to the property and paid for by Purchaser, which shall remain its sole property until installed on the equipment.



1.18 MACHINE ROOMS

- A. Contractor shall place and keep in the machine rooms Underwriter's Laboratory rated metal parts cabinets. No open storage of parts or supplies shall be permitted.
- B. Machine rooms and parts cabinets shall be kept clean and neat at all times. Floors shall be maintained clean and free of dirt, debris, carbon dust, rags, parts, or other items.

1.19 WIRING DIAGRAMS

- A. Wiring diagrams, as provided by Owner, shall be kept neatly folded and stored, except where mounted on boards, and shall be copied and replaced by the Contractor if damaged or unreadable.
- B. For each elevator, Contractor shall maintain Property's complete set of straight-line wiring diagrams, showing "As-Built" conditions and any changes or modifications to circuits resulting from control modifications, parts replacement, or equipment upgrades. This includes all manuals supplied by a third party controller manufacturer or as part of a non-proprietary specification requirement for a modernization or new installation. Purchaser may reproduce these original or modified as-built drawings, manuals, and shall retain sole possession of this set of drawings or books in the event that the Contract is terminated, or if Purchaser's set of drawings or manuals cannot be located at that time.

1.20 MAINTENANCE CONTROL PROGRAM

- A. Contractor shall prepare and provide a Maintenance Control Program (MCP) in compliance with the more stringent requirement of ASME A17.1 2013, or the AHJ Code in effect. Instructions for locating this written program shall be posted on the controller cabinets, at least one per elevator, as required by ASME A17.1 2013. Documentation of the MCP must be kept in a visible location in each machine room. When accepted by Purchaser, Contractor's preventive maintenance schedule, including the Maintenance Control Program, and this procedure shall become Section 143250 Appendix H to this Agreement.
- B. Contractor, on Purchaser's behalf, shall conspicuously post written Maintenance Control Program (MCP) and work log in each machine room or instructions for locating the MCP in or on the car controllers. Contractor shall maintain preventive maintenance history and testing logs in accordance with the MCP either in the machine room, building management office, or electronically within unit computer control system. Data shall be accessible by Purchaser via manual log with web access and hard copy printout at all times. Log or electronic printout shall include all entries for routine preventive maintenance, repairs, tests, callbacks, and Supervisor's inspection. Entries shall include date work is completed, Mechanic's or Supervisor's name, brief description of work completed, including unit number and number of units serviced, repaired or inspected, and the approximate time required for work excluding travel time to and from property. Purchaser shall be allowed to inspect and copy log or electronic printout and maintenance history and schedule at any time.
- C. Completion of Owner Provide Maintenance Task is required. Contractor to complete Owner's electronic record documentation using Owner's Electronic Maintenance Control Plan.

1.21 SPECIAL CONDITIONS

- A. Performance Requirements: Equipment must be maintained to perform in compliance with the following standards, as detailed in Section 143250 Appendices A and B.
 - 1. Callback frequency



2. Callback response time
 3. Mean time between callbacks
 4. Availability
 5. Maintenance actions
 6. Annual repair time accrued
- B. Should Contractor require remote monitoring of the equipment to facilitate its maintenance program, all related installation and maintenance costs shall be at Contractor's expense.
- C. Equipment manufacturer's electronic diagnostic devices required to facilitate services, including fixed and hand held devices purchased by Purchaser, shall be maintained and upgraded by Contractor during the term of this Agreement and shall remain Purchaser's property at the expiration or cancellation of the contract.
- D. Local inspection fees with regard to operation of equipment covered by this Agreement shall be paid by Purchaser. Fees for re-inspection due to Contractor's failure to expeditiously eliminate deficiencies covered by Services shall be paid by Contractor.
- E. Purchaser may provide information to enable Contractor to render Services hereunder, or Contractor may learn information about Property or develop such information from Purchaser. Contractor agrees:
1. To treat, and to obligate Contractor's employees, subcontractors and suppliers to treat as confidential all such information whether or not identified by Purchaser as confidential.
 2. Not to disclose any such information or make available any reports, recommendations and/or conclusions which Contractor may make on behalf of Purchaser to any person, firm or corporation or use the same in any manner, whatsoever, without first obtaining Purchaser's written approval, except to the extent necessary in connection with performing Services or when required by law.
- F. Contractor shall not, in the course of performance of this Agreement, or thereafter, use or permit the use of Purchaser or Property Manager's name or the name of any affiliate of Purchaser or Property Manager, or the name, address or any picture or likeness of or reference to the Property in any advertising, promotional or other materials prepared by or on behalf of Contractor without the prior written approval of Purchaser and Property Manager, as applicable.

1.22 PURCHASER'S RESPONSIBILITIES

- A. Provide clear, safe, and convenient access to the Property and to elevator equipment rooms and pits.
- B. Maintain car lighting, telephone lines to controller terminals, equipment room electrical switch gear, and electrical feeders to elevator controllers and Firefighters' Control Room.
- C. Maintain equipment room heating and air conditioning systems. Temperature range 60°-90° F, non-condensing.
- D. Maintain fire alarm initiating devices in elevators, lobbies, machine rooms, hoistways, etc.
- E. Prohibit storage of Property equipment or supplies in elevator equipment rooms and obstruction of equipment room access corridors and doors.
- F. Maintain standby power generator systems and related switch gear and feeders.



- G. Maintain equipment rooms, hoistways, and pits in a code-compliant and dry condition.
- H. Coordinate with Contractor in regard to Purchaser's required equipment retrofits, such as elevator security systems, new car interior finishes, car interior CCTV systems, etc.
- I. During building construction and/or retrofit, make provisions to limit infiltration of dust and debris into elevator equipment and equipment spaces.



**APPENDIX A -
EQUIPMENT ID, SCHEDULE, PERFORMANCE REQUIREMENTS**

EQUIPMENT ID AND SCHEDULE IS PROVIDED IN ELECTRONIC BID FORM INCLUDED IN RFP.

PERFORMANCE REQUIREMENTS

SPEED (FPM)	ACCEL RATE (FPS ²)	DOOR TYPE AND OPENING WIDTH*								ADJUSTMENT** PER FOOT OF TRAVEL FROM 12'-0" STANDARD (SECONDS)
		SIDE OPENING				CENTER OPENING				
		36"	42"	48"	54"	36"	42"	48"	54"	
GEARED RANGE										
200	1.75	11.2	12.0	12.8	13.6	9.5	10.0	10.5	11.0	0.3
250	1.75	10.8	11.6	12.5	13.3	9.2	9.7	10.2	10.7	0.25
300	2.0	10.4	11.3	12.1	12.9	8.9	9.3	9.8	10.3	0.2
350	2.25	10.2	11.1	11.9	12.7	8.7	9.1	9.6	10.1	0.2
400	2.5	10.0	10.9	11.7	12.5	8.5	8.9	9.4	9.9	0.2
450	2.75	9.8	10.7	11.5	12.3	8.3	8.7	9.2	9.7	0.2
GEARLESS RANGE										
500	3.75	9.1	10.0	10.8	11.6	7.6	8.0	8.5	9.0	0.18
700	3.75	9.1	10.0	10.8	11.6	7.6	8.0	8.5	9.0	0.18

* Values are based on 7'-0" to 7'-6" high doors. For 7'-6" to 8'-6" high doors, add following factor; .5 second for widths up to 42" and 1 second for widths over 42".

** Values are based on 12'-0" floor-to-floor height. Adjust using factors noted for variation from this standard.

Hydraulic Floor to Floor Times

SPEED (FPM)	Door Type and Opening Width*								Adjustment PER FOOT OF TRAVEL FROM 12'-0" STANDARD (SECONDS)
	Side Opening				Center Opening				
	36"	42"	48"	54"	36"	42"	48"	54"	
50	21.5	22.5	23.5	24.5	19.5	20.0	20.5	21.0	1.2
75	17.5	18.5	19.5	20.5	15.5	16.0	16.5	17.0	0.8
100	15.5	16.5	17.5	18.5	13.5	14.0	14.5	15.0	0.6
125	14.5	15.5	16.5	17.5	12.5	13.0	13.5	14.0	0.5
150	13.5	14.5	15.5	16.5	12.0	12.5	13.0	13.5	0.4
175						12.0			
200									

* Values are based on 7'-0" to 7'-6" high doors. For 7'-6" to 8'-6" high doors, add following factor; .5 second for widths up to 42" and 1 second for widths over 42".



Door Times

DOOR WIDTH	ELECTRIC TRACTION ELEVATORS HIGH SPEED, HEAVY DUTY, 2.5 F.P.S.				MACHINE ROOM LESS TRACTION ELEVATORS MEDIUM SPEED, MEDIUM DUTY, 2.0 F.P.S.			
	SIDE OPENING		CENTER OPENING		SIDE OPENING		CENTER OPENING	
	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE
30"	1.8	3.1	1.3	2.0	2.0	3.1	1.4	2.0
32"	1.8	3.2	1.5	2.2	2.1	3.2	1.5	2.2
34"	1.9	3.4	1.5	2.2	2.2	3.4	1.5	2.2
36"	2.1	3.4	1.5	2.2	2.2	3.4	1.6	2.2
38"	2.1	3.5	1.6	2.3	2.3	3.5	1.6	2.3
40"	2.2	3.8	1.6	2.3	2.4	3.8	1.7	2.3
42"	2.3	4.0	1.6	2.4	2.5	4.0	1.7	2.4
44"	2.3	4.1	1.6	2.5	2.6	4.1	1.7	2.5
46"	2.4	4.2	1.6	2.6	2.7	4.2	1.8	2.6
48"	2.4	4.6	1.6	2.7	2.7	4.6	1.8	2.7
50"	2.5	4.6	1.8	2.7	2.8	4.6	1.9	2.7
52"	2.6	4.8	1.8	2.8	2.9	4.8	1.9	2.8
54"	2.6	5.1	1.8	3.0	3.0	5.1	1.9	3.0
60"	2.8	6.1	1.8	3.2	3.2	6.1	2.1	3.2
66"	3.0	6.1	1.9	3.5	3.5	6.1	2.2	3.5
72"	3.2	6.6	2.0	3.7	3.7	6.6	2.3	3.7

* Values are based on 7'-0" to 7'-6" high doors. For 7'-6" to 8'-6" high doors, add following factor; .5 second to close time for widths up to 42" and 1.0 second close time for widths over 42". This is to maintain closing force and kinetic energy within code limits. Theoretically, there are no limits on door open time. Times are from closed to fully open or fully open to fully closed.



Low Speed Door Times

DOOR WIDTH	HYDRAULIC ELEVATORS LOW SPEED, 1.5 F.P.S			
	SIDE OPENING		CENTER OPENING	
	OPEN	CLOSE	OPEN	CLOSE
30"	2.3	3.1	1.6	2.0
32"	2.5	3.2	1.8	2.2
34"	2.7	3.4	1.8	2.2
36"	2.8	3.4	1.9	2.2
38"	2.9	3.5	2.0	2.3
40"	3.0	3.8	2.0	2.3
42"	3.1	4.0	2.1	2.4
44"	3.2	4.1	2.1	2.5
46"	3.3	4.2	2.2	2.6
48"	3.5	4.6	2.2	2.7
50"	3.6	4.6	2.3	2.7
52"	3.7	4.8	2.3	2.8
54"	3.7	5.1	2.3	3.0
60"	4.1	6.1	2.6	3.2
66"	4.3	6.1	2.6	3.5
72"	4.7	6.6	2.8	3.7



APPENDIX B -
KEY PERFORMANCE INDICATORS

	Measured unit or building performance
≤ 4	Callbacks per unit per year
≥90 days	Mean Time Between Callbacks
≥99.5%	Equipment Availability
>24 team hours	Accrued repairs hours per unit per year
≤1	Not more than 1 entrapment per unit per quarter

The Contractor must provide the following information in an electronic format acceptable to the Purchaser on a monthly basis.

- J. Callback log containing:
 - 1. Service Provider number
 - 2. Date and time call was place
 - 3. Date and time technician arrived
 - 4. Date and time unit was returned to service
 - 5. Callback identifier for calls placed due to misuse of equipment or vandalism
 - 6. Callback identifier for calls placed due to entrapment

- K. Maintenance log containing:
 - 1. Service Provider number
 - 2. Date of maintenance action
 - 3. Description of maintenance



APPENDIX C - DEFINITIONS

The words or phrases shown below, which appear in this Agreement, are defined as follows.

- A. AHJ: Authority Having Jurisdiction
- B. Pro-Active: Acting in anticipation of future problems, needs, or changes.
- C. Full: Complete, especially in detail, number, or duration; all that is wanted, needed, or possible.
- D. Preventive: To anticipate or act ahead of; to keep from happening.
- E. Maintain/Maintenance: Keep in an existing state. Preserve from failure or decline.
- F. Timely Replacement: Adequate inventory of commonly used spare parts and other components for elevators available within 4 hours.
- G. Tenant Sensitive Items: Anything concerning the elevators that tenants can see, hear, or feel.
- H. Callback: Any request by Property personnel for elevator service assistance, and those requests which elevator industry jargon would describe as a “callback.”
- I. Mean Time Between Failures: The average time between out of service and return to service. This is calculated as the total time out of service / number of out of service events. In the context of this Agreement, refers to Mean Time Between Callbacks.
- J. Repair Time Total: Cumulative time for all repairs over the last twelve months or a set calendar twelve-month period.
- K. Availability: Considers equipment down time vs. maximum equipment up time or usage time. This is calculated as “maximum availability - down time/maximum availability - 100” and is expressed as a percentage. The higher the percentage, the better the performance is. This percentage is only calculated vs. the time in the building or facility when the equipment is required to support building activity. The evaluation considers actual equipment availability vs. potential 100% availability.
- L. Entrapments: An out of service elevator with passengers in the cab requiring the Contractor or other emergency personnel to release the passengers.
- M. Rebuild: To repair, especially to dismantle, rewind, machine and or reassemble with new parts.
- N. Fabricate: To construct or manufacture from prepared, standard, or custom components.



APPENDIX D -
EXTENT AND SCOPE OF SERVICES

- A. Pro-Active Full Preventive Maintenance: Contractor shall regularly and systematically, on a continuous basis, examine, clean, lubricate and adjust the vertical transportation equipment and provide unlimited callback service during regular working hours and, as conditions warrant, in accordance with accepted industry standards and the applicable manufacturer's published specifications and technical field notes, including those published internally within the manufacturer's organization, repair or replace all portions of the equipment, except those specifically excluded, including but not limited to the work and coverage described hereinafter.
- B. Elevators:
1. Basic Elevator Scope: The services shall include all work and materials expressly required under this Agreement or reasonably inferred, whether or not expressly stated herein, including, but not limited to the following:
 - a. Hoist machines, including worms, gears, thrust bearings, drive sheaves, drive sheave shafts and shaft bearings, tachometers, brake assemblies and pulleys, and all other components and parts of the machine and brake;
 - b. Hoist motors and power conversion devices, including motor windings, field coils, rotating elements (including armatures and commutators), brushes, brush holders, motor bearings, and all other related components and parts;
 - c. Controllers, selectors and dispatching equipment, including all micro-processor and/or solid state components, relays, resistors, capacitors, condensers, transformers, contacts, leads, dashpots, timing devices, computer devices, encoders, tach generators, steel selector tapes (or cables), mechanical and electrical driving equipment, and all other related components and parts;
 - d. Governors, including governor sheave shaft assemblies, bearings, contacts, governors' jaws, and all other related components or parts;
 - e. Rope brake devices, secondary braking devices,
 - f. Car and counterweight safeties, including actuating mechanisms, jaws, and all other related components and parts;
 - g. Hoistway equipment, including deflector or secondary sheaves and sheave bearings, car and counterweight guide rails (excluding replacement), top and bottom limit switches, counterweights and counterweight guide shoes including rollers or sliding gibs, inductors, cams, tapes and all other related components and parts;
 - h. Hoistway entrance equipment, including hoistway door interlocks, hangers, hanger covers and tracks, hoistway door drive assemblies including vanes, drive blocks, clutches, pick-up assemblies and bearings, bottom door guides, auxiliary door closing devices (including cables, sheaves, and arms), door restrictor devices, astragals, and all other related components and parts;
 - i. Car and hoistway door gibs, including their attachments to the door panels.
 - j. Car equipment, including car guide assemblies, guide rollers or sliding car guides, car door restrictors, car top exhaust fan or blowers, car top 2:1 sheaves, load weighing or sensing switches, car top inspection stations, car top and bottom lights, car frames, car platforms, and all other related components and parts;
 - k. Car door operators, including door drive chains, sheaves or belts, car door hangers, hanger covers and rollers, car door contacts, all door protective devices (including screen type detectors, proximity edges, mechanical safe edges and light rays), astragals, and all other related components and parts;
 - l. Pit equipment, including car and counterweight buffers, tape sheave assemblies, governor rope pit tension sheave assemblies, compensating rope sheave



- assemblies or other pit mounted compensation guides, pit lights, and light fixtures including re-lamping (bulbs furnished by Purchaser), and all other related components and parts;
- m. Alarm bells, emergency stop switches, emergency car lights, and batteries;
 - n. Car operating panels and their attachments to return panels, hall call pushbutton stations, car, and corridor signals and fixtures (including lighted surrounds or buttons), visual and audible signaling devices, remote status panels and switches, and all other related components and parts;
 - o. Hoist, compensating, and governor ropes or belts and their fastening means, and all other similar or related components and parts;
 - p. Seismic Devices, including seismic switches and contacts, derailment devices, and all other related components and parts.
 - q. Hydraulic: Elevator pump, motor, motor windings, roped hydraulic cables, governors, plunger single or multi-stage, all plunger packings, V-belts, strainers, valves, mufflers, Victaulic fittings, seals, hydraulic oil replacement, pit oil return units, emergency return unit, oil coolers, emergency return unit and battery.
2. Additional Elevator Scope of Work:
- a. Treat all motor windings, as needed, with proper insulating compound that has been approved by the motor manufacturers. Replace any cracked or badly worn field coil windings.
 - b. Keep all car tops, pits, and hoistways clean and free from dirt, oil, lint, debris, and stored items, and maintain each machine room in clean, neat condition.
 - c. Renew all wire ropes or hoisting belts as often as is necessary to maintain an adequate factor of safety. Maintain equal tension on all hoisting ropes or belts, and, where appropriate, shorten any hoisting device as necessary to provide continued safe operation and maintain normal traction.
 - d. Keep all wire ropes, hoisting belts, and guide rails clean and free from dirt, lint, rust, or accumulated grease, and keep rail shanks properly painted.
 - e. Repair or replace conductor cables and hoistway and machine room elevator wiring to prevent shutdowns and provide uninterrupted operation of elevator signals and uninterrupted elevator operation.
 - f. Disassemble machine brakes annually, unless otherwise agreed in writing, check for and replace worn parts, clean all retained parts, reassemble, lubricate, and adjust for proper operation.
 - g. Affix by stencil painting, and maintain the appropriate elevator numbers on the car crossheads and on all equipment components in the machine rooms and pits, including hoist machines, motor generators, governors, control cabinets, buffers, and compensation sheave assemblies. These numbers shall be a minimum of 1½" high except on the governor or compensation sheave assembly, which may be less if a suitable flat surface of 1½" is not available.
 - h. Repair damage to car and hoistway door finish when caused by improper adjustment or maintenance of associated door equipment.
 - i. Replace burned out light tubes or bulbs, furnished by Purchaser, in all machine room and pit light fixtures. Replacement of car light bulbs or tubes shall be Purchaser's responsibility when accessibility is possible using standard hand tools from inside elevator cab.
 - j. Maintain the emergency telephone, telephone buttons, button contacts, speakers, and wiring from the machine room junction box, in a fully operational condition. Also maintain wiring for the car telephones from the cars to the machine room junction boxes.
 - k. 24/7 monitoring of the emergency communication devices per code requirements.
 - l. Maintain, in fully operational condition, the complete Elevator Status or Monitoring Panels in the main lobby Security Desk, and the complete elevator panel in the



- Fire Command Center, including all lenses, lights, switches, and all associated wiring from the panels to the machine room junction boxes.
- m. Maintain, in fully operational condition, Elite type elevator position indicators.
 - n. Any panel that includes integral elevator information within the display.
 - o. Maintain the emergency telephone buttons, button contacts, speakers, and wiring to the machine room junction box, in a fully operational condition. Also maintain wiring for the car telephones from the cars to the machine room junction boxes.
 - p. Maintain, in fully operational condition, the complete Elevator Status or Monitoring Panels in the main lobby Security Desk, and the complete elevator panel in the Fire Command Center, including all lenses, lights, switches, and all associated wiring from the panels to the machine room junction boxes.
3. Additional Services:
- a. Cleaning:
 - 1) Contractor shall clean elevator equipment, machine rooms, and pit floors at regular intervals sufficient in frequency to maintain a professional appearance, prevent tracking of dirt, oil, grease, or carbon dust from car tops, pits or machine rooms onto carpeted areas, and to preserve the life of the equipment.
 - 2) Contractor shall clean hoistways, brackets, rails, pit structures and car structure areas.
 - 3) Contractor shall clean sills in locations which are not typically accessible to cleaning crews and between entrances at all floors quarterly to prevent the accumulation of trash, dirt, and debris. Sills should be kept in a like new condition.
 - 4) Contractor shall not be responsible for cleaning any equipment made necessary by events beyond its reasonable control or as a result of improper janitorial or building maintenance functions. Unusual conditions, such as on-going construction or "build-out" in the building may be reviewed with Purchaser to determine responsibility for cleaning.
 - b. Painting:
 - 1) Paint all elevator machine room, hoistway, and pit equipment and all car tops at intervals frequent enough to maintain a professional appearance, prevent rusting, and preserve the equipment. Car tops, and floors in machine rooms, machinery spaces, and pits shall be maintained and painted with a low VOC paint including the color additive "Deck Gray" or other suitable color if approved by Purchaser.
 - 2) All paint shall be suitable for the purpose intended and shall be high quality. Application of the paint shall, in all circumstance, comply with current ASME, OSHA, and applicable local codes. Contractor shall schedule all painting procedures with Purchaser.
 - c. Lubrication:
 - 1) Lubricate the equipment at intervals recommended by the equipment manufacturer or as dictated by the use of the equipment. All lubricants shall be suitable for the purpose intended and shall meet or exceed the minimum requirements specified by the manufacturer of the equipment to which the lubricant is applied.
 - 2) Lubricants, cleaning fluids and all combustible liquid shall be stored in metal cabinets in the machine room and shall be disposed of in accordance with OSHA and EPA guidelines. MSDS data sheets shall be posted as required.
 - d. Adjustment: Adjust the equipment as necessary:
 - 1) To the specifications found in this agreement.
 - 2) When required to maintain performance standards specified in this Agreement.
 - 3) When necessary to preserve the useful life of a part or assembly.



- 4) When necessary to prevent or eliminate Tenant Sensitive items from becoming adversely noticeable to building's tenants.
 - 5) Additionally, Contractor shall check and adjust the elevator dispatching systems and make necessary tests at such intervals as are required to ensure all systems are operating properly. If required to complete such system checks, this work shall be completed during overtime at no additional cost to Purchaser.
- e. Repairs and Replacements: Make repairs and/or replace all worn, damaged, or broken parts or components. Parts or components requiring repair shall be rebuilt to "as new" condition. Parts or components shall be replaced:
- 1) When worn beyond normal adjustment limits.
 - 2) When necessary to ensure continued normal operation.
 - 3) When necessary to extend the useful life of the elevators or any of their components.
 - 4) When necessary to continue safe, dependable operation in accordance with ASME A17.1 and A17.2 Code.
 - 5) When necessary to continue performance of the equipment in accordance with its original design.
 - 6) When necessary to maintain the performance standards specified in this Agreement, including the elevator performance, smoothness, and quietness of operation.
 - 7) When more than one elevator requires repair, Purchaser, upon consultation with Contractor, shall establish priorities of accomplishment.
- f. Manufacturers' Parts and Lubricants: In performing the Services, Contractor agrees to provide parts used by manufacturers of the equipment for replacement or repair, and to use lubricants obtained from and/or recommended by the manufacturer of the equipment. Equivalent parts or lubricants may be used if approved in writing by Purchaser.
- g. Adequate Parts and Parts Storage:
- 1) Contractor shall maintain an adequate inventory of spare parts and components to permit timely replacement and repairs without delay. All parts, materials, lubricants, rags, cleaning fluids, combustible liquids, and other materials and supplies shall be kept and stored in U.L. rated metal cabinets, provided by Contractor, properly secured, in each machine room, unless code required clearances would be violated by the presence of such cabinets. All materials and supplies kept in these cabinets shall be neatly arranged, and cabinet doors shall be left in the fully closed position after each visit.
 - 2) Cabinets shall be sufficient in number and size to store all parts, materials, and supplies out of sight. No parts, materials, or supplies shall be stored on top of cabinets, on the floors, or any other place where they are visible.
- h. Prompt Corrective Action: When, as a result of an examination, a need for corrective action is apparent and the corrective action is within the scope of Contractor's responsibility, Contractor shall proceed immediately to make such replacements, repairs, and/or corrections. If Contractor reasonably believes the corrective action is not within the scope of Contractor's responsibility, and no safety or potential safety problem exists, Contractor shall deliver a written report to Purchaser within seven days of the examination. If a safety or potential safety problem exists, Contractor shall immediately take corrective action at the least possible expense to Purchaser, regardless of scope of responsibility, and make a prompt written report to Purchaser.

APPENDIX E -
CODE-MANDATED TESTS

- A. Contractor shall schedule, coordinate, and complete statutory Category 1, 3, and 5 tests and other equipment tests including but not limited to:
- B. Annual no load slow speed test of car and counterweight safeties (where applicable), governors, and buffers.
1. Five-year, full load, full speed test of car and counterweight safeties, governors, and buffers.
 2. Monthly firefighters' service operational tests.
 3. Annual pressure relief tests on hydraulic elevators.
 4. Annual standby power operation tests on elevators.
 5. Monthly operational tests: battery pack car emergency lighting, monthly car emergency communication device, and battery pack car lowering devices or car rescue devices.
- C. Contractor shall schedule, coordinate, and complete all statutory tests. Contractor shall schedule said tests in the presence of local enforcing authority and/or persons designated by Purchaser. Scheduling difficulties shall not exempt Contractor from performing tests in compliance with applicable Code or regulatory requirements.
- D. Contractor shall make "Periodic Inspections and Tests" in accordance with the more stringent of the requirements of ASME A17.1 or the AHJ.
- E. Contractor shall provide not fewer than five business days' prior notification to Purchaser of its intention to perform Category 5 rated speed, rated load tests such that a representative of Purchaser may witness the tests. Written reports of all "Periodic" tests shall be submitted to Purchaser. The Agreement Price shall include all such required tests during regular hours.
- F. The Elevator Contractor must assist with periodic inspection and testing of Standby Power Operation in accordance with the more stringent of ASME A17.1 or the AHJ. Purchaser shall conduct tests during regular hours. Should Purchaser require tests during overtime hours, the additional costs for tests performed in overtime shall be paid by Purchaser in accordance with Bid Form Section 8.1.C Item 1.7 of this Agreement. If the elevators systems fail to work correctly during the testing procedure the elevator contractor shall make necessary corrections and be present at the next test to assure proper operation at no charge to the customer. The base hours spent providing this assistance during this overtime testing may be credited against the minimum hours required by Section 143250 Appendix A of this Agreement.
- G. Category 1 and Category 3 tests shall be performed during regular hours. Category 5 tests shall also be scheduled during regular working hours. Should Purchaser require tests during overtime hours, the additional costs for tests performed in overtime shall be paid by Purchaser in accordance with Section Bid Form Section 8.1.C.
- H. Contractor shall affix metal tags for all Category 1 and 5 tests in accordance with ASME A17.1-2004 or later, adopted by the AHJ.
- I. Contractor shall complete and submit all documentation required of elevator service provider by AHJ.
- J. Contractor is responsible for ensuring all equipment included under Agreement is free and clear of all violations whether those violations are the result of AHJ-required testing or other inspections.



- K. Contractor's failure to execute statutory tests mandated by either national Codes or local jurisdictions or regulations within thirty calendar days of required time constraint shall make the Contractor responsible for any fines assessed by the AHJ. In the event the AHJ places the elevator out of service or levies a fine because of missed statutory tests, no additional costs shall be paid by Purchaser. To prevent missed required testing, the contractor shall schedule said tests in a timely manner with the building management.
- L. Before performing tests of the elevators, Contractor shall take all reasonable steps to verify that the equipment is in a safe condition for testing, shall check appropriate clearances, shall check basic operation of safety devices and shall adhere to best practices in making the tests, including all safety procedures in general use by the Contractor or published by the Contractor or manufacturer of the equipment.
- M. Contractor shall be responsible for damages to elevator components as a result of any AHJ/code-required test if damage would have been prevented through proper maintenance of equipment or safety devices. See Section L above.
 - 1. This includes, but is not limited to, machines, buffers, sheaves, ropes, safety devices.
 - 2. Interior finishes are EXCLUDED from the contractor's responsibility.



APPENDIX F - ELEVATORS WITH OVERTIME 24/7 CALLBACKS

IN ADDITION TO OVERTIME PROVIDED IN 1.9.2.A THE FOLLOWING UNITS REQUIRE 24/7 COVERAGE FOR SERVICE CALLS

Bldg	Elevator	Vendor	EqCtl#	BldgCd	Cert#.
MRISC/ Pav WH	MRISC Elev. #1 (old-Front)	Oracle	4044	98	11533
PavA	#25 Visitor/Glass. Grd, 1st Fl only.(NLobby)	Oracle	25784	602	21842
PavA	Pt #26 Pat.(NE crnr 2Bk, Lt) CodeBlue. Gp7.	Oracle	25796	602	20865
PavA	Pt #27 Pat.(NE crnr 2Bk, Rt) Gp7.	Oracle	25797	602	20866
*PavA	#30- Food Svc./Kitchen Gp9	Oracle	56880	602	25406
PavA	#47- SVC Construction unit (A00022 CorrWest Rt.2 Bk) Gp3	Oracle	56885	602	
PavA	#48 Pat.Lg.(A00022 Corr.West.Lt.2 Bk) Gp3.	Oracle	25788	602	21307
RB2	D Elev (Svc Elevator) G-7th fl PH -warranty until 1/9/2022	Thyssen	61293	679	27610
Roach/ Pav CC	Atrium Car- Passenger #1	Oracle	21008	93	6369
SB	Old Addtn Passenger	Oracle	2511	230	5326
SB	New Addtn Passenger	Oracle	8591	230	13936
UKSam Hos	Elev C (3) (E-Central 71). Dietetics.	Oracle	G4716	8633	2794
UKSam Hos	Elev D (4) Single. (54 Bldg.)	Oracle	G4717	8633	2795
UKSam Hos	Elev J (Frt by C106) Freight Dock.	Oracle	G5127	8633	ng
UKSam Hos	Elev K (Frt byB109J) Trash Dock.	Oracle	G5128	8633	ng
UKSam PS	Hosp Parking Structure Elevator	Oracle	G4711	613	6197
University INN	Univeristy INN #2 (Waller Annex #2)	Oracle	59021	699	16104
Amb(Pav H)	Ambulant #8 (C Elevator)	Oracle	2506	293	14332
BioPharmC	Elev. A _Freight.(East/Center- Single car)	Oracle	21668	596	20371
CCC/ Pav HA	Pav HA #56 NICU (Single car)	Oracle	60378	293	26732
Combs	Basement to 3rd #1	Oracle	2549	96	10352
CON	Bridge passenger on Hosp Side of Rose.	Oracle	2516	232	5043
EasternSt	Elevator 7 Tower 1 - Squad	Oracle	45813	9921	22208
EasternSt	Elevator 1 PCH1	Oracle	45814	9921	22200
EasternSt	Elevator 2 PCH2	Oracle	45815	9921	22209
EasternSt	Elevator 3 PCH3	Oracle	45816	9921	22156
EasternSt	Elevator 4 PCH4	Oracle	45817	9921	22201
HospUK/Pav H	Elev.#4 (Pt transport) Behind 9,10.	Oracle	2503	293	13988
HospUK/Pav H	Children's Hosp #16	Oracle	9513	293	13250
HospUK/Pav H	PCA #11 (D elevator)	Oracle	2526	293	11527
KyClinic	Ky Clinic #6 at PS-3	Oracle	2484	284	11745



APPENDIX G -
CONTRACTOR'S PREVENTIVE MAINTENANCE
SCHEDULE AND MAINTENANCE CONTROL PROGRAM

- A. OWNER'S MAINTENANCE CONTROL PROGRAM INCLUDED AS AN APPENDIX TO THIS SPECIFICATION.



LERCH BATES

Building Insight

Contractor to insert MCP Here



APPENDIX H -
SAMPLE MAINTENANCE LOG



LERCH BATES

Building Insight

APPENDIX I -
SAMPLE CALLBACK LOG

Callback Log

Date	Unit No	Time of Call	Person Reporting Issue	Time Mech. Arrived	Date/Time Unit Back into Service

Date	Unit No	Time of Call	Person Reporting Issue	Time Mech. Arrived	Date/Time Unit Back into Service

Description of the Problem:
Resolution Description from Mechanic:

Description of the Problem:
Resolution Description from Mechanic:

Clean Machine Room													
Fill Out Paperwork													
Electrical													
Confirm Main Line Voltage													
Check Control Circuits													
SAFETY TESTING													
Annual Safety Test Completion Date													

(Comments for any items failing inspection/recommended repairs)

Gauge all hoist ropes check for pass														
Hoist Motor Components														
Hoist Machine Gear Components														
Brake														
Governor/Governor Cable														
Guards														
Date Gear Oil Changed (every 5 years)														
Electrical														
Main Line Voltage														
Control Circuits														
Safety Testing														
Annual Safety Test Date														
Five (5) Year Full Load Safety Test Date														

(Comments for any items failing inspection/recommended repairs)

Gauge all hoist ropes check for pass														
Hoist Motor Components														
Hoist Machine Gear Components														
Brake														
Governor/Governor Cable														
Guards														
Date Gear Oil Changed (every 5 years)														
Electrical														
Main Line Voltage														
Control Circuits														
Safety Testing														
Annual Safety Test Date														
Five (5) Year Full Load Safety Test Date														

(Comments for any items failing inspection/recommended repairs)

Clean Machine Room													
Fill Out Paperwork													
Electrical													
Confirm Main Line Voltage													
Check Control Circuits													
SAFETY TESTING													
Annual Safety Test Completion Date													

(Comments for any items failing inspection/recommended repairs)

MAINTENANCE CHECK CHART FOR DUMBWAITER EQUIPMENT

Location/Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General Inspection Items												
Check operation at each call station opening												
Check indicator lights, buttons and alarms												
Visually check pit area for cleaning												
Check Control System Circuitry & Cabinet												
Note any corrective maintenance needed												
Electrical												
Confirm Main Line Voltage												
Check Control Circuits												

(Comments for any items failing inspection/recommended repairs)

SECTION 142200

TABLE OF CONTENTS

PART 1 - GENERAL..... 1

1.1 SUMMARY 1

1.2 DEFINITIONS..... 1

1.3 WORK INCLUDED 2

1.4 ALTERNATES..... 4

1.5 RELATED WORK..... 4

1.6 ACTION AND INFORMATIONAL SUBMITTALS 7

1.7 PERMITS, TESTS, AND CERTIFICATES..... 9

1.9 INSTALLATION REQUIREMENTS 10

1.10 MAINTENANCE 10

1.11 DELIVERY, STORAGE, AND HOISTING 11

PART 2 - PRODUCTS..... 12

2.1 REFERENCES 12

2.2 MANUFACTURERS AND PRODUCTS 12

2.4 ELEVATOR DUTY ALTERATIONS..... 13

2.5 MATERIALS..... 14

2.6 OPERATION 15

2.7 MACHINE ROOM EQUIPMENT 19

2.8 HOISTWAY EQUIPMENT 21

2.9 HOISTWAY ENTRANCES..... 23

2.10 CAR EQUIPMENT 24

2.11 COMMUNICATION 27

2.12 CAR ENCLOSURE AND INTERIOR FINISHES..... 28

2.13 HALL CONTROL INPUT STATIONS..... 29

2.14 SIGNALS..... 29

2.15 EMERGENCY POWER PANEL 30

PART 3 - EXECUTION..... 31

3.1 SITE CONDITION INSPECTION 31

3.2 INSTALLATION 31

3.3 FIELD QUALITY CONTROL 31

3.4 CLEANUP 32

3.5 FINAL CLEANING 32

3.6 MANUFACTURER’S WARRENTY 32

3.7 PURCHASER’S INFORMATION 33

SECTION 142200 –
ELECTRIC TRACTION ELEVATOR MODERNIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes modernization of traction elevators as follows:
 - 1. Two (2) geared traction passenger elevators, Cars 9 & 10.
- B. Products Installed but Not Furnished Under This Section:
 - 1. CCTV camera provisions.
 - 2. Elevator card reader security devices, control unit, mounting brackets, wiring materials, logic circuits, security system interface terminals, boxes, and relays.
 - 3. Monitoring system interface.

1.2 DEFINITIONS

- A. UNIVERSITY PROJECT MANAGER
 - 1. "University Project Manager" means the individual from the Capital Project Management Division (CPMD), the Campus Physical Plant Division (CPPD), or the Medical Center Physical Plant Division, or other University Facility
 - 2. Division who is designated to be in charge of the Project.
- B. CONSULTANT
"Consultant" means the individual, the Elevator Consultant Lerch Bates, the Engineer, and/or the Architect who is responsible for the design of the elevator system or renovation project. The consultant may be an employee of the University of Kentucky Facilities Management Division.
- C. CONTRACTOR
"Contractor" means the successful bidder/firm to whom the contract to construct the elevator system has been awarded.
- D. OWNER
When used, "Owner" shall mean the University of Kentucky and/or one of the Facilities Management Divisions.
- E. PURCHASER refers to University of Kentucky.
- F. CONTRACT or CONTRACT DOCUMENTS consists of the Agreement, Conditions of Contract, Specifications, Addenda, Drawings if included, and Alternates if accepted.
- G. CONTRACTOR or ELEVATOR CONTRACTOR refers to any persons, partners, firm, or corporation having a contract with Purchaser to furnish labor and materials for the execution of work required.
- H. CONTRACT AWARD refers to Purchaser's verbal or written award for work required.
- I. SUBCONTRACTOR refers to any persons, partners, firm, or corporation having a contract with Contractor to furnish labor and materials for the execution of work required.
- J. PROVIDE means "furnish and install."

- K. MANUFACTURER means either the Original Equipment Manufacturer (OEM) or the principal manufacturer of a component or system.
- L. RETAIN means, unless otherwise specified, the existing equipment is to be left in place with no alterations and no change in the original manufacturer's designed performance or functionality. Items that are "retained" shall be thoroughly cleaned in place and adjusted to achieve originally designed function.
- M. REFURBISH means, unless otherwise specified, the existing equipment is to be cleaned, repainted, repaired, and parts replaced to put the equipment into a condition to provide the same appearance, performance, and functionality as the equipment provided when it was originally installed. Unless otherwise specified, the scope of replacement of components is limited to those items currently available for purchase as replacement parts from the manufacturer or after-market suppliers approved by the manufacturer.
- N. REUSE means that the Contractor shall carefully remove equipment from the existing installation, avoiding any damage or additional wear. Store in a safe location to maintain equipment in its pre-removal condition. Reinstall and incorporate into the modernized elevator installation using the same procedures and recommendations provided by the manufacturer of the equipment.
- O. CALL BACK means a request from the Purchaser to the Contractor to provide a technician on site to evaluate an elevator that is out of service or not functioning properly, rectify the root cause of the malfunction, and place the unit back into normal service.
- P. INCLUDES or INCLUDING means including the items specified but not limited solely to those items if additional work or components are required to achieve the specified outcome.
- Q. Words in the singular shall include the plural whenever applicable or context so indicates.
- R. All technical terms in these Contract Documents are used as defined in the latest edition of American National Standard Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks ASME A17.1. and A17.2., or in this section.

1.3 WORK INCLUDED

- A. Provide all labor, engineering, permits, tools, transportation, services, supervision, materials, and equipment necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.
- B. Applicable conditions of General, Special, and Supplemental Conditions, Division 1, and all sections listed in Contract Documents "Table of Contents."
- C. Applicable conditions of Purchaser's General, Special, and Supplemental Conditions.
- D. Preventive maintenance as described in Section 142200 and Section 143250 herein.
- E. Cartage and Hoisting: All required staging, hoisting, and movement to, on, and from the site including new equipment, retained equipment, or dismantling and removal of existing equipment.
- F. Unless specifically identified as "Retain," "Reuse," or "Refurbish," provide new equipment. Contractor may, with approval prior to quotation, provide new equipment in lieu of refurbishing existing.

- G. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.
- H. Provisions of this specification are applicable to all elevators unless identified otherwise.
- I. Protective barriers between cars in normal operation and adjacent cars in the modernization process, full depth and height of hoistway.
- J. Provide hoistway, pit, and machine room barricades. Refer to construction documents for UK requirements.
- K. Scope includes, but is not limited to, the following:
 - 1. Modernization of two (2) traction elevators, including new machines, operational controls, door equipment, signal fixtures, and car interior finishes.
 - 2. Coordination, scheduling, and management of work of component suppliers and subcontractors.
 - 3. Furnish and install equipment as specified, utilizing existing hoistway and machine room.
 - 4. Specific item of required work which cannot be determined to be included in another contract is thereby determined to be included in prime contract.
 - 5. Give required notices.
 - 6. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities applicable to performance of required work.
 - 7. Promptly submit written notice to Consultant and Purchaser of observed variance of Contract Documents from legal requirements.
 - 8. Enforce strict discipline and good order among employees. Do not employ persons unskilled in assigned task.
- L. **WORK SEQUENCE**
 - 1. Construct work in stages.
 - 2. Contractor shall coordinate the following with the Purchaser Unless otherwise stated below or elsewhere in the Contract Documents,
 - 3. Contractor shall have access to the building for work activities during UK Medical regular building operating hours.
 - 4. Contractor shall perform all work that has the potential to result in any of the following conditions outside of regular building operating hours, if directed by purchaser, at no additional cost to the Purchaser:
 - a. More than one elevator out of service in a group of elevators (not including a second car out of service for more than sixty minutes for regular preventive maintenance during non-peak traffic periods).
 - b. Interruptions or changes in normal group automatic operation.
 - c. Activation of Firefighter's Emergency Operation Phase I.
 - d. Activation of Standby Power Operation.
 - e. Noise levels in excess of 60 dBA measured in any occupied or public space.
 - f. Transport of large equipment through public or tenant spaces.
- M. **CONTRACTOR USE OF PREMISES**
 - 1. Confine operations at site to areas permitted by law, ordinances, permits, Contract Documents, and Purchaser's specific instructions.
 - 2. Do not unreasonably encumber site with materials or equipment. Staging area will be located as directed by Purchaser.
 - 3. Do not load structure with weight that will endanger structure. Coordinate with Purchaser.
 - 4. Assume full responsibility for protection and safekeeping of tools and products stored on or off premises.

5. Move stored products which interfere with operations of building or the operations of other trades.
6. Obtain and pay for use of additional storage or work areas needed for operations.

N. CONCURRENT MODERNIZATION WORK AND BUILDING OPERATION

1. This project is a major elevator modernization in an existing building which is open for public business and will continue to operate throughout all phases of required work. It is essential that Contractor give special attention and priority to all matters concerning project safety, protection from dust and loose materials, reduction of noise level, protection from water and air infiltration into building, and maintenance of neat, sightly conditions in and around work areas inside and outside of building. Packaging, scrap materials, and demolition debris shall be promptly removed from building and site on a daily basis.
2. Unless otherwise stated in the Contract Documents, Contractor shall allow only one elevator to be out of service in each elevator group at any time during regular building operating hours.
3. At all times Contractor shall provide clearly visible warning and directions signs, full height barricades with locking doors, temporary lighting, overhead protection, and hazard-free walking surfaces throughout public area. At all times give special attention to building entrances, exits, and proper safe exiting through work areas as required by law.
4. Barricade design must be approved by client prior to start of modernization work.
5. Standard folding maintenance barricades are not acceptable.
6. Contractor shall maintain barricades in functional condition for the duration of the project.
7. Contractor shall consult Purchaser and other Contractors to establish and maintain safe temporary routes, including, but not limited to proper barricades, walking surfaces, lighting, fire protection, exiting, warning, and directional signs, and general protection of persons from all hazards in accordance with OSHA Standards due wholly or partially to its operations.

1.4 ALTERNATES

- A. Alternate 1: Retain cab interior walls. Modify car enclosure for application of new signal and pushbutton fixtures.
- B. Alternate 2: New Hoistway Door Panels:
 1. Remove mirrored stainless steel hoistway door panels.
 2. New Door Panel Finish: Brushed stainless steel.
 3. 16-gauge steel, sandwich or pressed with ribbed construction and without binder angles.
 4. Provide one leading edge of doors with rubber astragal.
 5. Provide a minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel.
 6. Provide one separate 4" steel reinforcement safety gib mounted between door gibs, where not integrated with door gibs.

1.5 RELATED WORK

- A. Architectural and Structural, Hoistway and Hallway:
 1. Wall blockouts and fire rated closure for control and signal fixture boxes which penetrate walls.
 2. Cutting and patching walls and floors.
 3. Decorating of walls and floors.
 4. Protect open hoistways and entrances during construction per OSHA Regulations.
 5. Protect car enclosure, hoistway entrance assemblies, and special metal finishes from damage.
 6. Paint pit floor and walls up to first floor.
- B. Architectural and Structural, Machine Room:
 1. Self-closing and locking rated access door.

2. Equipment room signage:
 - a. Include Signage: "ELEVATOR MACHINE ROOM" and "AUTHORIZED PERSONNEL ONLY."
 - b. Provide and install a sign on the door stating that "Combustible storage prohibited by Fire Codes."
 - c. The sign shall match the signage in the building and prior to installation shall have the approval of the Owner.
 - d. Adhesive applied signs are disallowed.
 3. Paint walls and ceiling for improved light reflectivity.
 4. Class "ABC" fire extinguisher in each elevator machine room.
 5. Seal fireproofing to prevent flaking.
- C. Plumbing and Fire Protection: Refer to Construction Documents
- D. Mechanical:
1. Machine Room or Control Space: Ventilation and heating. Maintain temperature range of 55°-90°
F. Maintain maximum 80% relative humidity, non-condensing.
- E. Electrical Service, Conductors, and Devices:
1. WIRING AND LIGHTING
 - a. Elevator Equipment Room:
 - 1) Use only rigid conduit in the elevator machine room for main power equipment. Minimum conduit size of ¾" EMT may be used for low-voltage control wiring.
 - b. Provide a hoist way lighting system for every elevator as follows:
 - 1) Provide a light at the top of the hoist way.
 - 2) Provide 4-way switch control system for the lights in the elevator pit, at the top of the hoist way, and in the elevator equipment room.
 - 3) In the elevator equipment room, use a pilot light or lighted toggle to indicate an "on" circuit.
 - c. Locate Pit light switch next to pit ladder and located 42" above lobby floor level.
 - d. Provide LED lighting throughout.
 2. Machine Room Lighting: Guarded LED fixtures to provide minimum 19 footcandles average illumination. Provide toggle switch adjacent to strike side of machine room door. Occupancy sensor is not allowed.
 - a. Provide adequate machine room LED lighting, especially at controller and around equipment.
 - b. Locate lighting to avoid conflict with installation of equipment such as motors and cables.
 3. Pit Lighting: Guarded LED fixtures to provide minimum 10 footcandles average illumination.
 4. Hallway Lighting: LED fixtures to provide 10 footcandles average illumination measured at the threshold with doors closed. Lighting shall be always-on, un-switched and no occupancy sensor.
 5. GFCI convenience outlets in pit.
 6. Non-GFCI convenience outlet in pit for sump pump.
 7. GFCI convenience outlets in machine room.
 8. Heavy-duty three-phase mainline copper power feeder to terminals of each elevator controller in the machine room with protected lockable "open" disconnecting means. Auxiliary disconnects in multi-level machine room.
 - a. For each elevator, provide properly sized main line disconnect mounted on the wall adjacent to machine room door.
 9. Single-phase copper power feeder to each elevator with individual protected lockable "open" disconnecting means located in machine room for utilization equipment:
 - a. Car lighting and blower.
 - b. CCTV camera.
 10. Emergency telephone line to each individual elevator control panel in elevator machine room.
 - a. Coordinate elevator requirements with UK communication requirements.

- b. Provide data converters for digital to analog communication and video devices.
 11. Provide a dedicated phone line at locations that call for Master Intercom Stations.
 12. Automatic Fire Recall System:
 - a. Fire alarm initiating devices in each elevator lobby, for each group of elevators or single elevator.
 - b. Fire alarm initiating devices in each elevator machine room.
 - c. Fire alarm initiating devices at top of hoistway if sprinklered.
 - d. Three Relay Activation Modules for each group of elevators or single elevator. Locate modules within three feet of controller designated by the Elevator Contractor to minimize un-supervised wiring. Program Modules as follows:
 - 1) PRIMARY: Activate when any hallway device, except primary floor, activates.
 - 2) ALTERNATE: Activate when hallway device at primary floor activates.
 - 3) FIRE HAT: Activate when machine room device activates.
 - e. Device in machine room and at top of hoistway (if provided) to provide signal for general alarm.
 - f. Provide technician from fire alarm contractor for pre-test of system during normal working hours.
 - g. Provide technician from fire alarm contractor for acceptance test of system with AHJ during normal or overtime working hours.
 - h. Remove fire alarm devices from pit where not required.
 - i. Remove fire alarm devices from hoistway overhead where not required.
 13. Means to automatically disconnect power to affected elevator drive unit and controller prior to activation of machine room fire sprinkler system and/or hoistway fire sprinkler system. Provide heat detectors, shunt trip breaker and all necessary equipment.
 14. When sprinklers are provided in the hoistway all electrical equipment, located less than 4'-0" above the pit floor shall be identified for use in wet locations. Exception: Seismic protection devices.
 15. Wiring from building CCTV system to elevator controllers and all CCTV equipment.
 16. CCTV Cameras, elevator contractor to coordinate and assist with installation of cameras in elevators.
 17. Wiring from building security system to elevator controllers and all security system equipment.
 18. Card or Proximity Readers, elevator contractor to coordinate and assist with installation of readers in car operating panels or hall stations.
 19. Building Automation System (BAS): Elevator controller will enable a single discreet contact closure if the elevator has a reason to run but is not running. Provide all necessary wiring and equipment to elevator controllers from the BAS.
 20. Power for Mechanical Equipment: Provide power for HVAC and/or ventilation equipment where applicable.
 21. Review power confirmation data, provided by the Elevator Contractor, on behalf of the Owner. Verify electrical supply to the controllers meets the stated requirements. Where applicable, review standby power generator capability to meet stated requirements and absorb regenerated power.
- F. Standby Power Provision:
1. Standby power of normal voltage characteristics via normal electrical feeders to run one elevator at a time at full-rated car speed and capacity.
 2. Conductors from auxiliary form "C" dry contacts, located in the standby power transfer switch to a designated elevator control panel in each elevator group to each elevator unit to indicate utility or standby power active.
 3. Conductors from auxiliary form "C" dry contacts, located in the standby power transfer switch to a designated elevator control panel to each elevator unit. Provide a time delay of 30-45 seconds for pre-transfer signal in either direction.

4. Standby single-phase power to group controller, and each elevator controller for car lighting, exhaust blower, emergency signaling device.
5. Means for absorbing regenerated power during an overhauling load condition per NEC 620.91. Elevators will employ IGBT drive, presenting a non-linear active load.
6. Standby power to machine room ventilation or air conditioning.
7. Standby power to emergency communications devices.

G. Data/Communications:

1. Furnish data line terminated in a telephone jack in each elevator equipment room. Provide data conversion for elevator requirements.
2. Furnish two (2) telephone lines in each elevator equipment room. One line is to be used for the emergency call system and one line is to be used for a remote monitoring system. The University will be responsible for activation of the telephone lines.
3. The elevator is to be connected to the existing Tridium Building Automation System. All associated hardware, software, cabling and conduit for a complete connection to the system is to be included as part of the elevator contract. Connection is to be made via BacNet/IP, BacNet/MSTP or Modbus protocols.

H. Equipment Room Security:

1. MPPD – Install card reader to match building system.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

A. Within thirty calendar days after award of contract and before beginning equipment fabrication submit field verified existing installation information for review.

1. Car and Counterweight Information:
 - a. Existing Total Car Weight:
 - 1) Documented on crosshead data tag, all cars.
 - 2) Field Verified: weigh single cars and one car per group of each identical duty type.
 - b. Field verified counterweight total weight. Weigh or balance verify at vertical center of hoistway, single cars and one car per group of each identical duty type.
 - c. Estimated total weight of means of suspension.
 - d. Estimated total suspended compensation load on elevator traction machine drive sheave shaft.
2. Power Confirmation Information: Field verified existing conditions at each elevator main disconnect:
 - a. Actual maximum available voltage and current.
 - b. Verify true earth ground value.

B. Within before beginning equipment fabrication submit planned modernization design information, shop drawings, and required material samples for review. Allow thirty days for response to initial submittal.

1. Indicate equipment lists, reactions, and design information on layouts, including:
 - a. Car and Counterweight:
 - 1) Total car weight to be included on new crosshead data tag.
 - 2) Total counterweight (pre-modernization weight plus or minus any added or removed weight sections).
 - 3) Written confirmation that designed modernization total combined weight of car and rated load:
 - a) Is not more than 5% less or more than that of the original installation.
 - 4) Verify buffer capacity via data tags or known manufacturing data.
 - 5) Verify car and counterweight safety capacities via data tags.
 - b. Power Confirmation Information: Design for existing conditions.
 - 1) Motor horsepower and code letter designation.

- 2) Motor drive starting current, full load running current, and demand factor.
 - 3) Engineered power consumption based on full load, non-dynamic braking.
 - 4) Written confirmation that existing electrical provisions are adequate for post modernization installation equipment requirements.
 - c. Written confirmation that total planned modernization reactions on building structure do not exceed designed reactions by more than 5% due to increased post modernization weights of:
 - 1) Traction machine and motor.
 - 2) Blocking beams.
 - 3) Sheaves.
 - 4) Total car weight.
 - 5) Total counterweight.
 - 6) Suspension means.
 - 7) Suspended compensation.
 - 8) Travelling cables.
 - 9) Car Capacity.
 - d. Product Data, Including:
 - 1) Capacities, sizes, performances, operation, control, signal systems operations, safety features, finishes, and similar information.
 - 2) Product data for car enclosures and hoistway entrances.
 - 3) Product data for signal fixtures, lights, graphics, tactile marking plates, and details of mounting.
 - 4) Full details of ascending car protection means and installation.
 - 5) Two-way conversation devices.
 - 6) Post-modernization machine room heat emissions in BTU.
2. Shop Drawings:
- a. Scaled or Fully Dimensioned Layout: Plan of machine room indicating equipment arrangement, details of car enclosures, hoistway entrances, and car/hall signal fixtures.
 - b. Fully Dimensioned Fixture Drawings:
 - 1) Car operating panels.
 - 2) Car floor indicators.
 - 3) Hall stations.
 - 4) Destination/landing input stations.
 - 5) Position indicators.
 - 6) Hall lanterns.
 - 7) Access key switch.
 - 8) Remote panels.
 - 9) Firefighter's control panel.
 - c. Rope Brake Mounting and Installation Drawings:
 - 1) Details of all materials and installation design required.
 - 2) Showing reactions incorporated into design.
 - 3) Signed and stamped by a licensed engineer when not factory installed by manufacture.
- C. Samples for Verification:
1. For exposed car, hoistway door and frame, and signal equipment finishes.
 2. Samples of Sheet Materials: 3" (75 mm) square.
 3. Running Trim Members: 4" (100 mm) lengths.
 4. Include full component samples, if requested:
 - a. Signal fixtures.
 - b. Lighting.
 - c. Graphics.
 - d. Braille plates.

- D. MANUFACTURER'S NAMEPLATES
 - 1. Manufacturer's name plates and other identifying markings shall not be affixed on surfaces exposed to public view. This requirement does not apply to Underwriter's Laboratories and code required labels.
 - 2. Each major component of mechanical and electrical equipment shall have identification plate with the Manufacturer's name, address, model number rating, and any other information required by governing codes.

- E. COLORS OF FACTORY-FINISHED EQUIPMENT
 - 1. All colors will be selected from the Manufacturer's standard range unless custom colors are specified herein.
 - 2. Submit samples of all standard colors available and/or specified custom colors for review and approval.
 - 3. Submit samples of all specified architectural metals specified for review and approval.

- F. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract.
 - 1. Include any unique or product specific procedures or methods required to inspect or test the equipment.
 - 2. Identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.
 - 3. Meet Owner response time requirements.

- G. Submittal review shall not be construed as an indication that submittal is correct or suitable or that the work represented by submittal complies with the Contract Documents. Compliance with Contract Documents, Code requirements, dimensions, fit, and interface with other work is Contractor's responsibility.

- H. Acknowledge and/or respond to review comments within fourteen calendar days of return.
 - 1. Promptly incorporate required changes due to inaccurate data or incomplete definition so that delivery and installation schedules are not affected.
 - 2. Identify and cloud drawing revisions including Contractor elective revisions on each re-submittal.

- I. Contractor's revision response time is not justification for equipment delivery or installation delay.

1.7 PERMITS, TESTS, AND CERTIFICATES

- A. Permits:
 - 1. Secure and pay for all permits required for Work to be performed, including but not limited to:
 - a. Municipal and State permits.
 - b. Device or equipment removal permits.
 - c. Hot works permits.
 - 2. Post, maintain, and renew all permits in compliance with local governmental requirements.
 - 3. Obtain final close-out of all required permits.

- B. Tests and Inspections:
 - 1. Schedule with the AHJ and perform tests required by Governing Authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative of the AHJ.
 - 2. Special Requirements by UK Fire Marshal
 - a. When emergency power is provided for the new or modernized elevator system, the elevator(s) shall be tested under a FULL load on the generator.
 - b. Include all emergency lighting and other emergency loads connected to the generator.

- c. Fireman's Service shall be tested under emergency power
 - d. conditions.
 - e. For Fireman Service priority floor designations, the UK Fire Marshal's office shall be consulted as to which floors will become Priority 1 and Priority 2 for emergency return situations.
 - f. Provide a lockable secure storage box on the Priority 1 floor for the firemen's service key(s). The Consultant shall request storage box keying information from the UK Fire Marshal.
- C. Certificates: Obtain, pay for, and deliver to Purchaser with all temporary and final inspection certificates provided by proper governing authorities.
- D. Violations: Resolve any outstanding violations on record with the AHJ on devices being removed prior to final acceptance by the Purchaser.

1.8 QUALITY ASSURANCE

- A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of currently enforced codes, laws, and/or authorities, including revisions and changes in effect.
- B. Inspections: Provide access to areas where work is being performed for the Consultant at any time throughout the project.

1.9 INSTALLATION REQUIREMENTS

- A. Install all equipment in accordance with Manufacturer's instructions, referenced codes, specifications, and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel:
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Machine room equipment.
 - 3. Pit equipment.
 - 4. Neatly touch up damaged factory-painted surfaces with original paint color.
 - 5. Protect machine-finish surfaces against corrosion.

1.10 MAINTENANCE

- A. General:
 - 1. All maintenance shall be performed according to the guidelines stated in manufacturer's Maintenance and Operations manuals.
 - 2. Maintenance records for each device, including lubrication logs, check charts, shall be provided in each machine room.
 - 3. Specifications for Maintenance Agreement outlined Owners in Section 143250.

- B. Construction Maintenance:
 - 1. Upon substantial completion of a group, subsequent to receiving sign-off from the governing authorities and acceptance from Consultant and/or Contractor, the group may be accepted for service before completion of the entire project.
 - 2. During the Construction Maintenance period, the necessary preventive maintenance shall be performed on an as required basis.
 - 3. Provide the necessary protection of the hoistway entrances and sills, hoistway fixtures, cab interiors and fixtures and car door sills.
 - 4. Replacement or repair of the aforementioned components, due to abnormal use by others, shall be the responsibility of the Contractor/Owner.
 - 5. Perform emergency callback service during normal working hours.
 - 6. Specifications for Maintenance Agreement outlined Owners in Section 143250.
 - a. Include 24-hour-per-day, 7-day-per-week emergency callback service.

- C. Warranty Maintenance:
 - 1. Upon final acceptance of each group, after Construction Maintenance period (if applicable), subsequent to receiving acceptance (sign-off) from the governing authorities and final acceptance, each group shall be accepted for full operation.
 - 2. The warranty maintenance period shall begin for each device when all conditions in the above paragraph are met and will continue for the specified period.
 - 3. Warranty Maintenance Period may begin at different times for each elevator.3.The warranty maintenance program shall include the following:
 - a. Monthly examinations, including adjustments, cleaning and lubrication of equipment.
 - b. 24-hour Emergency Call back service shall be provided at no additional cost to Owner.
 - c. Replacement of components as required, using only components produced by the original manufacturer.
 - 1) Each machine room shall be equipped with a lockable storage cabinet to contain the necessary spare parts.

1.11 DELIVERY, STORAGE, AND HOISTING

- A. General:
 - 1. Protect all equipment and exposed finishes during delivery, handling, and installation until completion of project.
 - 2. Replace damaged materials with new, at no additional cost for material or labor to Purchaser.

- B. Delivery and Storage:
 - 1. Ensure manufacturers' original packing adequately protects materials during delivery.
 - 2. Deliver materials, identical to accepted samples, to the site ready for use in the manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name.
 - 3. Store materials under cover in a dry and clean location, off the ground. Remove delivered materials that are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.
 - 4. Store and protect all materials in space provided or designated by the Purchaser against damage, stains, scratches, corrosion, weather, construction debris, and other environmental conditions.
 - 5. Comply with Purchaser's requirements for access to and use of any building loading docks, parking lots, parking garages, and any interior spaces required for delivery and storage.

- C. Hoisting: Arrange and pay for all required hoisting and movement of equipment.

PART 2 - PRODUCTS

2.1 REFERENCES

- A. American National Standard Institute (ANSI): A117.1, Accessible and Usable Buildings and Facilities.
- B. American Society of Mechanical Engineers:
 - 1. ASME A17.1, Safety Code for Elevators and Escalators.
 - 2. ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks.
 - 3. ASME A17.5, Elevator and Escalator Electrical Equipment.
 - 4. ASME A17.6, Standard for Elevator Suspension, Compensation, and Governor Systems.
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 70, National Electric Code.
 - 2. NFPA 80, Fire Doors and Windows.
 - 3. NFPA 101, Life Safety Code.
 - 4. NFPA 13, Installation of Sprinkler Systems.
- D. International Building Code (IBC).
- E. Accessibility:
 - 1. American National Standard Institute (ANSI): A117.1, Accessible and Usable Buildings and Facilities.
- F. University of Kentucky Design and Construction Standards
 - 1. 142000S02 Hydraulic and Traction Elevator, September 2021
 - 2. 142000S02 Hydraulic and Traction Elevators - Appendix 1, December 2015

2.2 MANUFACTURERS AND PRODUCTS

- A. Subject to compliance with the requirements of the contract, provide products by one or more of the following Principal Manufacturers. Where specific product models are referenced only those models are approved:
 - 1. Controllers:
 - a. GAL Galaxy.
 - b. Smartrise.
 - c. Virginia Controls.
 - 1. Hoist Machines:
 - a. Hollister Whitney.
 - 2. Rope Brakes:
 - a. Hollister Whitney.
 - 3. Passenger Elevator Door Equipment:
 - a. GAL.
 - 4. Elevator Car Enclosures:
 - a. Columbia
 - 5. Car and Hall Signal Fixtures: vandal resistant:
 - a. Innovation.
 - 6. Two-Way Communication Device:
 - a. Ramtel
 - 7. Rope Brakes:
 - a. Hollister Whitney.
 - 8. Roller Guide Assemblies
 - a. Elsco

9. Electronic Safety Edge
 - a. Janus PanaChorme 3D

2.3 PERFORMANCE REQUIREMENTS

- A. Car Speed: $\pm 3\%$ of contract speed under any loading condition.
- B. Car Capacity: Safely lower, stop, and hold 125% of rated load.
- C. Car Stopping Zone: $\pm 1/4"$ under any loading condition.
- D. Door Times: Seconds from start to fully open or fully closed:
 1. Cars 9 & 10: Door Open: 2.4 seconds. Door Close: 4.6 seconds.
- E. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are $3/4$ open for center-opening doors or $1/2$ open for side-opening doors, and car is level and stopped at next successive floor under any loading condition or travel direction:
 1. Cars 9 & 10: 12.5 – 13.0 seconds.
- F. Car Ride Quality:
 1. Ride Quality measured and analyzed according to the methods specified in ISO18738.
 2. Utilize EVA-625 Elevator Vibration Analysis System as manufactured by Physical Measurement Technologies (PMT) to record field measurements.
 3. Specified levels apply to horizontal and vertical acceleration measured from within car, from the point at which the car has moved $1/2$ meter from start position to $1/2$ meter from final position, as defined by ISO18738.
 4. Maximum Allowable Peak-to-Peak Vibration for the Horizontal and Vertical Axes: 20 mg.
 5. Maximum Allowable A95 Peak-to-Peak Vibration for the Horizontal and Vertical Axes: 12.5 mg.
 6. Acceleration and Deceleration: Smooth, constant, and not less than 3.0 feet/second² with an initial ramp between 0.5 and 0.75 second.
 7. Sustained Jerk: Not more than 6 feet/second³.
- G. Noise and Vibration Control:
 1. Airborne Noise:
 - a. Measured noise level of elevator equipment and its operation shall not exceed 60 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.
 - b. Limit noise level in the machine room control space relating to elevator equipment and its operation to no more than 80 dBA.
 - c. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
 2. Vibration Control: Mechanically isolate all new elevator equipment from the building structure and other components. Minimize objectionable noise and transmission of vibrations to occupied areas of the building.

2.4 ELEVATOR DUTY ALTERATIONS

- A. Geared Passenger Elevators:

ALTERATION SUMMARY		
CARS 9 & 10	EXISTING INSTALLATION	MODERNIZED INSTALLATION
Capacity:	5,000 lbs.	Retain Existing
Class of Loading:	Class A	No Change
Contract Speed:	350 fpm	No Change
Roping Configuration:	1:1	No Change
Machine Type:	Geared	New Geared Machines
Machine Location:	Overhead	Overhead
Motor Type:	AC	AC
Motion Control:	Static	Static
Operation Control:	Two-button Selective collective automatic	No Change
Floors Served:	Front: B, 1*, 2-5 Rear: 0	Retain Existing Floors Served
Total Entrances:	6 front; 0 rear	Retain Existing Total Entrances
Entrance Type:	Two-speed, side-opening	Retain Existing Entrance Types
Entrance Size:	48" wide x 84" high Field Verify	Retain Existing Entrance Sizes
Minimum Clear to Underside of Canopy:	6'-7 ½"H Field Verify Both Cars	Retain Existing Minimum Clear to Underside of Canopy Dimensions

2.5 MATERIALS

A. Steel:

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

B. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength, and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature, with texture and reflectivity required to match Architect's sample. Protect with adhesive paper covering.

1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in longest dimension.
2. No. 8 Mirror: Reflective polish finish with no visible graining.
3. Textured: 5-SM as manufactured by Rimex Metals or approved equal with .050" mean pattern depth with bright directional polish (satin finish).
4. Burnished: Non-directional, random abrasion pattern.

C. Bronze: Stretcher-leveled, re-squared sheets composed of 60% copper and 40% zinc similar to Muntz Metal, Alloy Group 2, with standard temper and hardness required for fabrication, strength, and durability. Clean and treat bronze surfaces before mechanical finish. After completion of the final mechanical finish on the fabricated work, use a chemical cleaner to produce finish, Federal Standard, and NAAMM nomenclature, matching Architect's sample:

1. No. 4 Satin: Directional polish finish, fine-satin, clear-coated with clear-organic coating recommended by Fabricator. Provide graining direction as shown or, if not shown, in vertical dimension.
 2. No. 8 Mirror: Reflective polish finish with no visible graining, bright-polished, clear-coated finish with clear-organic lacquer coating recommended by Fabricator.
 3. Acid-Etched Pattern: Provide a No. 8 mirror reflective-polished background with selectively acid-etched, matte-textured, custom pattern as shown. Acid selection and dilution, if required, as recommended by Fabricator. After final finishing, coat bronze with clear-organic lacquer coating recommended by Fabricator.
- D. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
- E. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick, color and texture as follows:
1. Exposed Surfaces: Color and texture selected by Architect.
 2. Concealed Surfaces: Contractor's standard color and finish.
- F. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "1" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.
- G. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt and polish sanded, book-matched. Species and finish designated and approved by Architect.
- H. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.
- I. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.
- J. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three additional coats of enamel in the selected solid color.
- K. Refinishing of natural metals: Remove existing protective finish. Buff as necessary to remove scratches. Regrain or finish as specified and protect as indicated for particular metal type.
- L. Entrance Support Equipment within Hoistway: Include strut angles, headers, sill support angles, fascia, hanger covers, etc. Clean, remove, and check for corrosive activity. Replace components which exhibit severe deterioration. Tighten all fastenings.

2.6 OPERATION

- A. General:
1. Cars automatically slow down and stop level at floors in response to car and landing calls with stops made in sequence in the established direction of travel, regardless of order in which buttons are pressed.
 2. Landing calls are canceled when the assigned car arrives at the landing.
 3. Automatic Dispatch Failure: Provide auxiliary dispatch system to automatically dispatch elevators in the event of failure of the primary control system.

4. Hall Call Button Failure: Should failure of hall call button system occur, initiate operation providing predetermined service to all landings; elevators respond normally to car calls.
 5. Automatic Leveling:
 - a. When arriving at a floor cars level to within 1/8" above or below the landing sill prior to opening doors, without travelling past the landing during leveling
 - b. Maintain leveling accuracy regardless of carload, direction of travel, rope slippage or stretch.
 6. Power Conservation:
 - a. Shut off car interior illumination and ventilation after adjustable period (60-180 seconds) of no elevator demand.
 - b. turn on prior to opening car doors when elevator demand returns.
- B. Door Operation:
1. Automatically open doors when car arrives at a floor.
 2. Stop and reopen doors or hold doors in open position upon activation of "door open" button.
 3. At expiration of normal dwell time, or upon activation of "door close" button, close doors:
 - a. Prevent doors from closing and reverse doors at normal opening speed if door reopening device beams are obstructed while doors are closing, except during nudging operation.
 - b. In event of door reopening device failure, provide for automatic shutdown of car at floor level with doors open.
 - c. Close cycle does not begin upon activation of "door close" button until normal door dwell time for a car or hall call has expired, except firefighters' operation.
 4. Nudging Operation:
 - a. After beams of door reopening device are obstructed for a predetermined time interval (minimum 20.0-25.0 seconds), sound warning signal, and attempt to close doors with maximum of 2.5 foot-pounds kinetic energy.
 - b. Activation of the door open button overrides nudging operation and reopens doors.
 5. Interrupted Beam Time:
 - a. When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds.
 - b. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0-1.5 seconds after beams are reestablished.
 6. Differential Door Time:
 - a. Field adjustable time that doors remain open after stopping in response to calls.
 - b. Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
 - c. Hall Call:
 - 1) Hold open time adjustable between 5.0 and 8.0 seconds.
 - 2) Use hall call time when car responds to coincidental calls.
 7. Automatically open doors when car arrives at a floor.
 8. At expiration of normal dwell time, close doors.
- C. Selective Collective Operation – Two Car Group, Cars 9 and 10
1. Elevators operate via momentary pressure buttons to:
 - a. place hall call by selecting direction of travel at each hall landing (up and down buttons at each intermediate landing, single buttons at each terminal landing).
 - b. place car call by selecting destination floor from inside the car (individual buttons for each floor served).
 2. Hall calls, other than calls placed at the landing at which car is standing, start car and cause the car to stop at first landing for which a call is registered in the direction of travel.
 3. Car calls cause the car to stop at the floors registered in the order the car arrives at each selected floor in its current direction of travel.
 4. Free Car:

- a. When there are no calls in the system, one car is automatically dispatched to the elevator discharge level (home car), park other car (free car) at its last stop above elevator discharge level.
 - b. An idle free car answers call above or below it, except calls at main or Basement landings (where applicable).
 - c. When free car travels to main landing in response to a car call, it becomes home car and former home car travels to a middle floor above main landing and becomes the free car.
 - d. When free car is responding to calls, home car shall respond to the following:
 - 1) Up calls below UP traveling free car.
 - 2) All Up and Down calls behind DOWN traveling free car.
 - 3) Any hall calls registered when free car is delayed in its normal operation for a predetermined period.
 - e. When both cars are responding to registered car and hall calls, the first car to complete its calls becomes the assigned home car and is dispatched automatically to the Main Landing.
 - f. Only one car responds to each hall call.
5. If either car is removed from service, the other car responds to all registered hall calls and its own car calls.
6. Car and Hall Lanterns:
- a. Lanterns provide audio and visual signal upon each stop, regardless of responding to car or hall call.
 - b. Visual signal remains active from commencement of door opening until doors are completely closed.
- D. Hospital Emergency Operation (Code Blue), Cars 9 and 10:
1. Activated and deactivated for each group of elevators:
 - a. In each elevator lobby via keyswitch activation.
 2. Activation of device at any floor causes a small blue light jewel or larger jewel with engraved target identifying the operation, to illuminate at that floor and all other floors, to indicate operation in use.
 3. Activation of device shall cause the control system to assign the nearest car with a demand at the desired level:
 4. If the car is traveling to the demand floor, the car shall express to that floor.
 5. If traveling away, the Car shall stop at the next available floor without opening doors, reverse, and express to that floor without stopping at previously assigned floors.
 6. All registered car and hall calls for selected car shall be cancelled.
 7. A blue light with the engraved signage beneath "Please Exit Car" at the top of the car operating panel shall pulsate and audible annunciation verbiage as selected shall sound, indicating to riding passengers the car has been commandeered for the required service.
- E. Standby or Emergency Power Operation:
1. The terms Standby Power and Emergency Power are both referred to as Emergency Power in this Section. Elevator operation is the same when either is provided.
 2. Where emergency power is provided to the elevator main disconnects and required by the Building Code the elevator installation shall comply with the Emergency Power Operation requirements of ASME A17.1 as modified by any superseding Building Code requirements.
 3. Operation is activated by a signal from an Automatic Transfer Switch (ATS) to elevator controls indicating the Emergency power source is operational.
 - a. Start and run one car in each group at contract car speed and capacity.
 - b. Illuminate "ELEVATOR EMERGENCY POWER" signals.
 4. Restoration of Normal Power:
 - a. At least 20 seconds prior to transfer from emergency power to normal power at the ATS, a pre-transfer signal is supplied to the elevator control system from the ATS.

- b. Elevators operating on emergency power stop at the next available landing and remain there until normal power is restored.
- F. Firefighters' Emergency Operation: Provide equipment and operation in accordance with code requirements. Replace all Firefighters Emergency Operation key switches that control non-modernized elevators in this building to match modernized elevators when first car in group is returned to service.
- G. Interface to Building Management Systems:
 - 1. The elevator monitoring system shall be capable of interfacing and exchanging data with third-party building management systems including Siemens, Landis AND Staefa, Johnson Controls, SCADA, and Tridium
 - 2. Information shall be exchanged by Modbus protocol, open protocol or other suitable methods as required.
- H. Motion Control:
 - 1. Microprocessor-based AC variable-voltage, variable frequency with digitally encoded closed-loop velocity feedback suitable for operation specified and capable of providing smooth, comfortable car acceleration, retardation, and dynamic braking.
 - 2. Limit the difference in car speed between full load and no load to not more than $\pm 3\%$ of the contract speed.
- I. Battery Backup Operation for Emergency Lighting, Communication, and Alarm:
 - 1. Car mounted battery unit with solid-state charger to operate alarm bell, car emergency lighting, and voice communication system.
 - a. Car lighting and communication shall be provided with a minimum of 4 hours of operation on back-up power during a loss of normal power, and a minimum of 1 hour of operation for car-mounted alarm.
 - b. Battery to be rechargeable with minimum five-year life expectancy.
 - c. Provide constant pressure test button in service compartment of car operating panel.
 - d. Provide lighting integral with portion of normal car lighting system.
- J. Emergency Car Communication System Operation: Reuse existing. Provide additional hardware required for fully functional system.
 - 1. Hands-Free Phone System:
 - a. Two-way communication instrument in car to provide automatic dialing, tracking, and recall features.
 - 1) Automatic dialer to include automatic rollover capability with minimum two numbers:
 - b. Activated by "Help" button in car or by external telephone call.
 - c. Adjacent light jewel illuminates and flashes when call is acknowledged.
- K. Building Automation Monitoring: Provide each controller with a single, optically isolated discreet output for each elevator to indicate elevator has demand but is not running. An open main line disconnect, inspection service, independent service, etc. does not indicate trouble. Connection to BAS to be provided as stated in Section 14 22 00.
- L. Card/Proximity Reader Security System: Provide provisions inside car for reader unit.
 - 1. Mount reader unit as directed by Purchaser and cross connect from car pushbuttons to control module in machine room.
 - 2. Reader control unit, mounting brackets, wiring materials, logic circuits, etc., by Security Subcontractor.
 - 3. Provide a filler plate to match card slot size and car return panel finish, including direction of graining, where card slot or proximity reader cutout is not initially utilized.

2.7 MACHINE ROOM EQUIPMENT

- A. Provide and arrange equipment in existing machine room spaces and as shown on drawings.
- B. Identification: Permanently identify (painted on or securely attached) machine room equipment with minimum 3" characters corresponding to elevator identification.
 - 1. Driving machine.
 - 2. Motor drive, transformer, choke/filter.
 - 3. Controller.
 - 4. Selector.
 - 5. Governor.
 - 6. Main line disconnect switch.
 - 7. Elevator hoistway pit equipment.
- C. New - Geared Traction Hoist Machine:
 - 1. Provide new geared machine based on specified capacity, speed, and duty.
 - 2. Provide motor, brake, gears, and demountable drive sheave mounted in proper alignment on a common bedplate.
 - a. Motor:
 - 1) Permanent magnet or AC induction motor connected through worm and gear to drive sheave.
 - 2) Direct drive, digital, closed-loop velocity encoder.
 - 3) Include approved manufacturers label as required by the local Authority Having Jurisdiction.
 - b. Electromechanical Brake:
 - 1) Drum or disc type.
 - 2) Spring applied and electrically released with removable manual brake release.
 - 3) Brake shoes apply to the braking surface simultaneously and with equal pressure.
 - 4) Minimize noise during lifting and setting of brake shoes to be undetectable inside any car or outside of the machine room or hoistway.
 - c. Gears:
 - 1) Worm gear accurately machined from steel and provided with a single end double race ball bearing thrust.
 - 2) Gear housing with a gasketed port to inspect the gear.
 - d. Drive Sheave:
 - 1) Machined with grooves, providing maximum traction with a minimum of cable and sheave wear.
 - 2) Sealed bearings.
 - e. Deflector Sheave:
 - 1) Machine bedplate mounted deflector sheave.
 - 2) Machined grooves and sealed bearings.
 - 3) Maintainable from inside machine room.
 - 3. Installation Includes:
 - a. Anti-friction bearings with easy access for lubrication.
 - b. Drip pans to collect lubricant seepage.
 - c. Means to maintain deflector sheave from machine room.
 - d. Sheave guards to prevent ropes from leaving sheave grooves.
 - e. Sound isolation pads to reduce vibration and noise transmission to the building structure.
 - f. Permanent ladders and platforms with handrails and toe boards for code required machine and sheave access.
- D. New - Solid State Power Conversion and Regulation Unit:

1. Provide solid state, alternating current, variable voltage, variable frequency (ACV³F), I.G.B.T. drive designed to operate with the power supply available at the main disconnect.
 2. Drive is regenerative and utilizes converter/inverter and dynamic braking during overhauling condition to return regenerated power to the building power grid.
 3. Performance Requirements:
 - a. Conform to IEEE standards 519-2014 for line harmonics and switching noise.
 - b. Maximum audible noise in the machine room and surrounding areas not to exceed 80 dBA.
 4. Power Factor: >0.95.
 - a. Minimum of 6 kHz switching frequency for SCR inverter and shunt transistors.
 - b. Sustained drive and motor overload protection rated at 250% of line current.
 - c. Capacitors utilized sized and located to avoid system resonance.
 5. Limit current suppress noise and radio frequency interference and prevent transient voltage feedback into main building power supply or emergency power source. Provide internal heat sink cooling fans for the power drive portion of the converter panels.
 6. Provide isolation transformers, filters, and chokes to completely isolate the system from the normal building power supply.
 7. Isolate unit to minimize noise and vibration transmission.
 8. Direct-current power for the operation of hoist machine brake, door operator, dispatch processor, signal fixtures, etc., supplied from separate static power supply.
- E. Regenerated Power
1. Provide means to automatically divert regenerated power from being returned to the building electrical grid when emergency power operation is in effect.
 2. Provide resistor bank on the demand side of the elevator main disconnect to absorb and dissipate the maximum sustained regenerated power from the motor drive during dynamic braking.
- F. New - Encoder: Direct drive, solid-state, digital type. Update car position at each floor and automatically restore after power loss.
- G. New - Controller: UL/CSA labeled.
1. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
 2. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
 3. Microprocessor-Related Hardware:
 - a. Provide built-in noise suppression devices providing a high level of noise immunity on all solid-state hardware and devices.
 - b. Provide power supplies with noise suppression devices.
 - c. Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.
 - d. Design control circuits with one leg of power supply grounded.
 - e. Safety circuits are not to be affected by accidental grounding of any part of the system.
 - f. System automatically restarts when power is restored.
 - g. System memory is retained in the event of power failure or disturbance.
 - h. Equipment is provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
 4. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.

5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.
 6. Monitoring System Interface: Provide controller with serial data link through RJ45 Ethernet connection and install all devices necessary to monitor items outlined herein. Connect monitoring system interface to machine room monitoring compartment and LAN. Wiring from the LAN to the machine room monitoring compartment by others.
 7. Provide discreet inputs in each controller and wire terminals to all devices to be monitored.
 - a. Refer to appendix – Tridium monitoring points.
- H. Auxiliary disconnect: Provide controller or machine mounted auxiliary, lockable “open,” disconnect if mainline disconnect is not in sight of controller and/or machine.
- I. Provide manual security override switch on the outside of the elevator controller to enable all car calls.
- J. Provide minimum 14-gauge galvanized sheet metal enclosures over any holes or block outs, other than for hoist ropes, in machine room floor. Mount on underside of floor slab.
- K. Sleeves and Guards: Provide 2" steel angle guards around cable or duct slots through floor slabs or grating. Provide rope and smoke guards for sheaves, cables, and cable slots in machine room and secondary machinery levels.
- L. Machine and Equipment Support Beams: Retain existing in place. Provide all required supplemental supports and attachments. Provide Structural Engineering certification validating size and location of all new support structure provided.
- M. New - Governor, Car: Centrifugal-type, car driven with pull-through jaws and bi-directional shutdown switches. Calibrated and tested with manufacturers’ certification data plate as required by code. Provide required bracketing and supports for attachment to building structure.
- N. New - Governor, Counterweight: Centrifugal-type, Counterweight driven with pull-through jaws and bi-directional shutdown switches. Calibrated and tested with manufacturers’ certification data plate as required by code. Provide required bracketing and supports for attachment to building structure.
- O. New - Emergency Brake:
 1. Provide means to prevent ascending car over-speed and unintended car movement. Installation and operation to comply with Code requirements.
 2. Acceptable emergency brake devices:
 - a. Hollister-Whitney rope gripper.
 3. Install in compliance with approved drawings
 4. Mount on suitable structural steel supports in machine room.
 5. Provide control circuits to enable the device to function as required by Code.
- 2.8 HOISTWAY EQUIPMENT
- A. Provide and arrange equipment in existing hoistways and/or as shown on drawings.
- B. Guide Rails: Retain main and counterweight guide rails in place.
 1. Clean rails and brackets.
 2. Check all rail and bracket fastenings and tighten.
- C. Buffers, Car: Retain existing. Remove rust and repaint non-machined surfaces.
- D. Buffers, Counterweight: Retain existing. Remove rust and repaint non-machined surfaces.

- E. New - Deflector Sheaves, Secondary and Compensating: Machined grooves and sealed bearings. Provide mounting means to machine beams, machine bedplate, car and counterweight structural members, or building structure.
- F. Counterweight Frame: Retain existing.
 - 1. Replace any damaged frame sections. Steel members and fastenings to match original manufacturers' engineered specifications.
 - 2. Counterweight Weight Sections:
 - a. Adjust or repair retention means to keep existing weight sections and any added weight sections in place during buffer impact.
 - b. Add or replace weight sections as required to provide overbalance necessary to comply with traction machine manufacturers' requirements.
- G. New - Counterweight Guide Shoes:
 - 1. Spring-dampened roller guide shoes.
 - 2. Manufacturer, type, and size are subject to approval by Consultant.
- H. New - Counterweight Guard:
 - 1. Metal guard in pit.
 - 2. Where counterweight is provided between adjacent elevators, provide runway guard full height of hoistway next to the adjacent elevator. .
- I. New - Governor Rope Tension Sheave and Frame: Mount sheave and support frame on pit floor or guide rail. Provide frame with guides or pivot point to enable free vertical movement, required tension, and rope alignment. Adjust to provide quiet operation with no sound detectable from inside any car or outside of the hoistway.
- J. New - Suspension Means: Replace. New Traction steel type wire ropes of type specified by machine or drive sheave manufacturer. Fasten with staggered length, adjustable, spring isolated wedge type shackles.
- K. New - Governor Ropes: Governor rope of type specified by governor manufacturer.
- L. New - Terminal Stopping: Provide normal and final devices.
- M. New - Electrical Wiring and Wiring Connections:
 - 1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide a minimum of 10% spare conductors throughout. A minimum of ten #18 AWG wires shall be provided. Run spare wires from car connection points to individual elevator controllers in the machine room. Provide eight pairs of spare shielded communication wires in addition to those required to connect specified items. Tag spares in machine room.
 - 2. Conduit: Painted or galvanized steel conduit, EMT, or duct. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.
 - 3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway. Provide 12 twisted shielded pairs in addition to wires needed to connect specified items and code required spares.
 - 4. Auxiliary Wiring: Connect fire alarm initiating devices, emergency two-way communication system, firefighters' phone, CCTV, card reader, intercom, in each car controller in machine room.
- N. Hoistway Entrance Equipment:

1. Door Hanger: Retain. Modify hangars to include door retainer mechanism to address failure of primary upper door panel guidance.
 2. New - Door Hanger Rollers: New rollers for quiet operation.
 3. Door Track: Retain. Clean and sand for quiet operation.
 4. New - Door Interlocks: Operable without retiring cam.
 5. New - Door Closers: Spring-activated spirator or sill mounted closer. Install and adjust to insure smooth, quiet mechanical close of doors.
- O. New - Hoistway Door Unlocking Device: Provide unlocking device including new escutcheon
1. Escutcheon: Finish to match adjacent surface.
- P. New - Hoistway Access Switches: Mount in wall or in strike side of door frame at top and bottom floors. Provide switch with faceplate. Locate within easy reach to entrance so entrance can be guarded by one technician.
- Q. New - Code Blue Hospital Emergency Service Key Switch: Two-position on/off keyed switch, mounted in hall stations with key removable in the "off" position only.
- R. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car.
- 2.9 HOISTWAY ENTRANCES
- A. Provide and arrange equipment in same location as existing entrances and/or as shown on drawings.
- B. Frames: Retain existing.
1. Provide new Arabic floor designation/tactile marking plates:
 - a. Centered at 60" above finished floor.
 - b. Located on both side jambs of all entrances.
 - c. Minimum 4" high.
 - d. Tactile marking indications shall be below Arabic floor designation.
 2. Provide plates at main egress landing with "Star" designation.
 3. Designated Emergency Elevator: Provide "Star of Life" cast designation plates at height of 78"-84" above finished floor on both side jambs at all floors.
 4. Provide car identification label:
 - a. Mounted directly below floor designation/tactile marking plates.
 - b. Located on both side jambs at the following levels:
 - 1) Designated level.
 - 2) Alternate level.
 - c. Finish and design to match floor designation/tactile marking plates.
 - d. Provide cast metal plate indications mounted onto surface of jambs.
- C. Hoistway Door Panels: Retain existing.
1. Provide new door gibs with fire tabs at all floors.
 2. Minimum two gibs per panel, one at leading edge, and one at trailing edge of each panel.
 3. Provide code required door panel retainer mechanism on lower edge of door panel.
- D. Sight Guards: Retain existing. Replace damaged sight guard at all floors.
- E. Sills, Hoistway Entrance: Retain existing. Clean. Check and tighten all fastenings.
- F. Sill Supports, Hoistway Entrance: Retain existing. Check and tighten all fastenings.

- G. Fascia, Toe Guards, and Hanger Covers: Retain existing.
 - 1. Provide as required where damaged or missing.
 - 2. Check and tighten all fastenings.
 - 3. Paint/Stencil floor number on fascia or hoistway wall all floors visible where car doors are initially opened.

H. Struts and Headers: Retain existing. Check and tighten all fastenings.

I. Finish of Frames and Doors: Retain existing.

2.10 CAR EQUIPMENT

A. Frame: Retain Existing. Check and tighten all fastenings. Adjust as required for plumb and square alignment.

B. Safety Device: Refurbish existing.

- 1. Check and tighten all fastenings.
- 2. Disassemble, clean, lubricate, and inspect components in compliance with manufacturer's recommended procedures.

C. Platform: Retain existing.

- 1. Adjust as necessary for plumb and level alignment.
- 2. Reinforce if required.
- 3. Check and tighten all fastenings.
- 4. Inspect after existing finished flooring is removed. Immediately notify Purchaser and Consultant if any damage or deterioration requiring repairs is observed.
- 5. Replace isolation pads.

D. Platform Guard:

- 1. New extended platform guard to meet Code requirements.
- 2. Minimum 0.059" (1.5 mm) thick steel, or material of equivalent strength and stiffness.
- 3. Reinforced and braced to car platform.
- 4. Contractor's standard finish.

E. New - Guide Shoes: Roller type, with three or more spring dampened, sound-deadening rollers per shoe.

F. Finish Floor Covering: Provided new terrazzo flooring as approved by Purchaser.

G. Car Sills: Retain existing. Clean full width. Check and tighten all fastenings.

H. Car Door Panels: Retain existing with custom engraving.

- 1. Retrofit dual gibs, one at trailing edge and one at leading edge of each panel, removable without panel displacement.
- 2. Adjust vertical and horizontal clearances to meet Code requirements.

I. Door Hangers: Retain existing. Modify to include door retainer mechanism to address failure of primary upper door panel guidance.

- 1. Replace all rollers. Check and tighten all fastenings.

J. Door Track: Retain existing. Clean and sand for smooth, quiet operation. Check and tighten all fastenings. Retrofit means to prevent hangers from overrunning ends of track.

K. Door Header: Retain existing. Check and tighten all fastenings.

- L. New - Car Door Electric Contact: Prohibit car operation unless car door is closed.

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

- N. New - Restricted Opening Device:
 - 1. Restrict opening of car doors to Code required limit outside unlocking zone.
 - 2. Adjust for smooth and quiet operation with operating noise undetectable from inside any car or outside of the hoistway.
 - 3. Plunger type restrictors not acceptable.
 - 4. Utilize mechanical angle to prevent door opening.

- O. New - Door Operator:
 - 1. High-speed, linear drive, heavy-duty door operator capable of opening doors at no less than 2.5 fps.
 - 2. Accomplish reversal in no more than 2½" of door movement.
 - 3. Solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current.
 - 4. Maintain consistent, smooth, and quiet car door operation at all floors, regardless of door weight or varying air pressure.

- P. New - Door Reopening Device:
 - 1. Black fully enclosed infrared device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7'-0" above finished floor. 3D beam device to detect approach from elevator lobby.

- Q. New - Car Operating Panel, Both Cars:
 - 1. One car operating panel with faceplate:
 - a. Consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car stationary front return panel.
 - b. Faceplates shall be hinged and constructed of satin finish stainless steel.
 - 2. Provide Exposed Pushbuttons to Initiate:
 - a. Car call registration.
 - b. Alarm.
 - c. Door open.
 - d. Door close.
 - e. Emergency push-to-call communication.
 - 3. Pushbuttons:
 - a. Provide minimum 3/4" diameter raised or flush floor pushbuttons which illuminate to indicate call registration.
 - b. Provide brushed stainless buttons with illuminated LED halo.
 - c. Include 5/8" high floor designation on face of pushbutton.
 - d. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
 - e. Identify buttons with cast stainless tactile symbols rear mounted.
 - 4. Locked Firefighters' Emergency Operation Panel:
 - a. Openable by the same key which operates the Fire Operation switch.
 - b. Including the following features:
 - 1) Phase II fire access switch.
 - 2) Firefighters' visual indication.
 - 3) Call cancel button.

- 4) Stop switch, manually operated.
 - 5) Door open button.
 - 6) Door close button.
 - 7) Floors served.
5. Service Compartment:
- a. Provide lockable service compartment with recessed flush door. Toggle switches shall be located behind a locked door keyed.
 - 1) Key with new YALE keyswitch key# 46614 or as directed by Owner.
 - b. Door material and finish to match car return panel or car operating panel faceplate. Include the following controls in car operating panel with function and operating positions identified by permanent signage or engraved legend.
 - 1) Access switch. New Yale Keyswitch.
 - 2) Light/Fan switch removable in all positions: New Yale Keyswitch.
 - a) Fan: three speed fan, four position switch.
 - 3) Independent service switch. New Yale Keyswitch.
 - 4) Test switch for battery pack emergency lighting.
 - a) Key with new YALE keyswitch
 - 5) 120-volt, AC, GFCI protected electrical convenience duplex outlet.
 - 6) Switch to select either floor voice annunciation, floor passing tone, or chime.
 - 7) Emergency stop key switch: :key should be removable in all positions; 7-pin Yale with removable core for MPPD. Key should be removable only in the normal locked position. Position the cylinder near the bottom of the pushbuttons with the key removable in either position and with one set of normally closed contacts.
 - 8) Code Blue key switch. New Yale Keyswitch
 - a) Provide Code Blue Jewel and Engraving
 - 9) Hoistway Access: New Yales Keyswitch
 - 10) Phone faceplate: Refer to Communication
- R. New - Car Top Control Station:
1. Mount to provide safe access and utilization while standing on car top.
 2. Operating device with Up and Down direction buttons, a Run button, an Inspection/Automatic switch and Emergency Stop switch.
 3. Operating device provides an audible and visible indicator that fire recall has been initiated.
 4. Fix station to the car crosshead or provide portable station provided the extension cord and housing is permanently attached to the car crosshead.
 5. The car will be operated by constant pressure on the appropriate directional button and the Run button simultaneously.
 6. Normal operating devices will be inoperative while this device is in use.
- S. New - Car Top Emergency Audible Signal:
1. Provide on top of each elevator.
 2. Activation of Alarm Button or Emergency Stop switch will cause Emergency Audible Signal.
 3. Provide auxiliary power supply to provide 1-hr. power in the event of loss of normal power.
- T. New - Work Light and Duplex Plug Receptacle:
1. GFCI protected outlet at top and bottom of car.
 2. Include on/off switch and lamp guard.
 3. Provide additional GFCI protected outlet on car top for installation of car CCTV.

2.11 COMMUNICATION

A. Car Communication System:

1. Hands-Free Phone System: Retain and reuse existing. Provide new hardware required for current code compliance including communication monitoring.
 - a. Two-way communication instrument in car with automatic dialing, tracking, and recall features, with shielded wiring to car controller in machine room. System includes:
 - 1) "Help" button on car operating panel to initiate two-way communication from Car. Button shall match car operating panel pushbutton design
 - 2) Auto dialer with automatic rollover capability with minimum two numbers:
 - 3) Adjacent light jewel illuminates and flashes when call is acknowledged.
 - 4) "Help" button tactile symbol, engraved signage, and Tactile marking adjacent to button mounted integral with car front return panel.
2. Intercom System:
 - a. Include the following devices:
 - 1) Intercommunication system complete with talkback speaker, required auxiliary equipment and wiring.
 - 2) Pre-amplifier and associated equipment required to receive input from building.
 - 3) Battery backup system capable of providing power for a minimum of four hours.
 - b. Master Stations:
 - 1) Concierge Desk/Fire Control Station: Include following devices:
 - a) Combination speaker-microphone.
 - b) Selector buttons for each station in system.
 - c) A button for simultaneous conversation with all stations in system.
 - d) Talk-listen button; press to talk, release to listen.
 - e) IN USE light to indicate when any master station is in use.
 - f) Reset Button; to disconnect call, extinguish in use light, and reset selection buttons to free system for next call.
 - g) Volume control.
 - 2) Machine Rooms/Control Rooms:
 - a) In each room connected with other master stations and all elevator cars.
 - b) In addition to devices specified for Fire Control Station, provide a loud audible signal to announce calls to this unit.
 - c. Remote Stations:
 - 1) Provide combination speaker microphone in each elevator car as specified:
 - 2) Connect with all master stations.
3. The device shall consist of a single pushbutton, automatic dialer with appropriate indicator lights, and all other essential features necessary to comply with ADA.
4. The emergency phone shall be Ramtel model RR833-OEM and be mounted flush on the back of a hinged door at the bottom portion of the in-car control panel and locked with a barrel key #EX513.
5. The communication device shall be as manufactured by Ramtel model RR833-OEM to match the existing elevator emergency communication system including remote location indicator and other existing features now in use.
6. A stand-alone flush box-type device is not to be used without approval of the Owner.
7. The face plate shall have, including but not necessarily limited to:

EMERGENCY PHONE
UNIVERSITY OF KENTUCKY

(include UK logo - Contact UK Public Relations for most recent logo updates)

Other information and instructions on the faceplate are as provided by the Ramtel communication device.

2.12 CAR ENCLOSURE AND INTERIOR FINISHES

- A. Unless specifically identified as "Retain," "Reuse," or "Refurbish," provide new equipment. Contractor may, with Consultant approval, provide new equipment in lieu of refurbishing existing
- B. Car Enclosure and Interior Finishes, Service Elevators: Retain existing car enclosure and provide new interior finishes. Provide to the Owner/Consultant for review, car interior designs, and finish selections.
1. Verify and document overall car weight prior to removal of any equipment from the existing car frame or car enclosure.
 2. Check and tighten all fastenings.
 3. Provide new interior finishes as specified herein and/or detailed on architectural drawings.
 4. Modify car enclosure for application of new signal and pushbutton fixtures.
 5. New cab weight including all new finishes to be verified following completion of modernization. Post modernization weight not to exceed code allowable limits.
 6. Provide the following features:
 - a. Enclosure: Retain. Apply sound-deadening mastic to exterior.
 - b. Front Stationary Return Panels: Retain. Refinish to remove signs of wear.
 - c. Entrance Columns: Reinforced 14 gauge satin finish stainless steel.
 - d. Transom: Reinforced 14 gauge satin finish stainless steel full width of enclosure.
 - e. Base: Retain existing.
 - f. New - Interior Wall Finish: Removable panels, interior wall panels shall be small-patterned Rimex Metals 5WL Color and finish as selected by Architect/Purchaser.
 - g. New - Flooring: New terrazzo flooring approved by Purchaser.
 - h. New - Ventilation: Three-speed type OE AA exhaust blower. Mount to car canopy on isolated rubber grommets. Exhaust blower shall meet noise requirements specified herein.
 - i. New - Lighting: LED fixtures with wiring and hookup. Coordinate with emergency lighting requirements. Provide emergency lighting integral with portion of normal car lighting system.
 - j. New - Suspended Ceiling: Nine-section stainless steel down light ceiling with brushed stainless steel panels.
 - k. New - Handrails: Minimum 2" stainless steel grab bar across rear and side walls. Return handrails ends to car walls.
 - l. New - Guardrails:
 - 1) Solid stainless steel flat stock bars, 4" x 3/8", mounted across side across rear and side walls.
 - 2) Locate guardrail line at 4 to 6" above the floor level. Bolt rails through car walls from back and mount on 1½" deep solid round stainless steel standoff spacers no more than 18" O.C.
 - 3) Return guardrail ends to car walls.
 - m. New - Pads and Pad Hooks: Three-piece removable pads. Two pads covering side walls and adjacent front returns and one covering rear wall. Provide cutouts to access main car operating panel.
 - 1) Provide a locked fireproof cabinet in the elevator equipment room for hanging storage of the pads.
- C. New - Top of Car Guardrail: Provide car top railings where fall hazard exceeds 12". Install guardrails, necessary hardware, and toe board to meet code requirements.
- D. New - Card/Proximity Reader Security Provisions:
1. Provide provisions for future installation of card reader in car.
 2. If directed by Purchaser, Mount reader unit inside car as directed by Purchaser and cross connect from car pushbuttons to control module in machine room.

- a. Reader control unit, mounting brackets, wiring materials, logic circuits, etc., provided by others.
3. Provide a filler plate to match card slot size and car return panel finish, including direction of graining, where card slot or proximity reader cutout is not initially utilized.

2.13 HALL CONTROL INPUT STATIONS

- A. New – Pushbuttons, Both Cars:
1. Provide riser with flush mounted enlarged faceplate to cover existing wall block out. Provide any cutting and patching required.
 2. Include pushbuttons for each direction of travel that illuminate to indicate call registration.
 3. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency as part of faceplate
 4. Pushbutton design shall match car operating panel pushbuttons.
 5. Provide vandal resistant pushbutton and light assemblies.
 6. Provide LED illumination.
 7. Provide Phase I Fire Service key switch, engraved operating instructions and illuminating jewel.
 8. Provide communication check failure indication and silence key switch.
 - a. Provide Yale Keyswitch
 9. Provide illuminating jewels indicating standby power status.
 - a. Refer to 2.15 Emergency Power Status.
 10. Incorporate all items required by Code at the primary egress level into hall station.
 11. Provide cut out for Code Blue Key switch.
 - a. Retain and reuse existing Code Blue Key switches
 - b. Coordinate with new faceplates
 12. All typical floor landing stations shall contain flush digital position indicators from C.E. Electronics in the hall station landing input station.
 - a. Displays will be required for each elevator car in group at every landing hall control station.
 - b. Engrave elevator ID, as approved by Owner, above each position indicator with three (3) position indicators required in each floor landing station.
 - c. Units are C.E. Electronics model # ME 205-RRR, segmented LED display, ½" high characters with directional arrows behind a 1 ½" diameter LN0511 lens.
 - d. Not required at main lobby where hall position indicator is provided with hall lantern.

2.14 SIGNALS

- A. New - Hall Direction Lantern, Both Cars:
1. Provide at each entrance to indicate travel direction of arriving car.
 2. Provide vandal resistant assemblies.
 3. Illuminate up or down LED lights and sound tone once for up and twice for down direction prior to car arrival at floor.
 4. Illuminate light until the car doors start to close.
 5. Sound level shall be adjustable from 20-80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor.
 6. Provide advanced hall lantern notification to comply with ADA hall call notification time.
 7. Provide advanced predictive hall lantern notification to comply with ADA hall call notification time.
 8. Provide adjustable car door dwell time to comply with ADA requirements relative to hall call notification time.
 9. Hall direction lenses shall be arrow-shaped with faceplates.
 10. Lenses shall be minimum 2½" in their smallest dimension.

- B. New - Hall Position Indicator:
 - 1. Main Lobby: Mount integral and in combination with hall lantern fixtures.
 - a. Alpha-numeric digital multi-light indicator containing floor designations and direction arrows a minimum of 2½" high to indicate floor served and direction of car travel.
 - 2. Typical floors: Mount integral and in combination with hall station.
 - a. Refer to Hall Control Stations for new position indicators located in hall stations.
- C. New - Car Position Indicator, Both Cars:
 - 1. Alpha-numeric digital indicator containing floor designations and direction arrows a minimum of 2" high to indicate floor served and direction of car travel.
 - 2. Locate fixture in car front return panel above each car operating panel.
 - 3. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway.
 - 4. Illuminate proper direction arrow to indicate direction of travel.
 - 5. Provide vandal resistant indicator and light assemblies.
- D. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.
- E. Voice Synthesizer:
 - 1. Provide electronic device with easily reprogrammable message and female voice to announce car direction, floor, emergency exiting instructions, etc.
 - 2. Once the doors close, the destinations remain illuminated until the car approaches the next destination floor, whereupon the floor numeral or light flashes and the audible signal sounds to denote the next stopping floor.
 - 3. When the doors open, Destination Indicator displays the next floors to be served.
- F. Fixture Faceplate Material and Finish:
 - 1. Satin finish stainless steel, all fixtures.
 - 2. Tamper resistant fasteners for all public facing fastenings.

2.15 EMERGENCY POWER PANEL

- A. Emergency Power Selection:
 - 1. Provide group selection key switches.
 - a. Switches shall be labeled "ELEVATOR EMERGENCY POWER" with positions marked "AUTO" and appropriate car numbers controlled by each respective switch.
 - b. Key shall be keyed the same as from the key utilized for firefighters' Phase I and II keyswitch. Key shall be removable in "AUTO" position only.
 - c. Provide "EMERGENCY POWER" indicator lights, one per car.
 - d. Indicator light illuminates when corresponding car is selected, automatically or manually, to operate on emergency power.
 - 2. Provide all wiring and conduit (materials and labor) to interconnect elevator controls between machine rooms or controller rooms. Coordinate wiring routing path and logistics with Purchaser.
- B. Firefighters' Key Box: Flush-mounted box with lockable hinged cover. Engrave instructions for use on cover per Local Fire Authority requirements.

PART 3 - EXECUTION

3.1 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Inform Purchaser and Consultant of any irregularities in writing prior to commencing work.
- C. Do not proceed with installation until work in place conforms to project requirements.

3.2 INSTALLATION

- A. Install all equipment as follows:
 - 1. in accordance with Contractor's instructions, referenced codes, specifications, and approved submittals.
 - 2. with clearances in accordance with referenced codes, and specifications.
 - 3. to be easily maintained and/or removed.
 - 4. to afford maximum accessibility, safety, and continuity of operation.
- B. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Machine room equipment, and pit equipment.
 - 3. Neatly touch up damaged factory-painted surfaces with original paint color.
 - 4. Protect machine-finish surfaces against corrosion.
- C. Paint machine room and pit floors.

3.3 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Perform complete "Acceptance" level pre-testing as specified in the latest edition of ASME A17.2 "Guide for Inspection of Elevators, Escalators, and Moving Walks" prior to AHJ witnessed acceptance testing. Complete any adjustments, repairs, or replacements necessary to achieve code compliant operation including but not limited to:
 - 1. Car safety.
 - 2. Car emergency communications. Inform Purchaser and Consultant of any noted failures of Purchaser provided and maintained equipment or systems.
 - 3. Car and counterweight buffers.
 - 4. Phase I and II Firefighters' Emergency Operation. Phase I initiated by smoke sensing devices.
 - 5. Power car door operation including door closing force, reopening device, and restricted opening.
 - 6. Suspension members.
 - 7. Compensation members.
- C. Have Code Authority acceptance inspection performed and complete corrective work.
- D. Provide access to installed equipment and elevator personnel assistance for Consultants final observation and review requirements.

E. ADJUSTMENTS

1. Static balance car to equalize pressure of guide shoes on guide rails.
2. Verify that weights of existing or altered cars, counterweights, and compensation comply with traction machine manufacturers' requirements and do not exceed total weights indicated on approved submittals.
3. Lubricate all equipment in accordance with Contractor's instructions.
4. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.4 CLEANUP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials daily.
- B. Remove all loose materials and filings resulting from work.
- C. Clean machine room equipment and floor.
- D. Clean hoistways, car, car enclosure, entrances, operating and signal fixtures.

3.5 FINAL CLEANING

- A. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust, including walls, building beams, sill ledges, and hoistway divider beams.
- B. Care shall be to not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.
- C. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces which will remain visible after the work is complete.
- D. Paint machine room walls and floors.
- E. Paint pit floors.

3.6 MANUFACTURER'S WARRANTY

- A. Manufacturer agrees to repair, restore, or replace elevator equipment that fails due to defective materials or poor workmanship within specified warranty period.
- B. Warranty Period: 12 months from date of Substantial Completion:
- C. The Elevator Contractor guarantees that the materials and workmanship of the apparatus installed by them and any subcontractor, under this contract, is first class in every respect and that they will make good on any defects not due to ordinary wear and tear or improper use, which may develop within one year from the date of final acceptance of all equipment.
- D. Manufacturer's warranty to repair or replace defective products or their components in the event of defects within a specified period.

- E. Neither the final payment nor any provisions of the contract documents relieve the Elevator Contractor of any obligation provided by law. They shall remedy any defects and pay all expenses for any damage to other work.
- F. The warranty as outlined above, for all devices, starts from the date of final acceptance of each device, by the Consultant and the Owner, of all work specified and intended under these contract documents.

3.7 PURCHASER'S INFORMATION

- A. Provide electronic copies (flash drive or Consultant-approved equivalent) of written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received by Purchaser and reviewed by Consultant. Include the following as minimums:
 - 1. Straight-line wiring diagrams of "as-installed" elevator circuits with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Purchaser's property.
 - 2. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product-specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.
 - 3. Lubrication instructions, including recommended grade of lubricants.
 - 4. Parts catalogs for all replaceable parts, including ordering forms and instructions.
 - 5. Instructions explaining all operating features, including all apparatus in the car and lobby control panels.
 - 6. Maintenance Control Program documentation for all equipment.
- B. Provide Purchaser with the following:
 - 1. Any interface cards required for equipment maintenance, code mandated testing, and troubleshooting.
 - 2. Four sets of keys for all switches and control features properly tagged and marked.
 - 3. Diagnostic equipment complete with access codes, adjusters' manuals, and set-up manuals for adjustment, diagnosis, and troubleshooting of elevator system, and performance of routine safety tests.
- C. Acceptance of such records by Purchaser/Consultant shall not be a waiver of any Contractor deviation from Contract Documents or shop drawings or in any way relieve Contractor from his responsibility to perform work in accordance with Contract Documents.

END OF SECTION

Appendix 1

APPENDIX 1			
Elevator Monitoring Tridium Minimum Points List – UK MCPPD			
Point List	Point Type	Alarmable	Description
Floor	ANALOG INPUT	NO	Current Floor Card is on or floor being called to
Controller Power	BINARY INPUT	YES	Power condition of controller
Controller Communications	BINARY INPUT	YES	Communication condition of controller
Up Direction	BINARY INPUT	NO	Travel Direction
Down Direction	BINARY INPUT	NO	Travel Direction
Door Open	BINARY INPUT	NO	Door Open Limit
Door Closed	BINARY INPUT	NO	Door Close Limit
In Normal Service	BINARY INPUT	NO	Service Condition
Inspection Service	BINARY INPUT	NO	Service Condition
Independent Service	BINARY INPUT	NO	Service Condition
Fire Service	BINARY INPUT	NO	Service Condition
Door Disabled	BINARY INPUT	YES	The doors appear to be disabled for use.
Emergency Power	BINARY INPUT	YES	Power condition of controller
Safety Circuit	BINARY INPUT	YES	An electrical contact wired in the main safety circuit is open. Car will not run. May be a temporary condition.
Door Fully Open and Locked at the Same Time	BINARY INPUT	YES	The doors appear to be locked and fully open simultaneously.
Bypass System Fault	BINARY INPUT	YES	Either the car door or hall door bypass switch (or circuit) has failed.
Door Lock Relay Fault	BINARY INPUT	YES	Either the car gate or the hall door relay (or input) has failed.
Door Zone Relay Fault	BINARY INPUT	YES	The door zone relay (or input) has failed
Emergency Stop Relay Fault	BINARY INPUT	YES	Either the GTS or GTSX relay has failed.
Inspection Switch Fault	BINARY INPUT	YES	An Inspection switch or input has failed.
Level Relay Fault	BINARY INPUT	YES	The LVL relay has failed.
Stop Relay Fault	BINARY INPUT	YES	The STOP relay has failed.
Door Lock System Fault	BINARY INPUT	YES	Either the car gate or a hall door lock has been shunted.
Governor Contact System Fault	BINARY INPUT	YES	The overspeed governor has activated.
Front Door Limit System Fault	BINARY INPUT	YES	One of the two front door limit switches has failed in the open state.
Rear Door Limit System Fault	BINARY INPUT	YES	One of the two rear door limit switches has failed in the open state.
Contactor Drop System Fault	BINARY INPUT	YES	Contactor proofing fault (a monitored contactor did not drop as expected).
Unintended Movement System Fault	BINARY INPUT	YES	The car has left the floor with doors open.
Car Stop Bypass Relay Fault	BINARY INPUT	YES	The CSB relay has failed.
Drive Fault	BINARY INPUT	YES	The drive has declared a fault (or the DDRV relay has failed).
Down Relay Fault	BINARY INPUT	YES	The D relay has failed.
Up Relay Fault	BINARY INPUT	YES	The U relay has failed.